

Schaff Piano Supply Company Presents:

Repinning and Restringing the Upright Piano

Part 2 - Tackling the Treble

Belly Work



By Chuck Behm

Repinning and Restringing the Upright Piano

Part 2 - Tackling the Treble



-Rationale-

A comprehensive restoration of a vintage upright piano ordinarily includes new strings (both bass and treble), and new tuning pins. Whether the tuning pins installed are oversized or standard factory size depends on whether or not the old pinblock is retained. Either way, new pins dramatically increase the tuning stability of a piano being restored, while new strings bring renewed vitality to the tone, and reduce problems from string breakage caused by rusty or brittle wire.

Techniques for installing new pins and strings correctly will result in a professional looking job that mimics the results obtained in factories where quality instruments are produced. The following procedures are intended to be used as a starting point in learning to successfully repin and restring an upright piano. As always, the new technician is well advised to research other approaches as well, and to settle on whichever procedures works the best for him.

RELATED ARTICLE YOU'LL WANT TO DOWNLOAD:

Schaff Piano Supply Company Presents:

Using the Tuning Pin Crank
Basic Tips



By Chuck Behm

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Tools

*Important message:
Other related articles are noted at the beginning of part 1 of this series. These articles are available now or will be available soon on your Schaff eStore for download.*

Check the Schaff eStore website often to take advantage of newly released articles geared to the new technician!

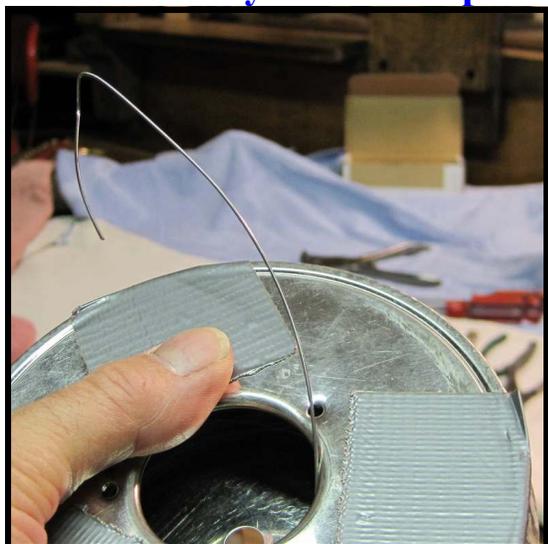
Author's note: The following step-by-step procedures are intended to provide a starting point for the technician trying out this repair for the first time. There are, of course, various techniques used by other technicians to obtain excellent results. In developing new skills the new technician is well advised to consult more than one source of information, to explore the variety of procedures available for his use.

That being said, I would encourage the new technician to be bold in trying out new methods and repairs. Always, however, I would encourage the beginner to try out new techniques on a practice instrument before working on a customer's piano!

This is part 2 of a 3 part series. The initial segment concerned setting up the work place for the project at hand. The concluding segment deals with repinning and restringing the bass of your project piano.

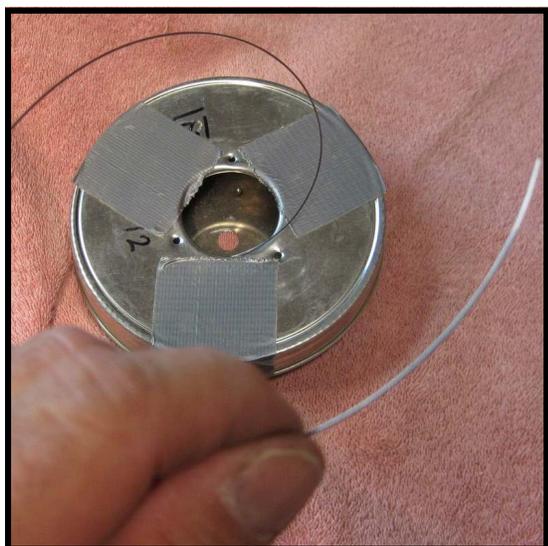
The next page begins with step 11, picking up from where the directions were left off at the end of part 1. Chuck Behm

