Piano Technicians Journal

April 1985

The Focus Is On Kansas City!

1985 Convention and Technical Institute

200 hours of top-notch technical instruction!
Participants from all over the world!
Manufacturers' and suppliers' exhibits!
Hometown hospitality, great food and hot jazz!
Old friends and new!

July 15-19, 1985

See page 10!

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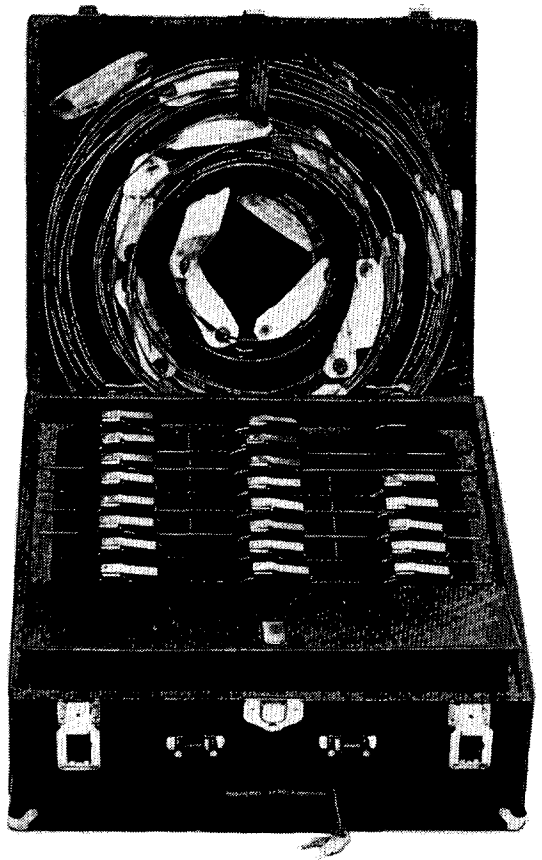

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Piano Technicians Journal *April 1985*

Official Publication of The Piano Technicians Guild, Inc.
Volume 28, Number 4

On The Cover:
The focus will be on Kansas City for the Guild's 1985 Convention and Technical Institute July 15-19. Convention headquarters will be in the Hyatt Regency Kansas City, shown at extreme right in this view of the city's skyline. For a preview of this year's Technical Institute, turn to page 10.

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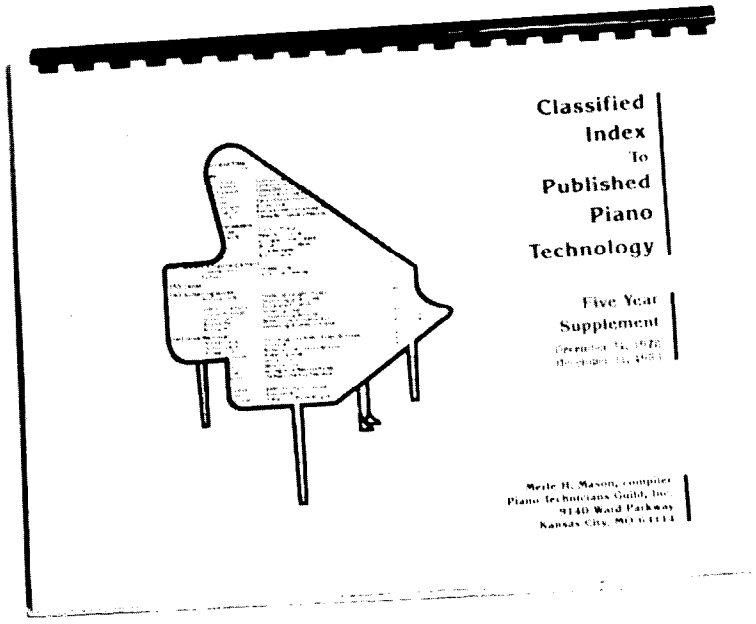

Classified Index To Published Piano Technology Five-Year Supplement

(Covers articles published between January 1979 and December 1983)

Compiled By Merle H. Mason

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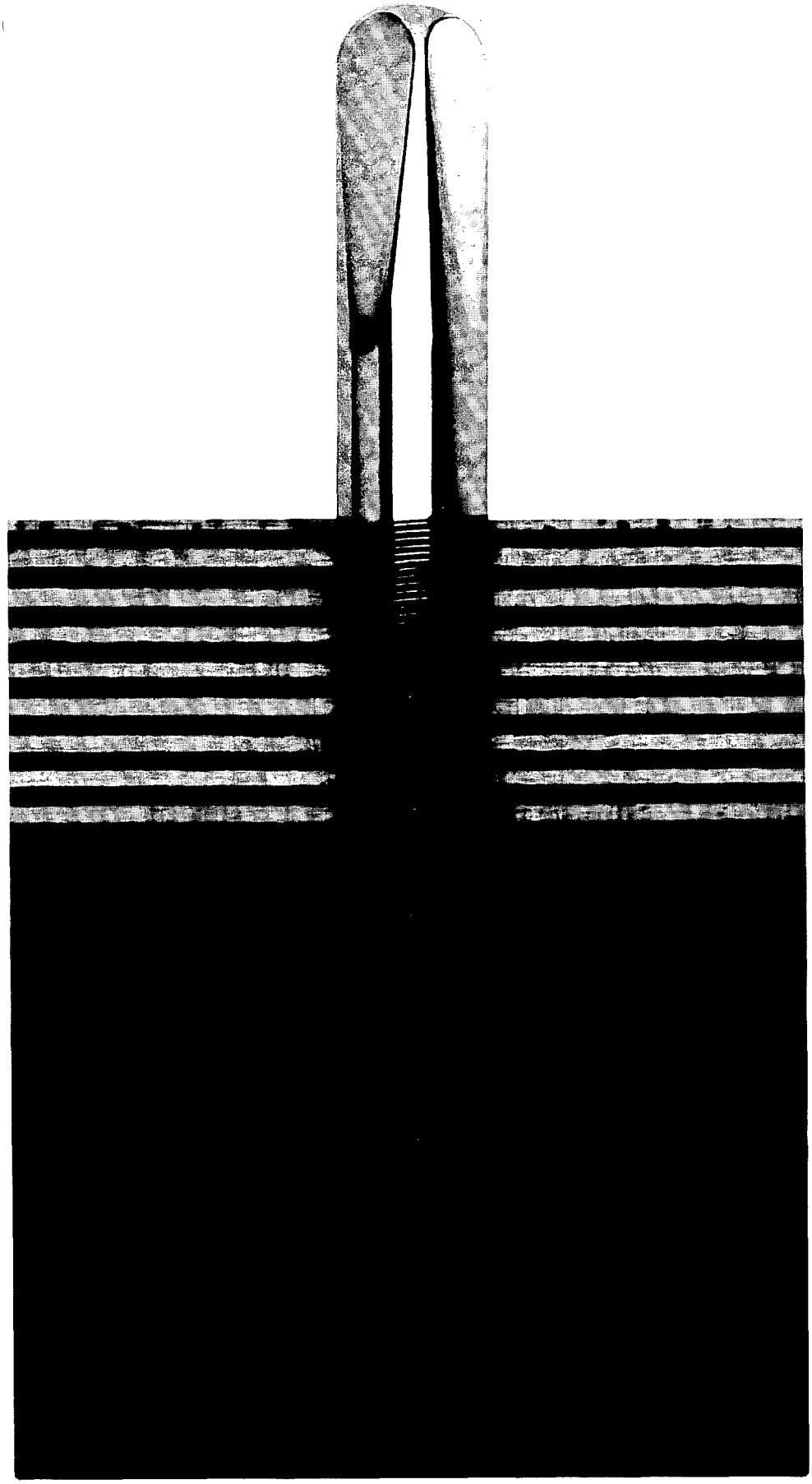

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Susan Graham,
Tuner-Technician, Oakland

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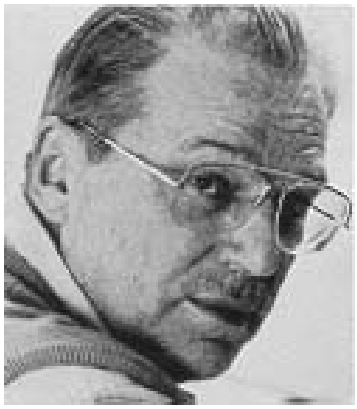
The President's Perspective



Charles P. Huether
President

Launching A New Era

About eight years ago, the Piano Technicians Guild, through its Board of Directors, started a review of its entrance examinations, concentrating initially on the tuning test. The goal was to develop tests which would be entirely objective and which would be administered the same way wherever and whenever given. The result of extensive developmental and trial programs was our present Tuning Test. This test dramatically achieved its objectives and proved the validity and practicality of uniform objectivity in all our entrance testing. With the implementation of the "new" tuning test, steps were taken to focus on the rest of our entrance tests with the same result.

Presidents Morton, Russell, Stone and Preuitt all pursued these objectives and each moved us closer to their achievement. Last year we produced our second revision of the written test and it is being circulated for use and feedback now. Over the same period, two revised bench tests (now called "Technical Test") were developed. Demonstrations of these were given and discussed at our Council meeting last year. Copies of the tests are available upon request for chapter examination, use and discussion. Request your copies through the Executive Director. A decision on which test or tests will be our official technical test will be made at the July Council.

The completion of the revision of all our entrance tests will be a landmark in Guild history. We will have in place, for the first time, a complete set of objective tests, tests which will be administered and scored in a uniform way.

One problem remains, however; a problem which has grown as the complications of testing and scheduling have grown. Chapter scheduling of the tests and inability to examine and process in a timely way sometimes cause unreasonably long waits before testing. Some applicants become discouraged and give up. Others eventually complete the exams, but lose enthusiasm for the organization because of the long delay. We must have a system in place which is reasonable and does not work against qualified members joining in a timely manner.

This already existing problem will increase as we adopt more complicated test procedures unless we make some changes. Two changes are being considered. One will revise the procedure of administering the tuning test, reducing the time required to administer it while in no way reducing its quality. The other will be presented as a Bylaw change. Let me expand on the Bylaw change.

At present, an applicant does not get on the organizational rolls, either at the Chapter or organizational level, until he or she has taken the tests and achieved a classification of membership, either Apprentice or Registered Tuner Technician. This sometimes takes an unreasonably long time. Some applicants give up in frustration because of the wait. To eliminate this situation, the new proposal will place the names of approved applicants on our rolls as "Provisionals." They will pay an entrance fee and their pro-rata dues. They will qualify for reduced charges at seminars, conventions, etc., get the *Journal*, attend meetings or other privileges deemed suitable. We will have their interest and they are actively benefitting from the Guild. Meanwhile, they are being processed and tested. When they pass all tests at 80 percent or better, they will cease to be provisional and become RTTs. Apprentice, and all the problems and dissatisfaction that category has provided, will be eliminated. The term "provisional" accurately identifies the applicant as being in process. There are limits to how long the process can take. The name itself has a built-in incentive for both the applicant and the examining committee to complete the process as quickly as possible.

Some advantages of this proposal:

1. Applicants are not compelled to wait an indefinite time before being entered on the rolls.
2. Applicants begin to appreciate the benefits of membership while their applications are being processed.
3. Applicants are brought into the

Continued on next page...

...A New Era

fold while their enthusiasm is still high.

4. The classification of "apprentice," which discouraged many qualified technicians from taking the test and joining, is eliminated.

5. Since "provisional" connotes incompleteness, it puts a sense of urgency on those taking the tests and those giving them to get the job completed.

If, in July, we can bring to fruition the objectives described above, new written tests, new technical test, streamlined tuning test and new membership structure, we will be launching the Piano Technicians Guild into a new era of growth and development.

It is not often that one sees the cumulative work of many people, over many years, suddenly come into focus. We are in that unique position. I urge all members to thoughtfully consider the proposals to be circulated in the Bylaw Committee report and instruct your Council delegates to come prepared to launch a new period of growth for the Piano Technicians Guild.

From The Executive Director

Barbara Parks
Executive Director

The Health Of The Industry

Bob Russell's column in this issue (See "Economic Affairs," page 15) contains something of a shocker. In it, he quotes inventor Raymond Kurzweil as predicting the imminent death and burial of the acoustic piano market. Computer-based keyboard systems will soon replace the traditional piano by providing comparable sound and touch with more features at a lower cost, Kurzweil claims.

Although Kurzweil's booth at the recent National Association of Music Merchants show in Anaheim, Calif., was continually packed to the rafters, his statement might still have drawn a large and noisy argument from many people at the show. Traditional piano manufacturers from all over the world were at the show in force, and most of them reported that business was good there. Several companies launched new products at the show and reported drawing quite a bit of interest.

If Kurzweil's prediction comes true, it will not be without a fight. Manufacturers say they are now spending more effort and more money on quality control than ever before. Almost without exception, they point to improved designs and better manufacturing techniques as enabling them to market a better piano while holding prices down. Representatives of industry groups talk about a unified effort to promote the piano to consumers.

Tradeshow hoopla? Whistling in the dark? Possibly, although a lot of very good people are spending a lot of time and energy on the problem. Time will tell if they (and we, for that matter) will be successful, and fairly soon at that.

One thing is certain. There seems to be a definite appreciation for the role of the piano technician in keeping the customer satisfied with his or her purchase. Almost without exception, Communications Director Larry Goldsmith and I were welcomed enthusiastically at the booths we visited. Several manufacturers told how they work with local technicians and Guild chapters, and one company's top executives took the time to discuss in detail a new technician training program they are launching.

