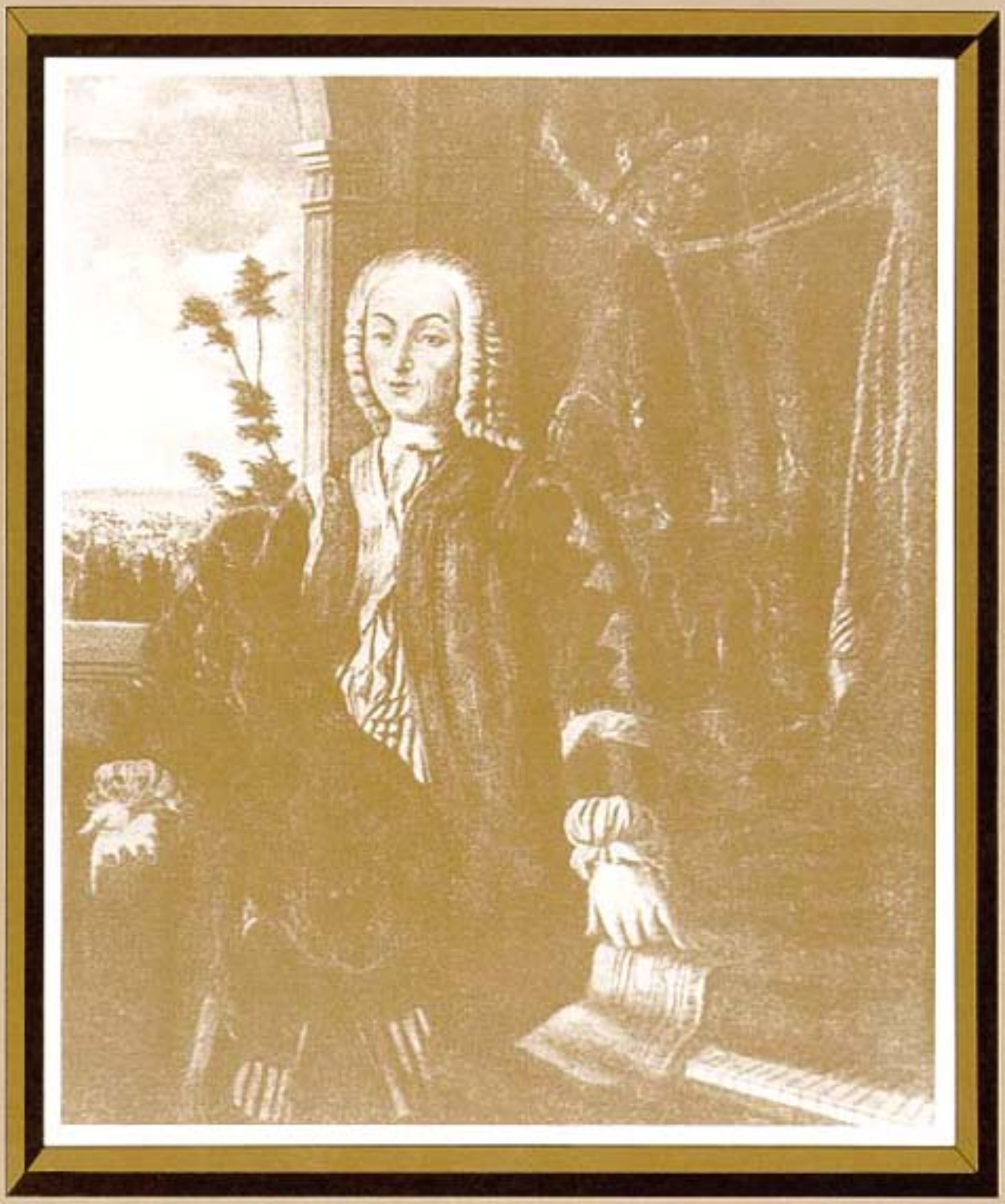
Piano Technicians Journal

May 1985



Bartolomeo Cristofori
May 4, 1655 — Jan. 27, 1731

Technicians are known by the parts they keep.

When technicians order genuine Steinway parts from Steinway & Sons, New York, they receive the same parts that go into a new Steinway piano. Which is exactly what their clients expect. In fact, technicians who mean business make a point of letting Steinway owners know that they only use the genuine article.

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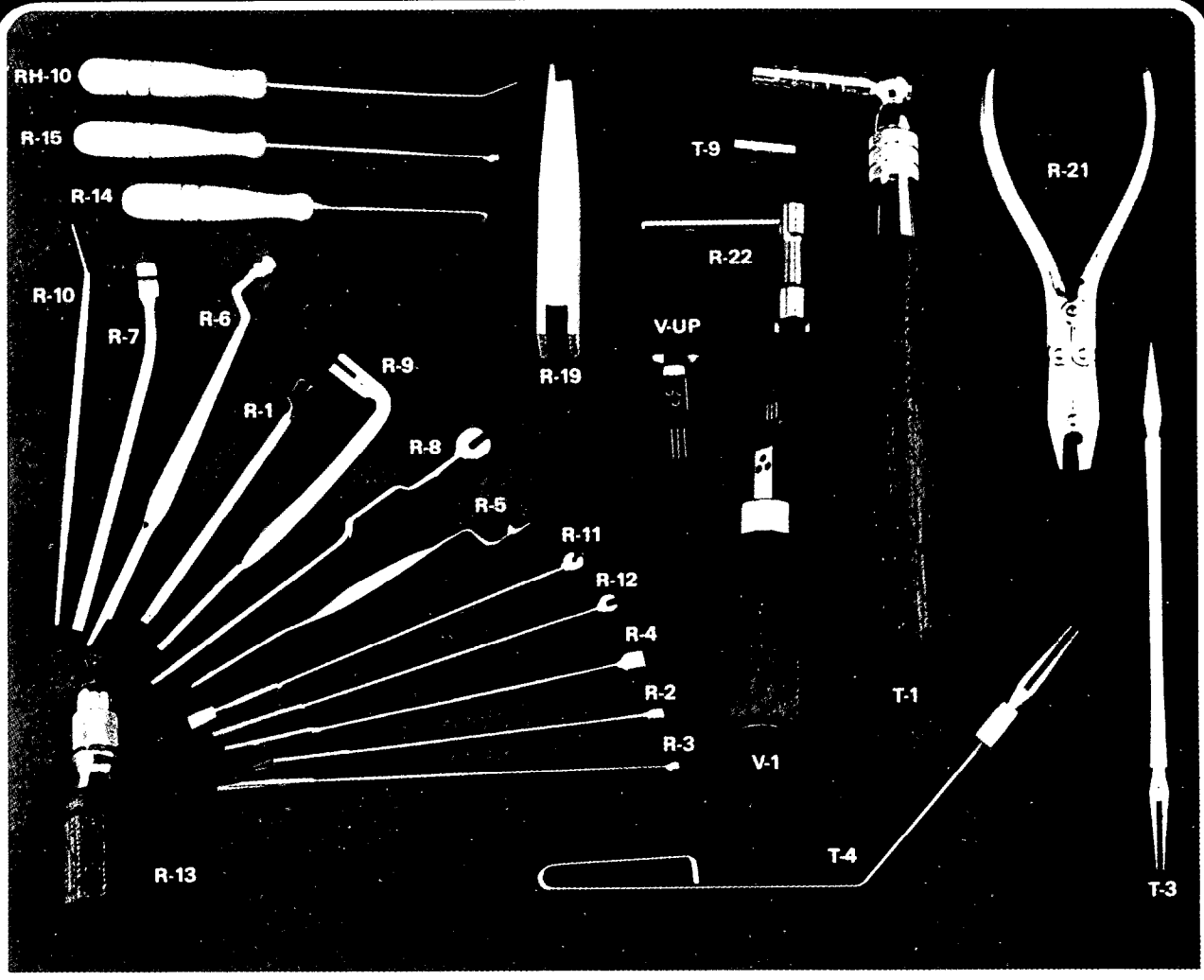

Through an agreement with Yamaha International Corporation, Schaff is now a Distributor for tools imported by Yamaha International Corporation

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R-3	STOP RAIL SCREWDRIVER
R-4	REGULATING SCREWDRIVER
R-5	DAMPER REGULATOR (UP)
R-6	DAMPER REGULATOR (SP)
R-7	POST WIRE BENDER (UP)
R-8	OFFSET KEY SPACER
R-9	SPOON BENDER (UP)
R-10	CAPSTAN SCREW WRENCH
R-11	DAMPER REGULATOR
R-12	DAMPER REGULATOR

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R-15	DROP SCREWDRIVER (GP)
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R-22	KEYFRAME SCREW REGULATOR
RH-10	CAPSTAN SCREW WRENCH
T-1	TUNING HAMMER
T-3	WOODEN MUTE
T-4	WOODEN MUTE
T-9	TIP
V-1	FELT PICKER (LARGE)
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Piano Technicians Journal **May 1985**

Official Publication of The Piano Technicians Guild, Inc.
Volume 28, Number 5

On The Cover:
Little is known about Bartolomeo Cristofori, the creator of the pianoforte. On the 330th anniversary of Cristofori's birth, Jack Greenfield begins a series of articles on the inventor's life, times and legacy. Our cover photograph, obtained through the Smithsonian Institution's National Museum of American History, is taken from a portrait of Cristofori now in the Neupert Collection, Bamberg, German Democratic Republic.

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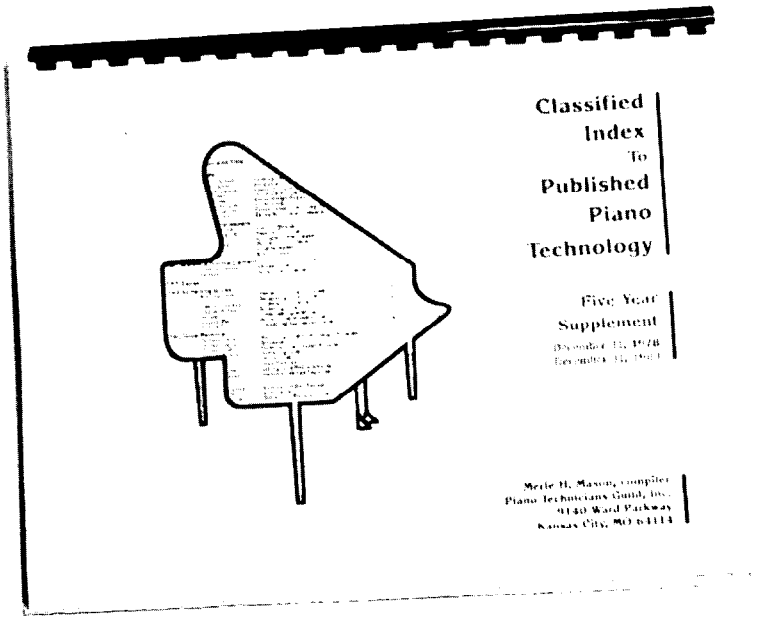

Classified Index To Published Piano Technology Five-Year Supplement

(Covers articles published between January 1979 and December 1983)

Compiled By Merle H. Mason

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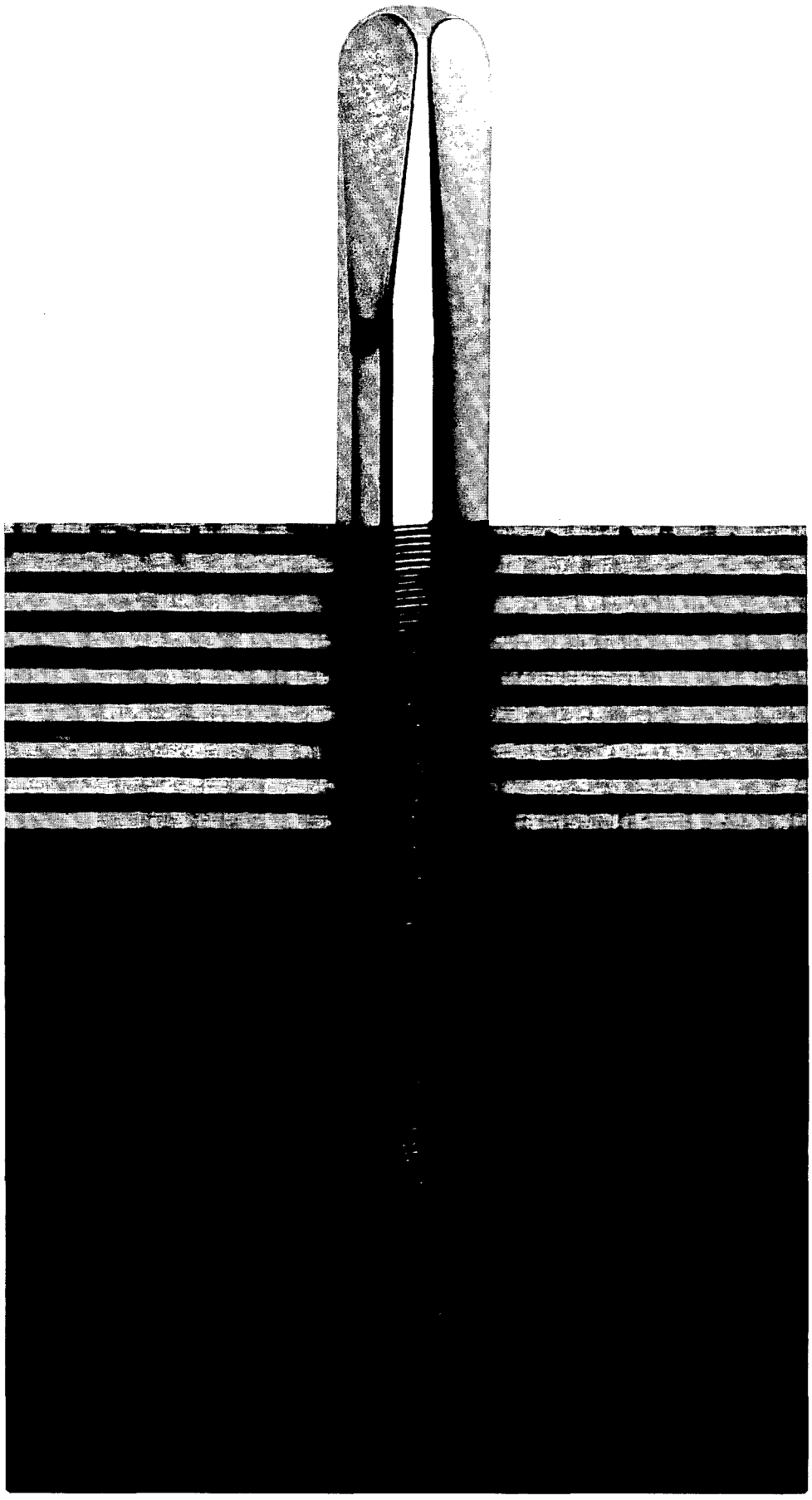

Baldwin's 19-ply cross-laminated, hard rock maple pinblock.

Some thoughts on our 19-ply pinblock.

"I prefer to use the high density, multi-laminated pinblocks for any piano restoration I do because of their reliable performance year after year."

Newton Hunt,
Tuner-Technician, Dallas

"As far as I'm concerned, Baldwin's pinblock is one of their primary strengths. Year after year, the pins are snug—not jumpy."

Carl Lieberman,
Tuner-Technician, Los Angeles

"I'm aware that some piano technicians have commented that Baldwin pinblocks require extra effort to tune. Sure, you have to exert a lot of energy because so many plies grip a single pin. But, in the long run, that's why they're so stable."

Joe Vitti,
Tuner-Technician, New York

"I've never had any problem with loose Baldwin tuning pins. They stand up exceptionally well to Omaha's climatic changes. In fact, I've never had to replace the 'new' type of Baldwin pinblock in my 20 years in the business."

Bob Erlandson,
Tuner-Technician, Omaha

"Multi-ply pinblocks are harder to shape, fussier to drill, and more work to string—and I put them in every piano I rebuild. Experience with the Baldwin block has convinced me it is the best. After all, the last sixty years of a piano's life are just as important as the first three."

Susan Graham,
Tuner-Technician, Oakland

Baldwin®

The President's Perspective

Charles P. Heuther
President

The Future Of Our Logo

Last month I focused on a group of critical items which will be coming up for discussion, resolution and vote in July when the Piano Technicians Guild holds its annual convention. This month we will continue the discussion of important matters to be handled at that meeting.

Our organization has long held in high regard its logo, guarding it as well as possible against frivolous, careless or inappropriate use. The words "Registered Technician" in the logo are a valued symbol of achievement for those who have gone through the rigorous examination process.

However, the process of enforcing our strict guidelines on the use of the logo has led to some confusion. Those who have completed the testing process rightly desire a method of signifying that fact on their stationery and business cards. And those who are working their way up to that status or those who have joined the Guild in other non-franchised categories want to show that they have allied themselves with a progressive and quality-oriented organization.

The conclusion from this is that we must carefully consider how our logo is to be handled. The most obvious way would be more than one version — one for those whose membership is generally a supporting and reinforcing one, i.e. Associate and Allied Tradesman, and another version for those who qualify for the basic membership category: i.e. the Registered Tuner-Technician.

There has been much discussion about this by the Ethics Committee, our Legal Counsel, the Board. There have been a great many strong and impassioned viewpoints presented. The bottom line always becomes: "What is appropriate and legal?"

It is not my intention to present a viewpoint in this situation. Reasonable responses are possible. One has been mentioned above. An additional consideration is the fact that we have a committee working on the clarification of a new technician designation for those who do extensive "rebuilding" as well as refined definitions of all the words so often used to describe such activity, such as restoring, remanufacturing, repairing, rebuilding. When this committee finishes its work, we can expect suggestions as to how the membership structure might be changed and designations be established.

Since such material has not as yet been developed sufficiently to be part of our Council discussion, we can assume that whatever impact it may have on the matter of logo use will occur at a somewhat later date.

Meanwhile, if we resolve logo use in a reasonable way, setting a policy or direction which can be applied now and also later should things change or adjust themselves somewhat, we will be serving the Guild and its membership well, for now and in the future.

Read the Bylaws Committee reports carefully, take the time to understand the basic problems involved, discuss them with your fellow members, even friends from other chapters, other states, other countries. Most important of all, come prepared to speak to the question intelligently so that we will make a proper decision, one which will do credit to ourselves and our organization. The decision should be something which will serve us beyond the moment, eliminating the necessity of having the discussion all over again at a later time.

This problem and the items discussed in last month's message comprise the major critical items before Council. A well-prepared group of delegates will resolve them in good order. I have full faith and confidence in the voice of the Council. Come prepared and we will arrive at that "right" decision a whole lot sooner.

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Some piano makers feel that turning out pretty pianos year after year is their only responsibility. Fortunately, this is not the case at Sohmer.

For over 110 years, we have been working to make our pianos technically sound and acoustically perfect as well as beautiful to look at. Because we consider the science of piano technology and the innovations that develop from it to be fundamental in the perfection of the Sohmer piano.

We turn this belief into action by maintaining an ongoing dialogue with piano technicians all across the country.

Can we improve our selection of materials to insure better stability and tonal quality? How can we make it easier to clean, regulate and service our pianos? Your input helps us find the answers to these and other questions essential to the science of building pianos.

And vital to the art.

In turn, we provide facilities for meetings and piano demonstrations and study. And our representatives are available to speak on industry trends, styles and innovations.

We believe that together we can continue to create a beautiful instrument that is also a beautiful piece of furniture. A Sohmer. The perfect synthesis of science and art. We would like to hear from you. Call or write Harry Sohmer, Sohmer & Co., Ivoryton, Connecticut 06442 (203) 767-2675.

From The Executive Director

Barbara Parks
Executive Director

On Creativity

"The chance to fall on your face can inspire creativity like no other."

That piece of wisdom was uttered by Curtiss Harter Jr., chairman of Comdata Corp. Comdata plays in the high-stakes technology arena, where falling on one's face can have very large consequences indeed.

We normally think of creativity in terms of artistic productions — paintings, books, musical compositions and the like. There's a perception that artists, or "creatives," are somehow not quite like the rest of us. They think differently, dress differently and care about different things.

Creativity, at least in the way Harter used the term, is different from art. In Harter's game, a company's success depends on finding better solutions to the same problems everyone faces — cutting operating expenses, increasing production and marketing the product or service. Companies who do those things best go on to play another day. Those who don't, don't.