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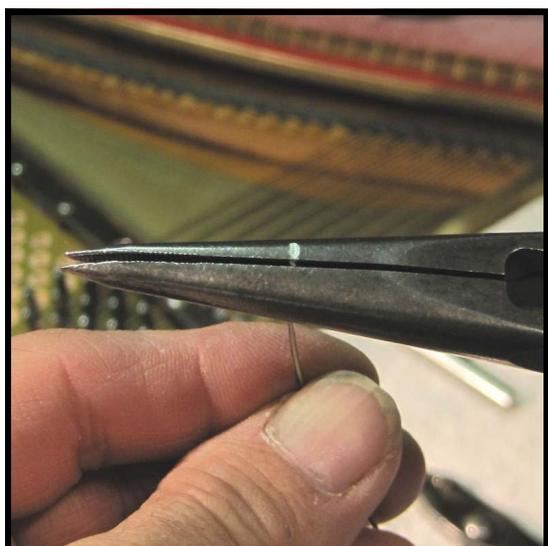
Step 11: Decide whether you wish to string the treble from the left to the right (my method) or from the right to the left. Consult your stringing schedule (from step 5) and get out a reel or canister of the correct size of wire from your inventory.

Hint: To avoid mistakenly using the wrong size string, only have one canister or reel out in your work area at a time. It's too easy to pick up the wrong size when a number of wire containers are scattered about!



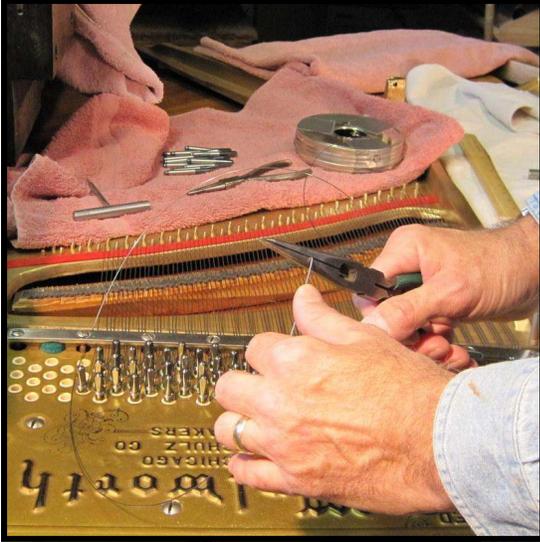
Step 12: Begin by unreeling plenty of wire to work with. One nice thing about using the 1/2 or 1 lb. coils of wire in the available wire canisters is the ease with which new wire may be pulled from the canister with one hand, leaving your other hand free to grasp another tool.

Note: Some technicians prefer to wear latex or leather gloves while handling piano wire. If you tend to perspire or have oily hands, you may wish to consider using gloves.



Step 13: A pair of [needle nose pliers \(Cat. No. 239\)](#) works well to bend the becket on the wire. A file mark scratched into the jaw of the pliers will allow you to make beckets of an identical length each time.

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Step 14: Be sure to have ample wire unrolled from the spool as you begin. What you want to avoid is having the wire canister or reel being dragged over the hitchpins or bridge while you work because you don't have any slack in your wire.

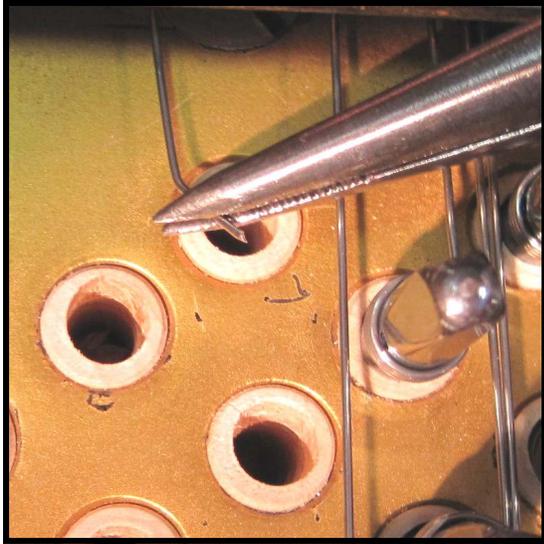


Step 15: For the first bend of the operation, put a 45 degree angle in the wire, which will allow you to easily slip the wire under the pressure bar.



