Piano Technicians Journal

May, 1984

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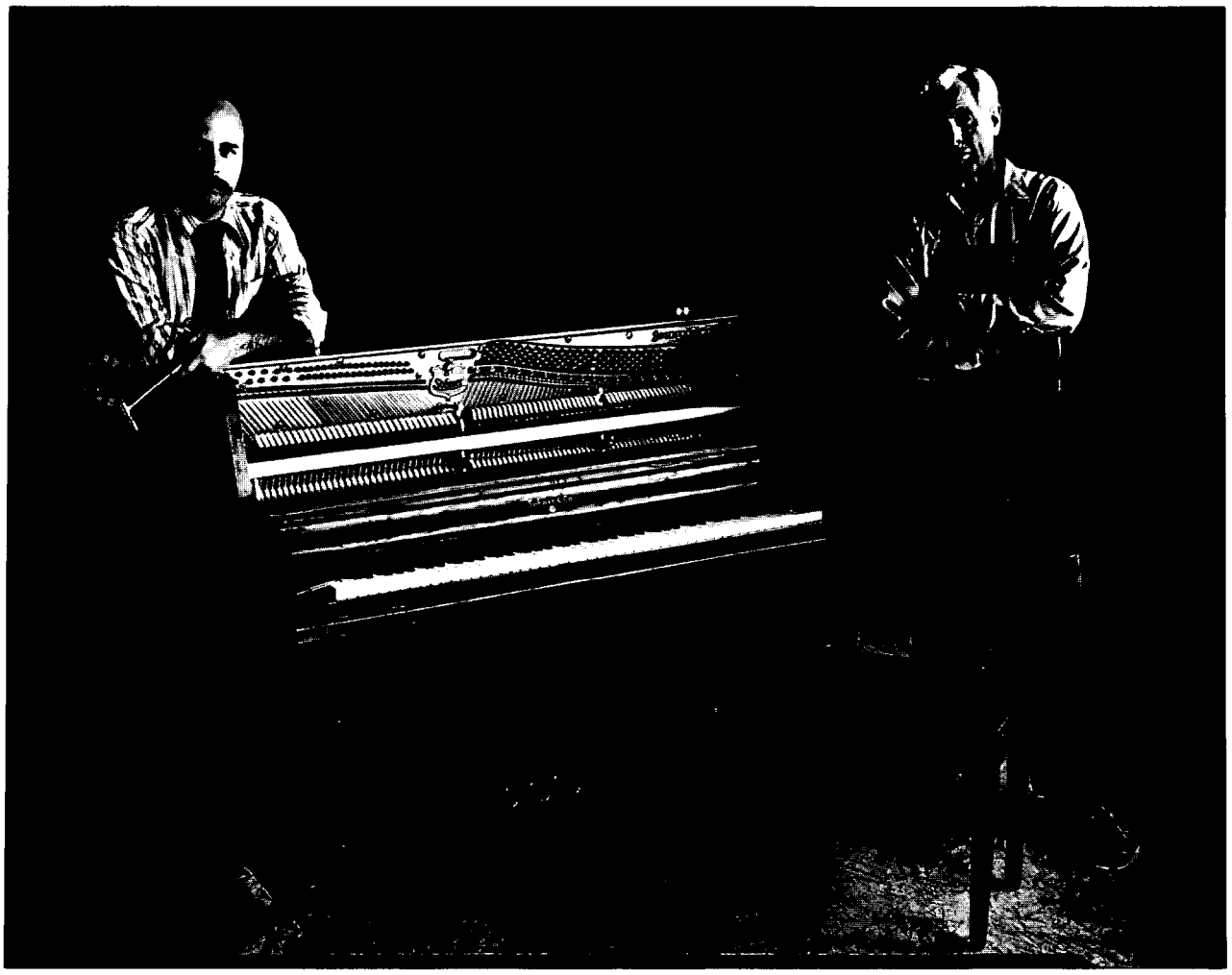

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Piano Technicians Journal
Official Publication of the Piano Technicians Guild

May 1984
Volume 27, Number 5

About the cover:
Three grand wippens, top to bottom: the Baldwin Regular, now also used in some Pratt Read actions, the Steinway with its butterfly spring, and the Schwander-type with auxiliary lifting spring on the flange.

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Invest pennies and receive dollars in return. With each succeeding year, our national conventions have become more constructive in progress, more practical and more prolific of results, and they have been increasingly larger in numbers with corresponding increase in interest and enthusiasm. This is as it should be. Progress comes only through experience.

Those who will attend the convention this year (in Indianapolis) will have the accumulated benefits of (over half a century of) intelligent experience in the handling of questions and problems which affect the welfare of piano tuners as a whole. Problems will demand attention which are more vital than have ever been presented before, and for their solution the best thought in the tuning profession will be needed. The tuning profession must be perpetuated. No one is more intimately concerned than YOU, nor will anyone than you receive more benefits; consequently, your contribution to the solution to these will be as helpful as anyone else's. Be wise and begin your preparation right now.

Put aside a little each week for the trip. An extra tuning a week, even for those who live at a distance from the convention city, should be more than enough to cover all expenses. Begin NOW to make your plans to attend.

The President's Perspective

Ernest Preuitt
President

Invest Pennies, Receive Dollars

The above words are not mine, though the sentiment is. This is a message from Anson D. Overdorff, as printed in the February 1953 *Tuners Journal*. This gentleman was vice president of the National Association of Piano Tuners and managing editor of the *Journal* 30 years ago. I did not know Mr. Overdorff, but I have read much about him and greatly admire him for what he has done for the piano tuning profession.

His words are as true today as they were 30 years ago when he penned the foregoing paragraphs, where he states that *you* play a direct role in the success of the convention. *You* as individuals *are* the convention. All the planning and management, all the social activities, teaching and friendly get-togethers, will be naught without *your* being there and taking part.

Yes, it also is a *duty* you must not evade, for if you are a member of this organization, you are in a sense obligated to be a part of its success, and the greatest help you can offer is through your attendance. If you are not a member, you also have a *duty*, and that duty is to yourself. In no other place will you be associated with such a distinguished and knowledgeable group of people as in Indianapolis this July. This is not only something you owe to yourself, but to your customers also.

I have heard it stated several times that Indianapolis is not a very exciting town, that the only thing it has going is the Indy 500. I disagree. Indy has as much going for it as Chicago, New York, Portland or even Independence, Mo., my hometown. For excitement is people — people living there and people visiting there.

It's exciting preparing to attend convention. It is interesting traveling, whether by air, highway or even by rail. It is thrilling when you arrive and, best of all, it is educational while you are there. And when it is over, the memory and the benefits will last forever.

For more than 20 years, the annual convention has been my highlight for the year. It will be even better this year if I see *you* there.

Executive Director's Message

Barbara Parks
Executive Director

On Professionalism

I have a friend who is a nurse. She's quite serious about her professional career, and she belongs to several professional societies.

Her pet peeve is a type of nurse she calls "couch nurses," a type of person who either does not have to work or does not want to. They work sporadically, usually only "until the new couch is paid off." They are not serious about their profession, treating it only as a way to earn a few extra bucks.

Nurses as a group are notoriously ill-paid. (One might make the same case for piano tuners and technicians.) They perform a vital function and, generally speaking, do it very well. Those who are serious about it (and these people, happily, can be found in any profession) recognize that a raise in income cannot be had simply by asking for it. It must be earned, even purchased, by an equal increase in value, in professionalism.

While couch nurses undoubtedly complain about the low wages, they do nothing to improve their lot. It's easy to accept low wages and poor working conditions when you know that you'll be able to walk away from them in a few months. It's also easy to justify not reading technical publications and staying up on the latest developments in the profession.

These people already owe a lot to their profession and they give nothing back to it, my friend rages. They are not active in professional groups (unless a new couch needs to be paid for and they need a job) and they do little if anything to improve the image of nursing as a profession. In fact, by accepting poor working conditions, leaving their employer in the lurch as soon as their new piece of furniture is paid off and generally presenting a negative image, they damage the reputations of the thousands of highly professional, well-educated and hard-working people in the field.

Couch nurses can be found in any profession. Their focus is strictly on themselves. They either don't recognize or don't care about the fact that they are a drag on those who do their jobs well just as surely as the real professionals in the field make it possible for them to have a job and be treated better than they really deserve.

It's easy to snicker about the lousy job done by the last guy who worked on a particular piano. It's okay to feel good about the fact that you set things right, did a good job and made the customer happy. But whether you accept it or not, that guy stole something from you!

He made everyone in the business look bad. Your customer may now be confident in your abilities, but suppose he or she moves to a new town. The piano will still need maintenance, and the customer will remember both you and the guy who didn't deliver. He or she may feel that there's at least a 50 percent chance that the next person who works on that piano won't deliver either.

The point is not that you should pick a profession, stick to it rigidly and work at it full-time. That's not always possible or even desirable. The point is that when you do a job, there's more on the line than your fee. Your reputation, and by extension the reputation of everyone else in the business, is at stake, too. Even when we're competitors, we're all in it together.

The International Scene

Fred Odenheimer
Chairman, International Relations Committee

All of you who decided to stay home while we are enjoying ourselves in England will just have to wait for another chance. (A trip to the Pianoforte Tuners' Association Convention in Southport, England, and a tour of England, Scotland and Wales are scheduled for early May.) This chance will probably not come for another two years, since in 1985 we are host to the International Association of Piano Builders and Technicians convention in Kansas City, Mo.

Now since you saved so much money by not going on our British tour, how about investing $15 (yearly membership) to become a "Friend of I.A.P.B.T." and helping our effort next year. Send your check to the Home Office in Kansas City and you will receive a membership card.

A magazine we have not seen before reached us today from England: *Piano Tuners Quarterly.* The issue was Volume 30, #2, so it is not a new magazine.

It was accompanied by a letter from Christopher Bridgman, Windsor, who is the editor. He told us that the magazine also is published in braille and cassette formats for blind tuners.

He writes, "I have taken subscriptions to the *Piano Technicians Journal* and to products from other countries as I believe that an international exchange of knowledge and ideas helps us to progress toward better service and credibility to piano buyers and owners.

"I note that your proposed British tour takes in my home town of Windsor. I wondered whether it would be possible for me to meet you or interested members of your party to discuss the British scene and how things differ in America, with a view of writing an article in our magazine. Please contact me as soon as you can if the idea appeals to you."

We certainly will make an effort to meet him and exchange ideas and will probably talk shop, since Mr. Bridgman is a "Certificated Piano Forte Tuner and Repairer."

THE
TECHNICAL
FORUM

Sharing The Knowledge

Jack Krefting
Technical Editor

One of the problems faced by technicians and piano builders is the lack of technical literature, at least in comparison with other fields. There are textbooks, to be sure, but these tend to be either woefully inadequate or hopelessly pedagogical in approach. The reader finds himself insulted by the make-it-work-any-way-you-can-we're-here-to-give-service approach, or intimidated by the math and pomposity of the German literature, much of which refers to obsolete designs anyway.

What we need, I think, is a practical approach that is based on sound academics but yet is understandable to all. The body of knowledge upon which the American piano industry is based is largely unwritten. It is stored in the heads of a select number of people.

Why this information has not been published is a rather complex topic in itself, probably due as much to the lack of literary skills on the part of many great technicians as to conflicts of interest with respect to their employers. Non-factory people have to take their share of the blame for this, too, because until recently most technicians treated piano technology as though it were a black art, something to be cloaked in mystery. If the technicians themselves didn't want books published for fear others would be able to learn their craft, why should the factory people bother?

Now that these attitudes are changing, we find that the manufacturers are no longer training people in all facets of the craft, at least not in this country. Union work rules may have had something to do with that, as well as the greatly increased mobility of employees — why train someone to a point where they can do without you? — but much of the impetus has come from the change in value, relatively speaking, of labor versus material. There is just no way, for example, that the old four-piece Chickering pinblock could be economically feasible today because it is too labor-intensive and labor costs too much.

Whether we like it or not, the age of specialization is upon us, and the average factory worker is taught little or nothing about related topics. The only ones to receive anything approaching complete training are the select few who are supervisors and have been handpicked to become plant managers. Even those are becoming increasingly rare because of the modern tendency to select managers from the ranks of engineering or management trainees rather than from the factory work force.

One of the last of the dying breed of fully factory-trained technicians is Cliff Geers, who resigned as superintendent of the Baldwin grand factory in 1970 when manufacturing was moved out of Cincinnati. Cliff had started in 1935 at the bottom, cleaning strings and polishing ivories, but because of unusual diligence he attracted the attention of Ed Schneider, then the plant manager. Schneider decided that young Geers was worth extra effort and training, so he moved him from department to department every year or so, giving him experience in every aspect of the art. Over the years, many of us have learned much from Cliff, and will in turn be called upon to train others. Then those others will train yet another generation. The question is, will the quality of instruction be maintained when knowledge is passed on like folklore? Probably not.

Douglas Ray Neal, the principal instructor of piano technology at Western Iowa Tech, has been concerned about this for some time, and has offered to transcribe some of the lectures given at PTG seminars, with particular emphasis on classes taught by our older members. Doug's first effort is a transcription of a class given in 1979 by Geers. We present it in this issue, and invite comments from readers.

Multi Purpose Tool Contest

Our next entrant in the contest is Carl Root of the Washington, D.C., Chapter. His entry is illustrated in *Figures 1* and *2*, which show the tool in two of its uses; *Figure 1* illustrates Carl's method of setting vertical letoff, and *Figure 2* shows the use of the tool when traveling shanks. Here's Carl:

Here's another serious all-purpose tool that is simplicity itself. Mill a piece of hardwood to the following dimensions: ¼ inch by 1¼ inch by 14 inches. You now have a straightedge for leveling keys. It will cover two octaves and still fit in most tool boxes. You can also rub out strings, use it as a cutting board for felt and leather and keep pets and small children away from your tool box!

It is most useful, however, as a let-off gauge in verticals. Place the back edge against the hammer shanks just under the tails and the front edge against the hammer rest rail. There is enough friction to

allow fine adjustments such that the hammers in a section are now, let us say, 1/8 inch plus 1/32 inch off the strings. The keys are now much easier to activate, the let-off buttons are easier to see and more accessible, but most important, if each hammer now "winks" 1/32 inch off the gauge, you have exactly 1/8 inch let-off! I promise you greater accuracy in half the time — and you can sit down!

One more use: to travel grand shanks, place your straightedge flat against the back of the wippens or on top of the hammer rest felt. Place a small square (I use a one-inch by 1½-inch by 1½-inch block on the rail up against the side of the shank. Gaps of a few thousands of an inch are easy to see with a good light when traveling the shank.

Vertical Rebuilding

If the hammer butts are off the rail, whether for reconditioning or replacement, by all means take advantage of the golden opportunity to renew the damper system without interference. Remove the hammer rail by bending the bass hook toward the treble and sliding the rail to the left and out. Remove the hammer spring rail or damper stop rail, whichever is applicable. The wippens may or may not be on the rail at this point, depending on what is being done to them, but at least one "test wippen" from each section should be installed so that the initial damper lift bend will be within tolerance as discussed last month.

Check the side-to-side damper wire bends and correct as necessary. The lower bend is altered to center the damper block to its unison, and the upper bend is altered if necessary to make the damper block parallel to the angle of the strings. If the dampers are already well-placed in a side-to-side plane, this step may be omitted.

We are assuming that by now the old damper felt has been removed, that new material has been selected and the optimum damper height established, as discussed last month. If in doubt, temporarily place a few dampers into position without glue, letting the spring tension hold the felt against the strings, and check for harmonics, hammer clearance and other potential problems before proceeding. Test hammers may be installed at the strike point, also without glue, to be sure about this. As a matter of fact, if new hammers are to be installed factory-style, now is the time to establish the proper shank length. For this reason, we will now begin our hammer discussion even though we are not quite ready to leave the dampers.

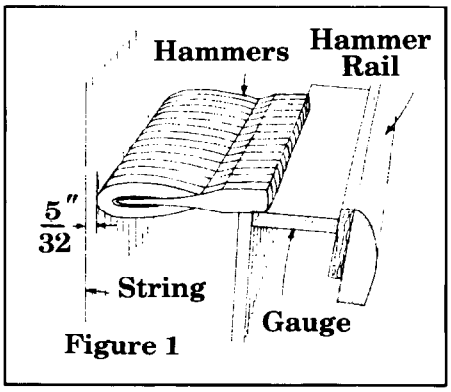


Figure 1

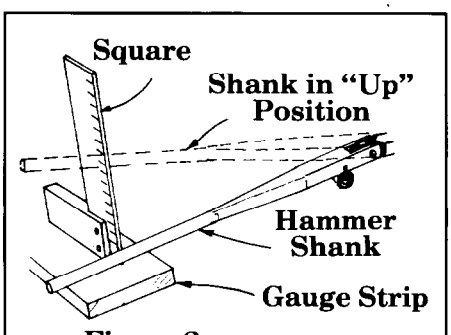


Figure 2

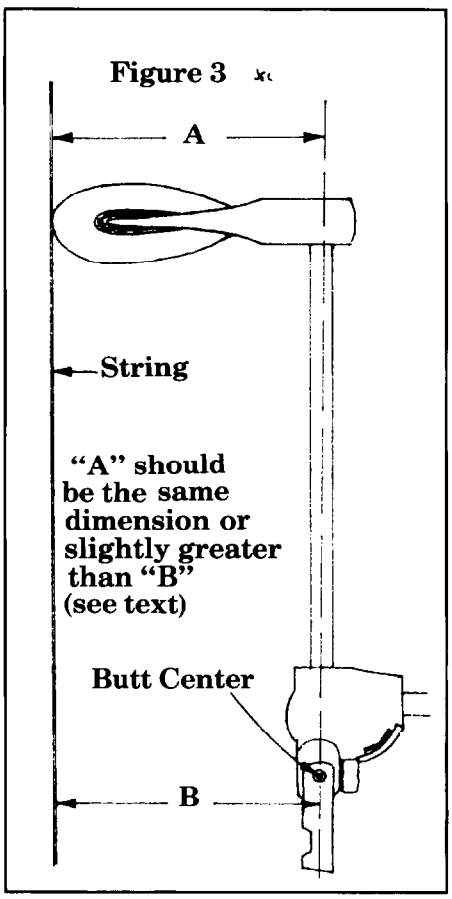


Figure 3

Figure 3 illustrates a general rule of thumb to use when ordering or boring a set of hammers. It is especially useful when the maker is out of business and the hammers are so worn down that it is difficult to estimate the boring distance. With the action in the piano, measure the distance from the hammer butt centerpin to the face of the string in the mid-treble part of the scale. That distance, plus 1/32-inch to 1/16-inch to allow for rake and filing, should be the correct boring distance.

The rake, illustrated in *Figure 4*, represents one more compromise necessary in piano making. We would prefer to have the hammer strike the string without over- or under-centering; that is, that the centerline of the hammer molding be perpendicular to the string. Unfortunately, that isn't possible under all conditions. On a hard blow, there is rather severe whipping of the shank, which causes the hammer to strike slightly higher on the string than it would on a soft blow.

Manufacturers have found that by boring a slight rake, usually only a degree or two from perpendicular, the hammer/shank assembly is stiffer without adding mass—added mass increases the woody knock sound at the attack—so there is less of a change in strike point from a hard blow to a soft one. This supposedly also provides for a perpendicular strike on a hard blow, although that is still subject to variations such as the force and speed of the blow, the amount of thinning done to the shank, the direction of the shank grain, and, of course, the fact that the string angle varies with the crown on the soundboard. There is, then, no optimum rake angle for all conditions, so the rebuilder would be well advised to reproduce the original angle unless there is an obvious and compelling reason to change.

Although hammers can be ordered bored to stock specifications, in almost every instance it is better to do your own custom boring. All that is required to do this work, other than the know-how, is a

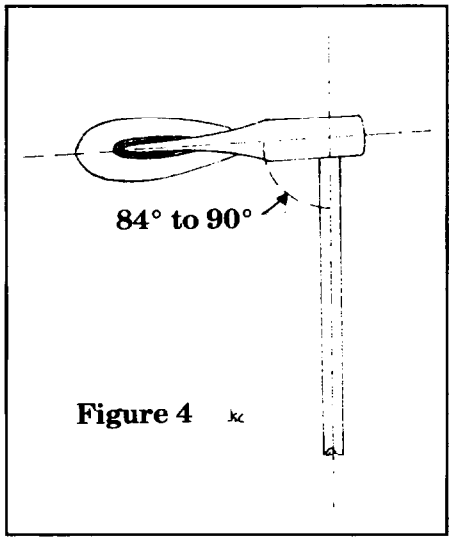


Figure 4

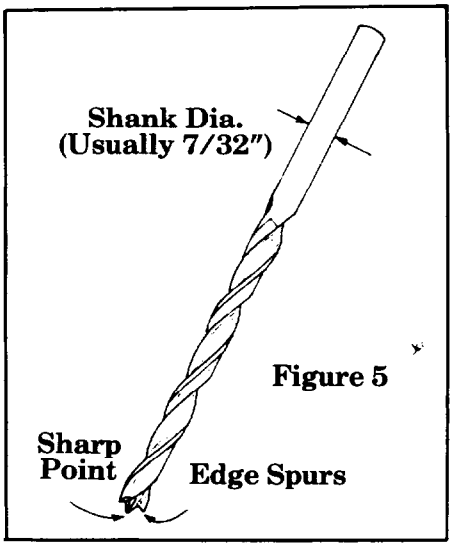


Figure 5

ing jig and a spur drill bit as shown in *Figure 5*. Note that in addition to the spurs on the edges of the bit, the tip is ground to a sharp point when boring vertical hammers. The edge spurs ensure a clean, splinter-free cut on any hammer, but since vertical hammers are not bored all the way through, we need to set the stop on the drill press so the tip will just break through the molding, allowing air and excess glue to escape when the shank is glued to the hammer. Some technicians prefer to use a standard brad-point drill and then follow up with a #60 drill for the relief; this works just as well but requires an extra machining operation, so it is a bit more time-consuming.