When you think about it, though, there's not so much difference between the big guys and someone who operates a one-person business. The problems are basically the same and, if the scale is smaller, the personal stakes may be even larger. In a large company, if someone goofs, the responsibility may be shared. The stockholders may never find out. At worst, someone may be fired.

In a one-person operation like that of many Guild members, everything rides on one set of shoulders. That means that the president of the company also gets to sweep up. If he or she fails, there is rarely a safety net, and there's no one else to blame. Although that's a rewarding lifestyle, especially the part about answering only to oneself and the Internal Revenue Service, the same problems have to be faced. You have to deal with accounts receivable, accounts payable, new business development, scheduling and a whole host of other problems. You may not call them by the same fancy titles, but the principle is the same.

The only difference is that while the big guys have a whole division of specialists to deal with one problem, you have only the time you can steal from other tasks. Times like that make you wish for a magical way to be a part of something larger while still maintaining your independence.

The Guild could be your creative solution. There aren't many new problems, and the odds are good that someone else has dealt successfully with the one that's puzzling you. I'm referring here to business-related problems, not technical ones.

No one is going to hand you a simple solution. You can't expect someone to give away all of his or her business secrets. But you can pick up ideas. Study those who are successful and, where possible, adapt their techniques to your own. Before you spend a lot of money on a computer, for example, find out what has worked for other people. (For an example, see this month's Technical Forum.) You can find suggestions on what to buy, where to buy it and how to use it. Of course a computer salesman would be more than happy to answer those questions for you, but wouldn't it be better to get additional advice from someone just like you who actually has done it?

Here's the price tag for that help and advice. When you get your computerized system established, add your knowledge to the pool for those who follow. Just as the Guild is the best place to get answers to technical questions, it's also an excellent source of business advice. The Guild is based on sharing. People give their time and energy to it because they want to, not because they have to.

After all, creativity doesn't have to be a lonely process.

1985 Technical Institute Offers Something For Everyone

Ernest Juhn
Institute Director '85

I'm certain everyone knows by now that attending the 1985 Technical Institute is a must for those who want to keep on learning and not stand still. However, if there is still a shadow of a doubt in anybody's mind, here is more information about this year's Institute.

Would you like to know how to make more money when doing a service call? Who said that you can't make money by working with your hands? "The Super Service Call," presented by two technicians from Germany, Matthias Stoeckle and Johannes Ruoss will show you how.

Action too heavy? Too light? Doesn't repeat properly? Feels funny? Your troubles are over. Ben McKlveen will teach you all about it in his presentation on "Touch and Key Weights."

For those who do action rebuilding and would like to know more about installing new parts, we have two classes covering the subject. One is called "Grand Action Rebuilding," with Willis and Dave Snyder. The other is "Upright Hammer and Damper Installation Factory Style" presented by Priscilla Rappaport. Participants will be able to work on action models supplied by the German piano maker Feurich.

There is never a doubt about properly regulating a piano action after one has attended "Regulating the Vertical Piano" presented by the Wurlitzer Company and "Grand Regulating" with the Kimball team. Both of these presentations use models and participants will perform all the necessary steps.

There is a lot to know about springs in pianos. Just take a moment and think of a few — repetition springs, jack springs, pedal springs, leaf springs, coil springs and pelican springs. All these and more are the subjects of a new class that will be taught by David Betts.

Are you a player piano technician? If so, you can look forward to two presentations by Norman Heischober, "Trouble Shooting for the Advanced Player Technician" and "Player Piano Forum."

There's much, much more. Don't miss the next issue of your *Piano Technicians Journal.*

Here's A List Of Institute Classes, Instructors

Action Analysis Practice And Theory — Gary Green (Sohmer — Pratt Read)

A Day With A Piano Tuner In Japan — Kazuhiro Kano, Tadashi Fukimoto, Kenzo Utsunomiya, Henry Haino

A Master Class In Tuning — Bill Garlick

A Musical Approach To Tuning — George Defebaugh

Sharpening The Tools Of The Trade — Joel Rappaport

Case Burn-In And Touch-Up In The Home — Baxter Edmisten, David Lowe, Otis Oxford (Kohler & Campbell)

Diagnosing — The Secret Of Troubleshooting — Jim Harvey (Kawai)

Downbearing And Bridges — Theory And Practical Repair — Chris Robinson

Get The Facts About Woven Felts — Peter Van Stratum (Chas. House)

Grand Action Rebuilding — Willis Snyder, Dave Snyder (Tom Cobble Video)

Grand Regulation — Ray Reuter, Eric Johnson, Dale Lassiter, Roger Weisensteiner (Kimball)

Keep It Level — Cliff Geers, Tony Geers

Keep It Stable — Allen Foote (Dampp-Chaser Electronics)

Klunker Klinic — Jesse Lyons, Bob Qualls

Learn How To Tune Pianos (In 90 Minutes) — Sally Jameson

Let's Keep The Profits — Ron Kistler

Pins Of All Kinds, Bridge To Hitch — John Ford

Player Piano Forum — Norman Heischober

Practical Soundboard Work — Brian Dockrill

Preparing The Piano For A Concert — Mike Glazebrook (Steinway London)

Professional Finishing — Webb Phillips

Raising Pitch Without Pain — Albert Sanderson (Inventronics, Inc.)

Regulating The Vertical Piano - - Rick Sletten, Dick Eckburg, Larry Talbot (Wurlitzer)

Servicing The Steinway Grand — Joe Bisceglie, Fred Drasche, Bill Garlick (Steinway)

Servicing The Bosendorfer — Gerhard Feldman (Bosendorfer Austria)

Serving The 'Grande' Customer — The Yamaha Team

Springs Of All Kinds — David Betts

Squeaks And Squawks — Ralph Kingsbury

The Art Of Restringing And Repinning — Marlyn Desens

The Super Service Call — Matthias Stoeckle, Johannes Ruoss

Tone Regulating From A To Z — Norman Neblett

Touch And Key Weights — Ben McKlveen

Troubleshooting For The Advanced Player Technician — Norman Heischober

Troubleshooting Vertical And Grand Dampers — Jack Krefting, Willard Sims (Baldwin)

Tuning Stability — Klaus Fenner

Tuning Pianos And Their Owners — Tom Cobble

Upright Piano Service In The Home — Baxter Edmisten, David Lowe, Otis Oxford (Kohler & Campbell)

Upright Damper Hammer And Hammer Installation Factory Style — Priscilla Rappaport

Plus

College And University Forum — Doug Strong, moderator

Teacher Relations Committee — Ruth Brown, chair

CTE Education (CTEs and prospective CTEs only): Handscoring — Lloyd Winn

CTE Education (CTEs and prospective CTEs only): Speeding Up The Test — Fred Yonley

Tuning Exam To Be Offered

Ruth Ann Jordan

Those who are interested in taking the Tuning Examination during the International Technical Institute are asked to send the necessary papers and $40 fee when they apply to take the exam. Apply early to ensure a place in the schedule. As always, it's first come, first served.

If you are joining as a new member, you will need the Piano Technicians Guild "Application for Tuning Test" form, along with your Technical and Written Test scores signed by an officer of the chapter you are joining. If you are being upgraded, you will need a Guild reclassification form with all pertinent information filled in.

A check for $40 made out to "Piano Technicians Guild" must accompany the form if you are joining the Guild or upgrading your classification. Send all papers and check to Ruth Ann Jordan, 4 East Granville Drive, Silver Spring, MD 20901.

Those who are taking the exam to qualify as Certified Tuning Examiners must sign and send a "Consent to Serve" form but no money. All forms should be available from your chapter officers or examiners.

Remember, there are only 21 spaces for exams Tuesday, July 16 to Friday, July 19. If you have a particular preference for an exam time, please let us know with a little note, and we will do our best to accommodate, but no promises! It may be possible to add some exam slots on Monday, July 15, so if that will work for you, let us know.

As an added feature this year, Lloyd Winn, our hand-scoring expert, will be on hand to give personal guidance during the actual scoring of exams, two people at one time. This will be in addition to his regular teaching class. You will need to arrange this by appearing at the Exam Scheduling Office Monday or thereafter. We ask that only Certified Tuning Examiners or those active in examiner training apply for this special opportunity.

If you are qualified as an examiner and would like to further your training, this is a great opportunity to meet and work with CTEs from all over the country. By volunteering to help, you help yourself as well. CTEs who would like to brush up on their examining techniques will be greatly appreciated, too. Please drop me a line to let me know what mornings or afternoons we can expect your help. All you other expert CTEs who can't stay away from the examining rooms will be put to work, too. Master tuning should start Saturday afternoon. C'mon up and see us!

Convention Highlights: Classes And Much More

A busy week awaits you this summer during the Guild's Convention and Institute in Kansas City. To help you plan, here's a brief listing of convention highlights. Institute class periods will be 8-9:30 a.m.; 10:30 a.m.-noon; 1:30-3 p.m.; and 4-5:30 p.m.

Saturday, July 13
Registration open (2 - 6 p.m.)

Sunday, July 14
Registration open (9 a.m. - 6 p.m.)

Monday, July 15
Registration open (8 a.m. - 6 p.m.)
Opening assembly (7:30 - 9 p.m.)
Baldwin reception (9 p.m.)

Tuesday, July 16
Registration open (7 a.m. - 6 p.m.)
Institute Classes (8 a.m. - 5:30 p.m.)
Exhibits (9:45 a.m. - 1:30 p.m.; 2:45 - 6:15 p.m.) Membership booth & store open

Wednesday, July 17
Registration open (8 a.m. - 6 p.m.)
Institute Classes (8 a.m. - 5:30 p.m.)
Exhibits (9:45 a.m . - 1:30 p.m.; 2:45 - 6:15 p.m.)
(Membership booth & store open)
Auxiliary tour (10 a.m. - 3 p.m.)
Steinway Social hour (6:30 - 7:30 p.m.)
Banquet (7:30 p.m.)

Thursday, July 18
Information desk open (8 a.m. - 6 p.m.)
Institute classes (8 a.m. - 5:30 p.m.)
Exhibits (9:45 a.m. - 1:30 p.m.; 2:45 - 6:15 p.m.)
(Membership booth & store open)
Pub Crawl (9 p.m. - 1 a.m.)

Friday, July 19
Information desk open (7 a.m. - noon)
Institute classes (8 - 11:30 a.m.)
Closing luncheon (12:30 - 2 p.m.)

There's A Steak In Your Future

Ernest S. Preuitt
Host Committee Chairman

Last fall when the convention planning committee met here in Kansas City to make plans for the 1985 convention, one of the duties was to select a theme. Our local group had an idea to make a play on the word "steak" and offered the suggestion "A Steak in the Future." Better, stronger or more persuasive minds settled on "Focus on the Future."

At least we got in one word, "future," and, being the writer of this article, I shall invoke my prerogative and dwell on "steak," for we all must eat while we are here. What better place to eat steak than where the Kansas City steak was born?

Listed here are a few places, all within walking distance of the Hyatt Regency. Some are rather high-priced, some are very inexpensive and many are in-between and well within the limits of all of us. Salads, seafood, steaks, sweets, ethnic foods, barbeque and just about anything else one would wish are available. The walking distance mentioned previously is three blocks, not exactly the walking distance to the French Quarter. If one does not dilly-dally along the way, most of these establishments can be reached at noon between classes.

I have not visited all of these places because some of them are new, but if one likes a good steak, it is hard to beat Ralph Gaines' Steak House in Union Station or go four blocks north to the Hereford House. If you have a big appetite, don't miss the Lobster Pot, which also is in Union Station.

Here is a lengthy list of eating establishments within walking distance. If you would like something different, I'm sure the staff or any or our local people would be most happy to direct you. Next month I will try to fill you in on some of the extracurricular activities that will take place. There is a new spirit in Kansas City, and it is not good eating. We have had that for quite a long time.

Be one of 1,000 here next July. Start now to "Focus on the Future."

Fine Dining

The American Restaurant features fine American cuisine in elegant surroundings. A Mobil four-star restaurant, it is located atop Halls Department Store. Lunch entrees, $5-$10; dinner entrees, $10-$18 .

The Crystal Pavilion in the Crown Center Shops is all glass. It offers casual dining, innovative cuisine and a clear view of Crown Center Square. Lunch, $5 to $9; dinner, $5 to $15.

The Peppercorn Duck Club's specialty is, naturally, duck, but it also features an "Ultra Chocolatta" dessert bar. It's conveniently located in the Hyatt Regency. Prices: $3-$22.

Sea food is supreme at Skies, the Hyatt's revolving rooftop restaurant, but it also offers prime rib and barbecue. Prices: $5-$24.

The Top of the Crown in the Westin Hotel features fine dining, dancing and entertainment, with a breathtaking view of Kansas City. Prices: $4-$21.

Also in the Westin Hotel, Trader Vic's specializes in South Pacific and continental cuisine. Prices: $3-$13.

Specialties

Butterfield's, in the Crown Center Shops, features soup, salad, quiche and other light entrees.

The Garden, located off the lobby of the Westin Hotel, offers breakfast, lunch and dinner menus for service from 6 a.m. to midnight daily.

The Patio, in Halls Department Store, offers soups, salads, sandwiches and light entrees. Prices: $3-$5.

The Hyatt Regency's lobby restaurant, the Terrace, is open from 6:30 a.m. to midnight with a wide variety of favorite foods and a dessert bar of its own. Prices: $7-$14.

Long a favorite of Kansas Citians, the Streetcar Named Desire was recently moved to its present location in the Crown Center Shops. It features charbroiled burgers, sandwiches and other light entrees. Prices: $3-$5.

On The Run

Treetops offers a light luncheon buffet next to the Westin's pool.

The Outdoor Cafe serves hot dogs, hamburgers, sandwiches and salads around the fountain on Crown Center Square. Prices: $2-$5.

The Heartland Market is a network of specialty shops and cafes in the lower level of the Crown Center Shops. Choose from the Blue Ribbon Deli and Cafe, Greek Food Ltd., the Golden Harvest Bakery Cafe, the Ice Cream/Pastry Kiosk, the Noodle Kitchen, or the Taco Bar.

The International Scene

Fred Odenheimer
Chairman, International Relations Committee

A Worksheet from Europe

In the latest *Europiano* magazine (the latest edition that arrived here, anyway) we find an article entitled: "Worksheet and Calculation, Aid for Upright Repairs." Ulrich van Aaken, author of the article, writes that the worksheet was introduced in his shop "to replace rule-of-thumb practice with a way of determining costs as precisely as possible" and that "the term worksheet was chosen with the apprentice in mind. "

The work-sheet itself is subdivided into six parts, namely:

A. Strings, soundboard and backframe assembly: 25 individual items.

B. Action: subdivided into 30 operations.

C. Damper mechanism: nine subdivisions.

D. Keyboard: 20 different operations.

E. Assembly and action: nine different operations, and

F. Regulating, tuning and voicing: 14 items.

Each individual item has six columns. The first denotes the item on which the work is to be performed. The second is an estimate of time required. The third denotes actual time used and by which technician the service was performed. Columns four and five are the cost of materials. And column six lists the items where materials are needed, presumably filled out before the price is entered in column five.

Mr. van Aaken calls his treatise a "springboard for discussion. A number of work-sheets have been developed by some of our members and committees mostly on grand action work, yet the concern of an apprentice or beginning craftsman is always: how much time should an operation take? If he does not learn how to subdivide a certain repair into its parts his estimates will always be incorrect and the arrived charges probably to his disadvantage."

The program for the IAPBT convention in Kansas City is just about set. There will be a board meeting the afternoon of July 16th, the Council will meet the morning of the 17th, and a special program for our guests will be the afternoon of the same day. While we know the countries that will be represented, we do not yet have any indications (as of March) of numbers of foreign technicians attending.

Please do not forget "Friends of IAPBT." Membership is just $15.00. Send your check to the home office and indicate "Friends of IAPBT."

Baldwin Moves Tech Service

As of June 3, all Baldwin Piano Tech Service functions will be handled from Trumann, Ark. The new telephone number for piano parts orders or technical assistance will be (501) 483-6116.

The new address is: Baldwin Piano & Organ Co., P.O. Box 27, Highway 63 South, Trumann, Ark. 72472.

Kimball Announces Additions to Line

Home owners, eyeing pianos for purchases, now more than ever prefer that the instrument blend with room settings, according to research conducted by Kimball. As a result, the company has developed a line of console pianos with new cabinet designs it describes as "crisp."

Designers' Collection pianos are available in six models: Italian provincial walnut, French provincial cherry, American oak, Spanish pecan, traditional mahogany and country French pecan. The pianos feature high-gloss finishes. The line, which was scheduled to debut in March, uses Kimball's Schwander Model 59 action.

THE TECHNICAL FORUM

Pinblock Drilling Equipment, Duo-Art Tubing Scheme, Multipurpose Tool Contest, Computer For The Sightless Technican, Fitting Pinblocks, Tech Tips And Readers' Comments

Jack Krefting
Technical Editor

As this is written, it seems certain that by the time this issue is distributed I will have moved or will be in the process of moving from the friendly and familiar environs of Cincinnati, my home for the past twelve years. Since my new address is as yet unknown, I'm asking that all correspondence be sent to the Home Office. They will forward it to me. The Home Office address is printed at the end of this month's column, and I'll publish my own new address as soon as possible.

Pinblock Drilling Equipment

Q: *One of my students is buying equipment for setting up shop. The next piece of equipment he wants to buy is a drill press. Either you or one of the other teachers at a national convention told us and showed us what type of drill press to buy, but now I need details. The drill press you or he demonstrated could drill the block while it was in the piano, resting on a heavy board that was on the rim. There was also a wedge to get the drilling angle, and the wedge could slide around anywhere on the heavy board. What type of drill press should we look for, and can the wedge be bought or must it be made?"*

Harry E. Berg, RTT
Los Angeles Chapter

A: This is probably in reference to a pinblock installation class I taught at the 1978, '79 and '80 conventions. The method of drilling was one I learned from Cliff Geers, who had in turn learned this method from the late John Kohl in Xenia, Ohio. Kohl is generally credited with the invention of the method, although at least two other rebuilders have claimed to have invented it more or less simultaneously.

The method involves the fitting and installation of the block without having drilled the tuning pin holes. After the plate is set and bolted down, location and bearing having been set, a large flat board is placed on the rim and clamped or weighted in place so it cannot slide around. A moving pad between the board and the rim will prevent damage to the top of the rim.

To convert a standard drill press to this drilling method, it is ordinarily necessary to remove the drilling table entirely, turn the base around 180 degrees, change pulleys to produce a speed of 900 - 1,000 RPM, and shorten the column radically so that the chuck is level with or slightly below the base. *Figure 1* should clarify this point.

Some table model drill presses have a vertical column mounted beside, rather than directly below, the horizontal column. This feature is especially beneficial in this application, because it allows the drilling head to be adjusted quickly and easily to any height without having to cut the vertical column. The original Kohl rig, now in the possession of Geers, is an old Sears model that has this feature. Unfortunately, it is obsolete and no longer available from that source at least. Any reader who knows of a particular model in current production that has this feature would be doing us all a great service by sharing that information.

It could be used as described so far, without a wedge, on a very old piano with a slanted pinblock; but for modern pianos we must mount the press on a wedge to give a drilling angle of approximately four to seven degrees from the vertical. We want as much slantback as we can get to minimize the springing of the pin, but not so much that the coil will not stay dressed tightly under the becket.