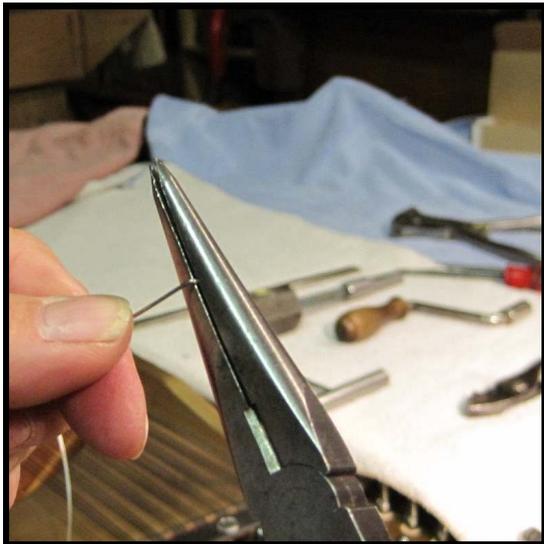
Step 16: With the becket partially bent at a 45 degree angle, slip the wire under the pressure bar with the bend down on the plate. This technique will allow you to avoid scratching a newly finished plate with the sharp end of the wire. *Hint: You will find that it's possible to change the orientation of the bend by grasping the wire further back with your other hand and turning it in an arc backward or forward. Do not try to push the bend through if the sharp end of the wire is pointing down.*

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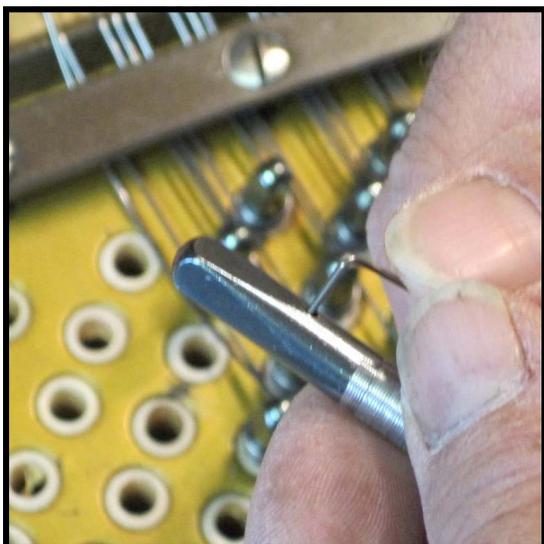


Step 17: Grasp the partially formed becket with your needle nose pliers, and pull a working length of wire under the pressure bar.

Note: The webbing area around the pins of the example piano was not refinished due to historic writing which was to be preserved in areas of the plate adjacent to the pins.



Step 18: Complete the 90 degree bend of the becket. Continue to hold the wire with one hand. With your other hand replace the needle nose plies from the spot on your towel that they came from, and take a tuning pin from the open box.



Step 19: Push the becket in the wire through the eye of the pin. If you are right-handed, swing the lower end of the pin to the left, and hold the becket in place with the thumb of your left hand.

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Step 20: Use your [tuning pin crank](#) (Cat. No. 109) to make the first coil. Use your left hand as the pivot point for the pin, with your thumb tightly holding the wire in place.



Step 21: Turn the crank clockwise three revolutions while keeping the coil tight, then stop. The tension in the coil will cause it to loosen about a half a turn when released. (For more information refer to the Schaff article *"Using the Tuning Pin Crank"* available now for download from your Schaff eStore.)



Step 22: Push the tuning pin slightly into the hole, just far enough that the tuning pin bushing grips it.

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Step 23: With a [ball peen hammer \(Cat. No. 1916\)](#) lightly tap the pin in at the correct angle to get it started. Keep the pin slanted at the correct angle.



Step 24: Using your tuning hammer, if necessary, turn the pin so that the becket is 180 degrees from where you wish to have it end up. In other words, you're leaving one half of a complete turn for tensioning the string.