Sort the new hammers into sections, discarding extra hammers at random but not at scale breaks, and no more than one every six or eight hammers. The extras can be saved for spot replacement, or to experiment with the boring angles or both. Number the hammers on the underside of the moldings, and start with number 88. Drill the top section—the top two sections in a four-section piano—without a side angle, assuming that the strings are straight up and down. In the middle section, start the angle boring, changing just a degree or so at a time to match the string angle as much as possible. If this is your first vertical hammer boring job, by all means take the extra time to chart the string angles every five or six notes as shown in *Figure 6*, or even every note in the tenor if desired. Remember, we cannot make minor angular corrections by reaming as we could on the grand, so the boring angle is much more critical on a vertical piano.

On most vertical pianos it is possible to bore all tenor hammers to the correct angle without interference between hammers. The bass, however, is often strung at such an angle that the hammers must be bored to a compromise angle. While certainly not the ideal situation, this is considered permissible. The precise strike point is difficult or impossible to ascertain in that part of the scale anyway, and we would not want to radically shorten the strings or place the bass bridge too close to the bottom of the soundboard just to be able to bore the hammers to the ideal angle.

It goes without saying that the boring must be done with a jig and a drill press. If these aren't available, the technician would be wiser to use custom- or stock-bored hammers, even though the angles won't be quite right, so long as the stock boring distance is within 1/16 inch or so of the optimum dimension. It would be informative and interesting to discuss the relative merits of the various boring jigs now available, but since we know of only two such devices, we will wait to hear from our readers on this. Those who have boring jigs for sale—or plans for same—are encouraged to submit photos or drawings for publication.

When all hammers are bored, glue the shanks into the hammers with hot hide or Titebond or some similar glue. Inspect all shanks visually and by bending, discarding any that bend too much or that break when bent slightly. The former are called "rubber shanks." They bend more than normal because of short grain—that is, the dowel was not cut exactly parallel to the length of the log, so the grain is not continuous from end to end. Those that break easily would have broken in service anyway, and should be discarded now.

To add strength and minimize whipping, orient the grain of the shank so the edge grain is facing fore and aft. Dip each shank into the glue and twist it into its hammer molding so the glue is evenly applied and a neat glue collar is left around the shank. When using hot hide glue, use one of the higher grades (A Extra, S1 or higher) for a thicker collar and short working time, a lower grade (V2 or J1) for better flow and longer

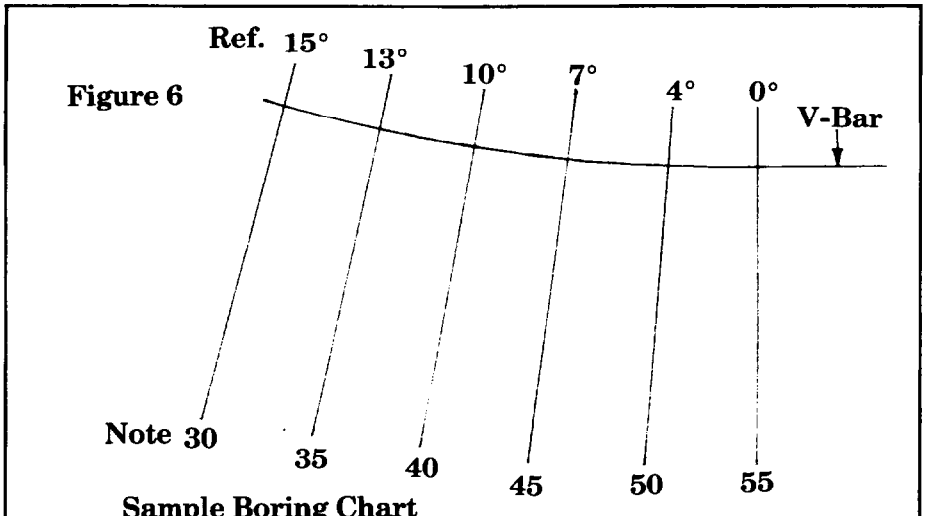


Figure 6

Sample Boring Chart

Note	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
Angle	15	15	14	14	13	13	12	11	11	10	10	9	8	8	7	7	6	6	5	5	4	4	3	2	1	0

assembly time, or J2 for a compromise between the two. We have some choice here, as opposed to grand hammer hanging where the higher grades are necessary because of the need to fill gaps caused by reaming.

The shanks will be too long now—or at the very least we hope they won't be too short—so we need to establish the strike point by cutting off the bottoms of the shanks until they are just the right length. Scribe a centerline along the bass side of hammer 88 and dry-fit it into its butt. Put the hammer up to the strings and measure the vertical distance between its centerline and that of the V-bar. *The centerline of the hammer should be below the centerline of the V-bar by a distance of 1/16 of the speaking length of the unison.* On most pianos, the speaking length of note 88 is about two inches, so the optimum strike point is about 1/8 inch below the V-bar centerline.

When the bottom of the #88 shank has been cut to proper length, the other 87 shanks should be cut to that length also. Devise a holding caul that uses the *hammer centerline* as a reference point rather than the top surface of the felt or the molding. Otherwise the shanks in the tenor and bass will be cut too short. Remember also to leave the low tenor shanks longer if the original scale had a raised strike line at the break.

Now dry-fit several sample hammers, at least at the ends of the sections, to be sure of getting the best damper position. We will conclude damper and hammer settings next month in this section.

Key Bushing Removal

Q *When removing bushings from keys, I have encountered two types of glue that hold the bushings in place. One type I know is hot hide glue. When steamed it comes out with very little effort. The second type is white. It becomes rubbery when steam is applied and sometimes seems almost impossible to remove...the question is, what kind of adhesive is this, and what is the best procedure for removing bushings installed with it?*

Steve Grega
New Jersey Chapter

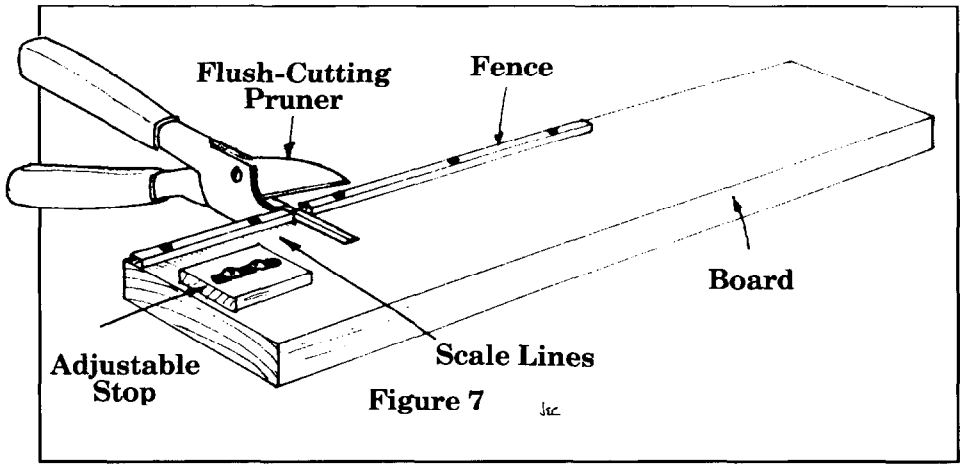


Figure 7

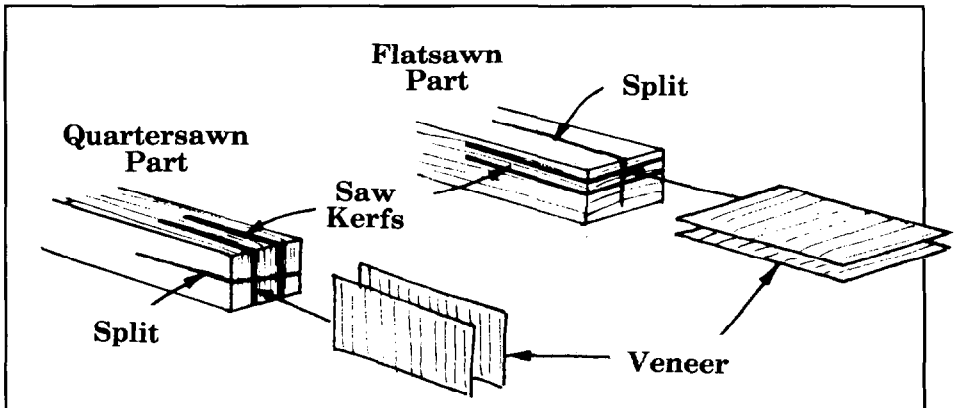


Figure 8

A I believe the type of glue being used widely in this country is a polyvinyl acetate (PVA). The best way to remove it is with dry heat, not steam. Experiments have shown that dry heat is almost as effective against PVA as steam is against hot hide, and that the application of other solvents is ineffective.

Gadget of the Month

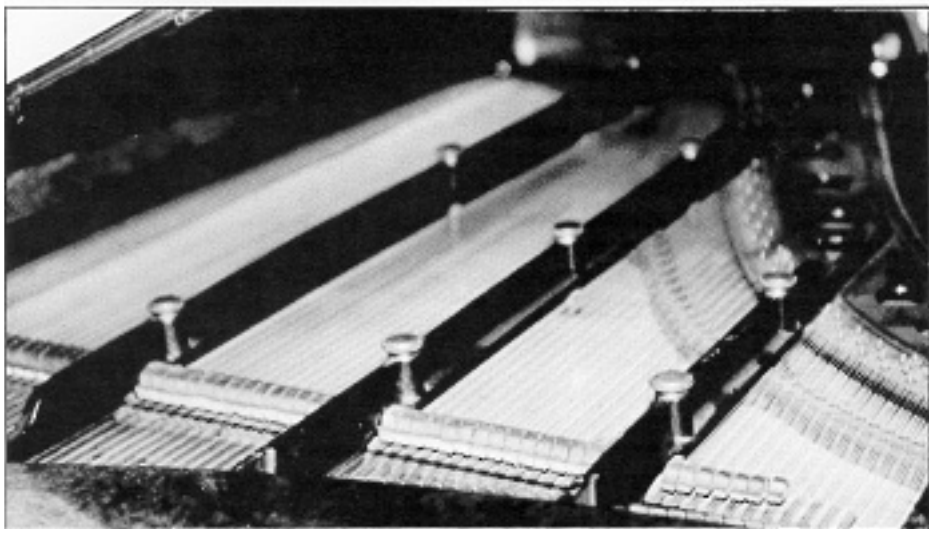
We should probably preface this by saying that it sounds improbable that a pruning tool could do a nice job of cutting damper felt. I have to admit to a lot of scepticism when I first heard the idea, but as a hand-held alternative to the guillotine it does amazingly well, especially as a tool to be carried into the customer's home. One of our readers has carried this one step further, attaching it to a board with fences, stops and scale markings as shown in *Figure 7*. Here's our correspondent:

Have you found pre-cut damper felt does not always fill the bill? Have you tried cutting tools that did not live up to your expectations? This one might, and is easily constructed.

Start with a Sears anvil cut pruner (#86465) or other similar pruner designed for flush cutting. Use a two by six or other suitable board stock cut to approximately 24 inches. At three to four inches from one end, make a relief cut halfway through the board. The Sears model required a 1½-degree-angle offset on saw cut on both sides due to a tapered jaw on the anvil side. Make the fit as tight as possible and flush with the base. (A hole could be drilled in the pruner and at the front of the board with a rod inserted for positive holding.) Add a guide fence on the same side as your relief cut, and a slotted block above the cut. On the base, measure out in ⅛-inch increments and mark on the base above the relief cut. Insert screws and washers on the slotted block and attach it to the base for width adjustment. With pruner in place, you can cut damper felt to exact dimensions.

Mark Ritchie
Columbus, Ohio Chapter

Photos submitted by Don Flippin



Unusual Piano

Don Flippin of Memphis sends the accompanying photos of an interesting old piano. It is a Collard & Collard, serial number 10068, made in London for Peterson Sons & Co. It is seven feet in length and has an 85-note compass.

It is straight-strung, with single strings on notes one through five, two strings per note through C40, and three on up to A85. The strings are bent around hitchpins as in modern pianos, not tied singly, and it has agraffes almost all the way to the top.

Don didn't mention the type of action it has, but presumably it is a typical English single-escapement type with hammerflanges mounted on a rail. One of the more remarkable features is the keyboard, with its rounded sharp fronts and correspondingly rounded natural notches.

Tech Tips

Vince Mrykalo of the Utah Valley Chapter suggests the following:

For what it's worth, I thought I'd pass along a nice repair for cracked butts on grand hammer flanges when replacing parts is not an option. This is not my own idea, but one I got when I was working on a piano and discovered the repair on several flanges. Two kerfs were made with a hacksaw blade perpendicular to the split (See *Figure 8*...ed.) *and then small pieces of veneer were glued into the kerfs. The veneer is trimmed up, and the repair is complete.*

Bob Waltrip, a reader from Arizona, writes:

On a grand piano, if key-to-damper lift is in proper regulation, a fast and easy way to set the damper stop rail is to depress an end key in each section and prop the damper up at the raised position with a rubber mute. Then pull the action and set the stop rail just a hair above that. A fast and easy way to cure a "bouncy" action and delight a customer.

Waltrip goes on to say that one of his favorite tools is a manicurist's emery board, because it's cheap, disposable and useful for many things without taking up a lot of room in the toolcase. His favorite use for the emery board is in sanding foreign material off buzzing damper felts.

Our thanks to this month's contributors. All technical material for publication should be sent to me at this address:

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Grand Hammer Hanging

By Cliff Geers
Transcribed by Douglas Ray Neal, RTT

Editor's note: This article is a transcription of a 1979 class conducted by one of the masters of the profession, Cliff Geers, in Sturbridge, Mass. It was transcribed and edited for publication by Guild member Douglas Ray Neal, RTT.

GEERS: We are here as technicians, so if you want to add something to the class, or if you want to ask a question, you should speak right up. Don't wait till the end of the class. Let's get involved, and we'll do this class together.

We're going to install a new set of hammers here today. When we check old hammers, we often find that the striking points are not correct. If the striking points need to be corrected, it is best to correct them at the hammer line.

The striking points have to be exactly right. If you are off a 64th of an inch on the number 88 note, that's too much. You have to be dead on. The striking point is the most exact thing that you can get. You can hear the striking point less and less as you go toward the bass. You can hear it down to about note 64. If the break of this piano is at note 64, we will set hammer number 64, along with hammer number one and hammer 88, according to what we hear for a striking point. This means that we will have a hammer line that runs from note 64 to 88 in a straight line, as far as center line is concerned, and from note 64 to number one, as far as center line is concerned. We want to get it as exact as we can, and we want to do it as fast as we possibly can.

"The striking points have to be exactly right. If you are off a 64th of an inch on the number 88 note, that's too much. You have to be dead on. The striking point is the most exact thing you can get."

We'll take the treble keyblock out and pull the action out. The 88 note of this piano is hitting right on the V-bar, so we know that's wrong. We're going to move the action back in until we hear the clearest sound. That doesn't necessarily mean the loudest sound, but it must be the clearest sound you hear. If we want our hammers to go farther back into the piano, we can lift up the front of the key frame. What I am doing is raising and lowering the front of the key frame. This causes the hammers to go forward and backward. Listen to the difference in sound that we get from one extreme (too far forward) to the other (too far back). Once we have determined where the correct striking point is, we'll take a small square, put it down on the side of the case on the frame, and mark on the keybed. We also mark the side of the frame. Where those two marks line up is where the action

should be set for the correct striking point. Then we take the keyblocks, put them in the piano, and have the frame move to where the keyblocks take it. Whatever the difference between the line on the frame and the line on the bed is how much you would adjust the setting of the hammer. We'll measure exactly where the new setting should be, and we'll write that measurement on a card that will stay with the piano. We'll note the difference between where the hammer is presently set and where it should be set for hammer 88 and for the break hammer.

CLASS MEMBER: You are talking about listening to the sound and doing this measurement before the old hammers have been removed?

GEERS: That's right.

CLASS MEMBER: Let's assume that the old hammers are coming off because they are flat. Is the kind of tone you get from a flat hammer going to have a bearing on what you hear for a strike point?

GEERS: It probably will not make a difference on number 88, but it definitely will on number 64. If you have a hammer that is flat across the top, your striking point is as wide as the top is flat, so you should file the hammer to the correct shape to get an exact center line on it.

Suppose the number 64 note is off as far as striking point is concerned. That means that we would put a mark on the string where the exact center of the hammer comes in contact with the string. As far as sound is concerned, the correct striking point of the hammer that we're working with now would be a 16th of an inch farther back, so that is where we will put the new hammer. A straight hammer line doesn't mean anything if it isn't the correct sound. So, I'll go to the piano, find out where the correct striking point should be, and then I'll hang my new hammers as far out on their shanks as they have to be in order to strike their strings at the right place for the best sound. I'll find the correct sound for number 64, then I'll run a straight line from there down to number one, and then I'll run another line from number 64 up to number 88.

CLASS MEMBER: Would you ever want to use more points than we have used here?

GEERS: Yes. It's all according to what piano you are dealing with.

"I would rather put on a new set of shanks and flanges than change knuckles or do a lot of repinning. I figure my labor is worth more than the material, so I do whatever is fastest for me."

Almost every Baldwin grand piano has a curved hammer line in its two extreme treble sections. You can look at the hammers and you may not see the curve, but if you put a thread across the top of the hammers, you can tell very quickly.

Now, we're going to set the guide hammers up by their center lines. I know there are all kinds of racks on the market, but you can do it faster without one, and I think I can prove it to you. If we are going to install new shanks, then we remove every shank but the extreme shanks of each section. We want them for two reasons. We want them for guide hammers as far as center line is concerned, and we want them so we can see the angle of the boring. If the old hammers were glued on where the hammers hit the strings at an angle, we will not go by the angle of the old hammers. We will actually go by string cuts when we put the new hammers on. We want our new hammers to line up with the strings. We don't want the hammers to hit the strings at an angle.

If we are going to install new shanks and flanges, we'll take all the old shanks and flanges off. We'll put new sandpaper on the rail or clean it up — whatever the situation dictates. We'll install all the new shanks, and we'll travel those new shanks before we go any further. The shanks are traveled by raising them with a screwdriver to see if they will travel from one side to the other.

CLASS MEMBER: When do you determine whether or not to replace the shanks?

GEERS: You replace shanks for knuckles or centers or for appearance. If you have good knuckles and good centers, you do not have to change them. If you want everything to look new, then you must change them. I would rather put on a new set of shanks and flanges than change knuckles or do a lot of repinning. I figure my labor is worth more than the material, so I do whatever is fastest for me. You have to make your own decision whether or not you want to do shanks. If you can repin or put new knuckles on faster than you can put shanks on, then that may be the way you want to go.

To remove the old hammer, the only thing we use is a pair of side cutters. We take the side cutters and cut right down the middle of the molding and break it. One-half of the tail will come right off, so all you have to do is cut the other half off, and the rest of the hammer just falls apart. It's just that simple.

CLASS MEMBER: You say the bass hammers should be parallel to the strings?

GEERS: Yes. Let me prove it to you. You make the decision yourself. Put your fingernail between two of the coils on one of the bass strings and strike a note. Now, move your fingernail down one coil and strike the note again. Hear the difference in the sound? You have the same thing if you have that hammer going across the strings at an angle. On the bichords the striking point of the left string is different than the striking point of the right string. Naturally, it won't make a difference on the single string, but it will on the doubles and triples.

CLASS MEMBER: Do you come out with a less tight fit on the hammer when it requires a lot of reaming?

GEERS: The fit will be tight. You ream hammers for two reasons. You want a tapered hole in the hammer, and you want to be able to take the hammer and move it from side to side as well as forward and backwards. If the hole is tapered larger in the bottom than it is in the top, you can do that. When you put glue in the reamed hole in the hammer and on the shank, that excess, if you want to call it that, is filled up with glue, thus forming a glue collar in the front. The glue joint will be quite solid. Reaming gives you a means of correcting the angle whenever you want. Probably one of the hardest things to do in a factory is bore hammers. If you have a few specks of dust under one hammer, or if the person who sanded it

sanded a hole in the hammer, then the boring job could be incorrect.