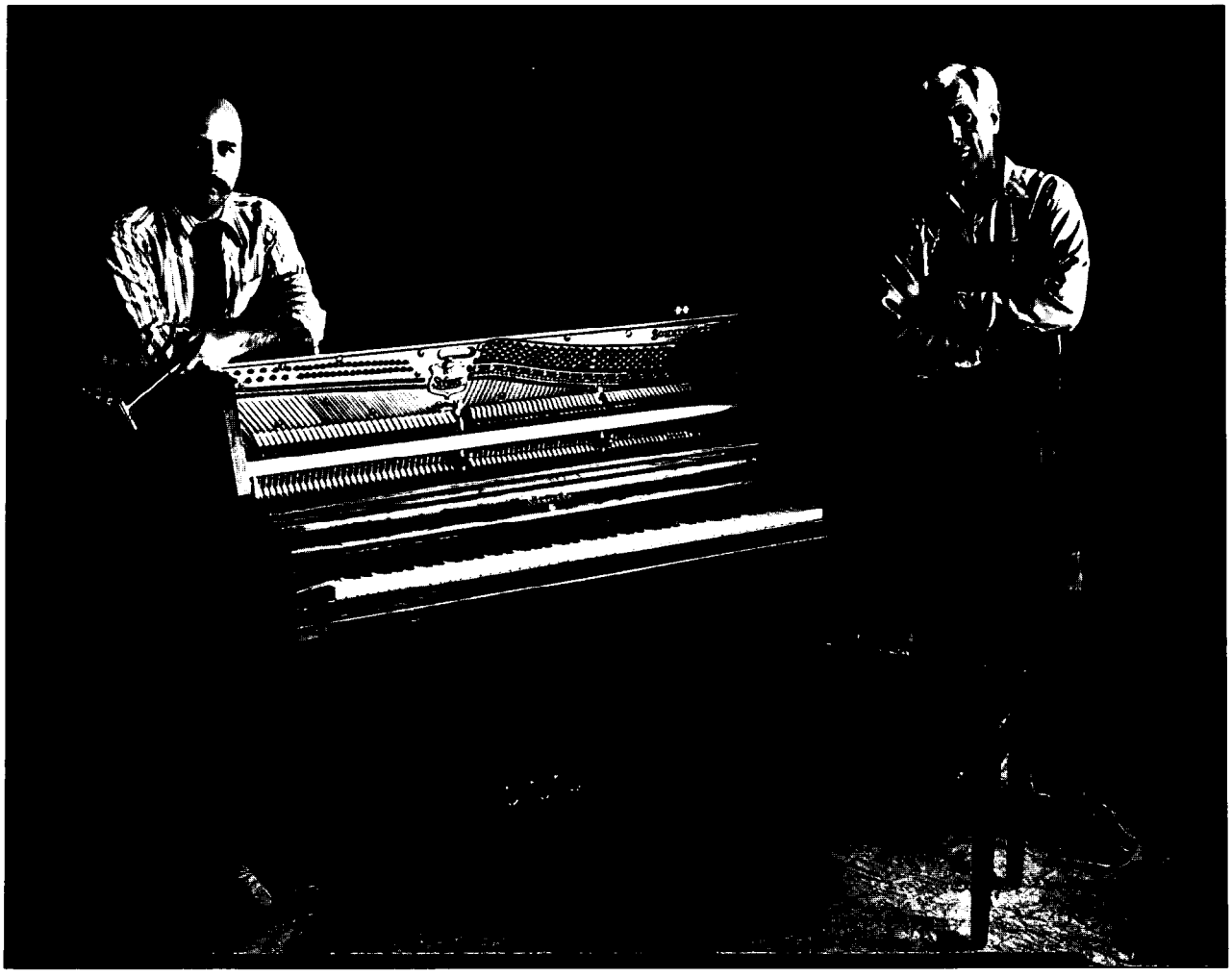
The good things in life are worth fighting for.

There's another thing that's certain. To do well in today's economic climate, a technician needs all the education and tools he or she can get. I'm sure you noticed the cover of this month's magazine and the Convention and Institute Registration Form on the outside. It's been fascinating watching this year's schedule take shape. Institute '85 Director Ernie Juhn is putting together a program that no technician can afford to miss.

Looking through Ernie's tentative schedule, I counted approximately 200 hours of classes you can choose from this year. Add to that the input from our visitors from other countries and the chance to talk face to face with suppliers, manufacturers' representatives and other technicians, and you have an unbeatable educational opportunity.

If you're reluctant to take the time off from work and spend the money to travel to Kansas City, look at it this way. The knowledge you gain from attending the convention will make you a better technician. You will be able to do a better job for those who employ you and therefore you will be worth more to them. You'll also benefit from having lifted your nose off the grindstone and taken a broader look around your industry and profession. You'll return home refreshed, renewed and full of enthusiasm for the tasks that await you. If you look at it that way, you can't afford *not* to come to Kansas City!

We think both performances demand equal attention.



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Your performance as a piano technician is just as important as ours the piano maker. Because your knowledge of piano technology and the innovations that develop from it have helped us create a studio piano that can give the definitive musical performance.

We ask for your opinions and listen to them.

Our facilities are open to you for meetings and our pianos available for demonstrations and study. Our senior management will gladly speak on the innovations, styles and trends in the industry.

We believe that together we can continue to create a piano whose performance attracts attention. A Sohmer. The unique offspring of science and art. We would like to hear from you. Call or write Harry Sohmer, Sohmer & Co., Ivoryton, Connecticut 06442 (203) 767-2675.

Here's A look At The 1985 Technical Institute In Kansas City

Ernie Juhn
Institute Director '85

Editor's note: this year's Technical Institute in Kansas City will indeed be something special. More than 200 hours of classroom instruction are scheduled for July 16-19 in the Hyatt Regency Kansas City. The list of instructors reads like an international "who's who" of piano technology. In this article, Institute Director Ernie Juhn presents another look at some of this year's highlights.

For those who ever experienced squeaks (and noises) that seemed easy to fix but turned out to be sticklers, "Squeaks and Squawks" with *Ralph Kingsbury* should be the answer. Ralph will also cover the "squawks" produced by customers after service and how to handle them.

How do tuner technicians operate in Japan? How do they handle their customers and their business? You will have an excellent chance to compare practices and lifestyles if you attend the presentation, "A Day with a Piano Tuner in Japan" with *Kazuhiro Kano, Tadashi Fukimoto, Kenzo Utsunomiya* and *Henry Haino*. There also will be a question-and-answer period.

This time we will have quite a few classes on customer relations. You might have already noticed that even some of the "regular" technical classes will have segments on dealing with customers. I honestly feel that this part of the business is very important. Since there are so many different approaches depending on various personalities, you will find some interesting contrasts. *Yamaha's* presentation, "Serving the 'Grande' Customer" may be somewhat different from *Tom Cobble's* "Tuning Pianos and Their Owners."

Concert pianists are customers, too. Their needs and demands may be unique and different. Learn how *Mike Glazebrook* (from Steinway's in London) prepares a grand piano for a concert.

Talking about customer service, be sure not to miss the two classes presented by *Kohler and Campbell*. One is on servicing vertical pianos in the home and the other on fixing scratches and small case damages.

Is rebuilding your bag? If it is, we've got just the right thing for you. This year a new kind of special class will be introduced. It will last through the entire institute and will be directed by *Wally Brooks* (See "Rebuilding Seminar: 12 in One.") Wally will teach a few sessions himself, but will also have different instructors cover various subjects. Not only will the emphasis be on "specialists teaching their specialty" but since there will be a detailed schedule available (to those who sign up), attendees will still be able to take in some other regular institute classes of their choice by coordinating the subjects. As you know, in the past we had some quite-involved "hands on" rebuilding classes. As great as they are, there is also the drawback of actual time-consuming work. This time the motto is "compressing as much knowledge as possible into time available."

In "What Really Is Tuning Stability?" Germany's *Klaus Fenner* will con-

centrate on what influences tuning stability, including voicing, soundboard behavior, scale design. Fenner also will discuss the role played by musicians' and tuners' musical expectations.

From Australia, *Brian Dockrill* will discuss cracked boads and how to fix them, loss of crown and how to restore it, how to seal the soundboard, soundboard principles and mechanics and the alternative to packing (building up) the bridge. His discussion, "Practical Sound Board Work," will be aided by slides and there will be a question-and-answer session to follow.

George Defebaugh's class, "A Musical Approach To Tuning," will cover the "why and how" of pitch raising, temperament setting with thirds and sixths, achieving the necessary "piano vibrato" and clean, bright octave relationships. Octave stretching using the third, tenth, and seventeenth tests also will be discussed.

"Troubleshooting Vertical and Grand Dampers," with *Jack Krefting* and *Willard Sims* will present a logical, step-by-step approach to solving damper problems. Damper placement, felt hardness, spring pressure and over-ring will be among the topics discussed. The primary emphasis will be on developing diagnostic skills, although practical corrective measures will also be presented.

If you can look at a finish and tell that it's been refinished, it's a bad job. *Webb Phillips* will teach participants how to make a refinishing job look better than new, not refinished. In "Professional Finishing," he will discuss spraying technique and good professional finishing.

"Get the Facts About Woven Felts" from *Peter Van Stratum*. This class will include a slide tour of Chas. W. House & Son's manufacturing facility, the differences between woven and pressed felts, and application problems and solutions. There will also be time allowed for a open forum directly following the presentation.

"A Master Class in Tuning," with *Bill Garlick,* is for tuners who experience problems in tuning, particularly temperament, regardless of how long they may have been in the profession. Bill will describe and demonstrate everything, and will ask for volunteers from the audience to participate in the demonstration.

Chris Robinson will examine downbearing and the methods to be employed in determining the correct amount in any given section of the piano. In "Downbearing And Bridges — Theory And Practical Repair," he will discuss the factory method of bridge-building, together with ways the piano technician can apply these techniques in the shop and in the field. Finally, Chris will drill, notch and bevel an actual capped bass bridge to demonstrate that there is nothing to be afraid of when contemplating this work.

In "Servicing The Bosendorfer," Austrian *Gerhard Feldmann* will cover such topics as reshaping hammers, adjusting let-off and drop, after touch, back-check, timing of dampers, tuning, voicing, side shift adjustment and sostenuto.

Norman Neblett will cover "Tone Regulating From A to Z" in a lecture-demonstration session. He will demonstrate string voicing, hammer filing, major tone regulation and fine voicing. A brief demonstration on a spinet will be included.

This is only a peek at what awaits you in Kansas City. There's a full class schedule that begins at 8 a.m. Tuesday, July 16, and lasts until noon on Friday, July 19. Please look for more information on the Technical Institute in Kansas City in next month's *Journal.*

Rebuilding Seminar: 12 in One!

One of the highlights of this year's Technical Institute in Kansas City will be a Rebuilding Seminar composed of 12 independent classes by some of the finest instructors available on their subjects. All classes are specifically orientated towards the rebuilder.

You must sign up for the entire Rebuilding Seminar to attend any of these classes, and there will be an additional charge of $10 for the seminar. There will be four class sessions Tuesday, Wednesday and Thursday, July 16-18. Each of the 12 classes will last 1½ hours and will not be repeated. Here's the lineup:

1. "The Business of Grand Rebuilding:" estimating, appraisals, contracts, etc. — *Wally Brooks.*
2. "Grand Piano Pinblock Replacement:" removal and replacement of a fully-fitted pinblock — *Wally Brooks.*
3. "Action Rail Replacement:" how to properly scale and replace faulty action rails to specifications, including Steinway — *Chris Robinson.*
4. "Woodworking for the Rebuilder:" fine woodworking techniques and jigs especially useful to the piano rebuilder — *Willis and David Snyder.*
5. "Hammer Boring:" learn how to bore your own hammers and how to gather the information to order your hammers without sending samples to your supplier — *Wally Brooks.*
6. "Wippen Rebuilding:" fast and economical ways to strip, refelt and repin wippens to original specifications — *Sally Jameson.*
7. "Glues and Their Proper Use:" learn when and where to use the many types of glues on the market today in the small shop from a chemical engineer — *Dr. Bob Snider, Franklin Chemical Co.*
8. "Tuning Pin Manufacture:" a very interesting program on the process of making tuning pins and other hardware for the piano — *Bill Dickson, President of AMSCO Wire Products.*
9. "Soundboard Repair:" when and how to make expert repairs and refinishing to the soundboard during rebuilding — *Cliff and Tony Geers.*
10. "Teardown, Reassembly and Restringing:" measurements and procedures in the disassembly and reassembly of a grand piano — *Jack Krefting, Baldwin Piano Co.*
11. "Rebuilding: The Little Things That Count:" a collage of short procedures from modernization of damper action to plate refinishing — *Wally Brooks.*
12. "Voicing the Hard Pressed Hammer:" how to get decay, power, projection and color from the hard pressed hammer — *Wally Brooks.*

Look At Kansas City!

Ernest S. Preuitt
Host Committee Chairman

A few years ago, our former executive secretary and I inspected two hotels here in Kansas City to decide on a place to hold our 1985 convention. After our inspection was complete, I told him my preference, making it plain to him that his was the final decision and that I would go along with that decision.

His decision was opposite to my preference, but I kept my promise to him. Now I am grateful that we are holding our convention where we are, because the other hotel is in the middle of utter chaos due to construction on three sides and much remodeling on the inside.

Let me give you a few words about the Hyatt Regency Kansas City, our location in July 1985.

Several years ago, a new development was started about 12 blocks south of downtown Kansas City. This was named "Crown Center," and was primarily the inspiration of Hallmark Cards. Of course, among the many buildings there is Hallmark's headquarters, where most of the art work and much of the printing is done. There is an exclusive high-rise apartment building, and another is on the way. The Westin Crown Center Hotel is there, and has enough extras to warrant a visit. There are other office buildings and retail outlets, too many to dwell on at this time.

Although construction is going on all the time in Kansas City, including a new skyscraper near the Hyatt, it should cause no problems. Traffic patterns are fairly well laid out, and it was certainly not much of a problem when the Board met there last January. Because much of our time will be spent inside the Hyatt Regency, traffic should be no problem to us anyway.

The hotel lobby is huge, with many nooks and crannies in which to sit and converse. There is a grand piano there, where some of Kansas City's many fine musicians play. The atmosphere is relaxed and the hotel employees do an admirable job of making your stay very pleasant.

Of course, there is the usual swimming pool, complete with sauna and all that exercise stuff. Even tennis.

Institute rooms are plentiful, as is public space, and a large and easily accessible exhibit hall.

Much of our time will be spent in our individual rooms, which should be a treat. I understand that they are all good, with plenty of room, a good view and all the other knicknacks that go with it. I think you will enjoy your room.

We'll pass along more information on places to eat, but there are three within the hotel itself. The Peppercorn Duck Club is a well-reviewed restaurant with a gourmet menu. The Terrace is located in the hotel lobby. It has excellent food and a harp player. And Skies is a revolving restaurant on the 40th floor.

I believe we made a wise choice in the Hyatt Regency, and I believe you will be pleased when you see it.

I'll give you more information as it develops. Start saving your money, because we want you to be among the thousand or more attending in the Heart of America.

Is The Blind Tuner Disappearing?

Stanley Oliver
Visually Impaired Committee

The Kansas City gathering of the clan this July will be unique in some respects.

On one hand, it will be the first time the Piano Technicians Guild and the International Association of Piano Builders and Technicians will meet jointly. On the other hand, among its stellar attractions will be a distinguished panel of spokesmen holding forth at a drop-in center for the visually impaired in the Hyatt Regency. This trio of internationally recognized practitioners of our craft will be looking at a phenomenon increasingly noted by all of us.

Alfred Heckman of London, England, a founding member of the blind tuners association there, will recount experiences in England where two distinct professional societies cover our craft. Incidentally, Alfred was a classmate of George Shearing, the longtime international entertainer, gifted composer and pianist.

Ken Serviss, director of the world-renowned Piano Hospital and Training Center whose graduates can be found in Australia, Israel, and virtually every U.S. state and Canadian province, notes the diminishing emphasis placed on blind tuner training by state schools for the blind. The success rate of some 85 percent achieved by this Vancouver, Wash., school for its grads speaks volumes for its effectiveness. Ken has had a long background in dealer service work, private business and teaching.