***Note:** The tuning pin is now ready to be driven in. Notice that the becket is at the 9 o'clock position. When the tension has been added to the string, it will finish at approximately the 3 o'clock position. (This is, of course, relative to the fact that the piano is on its back - when the piano is put back on its feet, the position of the becket will appear different.)*

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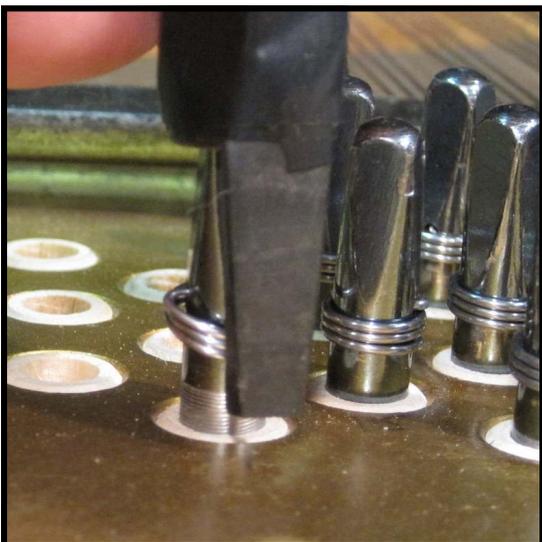


Step 25: A pin punch (Cat. No. 174a shown) used with the ball peen hammer is one way to drive the pin in the rest of the way. The rubber depth gauge shown in the photo is simple to make using a thin slice of rubber mute (Cat. No. 203 1/2) with electrical tape to hold it in place. Make the gauge a bit long to begin with, then shave off enough with a razor blade so that it corresponds to the correct height of a sample pin.



Step 26: Holding the pin punch in line with the pin, drive the pin into the pin-block using the ball peen hammer.

Caution: Keep an eye on the depth gauge, but watch the punch as you're driving the pin, or you're liable to have bruised knuckles when you miss the punch with your hammer, and hit your fingers instead. Ouch!



Step 27: Pound the pin down most of the way, but leave it a bit short at this point. You'll drive the pin in the rest of the way once both pins once both sides of the wire have been pinned in place.

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Note: The thickness of about two pennies is a good working height to leave the pin at for the moment.



Step 28: At this point, put down your pin punch and ball peen hammer and walk around to the other side of the piano. Unwind enough wire to reach past the hitchpin at the bottom of the piano.

This procedure, by the way, is clearly preferable to the alternative method of getting down on your knees that you must use if the piano is in the upright position. An especially good reason for using the piano truck for this job.



Step 29: Pulling the wire towards you, stretch it over the bridge, engaging it between the correct set of bridge pins. Pull the wire tight so that it doesn't slip off the pins.

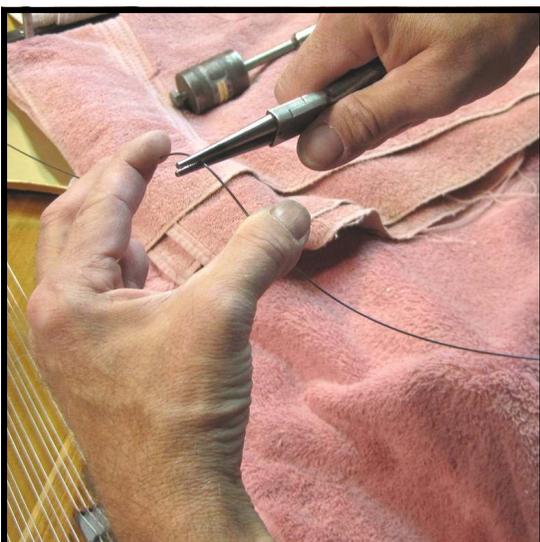
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Step 30: With the string pulled tight, hold it directly over the hitch pin to which it will wrap around.



Step 31: Hold the wire taut directly over the hitch pin with your left hand. Grasp the wire with a pair of **round nose pliers (Cat. No. 241)** and line up the pliers with the center of the hitch pin. Clench the wire firmly with the pliers.

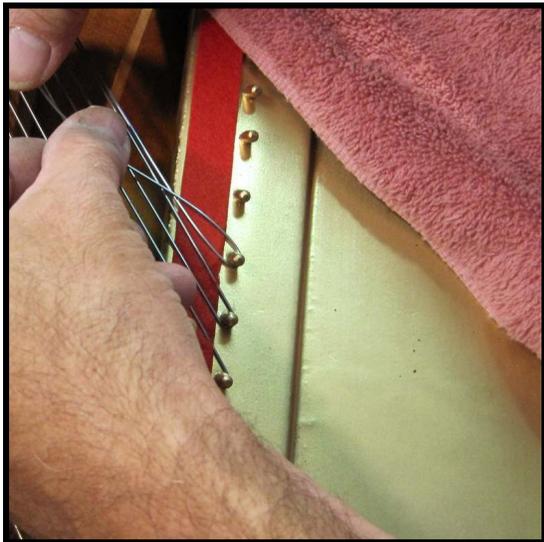


Step 32: By keeping the jaws of the round nose pliers firmly locked on the wire, you may now release the tension on the wire, lift it away from the hitch pin, and put a bend in the wire as shown. The important thing is to not allow the pliers to slip from the targeted spot on the wire before the bend has been made.