Now we're going to travel the shanks. The first thing we do is look at the centers. A fast way to look at centers with the hammers on is to put a screwdriver under the shanks and move the screwdriver back and forth. If the shanks move with the screwdriver, the pinning is lose. If you're going to change knuckles, you should also do that at this time. One of the best ways to get a knuckle out of a shank is with the side cutters. Take a pair of blunt side cutters and squeeze where the knuckle's hardwood insert goes into the shanks. The knuckle will just pop out.

The hammers are already off these shanks, but we're going to travel them the same way we would if the hammers were still on. The only difference is when I raise the shanks up, I will have to force them back down again with my hand. If the hammers were still on, the weight of the hammers would force the shanks back down.

CLASS MEMBER: Is there a reason why you don't travel the old shanks with the hammers on?

GEERS: Yes. If I bend the center pin even a slight bit in taking the hammer off, I would have to travel the shanks a second time.

CLASS MEMBER: Why do you have to push the shanks back down?

GEERS: If these are good centers, the shanks won't fall of their own weight. The weight of the hammer head will force the shanks back down, but without their heads, the shanks need a little help.

We're going to use 150 grit sandpaper for our traveling paper. One of the things we have to remember about traveling is the farther under the flange we put the paper, the more traveling effect it has. What we do not do is put a piece of paper under the flange and then tear it off right away. We travel an entire section of shanks. When the section is finished, then we'll tear all the paper off. If we have to go back and readjust, we'll loosen the flange screw and push the paper in or pull it out, whatever the travel dictates.

I hear a lot of people say they use masking tape because it stays on the flange. Well, that's fine, but the only thing is, to make any change with the masking tape, you have to take the flange off the rail, adjust the masking tape, and put it back on again. You may have to do that a dozen times before you can make it exactly right.

CLASS MEMBER: Do you make up your own strips of paper?

GEERS: This is regular sandpaper that I cut in strips.

CLASS MEMBER: What do you do if the flange screw is stripped?

GEERS: I might plug and redrill the rail. Or, I might put in an oversize screw. If I use an oversize screw, I have to be careful not to split the rail.

CLASS MEMBER: I have heard people talk about rubber shanks. Can you tell me what a rubber shank is?

GEERS: A rubber shank is a shank that has the wrong grain orientation in the wood. Quartersawn wood has vertical grain and flatsawn has horizontal grain. The quartersawn piece of wood is much stronger than one that is flatsawn. A rubber shank will be one with horizontal grain (flatsawn wood). The correct grain orientation for a hammer shank is vertical (quartersawn wood). When you have a rubber shank, you will hear a wooden sound in the piano. You hear the wooden sound, and you may think the hammer is loose or the center is bad or something is rattling in the piano. It's not that at all. It's the shank itself that's causing the sound.

CLASS MEMBER: You say the grain for quartersawn wood is vertical?

GEERS: Yes, from 45 degrees to 90 degrees.

Let's talk about hammers. You buy the very best hammers you can possibly buy, regardless of who makes them. The hammer that you have the most success with is the hammer that you should buy.

The first thing that we will do is determine if the sides of the hammers are planed off. The width of the tail should be slightly less than the width of the backcheck. You want the tail tapered so that it's a little narrower at the bottom than at the top. Now we're going to put the hammers on. First, we will ream the hammers so that they are loose enough to work with. We're going to put glue on the hammer and on the shank. We do not want it so tight that we can't move it, so we ream enough to allow for the swelling of

the wood from the glue.
CLASS MEMBER: Will you always be reaming from the side of the hammer that the shank is on?
GEERS: Yes, that's the front side — toward the front of the piano.
CLASS MEMBER: Just how loose do you fit them?
GEERS: I want to be able to touch the hammer and make it go, but I don't want it to be able to spin around by itself.
CLASS MEMBER: What is the number of the taper of your reamer?
GEERS: This is a number six standard taper — straight line taper. What we'll do is take the brand new reamer and run the edges over a file. We want to rough up the edges. If we don't rough up the edges of the reamer, the inside of the reamed hole will be slick and will not accept glue very well. The rough reamer will put ridges inside the hole, and we will have a good glue joint.
CLASS MEMBER: If we use the old shanks, do we take the old glue off first?
GEERS: Yes. The way I do it, and the way I found to be the fastest, is to take a paring knife and go over one side of the shank where it was glued to the hammer. I go down one side and then flip the shank over and do the other side. In other words, I get the bottom side all the way through, and then I come around and get the top side all the way through. You can get all the glue off without any chance of making your shanks too thin. I don't like to use knurling pliers because, for me, they tend to take the wood off instead of the glue. If the glue is extremely hard, the plier will attack the wood before it does the glue. We would be taking wood off when we should be taking glue off. Scrape the shanks all the way through, and we'll have nice, clean shanks for gluing.

Now, we're going to set up our hammers the way we will put them in the piano. We'll group the new hammers in as many sections as there are sections in the piano, and then we count the hammers in each section just to make sure that everything is as it should be.

In this set, we have five hammers extra in the treble section and one too many in the bass. We're going to look at these hammers and decide which to discard in order to bring us to a total of 88 hammers. This top hammer isn't any good. In fact,

"...we want a pen or sharp pencil that will give us a good, fine line. We're going to go by center line, and if it's true that in the treble a 64th of an inch off is too much and the pencil mark itself is a 64th of an inch wide, then we have to be extremely careful."

we're going to throw all five of the extreme treble hammers away. If the extreme hammers had been good, we would have taken our throw-away hammers from different places within the section. If we do that with every set of hammers that we install, it means that eventually we're going to have a group of hammers that we can use as replacements for anywhere in the hammer line, especially if we order the same make hammers all the time.

Now we are going to put a center line on the end hammers of each section. For that purpose we want a pen or a sharp pencil that will give us a good, fine line. We're going to go by center line, and if it's true that in the treble a 64th of an inch off is too much and the pencil mark itself is a 64th of an inch wide, then we have to be extremely careful. I am going to go from the very point of the molding to the inside of the round at the hammer heel. The inside of the round of the hammer heel is supposed to be the exact center of the molding, so we are going to go to that point and do it as exactly as we possibly can. We're going to make a mark down the sides of the hammer and then across the crown. If the number one hammer is on an angle, the center line of the molding is at one place on one side, but it's at a different location on the other side. To compensate for that, we're going to make a mark down the center of the line that is across the crown. The exact center of the hammer is at the junction of those two lines. We do that to all of the guide hammers that are bored on an angle.

Let's take the number 88 hammer and ream it. Then, we'll put it on the number 87 shank. Remember, the number 88 shank still has the old hammer on for a guide. We're going to use Titebond glue. This is an upright hammer shank that we will use for a glue stick. Make the corner of the glue stick a little round so it will fit into the hammer. We're going to glue the number 88 hammer on. When we have it on, the center line of the new guide hammer and the center line of the old guide hammer will match. Now we'll check to make sure that the hammer is square with the shank. We'll take the shank and put the glue on. Then, we'll spin the hammer around the shank, thus forming a glue collar in front. Next, we'll check and see if the hammer is square on the shank. This hammer is a little out, so we're going to back up a bit and push it in at the top. Now it's exactly square. This next hammer is too far in on the shank, so we're going to pull the hammer back a little and do the same thing over again — get it square with the shank and get it square with the top of the hammer.
CLASS MEMBER: Which means you've got a 90-degree angle with the string, plus you have a 90-degree angle with the shank?
GEERS: That's right. Now, the only thing that remains is the hammer travel. When we travel hammers, we are making sure that the hammer is on the shank at the proper angle (90 degrees to the shank). You have to compare each hammer with the traveled hammer that is next to it. The hammer must come up perfectly straight.
CLASS MEMBER: How do you feel about using hot glue?
GEERS: We always did use hot glue, and I feel it is better than anything else you can use for hammer gluing. But, there is one bad thing about it, especially if you have more than one person in the shop. Everyone who thins the glue with water has an idea of how it should be done, so you have a big range of consistency. We don't want inconsistency. In our shop we have nine people. Probably all of them except the finishers use glue, so we use Titebond all the way through the shop for that reason only.
CLASS MEMBER: If you do use hot glue, roughly how long do you have before it sets?

GEERS: About the same amount of time that we have here, or maybe a little less.
CLASS MEMBER: Can you thin it down a little bit rather than use it thick?
GEERS: I was always taught to feel it between my fingers. If you can put hot glue between your fingers and actually feel your fingers touching, then the glue is too thin. You have to feel glue between your fingers.

When you start filling in hammers from one side to the other, you may put on eight or 10 hammers at a time. Just put the group of hammers on. Then go back and travel them. With hot glue you can do that, and with Titebond you can do that.
CLASS MEMBER: Have you ever had any trouble at all with Titebond, such as the hammer's getting loose if it's played hard?
GEERS: No. The Titebond holds just fine.
CLASS MEMBER: The hammer over there is pretty far off. Can you ream it enough to line it up with the guide hammer?
GEERS: Yes. We can ream it that far. The original bass hammers were put on at an angle to the strings, and we're putting the new ones on in line with the strings. So, the new hammers won't line up with the old hammers. When we fill in the bass hammers, we are going to put them on according to the new guide hammers that have been adjusted to line up with the strings.
CLASS MEMBER: How far down do you listen for striking points when you are setting guide hammers?
GEERS: If I get a grand piano that I want to make the ultimate of, I go as far down as I can hear striking points and adjust the guide hammers for the best possible sound.

We want the piano to give us the best sound that we can hear. This striking point (number 64) should be a little farther into the piano for the best sound. So that's where we're going to put it. We'll have to adjust our regulating to compensate for that. It'll take us a little bit longer for regulating, but the piano will sound better.
CLASS MEMBER: You wouldn't go down to the low pitches, would you?
GEERS: If I hear striking points down that far, I might do it.
CLASS MEMBER: But normally, even if you were going to do the most custom fitting to this piano that we are working on now, you wouldn't take more than three striking points?
GEERS: No. Let's fill in between the guide hammers that we have on.
CLASS MEMBER: Do you find any advantage in having a strip of wood under the hammer tails?
GEERS: We are going to turn this hammer rail upside down in a few minutes and use it for that purpose.

Normally, what I do is put the guide hammers on, and while they are drying, I'll reverse the hammer rail and do my traveling with the shanks. By that time the guide hammers are set up so that I can use them.

We'll put on number 33, and number 34 will be put on next. We'll use the string cuts in the old hammer as a guide for the angle. When we ream, we put the reamer in just halfway through. If we push the reamer all the way through, the entire hole will get reamed. We don't want that.
CLASS MEMBER: Is this desirable on any decent grand piano? You want to have the hammer lining up with the string?
GEERS: Yes.
CLASS MEMBER: In this case the shank is protruding through the hammer. But do you ever get into the situation where, having lined the hammer up correctly, the shank doesn't go all the way through?
GEERS: Yes. Then you have to change shanks. The shank must go all the way through the hammer.

See the difference between the angle of the new bass hammers and the angle of the old ones? The new bass hammers will line up with the strings — the old ones didn't.

> "You want to do the job exactly right... but also as fast as you can possibly do it ...We will put glue on both the shank and the hammer, put the hammer on, spin it, and then push it the rest of the way onto the shank with a straight edge."

From here on, all we are going to do is fill in between the guides. We keep the line straight by using a straight edge across the back of the hammers. If you want to get the hammers on quickly, you should have everything ready, and one of the things you should have ready is the straight edge. If you lay the straight edge flat on the table, you may have a hard time picking it up. But if you put something underneath it, then you can grab it very quickly. It's just a little thing to speed you up, but you want every bit of speed that you can get. You want to do the job exactly right — as correct as you can possibly do it — but also as fast as you can possibly do it.

That is what we are going to try to do now. We will put glue on both the shank and the hammer, put the hammer on, spin it, and then push it the rest of the way onto the shank with a straight edge. I can only go as far as the guide hammers will allow. We will line up the tails and heads with the straight edge. When you put the hammers on, you have to hold one hand on top of the hammer and actually pull that hammer onto the shank at the top. At the same time, you're pushing the tail on with the straight edge. In other words, if you try to push it on just from the top or just from the bottom, the hammer will become wedged and stop. But, if you push it straight on, top and bottom, then it will go on without a problem. Now we'll go back and check it one more time. The tails are O.K., and the heads are O.K. We will hang a few hammers, travel them, hang a few more, travel them, and so forth, until they are all on. Right now, I'm watching the top of the hammer for the correct angle.
CLASS MEMBER: A slight error in lining those up vertically will compound as you go along, won't it?
GEERS: Yes.
CLASS MEMBER: If you get a hammer that's too loose, do you split the end of the shank?
GEERS: No. I glue size the hole. This hammer just happens to be a little too loose. So, we'll run a glue stick through the hole in the hammer. This is what I mean by glue sizing the hole. If you looked inside the hole, you wouldn't even see the glue, but there is enough in there to tighten the head up.
CLASS MEMBER: If these tails

had not already been shaped, when would you want to do that?
GEERS: After the heads are all glued on to the shanks, and then we'd do it a section at a time.
CLASS MEMBER: When you sand or plane for width, what do you use?
GEERS: I use a hand plane.
CLASS MEMBER: Will the hand plane also trim the felt?
GEERS: Yes. We are putting our hammers on as straight as the straightedge will allow. You can glance down the hammers and see that they are in a straight line. If one is not in line, it will be very obvious.

If you were doing this job in your shop, you would have the action inclined a little so that you could see the tails of the hammers. You would also have a screw put in the end brackets to keep the action on the bench. You could push on it as much as you wanted to and the action wouldn't move.

Now we're going to go to traveling. You know the procedure for traveling hammers is what you would normally call burning hammers if you were in a regulating procedure. Let's see how this hammer is traveling. The space is closing in on the right and opening on the left. What do we do? We move the top of the hammer to the right. I'm going to move it to extremes now. It's still closing in on the right, so I have to move it even farther. Now I'll space the hammer back within the opening. You have to remember that this is a tapered hammer. If the spaces on both the left and the right get greater as the hammer comes up, that's good. But, if the space on one side of the hammer gets greater and the space on the other side less, then we have a problem. You always have to move the top of the hammer in the direction of the diminishing space.
CLASS MEMBER: You wouldn't start putting hammers on in the middle? You'd work from the guide hammers from the ends, right?
GEERS: You can start anywhere as long as you have guide hammers. Normally, people will start in the treble because they're straight hammers, and they are easy to put on. By the time you get all those on, you're accustomed to hanging hammers, and the angled hammers in the bass will fall in more easily.

We're out of class time, but before we break up, are there any questions?
CLASS MEMBER: Yes, just one quick one. Could you start from scratch and not even use the old hammers as guides?
GEERS: Sure. You could either glue on new guide hammers or put the hammers on dry, and actually try it according to sound. After you find the best sound, glue the guide hammers in place, then hang the rest of your hammers.

That's all the time we have. Thank you for being a part of our class.

CONTINUING
EDUCATION

Teaching Pianists About Pianos

Stephen H. Brady, RTT
Seattle Chapter

Most of us are aware that pianists generally know very little about the piano. We try to do our bit by educating piano owners when their pianos need work of one kind or another, but this piecemeal approach by itself apparently is not creating a very piano-aware public.

The question is, "Do we want the piano-buying public to know more about the piano than it already does and, if so, how much should they know?" My own answer to that question is that, within reason, the more we can teach them about the piano, the better.

I believe that if a customer knows a fair amount about the technical side of the piano, that customer is going to keep me on my toes and isn't going to stand for anything less than the best work I can do. A nation of piano-knowledgeable pianists could help produce a nation of top-notch piano technicians.

There may be some piano technicians who feel threatened by a customer knowing too much about the piano and who like to make our profession seem as arcane as possible. I believe, however, that a well-educated piano owner not only will demand high standards of workmanship, but will purchase more piano service, other things being equal, than one who is not so educated. In my experience, the evidence clearly supports this position.

"The question is, 'Do we want the piano-buying public to know more about the piano than it already does and, if so, how much should they know?' My own answer to that question is that, within reason, the more we can teach them about the piano, the better."

The real purpose of this article, though, is not to argue the point that we should try to educate pianists better, but to describe a program I've used over the last few years to put that philosophy into practice. The vehicle I've used is a class which I teach here at the University of Washington School of Music each spring quarter.

The class actually was born about a year before I started teaching it. At the suggestion of a member of the piano faculty, I formulated a course description and outline, which the piano faculty then approved and forwarded to the educational policy committee of the school of music. This committee discussed the proposed course and voted to recommend its approval by the music faculty as a whole. After faculty approval, the new course, titled Music 301, "Fundamentals of Piano Technology," was placed in the spring quarter class schedule and in the next general catalog issued.

At the request of the piano

faculty, the piano technology course is graded credit-no credit, which means there are no letter or numerical grades given at the end of the quarter. Instead, the student either passes the course and receives three hours of credit, or fails and receives no credit. In neither case does the grade have any effect on the student's grade point average.

When a course is graded this way, attendance becomes an important element in determining whether a student receives credit or not. In addition, I require each student to complete a project related to the material covered in the course. These projects have included research papers, oral presentations, lecture-demonstrations and, in a few cases, actual work on pianos such as cleaning or minor repairs.

I spend the first week of my course trying to familiarize the students with basic piano nomenclature and to get them comfortable with the elementary concepts of how a piano works. I teach the class in my shop, which is large enough to accommodate the six to 12 students who take the course each time. We prowl around pianos which are in the process of being rebuilt, and I point out things I want them to remember: "This is the bridge, this is the cast-iron plate, this is the keybed," and so forth. During the first week, the students are usually full of questions like, "Which brand of piano is the best?" or "How can you tell when the action is out of regulation?" I find it best to promise answers to complex questions such as these at a later date, since many of these early questions will be answered in the planned course of study anyway, and those which aren't will be more readily understood after a good foundation has been laid.

> "In the next part of the course, I try to teach and show the students what is meant by the terms 'tuning,' 'regulation,' 'voicing' and 'rebuilding.'...I attempt to explain some of the common problems a piano technician has to contend with..."

After the first week, we spend a week discussing the history and development of the piano. I like to bring recordings of music played on very early pianos, such as the Cristofori piano at the Metropolitan Museum in New York and the Graf piano which belonged to Beethoven. These recordings, which are available at the listening library, help the students understand how the piano has changed since it first emerged.

In addition to the records, we have a few old instruments here, which I let the students play during this unit. Two of these which are particulary interesting are a 1799 Kirckman fortepiano, and a circa 1827 Erard grand. Also covered in this one-week piano history course is the evolution of the piano from the instruments extant in the 17th century, especially the harpsichord, the clavichord, and the hammered dulcimer.

After the students have some grasp on the piano's beginnings and are somewhat familiar with the terminology we piano technicians use, we devote the next week to a crash course in musical acoustics. It covers the nature of sound, wave propagation, string vibrations, overtones, beats and how piano tones are produced. This unit is to help them better understand the piano's sonic mechanism, and to prepare them for the next unit, which covers the theory of tempering the scale. This part of the course seems to be the hardest for many of the students, but I find that with a little patience and willingness to repeat some material, I can leave them with a pretty fair understanding of why we must temper the scale when we tune a piano or other keyboard instrument. I also make sure they are comfortable with words like "cent" and "comma," and that they understand how "meantone" differs from "equal" temperament.

In the next part of the course, I try to teach and show the students what is meant by the terms "tuning," "regulation," "voicing," and "rebuilding." Along with explaining in some depth the theory of each of these procedures, I attempt to explain some of the common problems a piano technician has to contend with, such as false beats, inharmonicity, scaling problems, or inconsistency in materials and construction.

At this point, I begin showing the students how to "touch up" a tuning. I help them learn to identify the bad unison which is making the whole piano sound out of tune, and I let them practice tuning unisons. We don't go beyond unison tuning because, as I tell the students at the beginning of the quarter, the course is not intended to train them to be piano tuners, but to help them understand the piano and to take care of some of the minor repairs and problems themselves.

The next unit deals with these minor repairs. I show the students how to remove the trim pieces properly, how to remove the action to get at the pencil they dropped, how to care for the finish and how to clean the keybed, the soundboard, the plate, and the keytops.

> "As a sort of final exam, I do my best to make a piano superficially unplayable in as many non-destructive ways as I can: coins and paper clips on the soundboard, pencils in the action, wildly mistuned unisons, jammed pedals, foreign objects on the strings..."

This "hands-on" portion of the course is most enjoyable for nearly all the students. This is what they really came for. We also cover the main things to look for in case of sticking keys, and how to identify and trace different kinds of buzzes, clicks, rattles, and squeaks. I try to help the students understand what things they can successfully handle themselves, and what things are best left to a trained piano technician.

During the last two weeks of the course, the students turn in their projects, whether oral or written, and we have a session on "prepared piano," the techniques used by some modern composers to substantially alter the piano's sound by inserting screws, bolts, rubber tubing and other goodies at different places inside the piano. I show the students the safe ways to accomplish these preparations and what things to avoid.

During the last week, we usually have a session or two on evaluating and buying pianos. At this time, any questions which went unanswered earlier can be answered, and we simply try to fill the gaps and round out the course.