Augie McCollum, Topeka, Kan. another longtime Guild stalwart has placed over 700 blind people in remunerative occupations, many of these in tuning, of which he has been a teacher and highly skilled practitioner. Those of us who are visually underprivileged, realize keenly the enormous benefits that have become part of everyday living through the fellowship of the Guild. This trio will say it like it is and we urge all sighted craftsmen to check your class schedule to make sure you can hear these long-experienced wielders of the tuning lever.

The other indomnitable trio giving a grand regulation class solely by use of auditory and actual clues, as the blind must do, will be Roger Weisensteiner, Eric Johnson and Ray Reuter of Kimball. This will be a three-hour segment with blind technicians getting the front tables. We cordially invite everyone else to fill up the other seats.

As a visually impaired registrant, you will receive a recorded cassette tape describing all classes, instructors, room locations, etc., so be sure to tote along your cassette player. This information will be useful for orientation.

The blind drop-in center will be in operation during the entire four days of the convention, July 16th through the 19th. Here you will find a collection of scores of fascinating items that have special value to those short of vision, such as talking bathroom scales, wrist watches, alarm clocks, calculators, and everything else that aids the blind homemaker, handyman and technician. Raymond Graber, a blind machinist in Kansas City, calls this, appropriately enough, Aids Unlimited. The room will be staffed at all times and it should be a great place to meet old friends and garner new ideas.

Ken Serviss and Augie McCollum will make individual appointments to coach on a one-to-one basis any blind registrant wanting more familiarity with the grand letoff rack and grand hammer gluing worked out by refinements of a number of blind inventors. Prior to convention time, there will be available through the home office a cassette tape on grand regulation prepared by the visually impaired committee. You may inquire about this.

Is the blind tuner disappearing? Well, yes and no. It seems there is always a place for a dedicated hard worker. There might be a problem after 40 years of whacking those keys and you become deaf in one ear and can't hear out of the other... that's the time as the wit observed, to take up lip reading. He could be half right! "See" you all at the Kansas City drop-in center for more of this good stuff.

Challenge Of A Lifetime: Tuning For The President!

For an artist or performer, an exhibition or recital at the White House is the ultimate symbol of recognition, status and achievement.

Just as a White House recital can be the ultimate test for a performer, so there is no greater challenge of an instrument or the professional service organization that prepares and delivers it than a performance before the President of the United States.

At the 50th American Presidential Inauguration in Washington D.C. last January, the Wurlitzer Grand Piano was designated as the official piano. Piano Man, Inc., Baltimore-Washington area retailer for The Wurlitzer Co., accepted the challenge of preparing not one piano for one recital but *25 grand pianos* for use in nine different events over a period of just four days. President Reagan and his first lady, Nancy, would preside at each event.

During the four days of inaugural festivities that climaxed with eight inaugural balls on Monday, Jan. 21, the Wurlitzer grands were featured instruments for some of the best-known performers in music, including the big band sounds of Lionel Hampton, Xavier Cougat, Artie Shaw, Ray Anthony, Peter Duchin, Jimmy and Tommy Dorsey, the Count Basie Orchestra, Guy Lombardo's Royal Canadians, Lester Lanin, Alvino Ray and others.

The Inauguration presented an opportunity to demonstrate superiority in musical performance. It was also a logistical challenge that required three trucks, each with a crew of three, working 24 hours a day, around the clock, during the Inaugural weekend. In addition, three fulltime piano technicians were assigned the task of preparing and uncrating the pianos, and six piano tuners serviced the instruments on location.

Logistics was just one of the difficulties that made the Inaugural a tremendous challenge. There was very little time to prepare. President Reagan was re-elected Nov. 6. In early December, a committee to organize the Inauguration was formed. The specifics of the Inaugural assignment were not known until 10 days before the first event.

Piano Man President Nick Margaritas displays 25 Wurlitzer grands which were used in the 1985 Inaugural ceremonies. Service Manager Philip Heiliger, RTT, left, coordinated the assignment, making sure that the pianos arrived at nine separate events during the Inaugural weekend.

Logistics and timing would have made the Inaugural a challenge. As it turned out, two other factors made it the challenge of a lifetime. The Inaugural weekend turned out to be the coldest four days in the history of Washington, D.C., and security precautions in the wake of the attempt on the President's life just four years earlier were the tightest in Inauguaral history.

So how did the technical crew do it?

Nicholas Margaritas, president of Piano Man, and the company's service manager, Philip F. Heiliger, RTT, sat down and started to plan even before they were sure the challenge would be theirs. Their plan was drawn to take into account every complication that could ever come up. They knew it could be cold, and that meant moving pianos from cold to warm temperatures with all the resultant problems only a piano technician could foresee.

The crews had to be prepared to service every regulation point. There was no margin for error—no chance to rush back to the shop for a tool that had been left behind.

The master plan included backup trucks and tuners. Hotel rooms were rented for crews to rest up in between deliveries and pickups. Pickups could be just as tricky as deliveries. Tight security meant time requirements for everything were strict. The Secret Service insisted that delivery and tuning be completed at exact times. At the conclusion of events, pianos had to be picked up immediately. That sometimes meant working between midnight and 6 a.m. in sub-zero temperatures when pianos could not be left in a truck or on a loading platform very long.

"Our approach is total service," Heiliger explained. "We approach service by asking ourselves, 'What is it that the customer wants?' The

customer wants to know the piano is going to be where it's supposed to be, when it's supposed to be and in perfect tune. In this case, the customer was the President of the United States, but we tried to do the same things we do on a day-to-day basis.

"Whenever you deal with last-minute, high-energy commercial accounts like this, there's just no margin for error. We have tried to develop the professionalism to pull that kind of thing off. It went off without a hitch from the customer's point of view," said Heiliger, who began his 10-year career as a technician in Baltimore and lived in Georgia and Tennessee before returning to Piano Man. He has been a Craftsman member of the Guild for four years.

The hardest part, it turned out, was not delivering pianos that would perform to top concert quality. It was maintaining that quality while dealing with the extreme cold and the sometimes unpredictable requirements of the Secret Service, *and* making sure the high-gloss finishes on the pianos looked perfect.

"We had to make a good impression totally," Heiliger said. If he had it to do over again, the only thing Heiliger might do differently is to take a few more precautions to protect the pianos' finishes.

"We were on a strict deadline schedule, then the Secret Service would hold us up for an hour while they re-examined the stages. They even removed the brass plates identifying each piano as an official Inaugural instrument and looked underneath," he said.

The Inaugural event that caused the most trouble was held outdoors. Called the Prelude Pageant, it took place in the early evening on the Ellipse behind the White House. The tuner assigned ended up sitting outside in sub-freezing weather at seven o'clock in the morning. The changing weather caused numerous minor technical problems.

Some of the Inaugural stages were difficult to access. Stages were constructed anywhere from 24 to 48 hours before an event. When stages were not completed on time, the technical crew had to institute an alternate plan, returning later to set up and tune the pianos.

Richard Cimino, crew foreman, worked from a complete, detailed checklist of all the things that had to be done. Except for the space factor, five in a truck, crating and uncrating caused no problem.

For Piano Man's President, Nicholas Margaritas, the Inauguration represented an opportunity of a lifetime. "We did it as an exercise. It is good to do something like this to test the company to its limits. We knew we had the best product and we are proud enough to believe no one else could serve the President better than we could," Margaritas said.

Wurlitzer President George B. Howell was delighted with Piano Man's performance. "Nick Margaritas and his staff came through with flying colors. Nobody could have done it better. The logistics were meticulously planned, and everything went according to plan, despite sub-zero cold conditions. We are very proud to have Piano Man contribute so professionally to this latest chapter in Wurlitzer's history."

Wurlitzer, headquartered in DeKalb, Ill., has been manufacturing pianos since 1881. The company founder, Rudolph Wurlitzer, began his business by importing instruments from his native Germany. Wurlitzer pianos are now manufactured at Holly Springs, Miss. A West German subsidiary, Deutsche Wurlitzer GmbH, designs and makes high-quality vending products which are sold worldwide.

INDUSTRY NEWS

Sally Jameson Joins Baldwin

Sally Jameson has joined Baldwin Piano & Organ Co. as "Special Programs Coordinator." As a technical representative, consultant and lecturer, Jameson will develop Baldwin touring seminar programs for piano technicians, music educators and other groups throughout the country. These educational programs will be highly tailored to each audience and will include subjects such as regulating and voicing pianos, piano maintenance and how to evaluate used pianos.

Jameson, a Registered Craftsman, has taught at regional and national Guild seminars for the past five years. Her credits include concert and recording services for Northern Kentucky University, Manhattan School of Music, four years of full-time work as a tuner-technician for North Carolina School of the Arts and various

Jameson

Brandom

seminars for pianists on piano maintenance and tuning at Northwestern University. She also has contributed to the *Piano Technicians Journal.*

While based in New York City, Jameson worked with a number of Baldwin artists, and her affiliations with the recording industry include work for Arista Records, Warner Brothers, Atlantic and Nonesuch.

Bill Brandom Named Yamaha Service Manager

William S. Brandom has been appointed Piano Service Manager at Yamaha International Corp., Masazumi "Mike" Miyake, Yamaha president, announced.

Brandom had been Service Manager for the Everett Piano Company, a subsidiary of Yamaha International Corp., since 1983. He started with Everett in 1980 in South Haven, Mich., as Customer Service Administrator. The establishment of the current Everett Service Department was his responsibility.

He was a self-employed piano technician in Kansas City, Mo., for seven years following his graduation from Western Iowa Technical Community College. He served two years as president of the local Guild chapter and also attended Yamaha's Little Red School House for piano technicians.

Economic Affairs

Bob Russell
Economic Affairs Committee

End Of Acoustic Piano Market By 1990

According to *High Technology* magazine, Kurzweil Music systems, makers of the electronic keyboard, model #250, are acknowledging that their strategy is to capture a large share of the billions of dollars spent worldwide each year on pianos. Kurzweil predicts their #250 and similar keyboards will "spell the end of the acoustic piano market by 1990."

My son and I have heard the #250. Its sound is good and would make any tuner nervous. However, we are not going to worry about this... we are going to fight for the acoustic piano. Not by badmouthing the electronic piano and not by wishing it would disappear. We are going to:

1. Prepare ourselves by learning our craft better so we can keep that beautiful acoustic piano in great playing condition.
2. Assist manufacturers by keeping them abreast of any field problems we find while tuning, and/or any suggestions we may offer them to improve their product. Write to the home office and request the "Serviceability Improvement Suggestion" form. It is a form the Piano Technicians Guild developed and it has the names and addresses of manufacturers and suppliers listed. It is very easy to write your suggestions and comments down and send the form to the manufacturer. Why not have every chapter order some of these forms for their members?
3. Assist and encourage dealers to become more consumer-oriented. You could offer to help the sales personnel with piano nomenclature and piano parts functions. Many piano salespersons use a method of selling called "nuts and bolts." Also remember, there is no such thing as a "cheap" piano. We refer to them as "consumer oriented" pianos.
4. Educate music teachers to become better acquainted with good piano care, which in turn will help them perform their duties better, more efficiently, and without students practicing on poorly maintained pianos. Offer to teach a short "Everything you wanted to know about pianos" speech at their next recital. The parents will benefit from the knowledge and it adds variety to the recital. (Plus good public relations for you).
5. Spread the word to dealers, music stores, studios, and music teachers that there is a new book written by The National Association of Music Merchants (NAMM) entitled, "The Business of Education." This is the best business book I have ever read on how to run a music education retail store, music department, or music studio. You can acquire a copy of this book by writing; NAMM, 5140 Avenida Encinas, Carlsbad, CA 92008.

By now you are probably asking yourself, what does all this have to do with the Guild's Economic Affairs Committee?... What I am saying is this: If all of us, manufacturers, stores, technicians, piano parts suppliers, and teachers, do not work together and help one another we will be listed in the "history of the acoustic piano book."

We must think and talk in a positive and productive manner when discussing the stability and longevity of the acoustic piano. It is a family heirloom to be passed from generation to generation. We must expand our thinking accordingly. Remember, our living depends on it! The piano world as we know it depends on it!

Kimball Announces Changes In Lines

Kimball International Keyboard Division has improved polyester finished instruments in the 5200 series of grand pianos.

"The 5200 Series has replaced the 5100 Kimball grand pianos in our line," said James Birk, division executive vice president, adding that the change was in response to consumer demands for polyester-finished pianos in that price range.

The 5200 pianos feature a Pratt-Read action, 15-pound hammers and longer keys. Other highlights include nickel tuning pins, a Pratt-Read keyboard, solid copper-wound bass strings, a 12 spruce rib construction, laminated spruce soundboard, sostenuto, individually-leaded keys and matte-finish sharps. The grands are 59-1/16 inches long, 56-7/8 inches wide and 37-1/4 inches high.

Kimball also has refined its five-model Krakauer console piano line. The Krakauer console pianos, now 42 inches tall, sport a one-piece leg, a grand-style cap and desk-type hinges. Overall, the Krakauer line displays much more ornate, elaborate carving, Birk said.

The International Scene

Fred Odenheimer
Chairman, International Relations Committee

It was interesting again to visit the National Association of Music Merchants Winter Market at the Anaheim Convention Center, especially to visit the Guild booth with all the eager members mostly from Orange County manning the stand. Also at the booth were Western Regional Vice President Jim Bryant and Barbara Parks and Larry Goldsmith from the Home Office.

There were a lot of people moving through the exhibits looking at all the latest in musical gadgetry, ever-changing and getting more sophisticated all the time, noisier and just about obsolete when they come to the retail establishment and the customer.

My interest naturally was in pianos, the mechanical type with strings, the design of which has basically not changed for the last 150 years or longer. At a time of radical advances and new discoveries, it is good to have an old and faithful friend at our side, notwithstanding all the claims of modern electronic engineers that our pianos, as we know them, are obsolete.

There were 28 different piano makers represented—by my count—half of them from the U.S. and half of them imported from countries like Canada, Germany, East Germany, Finland, Japan and Korea. There were also all types of styling and finishes and some very fine-sounding instruments and others—well, they cannot all be first-class. There has to be something less expensive for the young, budding pianist.

We were able to talk to various representatives of a number of companies. Unfortunately, the industry worldwide is still weak and in some countries actually depressed.

I had a chance to reminisce a little bit with Elmer Brooks from the Aeolian Company, where I had spent a few days back in 1956. I will never forget the 82-year-old Swede in the belly department of Mason & Hamlin. I think his name was Bjornsen. He was such a fabulous craftsman, even at his advanced age.

He finished the bridge, including the notching, and what a joy it was to see him use the tools of the trade. He set the plate complaining that the plates were not as accurate any more as they used to be and he gave me a lesson for tightening the tension bars. It was an unforgettable experience.

I also had a chance to talk with Herr Huettner from Schimmel Pianos, where 100-year festivities will be held in May with a great number of visitors expected, among them also members of Europiano.

I talked with Henry Haino from Yamaha and the Japanese Piano Technicians Association, who thinks that there will be between 20 and 30 technicians coming from Japan to attend the International Association of Piano Builders and Technicians Convention.