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Step 33: The wire may now be placed around the hitch pin. Start with the bend in the wire about 1/2" from the pin, as shown, then pull the bend into place.



Step 34: Wrap the wire around the hitch-pin a little further than it will end up to better set the bend.



Step 35: Thread the return wire past the bridge pins. By having wire in place through the bridge pins, more precise measurement of the length of the wire needed to produce even becketts may be made once the wire is pulled tight.

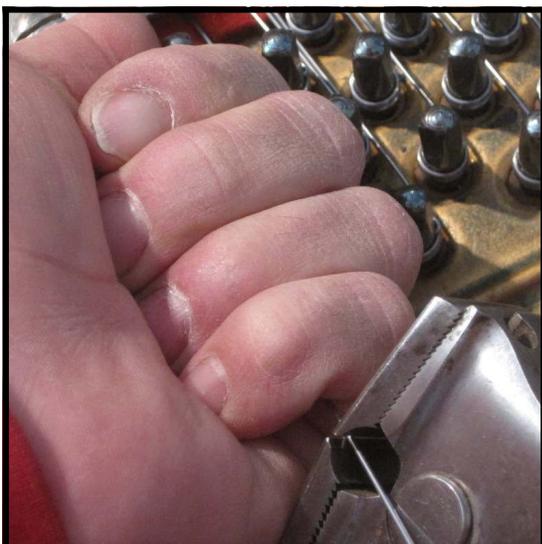
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Step 36 : Stretch the wire across the pressure bar and cut it with some excess length. This will allow you to hold on to the end of the wire for making the final cut after it is run underneath the pressure bar.



Step 37 : Following the procedure outlined in steps 15 and 16 on page 12, run the return length of wire under the pressure bar. Once the wire is under the bar, pull the slack out of it, but do not complete the bend for the becket, as the end of this wire will be cut off once it's measured to length.



DOWN AND DIRTY!

If having exacting becketts is not a vital concern of yours, a quick and easy method of measuring the wire for the second cut is to draw the wire past the pin hole where it will be attached, grasp it with your hand in line with the hole, and then snip it with your wire cutters on the opposite side of your hand. (If you chose this shortcut, skip ahead to step #42.)

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Step 38: To obtain an accurate measurement, it is necessary to pull the wire tight. Use a pair of ordinary pliers with your right hand to grip the end of the wire while holding the wire next to a ruler with your left hand. Pinch the wire between your thumb and forefinger, while grasping the ruler as shown.



Step 39: Slide the ruler up or down slightly so that the very end of the ruler is exactly at the center of the target pin hole.

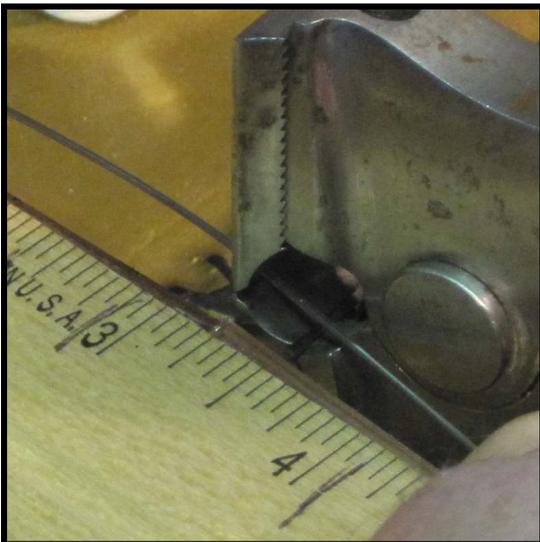


Step 40: Tighten your grip on both the wire and the ruler with your left hand. At this point, release your grip on the wire with the pliers held in your right hand, put the pliers down and pick up your pair of wire cutters.