As a sort of final exam, I do my best to make a piano superficially unplayable in as many non-destructive ways as I can: coins and paper clips on the soundboard, pencils in the action, wildly mistuned unisons, jammed pedals, foreign objects on the strings and anything else I can think of. Then I turn the class loose on the piano and give them 30 minutes to find out what's wrong and set things straight. Inevitably, they solve all the problems (teamwork helps here) and sometimes learn more in the process. They usually are surprised at how much they're able to do.

So, you say, he educates between six and 12 pianists per year. At that rate, he won't even make a dent in the total population of piano players. I must admit, it seems absurd at first to think a class like this could do much good. But if all of those six to 12 students become piano teachers and each of them passes on some of what I taught them to 30 or 40 students per year, then the effects of the class could reach farther than one might expect.

This is my approach to teaching pianists about pianos. I know there are many of you who teach similar courses, and I'd be interested in hearing from you about what you're doing.

V O N D E R

WERKSTATT

Some Key Ideas

Priscilla and Joel Rappaport
Austin, Texas, Chapter

Rebuilding or overhauling upright and grand actions and their regulations involve measurements of all kinds. We technicians are naturally concerned with using correct measurements since we want the piano to regulate well and sound good.

Careful attention is paid to selecting the correct thickness and type of felts to be used. Hammer shank lengths are measured and hammers are glued on at the correct distance. Keys are leveled at a certain height above the keybed or keyslip. The blow distance, let-off, drop and dip all involve measurements that should be compatible with one another so that the action regulates efficiently.

Why, then, are there some instruments that still feel like mush when they have been perfectly regulated according to factory specifications? The let-off and drop are good, blow distance is exact and even throughout. The dip is perfect and the keyboard even has aftertouch. Yet this piano feels terrible and is classified as impossible for a competent pianist to play.

> "Unfortunately, the most attention the keys sometimes get is a quick check to make sure none stick, and then it's time to go on to the fine points of high-level regulation. Sufficient time should be allotted for key work, for it is here that the foundation of a good regulation is laid."

We must caution ourselves about emphasizing only measurements and becoming overly fascinated with using measurements carried out to four decimal places. Measurements alone mean nothing unless they contribute to, and fit into, the overall picture of what a technician is doing in regard to regulation. Regulating by specification alone does not always produce good results. Many times a technician will sense that something is still not right but leave it, thinking that it is supposed to be that way. Or worse, he or she may experiment with changing the design and

more problems may result. In general all the measurements needed for regulation are built into the instrument by the designer.

One thing on which we don't change any specifications is the key. However, we run into many kinds of work that are needed before regulation can begin. A primary ingredient for a good regulation is a good keyboard: one that has good key work and is consistent from key to key. The bushings must be consistent in their contact with the front and balance pins, the capstans should be free of burrs, and the balance rail holes in the bottom of the key should fit the balance rail pin correctly. Too often, this area of action work is totally neglected. Unfortunately, the most attention the keys sometimes get is a quick check to make sure none stick, and then it's time to go on to the fine points of high-level regulation. Sufficient time should be allotted for key work, for it is here where the foundation of a good regulation is laid. If your key work is consistent and well done, then the regulation that is done later will feel solid and give the pianist a feeling of security when playing the instrument.

We would like to concentrate on one area of key repair, gluing a broken key. We have included pictures to illustrate some of the points made in our discussion.

Broken keys do present a problem. The energy that a player puts into a broken key is simply not transmitted through the action so that the hammer strikes the string with that relative amount of force. Something must be done. There are many approaches and methods for repairing keys. One must first decide what kind of break it is and what will fix it so that the key works again.

Pictures 1 and *2* show two versions of this kind of repair. The first one was a plastic film wrapped around the area where the key was broken. The key held together and the note played. In *picture 2* a piece of cloth-backed sandpaper was glued onto the side of the key with some sort of strong glue or epoxy. The key did not fall apart, although glue was all over the top of the button, into the hole and around the balance rail hole. However, the

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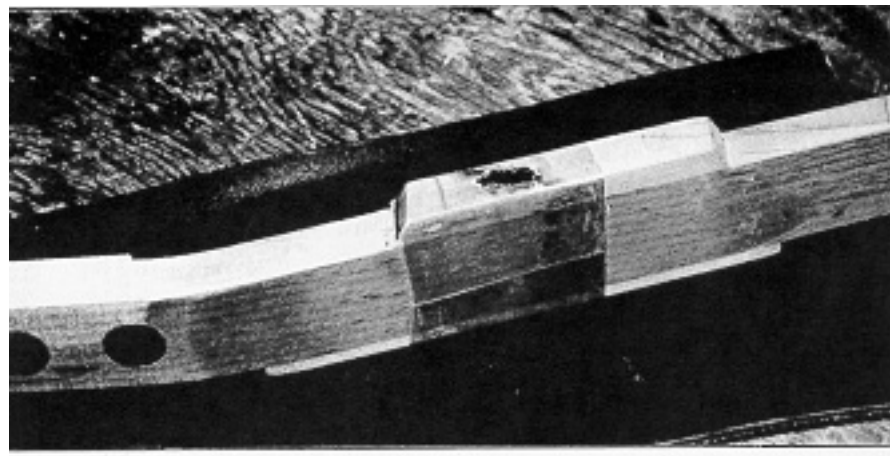

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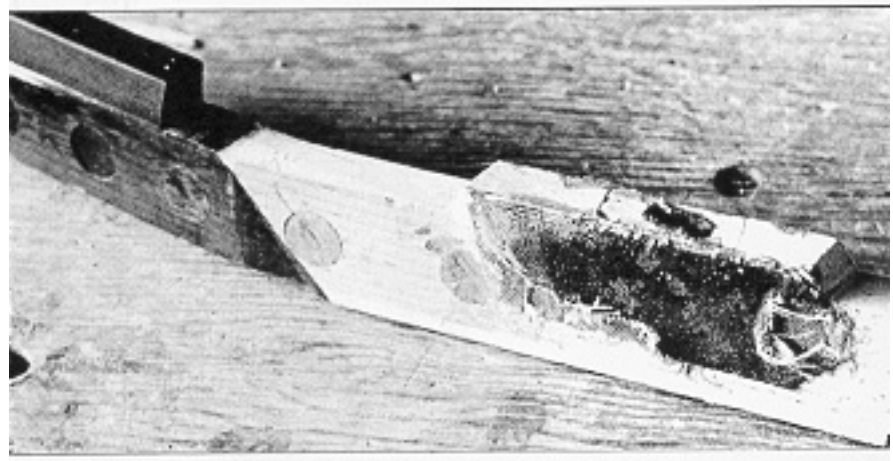

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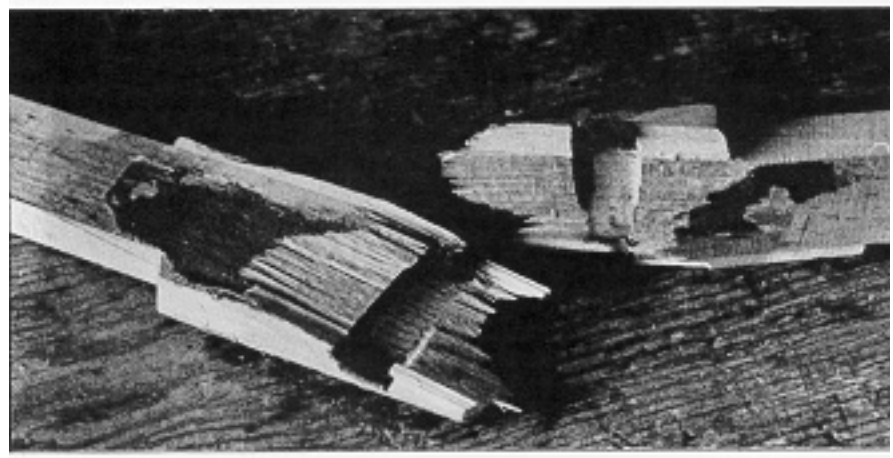

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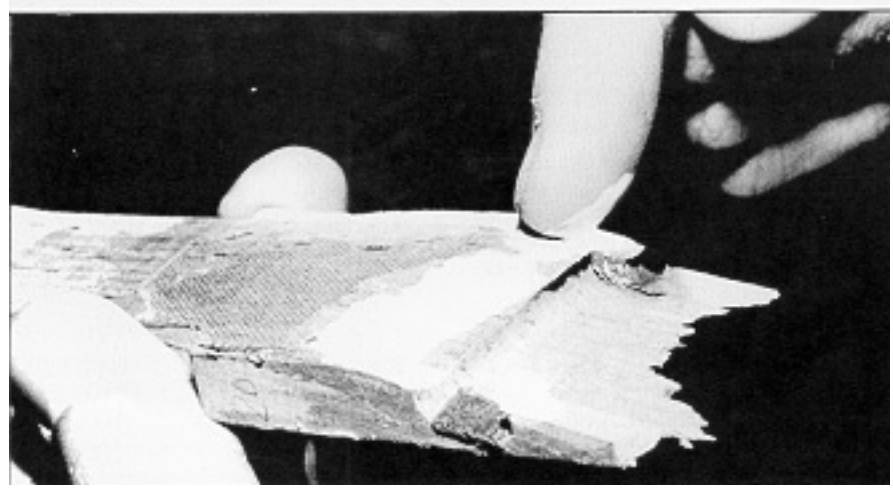

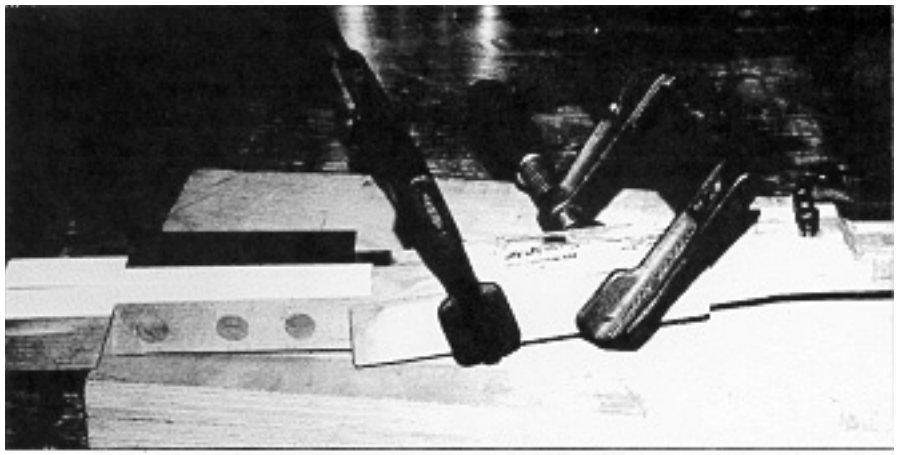

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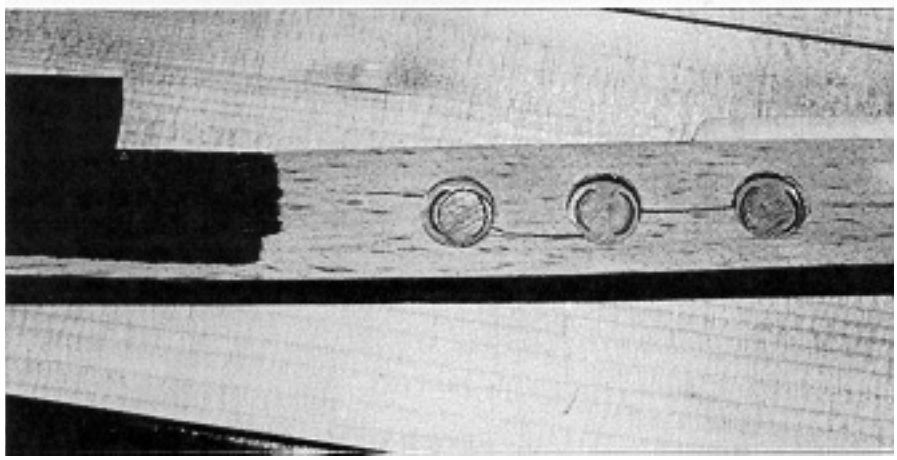


6

thickness of the sandpaper and glue and the sloppiness of the bushing hole were not calculated into the repair. The key rubbed its neighbor, causing undesired friction.

Picture 3 shows a break along the grain of the wood. The glued-sandpaper repair did not last on this key. A break of this kind can successfully be glued since there is enough wood surface to give a good glue bond. Notice that the break is clean and there are no folded-over wood fibers which prevent the key from fitting back together.

In *picture 4,* glue is applied to the surface, taking care that just enough is used to give a good bond. If too much glue is used, it will ooze out inside the hole in the key, causing future problems. These last two pictures show the construction of the hole inside the key. This area allows for movement of the key as it is held in place at the bottom of the key by the balance rail pin. It is important that the key be glued back so that the balance rail hole is round and not oval. If it is oval because it was not carefully glued, the key will be loose and move back and forth on the balance rail pin. It may also not look right with the rest of the keyboard. In an extreme case, the front will not be in the same line as the other keys, or the capstan will be slightly out of line with the others. In gluing this key properly, the neighboring keys are used as a clamp. This ensures that the original shape of the key to be glued will be maintained and that the key will again fit properly with the rest of the keyboard. If the broken key is not glued properly, one takes the risk that the key may rub adjacent keys on the frame, because the spacing between them no longer is adequate. Even though this keyboard may be from an older instrument, we wish to repair the broken key so that it looks and functions as it did when it was new.

Picture 5 shows the key clamped between its neighbors using a double thickness of paper between the neighbor keys and the key to be repaired. This prevents all three keys from being glued together. Also notice the wood between the clamps and the keys. This always is a good idea when using clamps. The wood protects the keys from direct pressure of the clamps and distributes the pressure evenly.

Cracked keys also present problems. One cause of keys cracking is the forcing of leads into the holes during the weighting process (*Picture 6*). In older instruments where the key wood has dried substantially, cracks develop between the leads. The leads in cracked keys tend to loosen to a point where rattles develop. They may even fall out or rub adjacent keys. Keys may crack where the holes for the leads are too closely drilled. Generally, the distance between the holes should equal the diameter of the lead being used. For example, if the keys are being weighted using leads 1/2 inch in diameter, then the distance between the holes in the key should be no less than 1/2 inch. Don't weaken the key by drilling holes too close together.

Repairing these cracked keys is not too difficult if one uses a lot of common sense, a little glue and a clamp. Leave the leads in the key so the crack remains open. Rub glue (Tite-Bond is good) into the crack. Then knock out the leads and clamp the key so that the crack closes, squeezing some glue out. Let the glue dry for a few hours or even better, overnight. Then replace the leads in the key with care. Be careful not to squeeze the leads too tight or the crack may open. The lead should be just tight enough in the hole in the key to that you can't push it out with your finger. If the wood in a certain key is particularly fragile, another method for putting the lead back into the key can be used. The lead is flattened slightly out-of-round. It is placed in the hole so that the pressure is against the end-grain of the wood in the key. This way, the pressure of the lead in the key, which is needed to keep the lead tight, is not directed up and down, or against the flat sawn part of the hole. Chances that the crack will re-open are reduced.

These repairs as well as other key repairs that we have covered in past columns will lay the foundation for all the action regulation to come.

The Well-Tempered Keyboards Of Bach and Neidhardt

Jack Greenfield
Chicago Chapter

Earlier Keyboard Compositions For Well-Temperament

Germany afforded a favorable environment for progress in music at the start of the 18th century. The two main avenues of employment for German musicians were in the service of the church or in a position in the court. The church required organists, cantors, and teachers in the church school.

While central control of music discouraged changes in the Catholic Church, the Lutheran church did not restrict the introduction of worthwhile new ideas. In the court, German musicians had the opportunity to mingle with musicians from France and Italy and acquire a knowledge of secular music brought from these countries.

The contemporary writings on music theory and keyboard composition indicate the great attention given by the German musical community to tuning and temperament. Interest in equal temperament was increasing but irregular or "well" temperaments described in 1691 by Andreas Werkmeister in a treatise "Musical Temperament Or...Mathematical Instruction On How To Produce...Well-Tempered Information On The Clavier" became most important for keyboard music. Around 1715, Johann Caspar Ferdinand Fischer, a prominent keyboard performer and composer, published *Ariadne Musica,* a collection of twenty short preludes and fugues ordered in chromatically ascending keys, omitting $D^{\flat}$ major, $E^{\flat}$ major, $F^{\#}$ major, $G^{\#}$ minor, and $B^{\flat}$ minor, to demonstrate the advantages of well-temperament. In 1719, Johann Mattheson, a prolific writer with progressive views on musical subjects as well as a composer, presented his *Organistenprobe* (Essay for Organists) which included examples of keyboard music in all keys. The first volume of the most celebrated work for well-temperament was composed by Johann Sebastian Bach who gave it the title: *The Well-Tempered Clavier or Preludes and Fugues through all the tones and semitones, both as regards the "tertia major" or "Ut Re Mi," and as concerns the "tertia minor" or "Re Mi Fa." For the Use and Profit of the Musical Youth Desirous of Learning, as well as for the Pastime of those Already Skilled in this Study, drawn up and written by Johann Sebastian Bach, Kapellmeister to His Serene Highness the Prince of Anhalt-Cothen, etc. and Director of His Chamber Music Anno 1722.* Now better known as the *Wohltemperiertes Klavier* (Well-Tempered Clavier) Volume I, it contains a total of twenty-four *preludes* and *fugues* in all major and minor keys.

> "The contemporary writings on music theory and keyboard composition indicate the great attention given by the German musical community to tuning and temperament."

Bach's Career

Johann Sebastian, born in 1685, was the most famous member of the Bach family, a large family of musicians prominent in central Germany through many generations descended from Hans Bach, who was active around 1560. Johann Sebastian's early musical training included instruction in playing the organ, clavichord, and violin. He had an intense interest in studying other men's work and developed his knowledge through-

out his life by copying and arranging the scores of other composers, a customary method of learning then. He grew up in the region where Werkmeister lived at a time when Werkmeister's writings on well-temperament were highly influential.

During the first phase of his career, when Bach held positions as organist at several different posts from 1703 to 1717, he wrote primarily for organ. Next, as music director at the court of a prince in Cothen until 1723, he wrote mostly secular music for clavier or instrumental ensembles for the purposes of entertainment or instruction. He wrote most of his major religious works in his next and final position, which he held until his death in 1750. This was in Leipzig, as cantor and musical director responsible for four churches, the university and the Leipzig Musical Society, which presented subscription concerts. During this time, he also wrote some additional clavier music, including Volume II of his *preludes* and *fugues* around 1742. The term "Clavier" in the title signifies no specific keyboard but some of the pieces are more effective on one particular instrument than on others.

Bach's Most Famous Harpsichord Music

Bach's compositions helped raise the harpsichord to first-rank status. He specified a harpsichord with two manuals for his *Aria with Different Variations,* generally known as the *Goldberg Variations* and now considered one of the most brilliant displays of Baroque keyboard music. This composition, which appeared in 1742, was written as evening background music to be played by his pupil, Johann Goldberg, who was employed by a Count Kaiserling residing in Leipzig. Bach was the first known composer of concertos for harpsichord and orchestra. Seven were written for solo harpsichord. Six others were written for two, three or four harpsichords with orchestra.

Late Recognition Of Bach's Greatness

During his lifetime, Bach had little fame as a composer, He was known first as an organ virtuoso in central Germany. He gained additional prestige later as a musical director and finally some local recognition as a composer of learned contrapuntal works. While he was relatively unknown outside Germany, his contemporaries, Domenico Scarlatti and George Frederick Handel, were internationally famous as harpsichordists and composers.

"Only a small fraction of Bach's compositions, including some clavier studies, were published during his lifetime, probably because the expense of publication would have exceeded the expected return from sales...as the 18th century advanced, Bach's compositions were neglected. Some critics in the 1730s called them 'old fashioned.'"

Only a small fraction of Bach's compositions, including some clavier studies, were published during his lifetime, probably because the expense of publication would have exceeded the expected return from sales. The complete *Well-Tempered Clavier* collection was circulated in many manuscript copies but was not published until 1801. Due to the general decline of interest in Baroque music that continued as the 18th century advanced, Bach's compositions were neglected. Some critics in the 1730s called them "old-fashioned." Publication of the *Well-Tempered Clavier* and a biography by J.N. Forkel in 1802 and performance of Bach's music later by such distinguished musicians as Felix Mendelsohn finally led to worldwide discovery of Bach's genius for composition. Musical works he wrote as day-to-day chores now rank as great masterpieces.

Neidhardt's Temperament Studies

While Bach was active in practical application of "well" temperaments in his compositions, the leading German scholar in the study of theory of temperaments was Johann Georg Neidhardt. Neidhardt was born in Bernstadt in 1685, the same year as Bach, Scarlatti, and Handel. Neidhardt had the advantage of a university education in theory and music. He became well-known at an early age after publishing his first book on temperaments while still a student at the University of Jena in 1706, the year of Werkmeister's death. Mattheson, a prominent critic in addition to his other musical activities, praised Neidhardt's work and gave him credit for advancing the work on temperaments initiated by Werkmeister.

During the first ten years of his professional life, beginning in 1710, Neidhardt held various posts where he primarily taught composition and organ and wrote music. In 1720, he took a position as kapellmeister or musical director at Koenigsberg. He wrote two more books on temperament later, one published in 1724, the last in 1732. He died in 1739.