Perhaps you have postponed becoming a member of "Friends of IAPBT"—this is just a reminder that it is never too late.

THE TECHNICAL FORUM

Lost Damper Guide Rail, Broken Bridles, Tech Tips, And The Multipurpose Tool Contest.

Jack Krefting
Technical Editor

Q: *I am rebuilding a small, no-name grand and have somehow managed to lose the damper guide rails. The company that made the piano has long since gone out of business, and the supply houses don't have guide rails. What do I do?*

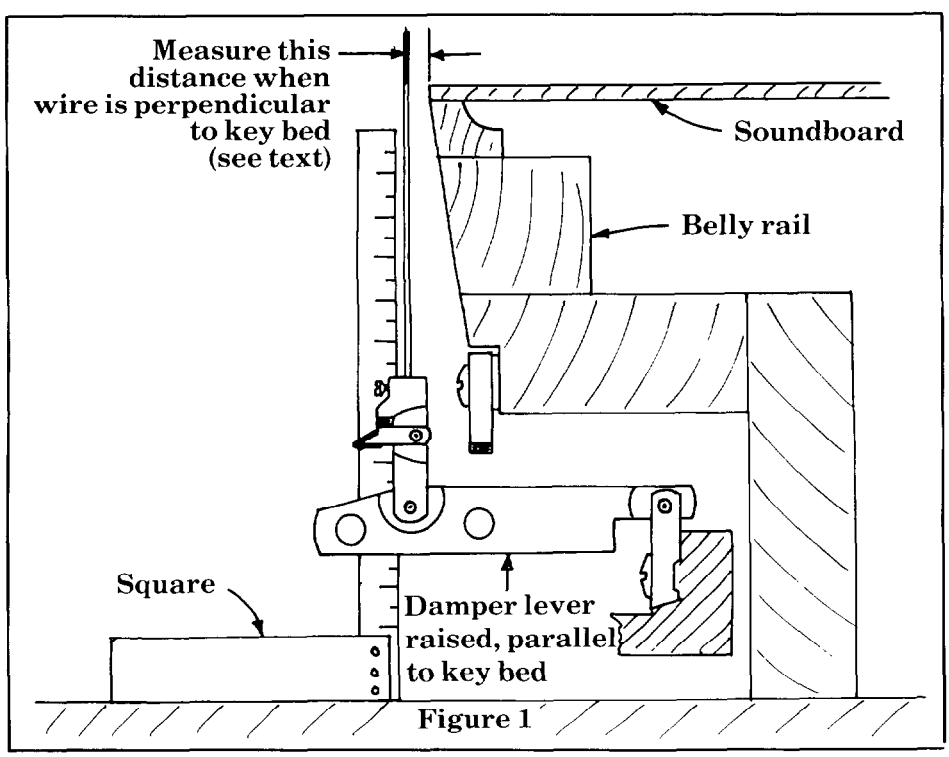


Figure 1

A: You will have to make new ones, and here's how to proceed: don't even start until the piano is strung and chipped to pitch, because you will have to have the string spacing and elevation to make the rails anyway. The fore/aft dimension of the rail will be determined by how far the top flanges extend outward from the back rail, and the vertical dimension will be as tall as possible for maximum control of the wire, but not so tall that the strings could touch the rail on a hard blow. Obviously, the bass rail will be taller than the treble rail(s), but it cannot come as close to the strings because of the greater movement of the bass strings.

When the piano has been chipped, reinstall the damper action and block one damper lever up so it is in a horizontal position; that is, level to simulate the mid-point of its travel. If the stop rail is still in place and the plate height was not changed, block the test damper so it is 1/8 inch below the point where it would touch the stop rail. This measurement should be taken at that place on the lever, not at the front.

Now place a spare damper wire into the top flange and, with a trysquare on the keybed as shown in *Figure 1,* move the wire until it is straight up and down. Measure the distance from the edge of the soundboard to the center of the wire, and make a note of the dimension, as this will be the fore/aft centerline of all the guide rail holes.

The guide rails may be made of one piece of wood, rabbetted as shown in *Figure 2,* or of two pieces per section (*B* of same illustration), or of open design (*C*) with support blocks placed at each screw location. The rail should be made of maple or some other hardwood with similar properties. It goes without saying that the wood must be properly seasoned so that any dimensional changes which occur will be minimal and predictable.

Some pianos have just two rails, one for the bass and one for the treble, while others have three or even four short rails, one per section. A glance at the plate will indicate the number required, simply by the presence of plate struts below the string line. The rails should be long enough to almost touch the plate struts, especially on the left end of the bass rail and the right end(s) of the treble rail(s); the latter because the damper wire is always to the left of the unison in the bass and to the right of the treble. The reason for that, incidentally, is to allow wire clearance at the critically important tenor/bass break.

In any event, be sure that any error in rail length is on the plus side, because it's easy to cut some off if necessary later. Try each rail in the piano, lining it up as shown in *Figure 3,* and drill for the mounting screws. It will be tough to line the holes in the new rail with those in the soundboard and back rail, so it is probably just as well to plug the old holes and start anew. Drill three holes in each rail, centering them between unisons, and countersink the top of the rail so the flathead screws will not protrude above the surface of the rail.

Next, with the rails out of the piano, scribe the fore/aft positioning mark according to the dimension noted earlier, as shown in *Figure 4.* Reinstall the rails with at least the end screws in place and tight, and make a marker from a

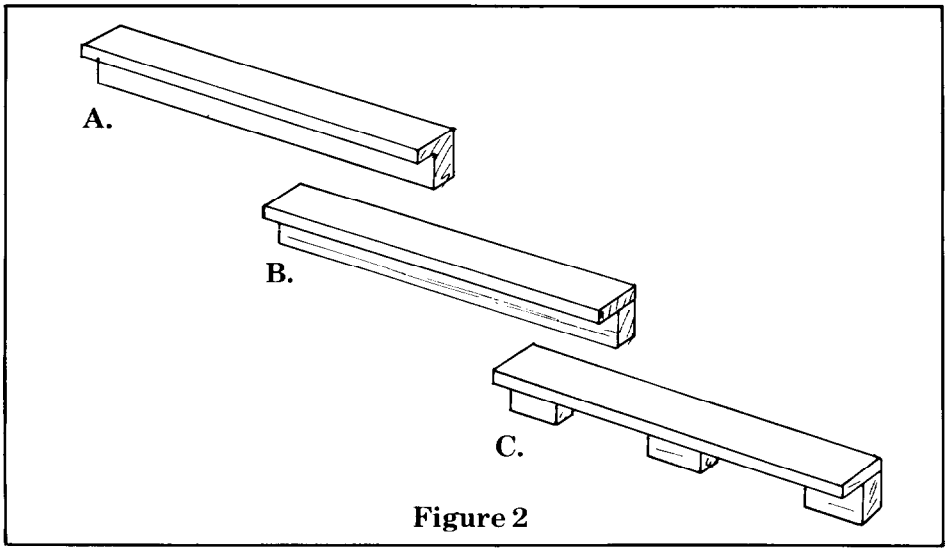


Figure 2

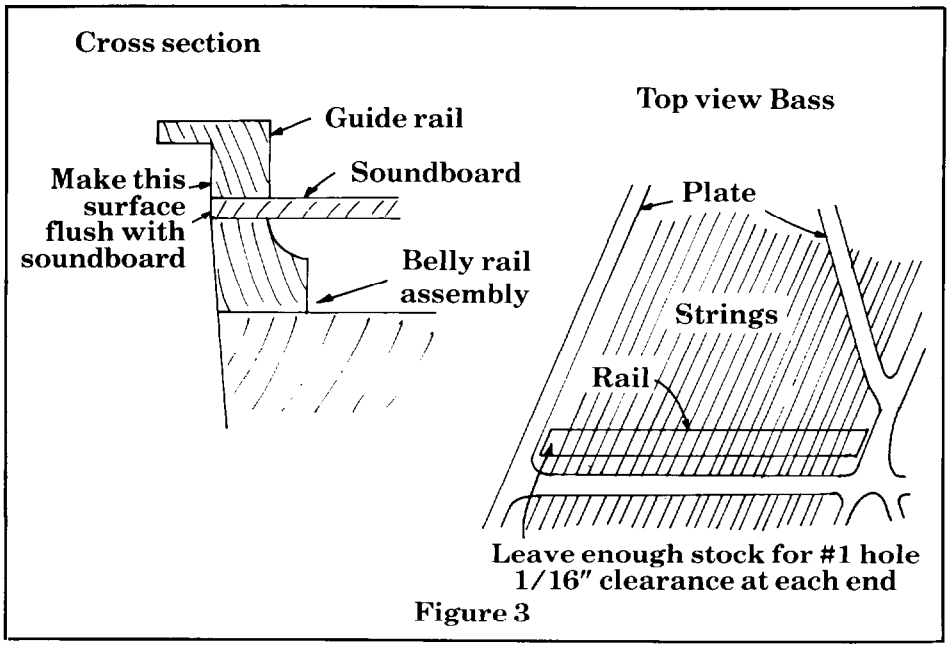


Figure 3

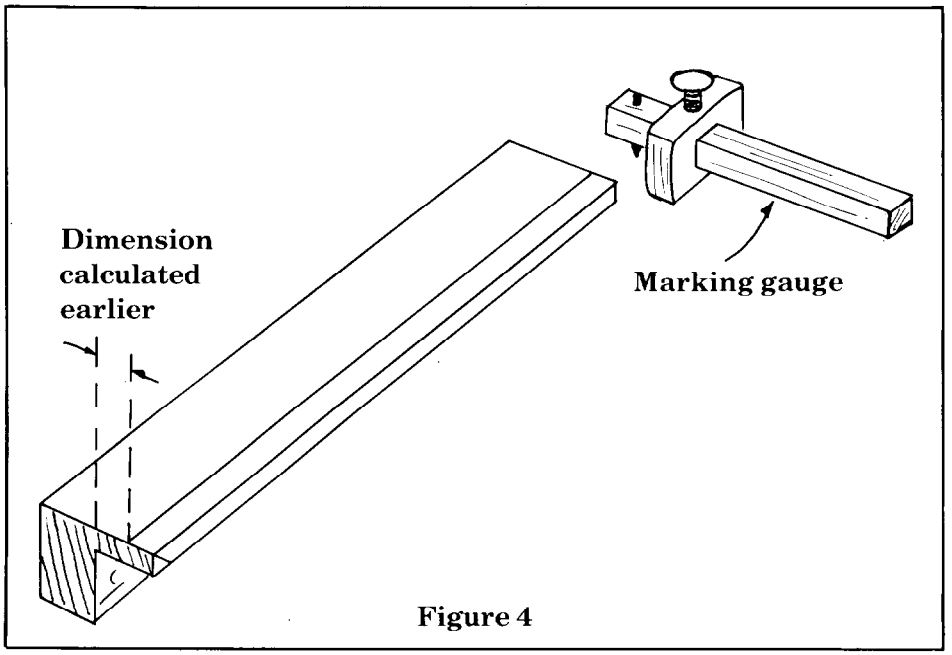


Figure 4

dowel and a pointed pin as shown in *Figure 5*. It is necessary to make the minimum dimension of the oval just slightly less than the smallest distance between any two unisons. The maximum dimension of the oval must be slightly greater than the distance between the two most widely spaced unisons. Such a marker will indicate the precise halfway point provided it is held straight up and down, and provided it is twisted to touch the string on either side. In order to be sure that the marker is held vertical, use a small square on the strings as shown in *Figure 6*.

Starting at note 2, use the square and twist the marker between string #1 and string #2. When it is straight and touching both strings, press it down so the point is on the scribe mark and push the point slightly into the wood to indicate the hole location. Now, without twisting the marker at all, lift it out and place it to the left of string #1 and mark the rail there also. The rest of the marks are easy to make, but remember to switch to the right side of the unison at the tenor/bass break. The top mark will be to the right of the top note that has a damper, usually note 67 but sometimes 70 or 72, depending on the scale.

When the marks are all made, remove the rails to a drill press and drill them. The hole size will vary according to the bushing material used.

Countersink the undersides of the holes as shown in *Figure 7*, to about half the thickness of the rail. The rail usually being about 1/4 inch thick for rigidity and quietness—yes, a thinner one could resonate—causes too much surface contact between the bushing cloth and the wire, which means the hole would have to be much too large for damper control in order to be free enough to operate. The smaller cross-section allows a tighter fit without sluggishness, and it also provides a place for the glue where it can work without causing a problem. The cloth is simply pulled up from the underside until it is almost flush with the under surface of the rail. Then a single drop of glue is placed in the countersink and the cloth is pulled a bit further (see *Figure 8*) and cut off the upper side with a hobby knife or razor blade. It is vital that no glue be placed on any part of the cloth that will touch the wire, since the glue can easily wick through the cloth and cause a clicking damper.

Incidentally, it is also very important that the cloth be torn to width, not cut. Bushing cloth is precision-made, and will tear very accurately, in addition to the fact that the torn ends tend to knit together at the seam, making a better bushing than would be made from a cut piece. The only cutting done is at the very edge of the cloth, to aid in starting the tear, and to cut a point on the end of each strip for easy insertion.