The factors that primarily affect

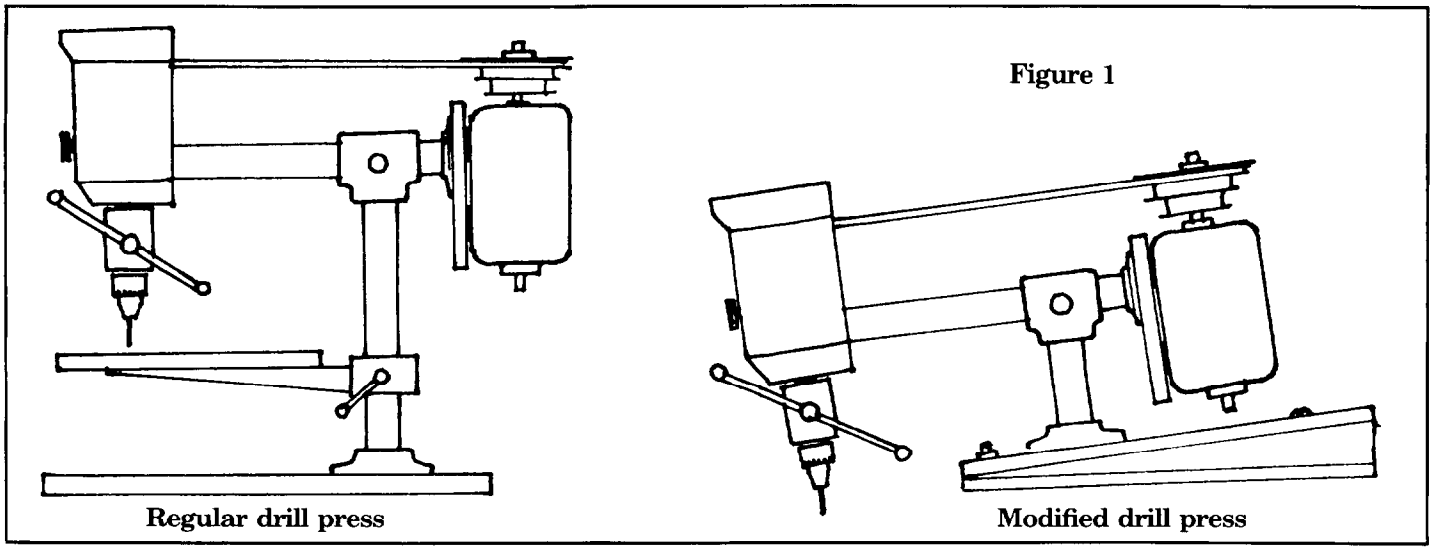


Figure 1

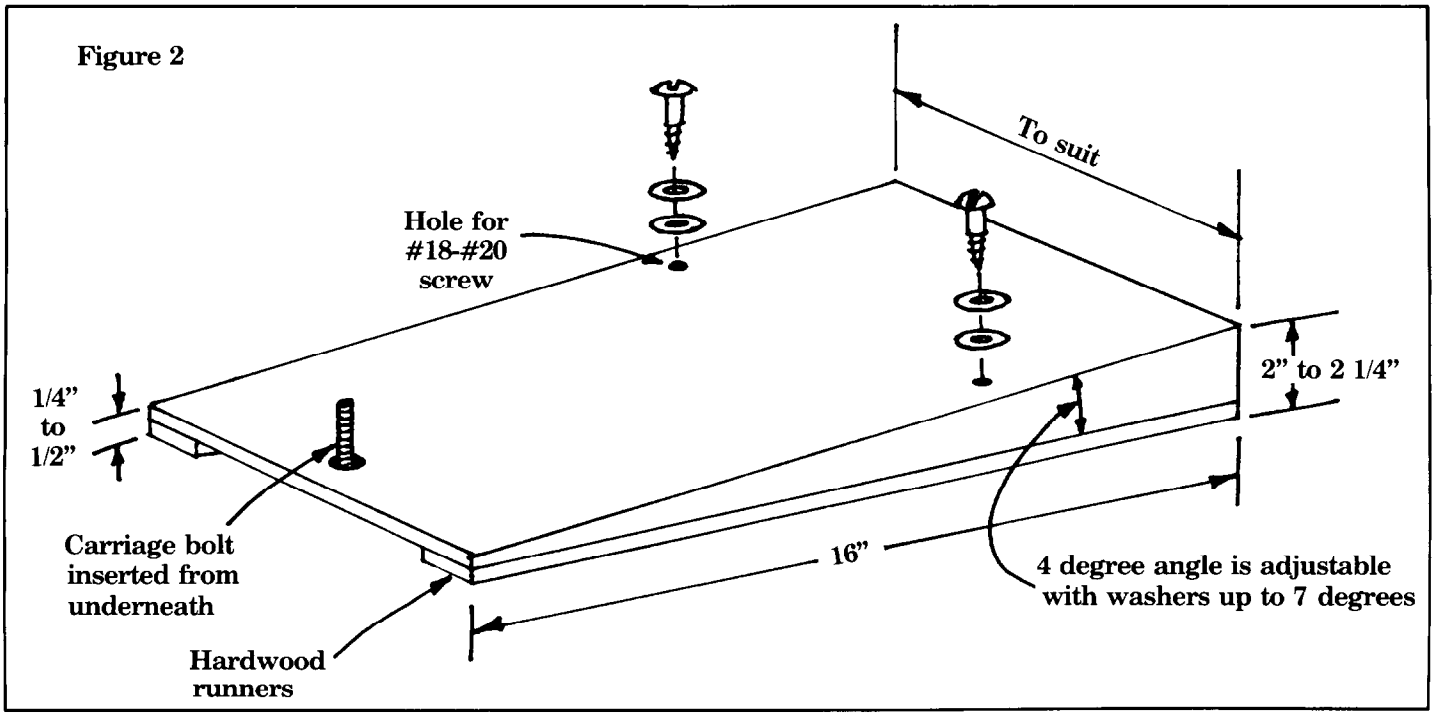


Figure 2

the drilling angle would include the thickness of the plate (the thicker, the more pin spring and hence the greater angle needed to compensate); the presence of plate bushings (they don't contribute significantly to torque values, but they tend to support the pin and thus reduce springing which in turn reduces the needed slant angle); the depth to which the pins are driven (this directly affects the height of the string as it comes off the coil, so the deeper they are driven, the greater angle would be desired); the number of coils on the pin, which affects the height of the string coming off the coil much as the previous example; the elevation of the counterbearing mound, which is the first string bearing point after the tuning pin, dictating the angle to a great extent; the presence of an open pinblock, the best insurance of all against excessive spring; and the diameter of the pin, which affects its stiffness and therefore its spring angle.

It is difficult, considering the foregoing variables, to avoid the conclusion that a variable wedge is not only desirable but necessary. One is tempted to mount the front edge of the drill press base on a hinge and the back on a pair of jacking screws, to customize the angle for each piano. In practice, however, an angle of about six degrees works admirably for almost everything made in this century, and certainly for all pianos with a level web and a counterbearing elevation that is about 3/16 inch above the web. In a production shop, then, or even one that does quite a few turn-of-the-century and foreign instruments, the six-degree angle provides, if not a universal angle, at least a reasoned point of departure.

The suggestion from here is to fashion a wedge that will suit the size of the drill press base and will approximate the angle desired, such as the one shown in *Figure 2,* and then refine the angle by adding washers between base and wedge at the front or the back as required. If in doubt as to the angle, place the board and drill press on the rim right after the plate has been removed but with the block still fastened in place, and adjust the angle of the press until a drill bit or dowel in the chuck will pass freely through

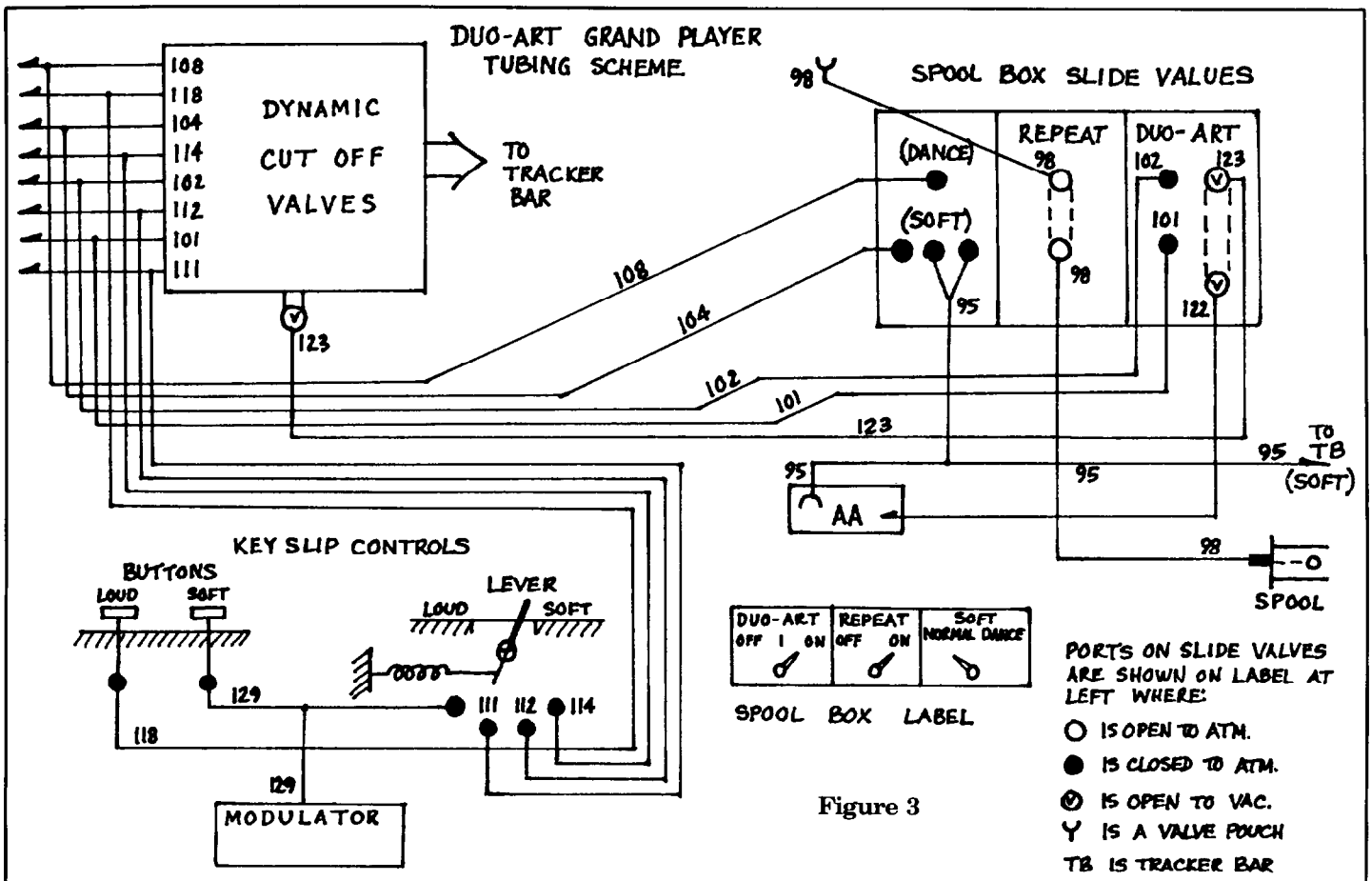


Figure 3

Duo-Art Tubing Scheme

In our January issue, Hugh Manhart of Omaha asked for help on a player problem that I was unable to answer. Thanks to the published question, Hugh received many responses, including help from Raye McCall of Pomona, Calif.; R. Hopland of Calgary, Alb.; and C. Broughner of Independence, Mo. Others who assisted were P. Stelzner of Washington, Mo.; W. Gilstrap of Bevier, Mo.; and G. Ingersoll of Milwaukee. The Vestal Press contributed a 1925 tubing diagram, best of all, and Manhart compiled it into what we see in *Figure 3*, which we publish here for whatever it's worth. Our thanks to all of the above.

the tuning pin holes. If the drill press is left undisturbed until the new block has been installed, the angle will be duplicated without problems.

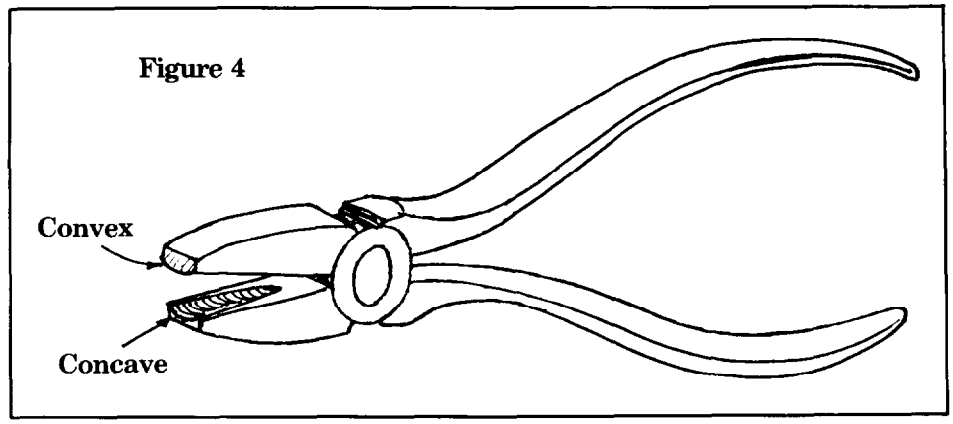
The wedge is rather simple, but is improved by the addition of two maple (or other hardwood) runners, approximately 1/8 inch thick, and 3/4 to one inch wide. This reduces the contact area between the wedge and the board, making it unnecessary to polish and wax the board as some have insisted is necessary, and it also prevents any possible rocking in the event of a slight warpage of the wedge. The runners must be installed on the sides rather than on front and back, however, because in many installations it is necessary to extend the front of the wedge over the front edge of the board to reach the pin holes nearest the stretcher, and if one runner were across the front it could fall off the edge of the board, changing the angle for that hole and preventing easy return of the press to its normal position.

The pulleys are measured at their outer diameters, and very often the spindle pulley on a drill press will be a cluster pulley with three or more steps, often in one-inch increments. Mine happens to have four steps, two inches through five inches, and I use the four-inch step to drill pinblocks. This, in combination with a 2 1/4-inch drive pulley on a 1725 RPM motor, give a drilling speed of 920 RPM. This is important, because if the speed is within the 900 to 1,000 RPM range, the hole size can be controlled by the feed rate. Otherwise, it cannot, and it will not be possible to drill a nicely tunable block, which should have very firm torque in the bass, tapering to lower torque in the high treble.

Incidentally, it is important to use the drill bit provided by the manufacturer of the pinblock material, not a standard jobber's bit, and to keep the tip cool with a stream of compressed air while drilling. For further information on this topic, please refer to our September 1979 issue.

Multipurpose Tool Contest

Our next entry is submitted by W. Dean Howell of El Paso, Texas, whose tool is pictured in *Figure 4*.



Here's Howell's commentary.

For more than 25 years, I carried a ring bending tool and recently I misplaced it. It was valuable enough to me that I manufactured a replacement. It does an even better job of shank bending to align upright or spinet hammers to the strings. One can flatten the two sides of a shank quite neatly and it is impossible to break the shank. The method works as well as, if not better than, heating to bend a hammer shank.

I had an old worn-out needle-nose plier made by Bocker & Co. With the edge of a grinding wheel, I reduced the jaw length to 3/4 inch. The jaws do not have to close tightly, so shape grinding can work. I used a 1/4-inch drum-shape grind wheel in my Moto-Tool...to shape the jaws.

This tool will warp hammer-shanks to right or left, bend bridle wires, bend backcheck wires, bend piano wire, and it will quickly and easily regulate lost motion in keys with wooden dowels on the drop wires.

W. Dean Howell, RTT
El Paso, Texas

Computer For The Sightless Technician

Richard Hassig has contributed the following information on record-keeping for the independent technician, but with a twist that will make it of special interest to the visually impaired.

I recently acquired a computer equipped with speech synthesis. I purchased this equipment for my business, to keep my files and hopefully, financial records. I have found that I am now able to type and create text, and actually know what I type. I can read it over and make changes and additions. It is a wonderful thing. I'm sure you can believe that, but I don't know if anyone can really, fully appreciate what it means.

There have been a few articles in the Journal about computers for a piano technician's business, but I do not recall anything discussed regarding computers and the blind technician. I contemplated this for over a year before I made the move, with considerable agonizing, I assure you, because the cost was considerable. I would have benefitted much from knowing if any other sightless people in our profession had any experience to share in this area. I guess it is possible that I am the first. Someone has to be first, right?

In the event that I am, I can say that it is marvelous for me. I cannot say that every sightless technician could run a computer, or would want to. It would not be possible to make that statement about sighted technicians, either. But for me it is wonderful.

For one thing, braille cards do not last very well, particularly when carried around. After awhile sixes begin to look like sevens, or fives like fours and all sorts of nonsense like that. It is practically impossible to change anything on a braille card. About the only sure way is to make a new card and throw the old one away. On my computer disk I can change an address or phone number, add a date or correct a mistake with no trouble at all.

Richard Hassig, RTT
Tri-City Illinois Chapter

Fitting Pinblocks

Richard continues, on another subject, to share with us his method for fitting a pinblock to a plate flange:

Some time ago, I read a book about pianos, a general description

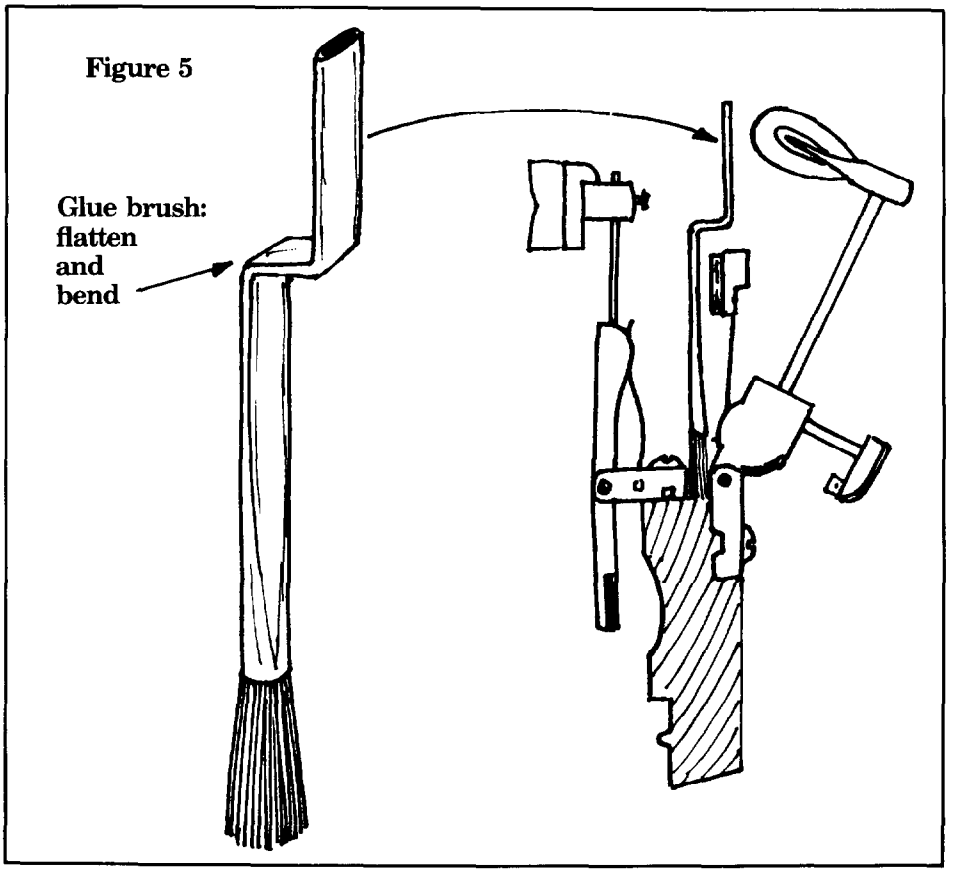
covering many areas in a not-too-detailed manner, but interesting reading nonetheless. One section of the book dealt with construction, and discussed the Bosendorfer factory. It was mentioned that the craftsmen fitting the pinblocks to plates used a thin piece of metal to determine the places where the wood was contacting. I had never heard this before, and the thing that astonished me was that this has been part of my procedure for a long time. I use a thin feeler gauge. The other part of my process involves a small electronic gadget called an audicator.

How to describe it? Well, it is a small box that fits in the hand and has a cable running from it. The end of the extending cord has a small probe about as big around as my little finger. At the end of this probe is a photo-electric cell and some sort of infrared light source. The switch on the box has an "off" setting and two other settings. In one position, only the photo electric cell is functional. Any light it picks up causes it to send a signal back to the box, which emits a buzzing noise. The brighter the light, the louder and higher in pitch the noise.

Now, the other switch position activates the infrared so that the photo cell picks up the reflection when close to a surface. A dark-colored surface will cause a low-pitched quiet sound, while a lighter-colored surface will cause a high-pitched loud sound.