Neidhardt's books contained about two dozen temperaments grouped in series with a few duplications. Each series was given a name and each temperament was numbered. The temperaments were composed of mathematically possible cycles combining fifths either pure or tempered 1/12, 1/6, or 1/4 comma to divide the ditonic comma in different ways. Neidhardt's presentation included his evaluation of the temperaments in each series, also equal temperament and just tuning. The simplest temperaments were those labeled "Fifth-Circle Number Four," which had four 1/4-comma tempered fifths symmetrically placed among the other eight fifths, which were pure, and "Fifth-Circle Number Three," which had six 1/6-comma tempered fifths alternating with six pure fifths. Jorgensen considers these alternatives to equal temperament, which has 12 1/12-comma tempered fifths. Other Neidhardt temperaments contained three or more different-sized fifths, and a few had fifths tempered sharp. A temperament labeled "Sample Temperament Number Two," one of the most complex, had five pure fifths, one sharp by 1/12 comma and the others flat, two by 1/12, one by 1/6 and three by 1/4 comma. Some Neidhardt temperaments were

close to 1/4- or 1/6- comma meantone temperaments, depending on the number and placement of the fifths so tempered.

Neidhardt considered temperaments in his series labeled "Circulating Temperaments" to be superior but did make favorable comments on equal temperament as well as pointing out its faults. He designated circulating temperaments those in which all keys are playable but in which keys with few sharps and flats are favored, the type of temperaments Werkmeister considered "well-tempered." In Neidhardt's preferred circulating temperaments, the major thirds on C and F were four to eight cents sharper than a pure major third. The sharpness of the major thirds gradually increased in each direction, reaching eighteen to twenty cents sharp at the keys with the most sharps and flats, resembling Werkmeister's third temperament in which the major thirds follow the same general trend but are slightly different in size.

Neidhardt's Temperaments Of Theoretical Value

Neidhardt's works were highly regarded as theoretical studies but were generally found to be too sophisticated for the tuning technology of the time for use in practical application. In 1706, soon after his first book on temperament had appeared, Neidhardt and Johann Sebastian Bach's cousin, Johann Nikolaus Bach of Jena, held a tuning contest. Neidhardt tuned one set of organ pipes to a monochord with string divisions very accurately calculated to six places. Bach tuned another set entirely by ear and was judged the winner when a singer found it easier to sing a chorale in B♭ minor in Bach's tuning than in Neidhardt's. Barbour mentions a similar experience in which Meckenhauser, a contemporary theorist of Neidhardt, spent three days unsuccessfully trying to tune an organ accurately to a monochord. Another tuning aid of the eighteenth century, the "monopipe" or "tuning pipe," consisting of a small wooden pipe with a movable plunger and graduated scale to indicate the note sounded when the pipe was blown, was used little for organ tuning but more for setting pitch for hymn-singing in small churches without an organ.

How Straight is That, Anyway?

Sally Jameson, RTT
Central North Carolina Chapter

I suppose everyone experiences some of life's little disappointments but the bottom seems to have dropped out of some of those things that one can usually count on.

After a recent purchase of new measuring cups for my kitchen, I noticed that the three cup measures that I own seemed to be of slightly different sizes. By doing some short experiments I realized that none of these held the same amount of water. Several days later, I purchased a new small square with a built-in bubble gauge. As I placed it on the shelf with my larger level I realized that one showed the shelf to be level and the other didn't. This prompted further investigation, and the new bubble gauge proved to be off by several degrees.

There seems little enough left to depend on these days but to find out that measuring devices are inaccurate is a rather earth-shattering realization. You just can't trust anything anymore.

Gram weights have long been suspect to technicians, and most know that they have to be calibrated before use by filing or drilling small holes to remove brass. Our dependence on weights and measures is so heavy that we technicians are very vulnerable.

Just last week, when troubleshooting a 100-year-old upright I discovered that an entire section of the wrong gauge wire had been installed in the factory. The point here is that in order to stay ahead of the game, one should measure all the measures and all of the things capable of being measured before use. Tuning pins vary in diameter and I have often gone through several boxes of size two pins just to obtain one set of the same diameter. I have often opened packages of new center pins, music wire, etc., to find that the package was marked incorrectly.

A fine-quality micrometer is absolutely necessary to a piano technician and one can only hope that someone measured the micrometer. I suppose the only real solution would be to go to the Bureau of Weights and Measures and calibrate all of our own tools to make sure. This whole thing starts to assume an Orwellian flavor in a "chicken before the egg" sort of way if you let it get to you. Who makes the square square?

SHOP
TALK

Agraffes

Susan Graham
San Francisco Chapter

I must confess that my reaction to hearing that some technicians routinely install new agraffes on pianos being rebuilt was to dismiss it as an operation similar to sanding and finishing the bottom of the plate — a good idea which was a little too esoteric to justify the time.

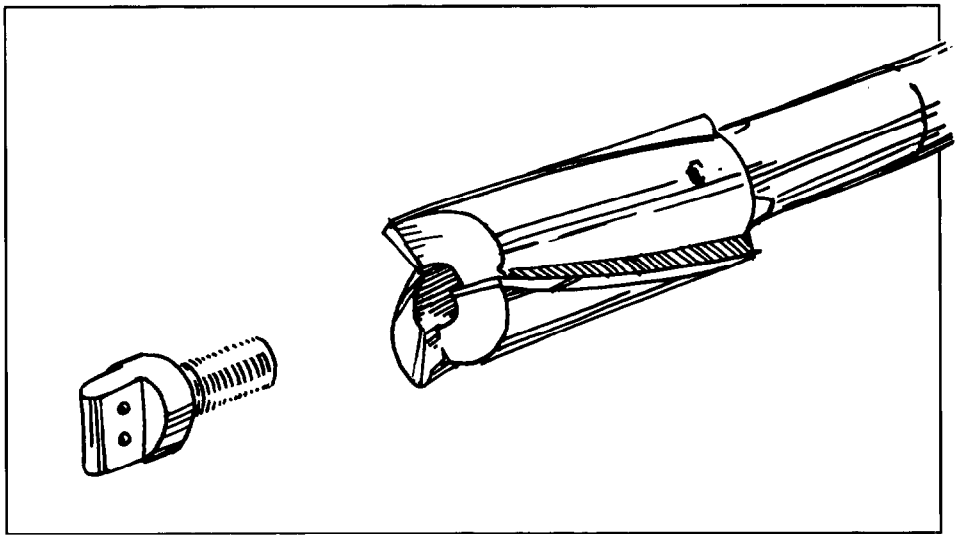
Mention of this notion came around a few more times and I realized that it is a good idea which does justify the time. The simplest and most persuasive argument I found was presented by Christopher Robinson in his article in the August 1983 *Journal.* He points out that we carefully resurface the capo bar to remove grooves and burrs cut in it by string pressure because these burrs give an unpleasant zinging characteristic to the tone, which cannot be voiced out by other means. (They can sometimes be temporarily lessened by moving the string side to side while it is under tension.)

If the string can cause this wear in cast iron, it stands to reason that the soft brass agraffe also is distorted or burred, and needs similar concern. Although the upward pressure of the strings in this section is usually less since the bridge downbearing is less, it still is common to also hear "zinging" in the agraffe section. In particular, pianos which have been restrung previously (with further damage to the agraffe holes likely due to repeated removal of old strings) and pianos with excessively rusty strings need attention to this detail.

"If the string is causing this wear in cast iron, it stands to reason that the soft brass agraffe also is distorted or burred, and needs similar concern."

We probably avoid replacing agraffes because the experience of wrestling a broken one out of a plate leaves a phobic reaction to this little brass unit. Fortunately, removing an intact agraffe from a completely unstrung plate in the comfort and privacy of your own shop is not (*usually,* now) as traumatic or difficult. Getting the new ones in is time-consuming but not difficult if you are patient and properly equipped.

There is very little tolerance in positioning the piece: it must be properly faced to the string, level with its neighbors, firmly seated on the plate and have the plane of its holes matching that of the original so bearing is not affected. In accomplishing all this, it is



advisable to "force" the agraffe no more than a quarter turn past the point where it first contacts the plate. If this will not position it correctly, thin brass washers are inserted between the agraffe head and the plate to change the point of contact and the consequent direction of the face. The problem is sometimes that a washer backs it up too much or throws it out of level.

In his article, Chris introduced a tool called a hollow mill, which is a metal cylinder with blades protruding from one end. The threaded shank of an agraffe fits loosely into the hole in the center of the cylinder, so the blades contact the bottom surface of the head, and remove shavings of brass. This allows a very fine adjustment in the position of the agraffe.

However, the hollow mill is a $55 part, and it does not come with a stem. My machinist recommended another tool called a counterbore. It has the same center hole and protruding blades arrangement, but it is on a shank like a drill bit. A 23/32-inch is the smallest size made with the necesary quarter-inch center aperature (the hole is for a removable pilot). The cost is $30, which is not quite such a bite out of the tool budget. With the shank, this tool is easier to handle than the mill, and can also be chucked in a drill press. It is usually used to clean holes in castings and is obtainable from machine shop supply sources.

I needed to chuck the tool in a drill press so I could reduce the dimension between the string holes in the agraffe and the bottom of the agraffe head. This dimension in the new agraffes was 1/32 inch greater than in the old, so that the holes were higher (farther from the plate). This was reducing the bridge bearing, particularly in the upper agraffe section where the shorter, thinner strings show a greater effect from such change.

I could have reset the entire plate to compensate, but that would have affected bearing in other areas. Since the plate moves as a unit and cannot be sprung or twisted, resetting it to increase bearing in one section may result in excessive bearing elsewhere, unless, of course, it is a Baldwin grand with the Accu-just system.

This particular piano was a concert grand and the large, unwieldy plate had already been set in the process of installing a new block. It seemed preferable to solve the actual problem, rather than just alleviate the symptoms. Therefore, the base-to-hole dimension of the new agraffes needed to be changed. The counter bore was chucked in a drill press with the agraffe upside down in a machinists' vise, and the spindle was set to stop after 1/32-inch of material was removed from the bottom of the head. This was quickly done. Bearing checks showed that this was necessary for only one section of the piano; the bass and low tenor bearing actually benefitted from the slight decrease due to the unchanged new agraffes.

Thus, the counterbore allowed me to "shade" the bearing a little more finely than a gross adjustment of the plate. This must be done sensibly, leaving enough of the head of the agraffe so the strength is not affected, but it is a useful technique in a rebuilder's arsenal.

The counterbore also can be used, as Christopher uses the hollow mill, during installation. My agraffe replacement procedure was this: etch the paint around each old agraffe with an awl. With a small brush, carefully apply a drop of a silicon-free rust dissolving compound at the base of each agraffe, being absolutely sure that none of it gets in, on, or near the pin-block (also be sure it doesn't affect the gilding). Heat the area gently and allow a few minutes for it to work. Using the agraffe tool, remove every other agraffe (clamp a vise-

grips on the shank if extra leverage is needed).

After the old agraffe is removed, use the appropriate-sized tap to clean the hole. These taps are unusually fine-threaded and must be obtained from a supply house. I strongly advise ordering a set (a 7/32 inch for Steinway and 1/4 inch for most other grands) to have on hand even if you hope never to use them. When you need them, you really need them, and they canot be found in hardware stores.

The tap should be turned completely down into the hole; carefully, so it will follow the original threading. This will clean out rust and renew the threads. I also found that the threading did not extend far enough to allow the new reduced agraffes to seat, and it was necessary to turn the tap a few turns farther. In any event, cleaning out the hole not only allows the new agraffe to turn in smoothly but, should it ever break, it will come back out more readily. Be sure not to cross the original threads, however.

Line the agraffe tool with bushing cloth or leather so it doesn't nick the brass, and install a new agraffe. If it snugs down to the plate and faces correctly, aligning with its neighbors and square to the string, or if it can be made to do so with no more than another quarter-turn, and the bearing is correct, wonderful. If not, the choice is between inserting a washer between the plate and the head, or using the counterbore to shave the head so it will seat and face correctly. The choice is determined by checking the bearing to see if it should be shaded up or down. Check with a sample at each end of each section, and in the middle of large sections or if there are factors such as loss of board crown which may make for uneven bearing. When the samples are set, the remainder of the agraffes can be installed by leveling across the tops of the heads, using the counterbore and/or washers to adjust the level and the facing. Use of the two either separately or in conjunction makes virtually any adjustment possible.

> "These taps are unusually fine-threaded and must be obtained from a supply house. I strongly advise ordering a set to have on hand even if you hope to never use them. When you need them, you really need them..."

Replacing agraffes in this manner allows shading of the bearing as well as eliminating possible "string noise" and reducing the likelihood of breakage. It gives a like-new appearance to the job and seems to be a logical component of a quality rebuilding/restringing.

ON PITCH

Seventh In A Series Of Articles Dealing With The Integration And Equation Of Aural And Electronic Tuning Techniques

Rick Baldassin
Utah Valley Chapter

Our last discussion presented a definition of a "stretched" octave. In the piano, all octaves are stretched in the theoretical sense; that is to say, the fundamental frequency of the upper note is always greater than twice the fundamental frequency of the lower note.

If an octave is tuned such that the first partial of one note is matched with the second partial of another note, a *pure* 2:1 octave has been tuned. Although the octave is "stretched" in the theoretical sense, it is *not* stretched as far as a 2:1 octave is concerned. It is a *pure* 2:1 octave. Methods to prove this both aurally and electronically were presented.

Further, if the first partial of the upper note is tuned sharper than the second partial of the lower note, a "stretched" or "wide" 2:1 has been tuned. This wide 2:1 octave could at the same time be a narrow 4:2, 6:3, etc., octave.

Reasons for compromising between types of octaves also were presented. These included making acceptable-sounding octaves — especially in transitional areas — preserving the even progression of intervals, and satisfying the demands of both the single and double octaves.

This month we will discuss why different types of octaves are tuned in particular areas of the piano.

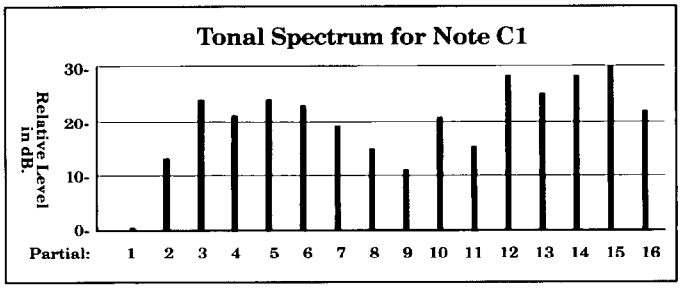
Different types of octaves are tuned in particular areas of the piano for two primary reasons: first, different partials are louder than others in different areas of the piano, and second, varying the level of partial matching causes varying degrees of out-of-tuneness (beating) in neighboring pairs of partials.

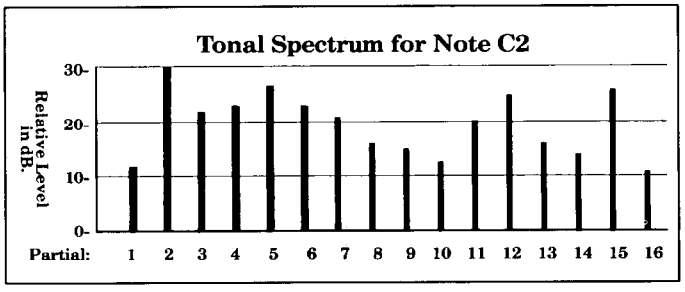
This month we will focus on the amplitude or loudness of the partials. As stated previously, when the piano string is struck, not only is the fundamental frequency (f) present, but frequencies nearly representing 2f, 3f, 4f, etc., also are present in varying amplitudes. They constitute what is known as the "spectrum" for that particular note. In the piano, this spectrum changes in the different ranges. This is evidenced by the fact that some partials are harder to get readings on than others when using an electronic aid. A "spectrum analyzer" can give a visual representation of the relative partial strengths for different notes.

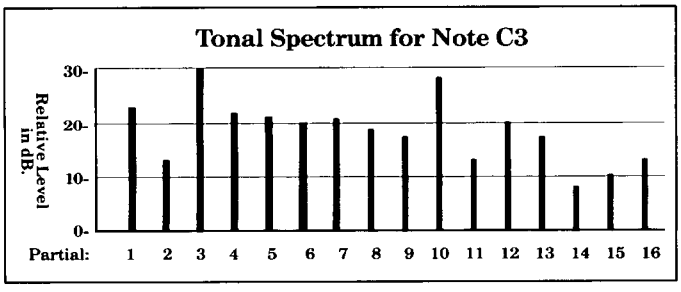
Let us examine a low bass note, C1, on a studio piano. Graph one shows that there is virtually no fundamental or first partial present, a small amount of second partial, a substantial amount of third to sixth, 10th and 12th partials present.

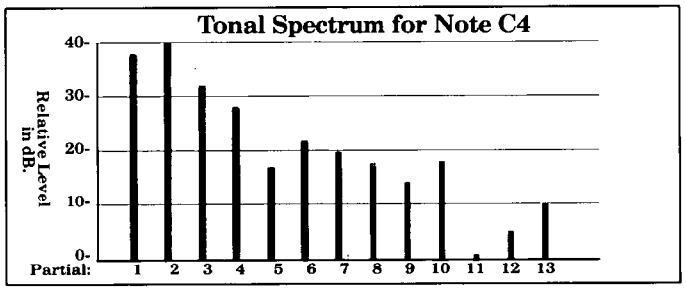
Let us now examine the spectrum for bass note C2. Graph two shows that there is still a relatively small amount of first partial, with the second to sixth partials predominating.

Considering the spectra for both C1 and C2, the pairs of partials









with the greatest amplitudes are 6:3, 8:4, 10:5, and 12:6. This is one of the reasons we do not tune 2:1 octaves in the bass of the piano — the partial amplitudes are so small that our ear will not detect a beat. This allows us to match the higher partials which have greater amplitude. In the low bass, the pairs generally matched are 6:3, 8:4, 10:5, and 12:6.

Let us now examine the spectrum for note C3. The graph shows a fair amount of first partial, a small amount of second partial, a very large amount of third partial, and large amounts of fourth to seventh and 10th partials.

Considering the spectra for both C2 and C3, the pairs of partials with the greatest amplitudes are 2:1 and 6:3. It will be later shown why the 2:1 matching does not work well in this area of the piano. In the bass, the pair most generally matched is 6:3.

Let us now examine the spectrum for note C4. The graph shows large amounts of first to fourth partials.

Considering the spectra for both C3 and C4, the pairs of partials with the greatest amplitudes are 2:1, 4:2, and 6:3. In the upper bass, the pairs most often matched are 4:2 and 6:3.

Let us now examine the spectrum for note C5. The graph shows large amounts of first, second, and third partials.

Considering the spectra for both C4 and C5, the pairs of partials with the greatest amplitudes are 2:1 and 4:2. In the midrange, the pair most often matched is 4:2.

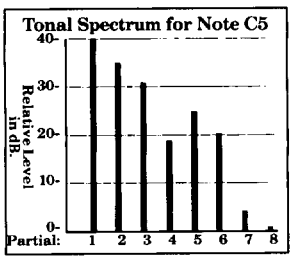
Let us now examine the spectrum for note C6. The graph shows virtually all first partial, with a fair amount of second partial, and a small amount of third partial.

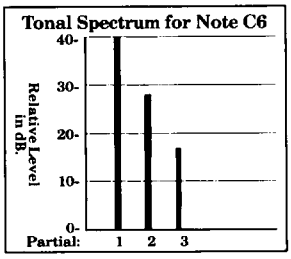
Considering the spectra for both C5 and C6, the pairs of partials with the greatest amplitudes are 2:1 and 4:2. In the treble, the matching is generally between 2:1 and 4:2.

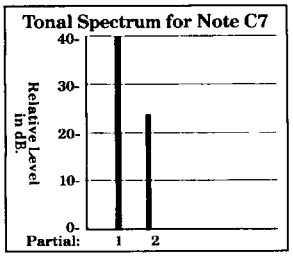
Let us now examine the spectrum for note C7. The graph again shows virtually all first partial, with some second partial present.

Considering the spectra for both C6 and C7, the pair of partials with the greatest amplitude is 2:1. In the upper treble, the pair most often matched is 2:1.

There is no information about the spectrum of note C8 in the article from which the information for the







preceding graphs came.[1] We may assume, however, that the spectrum for C8 will resemble the spectrum for C7, and that there may be even less second partial present. Considering the spectrum for note C7, and bearing in mind our assumption about the spectrum for C8, the pair of partials with the greatest amplitude would be 2:1. In the extreme treble, the pair most often matched is 2:1.

In conclusion, different types of octaves are tuned in particular areas of the piano for two primary reasons. This month we have examined one of the reasons, the relative amplitudes of the partials creating the tonal spectrum of piano notes. We have examined the tonal spectra for seven Cs on the piano, and have considered the spectra for two Cs at a time to determine which pairs of partials had the greatest amplitudes.