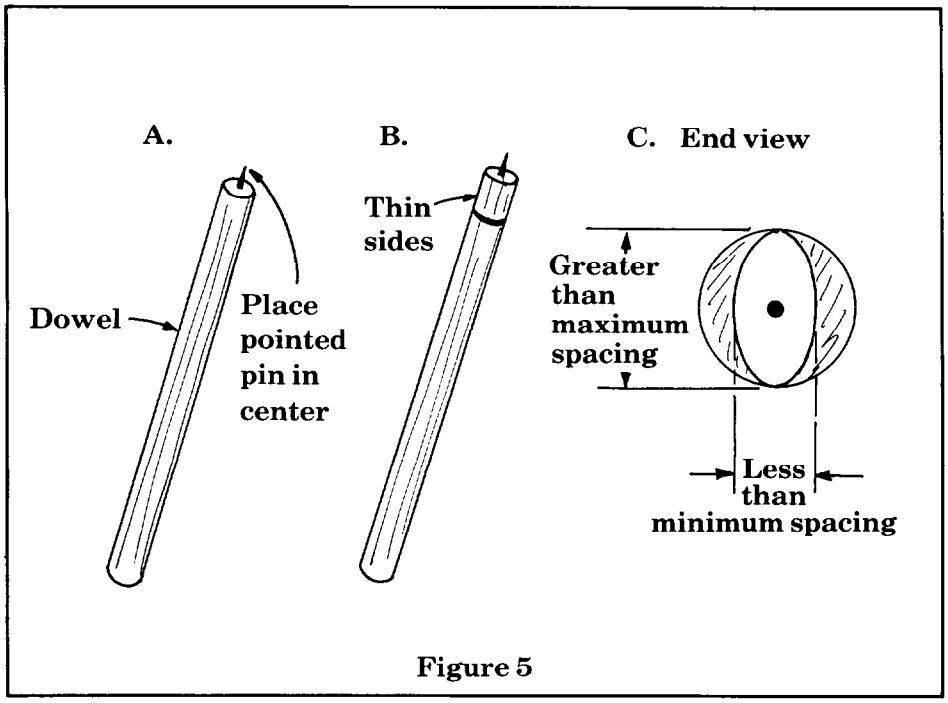


Figure 5

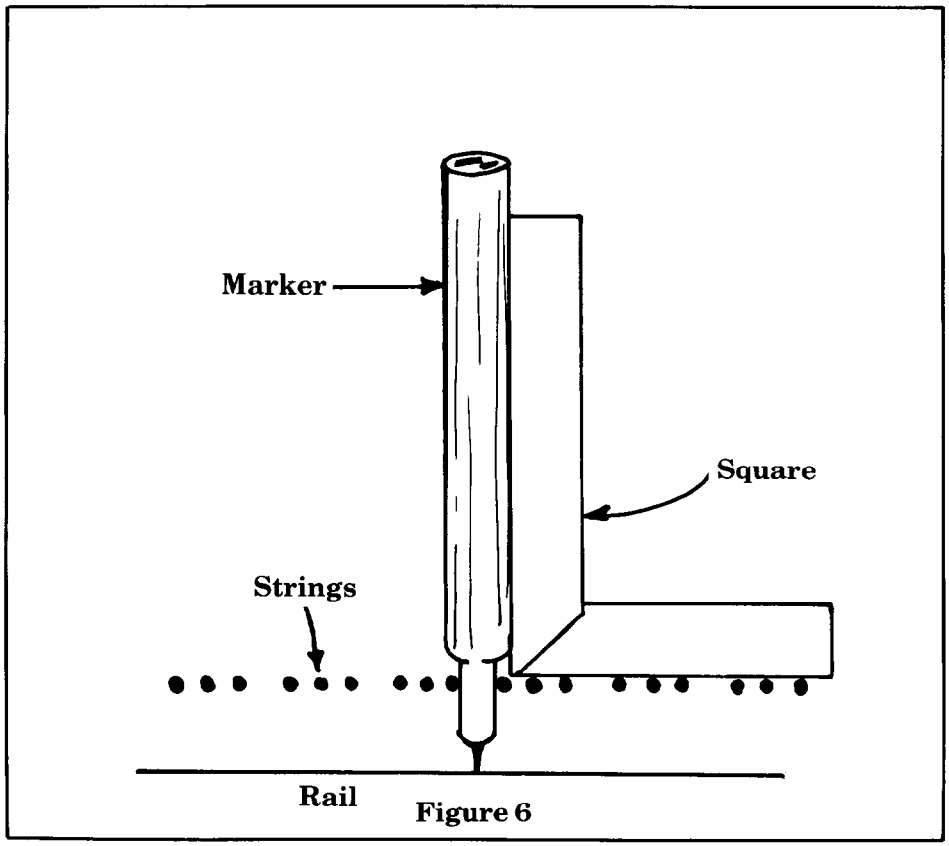


Figure 6

Q: *Enclosed are two photos of a 1904 Steinway C and a 1949 Story & Clark. The Story & Clark has an additional soundboard structure which I've been told was an attempt to improve the tone, and in fact the piano does have a surprisingly good sound for a small grand.*

The Steinway upper tenor bridge is notched with the bridge pin line parallel to the edge of the bridge rather than parallel to the capo bar. I have found this construction on other Cs and a variety of concert grands. My analysis of this detailing was that it introduced tuning inequalities (due to different speaking lengths) in an effort to increase brilliance in this section. Am I correct?

Russell H. Gordon, RTT
Goldens Bridge, New York

A: First, the notched superstructure on the soundboard of the Story & Clark is outside of my experience, so possibly someone else may have worked on such a piano and be able to offer some information; if so, please send it along.

Regarding the bridge notching on the C, this was indeed deliberate but probably was designed more for carrying power than for brilliance. We know that strings which are out of phase with each other have a tendency to provide increased movement of the bridge, which translates into longer decay. There is probably nothing more important to the singing quality of a piano than a long decay rate, because that's what allows the pianist to "connect" the notes in legato passages. A princi-

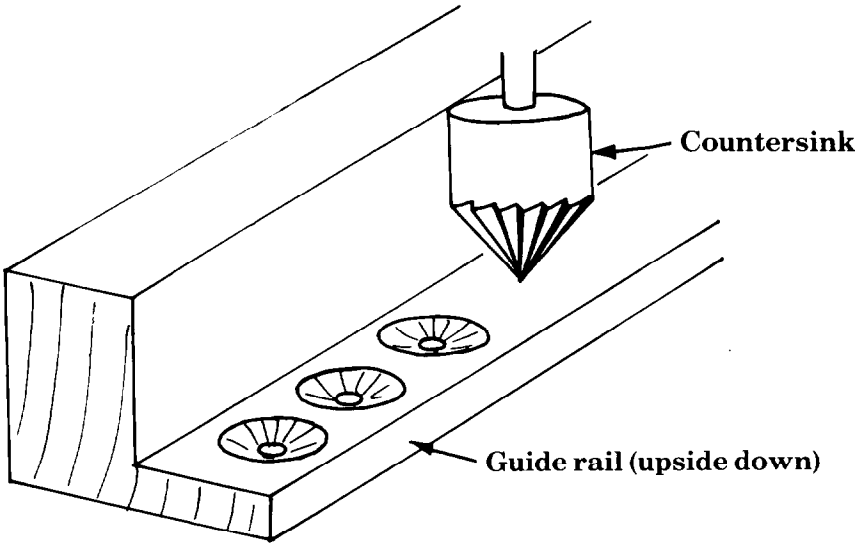


Figure 7

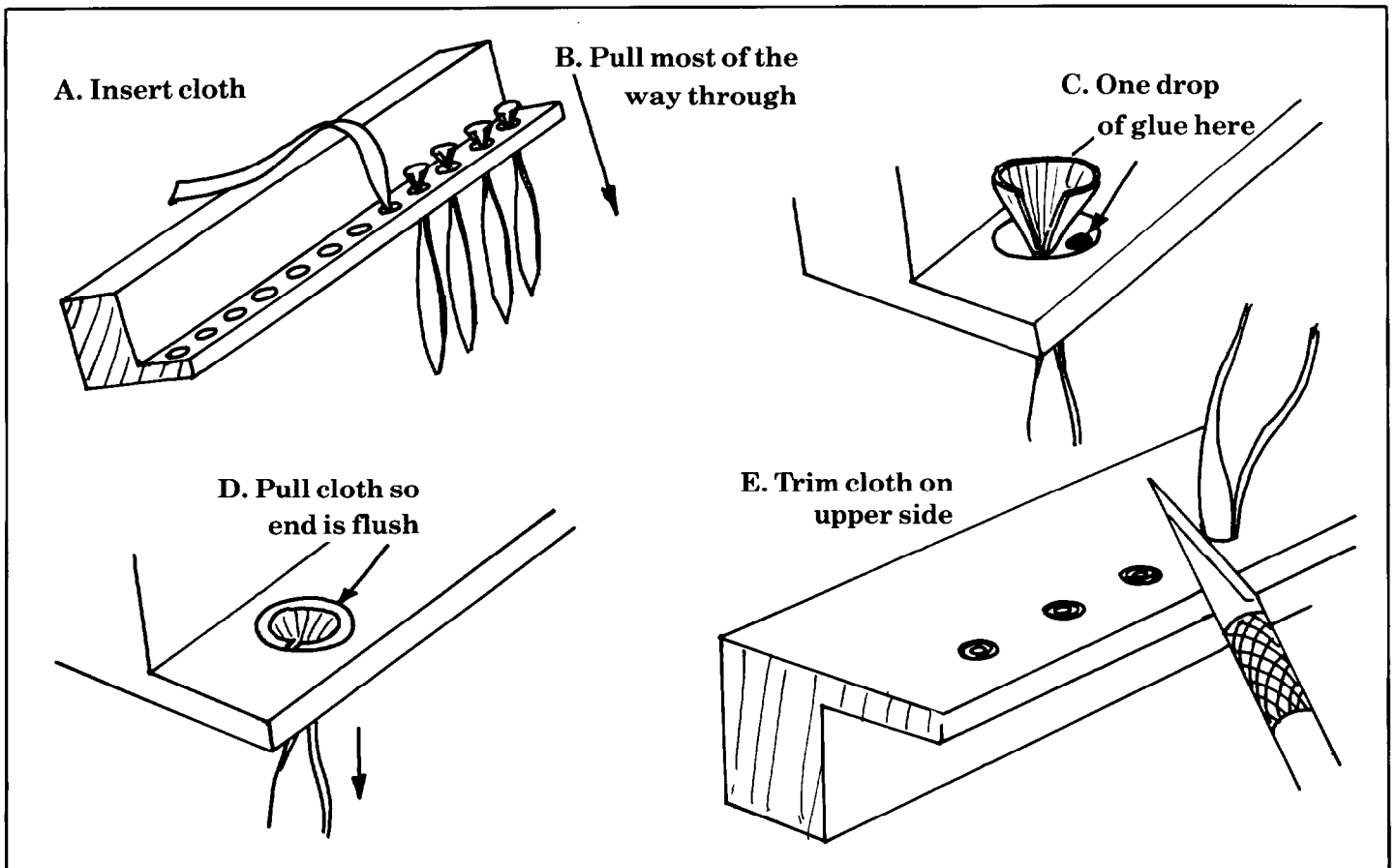
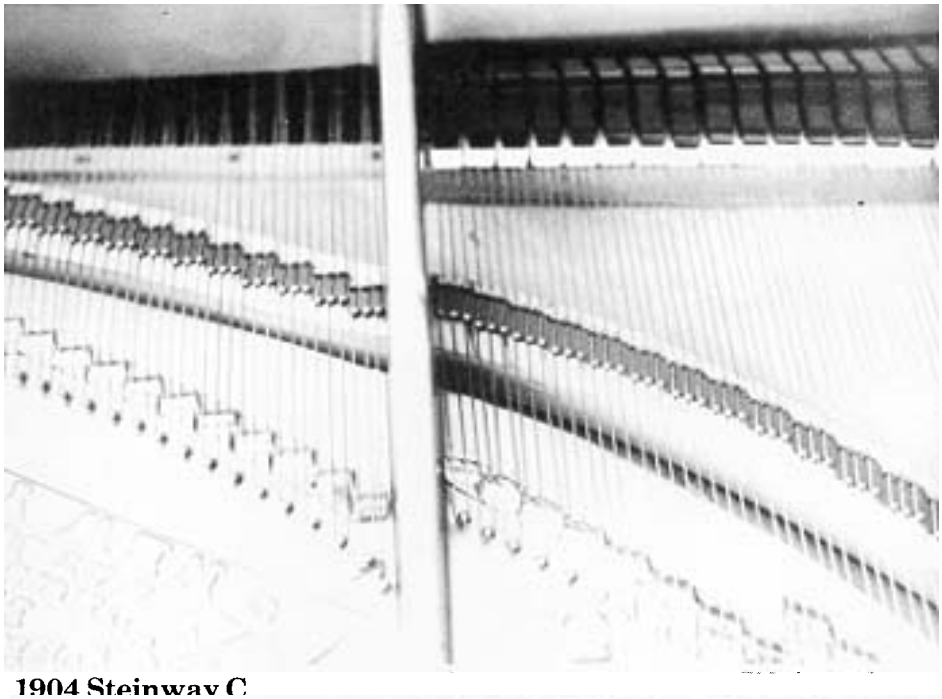
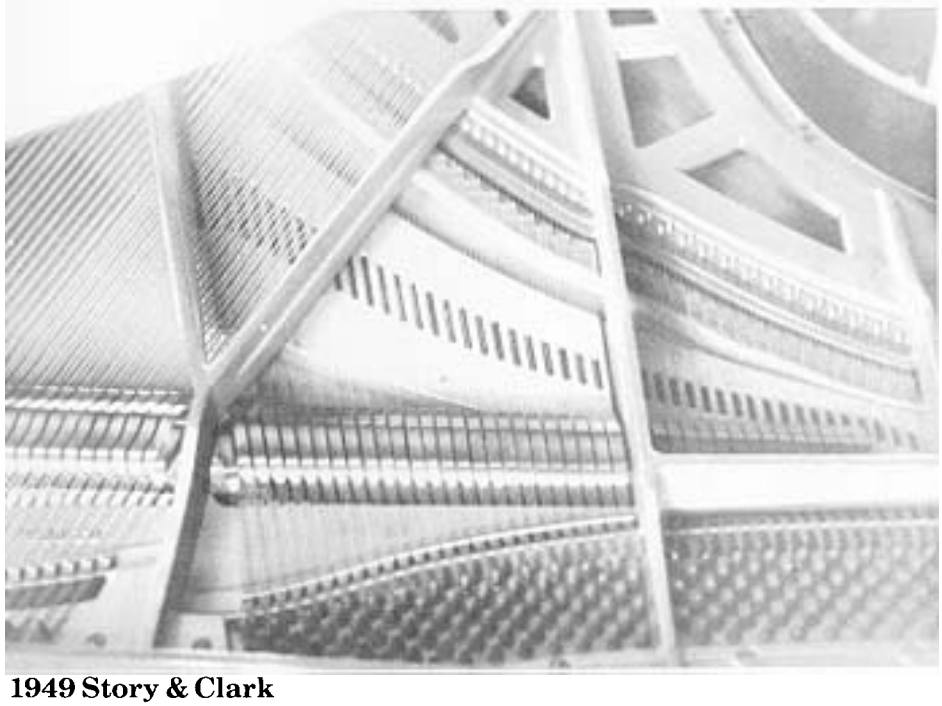


Figure 8



1904 Steinway C



1949 Story & Clark

pal weakness of the piano is that a true crescendo on a given note is impossible; if an increase in volume is desired, the note or notes must be repeated with more force, because they naturally die away if simply struck and sustained. It is accepted that every note played by the pianist is its loudest immediately when struck, decaying relatively quickly thereafter.

Since the tessitura most commonly selected by composers of the Classical and Romantic periods for the melodic line seems to be in the mid-treble, where most piano scales tend toward weakness, anything that tends to increase volume or decay in that range is beneficial. The peculiar notching of the Steinway C bridge represents an attempt to compensate for short decay with a deliberate inequity in string length within the unisons, resulting not only in three different speaking lengths on each note, but also in a variable strike point. The resultant lack of purity in the unison could be considered a duplex within the speaking length, in that the effect on the bridge is so similar. An out-of-phase unison will carry further and longer than a synchronous one, as many tests have shown.

Broken Bridles

Q: *There have been several occasions in which I needed to remove an old (about 60 or 80 years) upright piano action from the piano. Usually, I need to make routine repairs to the action, or the action must be examined more closely for an appraisal or estimate.*

More often than not, all the bridle straps are in, or close to, a state of disintegration. Given this situation, the problem is not in removing the action, but rather in replacing it back in the piano.