I use a black or blue livestock marker on the plate. I felt sure the audicator would work, but I was looking for a type of material that would transfer readily but not smear when it was touched lightly. I read about the livestock marker in your column — knowledge-sharing strikes again!

By using the feeler gauge, I can mark on the block with masking tape the areas to look, and the audicator pins down the contacting places quite accurately.



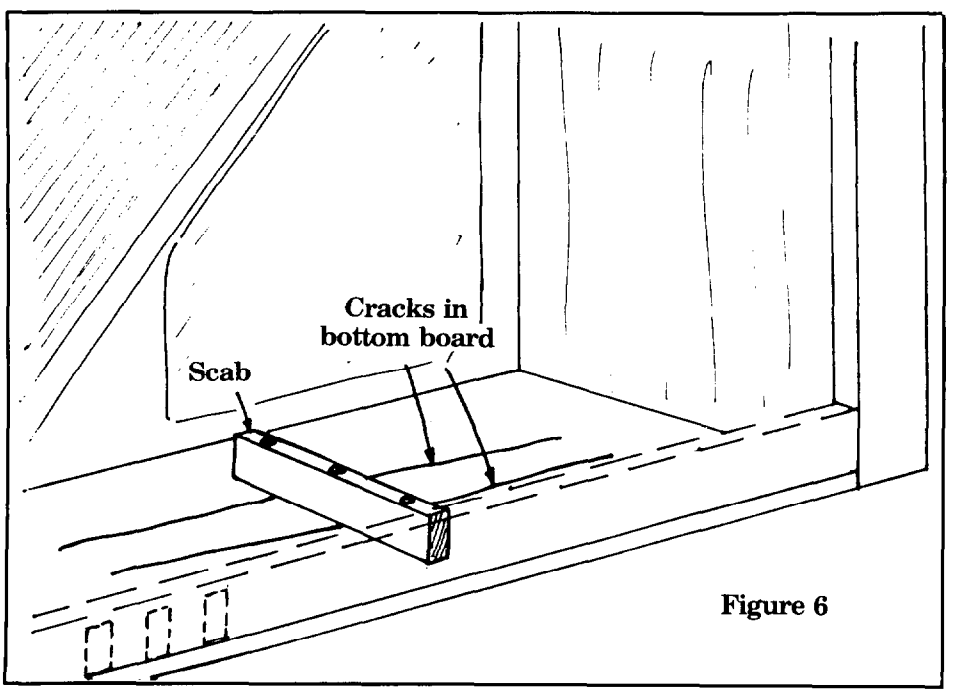


Figure 6

Tech Tips

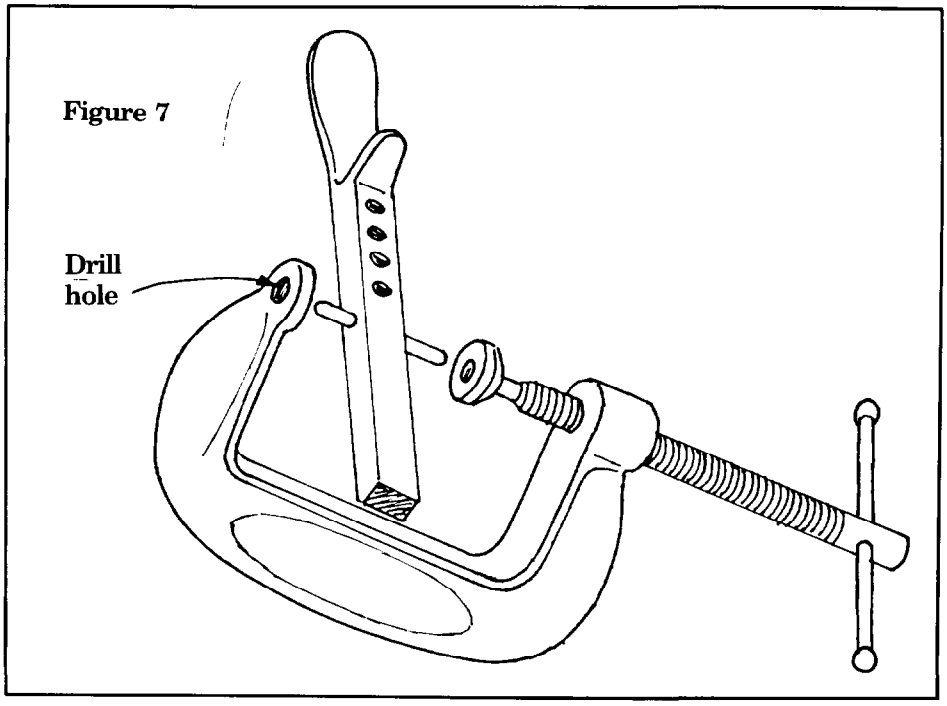
Our first five tips were submitted by David Nereson of Denver.

1. For those times when you accidentally nick the finish on the plate with your tuning hammer tip, there's a rub-on paint called Rub'n'Buff, which I found in a crafts store. Just dab a bit on your finger or on a rag and rub it into the nick. There are two shades of gold which will match most plates or at least look better than bare cast iron.

2. When installing a whole set of bridle straps, put a rubber lid prop cap on the handle of the inserter to avoid blisters on your palm.

3. When vacuuming vertical actions (I don't have an air compressor) between the hammer butts and damper flanges, I flatten the handle of a cheap glue brush and bend it to clear the spring rail and "sweep" down the trough between butts and damper levers. (See Figure 5...ed.)

4. Often on old uprights the bottom board will be split, causing squeaks when the pedals are used. Besides gluing the crack, I also screw a couple of "scabs" across the crack to reinforce the board (Figure 6...ed) and keep it from splitting in another place.



5. A useful tool which should be re-mentioned is Jim Harvey's C-clamp with a hole in the end for removing or inserting pivot pins in a pedal. (Figure 7). On this subject, when the pivot hole in the pedal is enlarged from wear, what is the remedy? Are there pivot pins with an oversized middle section (fluted part)?

Not to our knowledge. Sometimes a new pin works when the old one wouldn't, not that they were different sizes but because the old one is worn down in the flutes. If that doesn't do it, it will be necessary to either expand the pin or contract the hole in the pedal. To expand the pin, hit it with a hammer in the center, hard, and then drive it back into the pedal.

To contract the hole in the pedal, make a series of punch marks all the way around the hole, about 1/16 inch from the edge of the hole. This will swage some of the metal around the hole toward the center, thus effectively reducing the size of the hole. If that still doesn't do the trick, either replace the pedal or braze the hole closed and redrill.

Our last tip this month comes from Marshall, Texas.

Inserting the "pin pegs" when installing wall-to-wall dehumidifiers can be painful to the thumb and fingers if you attempt to push them into the inside of a piano cabinet. Even trying to use a hammer to beat them in can be disastrous. I use a coil setter, maybe also referred to as a coil cutter. It works very well as a holder for the pin pegs, and as a punch as well. After placing the pointed end of the "pin peg" on the chalk mark you have made on the inside of the piano cabinet, using the coil setter as a punch, you can drive the peg home with two or three taps with a hammer...

Steven M. Swinney, RTT
East Texas Chapter

Readers' Comments

Concerning publishing controversial material in the Journal, I would rather read about new ideas which may need some work than old ones that simply don't, or that are so inefficient as to be economically pointless.

David Frease, RTT
Northern Virginia Chapter

As I mentioned at the California State Convention, I would like to see a column in the Journal that alerts us to articles appearing in trade journals or general magazines which would be of professional interest to us or our clients. Here is my list of a few.

"The Stradivarius Formula," by Joseph Alper, Science 84.

"Piano Doctor," by Michael Esterowitz, Keyboard Classics.

"Trevor Pinnock: A Fresh Approach to Early Music," by Allan Kozinn, Ovation, October 1984.

"Tuning In with Pitch Control," by Hans Fantel, Ovation, February 1984.

While waiting to take my tuning exam in the Hillsboro Public Library, I read D.E. Gurgett's "Careful Proper Restoration Makes Old Piano Like New," and enjoyed the ensuing readers' responses — including both yours and Sally Jameson's.

Donna R. Byrd, RTT
Eugene, Oregon

I would like to comment on the discussion of damper height adjustment in the January 1985 Journal. No matter which method one uses to set damper height (by key travel or hammer travel), one principle must be kept in mind; that is, the principle of double escapement.

From the artist's viewpoint, the use of the double escapement principle is much more important than the varying degrees of key touch weight caused by early or late damper lift. As we know, double escapement allows the player to restrike a note without entirely releasing the key, the jack returning usually within the first 1/8 inch or so of release, assuming the action is in good regulation.

Damper height at this point is critical, especially in the tri-chord wedges. Damper height must be sufficient so as to allow for a continual singing tone on the replay with absolutely no damper interference. Of course, we don't want an overly high damper either, as was mentioned in the article. The technique and effect is ruined if damper height is incorrect (too low), or borderline, even though it looks good from the viewpoint of key or hammer travel, and the tone still rings well when the key is fully depressed.

Other problems arise when the double escapement principle cannot

be utilized without damper interference. Good legato playing is impossible to achieve and, in extreme cases, the piano will not produce an open tone. Sometimes the center string of a tri-chord wedge will actually be muted, which is very apparent during tuning.

I have found this problem in varying degrees in new, used and rebuilt pianos. Depending on the cause, it can be remedied by adjusting key height, key dip or by a general damper height regulation, with corresponding action regulation to ensure that the double escapement itself is working properly. The results are heard in improved tone production, for which we all are striving. So, in setting damper height, we might want to keep foremost in mind the principle of double escapement.

Marshall Theriault
Torrington, Conn.

Please send all technical articles, comments and questions for publication to this address:

Jack Krefting
***Journal* Technical Editor**
c/o Piano Technicians Journal
9140 Ward Parkway
Kansas City, MO 64114

SOUND
BACKGROUND

The Medicis And Italian Music Before The Arrival Of Cristofori

Jack Greenfield
Chicago Chapter

The invention of the piano almost three centuries ago must rank as one of the most significant advances in the history of music. It is unlikely that the inventor or his financial backers were aware of the importance of this achievement. They kept few records of the work. Occasional entries in inventories show the musical instruments owned by the financial backers.

Fortunately, about 10 years after the first new instruments were built, a journalist with an understanding and appreciation for music had the opportunity to examine them. He then wrote an article for an Italian literary journal describing his observations. Many decades passed before the article received much attention.

By the time the piano began to take its place in music, the inventor and his backers were dead and others came out with claims for credit for its origination. We now have documentation showing that Bartolomeo Cristofori built his first pianos in the late 1690s, preceeding the others by even more years than previously thought. Over 30 years later, the next builder, Gottfried Silbermann, made copies of Cristofori's designs.

We know nothing of Cristofori's personal life other than the dates of his birth in Padua, May 4, 1655, and his death, January 27, 1731, in Florence, taken from church records. Some information on his professional work and life can be drawn from the article the journalist, Scipione Maffei, wrote for the *Giornale de Litterati d'Italia,* Venice, 1711, "New Invention of a Harpsichord with the Piano and the Forte."

Early Medici History

Florence was established as a city by the Romans. Later it came under the dual control of the Germanic emperors of the Holy Roman Empire and the Pope. When Italy broke away from the Empire and split up into smaller governmental units early in the Middle Ages, Florence became an autonomous, self-governing city-state. However, it still was under some direction from the Emperor and the Pope. Democracy in the Republic of Florence was very limited. Only about four percent of the city population could vote. Requirements for voting eligibility were residence of the family for several generations and substantial wealth.

Neupert Collection

As Florence prospered from its international commerce in wool, silk and jewelry, it also became a financial center of world importance. By the start of the 14th century, Florence had about 80 banking houses. Merchants and bankers constituted the aristocracy that ruled the city. The prosperity of the city encouraged the growth of culture including music. The city supported a town band for civil and religious ceremonies as early as 1361.

Although outwardly Florence still remained a republic governed by an elected council, Cosimo de Medici (1369-1464) the eldest son of Giovanni de Bicci de Medici (1360-1429) became actual ruler of Florence through domination of the city council. As his wealth continued to expand at an enormous rate, he made huge contributions as a civic duty in support of arts, public cultural projects, and charity.

The heirs that succeeded Cosimo for several generations controlled the city government in the same way and continued the huge Medici financial contributions to fine art and other cultural efforts.

The control of the Medicis was interrupted from time to time by enemies who forced them out of power for brief periods. Finally they were made titled rulers after Florence was defeated in a struggle with the invading army of the ambitious Holy Roman Emperor Charles V. He declared the Republic to be ended in 1532 and with agreement by the Pope selected a 20-year-old

member of the Medici family, Alessandro, to rule as hereditary Duke of Florence. Alessandro proved to be a corrupt, immoral tyrant. His death by assassination in 1537 aroused no grief in the population.

History Of Junior Medici Line

The succession now went to a distant Medici cousin, Cosimo I (1519-1574), the first of seven grand dukes in the junior Medici line descended from Lorenzo de Medici, who had died in 1440. Lorenzo was the younger son of Giovanni de Bicci.

Cosimo I was devoted to the advancement of Florence and brought it to its highest level of political power. In 1570, Pope Pius V crowned Cosimo I "Grand Duke of Tuscany" extending his sovereignity over a duchy of eight to nine thousand square miles.

Very little additional information had appeared until the publication within recent decades of inventories, financial accounts, and other documents from the Medici files with more details on Cristofori's work. A portrait of Cristofori which authorities accept as authentic was discovered by Professor Schuneman of Berlin in 1934.

Cristofori served the last of the Medicis. He was in Florence by 1689 as court instrument maker to Prince Ferdinando, the eldest son of Grand Duke Cosimo III. Although Ferdinando died in 1713, Cristofori continued to serve the Medici court for the remainder of his life, being named curator of the Medici instrument collection in 1716 by Cosimo III. Gian Gastone, the younger son who inherited the title of Grand Duke on the death of Cosimo III in 1723, was the last of the Medicis to rule Florence. Cristofori died in 1731.

Cristofori's association with the Medicis and with Prince Ferdinando in particular was the most significant factor that led to Cristofori's invention of the piano. The Medicis, great patrons of culture while ruling Florence for 15 generations, left a vast collection of documents which have been studied by historians and biographers, past and present. Unfortunately only scraps of information about Cristofori have been published.

Neupert Collection

Cosimo I was responsible for many constructive projects — in public works, agriculture, industry, education, science, art and music. However, he was a harsh, authoritarian ruler who abolished much of the freedom that had existed in the Republic. In spite of his generous support, Florence lost its leadership in art and learning under such repression. His successors also ruled as absolute monarchs, some benevolently, others without concern for the general good or, worse yet, as cruel tyrants. To elevate their status, they allied themselves to kings of other European countries by marriage. They and their families lived extravagantly on money taken from the heavily taxed population, and some indulged in corruption, scandal and disorder as did decadent aristocracy elsewhere. Florence's economy and political influence declined rapidly after the start of the 17th century.

With acknowledgement of their faults, the Grand Dukes must be given credit as great benefactors of art continuing this Medici tradition until the end of the dynasty. Their contributions also furthered the advancement of science and music in which some of them had greater interest.

"

At the start of the 17th century, Florence ... led in the production of opera. During the second quarter, encouraged by Pope Urban VII ... Rome became the main center for opera in Italy.

"

Support Of Opera And Other Music By Medicis

Music was frequently used in Florence in the court, church, theater, carnivals, parades, and special events such as weddings in which the Medicis provided lavish entertainments.

Florence is considered the birthplace of opera, largely as a result of the activities of the Camerata, a Florentine musical society that included members of prominent families as well as Vincenzio Galileo, the father of the famous scientist. The Camerata was organized during the reign of Grand Duke Ferdinand I (1587-1609) who gave his support. One of the earliest performances took place in 1600 in a large theater in the Grand Duke's Palace in celebration of the marriage of his niece, Maria de Medici, to King Henri IV of France.

Leading composers of the city were kept busy writing new music dramas for similar performances continued by Ferdinado I's successors. During the second half of the 17th century, there were at least 12 theaters operated by academies in which opera was presented.

There was a considerable amount of music, as part of the services in the churches of Florence, written by the same composers who wrote opera. Regular performances of oratorios was begun during the second half of the 17th century.

The Medici Family In Cristofori's Time

Cosimo III (reigned 1670-1723) was the Grand Duke when Cristofori came to Florence to work for the Medicis. Before Cosimo III, his father Ferdinand II, who reigned from 1621 to 1670, and Ferdinand's brothers had given their enthusiastic support to music, art, literature and science. However, Ferdinand had been a poor administrator incapable of coping with the serious economic decline of Florence. While he himself was good-natured, he allowed himself to be controlled by his intolerant, ill-tempered wife, Vittoria della Rovere, who had eccle-

siastics appointed to high government posts.

Cosimo III, born in 1642, inherited the mean disposition of his mother. He was given a monastic education and grew up an arrogant bigot. In 1661, Cosimo married Princess Margaret Louise of Orleans, cousin of King Louis XIV in an arranged marriage she did not want. Margaret Louise was an attractive, energetic, high-spirited girl, the exact opposite of gloomy Cosimo. Their children were named Ferdinando, born 1663; Anna Maria Luisa, born 1667; and Gian Gastone, born 1671. In 1675 , Cosimo and his wife separated permanently when Margaret Louise returned to France.

When Cosimo III succeeded his father as Grand Duke in 1670, Tuscany was rapidly sinking into poverty. Hurt by English and Dutch rivalry, trade was declining. There were food shortages due to backward domestic agriculture. Additional misery for the population resulted from heavy taxes and frequent outbreaks of disease. Cosimo had good intentions when he started to rule but he was utterly incapable. He soon turned over many of the administrative details to his mother and her friends from the monasteries and devoted himself to enjoying the extravagances of royalty, trying to copy the style of Louis XIV.

In contrast to his father, Prince Ferdinando grew up an intelligent, artistic, handsome young man educated by distinguished scholars. He was a proficient harpsichordist and a singer with a melodious voice. He and other young men of prominent Florentine families promoted activities in music, art and literature. In spite of his extravagance and unrestrained pursuit of pleasure, he was popular because he seemed human, so different from his father. He disagreed sharply with his father and grandmother, who became more and more tyrannical in ruling Florence and Tuscany. Cosimo disliked his sons and bullied them. He coerced them into obedience by controlling their income.

"Ferdinando...agreed to a marriage with Princess Violante Beatrice of Bavaria on the condition that he be allowed to visit Venice before the marriage. It was on his way to Venice in 1687 that Prince Ferdinando stopped in Padua and invited Bartolomeo Cristofori to come to work for him in Florence."

As his sons grew up, Cosimo became concerned with the succession of the family. He began to look for prospective brides for Ferdinando, with an eye to political advantage. Ferdinando was not enthusiastic but agreed to a marriage with Princess Violante Beatrice of Bavaria on the condition that he be allowed to visit Venice before the marriage. It was on his way to Venice in 1687 that Prince Ferdinando stopped in Padua and invited Bartolomeo Cristofori to come to work for him in Florence.

Music In Venice

Venice had remained a republic with an electoral system that allowed no single family to gain overwhelming power. Although afflicted with the same economic problems as Florence and declining in political power, Venice had a pleasant, cheerful atmosphere that attracted many travelers, especially musicians and music students who came to study with them. By the last decades of the 17th century, Venice had become the leading city for music in Italy. Musical activities included many public festivals, church music, programs in academies, public instrumental and vocal concerts and opera. Venice also became a major center of music printing.

At the start of the 17th century, Florence, the place of origin, led in the production of opera. During the second quarter, encouraged by Pope Urban VII (1623-44) and with support from his family, the Barberinis, Rome became the main center for opera in Italy. The next Pope, Innocent X, did not like opera and production diminished. Opera was begun in Venice in 1637. Here a group of noblemen opened a public opera house to be run for profit. In Florence and Rome the performances were given at private parties by wealthy patrons. The Venetian enterprise met with great success and attracted others who started similar theaters. By the end of the century, Venice had 16 public opera houses which together had presented more than 350 productions since their beginning, far more than seen anywhere else.

Harpsichords In Italy

It could be expected that such extensive musical activity in Venice would promote the building of harpsichords. On the contrary, the effect appears to have been the opposite. There is no definite documentation of production. However, assuming information gathered from existing Italian harpsichords is a representative sampling, some indication of relative building activities can be obtained from the instruments which are signed and dated, about 50 percent of the total.