In the low bass, the pairs of partials with the greatest amplitudes were 6:3, 8:4, 10:5, and 12:6. It was noted that these pairs of partials were those most often matched in low bass tuning. In the bass, the pairs of partials with the greatest amplitudes are 2:1 and 6:3. It was noted, however, that 6:3 was the pair most often matched in the bass. In the upper bass, the pairs of partials with the greatest amplitudes are 2:1, 4:2, and 6:3. It was noted that 4:2 and 6:3 are the pairs most often matched in the upper bass. In the midrange, the pairs of partials with the greatest amplitudes are 2:1 and 4:2. It was noted that 4:2 is the pair most often matched in the midrange. In the treble, the pairs of partials with the greatest amplitudes are again 2:1 and 4:2. The matching is generally between 2:1 and 4:2 in the treble. In the upper treble and extreme treble, the pair of partials with the greatest amplitude is 2:1, and 2:1 is the pair most often matched in the upper treble and extreme treble.

Although certain pair matchings predominate in different areas of the piano, other partial levels will still be audible in varying degrees.

[1]Harvey Fletcher, E. Donnell Blackham, and Richard Stratton, "Quality of Piano Tones," *The Journal of the Acoustical Society of America* 34 (June 1962): 753.

INDIANAPOLIS: There's more in '84!

Dick Bittinger
Institute Director

In the next few pages, you'll find a schedule of classes for the 1984 Institute, to be held July 3-6 at the Hyatt Regency Indianapolis.

With this schedule and the class descriptions published in last month's *Journal,* you can plan your whole week of learning all the phases of piano technology. If you haven't sent in your registration by now, you should do so immediately to save your place.

Here's some information on some of the special activities we've planned.

Tuning Tutoring Forum

This three-hour class is a new type of tutoring where you can be part of the action and learn with the others involved. The class will be limited to 15, and both a grand and a vertical will be used for demonstrations. If you have some problem in tuning or have any questions on any technique in tuning, this is what you've been waiting for. The class will cover all phases of aural tuning, hammer technique, theory and much more. There is a $15 additional charge for this special class, which will be on a first-come, first-served basis.

See What We Hear

Dr. John Shallop will present us with a class that is especially dear to the ear. As tuners, we need to know how to take care of this vital tool of our trade. Two three-hour classes will be offered only Wednesday, July 4.

Player Piano Tour

All you player piano enthusiasts will enjoy this one, and so will your spouses. Have you ever seen a 1928 Mason & Hamlin AA hand-carved Louis XV Ampico or a Skinner Self-Playing Pipe Organ? This is just a sample of the many rare pieces you'll see on this tour. We will run two busloads of 15-20 per bus, and you'll also see a lot Indianapolis. First come, first served.

Ask The Experts

There have been many requests for this type of class. A question form will be included in your registration packet, so you can be ready Thursday night, July 5, in Regency Ballroom A and B at 8 p.m. With all the company and independent instructors, here's a chance to get answers to questions that may not have been covered in class.

Visually Handicapped Class

Visually handicapped technicians will be given top priority for one class each day. If there is any room left, sighted technicians also are welcome to attend. On Friday, July 6, in the Bryce Canyon Room, the Visually Handicapped Committee chaired by Ken Williams will have its own session to share the tricks of the trade and tuning techniques. Sighted technicians are welcome as observers.

The starting flag is up, so don't let the race start without you. Send in your convention registration and hotel reservation today!

Sessions Planned For The Visually Handicapped

Kenneth Williams, RTT
Chairman, Visually Handicapped Committee

All systems are go regarding any and all handicapable piano technicians attending the 1984 national Guild Convention in Indianapolis. Did I say handicapables? That was no slip of the tongue. This is one of many changes being made for all of us for next year and years to come in the Guild.

Even if we are handicapped, it does *not* mean that we are not capable. Hence, the term "handicapable." This was suggested by one of our handicapped-technician wives here in Syracuse, who also is a handicapped member of our Auxiliary.

I'm sure you all have heard the old song, "There Will Be Some Changes Made." The words to this song aptly describe the changes being made for the handicapped in the Guild by the handicapped and its committee.

The words go something like this: "My walk will be different, my talk and my name." We handicapped will have to walk more briskly in order to attend all the classes being planned for us at the upcoming convention. We will be talking more proudly and more excitedly about the things we are learning at this year's convention. The exhibit halls, the corridors, even the McDonalds Restaurant in the Hyatt Regency Indianapolis will bubble over with excitement. Those of you who have considered attending a national convention but have not done so because either you felt they are too expensive, you wouldn't get enough out of them, or you might have a difficult time getting around the hotels are in for a big surprise.

Indianapolis is a fine location for most visually handicapped technicians. It is especially convenient for those of us in the east, midwest, central and southern parts of the country. Food will be a lot less expensive with McDonalds on hand, and we are familiar with its service procedures. Most of us are more than comfortable in its surroundings.

You say we've forgotten "My name will be changed?" By popular demand, determined by letters from you and a unanimous decision of your committee, we are setting the wheels in motion to change our name from the Visually Handicapped Committee to the Visually Impaired Committee. This will more closely identify the visually impaired with their own set of problems.

Our problems are drastically different from those of a sighted disabled person. So you see, now is the time for you to come to the convention in Indianapolis. With our institute director, Dick Bittinger, we are planning one class each day geared to the wants

Continued

Tuesday, July 3

Room	Period 1 (8-9:30 a.m.)	Period 2 (10:30 a.m.-noon)	Period 3 (1:30-3 p.m.)	Period 4 (4-5:30 p.m.)
Regency A	Upright Piano Service In The Home (*Kohler & Campbell:* Baxter Edmisten, Dave Lowe, Otis Oxford)			
Regency B	Grand Action Troubleshooting (*Baldwin:* Jack Krefting, Willard Sims)	History of Pianos (John Ford)	Working With Wood (*C.A. Geers Piano Co., Inc.:* Cliff Geers, Tony Geers)	
Regency C	Special Tools, Applications and Procedures (Chris Robinson)		Key Repair and Related Work (Joel Rappaport)	Keys and Grand Action Construction (Priscilla Rappaport)
Regency D	Upright Dampers And Hammer Application (*Sohmer:* Gary Green)	Wippen Rebuilding (Sally Jameson)	Grinding, Sharpening And Tempering Tools (Tom Pettit)	Pianos From A To W (*Kawai:* Jim Harvey)
Celebration B	Tone Regulation And Factory Procedures (*Steinway:* Joe Bisceglie, Bill Garlick)		Servicing Teflon Bushings (*Steinway:* Fred Drasche, Joe Bisceglie and Bill Garlick) **Priority Class For The Visually Handicapped**	
Bryce Canyon	Soundboards and Bridges (*Aeolian:* Dave Campbell, George Defebaugh)	Rebuilding: It's The Little Things That Count (Wally Brooks)	Grand Dampers (*Yamaha:* Jack Caskey, Joe Dennis, LaRoy Edwards, Andy Nishio)	
Grand Canyon	Reconditioning The Grand Action (Bob Russell)		Grand Regulation (*Kimball:* Eric Johnson, Ray Reuter, Roger Weisensteiner)	
Yellowstone	Electronic Tuning (Al Sanderson)	Troubleshooting The Vertical Action (*Everett:* Bill Brandom)	Preparation Of The Piano For The Concert Artist (*Dampp-Chaser:* Rick Butler, Wendell Eaton)	How To Tune The Not-So-Grand Piano (Ruth Ann Jordan)
Everglades	Hammer Boring (Dave Betts)	Grand Hammer Installation (Al Grenning)	Practical Key Recovering (Bill Spurlock)	Mini-Technicals (Bob Smit, Moderator)
Yosemite	Piano Stripping and Refinishing (*Bix Manufacturing Co.:* G.L. Bixerman, Webb Phillips)		Woven Felt: Manufacturing And Problems (*Chas. House:* Peter Van Strattum)	Customer Relations (Sid Stone)
Sequoia	Reconditioning The Vertical Action (Raye McCall)		Vertical Regulating (*Wurlitzer:* Rick Sletten, Dick Eckburg, Larry Talbot)	
Board Room	Tuning Tutoring Forum (Tony Manna)		Tuning Tutoring Forum (Fred Odenheimer)	
Indianapolis Repertory Theatre A	Bridge Construction (Ralph Onesti, Ed Trefz, John Trefz)			
Indianapolis Repertory Theatre B	Pinblock Installation And Restringing (Ken Sloane, Dave Snyder, Willis Snyder)			

Wednesday, July 4

Room	Period 1 (8-9:30 a.m.)	Period 2 (10:30 a.m.-noon)	Period 3 (1:30-3 p.m.)	Period 4 (4-5:30 p.m.)
Regency A	See What You Hear (Jon Shallop, PhD)		See What You Hear (Jon Shallop, PhD)	
Regency B	Grand Action Troubleshooting (*Baldwin:* Jack Krefting, Willard Sims)	History of Pianos (John Ford)	Working With Wood (*C.A. Geers Piano Co., Inc.:* Cliff Geers, Tony Geers)	
Regency C	Special Tools, Applications and Procedures (Chris Robinson)		Key Repair And Related Work (Joel Rappaport)	Key And Grand Action Construction (Priscilla Rappaport)
Regency D	Upright Dampers And Hammer Application (*Sohmer:* Gary Green)	Wippen Rebuilding (Sally Jameson)	Grinding, Sharpening And Tempering Tools (Tom Pettit)	Pianos From A to W (*Kawai:* Jim Harvey)
Celebration B	Tone Regulation and Factory Procedures (*Steinway:* Joe Bisceglie, Bill Garlick)		Servicing Teflon Bushings (*Steinway:* Fred Drasche)	Let's Keep The Profit (Ron Kistler)
Bryce Canyon	Soundboards And Bridges (*Aeolian:* Dave Campbell, George Defebaugh)	Rebuilding: It's The Little Things That Count (Wally Brooks)	Grand Dampers (*Yamaha:* Jack Caskey, Joe Dennis, LaRoy Edwards, Andy Nishio)	
Grand Canyon	Reconditioning the Grand Action (Bob Russell)		Grand Regulation (*Kimball:* Eric Johnson, Ray Reuter, Roger Weisensteiner)	
Yellowstone	Electronic Tuning (Al Sanderson)	Troubleshooting The Vertical Action (*Everett:* Bill Brandom)	Humidity Control And Installation (*Dampp-Chaser:* Wendell Eaton, Allen Foote)	How To Tune The Not-So-Grand Piano (Ruth Ann Jordan)
Everglades	Hammer Boring (Dave Betts)	Grand Hammer Installation (Al Grenning)	Practical Key Recovering (Bill Spurlock)	Mini-Technicals (Bob Smit, Moderator)
Yosemite	Piano Stripping And Refinishing (*Bix Manufacturing Co.:* G.L. Bixerman, Webb Phillips)		Woven Felt: Manufacturing And Problems (*Chas. House:* Peter Van Strattum)	Customer Relations (Sid Stone)
Sequoia	Reconditioning The Vertical Action (Raye McCall)		Vertical Regulating (*Wurlitzer:* Rick Sletten, Dick Eckburg, Larry Talbot) **Priority Class For The Visually Handicapped**	
Board Room	Tuning Tutoring Forum (Tony Manna)		Tuning Tutoring Forum (Fred Odenheimer)	
Indianapolis Repertory Theatre A	Bridge Construction (Ralph Onesti, Ed Trefz, John Trefz)			
Indianapolis Repertory Theatre B	Pinblock Installation And Restringing (Ken Sloane, Dave Snyder, Willis Snyder)			

Thursday, July 5

Room	Period 1 (8-9:30 a.m.)	Period 2 (10:30 a.m.-noon)	Period 3 (1:30-3 p.m.)	Period 4 (4-5:30 p.m.)
Regency A	Upright Piano Service In The Home (*Kohler & Campbell:* Baxter Edmisten, Dave Lowe, Otis Oxford)			
Regency B	Grand Action Troubleshooting (*Baldwin:* Jack Krefting, Willard Sims)	History of Pianos (John Ford)	Working With Wood (*C.A. Geers Piano Co., Inc.:* Cliff Geers, Tony Geers)	
Regency C	Special Tools, Applications And Procedures (Chris Robinson)		Key Repair and Related Work (Joel Rappaport)	Keys and Grand Action Construction (Priscilla Rappaport)
Regency D	Upright Dampers And Hammer Application (*Sohmer:* Gary Green)	Wippen Rebuilding (Sally Jameson)	Grinding, Sharpening And Tempering Tools (Tom Pettit)	Pianos From A To W (*Kawai:* Jim Harvey)
Celebration B	Tone Regulation And Factory Procedures (*Steinway:* Joe Bisceglie, Bill Garlick)		Servicing Teflon Bushings (*Steinway:* Fred Drasche)	Let's Keep The Profit (Ron Kistler)
Bryce Canyon	Soundboards and Bridges (*Aeolian:* Dave Campbell, George Defebaugh)	Rebuilding: It's The Little Things That Count (Wally Brooks)	Grand Dampers (*Yamaha:* Jack Caskey, Joe Dennis, LaRoy Edwards, Andy Nishio)	
Grand Canyon	Reconditioning The Grand Action (Bob Russell)		Grand Regulation (*Kimball:* Eric Johnson, Ray Reuter, Roger Weisensteiner) **Priority Class For The Visually Handicapped**	
Yellowstone	Electronic Tuning (Al Sanderson)	Troubleshooting The Vertical Action (*Everett:* Bill Brandom)	Preparation Of The Piano For The Concert Artist (*Dampp-Chaser:* Rick Butler, Wendell Eaton)	How To Tune The Not-So-Grand Piano (Ruth Ann Jordan)
Everglades	Hammer Boring (Dave Betts)	Grand Hammer Installation (Al Grenning)	Practical Key Recovering (Bill Spurlock)	Mini-Technicals (Bob Smit, Moderator)
Yosemite	Piano Stripping and Refinishing (*Bix Manufacturing Co.:* G.L. Bixerman, Webb Phillips)		Woven Felt: Manufacturing And Problems (*Chas. House:* Peter Van Strattum)	Customer Relations (Sid Stone)
Sequoia	Reconditioning The Vertical Action (Raye McCall)		Vertical Regulating (*Wurlitzer:* Rick Sletten, Dick Eckburg, Larry Talbot)	
Board Room	Tuning Tutoring Forum (Tony Manna)		Tuning Tutoring Forum (Fred Odenheimer)	
Indianapolis Repertory Theatre A	Bridge Construction (Ralph Onesti, Ed Trefz, John Trefz)			
Indianapolis Repertory Theatre B	Pinblock Installation And Restringing (Ken Sloane, Dave Snyder, Willis Snyder)			

Friday, July 6

Room	Period 1 (8-9:30 a.m.)	Period 2 (10:00-11:30 a.m)
Regency A	Working With Wood (*C.A. Geers Piano Co., Inc.:* Cliff Geers, Tony Geers)	
Regency B	Grand Action Troubleshooting (*Baldwin:* Jack Krefting, Willard Sims)	Mini-Technicals (Bob Smit, Moderator)
Regency C	Soundboards And Bridges (*Aeolian:* Dave Campbell, George Defebaugh)	Electric Grand Pianos (*Yamaha:* Joe Dennis, Wayne Williamson)
Regency D	Upright Dampers And Hammer Application (*Sohmer:* Gary Green)	Pianos From A To W (*Kawai:* Jim Harvey)
Celebration B	Tone Regulation and Factory Procedures (*Steinway:* Joe Bisceglie, Bill Garlick)	
Bryce Canyon	Visually Handicapped Committee Forum (Ken Williams, Chairman)	
Grand Canyon	Grand Regulation (*Kimball:* Eric Johnson, Ray Reuter, Roger Weisensteiner)	
Yellowstone	CTE Training (Rick Baldassin, Connie Chesebrough, Jim Geiger) PTG Craftsmen Members Only	
Everglades	Humidity Control And Installation (*Dampp-Chaser:* Wendell Eaton, Allen Foote)	Troubleshooting The Vertical Action (*Everett:* Bill Brandom)
Yosemite	Piano Stripping And Refinishing (*Bix Manufacturing Co.:* G.L. Bixerman, Webb Phillips)	
Sequoia	Vertical Regulating (*Wurlitzer:* Rick Sletten, Dick Eckburg Larry Talbot)	
Board Room	College And University Forum (Doug Strong, Moderator)	Player Piano Forum (Norm Heischober, Moderator)
Indianapolis Repertory Theatre A	Bridge Construction (Ralph Onesti, Ed Trefz, John Trefz)	
Indianapolis Repertory Theatre B	Pinblock Installation And Restringing (Ken Sloane, Dave Snyder, Willis Snyder)	

Visually Handicapped...

and needs of the visually impaired.

We also are trying to get a guide service started for any visually impaired person wanting to use it. We would have to indicate when we register whether or not we would be needing a guide and for how long. We may also have a visually handicapped technician as an interpreter to help the instructors put their terms into our way of saying things. The Home Office is making every effort to ensure that this will be one of the best conventions for the visually handicapped in years.

If you have any questions that you would like to see incorporated in this year's or future conventions or placed within the framework of your committee's duties, don't hesitate to write directly to me at 149 Anderson Avenue, Syracuse, NY 13205. Until we get together again, I and the two other members of our committee, Stanley Oliver and Jess Cunningham, wish you all the best.

Please Note:

Badges must be worn to all classes and exhibit area. All classes are on the second floor of the hotel, except the rebuilding classes, which are across the street. Friday's shortened schedule means that classes will end at 11:30 a.m., with only a half-hour break at 9:30 a.m.

Indianapolis: The View From the Circle

Guy McKay
President, Indianapolis Chapter

How many of you knew that one of Indianapolis' most common nicknames is the "Circle City" or more briefly, "The Circle?" Now that you are aware of this important fact, maybe you would like to know more about this Circle.

We are referring to Monument Circle in downtown Indianapolis, where Meridian crosses Market Street. When you come to the annual convention at the Hyatt Regency this summer, you will be only a block and a half southeast of the Circle. Since it is not only our symbol but the central focal point for our town, it will be one of the most obvious and accessible landmarks for you to explore.

In the middle of the Circle stands the Soldier's and Sailor's Monument. It was built before the turn of the century to commemorate the heros of the wars. In the center is a limestone shaft rising 284 feet above the street. On the very top is a bronze statue, referred to somewhat vaguely as the "Victory Lady." Surrounding the shaft are several quite large limestone carvings, which vividly depict various acts of heroism. Two sides are decorated with waterfalls.

"...anything that happens 'on the Circle' happens before the eyes of the world. It has been the scene of political announcements and speeches, civic undertakings, wedding processions, demonstrations of all kinds, celebrations, tragedies — you name it."

If you are into stair climbing, you can go inside the monument and climb to the top. It offers an interesting view of the city: the Statehouse to the West, Market Square Arena to the East, and the Hotel and the new Hoosier Dome to the Southwest.

Most people would rather walk around it, or bask in the sun on the steps. In recent years they have added brick streets and antique lighting, which makes it an attractive place for a little stroll on summer evenings.

We who live here recognize the Circle as our most visible place; anything that happens "on the Circle" happens before the eyes of the whole world. It has been the scene of political announcements and speeches, civic undertakings, wedding processions, demonstrations of all kinds, celebrations, tragedies — you name it.

As you walk around the Circle you will notice Christ Church on the northeast quadrant. It is interesting architecturally and adds a quiet dignity to the bustle of downtown. Many people like to go inside and pass a few moments meditating in the course of a busy day.

The Circle Theatre on the southeast quadrant is another landmark that is being restored. Starting this fall, it will be the permanent home of the Indianapolis Symphony.

The Circle is only one of many attractions within easy walking distance of the hotel. We think our town is a fun place, and we intend to do our best to help you enjoy it.

Remember, when we say "Win at the Indy 440" we are talking about everybody. The only losers will be the ones don't show up. Don't miss the big one. See you in July.

Coming Events

Date	Event	Site	Contact
May 11-12	PTG Intermountain Convention	Brigham Young University, Provo, Utah	Jack Reeves 486 N. 300 W. Orem, UT 84057
May 17-19	Pianoforte Tuners' Association Convention	Royal Clifton Hotel Southport, England	Dan Evans 4100 Beck Ave. Studio City, CA 91604
May 19-20	Golden Gate Chapter Grand Action Regulation Seminar	Store or School	Sid Stone 16875 E. 14th Street San Leandro, CA 94578 (415) 481-1903
June 23-26	NAMM Summer Expo	McCormick Place Chicago, IL	Bob Russell 1414 Lander Rd. Mayfield Heights, OH 44124
	Win At The Indy 440!		
July 2-6	1984 PTG Convention And Institute	Hyatt Regency Indianapolis	PTG Headquarters (816) 444-3500

Each One Reach One

Membership Is Everybody's Business

Charles P. Huether
Vice President

Do you enjoy your regular chapter meeting? Are you one of the many members who turns up for the meeting, listens, asks questions, partakes of refreshments, does some socializing and goes home never wondering where or how it all came about? Did you ever consider that this wonderful fraternal and technical gathering would never take place at all if there were not some members willing to assume leadership positions? And where do you think they came from?

They came from new membership recruitment. There are few people in any organization willing and able to handle leadership functions with ability and success. They are relatively rare. The bulk of members cannot or will not do what is necessary.