As far as I know, unless all the keys are removed from the piano, or the worn bridle straps are replaced, it is very difficult, if not impossible, to reinstall the action with severed bridle straps.

Can you suggest any convenient solution(s) to this dilemma?

Charles J. Gibson, III, RTT
Caledonia, Michigan

A: First of all, it's rarely necessary to remove a vertical action for inspection, so in most cases it would be better to leave it in place. It's difficult to remove a wippen assembly with the action in the piano, granted; but usually it is possible to determine the condition of action parts without taking them out, and all of the rest of them can be removed easily with the action in place, except of course the damper lift rod assemblies.

One can observe the hammers and get a good idea of the condition of the action centers, for starters. Flat spots in the strike point mean sidewise movement, either from a loose flange screw or a loose centerpin. It is unlikely that the wippen centers would be in significantly worse condition than the butt centers, unless some partial repinning work has been done, in which case it is likely that the bridles would have been replaced anyway. If it is necessary to remove one or more keys to examine bushings or punchings, it will be necessary to trip the jack to replace the key, which presumably could be done on a massive basis if action R & R is really needed.

It never works out that neatly in practice, though. One can set the

action in place and progressively trip the jacks from one end to the other, but it's often difficult because of the sheer number of parts, all of which have to be in the same position to make the thing work, or at least be able to fasten the action brackets in place.

The alternative is to block the wippens up somehow, so they won't fall and allow the jacks to get underneath the butt felt square. On some actions there is a loop in the action bracket which allows the insertion of some kind of rod to hold the backcheck wires against the action. Sometimes an old bass string can be used, or a thick piece of aluminum wire, or even a stick of wood. Anything that keeps the jacks from slipping under the butts is good enough.

While we are thinking about this, let's remember that we are talking about a piano that is so far gone that we cannot even remove and replace the action without problems, and a customer who is so cheap as to question even the value of new bridles. The prognosis of a reasonable profit in such circumstance is slim at best, and it is often wise to walk away from such work. If you cannot remove the action without replacing parts, say so and let the customer decide what he wants to do; after all, it's his problem unless he is willing to pay you enough to make it your problem, too.

Tech Tips

Janet Leary, who has done such a fine job with the Cleveland Chapter's newsletter, published the following four tips on glue. Her principal source of information was the May/June 1984 issue of *Fine Woodworking*. Here's Janet:

New glue on the market: it's an EPI (emulsion polymer isocynate), developed by the Ashland Chemical Co. and available from them at Box 2219, Columbus, Ohio 43216. It's an interior/exterior glue similar to resorcinol, being at least as water resistant but having a much lighter color (about like white oak when cured). EPI is prepared by mixing two liquids, the resin (water based) and the cross-linker, in variable proportions, depending on how much water resistance and strength are desired. The glue has a pot life of several hours after mixing, and the recommended clamp time is 30 minutes at 70F degrees. Good results are obtained at temperatures as low as 40F degrees, and it doesn't release any formaldehyde, as do other glues.

Stopping sandpaper from gumming: if your sandpaper loads up with residue when you're sanding wood that has been stripped, throw pumice powder on the work. The paper will keep working much longer without loading up, and the abrasive will stay sharp longer.

Telegraphing of glue lines: when using Titebond glues (PVA and aliphatic glues), to bind together laminations you may notice ooze coming out from between the laminations some time after your work is completed. This is called "telegraphing" of gluelines and is the result of dimensional changes in the wood, and subsequent stress on the glueline. This happens either by slight shifting of the laminations, or by beading of the adhesive layer along the glueline. The flexibility of PVA and aliphatic glues enables them to retain a bond in conditions of dimensional conflicts, but the same flexibility also results in flow or creep, and causes telegraphing. For side-grain to side-grain gluelines, such as laminations, the more rigid urea resin glues may be better choices.

Hide glue preservative: to keep hide glue from spoiling add a tiny pinch of thymol crystals. Thymol, a disinfectant, is available from chemical suppliers and some pharmacies. If you can't get thymol, try adding a few drops of some water-soluble household disinfectant such as Lysol. An addition of Thymol can surprisingly extend your glue's life!

Our next contributor is Norman Sheppard, who published the following in the newsletter of the Madison, Wis. Chapter:

Here is an odd tool for removing brackets: take a cotter pin remover tool from Sears and file the tip to a point. It fits neatly between the string and the tuning pin. The odd shape of the tool will give you leverage to remove the becket. It is a great tool for putting in or taking out string braid. It will act as a coil lifter, and will lift the center rail to help put in shims.

Next is Glen Hart of Grand Junction, Colorado, who has this to share with us:

In my search for a good pinpoint oiler I have found something very effective. I use a hypodermic syringe that has a very fine needle. It is the type used for under the skin injections or for insulin. The syringe is about 1/4 inch in diameter and about three inches long and holds one cc. I take out the plunger and throw it away. I then cut off the finger tabs at the open end. The rubber suction part of an eye dropper will now fit snugly over the open end. The control of the lubricant is unmatched. A drop the size of a pinhead is easily applied. Also, the needle is so thin that it can be placed between the birdseye and the flange.

The bevel on the needle, if placed at the correct angle, will deposit the liquid directly on the bushing when the needle is between the flanges or between the birdseye and the flange. The fine needle can also be inserted into bushings such as on damper rod hinges or on felt or leather washers in the trapwork or what have you. The lubricant, shrinking solution, liquid graphite, alcohol, your secret formula or whatever can actually be injected in the problem area - much better than a surface treatment, especially if you are working upside-down. No fuss, no muss, and costs only pennies.

Multipurpose Tool Contest

Our next entrant, whose idea is illustrated in *Figure 9*, is Bob Morris of Champaign, Illinois. Bob's

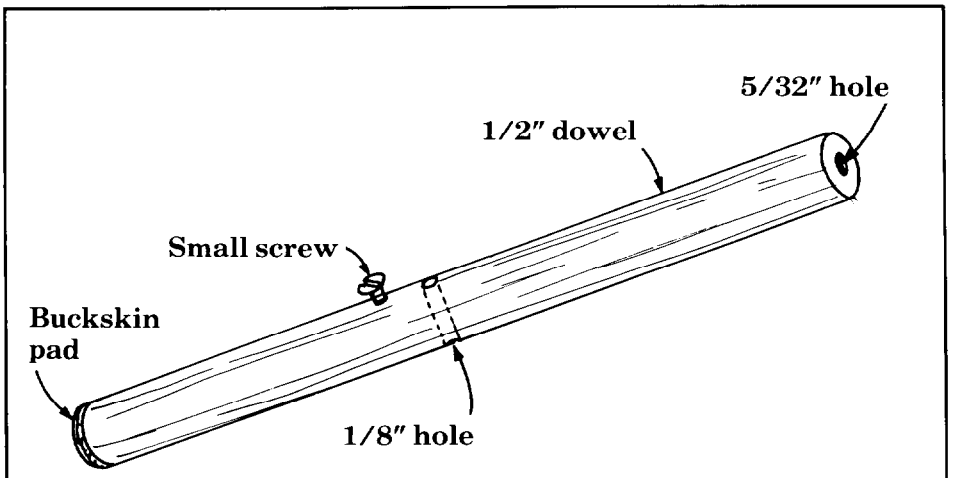


Figure 9

gadget appears to be a dowel with a blind hole in one end and another hole through the middle next to a small screw, with the other end covered by a buckskin pad. Here is Morris' description:

For your multi-purpose gadget collection is a version of an old standard that serves at least four duties, probably more which haven't occurred to me.
1. hitch pin loop maker
2. buckskin covered end can be placed against the underside of grand lid, and braced against the lid prop hinge to raise the lid a bit so that the tail of your tuning hammer clears the capo bar on the extreme table end.
3. hole in the non-covered end will accept a balance rail pin, to drive the punchings down on the frame.
4. use to tap down strings on the bridge between the bridge pins.

We are indebted, as usual, to all those who contributed to this month's issue. We also appreciate those who are considering writing for us, and in that regard we are fortunate in one respect at least. We are finally going to be treated to a four- or five-article series on glue. Del Fandrich has done a lot of research to bring this to us, and I think it will be very well received. Del's first article appears in this issue.

Please send all technical contributions for publication to me at this address:

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ALL ABOUT

ADHESIVES

History, Bonding Theory and Natural Adhesives

Del Fandrich, RTT
Sacramento Valley Chapter

Glue: *A substance that has the ability to hold two or more materials together by surface attachment. An adhesive.*

At a national Guild convention some time ago I noticed that in several classes, the instructor was asked, "What kind of glue did you use?" In most cases the answer went something like, "We use super poly-unsaturated wonder weld—type 47659. It comes in 55-gallon drums, has a shelf life of two weeks and costs $79.54 a quart." Obviously, this is an exaggeration of what was really said. My point is that while the question was being answered in a forthright manner, the information sought was not provided. The question really being asked was, "What type of adhesive can I use in a similar servicing situation?"

At that particular convention most of the technical instructors in the classes I attended were provided by manufacturers. For the most part these instructors did (and continue to do) an outstanding job. However, in some areas there are substantial differences, both in techniques and in materials available, between manufacturing processes and servicing situations. Their answers were interesting and informative, but they came from a manufacturer's perspective and were not as helpful as they could have been. These articles will attempt to answer that question by discussing the characteristics of some of the more readily available adhesives so that the technician can then make a reasonable choice based on his knowledge of the adhesives available and the needs of his specific application.

There are literally thousands of adhesive products now available. Some types have single, highly specialized uses while others have very broad and versatile applications. Although some of these adhesives have been around for many years, there is still a great deal of confusion and misunderstanding about their characteristics and uses. From this great variety how can we, as piano technicians, not adhesive chemists, hope to make appropriate choices for specific applications? It was this question which prompted this series of articles, and it is my hope that they will increase our understanding of the adhesives we use and remove some of the mystery that seems to surround this subject.

"There are literally thousands of adhesive products now available. Some types have single, highly specialized uses while others have very broad and versatile applications."

History

Before beginning our discussion of specific adhesives and their characteristics, let's take a brief look at their history. Furniture pieces more than 3,500 years old have been found in the tombs of ancient Egyptian rulers with joints bonded together using animal- and vegetable-based glues and with veneers and ivory inlays glued to wood bases. (The piece of wood, or panel, upon which the veneer or other applique is glued, is called the base or sometimes, the substrate). Carvings dating back more than 3,300 years show Egyptian craftsmen bonding a thin piece of veneer to what appears to be a plank of sycamore. In one carving even a glue pot and brush are shown. Well, so much for the "solid wood" furniture of the "good old days!"

Papyrus, an early, nonwoven fabric used for writing, was made from the fiber of a reedlike plant bonded together with a flour-based paste. It was virtually indestructible

as long as it was protected from moisture. Natural glues of several different types have been used by the artisans of many ancient civilizations: the Assyrians, Babylonians, Greeks, and the Romans, among others.

These early glues were made of a variety of ingredients, including blood, bones, hides, the offal of fish, vegetables, grains, eggs, and milk. Of these, the glues made of animal hides and bones (or hide glue) and some derived from a milk base have survived to the present time and are still being used.

Throughout history, glues have been used in building weapons of war. In earlier times glue was used for fletching arrows (attaching the feathers to the arrow shaft). During World War I a relatively new type of adhesive derived from milk (casein glue) was used to make laminated wood airplane propellers and to bond the wood structural parts of the aircraft (wing ribs, reinforcing gussets, etc.). These adhesives had already been proven in bridge building applications. Covered bridges using casein glues in their framework have shown no signs of deterioration after more than 25 years of exposure to the weather.

The huge zeppelins were made possible by the development of early forms of flexible adhesives, the most common of which was collodion. These adhesives were derived from cellulose and were made by combining nitrocellulose with ether and alcohol. (Incidentally, in a highly nitrated form, nitrocellulose becomes explosive guncotton, which is what Alfred Nobel combined with nitroglycerine to make a smokeless powder more powerful than dynamite and which is the basis for all modern gunpowders). Collodion was the material that typesetters used to coat their fingers for protection, and it was a typesetter, John Hyatt, who in 1872 was the first to learn how to make collodion into a new and different material by combining it with camphor forming a plastic called celluloid. Celluloid, when combined with acetone or banana oil, became the basis of the quick-setting cellulose model makers' cements (ambroid was probably the best known). Some of these cellulose-based products are still in use.

"From these early beginnings adhesives technology mushroomed, becoming especially important through the late 1930s and early 1940s. The need for highly specialized bonding materials during this time led to the development of many different types of adhesives."

From these early beginnings, adhesives technology mushroomed, becoming especially important through the late 1930s and early 1940s (World War II). The need for highly specialized bonding materials during this time led to the development of many different types of adhesives. Some of these were the resorcinol resins, epoxy resins, acrylonitriles (i.e., Pliobond, etc.) and many various types of adhesive caulks. Some of the research begun during World War II did not result in practical civilian-oriented products until after the war had ended. Epoxy resins, for example, were developed in Europe during the 1930s and, although they were used in the war effort, they did not reach a marketable state of development until the late 1940s.

Not all adhesives developments have been the result of man's war efforts. Plastic adhesive cement (or PAC), an acrylic-vinyl combination, had its origins in the dentist's office. It was derived from a formula used for dental fillings. Some other materials now used as adhesives did not start out as such. The polysulfides (thiokols), for example, were developed to be waterproof caulking compounds used in wooden boat building, but since they form such a high-strength bond with so many materials and cure to a form of synthetic rubber, they are also used as resilient adhesives.

The most recently marketed miracle adhesives, the cyanoacrylates, are not current developments at all, but were developed during the early 1950s for industrial production line use. They were the only adhesives available that could cure before the production line moved past the worker. They seem "modern" only because the advertising industry has presented them as state-of-the-art high-tech.

Most current development work in the area of adhesives technology is being done by the aircraft and aerospace industries. The demand for a high degree of structural strength as well as resistance to fatigue and environmental conditions has led to the development of many high-performance materials which then find their way into other industrial and domestic applications.

Adhesives now form an essential part of houses, automobiles, shoes, furniture, shipping cartons, nonwoven fabrics, aircraft, ships, space ships... and the list goes on and on. They have become a part of practically every manufactured product—either in its production or in its shipping and distribution.

"Adhesives now form an essential part of houses, automobiles, shoes, furniture, shipping cartons, nonwoven fabrics, aircraft, ships, space ships... and the list goes on and on."

While the natural adhesives (such as hide glues, fish glues, starch and destrin glues, casein glues, and natural gums) are still important, the synthetics have largely taken over the adhesives industry. These synthetics are used both as modifiers of natural materials and as high-strength, moisture-resistant additives capable of being produced in many different and readily usable forms.

Bonding Theory

Before examining any specific adhesives, lets take a look at just what makes glue stick. In the past it was thought that adhesion resulted from the interlocking of minute tentacles of hardened adhesive into the

porous cell structure of the wood surface, i.e. mechanical adhesion. This led to the belief that the wood surface had to be "roughed up" to form a good bond. (The technical requirements of a good adhesive bond will be discussed in a future article). Current scientific research has shown, however, that mechnical adhesion is insignificant compared with specific adhesion, the chemical attachment due to the molecular forces between the adhesive and the wood surface.