Donald H. Boalch has assembled lists of makers, locations, and dates obtained from instruments he has examined and other sources. These are shown in his book, *Makers of The Harpsichord and Clavichord* (London, 1955). Venice, with 13 builders in the 16th century, was then the leading city. Florence and Rome had three or less. For the 17th century, only three are listed for Venice, while the numbers rose to 30 for Florence and 18 for Rome.

If these figures are a valid indication, they reflect a rising interest in harpsichord music in Florence and Rome against a decline in Venice and other Northern Italian cities where vocal and violin music flourished.

Girolamo Frescobaldi, a highly acclaimed keyboard performer and composer, may have elevated interest in the harpsichord by his activities in Rome and Florence during the first half of the century. He was in Rome from 1608 to 1644, except for an interruption from 1628 to 1634 for service in Florence in the court of Ferdinand II. Other Italian composers who wrote for the harpsichord were active in Rome during the second half of the century.

The Fortuitous Glue Collar Worker

Gratification

David Patterson, RTT
Detroit-Windsor Chapter

Working as a piano tuner/technician provides opportunity, reputation, gratification, and uniqueness. Third in a series of four.

The customer's perception of the piano tuner/technician as an artist is not without foundation. An artist loves his work — answers a calling, so to speak. For many, piano work starts out as a hobby. The best of both worlds is offered to those who can see the light. Work done out of love can also be a lucrative business enterprise. (Yes, money is gratifying).

The work is not boring. Independent tuners can be their own boss and set their own hours, goals, and success rates. The improvement of skills and the accomplishment of manual tasks are both gratifying. Rebuilding can be very satisfying.

Lest we forget, the piano exists for one reason only — pleasure. After a tuning, hard working technicians can remind themselves that the end product in this field is music and the bottom line is enjoyment. Those who play can partake of this pleasure each time they work.

The best part of all is that the piano owner can almost always thank you — if they don't something may be wrong.

These gratifying points combine to help make piano tuner/technician a superior occupation.

ALL ABOUT ADHESIVES

Part II: Casein Glue, Synthetic Adhesives, Polyvinyl Acetate Adhesives, Aliphatic Resin Adhesives, Urea-Formaldehyde Resins And Resorcinol-Formaldehyde Resins

Del Fandrich
Sacramento Valley Chapter

Last month I finished up with a description of hot animal hide glue and a general outline of how it is used. For years, animal hide glue had been used for nearly every phase of piano building — not necessarily because it worked so well in every situation, but because in many cases it was the only practical adhesive available at the time. As synthetic adhesives became available, they quickly took over most of the jobs that animal glues had done earlier. Before going into the various synthetic adhesives there is one more natural glue that should be mentioned.

Casein Glue

Casein glue is also a protein-base glue. In this case, however, the protein is precipitated (i.e., the solids are chemically separated) from skim milk rather than being taken from animal hides or bones.

Casein glue is relatively inexpensive and easy to use. It is a fair gap filler, it is water resistant though not completely waterproof, and it's unaffected by most solvents. Casein glue cures by chemical reaction as well as through the loss of moisture so the moisture content of the wood is of less consequence than with other natural glues — it can tolerate a range of two to 18 percent without any problems. (In general, wood should always be slightly dryer than it will be in normal service, no matter what adhesive is used.)

Normally, casein glue is available as a light tan powder packaged in airtight cans. It is mixed with water in the exact proportions given by the manufacturer just prior to use. After the powder has been added to the water (never the other way around) and thoroughly mixed together, the mixture must sit for 10 to 15 minutes while the water dissolves the glue.

During this time it will become quite thick, but no more water should be added. Once the glue is dissolved and the mixture is stirred again, it will become quite smooth, having the consistency of very heavy cream. The prepared mix has a limited pot life (i.e., the length of time the prepared adhesive remains usable after mixing. Casein glue can be used at any temperature above freezing; however, both pot life and curing time are affected by the ambient temperature — warmer temperatures and low humidity will shorten pot life and clamp times, while cooler temperatures and high humidity will lengthen these times. At 70 degrees fahrenheit, the required clamp time is three to five hours and full strength is reached in eight to 10 hours.

Casein glue is used quite a lot for laminating structural beams and trusses used for building construction. It is most effective with soft woods — in tests conducted by the U.S. Department of Agriculture, it proved to be nearly as strong and durable as urea and phenol-resorcinol glues. It is also very good at bonding resinous or oily woods such as rosewood or teak, but it may stain some dark or acidic woods. It is non-toxic so it is frequently used to make children's toys. Since it is quite abrasive, it will dull cutting tools, so if there is much glue squeeze-out present it should be removed before any subsequent machining operations. It must be stored in airtight containers and has a shelf life of approximately one year. No. 30 Casein Glue is made by National Casein Co.

Synthetic Adhesives

Next, let's take a look at some of the synthetic adhesives that currently are available. It would be impossible to cover them all in these articles. One reference book, *The Handbook of Adhesives,* has 921 pages in it and even that doesn't cover them all! So, I've chosen just a few of the most commonly available and, at least in my opinion, the most useful types. If I leave out your favorite, please let me know what it is and what you know about its composition and its characteristics.

Keep in mind that these are types of adhesives, though I will list some brands that I use and am familiar with. Very often the same type of adhesive, even the same formulation, is marketed by different manufacturers or distributors under different brand names.

Wood glues are available in three general forms:

1. Ready-to-use liquids
2. Water-soluble powders
3. Two-part resin and hardener, usually a powder and a liquid which must be mixed together in specific proportions. Let's start with the most commonly used adhesives today, the ready-to-use liquids.

Polyvinyl Acetate Adhesives

Polyvinyl acetate, or PVA, adhesives first were introduced in the middle 1930s, Acceptance was slow until PVA emulsions were introduced in the middle 1940s. (An emulsion is a dispersion of fine particles — in this case polyvinyl acetate — in water.)

These emulsions gained acceptance in many applications as a substitute for animal glues. At first

they were more expensive than the hide glues they were replacing, but this was offset by their convenience and, at least in some applications, superior properties. PVAs began to be used in more and more industrial uses as a wood adhesive and it was eventually introduced into the retail market where it came to be known as "white glue." Two of the most popular brands currently available are Elmer's Glue-All and Franklin Evertite.

In addition to its usefulness as a wood adhesive, PVA has been adapted for use in a very wide range of applications — it's the glue that holds cigarette tips in place and it's the binder in latex paint.

This versatility has led to problems, however. It is now often used for applications for which it is completely unsuited. For example, there is now one company marketing a basic white glue whose literature leads one to believe that theirs is the only adhesive product you will ever need from here on out, ever, for nearly any conceivable application. If all these claims were really accurate, it might help to justify its excessively high price.

I guess the old adage "Let the buyer beware" should apply here as much as anywhere else. Just because a manufacturer says that an adhesive can be used for a certain application does not mean that it is appropriate and should be used. This is one reason why I prefer to buy and use only those adhesive products of known chemical composition. I don't mean the specific formula, but the basic type or "family" of adhesive. By understanding the working characteristics of the various adhesive compounds and the needs of your specific application, you can determine how these characteristics can be used to your advantage. I also recommend that you test and become familiar with all the adhesive products that you plan to use under actual working conditions.

As it comes from the bottle, PVA, or white glue, is — guess what! — a white liquid with a medium, cream-like consistency. When dry, it becomes a very tough, but flexible, solid. The glue line is translucent and nearly invisible. It spreads smoothly and has no objectionable or harmful fumes. It has an open assembly time of approximately 10 minutes. When the joint is closed the glue will set in approximately one or two hours, and it only needs moderate clamping pressures during that time. Full strength is reached in 24 hours. It is a fair gap filler, but it has poor resistance to solvents, moisture and heat. Because it is thermoplastic — it softens when heated — it is difficult to sand. It is slightly acidic and can stain acidic woods such as cedar, walnut, oak, cherry and mahogany. It should not be used on bare metal because it can be corrosive. It can be used at any reasonable room temperature and has an almost indefinite shelf life. It is excellent for bonding felt, leather, paper, etc., to wood and even works well when bonding these materials to finished metal parts.

> "Any white glue joint which comes between the string and the soundboard will retard the transfer of energy — it will act as a damper."

Its flexibility can be either an advantage or a disadvantage when used as a wood glue, depending on the specific application. It is an advantage when the two wood pieces are at right angles because the wood can expand or contract without breaking the joint at the glue line and the wood will be a little less prone to cracking or splitting. However, this same characteristic allows the material to creep (cold flow) under strain. Therefore, any joint under constant strain must be designed in such a way that any needed structural integrity comes from the mechanical design of the joint and the glue is used merely to hold everything in place. Since to a large degree, the glued joints in pianos are under constant strain, white glues should be avoided for any type of structural repairs.

I've recently heard several instructors recommend white glue for bridge, soundboard and rib repairs, but I disagree. The physical requirements for joints in these areas are not compatible with the characteristics of white glue. The crown of the soundboard depends, in most current piano designs, on the pressure built up by the soundboard expansion being restrained on one side by the rib. If this pressure is relieved for some reason — as it will be if the adhesive cold-flows — the crown will be lost. One factor affecting the transfer of sound (which is simply mechanical energy) through any material is the hardness, or rigidity, of that material. Any white glue joint which comes between the string and the soundboard will retard the transfer of energy — it will act as a damper. Also, the offset of the string through the bridge pins creates a torsional stress which tends to twist the top surface of the bridge. White glue does not have the rigidity to withstand this torsional stress. These joints could be reinforced by screws, I suppose, but aside from not solving the problem, it would introduce a whole new set of problems as well. Since we have several other adhesives which are much more appropriate for this use, let's just use them instead.

You should be aware that there are several PVA adhesives which contain various additives and/or fillers designed to reduce cold-flow characteristics and increase rigidity, as well as alter other characteristics. Several of these are offered by the Garrett Wade Co. Inc., 161 Avenue of the Americas, New York, NY 10013. However, with these changes, the resulting adhesive is no longer the generic white glue that we all know and love.

Aliphatic Resin Adhesives

Another member of the PVA family of adhesives is the so-called aliphatic resin adhesive or, as it is more popularly known, yellow glue. I say "so-called" because technically both white and yellow glues are aliphatics; that is, they are chemical compounds in which the carbon atoms are linked in open chains rather than rings. But with a catchy name like "aliphatic resin" to drop around, how could the marketing people resist?

Aliphatics have many characteristics similar to PVAs but they have been modified through the addition of various polymers which increase initial tack, decrease setting time, improve moisture resistance and reduce the tendency to cold flow. Since aliphatics are a little thicker than PVAs and have a higher tack

— that is, the surface is particularly sticky — they are a little more difficult to spread. This is more than compensated by the lessened tendency to run and drip from vertical surfaces, however.

Aliphatic resin adhesives come about as close to being universal, do-everything wood glues as anything currently available. They form a stronger bond than white glue and have less creep under strain (though there is still some). Yellow glue is much more moisture-resistant than white glue but is still not classified as waterproof. Because it is much less thermoplastic, finished joints are easier to sand.

Unlike white glue, which has an almost unlimited shelf life, aliphatic resins have a recommended maximum shelf life of one year after purchase. It is possible to extend this somewhat by storing it in a cool place and thinning it slightly (up to a maximum of five percent) with water if it becomes too thick. It is available from a number of manufacturers, all producing approximately the same product at generally high quality levels. Two common brands are Franklin's "Titebond" and Elmer's "Carpenter's Wood Glue."

Urea-Formaldehyde Resins

Besides animal hide glue and casein glue (which both are natural glues, there is one other powder/water adhesive in common use — this time a synthetic.

In 1872 the German chemist Adolf von Baeyer, best known for his aspirin, discovered that he could produce a solid resin by reacting phenal (a corrosive and poisonous white crystalline compound which is also used to make explosives) with formaldehyde. This same basic chemistry forms the foundation of the plastics industry as well as the synthetic resin family of adhesives. Phenolic resins are not of much use to piano technicians due to their high cost and the need for high-temperature curing. However, a closely related resin, urea-formaldehyde, which is cheaper and easier to use, has become the adhesive of choice when water resistance is needed.

Both phenolics and urea-formaldehydes cure by cross-linking or polymerizing their molecules into hard films that are not softened by water even though the type woodworkers

"In 1872 the German chemist Adolf von Baeyer, best known for his aspirin, discovered that he could produce a solid resin by reacting phenal (a corrosive and poisonous white crystalline compound which is also used to make explosives) with formaldehyde. This same basic chemistry forms the foundation of the plastics industry as well as the synthetic resin family of adhesives."

are most familiar with (a light brown powder) is mixed with water to make it into usable form. It cures by chemical reaction rather than evaporation. Its open time is quite long. This is frequently considered an advantage since it gives more time for assembly and clamping.

Urea-formaldehydes are good general-purpose wood adhesives. They are especially good for woods which have a higher-than-normal moisture content. They cure to a hard, brittle film, forming a bond of great strength, but which can be machined and sanded easily. Its light tan color blends nicely with most woods. A common brand is Weldwood's "Plastic Resin Glue."

Unfortunately, the urea-formaldehyde adhesives are not perfect either. Though they form a very high strength bond when used on properly prepared surfaces, they are poor gap-fillers. They do not work very well with oily or resinous woods. Though they are highly water resistant, they are not quite waterproof. They are thermosetting — the curing process is temperature-sensitive — and they may not cure at all at temperatures below 70 degrees fahrenheit. At 90 degrees the material has a pot life of only one to two hours. Curing can be accelerated by heating the glueline to 100-150 degrees. This is most easily accomplished with radio-frequency curing machines, but can be done by other means as well. I have used heat lamps, space heaters, heat guns, etc.

There is another type of urea-formaldehyde adhesive which, while not very common, is quite useful. It's called "Aerolite." It was developed in England during World War II and was used in building the "Mosquito" bombers. It forms a very strong bond and is an excellent gap filler. It is classified as water-, insect- and mold-proof. The shelf life is two years.

It comes in two parts. To prepare for use, the resin (a powder) is mixed with water and applied to one side of the joint. The hardener (already in liquid form) is applied to the other side and the two are brought together and clamped. The curing process begins on contact. There are two hardeners available — medium and fast.

It can be obtained from Aircraft Spruce and Specialty Co., Inc., P.O. Box 424, Fullerton, CA 92632. (This is also a good source for several of the epoxy resins I'll be discussing in a later article. Their catalog is available for $4 — refundable. It's a fun catalog even if you don't plan to build any airplanes in the near future!)

It's important to use urea-formaldehyde adhesive only in well-ventilated areas since it gives off a small amount of formaldehyde gas during (and for some time after) the curing process. This gas is a suspected carcinogen and it may irritate skin, eyes and possibly cause headaches. This problem can easily be dealt with by using it only in a reasonably well ventilated shop area.

Resorcinol-Formaldehyde Resin

We now come to the king of wood glues: resorcinol-formaldehyde resin. Developed in 1943 specifically to provide a waterproof wood-to-wood bond, it was put to immediate use in ship building, aircraft building and many other applications requiring a completely waterproof adhesive. Resorcinol resin adhesives are very similar to the phenol/urea-formaldehyde adhesives, the principal difference being the greater reactivity of the resorcinol resins.

In addition to being waterproof — even prolonged immersion in boiling

water does not weaken it — it is also resistant to most commonly-used solvents. The bond it forms is stronger than the wood itself. It has virtually no cold-flow so its stress resistance is excellent.

These adhesives are supplied in two parts — a dark red, liquid resin and a (usually) powdered catalyst consisting of paraformaldehyde and an inert filler — usually powdered nutshells. Once mixed, they have a fairly long pot life (usually two to four hours) and a long open assembly time. If necessary (and it rarely is) resorcinol resin glue can be thinned slightly with alcohol or water (the ratio of resin to hardener should never vary from the manufacturer's instructions). Before the adhesive has cured, it can be cleaned up with water or a damp rag. Once it has cured, forget it! You'll have to scrape or sand it off. And if the joint is where it can be seen you will want to remove any excess, or squeeze-out, since it dries to a very dark red color, leaving a glueline which is plainly visible and rather unsightly.

Note that this adhesive, like the ureas, releases formaldehyde gas during the curing process and should be used only in a well-ventilated area. If you have a history of allergic reactions, you should use caution when handling any of these adhesives and avoid getting it on your hands. Keep it out of your eyes. In general, just follow the manufacturer's safety precautions and you'll have no trouble with it. The brand I am most familiar with is Weldwood's "Resorcinol Waterproof Glue."

When used with hard woods, the joints should be left open for a time to allow the adhesive to soak into the wood surface enough to avoid starved joints (i.e., there is not enough adhesive remaining to form the necessary cohesive bond between the two adherends — it must be able to form the interpenetrating areas, phases two and four, and still leave enough adhesive to form a glueline — see Part I). Once joined, the parts must be firmly clamped for 10 to 12 hours at 70 degrees, somewhat less at higher temperatures — down to four to six hours at 90 degrees and three hours at 100 degrees. After this time, the clamps can be removed but complete cure (and, of course, maximum strength) will not occur for several weeks unless the process is accelerated by applying heat to the joint. Acidic hardwoods, such as oak, may require heating (to 100-110 degrees) for several hours just to make sure complete curing does take place.

If the adhesive is properly applied and cured there is just about nothing that can take one of these joints apart. Typically, the wood failure rate is between 80 and 98 percent, depending on wood species. This is determined through destructive testing and is the amount of broken wood versus the amount of broken glue line after failure has occurred. In summary then, this is a very strong adhesive and, once cured, it is impervious to just about any type of outside influence. Oh yes, it will fail if exposed to excessive heat. Of course, by the time the glue joint fails, the wood will have become charcoal, but...

Well, that's it for this month. Next month I'll discuss some of the mechanical requirements for obtaining a good adhesive bond with wood. This is a slight change from my original plans, but I've been unable to get samples of several products I'd like to include in my article about epoxies. I should have them "real soon now."

I'll also try to give some answers to that famous question, "Why didn't it stick?" The fourth part of this series will get into polyester resins and epoxy resins. So don't go 'way — stay tuned for the next exciting installment!

COMMON WOODWORKING ADHESIVES.

ADHESIVE: Generic & Sample Brand	TYPE: Form & Prep.	CHARACTERISTICS: Appearance	Viscosity	SetSpeed	Strength	StressRst	FilmFlex	MoistRst	Gap Fill	Wet Tack	Comments:
Animal Hide Glue - Hot - Various Suppliers	Dry - granule or flake - mix w/water, heat	Hot, amber liquid when prepared	Varies - w/temp. & mix ratio	Med - fast	Med - high	Good	Brittle	Poor	Fair - good	High - good	Requires glue pot, non-toxic, excellent for felt, hammers/hmmr.shanks, etc. Veneer repairs. Very rigid.
Animal Hide Glue - Liquid - FRANKLIN Liquid Hide Glue	1-part, ready-to-use	Clear, amber liquid	45 - 55	Slow	Med - high	Good	Brittle	Poor	Fair - good	Med. - fair	Cured characteristics similar to Hot Hide Glue. Slow cure. Good for rib/soundboard repair, general wood rpr.
Casein Glue - NATIONAL CASEIN #30	1-part powder Mix w/water	Creamy liquid when mixed	350 - 450	Slow	High	Good - excellent	Tough	Good	Fair	Poor	Good for oily woods. Non-toxic. Good structural bonds. Stains acid wood.
Polyvinyl Acetate Adhesive or PVA or White Glue - ELMER'S White Glue	1-part liquid Ready-to-use	White liquid	30 - 35	Fast	Medium	Poor	Very flexible	Poor	Poor - fair	None	OK for non-structural wood repairs. Good for felt, paper, fabric, etc. Should not be used on bare metal.
ALIPHATIC RESIN or YELLOW GLUE - FRANKLIN'S Titebond	1-part liquid Ready-to-use	Yellow liquid	35 - 40	Very fast	High	Fair - good	Mod. flexible	Fair	Fair - good	Good	Best general purpose adhesive - but should be avoided where rigidity or hi resistance to moisture is needed.
UREA-FORMALDEHYDE RESIN Plastic Resin - WELDWOOD Plastic Resin Glue	1-part powder Mix w/water	Tan creamy liquid when mixed	250 - 350	Slow	High	Excellent	Brittle	Very good	Fair	Fair	Excellent choice where high strength & rigidity are needed. May not bond oily woods. Water Resistant.
RESORCINOL RESIN - WELDWOOD Resorcinol Resin Glue	2-part liquid and powder. Mix together	Dark, red-brown when mixed	300 - 400	Slow - medium	High	Excellent	Brittle	Water-proof	Fair - good	Poor	Completely waterproof. Used in wood boatbuilding. May require high temp (100+ deg.F) cure with acidic woods.
ACRYLIC RESIN ADHESIVE - PAC or Plastic Adh. Cement Tridox Laborstories	2-part liquid and powder. Mix together	White liquid	Varies w/mfg's formula	Very fast	Very high	Excellent	Tough	Water-proof	un-limited	Fair	Waterproof. Very fast cure. Bonds a wide variety of materials - wood, metal, glass, etc. Fairly expensive.