If we expect our Piano Technicians Guild to continue to flourish, we need these leaders, which means we need to renew our membership rolls regularly. There is always a turnover for a variety of reasons. New members are not always potential leaders, but we do need to recruit. One never knows how that shy, non-verbal person who sits quietly in the back of the room, hardly daring to speak to anyone, might blossom if given a chance to grow in a fertile place.

Our organization is a fertile place to grow and we need to keep sowing the garden. Make sure that your investment in the Piano Technicians Guild will not be lost. Make sure that the leaders of tomorrow are helped to join today.

NEW MEMBERS

Registered Technician

Connecticut Chapter
STRAWBRIDGE, Lawrence C.
50 Valley View Lane
New Milford, CT 06776

Detroit-Windsor Chapter
BENNETT, Douglas W.
7510 Douglas Road
Lambertville, MI 48144

Indianapolis Chapter
DIXON, David T.
599 W. Westfield, Apt. 24
Indianapolis, IN 46208

Phoenix Chapter
GRACEY, Gary C.
4530 McDowell Road
Apt. 133
Phoenix, AZ 85008

Pomona Valley Chapter
JOSLYN, Eric M.
250 South Olive St.
Claremont, CA 91711

St. Louis Chapter
PERRIMAN, Joe W.
705 W. 6th Street
Washington, MO 63090

Allied Tradesman

Connecticut Chapter
MOLNAR, Eugene, L
78 Welch Terr.
Fairfield, CT 06430

Dallas Chapter
TRAVIS, Paul S.
165 Village Est. Dr.
Lewisville, TX 75067

Reno Chapter
BEEKS, Fred M.
1785 Somerset Place
Reno, NV 89509

Salt Lake City Chapter
CHANDLER, Jerome F.
3862 Creek Drive
West Jordan, UT 84084

Apprentice

Baltimore Chapter
SAMMIS, Edward A.
RFD #10, 754 Holly Drive No.
Annapolis, MD 21401

Buffalo Chapter
RIVERS, Laurel R.
R.D. #1, Christy Rd.
Fredonia, NY 14063

SCIOLINO, Thomas S.
229 Crosby Avenue
Kenmore, NY 14217

New Hampshire Chapter
HERRICK, James T.
5 Wendler Drive
Epsom, NH 03034

New Orleans Chapter
DAUGHERTY, Jerry D.
614 Green Street
Thibodaux, LA 70301

Philadelphia Chapter
HELZNER, Alan
11008 Philmont Place
Philadelphia, PA 19116

St. Louis Chapter
PLITT, Edward A.
9971 Cambria Drive
St. Louis, MO 63136

WENTWORTH, Gerald E.
7321 Normandie Ct., Apt. F
Hazelwood, MO 63042

Associate

Los Angeles Chapter
CHINN, Mansford W.
330 So. Avenue 56
Los Angeles, CA 90042

St. Louis Chapter
JENKINS, Paul W.
210 W. Clayton Road
Ballwin, MO 63111

Washington, D.C. Chapter
ZLOMEK, Elizabeth A.
Box 1066
College Park, MD 20740

Student

Central Florida Chapter
DALBOW, Erik M.
405 S. Bluford Ave.
Ocoee, FL 32761

Golden Gate Chapter
ZARO, Dennis P.
801 Paula Lane
Petaluma, CA 94957

Lansing Chapter
HENRY, Karen-Jane
679 Butternut Dr., #401
Holland, MI 49423

WOLF, Paul
8169 Miller
Swartz Creek, MI 48473

Los Angeles Chapter
BICKFORD, Robert L.
44246 12th St. East
Lancaster, CA 93535

TAYLOR, Stan W.
8813 Sorrel
Bakersfield, CA 93307

Memphis Chapter
COLLINS, Clive
3744 Bailey Station Road
Collierville, TN 38017

Louisiana Chapter North Central
ANDREWS, Darrel I.
2222 W. Algonquin Trail
Shreveport, LA 71107

Philadelphia Chapter
GOLDSTEIN, Morris
604 Wanamaker Road
Jenkintown, PA 19046

WISNER, Peter E.
543 Keebler Road
King of Prussia, PA 19406

Tri Cities Chapter
TAETS, Eugene A.
411 - 2½ Avenue
Silvis, IL 61285

Tucson Chapter
RONSTADT, Elizabeth H.
2826 E. Blacklidge
Tucson, AZ 85716

Twin Cities Chapter
BORG, Todd L.
1945 229th Ave. N.E.
Bethel, MN 55005

CARLSON, Paul G.
4144 Park Avenue
Minneapolis, MN 55407

Utah Valley Chapter
ROMRELL, Laurie A.
240 E. 600 North, Apt. 5
Provo, UT 84601

Washington, D.C. Chapter
NICHOLS, Gary W.
6104 41st Ave., Apt. A
Hyattsville, MD 20782

URSSING, Karen G.
11636 Lockwood Drive
Silver Spring, MD 20904

Wilmington Chapter
MEYERMANN, Henry T., Jr.
307 Delaware Ave.,
McDaniel Crest
Wilmington, DE 19803

RECLASSIFICATIONS

Registered Technician

Chicago Chapter
BOWLING, Timothy P.

Nebraska Chapter
HARTMAN, Jay R.

San Francisco East Bay Chapter
BAILEY, Gary L.

Membership Recruitment Points
June 1, 1983 — March 31, 1984

Booster Club	Pts.	Mbrs.
ADAMS, Ron	1	1
ATHERTON, Olan M.	1	1
BAILEY, Benjamin	1	1
BALDASSIN, Rick	20	4
BENNETT, David L.	5	1
BERG, Harry E.	1	1
BESSETTE, Roland	1	1
BETTS, David	5	1
BIANCHI, John L.	1	1
BLEES, Willem	21	7
BORDELEAU, Edward	1	1
BOWSER, Gary A.	3	1
BRADY, Stephen H.	5	1
BRIGGS, Arthur	4	1
BUNKER, Mark E.	1	1
CAPP, Richard M.	5	1
CHURCHILL, Ken	1	1
CLASS, Kenneth A.	1	1
COLEMAN, James Sr.	5	1
COX, Merrill W.	1	1
CRABB, Larry Jr.	2	2
CRAW, Stephen D.	3	1
DARLING, Lindasue	1	1
DAVIS, Steven W.	3	1
DOSS, Harry W.	4	1
DROST, Michael A.	1	1
EATON, Wendell E.	3	3
EDDY, Joe C.	1	1
EVANS, George J.	5	1
FLEGLE, Richard Sr.	1	1
FLIPPIN, C.D. Jr.	5	1
GARRETT, Joseph A.	5	1
GEERS, C.A.	3	1
GEOGHEGAN, Stephen	15	3
GILBERG, Donald C.	5	3
GIST, Ronald T.	1	1
GOETSCH, Lawrence	1	1
GREENBROOK, Reginald	1	1
GROSSMAN, Matt	4	1
GURNEE, Daniel	1	1
GUSTAFSON, David E.	8	2
HALE, Robert R.	4	1
HARMON, Clayton	6	3
HARTEAU, Daniel	1	1
HEBERT, Roy A.	1	1
HEIKKINEN, Dale E.	6	2
HENNESSY, Frank P.	1	1
HERWIG, Lewis F.	5	1
HESS, Marty A.	1	1
HITT, Henry L. Jr.	8	2
HOFFHEINS, Robert	4	1
HOFSTETTER, Robert	2	2
HOPLAND, Ray	1	1
HOUSER, Clark M.	1	1
HOWELL, W. Dean	1	1
HUFFMAN, Keith M.	1	1
JESCHKE, Alfred E.	5	1
JOHNS, Barney J.	2	2
JORGENSEN, Owen	7	3
KEAST, Lawrence J.	1	1
KIMBALL, Richard C.	4	1
KLINE, Albert	3	1
KURK, Dennis E.	1	1
LAGHEZZA, Roger	4	1
LAIRD, Jon M.	2	2
LANG, Anthony L.	4	1
LEARY, Janet	4	1
LORD, Joseph O.	1	1
LOVGREN, Christine	19	4
LUNDELL, Daniel D.	5	1
MARLING, Harold S.	5	1
MARTIN, Barbara M.	1	1
MASTAGNI, Angelo F.	4	2
MAYR, Vitus J.	4	1
McCLURE, Bob	3	1
McKAY, C.G.	1	1
McVAY, James I.	3	1
MEEHAN, Joseph A.	1	1
MOBERG, Jonathan M.	1	1
MORRIS, Jere F.	1	1
MOTSKO, William R.	5	1
NEIE, Gary A.	2	2
NEWHOUSE, Lawrence	5	1
NYE, Jonathan C.	5	1
ODENHEIMER, Fred	4	4
OLIVER, Edward A.	1	1
OLIVER, Stanley	4	1
OUSLEY, Robert L.	5	1
PANNELL, Paul	5	1
PEAKE, David E.	1	1
PENNINGTON, David L.	5	1
PERKINS, Robert K.	6	2
PERSON, Donald A.	4	1
PHILLIPS, Webb J.	20	6
POWELL, Teri L.	1	1
PRENTICE, Randy A.	2	2
PREUITT, Ernest S.	1	1
PRIVETTE, Richard	1	1
QUINT, Richard B.	1	1
RANDOLPH, Terry S.	6	2
RASKOB, Richard	1	1
REEVES, Robert A.	1	1
REUTER, Raymond A.	3	1
RICKEY, Charles	1	1
RITCHIE, Mark O.	6	3
ROE, Eugene	7	2
SANDERS, Robert L.	1	1
SCOGGINS, James W.	1	1
SEABERN, Paul W.	5	1
SHANK, C. Dean	1	1
SIEROTA, Walt	4	1
SIMS, James R.	4	1
SIMS, Willard L.	5	1
SIVEL, Richard F.	1	1
SPEIR, Leon J.	3	1
STOFFER, Phil	1	1
STONE, Patrick L.	4	1
STONE, Sidney O.	9	3
STOPA, Frank J.	4	2
TREMPER, Fred W.	12	3
TURNER, Jeffrey R.	1	1
VANDERVALK, Alexander	1	1
WELCH, Cyrus L.	1	1
WELTON, T.S.	5	1
WERNETH, Carey W.	5	1
WEST, Richard E.	2	2
WHITAKER, Craig M.	3	1
WOITASEK, Walter J.	5	1

Remember The Piano Technicians Foundation!

Remember those who contributed so much to your career and to the development of the profession with a contribution in their names to the Piano Technicians Foundation.

Contributions can be designated to one of three funds within the Foundation: the Stephen Jellen Memorial Library, the Piano Technicians Scholarship Fund and the Piano Technicians Research and Development Fund.

We salute the following contributors to the Foundation:

In Respectful Memory

Samuel Nock
Connecticut Chapter

Don Galt
Ernest S. Preuitt
Charles Huether

John L. Scheer
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Donations should be made out in the name of the **Piano Technicians Foundation** and mailed to: *Piano Technicians Guild, 9140 Ward Parkway, Kansas City, MO 64114.* Be sure to designate the name of the person you wish to honor and the fund to which you wish to contribute.

The Auxiliary Exchange

President's Message

GREETINGS TO EACH OF YOU IN THIS BEAUTIFUL MONTH OF MAY. I'm sure you will agree with me that the tulips, the grass and the leaves on the trees are not the only things that blossom out anew in these exciting months of spring, ushering us into the joy of summer. I find myself very renewed after a long winter. It is a special treat to leave my home with a sweater over my arm rather than layers of warmth, lined boots, a long wool scarf and a warm, warm hat. The sun is shining, the newness of nature is all about me and I feel wonderful — truly renewed.

Of course, if we didn't have the winter, I'm not sure we would truly appreciate the spring! It is many times the hard places we go through (and we all go through them) that make us appreciate the more relaxed and easy seasons of our lives. It is not always easy to look and find the good things, the blessings in disguise, in the "long hard winters" of our lives, but they are there. It depends so much on what we look for. We choose even what we look for. We choose our attitudes. We choose happiness! It is so exciting to me that we have been given a free will and the opportunity to make choices in our lifetimes that destine our futures and our happiness.

AND...SPEAKING OF MAKING CHOICES and finding fulfillment brings me to another favorite subject, OUR AUXILIARY! Webster says that an "auxiliary" is "help, aid, assisting, supporting." I like to think of our Auxiliary as "being there when we are needed." An auxiliary does not need to be a major artery. It does not have to have a superior track record. It does not need to give great sums of money for "approval." Then what are we and where do we fit in?

Webster hit it right on! We are a help, an aid, and we are supporting, not only to our technicians, but to spouses across our land. It gives us the opportunity to feel a part of a very exciting group of people, namely the Piano Technicians Guild and the Piano Technicians Guild Auxiliary! You are important! If you are reading this and you have not become a member of our PTG Auxiliary, this is our special invitation to you to come on board. Every link reinforces our chain that links us to one of the most progressive and exciting groups in existence today, the PIANO TECHNICIANS GUILD.

Belva Flegle,
President, PTG Auxiliary

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Editor, Auxiliary Exchange

JULIE BERRY
6520 Parker Lane
Indianapolis, IN 46220

Reflections on Japan

It was just a year ago that members of the Guild and their spouses who expected to attend the third International Association of Piano Builders and Technicians meeting in Tokyo, Japan, were busy preparing for a three-week trip to the Orient. For some of our seasoned travelers it was a second or third venture to the Far East. For others it was a first. All were concerned with readying an adequate wardrobe, sufficient rolls of film and properly functioning cameras. There was a total of 17 travelers, three of whom were members of the PTG Auxiliary, under the aegis of Club Universe —Fred Odenheimer's group. Their travel-tour was limited to Japan and thus did not include Korea and China. The 17 tourists from the Guild were soon known as "the piano group" after they joined about an equal number of non-piano people.

Many had come armed with their own Baedekers and language books: Myra Waldo's "Guide to the Orient," Fodor's "Travel Book of Asia" and such. There was little need for them since an excellent guide was assigned. At her initial greeting she told the group her Japanese name, then asked them to call her "Mira."

Mira knew her country and her people very well. With her fine command of English she provided a running commentary on the areas

passed through, described the agriculture of tea plantings, the growth and management of rice paddies, and factory and cottage industries. A woman who has traveled extensively in Europe and the United States, she was able to compare and contrast Western countries with her country in order to increase the concepts and understanding of her charges.

Mira's information always matched that of the guidebook, but there was often an extra little fillip of data that she provided that might not be found in guidebooks. A few of these extras will be shared with you.

When Japanese women smile, they endeavor to cover their mouths. They use their fans or spread their fingers fan-wise. According to Mira, the Japanese feel it is bad manners to smile and show teeth! And never more than six teeth should be shown! Proper Japanese women keep their hands folded in their laps — thumbs always hidden! It is bad form to make one's thumbs obvious.

The familiar tatami mats, found in all Japanese homes, are tightly woven of rice straw, three inches thick and generally 6′ by 4′. These mats provide the standard measurement for the multi-use rooms in the Japanese house or apartment. When an apartment is advertised for rent, one does not read 3 rooms and bath, but rather so many tatami mats!

In the United States, the number 13 often is considered unlucky, and in many hotels one finds there is no 13th floor. That is how the number four is regarded in Japan! Thus, a first-class hotel such as the Akasaka Prince in Tokyo will not have a fourth or 13th floor.

The well-known chopsticks are called "hashi" in Japanese and "faiji" in Chinese. According to legend, a Chinese princess, noting how birds used their beaks, had her servants cut two thin slices of wood, eight inches long, and then employed them to pick up food from her plate. The Japanese consider the "hashi" to be an extension of thumb and index finger. They usually are made of cedar, and the most expensive ones are of ivory. The travelers were warned not to use chopsticks with their left hands. If one is naturally left-handed, he or she should ask for a spoon. Bones at the crematorium are always placed or set with chopsticks held in the left hand! The Japanese have adages about chopsticks. A penniless beggar "...hasn't even two chopsticks." A rich man has "never held anything heavier than a chopstick!" — A.H.

Madame Walker

Editor's note: One of the fringe benefits of attending PTG conventions as a member of the Auxiliary is the opportunity one has to tour the convention cities. Some of our Auxiliary members are particularly skilled at discovering all the fascinating places to go in a city. As someone who lives in this year's convention city, I have been eagerly waiting for some of the Auxiliary's CDEs (City Discovery Experts) to come help me discover new and fascinating aspects of my own hometown. The following report was submitted by one of our CDEs from New Jersey:

Most everyone has heard of and known about James Whitcomb Riley, the Hoosier poet; Booth Tarkington; Henry Ward Beecher; and our twenty-third president, Benjamin Harrison, all famous and former citizens of Indianapolis. But not everyone knows about Sarah *nee* Breedlove Walker who was born in Delta, La., in 1867, later married C.J. Walker and came to work and live in Indianapolis.

It was in this capital city that she invented and marketed a preparation for straightening kinky hair. Generally addressed as Madame Walker, she started her small door-to-door cosmetics business in Indianapolis in 1910, concentrating on hair products for black women. Her enterprise eventually grew into a multi-million dollar operation, and Madame Sarah Walker became America's first black millionairess.

At the Indiana Historical Society Library in Indianapolis can be found the records and papers of the Madame C.J. Walker Manufacturing Company. Madame Walker died in 1919, and bequeathed a fortune to educational institutions and charities. The Schomburg Center for Research in Black Culture reports that a novel about Sara Walker is being written at this time by Alex Haley. His research assistant is A'Leila P. Bundles, the great-great granddaughter of Madame Sarah Walker.—A.H.

Planning a Summer Vacation?

Perhaps you are trying to figure out where to go before or after the Indianapolis convention. Many of our Guild and Auxiliary families traditionally combine their trip to the annual convention with some sightseeing and relaxation along the way.

You probably saw details about a post-convention trip to the Kimball factory and the French Lick Springs resort. That would be a fine thing to do at the end of the convention. If you are looking for a city to visit, you might consider stopping in one of these cities; they are all within a day's drive or less from Indianapolis: Chicago, Milwaukee, St. Louis, Cincinnati, Cleveland, Columbus, Atlanta, Nashville and Memphis.

Since four interstates lead out of Indianapolis in seven different directions, it is easy driving to get to and from this year's convention city. If you are flying to Indianapolis and would like to be met at the airport by friendly faces from the Indianapolis Guild and Auxiliary chapters, please get in touch with Ron and Julie Berry. Members of the local host chapter will be happy to take you to the convention hotel at no charge, but they do ask that you make arrangements for this by July first.

Classified Advertising

CLASSIFIED ADVERTISING RATES are 25 cents per word with a $7.50 minimum. Full payment must accompany insertion request. Closing date for ads is six weeks prior to the month of publication.

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The Journal does NOT provide blind box service. Please include a mailing address and/or telephone number with your ad.

Ads appearing in this journal are not necessarily an official endorsement of the services or products listed.

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Ampico Player Mechanism fits a full-size grand piano—$1,000 firm. Contact **M. Kapp, 603 Saratoga Drive, Long Beach, MI 39560 or call (601) 863-0143.**

COLEMAN DEFEBAUGH VIDEO-CASSETTE Two hour tape of the popular aural and visual tuning class presented by Jim Coleman and George Defebaugh at PTG conventions and seminars. Text covers pitch raising, temperament setting, beat counting, octave stretching, use of the Sanderson Accu-Tuner, etc. Both VHS and Betamax—$79.50. **Superior Instruction Tapes, 2152 West Washington Blvd., Los Angeles, CA 90018 (213) 735-4595.**

Accu-Tuner: Robert Conrad, Kansas City, Mo., (816) 444-4344.

WANTED

WANTED: MASON & HAMLIN OR STEINWAY. Want one that was a player. Have mechanism to install. **BRADY, 4609 Cranbrook, Indianapolis, IN 46250. (317) 259-4305, after 5:00 pm (317) 849-1469.**

Tuner-Technicians Needed! All levels of experience. Overflow business needs subcontractors for concert, studio, retail and store work in Los Angeles. A great opportunity. Send resume to: **Pianocrafters, P.O. Box 7007, Mission Hills, CA 91346.**

PIANO TUNER-TECHNICIAN. Experienced. Relocate to Central Florida. Major dealer. Excellent opportunity. (305) 331-6666 Mr. Davis. Or write: **Warehouse Pianos Inc., 755 Hwy 17-92, Fern Park, Fl. 32730.**

HELP WANTED — artist piano-rental company seeks head technician. Work with the greatest pianos and artists in the world. A head technician is sought for long-term employment in New York City. Electronic and aural tuning expected. Must be willing to embrace with equal zeal the following: tuning rebuilding, regulating, voicing, road touring and sometimes long and unusual hours. Benefits: work with the world leader in concert piano preparation and provision, all types of artists, all types of music. As a reward for long-term loyalty, profit-sharing or other bonus could apply. (212) 582-6798.

WANTED TO BUY, Yamaha PT-3 or PT-4 tuning scopes. Call anytime day or night (212) 582-6798.