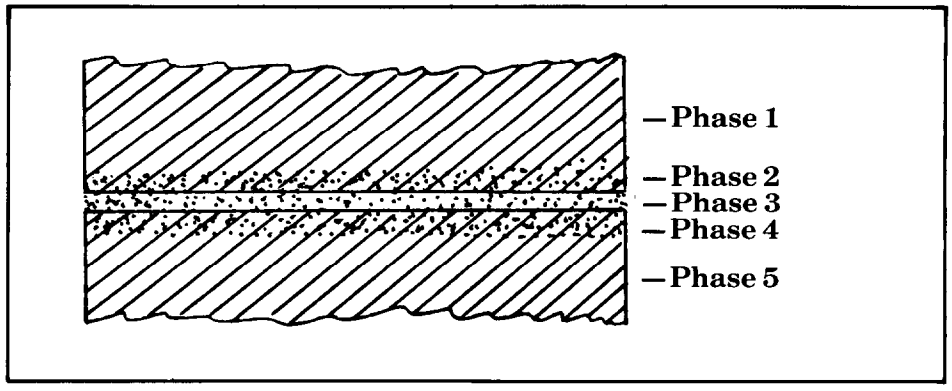
The assembled joint, or bond, can be thought of as having five distinct phases (see drawing). Phases one and five are wood. (It will be assumed that the materials to be bonded - the adherends - will be wood unless otherwise specified). Phases two and four are interpenetrating areas of wood and adhesive. In these areas the adhesive must "wet" the wood sufficiently to establish molecular closeness for specific adhesion. Phase three is the adhesive itself, which is held together by cohesion.

Phases one and five, the adherends, are generally obtained by machining, with either hand or power tools, the two surfaces so they will mate closely. Phases two and four are obtained by applying an adhesive, usually in liquid form, to one or both surfaces. Bringing the two surfaces into close contact, usually by clamping tightly, leaves phase three—a thin layer of adhesive (the glue line) not squeezed out by the clamping pressure. This glue line is generally only several thousandths of an inch thick.

The typical adhesive is either obtained as a liquid or is mixed to a liquid form prior to use. This liquid will set (or cure) to a strong bonding layer, either through the loss of a solvent, which will bring the adhesive molecules together allowing them to attach to one another, or by chemical reaction, which develops a rigid structure of more complex molecules.

For convenience, I am going to divide the adhesives to be discussed into three general groups:
1. Natural adhesives,
2. Synthetic resin adhesives, and
3. Elastomeric adhesives (a group which can be based on either natural or a variety of natural or synthetic materials).

These groups will be further divided and discussed in detail as we get to them. Also, before going any further there are three definitions I would like to list.



1. Adhesive: A substance capable of holding materials together by surface attachment.
2. Cement: In our context, used synonymously with adhesive.
3. Glue: Originally, a hard gelatin obtained from the hides, tendons, cartilage, bones, etc., of animals. Also, an adhesive prepared from this substance by heating with water, i.e., a natural adhesive. Through general use the term is now synonymous with adhesive.

In these articles the words "glue" and "adhesive" will be used somewhat interchangeably, although historically the word "glue" has referred only to an adhesive derived from natural substances and the word "adhesive" was applied to synthetic bonding materials.

Natural Adhesives

Probably the most well-known adhesive to the piano technician, certainly by tradition if not through actual use, is animal hide glue. Nearly all pianos built, from their invention through the 1940s, were made using this natural adhesive. Hide glue was used to hold the frame structures together. It held the sides on uprights and the bent rims of grands in place. It held the actions together as well as the soundboard and ribs. In other words, it was used on almost everything. From its earliest beginnings until fairly recently the piano industry has been almost totally dependent upon animal hide glue. If for no other reason than its historical significance, animal hide glue seems like a good place to start our discussion of specific adhesives.

In spite of its importance to the piano industry (and specifically to us as piano technicians) we are now relatively minor consumers of hide glues. By the late 1970s there were approximately 90,000,000 pounds of animal glues being used annually in the United States alone. Other industries using animal glues include furniture builders, the packing and packaging industries (nearly 50,000,000 pounds per year are used for making gummed tapes and sealants), and the coated abrasives industry. Animal glues are also used extensively in the textile and paper-making industries.

There are two major types of animal glue, hide and bone. Both are principally of cattle origin. Each is the hydrolysis (i.e., the decomposition of a chemical compound by reaction with water) product of the collagen which is a principal protein constituent of animal hides, connective tissues, and bones. Collagen, animal glue and gelatin are all very closely related as to protein and chemical composition.

Both hide and bone glues are obtained by similar methods. The raw materials, or glue stocks, are put through a special cleaning process followed by a precise cooking sequence which separates out the glue solutions or extraction liquors. This process is continued until all possible liquors are extracted. The resulting solution is then filtered, dried and ground (hence the names ground animal hide glue, or simply ground glue, which are sometimes used). There are many variations and subtleties to this process which affect the quality, type and grade of the final product.

Modern hide glues (since it is the glue made from animal hides that our industry is principally concerned with, I'll confine the remainder of my remarks to it) are now rather sophisticated products. They are of generally uniform qual-

ity and well preserved against bacterial or mold infection. They may contain many modifiers: wetting agents, foam suppressors, dispersing agents, plasticizers and chemical reactants which "tailor" the glue to a specific application. (Since we are now such low-volume users of hide glues, it is not possible for us to specify the types and grades of glue that we want. We are at the mercy of our suppliers who may or may not be able to supply the most appropriate product for our needs. A list of suppliers that I am familiar with will be included later.

While the bulk of hide glue is marketed in its dry form, it is also available as a liquid. The liquid hide glues we have available to us have properties similar to the dry varieties when cured, but they have been modified to stay in their liquid form while used. This is done by adding a gel depressent which, in the presence of water, delays or eliminates the natural gelling properties of the glue. As water is lost to the adherend and through gradual drying, the physical action of the gel depressent is eliminated and the original unmodified properties take over.

Besides the gel depressent, liquid hide glues sometimes have clays or calcium carbonate added to them for improved adhesive filming properties. Wetting and dispersing agents, plasticizers, and other modifiers are also used as needed to tailor the glue for specific applications.

Both fast- and slow-acting liquid hide glues are made, but most of the commonly available retail products are slow-acting. This can be a real advantage in some applications. Because of its long open assembly time, parts can be positioned and/or fastened into place that would otherwise present difficulties with a faster setting adhesive.

All types of hide glues are soluble in water, and consequently, water can be used to clean up excess adhesive if necessary. Most other solvents have no effect on it unless they contain water. Similarly, hide glue has little or no effect on solvent based finishes (other than possible heat damage from the hot adhesive) such as lacquer or varnish.

In my shop we use hot animal glue in a variety of ways. These include repairs which may need to be taken apart in the future such as hammer installation, action repairs, installing felt pieces of all types, etc. We do not use hot glue for many case repairs except for veneer repairs where hot glue is still without equal. Hammer veneering is generally much less time consuming and troublesome than most other veneering processes involving presses, or cauls, and usually, many clamps.

We frequently use liquid hide glue for soundboard/rib separation repairs on pianos which originally used hide glue for this purpose. We also use it for case or cabinet repairs when a long set up time is needed to position or fasten parts in place.

Using Hide Glue

In its most common usage as an adhesive, hide glue is prepared in a 25 to 50 percent solution by weight (i.e., 25 to 50 percent dry glue and 75 to 50 percent water respectively, depending on the application) and heated to 125 to 145 degrees (F) resulting in a solution having a consistency varying from that of thick honey to that of an oil-based paint. The exact proportions and temperature can vary depending on the specific application. Do not overheat the glue mixture, however. Ask anyone who has done this what it smells like—it's an experience not soon forgotten! Also, overheating will adversely affect the adhesive qualities and pot life (the amount of time after preparation that the glue remains useful) of the glue.

Over the years many technicians have told me they do not use hide glue because it is too troublesome, complicated, and to some almost mysterious. The standard principles, or procedures involved in the use of hide glues are few and not all that complicated. As with using any other tool, however, proper procedures must be learned and then practiced.

The basic steps for preparing and using hot animal hide glue are as follows:

1. Prepare and heat the glue solution. There are several ways to do this. The fastest way is to heat water in a jacketed double boiler or a special glue pot to 150 - 170 degrees. (The glue container should be made of stainless steel or aluminum. Glass or ceramic are also good. Iron, copper, brass, etc., will work but tend to discolor the glue after a time). Add dry glue and stir

thoroughly, allowing temperature to drop to the working range of 140 - 145 degrees, or lower depending on the application. Continue stirring at frequent intervals for 30 to 45 minutes and glue should be ready to use. Alternately, the dry glue can be pre-soaked in cold water until swollen and then heated. The advantage in using this method is that the cold glue mixture will last for a much longer period of time without loss of strength and yet will be ready for use very quickly when heated. Only the amount immediately needed is heated and the rest is held in reserve (cold) until needed.

2. Spread a thin, even glue film on one of the two surfaces. Work quickly because the glue begins to gel as it cools and you need to finish the spread before the gelling begins at the beginning area.

3. Allow glue film to thicken just a bit until the surface is slightly tacky. Don't wait too long, sooner is better than later! The gelling rate and viscosity of the glue solution are usually closely related; i.e., thick glue will gel more quickly than thin glue. If the area to be glued is large, the surfaces can be warmed to increase the gel time, giving a longer working time.

4. Bring the surfaces together and apply pressure sufficient to squeeze out excess and provide complete and even pressure over entire surface. (Clamping and clamping pressures will be discussed in a future article).

5. Hold under pressure long enough to ensure an initial bond strength sufficient to hold assembly together. This time is determined by the type and consistency of the glue and, particularly, the temperature of the adherends. Cold wood will cause the glue to set up faster than warm or hot wood. Generally an hour or two is sufficient. Maximum strength is reached in about twenty-four hours.

6. Excess squeeze-out can be cleaned up with a damp rag, but there is a better way. Allow the glue to set up until it is fairly stiff but not quite hard; you have some leeway here. Then scrape off the excess with a sharp scraper or chisel. This is by far the cleanest and neatest way and avoids working wet glue into the pores of the wood which will then affect later operations, such as finishing.

Next Month

This concludes my discussion of animal hide glues for this month. There will probably be a little more in the last installment which will cover the mechanics of adhesive bonding. Next month we'll take a look at some of the more commonly available adhesives—their characteristics and uses. Following that will be a discussion of epoxies and polyester resins.

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It's The Little Things That Count!

Behind The Vertical Piano

Gerald F. Foye
San Diego Chapter

Debris in the cavities in the rear of a vertical piano can cause some very strange sympathetic vibrations. Having run into this problem many times, I have gotten to the point where I can tell immediately where this specific type of sound originates.

For practice, place a metallic object or a plastic toy, against the soundboard in the rear of the piano. Specifically, use a plastic ball or a similar lightweight object that is just large enough that it will not fall down into the cavity, and at the same time lightly touch the soundboard, for an ideal test. Run the keyboard until you find a note or combination that will excite the soundboard and listen to the type of sound. Once you have heard it, it will very likely offer an instant clue when you run into this situation in the field.

As part of my routine, I generally check out the rear of the piano the first time I visit it. This does not mean that things won't find their way in there later on, but it certainly does give you a clean slate to start with and very often pays rewards in clearing up for that peculiar vibration the customer has been bothered with for years.

Those big, old uprights sure need a cleaning; however, due to size and weight, I generally leave those as is unless there is a definite reason to get to the back. It's too easy to mar the floor, and often, there may be a caster missing and the piano is resting on a piece of wood.

Acoustics Of Piano—A Bibliography

Jack Greenfield
Chicago Chapter

Dr. Thomas D. Rossing is a professor of physics at Northern Illinois University. He has written five books, the most recent of which is *The Science of Sound,* a college textbook on acoustics, including acoustics of music. Following is a bibliography he prepared for the class "Introduction to Acoustics For Piano Technicians" at the Northern Illinois Piano Technicians Seminar, De Kalb, Ill., March 31-April 1, 1984.

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The Fortuitous Glue Collar Worker

David Patterson, RTT
Detroit-Windsor Chapter

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

Reputation

It seems the public has a largely predetermined image of the average technician in the piano field. Although a person may confess that they "have never really seen a piano tuner before," that person would be more than willing to place their trust in the piano tuner/technician. Being left alone in a home is very common.

This traditional feeling of confidence in "their" tuner usually causes the customer to assume her/his interests are foremost in the tuner's mind. (This is a sizable responsibility). People do want "their own" technician for pianos —as opposed to many other home service fields, where anyone will do. When their TV (appliance, plumbing, heating, etc.) is fixed, they see it as just that—fixed. When their tuner works, though, he has given their piano loving care. What he does is viewed as somewhat of an art, in fact.

Lastly, the tuner is often well known in the music community, if not the entire community, through the amount of contact with people.

All of these factors contributing to the reputation help make piano tuner/technician a superior occupation.

Getting The Organizational Spirit!

Let's Not Rest On Our Laurels

M. B. Hawkins
Vice President

Over the past months there has been an increase in mail relative to the spirit of our organization. While I welcome the mail, I regret not getting to answer it as I would like to. Please let it continue, though, because it is a real inspiration. Whatever the points of view, all correspondence is welcomed.

Along those lines, allow me to share a few thoughts from a recent letter. It is about asking a person to join the Guild.

It appears that one of our members, while giving of his time to man the Piano Technicians Guild booth at the National Association of Music Merchants (NAMM) Trade Show, became involved in conversation with a prominent manufacturer's sales manager while visiting his booth. As they talked, the Guild became a part of the conversation. As a result, it was suggested that the company might like to consider membership. He did not know it was possible for a manufacturer to be a member. After a few questions, he said he would consider it.

After the show was over, our man followed through with a letter and an application for membership. The application was completed, returned and referred on for proper processing.

We thank Fred Tremper of the Chicago Chapter for this display of organizational spirit. As Fred puts it, "I think this is good news, for another major manufacturer is joining us in support of the industry as a whole. Apparently, too, Bechstein feels that our organization is a positive force in the industry and is willing to join us in our effort."

Congratulations S. Maczijewski, president of C. Bechstein. A strong manufacturing, retailing, servicing triangle makes for a strong industry.

This story points up one of the most productive elements in membership growth; we must ask prospective members to join us.

Did you know that just 10 years ago, our total membership was less than our Registered Tuner-Technician population of 1985? Our total membership now is in excess of 3,500 members.

There is a saying that goes: "A company is known by the people it keeps." When we apply this saying to our association, we get something like this: "An organization is known by the members it keeps."

Based on that, it seems we are doing quite well, but let's not rest on our laurels. There is always a need for good people. So, as we continue to reach out, together we can watch the Piano Technicians Guild grow.