NOTES: Viscosity - In poises at 83 deg.F. Low (30 - 35) is a little thicker than water, high (350 - 450) is much thicker, like gravy perhaps.
SetSpeed - Setting speed. The speed at which an adhesive changes state, generally from a liquid to a fixed, or hardened state, either by chemical or physical action.
Strength - All the above adhesives (except for white glue) will adequately strong bonds for most woodworking applications. Choices should be based on other factors. ASTM (the American Society of Testing Materials) has verified that all exceed Government Specifications of 2800 lbs./sq.in. on hard maple.
StressRst - Stress Resistance. The resistance to cold flow, or creep, which is the deformation of a material under constant load.
FilmFlex - Flexibility of the adhesive film. The ability of an adhesive film to bend, or flex, in response to the movement of the adherend.
MoistRst - Moisture Resistance. The resistance of an adhesive to failure due to exposure to moisture - by either vapor or direct water contact.
Gap Fill - Gap Filling qualities. The ability of an adhesive to fill in voids and gaps between the two adherend surfaces.
Wet Tack - That property which enables an adhesive to form a bond of measurable strength immediately after the adherend and adhesive make contact under low pressure.

It's The Little Things That Count!

Agraffes

Gerald F. Foye
San Diego Chapter

How would you like to go through life with your feet firmly secured to the ground while a force from above is pulling your head straight up? Well, consider the life of an agraffe!

Back in the November issue of the *Journal,* Paul Bergan did an informative article on agraffe repair. Never being one to leave things as is, I would like to offer a little additional information. We all know that it is not very economical to have to make a trip to the shop for more parts. Therefore, you might want to consider some agraffe sizes other than the traditional sizes purchased through piano parts supply sources. In addition to the standard 7/32- and 1/4-inch sizes with 36 threads per inch, you might want to carry some agraffes to fit the Korean pianos. One size is: 0.274 inch (or 6.9mm) with 34 threads per inch. Another size is: 0.246 inch (or 6.2mm) with 32 threads per inch.

And, if that doesn't make life tough enough, how about string height? I will refer to string height as that dimension from the face (seating surface) of the agraffe to the center line of the wire holes. There is quite a variation. Catalog agraffes have a string height range of about 9/32 to 19/64 inch. Now, that's not a great difference. But, along comes Kimball with an approximate dimension of 1/4 inch. Which string will be an unsightly 3/64 inch (almost 1/16 inch) higher than the mating strings? In turn, what causes a change in regulation dimensions?

The solution is to either modify standard agraffes to the 1/4-inch height or purchase some agraffes from Kimball. I prefer the latter arrangement. Then, code the various agraffes to avoid confusion.

Regarding agraffe breakage, here is a rare but possible cause to be considered. A threading tap has a tapered "starting" section and the full thread size is past that section. Therefore, if a tap is not run in deep enough for the threaded portion of an agraffe, that agraffe will be so tight as to cause thread damage and a jammed agraffe shank. This can cause a couple of problems. One would be agraffe breakage or stress for future breakage. Or the agraffe may not seat on the plate even though it appears to be tight. One clue to such a condition would be that the broken section of agraffe shank is so tightly jammed as to be extremely difficult to remove and extraction procedures are necessary.

Therefore, should an agraffe start to bind in the thread before it is seated, remove it and check the thread on the agraffe and in the plate. If it appears to be a depth problem, the best solution is to tap it deeper. However, if a tap is not available then shorten the thread shank on the agraffe with a file, hacksaw or whatever means you have. File burrs and chamfer lightly. Install the agraffe and adjust string angle as required.

Action In The Rough

Susan Graham
San Francisco Chapter

It's a happy fool who sits in the shop and pulls a piano action apart and reassembles it with nice new parts. Then some further fool has to make the thing work again.

The truism is that the more thorough the rebuilding, the more thoroughly the action will not work. It needs regulation, and will need it more than once. Regulating any action is cyclical in nature. On those just rebuilt, doubling (and tripling) back is inevitable (as is some wasted effort). You need to use common sense. If nothing else, start with what seems worst. It's also true that some steps in regulation are distinguished by permanence (relatively unaffected by subsequent steps). It is efficient to do all of these at once. Others, distinguished by interdependence, require readjustment as the job progresses, and are best worked out on samples before adjusting the entire action. The trick to sane regulation is to distinguish between the two and allocate time and effort accordingly.

In this article I outline my procedure for getting a just-rebuilt action running. Gallons of ink have been spent explaining precise, step-by-step methods of regulation, so I'll concentrate less on the how-to and more on the why and when of regulation in the rough.

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Regulation of friction, weight and spacing are relatively permanent. They can be set when little else is functioning and tested by non-operational means (such as lifting a key to see if it will fall freely to test its easing). The first step, then, is to regulate friction: keyframe cleaning, key easing, action center adjustment and lubrication of contact points.

Key easing requires dimensional changes in the wood to be permanent. If new bushing cloth is too thick, it may temporarily squeeze down but will bind later. Thicker cloth also wears out faster when it is in excessive contact with the pin. Before easing or reinstalling keys, clean the pins and be sure the front rail pins are turned correctly and are not nicked. Spray the pins with

Slipspray or a similar dry lube.

At the front rail, the key should move sideways about half the distance of the gap between keys. Move them side to side in a depressed position, and listen for clicks which indicate drips of glue in the key mortise around the bushing, or too much glue saturating the cloth. If the key will not ease, check that the cloth is not too deep in the mortise. It should only extend as deep as the hole is wide.

Action centers have probably been checked or replaced in rebuilding but if not, check them now. The hammer should swing from its flange four to six times. The wippen flange should fall with the weight of its screw. The jack should fall freely back and forth as the wippen is tipped (spring disengaged).

Treat *action friction points*. Clean capstans with Brasso. If there is a burr forming a collar around the top edge of the capstans, it must be buffed off or it will cause sluggishness as well as eat into the new capstan cushions. Clean brass has a natural lubrication, but spraying with Slipspray may help to retard corrosion. Apply DAG (thinned 2:1 with isopropyl) to the repetition levers and the jack toes. Let it dry and buff before letting the knuckles and punchings contact it. Some new or dry-cleaned knuckles squeak. These can be lightly lubricated with unscented talc, soapstone or powdered teflon (No grease graphite!) If the repetition spring rides in a groove, this must be clean and lightly lubricated using a pencil point to apply a little graphite.

The next group of permanent adjustments are spacing and weight balancing.

Hammer spacing: guiding by the agraffe section, check the hammers for alignment under the strings. Before moving them individually, check the hammer-to-wippen and wippen-to-key alignment. These should fall in as vertical a plane as possible. If aligning the hammer to the string moves it to one side of the wippen, the whole action may need to be repositioned instead. Replace the cloth on the stop block (in the keybed, usually at the bass end — opposite the shift direction) and/or shim the block out. When the action is in the right "average" position, space individual hammers to the strings. Loosen the flange screws very slightly and use the forked tool to twist the flanges side to side. This cannot be done on Steinways — the screws must be loose enough so the whole flange can be moved sideways.

> "This has established a solid foundation of parts in good condition. Now they can be timed to work properly. We move into variables, operations which need to be done and checked and perhaps changed several times. Here's how I proceed."

Raise the hammers to the strings in groups by lifting the wippens with one hand, looking in through the strings, and working the tool with the other hand. Engage the tool in the first flange in each section and feel along the flanges with it, contacting each one and aligning those which your eye picks out. Once you get the hang of this, it is much faster than repeatedly having to crouch to look into the keybed to position the tool. Raising the hammers in groups allows you to refine their alignment with each other as well as to the strings. If the hammers can't be spaced with the flange tool, mark on the key which way they should go, pull the action, move them and replace the action. Retighten all flange screws.

Refine wippen alignment by traveling or tilting at the flange. A wippen should sit evenly over the capstan and align with the let-off button as well as the knuckle. It should sit squarely so the knuckle contacts both edges of the repetition lever.

> "The drop screw must stop the travel of the rep lever or else even if the jack lets off, the hammer will continue toward the string, and you can turn the let-off button all day with no result."

Balancing the weight of the action in the keybed is next. This weight will not change (unless there is radical releading in the keys) and balancing it now provides the firm foundation vital for stable regulation. Clean the keybed and check with a straight edge to be sure it is level and square. Sand lightly and lubricate where the front rail, the balance studs (or rail) and back rail will contact, using talc (unscented, which is oil-free) or Slipspray. Remove the keys and set the stack on the frame. Be sure all the bracket feet rest solidly on the frame. If not, a shim should be placed to take up any space. Otherwise, screwing the stack down will distort the frame.

Install the keyless action and the keyblocks. Bed the back rail by reaching in from above with a screwdriver to "knock" the frame. Bed the front rail and then adjust the glide bolts.

The final step in this series is to reinstall the keys and level them, with lead weights simulating the weight of the action. Don't turn the punchings yet, since the level as it sits with the actual weight of the stack may need refining later. Determine the key height by referencing from case parts — key slip and fallboard — by being sure there is sufficient height to allow enough dip, and by following the manufacturer's specifications.

I don't set a dip at this point. I leave that until the action is in closer regulation and the dip is determined in consideration with blow distance and aftertouch.

This has established a solid foundation of parts in good condition. Now they can be timed to work properly. We move into variables, operations which need to be done and checked and perhaps changed several times. Here's how I proceed.

Spring tension is usually too weak for heavy new hammers and tight pinning, so first strengthen all the springs. If the action doesn't work well enough to check this in the usual manner, judge how much tension there is by pushing down on the lever. The springs should be strong. If they are, the note can be made to work. If they are weak, the rep lever support is unreliable and little can be accomplished.

Jack height. As you strengthen the springs, adjust the top of the jack in the repetition lever window so that it is just slightly below the window edge. Don't fuss with it — do this quickly by sight or by feeling across the lever. If height punchings have been replaced this can be way off. Rough it in, refine it later.

Blow distance. Make an educated guess and set a hammer line — in most grands around 1 3/4 inch to 1 7/8 inch. The shanks must be up off the rests.

Jack alignment to knuckle. Line up the jack to the knuckle so that the back edge of the jack is aligned with the back edge of the knuckle core. I do this sitting on the hammer side of the action, facing the keys. Reaching over the stack to insert the tool seems awkward at first but the line of sight to see the knuckle above the jack is better and requires less bending and craning the neck (thanks to George Defebaugh for that tip). You can be pretty fussy with this, especially if the hammer line is reasonably close. A check for cheating jacks is made later, after the final spring adjustment.

Drop screws. New parts usually have the drop screws too high. The drop screw must stop the travel of the rep lever or else even if the jack lets off, the hammer will continue toward the string, and you can turn the let-off button all day with no result. So, run down the drop screws on a few samples, find an approximate let-off to check them, and then turn down all the screws to match.

All this has been done on the bench, but I don't fuss too much about the level of the bench since I believe in regulating in the piano. At this point, put the action in the keybed and quickly check the hammer line to see if it has changed and readjust if necessary.

Let-off: set a few samples of let-off, pull the action onto your lap, refine the drop on those few, approximate a backcheck setting and check the spring tension. Push the action back.

The samples work like a piano again, and are used to determine the accuracy of the regulation specifications. Check for aftertouch. As the key is slowly depressed, the hammer should rise, cycle through let-off and drop and then slightly rise again, indicating that there is a little more key travel left and the key has not "bottomed out" or just barely had enough travel to cycle the hammer action. If this rise is in a reasonable range (1/32 to 1/16 inch), then, holding the key fully depressed, touch the jack toe and see if it can be depressed a little more, moving the jack forward.

This is an important safety factor: the jack must not jam against the front of the rep lever or it may break on a hard blow. If there is aftertouch and the jacks are not blocking and the dip is close to 3/8 inch, then the regulation choices you've made are close enough to work with and you can begin to set the rest of the action to the samples.

If not, there are various ways to adjust to achieve the full cycle of the action without endangering the jacks. The tradeoff is mainly between blow distance and key dip, with consideration given next to let-off and drop timing and jack position. A shallower dip decreases aftertouch, a deeper one increases it. A "long" blow distance, which gives more power to the stroke, requires a deeper dip to achieve aftertouch, since more key travel is devoted to getting the hammer to the string — but this is the condition in which the jack is most likely to block. A shorter blow distance allows the hammer to cycle sooner (assuming the same let-off) and the dip can be reduced to prevent blocking, but the action may feel too shallow and power is reduced.

Widening the let-off will increase aftertouch but if the jacks still block the dip must be reduced or the jack moved further back under the knuckle — making a heavier action. I could go on like this all day, but the point is to use samples to play around with minor adjustments in all these factors until you get a good-feeling, working regulation with the shanks off the rest, noticeable aftertouch, jacks not blocking and enough key travel so the pianist has "somewhere to go." Be sure to use both natural and sharp keys for samples so you can determine a dip for each which will yield a uniform feel.

When these things are worked out, the dip can be set throughout, although I still prefer to wait, provided the dip is deep enough to let me continue with regulation.

Refine the blow distance to match

the sample (in the piano). Since the drop screws are down, the springs strong, and the jacks aligned under the knuckle, let-off can be set. Then pull the action onto your knees to set drop. This can be done without a rack simply by holding the adjacent key down so the hammer is raised to simulate string height. If let-off has been set, it is easy to get an accurate drop by comparison from hammer to hammer. The let-off can also be set in this way (although not quite as accurately) which is helpful in sections where plate struts interfere with in-the-piano regulation. Set backchecks the same way, using an adjacent raised hammer as a string height.

Still resting the action between your knees and the keybed, strike each key a pianissimo blow, just enough to get it to rise and fall back into a checked position. Slowly release the key and watch for gradual but not jumpy hammer rise. Adjust the spring if needed.

Changing the springs may alter the hammer line, since the lever may support the hammer differently, so reinstall the action and check the hammer line. While the action is in place, "wink" the jacks to check clearance under the knuckle; trip the jack toe by hand (hammer at rest), watching for a slight movement of the hammer and feeling for the brush of contact between the jack top and the nap of the buckskin. Pull the action and readjust the jack height. In some pianos this can be accurately done on the bench. In others, it alters from bench to keybed and will need refining. This adjustment works closely with the front-to-back alignment of the jack as well as the spring tension so consider all three as you make changes. For instance, moving the jack farther back under the knuckle will cause it to "wink" the hammer more.

Not only that, but now the hammer line and spring tension may have changed. Although the hammer is primarily supported by the lever, slight contact between the jack and the knuckle is necessary to assist the lever, so changing the jack height may alter the hammer line. Any time you get a hammer line which won't stay set, suspect jacks too low in the window. Also, since refining the friction between the jack and the knuckle may reduce (or increase) the strength needed for the spring to raise the hammer and return the jack, that tension may need adjusting. Chances are that these changes are now subtle enough to not affect each other, but always be sure before proceeding.

This is when I set dip (and check key level). I will allow slightly different key travel between sharps and naturals if it results in more uniform let-off and aftertouch while maintaining a level hammer line. It's a function of action geometry which I can't explain, but I know it can happen. However, once the dip for each is determined, it should be very uniformly set throughout the piano. Then refine the let-off and drop and you should find you have uniform aftertouch.

The springs have probably been progressively weakened — as other factors come into line, less spring strength is needed to get the action to work. When the tension is finally set to accomplish a nice, smooth hammer rise, check the jacks for cheating — skipping out from under the knuckle without activating the hammer. With the action resting on your handy knees, place one hand lightly on the hammers (don't push them down, just restrict them) and push firmly on each key. The jack should not pop out — if it does, ease it a little further back under the knuckle. Check this in the piano also by playing each note with a hard blow/slow release several times in succession.

The action should now work like a piano, but it isn't finished. I allow anywhere from a week to a month (depending on use) and then return for a fine regulation.

Yes, regulating a rebuilt action is tedious and requires doubling back. Resign yourself to that (leave sufficient time) and don't bog down in the early stages. Keep in mind what steps are constant and which change — and know that good regulation is absolutely necessary to show off all your beautiful shop work.

Index of Display Advertisers

The Auxiliary Exchange

President's Message

We're all ready to go. We've paid our registration early in order to avoid paying the late fees. We've contacted our friends and are delighted that they, too, will be going to Kansas City for the big international meeting.

But have we read the proposed bylaws changes in the April issue of the *Journal?* We need to be prepared to discuss these and other issues when we arrive at the convention. As your president, I may remind you that this is your organization and it is my wish that the majority rules. Come and bring your opinions with you and help make this a lively meeting! If you are not eligible to vote, present your ideas to a delegate or alternate and come join us for the meeting.

I have just learned that **Phyllis Krahmer,** who is one of our members, will sing for us at our convention tea. Phyllis has a fine reputation as a professional singer in the Chicago area and I know you will be pleased.

See you soon!

Louise Strong
President

Nominating Committee Report

The PTGA nominating committee submits the following persons as nominees for offices in 1985-86:

President — Mary Louise Strong
Vice President — Norma Lamb
Recording Secretary — Helena Thomas
Corresponding Secretary — Bert Sierota
Treasurer — Kathryn Snyder

All of the above persons are currently incumbents and are eligible to serve another year. Nominations from the floor are quite acceptable if anyone else is interested in running for a particular office.

Julie Berry, Chairperson
Mabel Hiatt
Virginia Sellers

Same Old Story!

Well girls, it is the same old story and I am repeating it to refresh your memories and revive your alertness. DO NOT LET ANY STRANGER INTO YOUR HOME!

My home has been for sale and there is a realtor's sign in the yard. I was on the porch. A car drove up and a man and woman with baby (about six months) began talking with me about the place. I told them to go through the agency, I did not show the place. Finally, the woman asked me to get a paper and pencil and write down the agency and phone number. Thinking to get rid of them, I finally went in. I did not hook the screen after me. They followed me in. For the most part, I live upstairs. The woman did not hesitate. She went right upstairs. I fussed at him about her being up there. He would call, "Come on honey. Let's go" rather lackadaisically. After ten or fifteen minutes, she came down dusting her hands and declaring they were empty. She had given the baby to the man. They left.

When I went upstairs, I saw right away that my watch was gone. I had left it on the table. I saw nothing else missing until I opened the silverware drawer in the buffet. There was a yawning void. She must have had a petticoat with many pockets. She took every spoon and fork — plated or sterling. Her pockets must have been full without the knives.

Ruth V. Pollard

We received a letter from Melinda Caunter of Vancouver, B.C. with the following sad announcement:

Our dear friend, **Dayle Foli,** wife of **Donn Foli,** President Emeritus, Vancouver, B.C., Chapter, passed away on August 8, 1984, after a lengthy, gallant fight with cancer. Dayle joined the Auxiliary at the International Convention in Calgary in 1968. She was inducted by **Ruth Koford** a week prior to the convention.

Auxiliary members who enjoyed the good fortune of knowing Dayle will remember that she was truly a loyal and loving friend. Dayle is sorely missed by us all, yet her memory lives on in the endless kindess with which she touched so many.

Dayle is survived by her loving husband, **Donn,** son **Leo Foli,** concertmaster, Minneapolis Symphony, son **Karl Foli,** Vancouver businessman, and six grandchildren.