MISCELLANEOUS

SIGHT-O-TUNER MODIFICATION. For the first time—INTERNAL ERROR COMPENSATION. The "Error" discussed by Steve Fairchild has been compensated internally, freeing both dials for measuring. No confusing Error Compensation Chart or third dial. Bourns 10-turn Knobpots give increments of .01¢! Now tune with even higher accuracy in less time, Cleaning, calibration, guarantee, and temperament systems of leading concert technicians included. Best prices—why pay more? Repairs accepted. Methods proven by full-time concert RTT with electronic experience. Careful—don't get off pitch! **RICK BALDASSIN, (801) 374-2887.** Endorsed by Dr. Albert Sanderson, inventor of the Sight-O-Tuner.

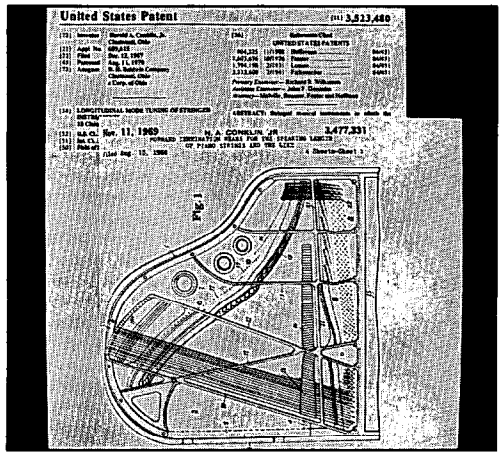
Is your service business a wishing-well? Do your customers toss pennies and expect miracles? Educate them to the facts of piano life, through distribution of THE PIANO OWNER'S GUIDE! Soft-bound $3.95. Hardbound $6.95. Quantity discounts, terms. Inquire. APEX PIANO PUBLISHERS, 1014 Kentwood Drive, Mountain Home, Arkansas, 72653.

The Baldwin Piano...
You can see why it sounds better

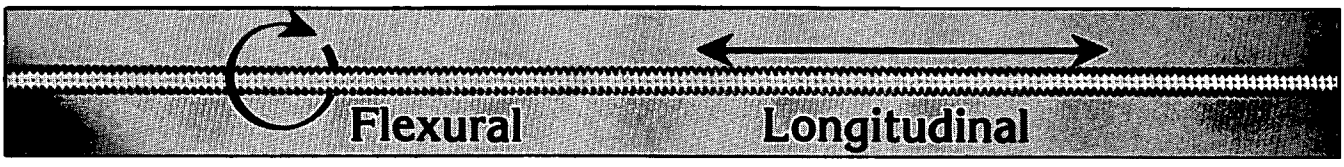
Exceptionally rich, clear tone with note-to-note consistency is a characteristic of the bass of a Baldwin piano. Our exclusive SynchroTone™ Strings are one of the main reasons why.

When a string is set in motion, two distinct groups of tone components are produced. The predominant group involves the flexural mode, which has always been the basis for stringed instrument design. The longitudinal mode is less audible but still present in every vibrating string.

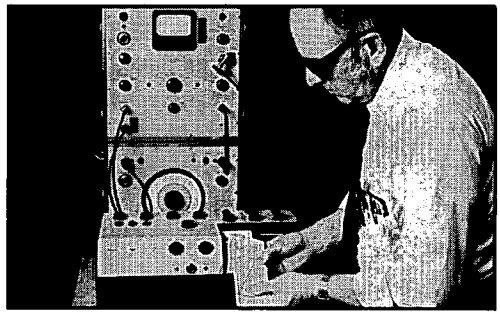
Several years ago, our research staff, seeking a way to improve the traditional string, invented a way to tune the longitudinal mode in addition to the flexural mode of the string. By isolating and "pre-tuning" this mode (usually 4000 to 5200 cents above the fundamental frequency of the flexural mode), Baldwin has devised the SynchroTone String principle — a significant breakthrough in scale design (U.S. Pat. No. 3,523,480).



To take full advantage of this SynchroTone principle, we even invented a precision string winding machine, so different from the ordinary winding machines that it, too, is patented (U.S. Pat. No. 4,055,038).



Precision SynchroTone Strings were first introduced in Baldwin grand pianos. Similar SynchroTone Strings are now found in every Baldwin piano built. This is just one more example of how we build incomparable tone quality and consistency into every Baldwin piano... from the concert grand to the smallest vertical.

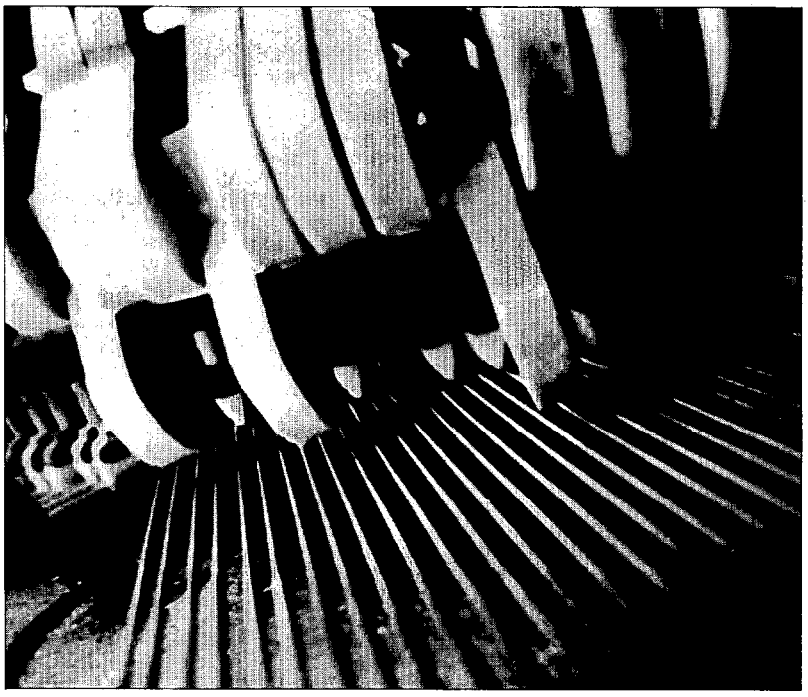


Fourth in a series of informative ads on piano tone published by Baldwin Piano & Organ Company exclusively for the benefit of piano technicians.

Baldwin. - *Leading the way through research*

BALDWIN SPECIAL SERVICE—You may order Baldwin replacement parts at any time our office is closed—nights, weekends, and holidays—by dialing direct (513) 852-7913. Your verbal order will be recorded on our automatic answering service and processed the next working day.

The Consistent Hammer



Wurlitzer understands your frustration in voicing an instrument with hammers that are not of uniform density. That's why we have new hammer presses that control both vertical and horizontal pressure on the hammer. They allow us to produce a hammer with more uniform density, one that will require less voicing and care, one that will be more consistent, from piano to piano. And the shanks are cut with such precision that the striking point on a Wurlitzer Piano is consistent within each model.

Wurlitzer goes to great effort, too, to make sure all hammer shanks are positioned so the grain is the right way to provide the best blow to the strings. (Just as a baseball bat will crack if you hit the ball against the grain incorrectly, if the shank is not installed correctly it will not give as it strikes the string.)

All of this, of course, provides a more uniform and dependable piano that can make your job a little less frustrating.

Our continuing commitment to you, the technician, is apparent in our ongoing willingness to teach and train. Our key technical people attend PTG meetings and conventions and conduct training sessions. Our service department continues its seminars. Our technical staff is at your service to provide any assistance you might need, just call 800/435-2930 toll-free between 8:00 a.m. and 4:30 p.m. For parts call Code-A-Phone 800/435-6954. In Illinois call 815/756-2771.

We recognize that a quality instrument must be well maintained. That's why Wurlitzer Pianos are designed, engineered and built with you in mind.

WURLITZER®

The Music People

Dekalb, Illinois 60115

May 1984

UPDATE

Indy Council To Consider Bylaws Changes

The Bylaws Committee of the Piano Technicians Guild has received a number of proposed changes in the Guild's bylaws. Council delegates will have an opportunity to vote on these changes during their meeting at the Hyatt Regency Indianapolis July 1-2.

1. Change of dues for other than Craftsman members

Regulations Article III, Section B, "Dues"

Insert new paragraph *1:* "Annual dues for Registered Technicians shall be determined by the Council. All other classes of membership shall be one-half that of Registered Technicians."

Renumber present paragraphs as *2* and *3.*

Comment: The Golden Gate Chapter proposes this amendment. Board and Bylaws committee recommend not adopting this amendment.

2. Change of duties of Editorial Advisory Committee

Regulations Article II, Section 11 currently reads: There shall be an editor advisory committee composed of three (3) Registered Technician members, none of whom shall hold higher office than chapter president. This committee will be elected by Council for a two- (2) year term. It shall be the sole function of this committee, upon proper notification by the aggrieved party, to review any editorial or other material which has been rejected for *Update* publication by the editor. It shall be the duty of this committee to contact the *Journal* editor to determine why said material was rejected. After weighing all the evidence, it shall be the proper duty of this committee to either confirm the *Journal* editor's action, or nullify it, thereby causing said article to be printed in the next following edition.

Change Regulations Article I, Section B, 11.

Keep first two sentences as presently stated, then strike the remainder of part 11 and in its place add: "The committee shall be available to consult with and advise the editors on material for *Journal* publication, either at the editor's request or at the request of other parties."

Comment: This comes from the Editorial Advisory Committee. They feel that their job is pointless if it is to only involve the *Update* section of the *Journal* and feel that their duties should either be enlarged or the committee should be eliminated.

Bylaws Committee recommends

Continued

Nominating Committee sets 1984-85 Slate

The Nominating Committee for the year 1984-85 has chosen the following members to serve you:

President
Charles Huether
Vice President
Richard Flegle
Secretary/Treasurer
Ronald Berry

We would like to thank all of the chapters who sent their nominations to the committee and you can be sure every name nominated was taken into consideration before the final selection was reached. We have many qualified members in our organization and we must be sure to continue our policy of strong leadership.

The following names also were nominated by chapters: for Vice President, Ronald Berry, M.B. Hawkins and Bob Perkins; and for Secretary/Treasurer, Jim Bryant and Bob Perkins.

The following names were nominated for Regional Vice Presidents in the six regions by their chapters and will be voted upon at the council caucus in Indianapolis in July.

Northeast
William Moonan
Southeast
Jim Ellis
Central East
Bob Perkins
Central West
Willem Blees
Paul Riedel

We would hope that every chapter would discuss their officers for 1985 and take an active interest in our leadership.

Bob Russell,
Chairman, Nominating Committee
John Bloch
Larry Crabb
Ernie Juhn
Sid Stone

Bylaws Changes...

adding the following sentence to define what will happen in a case where no agreement can be reached: "It shall be the duty of the Editorial Advisory Committee to make the final decision to print or not to print said material."

3. Who may be members-at-large?

Bylaws Article III, Section 2, last paragraph "Members-at-large" currently reads: Members-at-Large shall be those who live outside the jurisdiction of any chapter and shall be under the jurisdiction of the appropriate Regional Vice President.

Amend Bylaws Article III Section 2, last paragraph "Members-at-large"

Add a second sentence "Only Franchised members (Registered Technician-Active, Registered Technician-National Sustaining, Registered Technician-Chapter Sustaining) may be Members-at-Large."

Comment: Presently it is unclear as to whether students, for example, are allowed to be members-at-large. This amendment allows only Craftsman members to be members-at-large.

3A. Bylaws committee is split in its feelings and presents another approach to this also: Add this alternate second sentence: "A student or apprentice member can only be a member-at-large if he/she is sponsored by and/or is under the direct supervision of a Franchised Member."

4. Change name of Minorities Committee

Amend Bylaws Article XIII, Section 1 and Regulations Article II, Section 17) to change name "Minorities Committee" to "Members Rights Committee."

Comment: This proposal comes from the present Minorities committee who want to change the name to one which better describes their function. Bylaws committee recommends adoption.

5. Change name of Visually Handicapped Committee

Amend Bylaws Article XIII, Section 1 and Regulations Article II, Section 23 to change the name "Visually Handicapped" to "Visually Impaired."

Comment: This proposal comes from the Visually Handicapped committee who feel that the term "Visually Impaired" more aptly describes their situation. Bylaws committee recommends adoption.

6. Delete unnecessary committees

In an effort to make our organization more efficient, the Board has suggested eliminating the following committees for the reasons stated, Bylaws committee recommends deletion.

Economic Affairs Committee— basically a non-functioning committee.

Membership Promotion Committee— This committee is made up of board members and is therefore a function of the board and the Home Office staff and is unnecessary as a separate committee.

Nomenclature and Service Manual—This committee has found it difficult to know what it is supposed to do.

Public Relations Committee— The job of this committee is such a large and spread-out one that it is felt that a professional home office staff will be able to handle these duties better than a committee of members spread over the country.

College and University Technicians Committee—This committee was set up to give the College and University Technicians Forum at the the convention. This might be more properly a function of the Institute director than of a committee.

Convention Time and Place Committee—The function of selecting a site for the convention has been done by board members and the home office and therefore a specially listed committee is unnecessary.

Budget Ways and Means Committee—This committee is defined as the Executive Board and therefore a specially listed committee is unnecessary.

Honorary and Sustaining Membership Committee—This is defined as board members and it is a board function, making a specially listed committee unnecessary.

Foundation Receives IRS Exemption

Contributions to the Piano Technicians Foundation will now be tax-deductible, according to a recent ruling by the Internal Revenue Service.

The ruling means that contributions to any of the Foundation's three funds may be deducted from federal income tax returns, according to Guild General Counsel Sherman Titens. Contributors to the Foundation can designate funds to the Stephen Jellen Memorial Library, the Piano Technicians Scholarship Fund or the Piano Technicians Research and Development Fund.

Contributions to the Foundation may be sent in memory of one who is deceased, or in honor of a person who has been a special inspiration or made a significant contribution to the piano technician's profession or to the Guild. To date more than 110 contributions in honor of more than 40 individuals have been received.

Donations should be sent to the Piano Technicians Foundation, 9140 Ward Parkway, Kansas City, MO 64114. Be sure to specify which of the three funds your contribution should benefit, as well as the name of the individual you intend to honor.

Journal, Update Deadlines Set

Articles submitted for publication in the Piano Technicians *Journal* and *Update* must be received by the office in Kansas City five weeks prior to the month of publication. The long lead times are necessary because of the production and printing schedules.

Who's Who In The Guild's Kansas City Office


Parks


Seevers


Hall


Kaufman


Branic


Summers


Haskamp


McPhee


Goldsmith


Titens

Who works behind the scenes to make the Guild run smoothly? Who handles the books, publishes the pamphlets, keeps the membership records and takes care of all the other jobs that keep the Guild humming?

Here's a look at some of the people who work for you in Kansas City. We'll highlight others in future issues of the *Journal,* and you'll see some of these faces at the Convention in Indianapolis. Be sure to say hello.

Heading the Guild's operations from Kansas City is **Barbara Parks,** the executive director. Parks has been affiliated with Martin Fromm & Associates, the firm which provides headquarters services to the Guild, for the past 15 years. Eight years ago, she was instrumental in the founding of the Paint, Body and Equipment Association, a trade group of warehouse distributors in the automotive collision repair business. She continues to serve that group as executive director while heading the Guild staff.

Working closely with Parks during the Institute and Convention days this summer will be **Ginny Seevers,** director of conventions and meetings. Seevers and assistants **Rosemary Hall, Barbara Kaufman** and **Nadine Branic** are responsible for the housing, meeting facilities, convention food and the other physical arrangements for the trade show and convention.

Seevers has been with the Guild's management firm since 1977. First employed as an administrative assistant to the firm's CEO, she assumed the responsibilities of office manager before her promotion to head the conference department in Kansas City.

Hall, assistant director of meetings and conventions, has been with the Fromm organization since 1972. During the six years she has worked in the convention department, she has helped coordinate more than 20 major conventions and many smaller meetings.

Kaufman, a four-year veteran of the convention department, worked with Auxiliary members to plan this year's convention spouse program. She also is responsible for processing registration fees, correspondence and working with hotels to coordinate seminars and small meetings.

Branic, the newest member of the convention department, joined Martin Fromm & Associates in 1981 after several years in the transportation industry. Since joining MF & A, she has worked in computer operations. In her work with the Guild, she will handle convention registrations.

Betty Summers serves as the Guild's membership director. She has been associated with the Fromm organization for nearly a quarter of a century, first on the secretarial/clerical staff and then as executive director of the Association of Diesel Specialists, an international trade organization of the businesses that provide parts, technical maintenance and repair services to the fuel injection systems of diesel-powered vehicles and machines. Her Guild responsibilities include maintenance of the membership records and administration of membership programs. Summers is assisted by **Mary Jo Haskamp,** who has been with the Fromm organization since 1980.

A primary contact for Piano Technicians Guild members who call the office with questions is Parks' administrative assistant, **Janine McPhee.** Her responsibilities include correspondence, phone communications, the business aids and merchandise program and special projects for Parks.

The *Journal's* editor, **Larry Goldsmith,** will be in Indianapolis with his camera to cover the Institute and Convention activities for the magazine. Goldsmith, the Guild's communications director, joined the staff from Hallmark Cards, where he edited the company's daily employee newspaper for more than a year. He also has 10 years of experience in association publications, public relations and daily newspapers.

Piano Technicians Guild General Counsel **Sherman Titens** also will attend the Guild's meeting in Indianapolis. Titens, who is an attorney, has been president of a national education company and head of a consulting firm. A senior vice president of Martin Fromm & Associates, he has been with the company for more than a year and was integrally involved in the


Patton


Divine


Riley


Nichols

transition of the Guild's headquarters from Seattle to Kansas City.

The success of an association depends on its ability to keep accurate financial records, and in this area, the Guild is particularly well-staffed. Controller **Virginia Patton** is vice president/finance of Martin Fromm & Associates. She joined the company in 1975 and has served as its secretary since 1980. She has more than 30 years' experience in bookkeeping and accounting.

Financial reports and budget comparisons are prepared by **Diana Divine,** a Martin Fromm employee since 1979 and company controller. She brings more than 15 years of experience in accounting and bookkeeping to her Guild responsibilities.

Accounts payable are the responsibility of **Kathy Riley.** A Martin Fromm employee since 1980, she previously served as bookkeeper for the Automotive Warehouse Distributors Association Service Center and the insurance firm which served a number of MF & A-managed associations. She has worked in the accounting field since 1966.

Mary Nichols handles accounts receivable for the Guild. A relatively recent MF & A employee, she brings more than six year's experience to her Guild duties.

Programs Are Heart of Chapter Meetings

Dale Heikkinen
Chairman, Chapter Management And Achievement Committee

Approximately 20 percent of the chapter officers will be changed throughout the nation.

Selecting good officers has a tremendous impact on how well the programs will be planned for the coming year. At the heart of our chapter meetings are the programs. Without doubt, persons are willing to drive long distances if there are good programs, but those programs are dependent on electing good leadership.

Chapter Programs from around the US

Colorado West "The customer and you," Dick Flegle

Lansing, Mich. "Mini-temperaments," Les Jorgensen

Milwaukee, Wis. "On the use of partials in tuning," Fred Tremper

Nebraska "Regulation in the home," Bob Erlandson

Orange County, Calif. "Installing grand hammers (with speed)," Mel Morris

Portland, Ore. "Woodworking—moisture in pianos," Steve Davis

Syracuse, NY "Installation of Ronsen Uni-hammers and shanks in upright actions," Joe Karwacki

Western Michigan "Problems involved in replacing brass rails (action)," Charles Sherwood

Chapter Notes

Indiana Chapter members met on March 12 at Larry Boyll's shop in Elkhart for our main topic, touch up and finish repair. Larry's shop occupies a suite on the ground floor of a historic manufacturing complex that began as a buggy factory in the late 1800s. Part of its upper floor houses the Walter Piano Company where the manufacture of many fine instruments takes place.

We are indebted to Kevin Walter for giving us some very fine instruction and demonstration in burning-in techniques with stick lacquer.

Kevin uses five or six sticks of varying shades of brown stick lacquers held together with masking tape; he can quickly blend several colors together on the end of his heated knife for a perfect match with the original finish color.

First the area to be repaired is gently cleared of loose and broken matter with a razor blade. Don't let the knife get too hot—the lacquer material should not be bubbling hot. Wet your fingertip and press down on the fill to eliminate possible hollows underneath. Keep the knife wiped clean after each application while you are working and do not let the knife stop or rest upon the surface of the work. After filling, surround the repair area with patch lube and gently go over the fill to smooth it down, using a warm but not hot knife. The patch lube grease prevents melted lacquer drawn off in the smoothing operation from adhering to the surrounding area.

You must see the work performed by experienced hands and then practice yourself, just like tuning. Kevin also performed the difficult repair of a damaged edge and restored this perfectly.

Charles Walter, Kevin and their wives were at the International Music Industries Fair in Frankfurt, Germany early this year. Their activities included visits to the Steinweg-Grotrian, Bechstein and Feurich-Hoffman-Euterpe factories, and the Renner action factory in Stuttgart.

In Europe, quality seems much more significant in piano manufacturing than quantity. The Feurich instruments featured richly detailed cases, some with pearwood inlays, grand damper levers with springs, individually regulated as we would with repetition springs; and a mechanical "massager" to stretch newly strung treble wire.

The chapter is planning interesting new activities for meetings in May and September.

Ian McLuckie