New Members

Registered Technician

Erie Chapter
Sadowski, Robert L.
1038 W. 9th
Erie, PA 16502

Allied Tradesman

Washington, D.C. Chapter
Hancock, Kevin E.
3601 Kemptown Church Road
Monrovia, MD 21770

Apprentice

Daytona Beach Chapter
Regan, William J.
5141 So. Ridgewood
Allandale, FL 32019

New York City Chapter
Borland, John
5141 Central Park West, Apt. 8A
New York, NY 10025

Harris, Arlan M.
23-28 31st Ave., #7
Long Island City, NY 11105

N. Central La. Chapter
Clark, H. Dean
2006 Shadygrove Dr.
Bossier City, LA 71112

Affiliate

Member At Large
Kok Wah, Lee
Blk 623, Ang Mo K10, Ave 9,
#11-88
Singapore 2056

Student

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Colorado Springs, CO 80909

Houston Chapter
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Houston, TX 77060

Minnesota-North Iowa Chapter
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Charles City, IA 50616

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Oklahoma Chapter
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Oklahoma City, OK 73149

Salt Lake City Chapter
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Sandy, UT 84092

San Francisco Chapter
Anderson, Mark E.
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Kensington, CA 94709

Washington, D.C. Chapter
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Washington, D.C. 20016

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Landover, MD 20785

Wichita Chapter
Hoover, Stanley C.
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Harper, KS 67058

Reclassifications

Registered Technician

Houston Chapter
Golka, Jerzy
9334 Dairy Ashford #2101
Houston, TX 77099
(From Apprentice)

Reading-Lancaster Chapter
Sponenburg, Daniel M.
615 Carbon St.
Pottsville, PA 17901
(From Apprentice)

Apprentice

San Francisco Chapter
Wayland, Richard J.
191 1/2 Chattanooga St.
San Francisco, CA 94114
(From Student)

Associate

Los Angeles Chapter
Barber, Paul T.
1126 N. Chester Ave.
Pasadena, CA 91104
(From Student)

Bersley, Eunice M.
9242 Flora Vista Rd.
Apple Valley, CA 93207
(From Student)

Member Recruitment Points

June 1, 1984—Mar. 1, 1985

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

The Auxiliary Exchange

From The President

Why do most Auxiliary members look forward to the Piano Technicians Guild National Convention? Friendship! They anticipate renewing friendships! There are few places where we can meet and become friends with people from California, Georgia, England, New Zealand and Japan all at the same meeting! You say it does not matter if you attend. We recently lost a loved one and a Guild member in our family. If you skip some gatherings, you may lose an opportunity to see a friend once more!

Start getting ready to go to Kansas City by checking to see if your friends are going to take advantage of the wonderful programs offered. Then make a special place for the new people whom you will meet and add to your ever-widening circle of friends while you are at the convention. Remember that time changes the "makeup" of your Auxiliary. Keep in touch with your fellow members.

There have been discussions in some circles about changing our voting procedures so that all Auxiliary members present at the National Convention could vote. Your president would like to hear your reaction to this!

See you in Kansas City!

Louise Strong

Proposed Bylaw Changes

The following are the proposed Bylaw changes as recommended by the Bylaw Committee. Words that would be revised or deleted are shaded. New words or words that would replace them are in bold type. For those not familiar with ellipses (. . .), it simply means, in this instance, that what follows is without change.

I. ARTICLE II—OBJECT **PURPOSE**

The object **purpose** of this Auxiliary is to become better acquainted with the associates in membership; to dignify, enlarge and strengthen our **the** organization; to promote friendship, education, understanding and goodwill in the world of music and to provide for **the** annual Auxiliary Convention entertainment **program.**

ARTICLE II—*Delete second paragraph in its entirety.*

ARTICLE III—MEMBERS—CHAPTERS—**REGIONS**

Section 2B. New Members joining the Auxiliary during the fiscal year (January-January) shall pay full admission fee which includes current dues. No half-year dues shall be accepted. **shall pay the "new member fee."** The following fiscal year the regular annual dues shall be levied.

Section 2C. In an area where no organized Chapter exists, any person meeting the eligibility requirements of Art. II, Sec. 1 may make application for Membership-at-large in the Auxiliary. **To remain in good standing, a member must have paid his/her national and local dues (where applicable).**

Section 4. *Delete in its entirety. Renumber Sec. 5 and 6 to 4 and 5.*

ARTICLE IV

Section 1. Officers shall be a President, two **a** Vice President...

Section 5. *Delete in its entirety. Renumber 6 through 11, 5 through 10.*

ARTICLE V

Section 2. The President, First **and** Vice President...

ARTICLE IX

The Treasurer's books shall be reviewed by an impartial qualified outside agency and the Treasurer shall report the findings to the Council meeting **annually by an auditing committee of three members in good standing appointed by the President. The Committee shall report to Council.**

ARTICLE X

Section 1. Annual dues are payable **to the National Treasurer** on January 1st of each year. **"New member fees" and yearly dues may also be paid to the Treasurer at the National Convention.** *Balance of this section deleted.*

Section 2. *Delete in its entirety.*

Section 3. *(Becomes Section 2)* Former members whose dues are delinquent two years or more must join as new members. **Members whose dues are delinquent for one (1) year must pay back dues to be reinstated. Those members delinquent for more than one (1) year will be dropped from the membership roll. To be reinstated, the "new member fee" will be assessed.**

ARTICLE XI

Section 1. *Delete the entire section and substitute the following:* **A nominating committee shall be elected at each Council meeting consisting of three members; one from the Executive Board and two from separate regions, from among persons who have been members for two or more years. The person with the largest number of votes shall be the Chairperson. In the event of ties the President shall name the Chairperson from among those tied.**

Section 2. Officers shall be elected in the manner determined by the Council **by secret ballot** at each...

ARTICLE XII

Active Auxiliary Chapters shall report Officers elected each year **to the National Recording Secretary and the Auxiliary Exchange Editor.** *Balance deleted.*

STANDING RULES

4. *Delete 2nd Vice President*

6. *Delete 2nd Vice President*

8. Protocol for the Annual President's Reception shall be determined by the Acting President. **If there is a Past President's reception at the National Convention, protocol shall be determined by the National President in office at the time.**

10. A copy of the nominating committee ticket **recommendations** shall reach The Auxiliary Exchange Editor by **February 1st** to be printed in the *Journal.*

12. The first Vice President, Chairman of the Membership Committee and Chapter Organization **Treasurer** shall provide each **new** member of the Auxiliary with a copy of the Bylaws and Standing Rules.

In addition to the above, the following three proposals are being presented to Council for their consideration:

ARTICLE IV

Section 1. Officers shall be a President, **two a** Vice President, a Recording Secretary, a Corresponding Secretary, and a Treasurer. These Officers **along with the Immediate Past President,** shall consititute the Executive Board. All except the Corresponding Secretary **and the Immediate Past President** are authorized to and may co-sign checks at the President's request.

Section 2. Vacancies in any office shall be filled by the Executive Board for the unexpired term. **In the event of the death, incapacity or resignation from the Board of the Immediate Past President no replacement shall be made.**

ARTICLE V

Section 2. The President and Vice President shall not hold their respective offices for more than two (2) successive years **shall require a 75% majority vote to hold their respective offices for more than two successive years...**

Convention City

The Big Apple? The Windy City? The Big D? The City of Angels? The Mile High City? Are any of these the spot for the 1985 Piano Technicians Guild Convention? No, you say? Then where is it? Cowtown USA! What, you say? Yes, but wait. Kansas City has a few other nicknames. City of Fountains. Gateway to the West. Queen City.

All describe the city and its history. Kansas City was the focal point for many famous cattle drives, and its stockyards, with the accompanying Armour packing plant, were known far and wide. Less well known is the parks and boulevard system designed by George Kessler, a German immigrant whose grand plan of public parks and interconnecting boulevards became in 1902 the yardstick for city planning.

In 1830 John Calvin McCoy came west with his father, the Baptist minister Isaac McCoy. Reverend McCoy was a missionary to the Indians west of the Missouri River, and the family settled and invested in the town the McCoys called Westport, a "portal to the west." John McCoy wore several hats: town father, surveyor, tradesman, real estate broker, and subdivider. To get settlers, he offered freebies. He would give a lot to anyone willing to build and live there. It worked. He tapped the westward migration by opening a trading post on the northeast corner of Westport Road and Pennsylvania Avenue, hacking a road through from Chouteau's landing on the Missouri River to his store four miles south. Today the "town of Westport" is a thriving artistic-commercial colony, blending old with new and offering much variety to the casual and serious shopper. Find time to take a shopping spree in Old Westport while you're here!

Today's Kansas City is a blend of old and new. The Country Club Plaza, one of the country's first shopping centers, is an unusual presentation of Spanish-style architecture, where coffee shops exist side by side with department stores and specialty shops.

Don't miss the opportunity to spend some time in the Crown Center Shops adjacent to the Hyatt Regency Hotel. They're all under one roof, and you can take the "little red bus" across the compound from the front door of the hotel.

Kansas City can be quite warm in July, so give some thought to outdoor type clothing as well as that for inside the air-conditioned hotel. Some sort of protective head covering might be well for those who are sensitive to such things. Our summer sun is bright!

Plan to come to Kansas City, Mo., July 15-19, 1985, see exciting classes, have fun and learn a lot!

Luellyn Preuitt

Tidings And Tidbits

The work of the **Houston Auxiliary Chapter,** which we reported on in the October issue, really paid off at the Texas State Convention.

Continued On Next Page

Index Of Display Advertisers

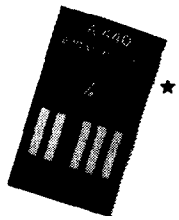
Of the 101 technicians registered, 26 were non-members, more than 25 percent! They took on the project of compiling a non-member mailing list of hundreds of names from all the Yellow Pages in the state. Texas is a BIG state and that's a lot of phone books. Total attendance was 147, with 31 spouses.

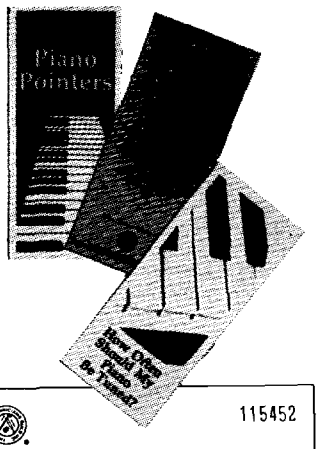
The **Vermont Chapter** of the Guild will host the 1985 New England Seminar May 3-5 at the Sheraton Motor Inn in West Lebanon, N.H. Co-Chairman **George Wheeler** reports that **Bert Sierota** will put on a special crafts class and **Kathryn Snyder** a cake decorating class on Saturday the 4th. Friday's activities will include a trip to Woodstock, Vt. (the Rockefeller Home); the Billings Farm Museum and lunch at the Woodstock Inn.

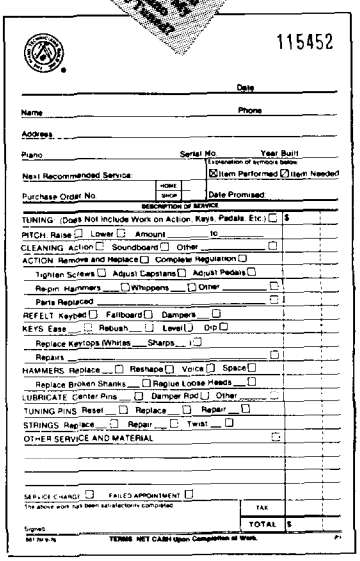
Quite a few PTGA members attended the NAMM Winter Market in Anaheim, Calif. Among them were **Grace Mehaffey** and **Ruth McCall** (Pomona); **Chris Monroe** (Orange Co.); **Dorthea Odenheimer** (Los Angeles); and **Helen Pearson** (Daytona Beach, Fla.). There were undoubtedly many more since there was a large number of Guild members in attendance.

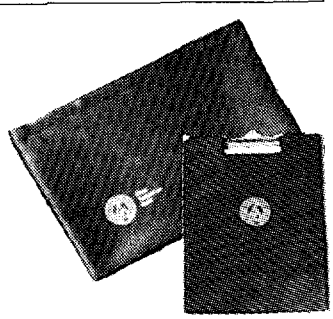
GET (AND KEEP) THE BUSINESS!

With Guild Business Aids

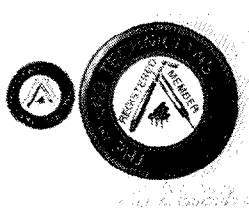








★ **For use by Registered Technicians**



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The Unseen Artist		
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★ **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		
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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
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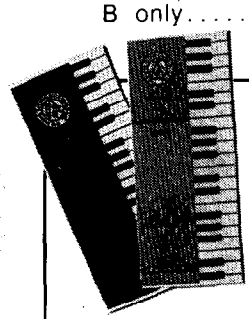
Enclose check or money order for this amount
U.S. FUNDS TOTAL

Registered Technician YES☐ NO☐



Name_____
Address_____
City/State or Province_____
Zip/Postal Code_____ Phone_____
Chapter_____ Non-member_____
Member's Number_____

Coming Events

Date	Event	Site	Contact
April 12-14, 1985	Michigan State Conference	Hilton Inn Lansing, Mich.	Dale Heikkinen 1914 Wayne Ann Arbor, MI 48104 (313) 662-0915
April 19-21, 1985	Northern Illinois Piano Technicians Seminar	Northern Illinois University, DeKalb, IL	Jack Greenfield 259 Riverside Drive Northfield, IL 60093 (312) 446-9193
April 26-28, 1985	Central West Regional Seminar	Minneapolis, MN	Jonathan C. Nye 1515 Almond Ave. St. Paul, MN 55108 (612) 646-1622
April 27, 1985	Los Angeles Chapter Annual Seminar	El Camino College, Torrance, CA	Lindasue Darling 828 Dickson St. Marina Del Rey, CA 90292 (213) 822-9690
May 3-5, 1985	New England Regional Seminar	Sheraton Motor Inn 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
Oct. 4-6, 1985	New York State Conference Of Piano Technicians Guild	Ithaca, NY	Ken Walkup 310 4th Street Ithaca, NY 14850 (607) 272-6547

The **Vermont Chapter** is hosting the **1985 New England Regional Seminar** to be held **Friday, Saturday and Sunday, May 3, 4 and 5** at the **Sheraton Motor Inn** in **West Lebanon, NH.**

For more information contact: **George H. Wheeler; 11 Cherry Hill; Springfield, VT 05156;** or **Thomas A. Roby, co-chairman; 14 Kingman St.; St Albans, VT 05478.**

Central West Regional Seminar

April 26-28

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How many times have you wished you could keep the key slip from touching the keys? With a Wurlitzer, it's easy... thanks to the key slip adjusting screws. And adjusting the pedal bolts is just as easy.

All of this, of course, makes for a more dependable piano that can make your job a little less frustrating.

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

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

WURLITZER®

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