Melinda Caunter

It will be recalled by many that Ruth Koford passed away during that convention in Calgary. I had the honor of meeting Dayle Foli just a few months before she died. While she was too sick to attend all of the Vancouver Regional last year, she made the courageous effort to come to the banquet for a few minutes to

National Executive Board

Mary Louise (Mrs. Donald) Strong
President
One Knollwood Drive
Rome, GA 30161

Helena (Mrs. Dean) Thomas
Recording Secretary
RR. Box 210A
Edinburg, PA 16116

Norma (Mrs. D. Elwyn) Lamb
Vice President
1833 Echo Park Avenue
Los Angeles, CA 90026

Bert (Mrs. Walter) Sierota
Corresponding Secretary
5201 Whitaker Avenue
Philadelphia, PA 19124

Kathryn (Mrs. Willis) Snyder
Treasurer
79 Furnace St.
Robesonia, PA 19551

greet and, it seems, say farewell to all of her friends in PTG. It was a touching and memorable moment as she moved from table to table, smiling radiantly and shaking hands with everyone. It is a moment I will never forget — ED.

They Found Their Way To San Jose

323 PTGers found their way to San Jose from 20 different states and two provinces for this year's California State Convention. It was a huge success with the added honor of the presence of **Charlie** and **Agnes Heuther.**

A beautiful hospitality suite was provided where **Becky Kaplan** kept a steady supply of delicious baked goodies. It was on the same floor as the classes and the technicians unexpectedly descended upon it during a break and wiped out her entire supply! Becky went home and baked all night to have more for the next day! This is certainly duty far above and beyond the call.

The Auxiliary Program was arranged by **Joe** and **Annette De Angelo** and it was among the finest I have ever encountered at any convention. **Lucille Weinberger** served as tour director and **Norma Lamb** reported that she did an outstanding job. They went first to the Mirassou Winery, the oldest U.S. winery, where they learned some of the secrets of fine winemaking and the history of the industry. They also sampled the various products and, judging from the number of bottles brought into the hotel, several cases were purchased.

Luncheon at the lovely Pinehurst Restaurant was truly outstanding with large filet steaks, salad, baked potato, two vegetables and topped off with a blue and gold, PTGA-decorated sheet cake. (Doggie bags were much in evidence among the returning group). The tour concluded with a visit to the Rosicrucian's Museum which included replicas of caves and tombs of ancient Egyptian rulers.

There were 54 Auxiliary registered and they had just enough time to get ready for the buffet banquet and reception that evening. After an excellent meal a variety of musical programs were presented that ranged from jazz to opera. They opened with Guild members **Eric Siverson** and **Clarence Peterson** in a most unique duo — bass sax and piano. They've played together for years and have developed some fine arrangements of the great music of the twenties. Clarence plays great jazz piano and Eric plays regularly with the Royal Society Jazz Orchestra at jazz luminary Turk Murphy's night spot on Pier 39 in San Francisco.

After the program, the infamous A-440 combo went into action for those who still weren't too tired to dance. It wasn't too long before the partymand a party it was (!) — evolved into some impromptu entertainment at the pianos located around the huge ballroom. **Agnes Heuther** and **Charlie Bonner** got together singing some rarely heard Irish ditties complete with brogues. **Will Daniels** and **Jim Harvey** harmonized on what seemed like every old-time hymn ever written. They were quite good and kept us up well past what should have been our bedtime.

Imaging is a concept whereby people can often accomplish their most fervent desires simply by visualizing them in their mind. If you desire to attend the International Guild Convention in Kansas City in July you might try imaging to make it come true.

Visualize, in your mind's eye...

...that you are in one of the country's most beautiful hotels visiting with old friends and making new ones.

...that you are interacting with many guests from foreign lands.

...the revitalization you feel in body and spirit after the jazzercise class.

...the elegance of an afternoon tea with a jewelry presentation by Tiffany's.

Record in the mystic force of your own mind the panoramic view of the nation's midland as you attend the impressive installation luncheon atop the Hyatt Regency while the entire room slowly rotates 360 degrees.

Imagine yourself all decked out in your finest summer attire at the two hosted receptions and meeting the presidents and officers of the nation's most prestigious piano companies.

For the touch of magic visualize the desired end result. You are returning home and relating all of the exciting things you have done to family and friends. You have a caricature drawn at one of the classes. You are telling of the thrill of listening to the biographer of Norman Rockwell recount the fascination of that wonderful artist's life with slides that bring his masterpieces to life and evoke so many wonderful memories...

Regarding the ideal as real is the key to imaging. Kansas City will be ideal and can be real for you.

Edited by:
Ginger Bryant
1012 Dunburton Circle
Sacramento, CA 95825

Tidings And Tidbits

Congratulations to **Linda** and **Bob Smit** on the forthcoming arrival of a potential new member of the Guild or PTGA ...**Marion Damon** writes that she has been busy collecting smiles from her precious little pre-schoolers when she presents them with a handmade stuffed toy. What a worthwhile project that would be for a Chapter. Select an orphanage, church group, or, as Marion did, church-sponsored preschool. Guaranteed easy to do by using Simplicity pattern #7744. She would love to hear from you be they questions or "chit-chat". 3131 N. 79th St., Milwaukee, WI 53222.

Charlie Heuther made a big splash at the California State Convention. When the distance between a rostrum that had been used earlier and the piano proved to be too small a space for the flutist, Charlie rushed to her rescue to move the rostrum, upsetting a full pitcher of water that had been placed beneath it. In spite of this ignomonious beginning she played beautifully...While it may come as a surprise to those that know him, **Charlie Bonner** CAN blush. When he was singled out to "play the jailer" for the soprano's rendition of the seduction aria from Carmen, he blushed clear through his grey beard!

Getting The Organizational Spirit

The Three-Foot Rule

M.B. Hawkins
Vice President

If you were to go back and review the *Journal* membership pages from years past, you would soon come to the same conclusion as so many before us: the Piano Technicians Guild is a true continuum.

Names that not too many years ago were listed as new members and/or students now show up along the advancement scale. Many of these same names frequently show up in the Membership Booster Club point section. Even though getting points for introducing new members is not why we do it, it is nice to be recognized.

When the spirit of the organization really grabs you, I believe the "three-foot rule" goes into effect. The rule is whenever someone gets within three feet of you, he or she will find out what the Guild is all about. With that type of enthusiasm, we can't miss meeting people who want to know about membership.

The three-foot rule is also one of our strongest public relations tools. Aggressively letting your pride show will surely result in an increase of that sparkle we call organizational spirit.

Remember, enthusiasm is caught — not taught. When your clients catch it, they become more interested in their pianos. When fellow technicians catch it, they become more interested in themselves as well as their profession. Those who are already members will not be able to keep this new-found enthusiasm to themselves and it will surely spill over into chapter activity. Nonmembers will soon recognize, as more are recognizing all of the time, that we have the best thing going on in piano technology.

So keep your beacon bright and share your enthusiasm with anyone who comes within three feet of you. Before long, your name will be appearing in the Booster Club point section and you will know for sure that the Piano Technicians Guild is a continuum.

Membership Points

Five points will be credited for bringing in a new registered technician, four for an apprentice, three for an allied tradesman and one for all other memberships.

President's Club

Those who achieve 15 points will receive the President's Club ribbon. At the Convention Awards Banquet, each will be presented with the 1984 President's Club pin and the member who had the most points will be announced and honored.

Restorers Club

Those who bring in a former member will receive the Restorer's Club award ribbon in addition to the point credits.

Booster Club

Everyone who brings in a new member will receive the Booster Club ribbon at the convention.

New Members

Registered Technician

Blue Grass Chapter
Johnson, William D.
12306 Brightfield Dr.
Louisville, KY 40243

Columbus Chapter
Gagliardo, Donald P.
969 Palmer Road
Columbus, OH 43212

Maine Chapter
Catell, Brian S.
99 Boutelle Rd.
Bangor, ME 04401

Portland Chapter
Cesca, David S.
2811 S. E. 35th Ave.
Portland, OR 97202

Apprentice

Chicago Chapter
Maret, Robert A.
1303 Mardon Dr.
Elgin, IL 60120

Vesely, Kenneth A.
3836 W. 168th St.
Country Club Hills, IL 60477

Golden Gate Chapter
Nicholson, Louise K.
9600 Thompson Creek Rd.
No. Appleton, OR 97530

South Bay Chapter
Watkins, Stanley T.
3961 1/2 S. Dalton
Los Angeles, CA 90062

Affiliate

Mr. James
No. 26B.
Jalan Perok,
Sitiawan, Malaysia

Associate

Sacramento Valley Chapter
Lee, Donald P.
1211 Yuba St.
Redding, CA 96001

Student

Detroit-Windsor Chapter
Zellers, Garry D.
25515 Lincoln Terr. Apt. 304
Oak Park, MI 43237

Eastern Washington Chapter
Freel, Gary M.
909 Mullen Coeur
d'Alene, ID 83814

Golden Gate Chapter
Gobeil, Daniel E.
125 Dewitt
Napa, CA 94558

Pittsburgh Chapter
Mateya, Mark A.
310 Meadowlane
Indiana, PA 15701

Myers, Dennis A.
Box 168
Chicora, PA 16025

Sutton, Robert W.
220 Florida Drive
Lower Burrell, PA 15068

Townsend, Dennis L.
1372 Joan Court
Concord, CA 94521

Hutchinson Chapter
Bergman, Carl F.
412 E. Caflin
Salina, KS 67401

Memphis Chapter
Sigman, S. Douglas
373 Fairfield Circle
Memphis, TN 38117

Minnesota-North Iowa Chapter
Eumurian, Daniel J.
Route 2, Box 39
Viroqua, WI 54665

Nebraska Chapter
Bloaum, John D.
404 South Rustin
Sioux City, IA 51106

Fisher, Michael H.
1160 N.C.R. 4Z
Gibsonburg, OH 43431

Gates, Bradley J.
711 South 15th
Broken Bow, NE 68822

Humke, Kevin C.
1437 7th St.
Brookings, SD 57006

Leonard, Dana A.
2309 Georgetown Place
Omaha, NE 68123

Lim, Kwee EE
Blk. 81,
Tiong Poh Road, No. 55
Singapore

Mesplay, Steven M.
6621 Minnesota
St. Louis, MO 63111

Morrison, James. C.
105 W. Broad St.
New Holland, PA 17557

Neal, Mary C.
2600 Indian Hills Dr., Apt. 38
Sioux City, IA 51104

Parker, Krisanne
Box 609
Camdenton, MO 65020

Pin, Chua Boon
College Court, Apt. A
Sioux City, IA 51106

Sanborn, Kirstin J.
R.R. #1, Box 157
Menlo, IA 50164

Shechtman, Carl L.
Abri-Lane, Spanish Point
Pembroke, Bermuda

Shultz, Greg L.
5960 Oakridge Dr.
Lincoln, NE 69516

North Central Louisiana Chapter
Eddy, Larry J.
2926 Weil Drive
Sulphur, LA 60773

Palmetto Chapter
Williams, Morgan L.
3798 Sunset Blvd.
West Columbia, SC 29169

Member Recruitment Points *June 1, 1984 — April 1, 1985*

	Pts	Mbrs.		Pts.	Mbrs.		Pts.	Mbrs.
Ackman, W. Harold	1	1	Hale, Robert R.	4	1	Odenheimer, Fred	2	2
Anderson, Richard E.	4	1	Hansen,Charles	2	2	Ostrosky, Alexander	5	1
Anderson, Robert A.	4	1	Harding, Claude M.	1	1	Ousley, Robert L.	5	1
Bailey, Benjamin N.	5	1	Harmon, Clayton C.	1	1	Pagano, Joseph L.	4	1
Barr, David J.	4	1	Harris, Dale L.	1	1	Palm, Stanley S.	1	1
Barrus, Ralph M.	1	1	Harteau, Daniel D.	1	1	Pearson, Walter T.	5	1
Becker, Sam	1	1	Hazzard, Nancy M.	9	2	Pettit, Thomas V.	5	1
Bessette, Roland	5	1	Heismann, Barry	1	1	Phillips, Webb J.	10	2
Betts, David C.	4	1	Heneberry, Alan J.	4	1	Pierce, James C.	4	1
Bittinger, Richard E.	4	2	Henry, Fern L.	4	1	Pierson, James B.	1	1
Blacklock, David	1	1	Hess, James N.	5	1	Pike, Gene A.	5	1
Blanton, Tom R.	1	1	Hess, Marty A.	6	2	Plumb, Norman	5	1
Blees, Willem	6	3	Hines, David M.	5	1	Potter, Randal F.	1	1
Bourdon, Donald W.	1	1	Hitt, Henry L. Jr.	4	1	Powell, Samuel B.	3	1
Bridges, Nate	2	2	Holder, Leopold,	5	1	Prentice, Randy A.	1	1
Briley, James E.	1	1	Hornberger, Paul R.	1	1	Privette, R.V.	1	1
Bryant, James G.	2	2	Houston, James P., Jr.	9	2	Quint, Richard B.	4	1
Bryant, Ken L.	7	3	Howell, W. Dean	1	1	Railsback, Leonard E.	1	1
Bullock, Wilbur W. Jr.	4	1	Hudson-Brown, Karin	9	3	Riedel, Paul W.	4	1
Burow, Burtis L.	4	1	Jackson, Stephen S.	1	1	Roe, Donald E.	1	1
Burton, Janes H.	1	1	Johns, Barney J.	1	1	Rosenfeld, James I.	5	4
Burton, Robert H.	4	5	Jones, Thomas F.	1	1	Schmitt, Jake E.	5	1
Callahan, James J.	5	2	Jorgenson, Les O.	1	1	Schoppert, Robert L.	5	1
Cannon, James D.	5	1	Jorgenson, Owen	1	1	Shroyer, Alvin M.	1	1
Churchill, Kenneth R.	1	1	Junker, Donald F.	1	1	Sierota, Walt	1	1
Coffey, Barbara L.	10	2	Kadwell, Kenneth A.	1	1	Sipe, Glen P .	1	1
Coffey, Bruce F.	2	2	Keast, Lawrence J.	1	1	Sloan, Kenneth A.	4	1
Coleman, James W. Sr.	5	1	Kerber, K. Walter	1	1	Sloffer, Phillip C.	5	1
Colwes, Scott W.	1	1	Kreitz, Richard C.	1	1	Speir, Leon J.	5	1
Conrad, Robert	5	1	Krentzel, Jim L.	1	1	Stone, Sidney O.	11	5
Cooke, John W.	1	1	Laity, Donald G .	1	1	Stout, Clarence P.	1	1
Cox, Merrill W.	1	1	Leary, Kevin M.	9	2	Swafford, Kent E.	1	1
Crabb, Larry B. Jr.	1	1	Leonard, Grant G.	1	1	Towne, Christine S.	5	1
Curtis, Dennis	1	1	Lieberman, Carl T.	4	1	Tremper, Fred W.	9	3
Dante, Richard	4	1	Lillico, John E.	2	2	Vanderlip, David A.	5	1
Davies, Clair L.	5	1	Lord, Frank R.	4	1	VanPatten, Aija B.	1	1
Delpit, John A.	4	1	Lovgren, Christine	26	7	Vogellehner, Karl	1	1
Denham, Douglas G.	4	1	Macchia, Frank S.	5	1	Walmsley, James O.	1	1
Doss, Harry W.	4	1	MacKinnon, Karl T.	1	1	Wathen, Michael J .	5	1
Draine, Patrick	1	1	Manna, Tony	1	1	Welton, T. Scott	1	1
Drost, Michael A.	1	1	Markins, Charles W.	1	1	West, Ivan	4	1
Duncan, David R.	2	2	Marks, James M.	1	1	West, Richard E.	2	2
Eccardt, Paul E.	4	1	Martin, Edward E.	4	1	Wheeler, Richard K.	5	1
Erickson, Glenn	1	1	Matley, Wayne O	6	2	Wiant, Benjamin F.	5	1
Fandrich, Delwin D.	1	1	McKay, C. Guy	1	1	Wilkinson, Asa	4	1
Farley, Timothy M.	5	1	McNeil, Thomas	1	1	Winn, Lloyd P.	1	1
Ford, John P.	4	1	McVey, James I.	5	1	Winters, Kenneth E.	5	1
Foss, Mark E.	5	1	Mehaffey, Francis	3	3	Wisenbaker, Martin G.	1	1
Fox, John D.	5	1	Melton, Eddie J.	1	1	Wolford, Peter	4	1
Garrett, Joseph A.	3	1	Metz, J.A.	4	1	Wood, Edward E.	4	1
Geiger, James B.	1	1	Moonan, Wm. J.	5	1	Wurz, Douglas K.	5	1
Godfriaux, Stan R.	1	1	Morgan, David H.	5	1	Wuske, Paul W.	1	1
Graham, Susan E.	4	1	Morrow, Hope E.	1	1	Yonley, Fred T. Jr.	9	2
Greenbrook, Reginald	1	1	Mrykalo, Vincent E.	4	1	Zastrow, Lila M.	10	2
Groot, Gerald W.	1	1	Neal, Douglas R.	14	14	Zeringue, Nolan P.	6	3
Grossman, Matt	2	2	Neie, Gary A.	5	2			
Grossman, Michael S.	14	3	Nelson, Clifford G.	1	1			

Portland Chapter
Kearney, Wayne L.
5603 S.E. Ramona
Portland, OR 97206

Kirkpatrick, Dale L.
3758 S.E. 122nd
Portland, OR 97236

Sacramento Valley Chapter
Dearing, Brett A.
9437 Maria Way
Sacramento, CA 95826

Salt Lake City Chapter
Brown, Ruel R.
419 Wood Street
Midvale, UT 84047

Tri City Chapter
Baker, Raymond
309 Northwest 4th Ave.
Aledo, IL 61231

Twin Cities Chapter
Harris-Vittum, Bonnie
5201 Howe Lane
No. Brooklyn Center, MN 55429

Sipe, Terry D.
11750 197th Ave., N.W.
Elk River, MN 55330

Reclassifications

Registered Technician

Detroit-Windsor Chapter
Masse, Jessica A.
905 Old Tecumseh Rd.,
R.R.1 Belle River,
Ont., Canada N0R1A0
(From Student)

New York City Chapter
Harris, Arlan M.
23-28 31st Ave., #7
Long Island City, NY 11106
(From Apprentice)

Phoenix Chapter
Burns, James
846 Fairview Ave.
Prescott, AZ 86301
(From Associate)

Washington, D.C. Chapter
Gherlardi, Veronica
108 15th St. N.E.
Washington, D.C. 20003
(From Apprentice)

Allied Tradesman

Sacramento Valley Chapter
Burgett, Mark S.
6516 Grattan Way
North Highlands, CA 95660
(From Student)

Apprentice

Golden Gate Chapter
Benson, Terry S.
624 Claire Pl.
San Ramon, CA 94583
(From Allied Tradesman)

Portland Chapter
Gallant, Mark P.
1595 S. W. 200th Ct.
Aloha, OR 97006
(From Student)

Correction

On page 30 of the March *Journal*, several members were listed incorrectly. Rolf Riegger, of the Maritime Provinces Chapter, should have been listed as a Registered Technician. In addition, six Student members were included in the "Apprentice" listings. They were Joseph M. Lerant and Eugene E. Hatch, Cincinnati Chapter; Donovan G. Crandell, Nebraska Chapter; Friel B. Thrift, Northwest Florida Chapter; Mark E. Vik, Portland Chapter; and Janice K. Nelson, Wichita Chapter.

Coming Events

Date	Event	Site	Contact
May 3-5, 1985	New England Regional Seminar	Motor Inn Sheraton West Lebanon, NH	George H. Wheeler 11 Cherry Hill Springfield, VT 05156
May 4-5, 1985	Northern California Piano Technicians Seminar	16875 E. 14th St. San Leandro, CA	Sid Stone 16875 E. 14th St. San Leandro, CA 94578 (415) 481-1903
May 18-19, 1985	Denver Chapter Seminar	Hilton South, Denver, CO	John Bloch 1584 S. Broadway Denver, CO 80210 (303) 722-4221 (303) 757-0004
June 22-25, 1985	NAMM Music Expo	New Orleans, LA	NAMM 15140 Avenida Encinas Carlsbad, CA 92008
July 15-19, 1985	Piano Technicians Guild Annual Convention & Institute	Hyatt Regency Kansas City	Home Office 9140 Ward Parkway Kansas City, MO 64114 (816) 444-3500
Sept. 29- Oct. 1, 1985	Florida State Convention	Plaza Motel 600 N.Atlantic Daytona Beach FL 32018	Walter T. Pearson c/o Community Piano 1128 State Ave. Holly Hill, FL 32017 (904) 255-4804
Oct. 4-6, 1985	N.Y. State Conference Of Piano Technicians	Ithaca, NY	Ken Walkup 310 4th Street Ithaca, NY 14850 (607) 272-6547

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Wanted

WANTED: Pre-1860 European and American Grand pianos, fortepianos, harpsichords, clavichords and old piano tools. Any condition. Finder's fee for leads. **Edward Swenson, Box 634, Trumansburg, NY 14886. 607-387-6650.**

WANTED: Grads and friends of WIT to get together during convention. Check bulletin board at convention for details.