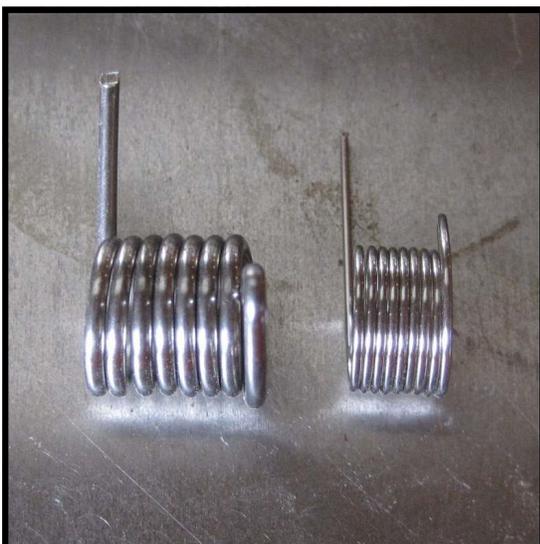
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Step 41: Align the jaws of the wire cutters at whatever point you wish to cut the wire at. As long as your left hand is gripping both the ruler and the wire, you may lift the wire up from the plate in order to grip it with the wire cutters without affecting the critical measurement. Snip the wire.



***Note:** A good starting point for this important measurement would be 3 1/4", as shown in the photo. As you go from one wire size to the next, you will need to make minute adjustments in the length of the string to produce the same number of coils. As the wire size decreases, so should the length of the wire.*



To illustrate the reason for making a gradual change in the length of the wire, the photo to the left shows two coils which were produced with identical 12" lengths of wire. The coil on the left was made with a heavier gauge of wire (size 25) on a large (7/0) pin. The coil on the right was made with a lighter gauge (size 12) of wire on a small (1/0) pin. The smaller string and pin produced 8 windings, while the larger pin and string produced 7.

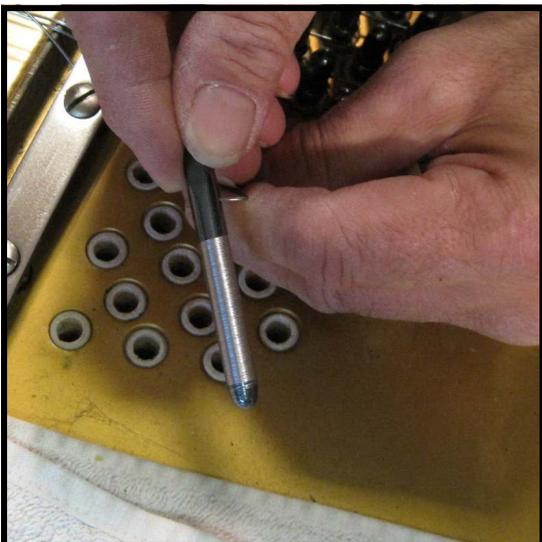
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Step 42: At this point put a 90 degree bend into the end of the wire to form the becket.



Step 43: The bend in the wire should be pointing away from the tuning pins already installed.



Step 44: Insert the becket into the eye of the pin, with the body of the pin pointing down.

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Step 45 : Using your tuning pin crank, put the second coil on the pin. For the pins closest to the pressure bar, it will be somewhat tight quarters.

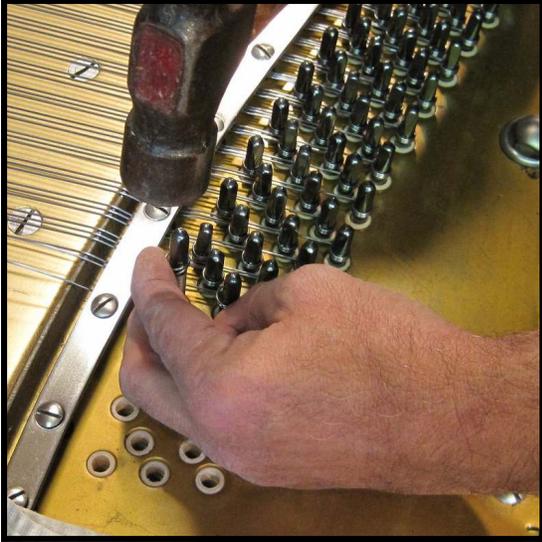


Step 46 : Attempt to put 3 windings on the pin.