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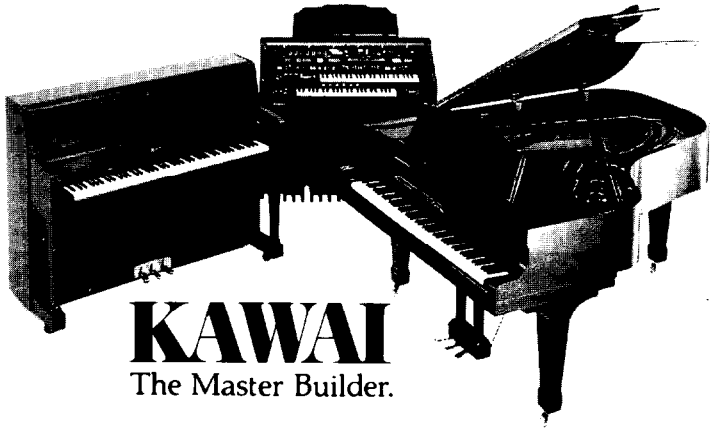

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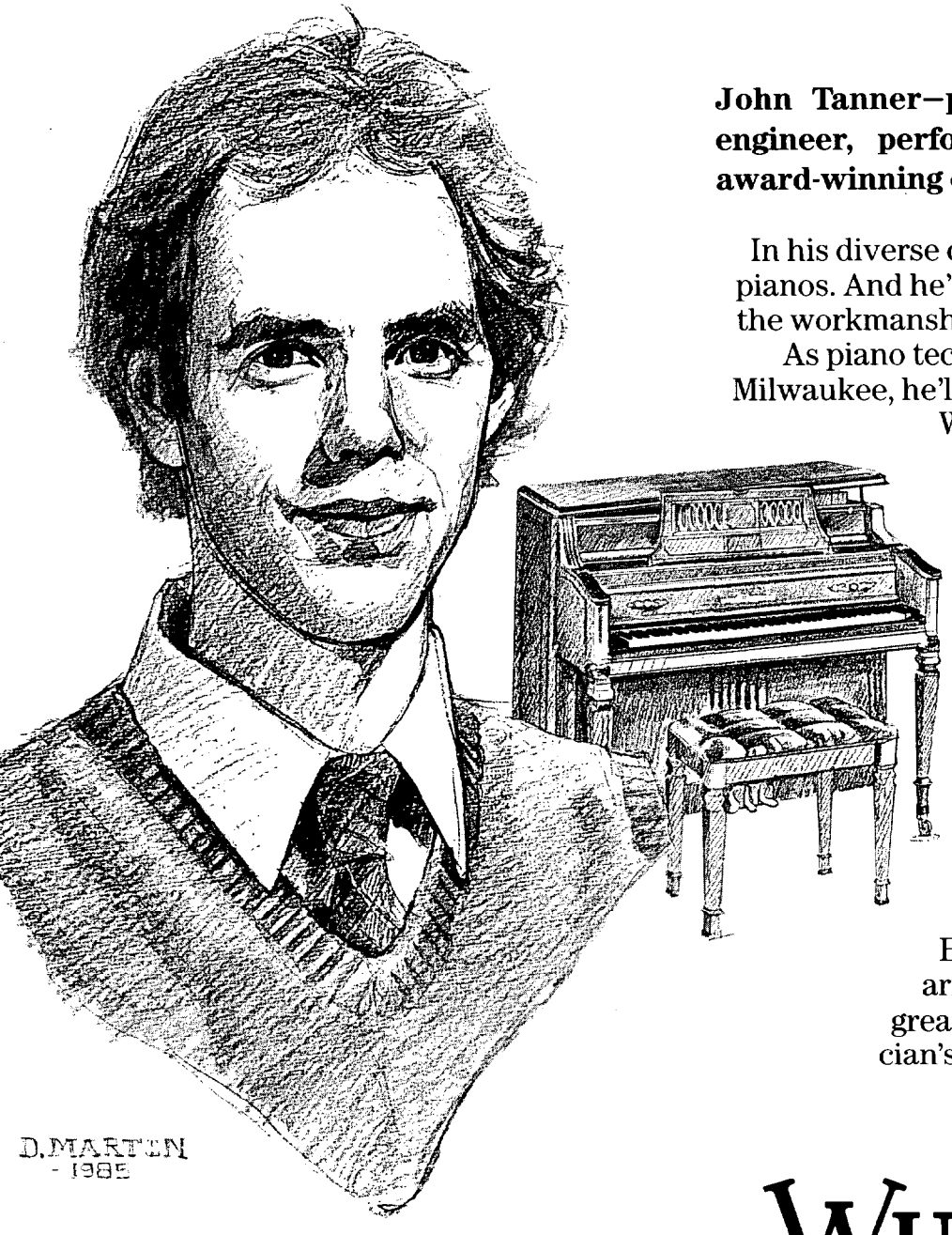

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THE PIANO TECHNICIANS GUILD INC. REGISTERED MEMBER

Update

May 1985

Nominating Committee Announces Slate

The Nominating Committee for the year 1985-86 has chosen the following officers to serve you:

President: Charles Huether
Vice President: Marshall Hawkins
Secretary/Treasurer: Ronald Berry

The following name was nominated for Western Regional Vice President: Jim Bryant.

Thank you,

Bob Russell, chairman
Ernie Juhn
Colette Collier
Larry Crabb
Sid Stone

Guild Convention Activities Set

This summer's convention in Kansas City promises to be an important one for the Guild. In addition to the Institute classes, exhibits and social functions listed in this month's *Journal,* here is a schedule of Guild meetings and other activities. The Guild's Board of Directors will meet prior to the Council session.

Sunday, July 14
Council session (8 a.m. - 5 p.m.)

Monday, July 15
Council session (10 a.m. - 6 p.m.)
Regional caucuses (1:15 - 2:15 p.m.)

Tuesday, July 16
Chapter Conclave (7:30 p.m.)
Regional Meetings (8:30 p.m.)

Video 'Bridge Repair' Available

The Piano Technicians Guild film "Bridge Repair" is now available for loan in videocassette form.

"Bridge Repair," filmed and edited by Ernie Juhn with an introduction by Bob Hartz, features an excellent presentation by Willis Snyder. The film is 47 minutes long and is available in both 1/2- and 3/4-inch VHS formats from the Home Office. Chapters may borrow the tapes from the Guild's library for use in chapter technical programs or seminars. A $50 advance deposit is required.

Ohio House Honors Russell

At the Guild's Convention and Institute in Indianapolis last summer, former President Bob Russell received the Golden Hammer Award. That news reached the Ohio House of Representatives, which recently approved a resolution congratulating Russell on his achievements.

The measure, sponsored by Rep. Judy B. Sheerer, said in part, "As a piano technician, you have mastered the rare talents that distinguish you as a highly skilled craftsman. You are widely recognized for your expertise in tuning, rebuilding, and appraising pianos. As a teacher, you have generously shared your time and talents with other aspiring young craftsmen, and, in so doing, have contributed immensely to your profession.

"...with great pleasure, we congratulate you on receiving the Golden Hammer Award and salute you as one of Ohio's most outstanding citizens."

A copy of the resolution was reproduced in the Cleveland Chapter's newsletter, edited by Janet Leary.

Focus On The Future

Piano Technicians Guild Annual

International Convention And Institute

July 15-19, 1985 Hyatt Regency Kansas City

Remember

Remember those who contributed so much to your career and to the development of your profession. A tax-deductible contribution in their names to the Piano Technicians Foundation means that their work will continue.

We salute the following contributors to the Foundation. Honorees' names are in bold type.

In Respectful Memory

Dr. William Abbot
Nelson A. Moffat

Don Galt
Pacific Northwest Conference

John Holder
New Jersey Chapter
Charles P. Huether

Pauline Miller
Jess Cunningham

Erwin Otto
Jess Cunningham

Ward Rawlins
Jess Cunningham

Larry Scheer
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Be sure to specify the person your contribution is to honor. 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

Imaginative Programming: Avoiding The One-Speaker Format

Dale Heikkinen, Chairman, Chapter Management And Achievement Committee

"It gives me great pleasure to introduce our next speaker. Our program tonight features The Outstanding, The Inimitable, The Loquacious Mr. Suds from Fud and Dud Dry-Cleaning Service, known for draining the stain from everything from bed sheets to action felt. In the back room of his growing enterprise, he also wheels-and-deals in washing out those old klunkers. And for those who are into terpsichorean key recovering, he will show us, with Arm and Hammer, how to clean up the Tide of contact cement underneath those keys and Cascade you with fresh ideas on Ivory. So without further ado, let us give Mr. Suds a warm and transcendent welcome..." (clap clap).

Why is it that the one-speaker format is used almost exclusively at most chapter meetings?

As one looks at the overall picture around the U.S. and Canada, the overwhelming number of chapters use only the one-speaker format. Let's face it, it is the easiest and least troublesome way to make sure the monthly programs take place. If you have eight programs for the year, you just "plug in" eight speakers. If you are one of the larger chapters, you can afford to fly a speaker to your meeting even from some distance. If you invite a factory rep, part of his or her expenses will be absorbed by the manufacturer. If your programming depends on inviting only those "shining lights," there may be an eventual problem where the total membership to draw from is only about 3,000.

Part of the answer lies in continually developing home-grown talent. The following chapters illustrate three different, but excellent, ways of going about this task.

In April 1984, the Connecticut Chapter featured a program of "Mini-Technicals" using three chapter members: Herb Lindahl, Vivian Brooks and Ken Strick.

In January 1985, the Chicago Chapter featured an interesting evening devoted only to various aspects of tuning: "Tuning demonstration of Sanderson Accu-Tuner," by Richard Anderson; "Voicing; speech and demonstration," by David Hines; "Common sense in tuning," by Greg Hubka; "Extending the tuning above and below the temperament," by James Houston; "Tuning in the treble region," by Richard Anderson; and "The standardized tuning examination," by Mark Foss — all in one evening!

The following program is an interesting example of using "related tools" as the format for multiple segments in one evening. In February 1984, the Sacramento Chapter used "tool sharpening" as the focus for their program: "Screwdrivers," by Mark Mestman; "Saws," by Yvonne Ashmore; "Chisels and planes," by Del Fandrich; and "Reaction of metals to heat and cold," by Bill Spurlock.

There is unquestionably a need for the development of many more multiple-segment programs. It makes things much more interesting. The membership might even wake up and become enthused. It is a little bit like putting together a musical program. For any extended piece of music, you usually need an *allegro, largo* and a *molto vivace.*

If your speaker drones in *andante non moto* all evening, your audience may lapse into a snooze *con moto rubato.*

Chapter Notes

Chapters are encouraged to submit news of interesting chapter activities for publication in the Update. News items submitted should be non-technical in nature and will be published as space permits.

Indiana Chapter

Our March meeting was held at McLuckie's shop. Terry Howard delivered a console piano with a back separation for our inspection and George Ray proceeded with a thorough explanation of the repairs needed to permanently correct the problem.

A mimeographed outline helped to organize our thinking. George's outline included a checklist of items that must be inspected before proceeding, plus a lengthy inventory of the tools that must be taken to the job. Qualifications for undertaking work of this nature certainly suggest some background in a machine or woodworking shop or a formal apprenticeship in similar occupations. This was stated in the outline.

We were treated to some careful, knowledgeable workmanship on George's part as the work progressed. Yes, a few unforseeable problems arose — all the more reason for careful preliminary inspection — and they were resolved very effectively. Careful selection of the fasteners, washers, nuts, etc. also is a good point to remember.

This meeting was well attended and we are gaining income through our guest fees.

Larry Boyll was chosen delegate for our chapter at the Kansas City national convention.

Our May meeting will feature an aesthetic and electronic evaluation in tuning the concert grand. It will be at the Allen County Public Library in Fort Wayne (the nation's 16th ranking library). Those who attend this interesting program should linger afterward and browse around this great cultural facility.

Ian McLuckie

Chapter Notes

The Golden Gate Chapter is sponsoring the first Northern California seminar May 4-5. The seminar is specially designed to prepare those who are about to take the Guild tuning test. Others who simply wanted to know more about the test or to improve their own tuning were invited.

Instructors were to be Michael Kimball, San Francisco Chapter; Tom Gorley, Santa Clara Valley Chapter; and Sid Stone and Ron Adams of the Golden Gate Chapter. Their one-day presentation was to be repeated the next day, and registrants could attend either or both sessions.

"There will be a detailed explanation of the tuning test and also an actual demonstration of a piano being test-tuned," according to the seminar's promotional flyer. "Volunteer participation will be encouraged. We are trying to get an outside expert on the psychology of stress and how to handle stressful situations such as the tuning test."

The Golden Gate Chapter also plans a flea market in June.

Bruce Dornfeld's president's message in the Waukegan Chapter's April newsletter marked a significant achievement for the chapter. Noting that his first message a year ago had discussed the need to increase the chapter's membership, Dornfeld said that the chapter's roster had increased in that time from six craftsmen, three apprentices and one student member to 11 craftsmen, two apprentices and one student.

He also announced that the chapter's slate of officers had been elected to another term. Besides Dornfeld, chapter officers are Frank Lord, vice president; Kathi Voss, secretary and newsletter editor; Rich Seaman, treasurer; and Dick Quint, past president.

Elections also were held in the North Central Florida Chapter's March meeting. Those elected were Gilbert Boggs, president; James R. Sims, vice president; Ray Glenn, secretary; and Carl Roeder, treasurer.

The Pennsylvania State Conference drew an attendance of more than 200 to the Philadelphia Airport Hilton March 28-31, according to conference chairman Walt Sierota. In honor of the conference, Philadelphia Mayor W. Wilson Goode proclaimed the week of March 25-31 as "Piano Technicians Week" and urged all Philadelphians to recognize the fine work of piano technicians and their contributions to community life.

"Philadelphians have a fine appreciation for music which starts in early childhood with many learning to play the piano as their first contact with music," the proclamation said.

"The piano is a beautiful musical instrument from which great sounds emanate and which has provided many a memorable moment in the hands of an accomplished artist.

"Piano technicians tune and improve the quality of this musical instrument so it is capable of performing and providing great enjoyment for all."

"The Piano Technicians Guild is a national non-profit organization consisting of registered piano technicians who service and assist the public with piano problems."

Sierota also gave Philadelphia *Inquirer* reporter Walter F. Naedele an overview of the technician's profession for a lengthy story in the newspaper's March 30 edition. Sierota explained how he had attended classes at Trefz Piano Co. in the early 1960s and then gone into the business full-time in 1969.

"People say, 'You must have a good ear.' No, as long as you can hear, you can become a tuner," Sierota told Naedele. "Tuning is listening to sound. Persons other than tuners are listening to music."

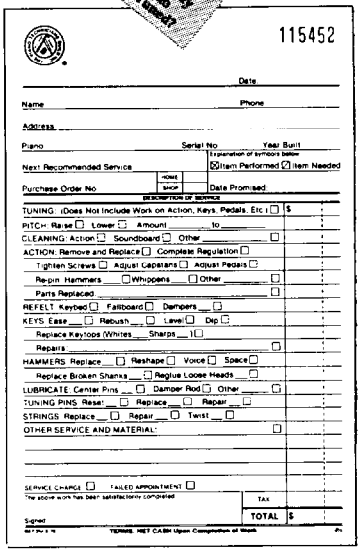
Orange County Chapter member Randy Woltz was scheduled to play the premier of his new Concerto for Piano and Orchestra with the Orange Coast Symphony on May 5th in Costa Mesa, Calif.

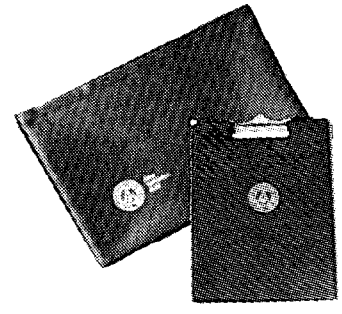
WIT Grads To Meet

A reunion of graduates and friends of the piano technology program at Western Iowa Tech Community College is being planned for the Guild's annual Convention and Institute in Kansas City July 15-19. The exact time and location will be announced at the convention.

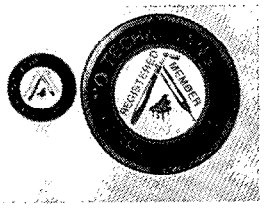
GET (AND KEEP) THE BUSINESS!

With Guild Business Aids





★ **For use by Registered Technicians**



	Quantity Ordered	Total Price
★ **Billing Pads** — 2-part with logo imprint, 50 per pad — 1/$3.00 — 3/$8		
Piano Service Appointment Forms — small, green, 6-part, 100/$14.50		
★ **Pamphlets** — 100/$11 — 500/$50		
A-440 and Your Piano		
Care of Your Piano		
Piano Pointers		
Reminder Cards		
How Often Should My Piano Be Tuned		
The Tuner To Turn To		
The Unseen Artist		
★ **Service Stickers** — red and blue with logo. Plain — 100/$4 — 200/$6 — 500/$12		
★ **Teacher Recital Program Covers** — 100/$8		
★ **Logo Metal Cuts** — reusable metal on wooden blocks — all sizes are priced the same: $15.00 each. Indicate size/type: 1/2" round, 1¼" piano		
★ **Logo Rubber Stamps** — mounted on wooden handle, all sizes are priced the same: 1/$5.00 — 2/$8.00. Indicate size/type: 1¼" round, 5/8" round, ½" round, 1¼" piano, or 7/8" piano		
★ **Logo Stickers** — peel-off backing, blue/gold/white — A and B styles.		Show A or B
8" logo — 1/$3 — 2/$5 — 6/$10		
3½" logo — 1/$1.50 — 2/$2.50 — 6/$5.50 A or B		
A — for inside glass (not avail. in 8")		
B — regular		
1½" logo — 10¢ each (Min. order 10)		
B only		

	Quantity Ordered	Total Price
★ **Logo Emblem Patches** — colorful 3" sew-on patches, all are priced the same: 1/$1.25 — 4/$3. Indicate colors: blue/white, blue/gold, black/gold		
★ **Pocket Protectors** — white vinyl with blue logo — 3/$1.25 — 6/$2		
★ **Bumper Stickers** — yellow/blue/white — 50¢ each.		
★ **Deluxe Portfolio/Briefcase** — 11"x14" with clip board, dark brown — 1/$10.00		
★ **Meeting & Sales Portfolio** — 16"x12" — Navy — $1.75		
★ **PTG Notebooks** — 9" x 5½" — 1/$1.00 each		
★ **Membership Pin** — lapel-type, gold with blue and white logo — 1/$4		
★ **Tie Tack** — gold with blue and white logo — 1/$2 — 3/$5 — 12/$15		
★ **Coffee Mugs** — white with blue logo or clear pedestal with blue logo — 1/$4—2/$7.50—4/$12—6/$16.50		
★ **Dash Cash** — emergency coin dispenser, white with blue logo — 50¢ each		
★ **Key Ring** — heavy plastic with laminated blue/gold — 1/$1.00		

TOTAL

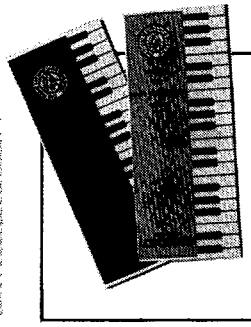
Missouri State residents only
ADD 6.125% sales tax
TAX

ADD SHIPPING AND HANDLING
***Actual shipping and handling charges will be billed on orders from Canada and overseas.*

If Order totals:	Below $5.00	$5 to $9.99	$10 to $14.99	$15 to $24.99	$25 or more
Add:	$2.00	$2.50	$3.00	$3.50	$4.00

Enclose check or money order for this amount
U.S. FUNDS TOTAL

Registered Technician YES☐ NO☐



Name_____

Address_____

City/State or Province_____

Zip/Postal Code_____ Phone_____

Chapter_____ Non-member_____

Member's Number_____