Step 47: Remove the tuning pin crank from the end of the pin, and insert the end of the pin into the target pin hole. Pull back on the pin from the top, if necessary, to achieve the correct slant.

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Step 48: Lightly tap the end of the pin with the ball peen hammer to start it.

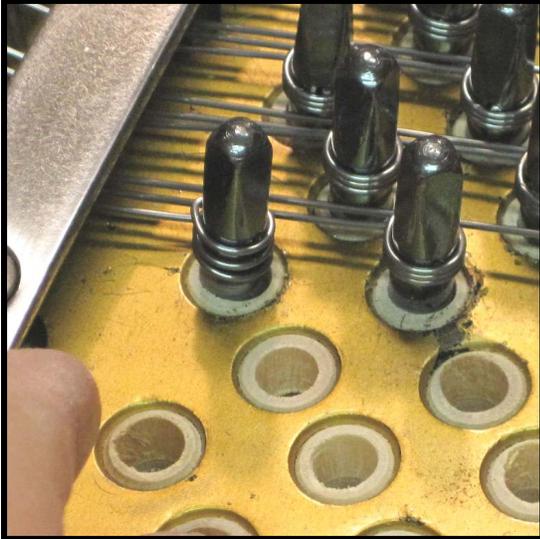


Step 49: As was done in step #27, pound the pin in most of the way, using the tuning pin punch with attached depth gauge.



Step 50: With the pin driven in most of the way, tighten up the coil by pulling upward on the string with a string hook, while tightening the pin. Just put enough tension on the string at this time so that the windings of the coil hold in place.

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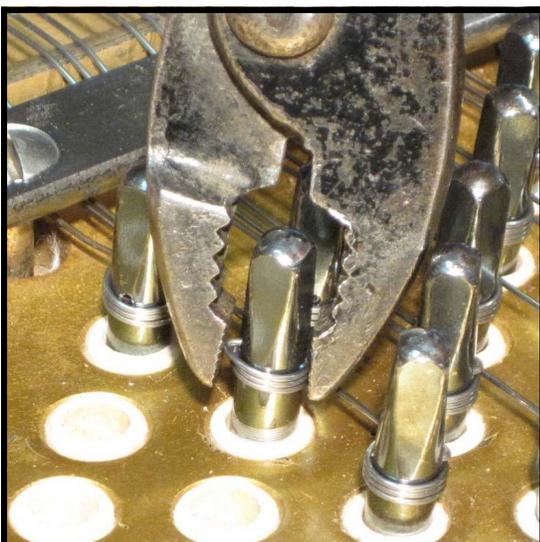


Note: The coil is fairly tight at this point, but not tight enough for the finished product. Also, the becket is not pushed in the entire way.



Step 51: To tighten the coil further several tools work well. One of the best is the [impact coil tightener \(Cat. No. 3101\)](#) which is shown in use in this photo. One nice thing about this tool is that nothing needs to touch the plate.

[String lifters](#) which may be used to leverage the coil upwards include: (Cat. No. 146, 134, 3102, 3151 and 3164.)

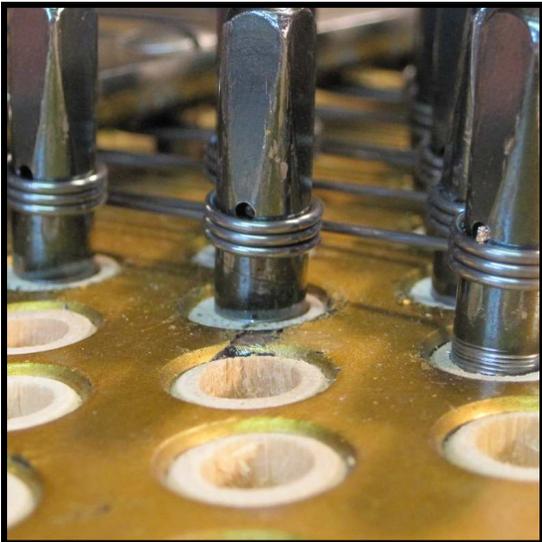


Step 52: With the coil tight, squeeze the becket tight to the pin using a pair of ordinary pliers.

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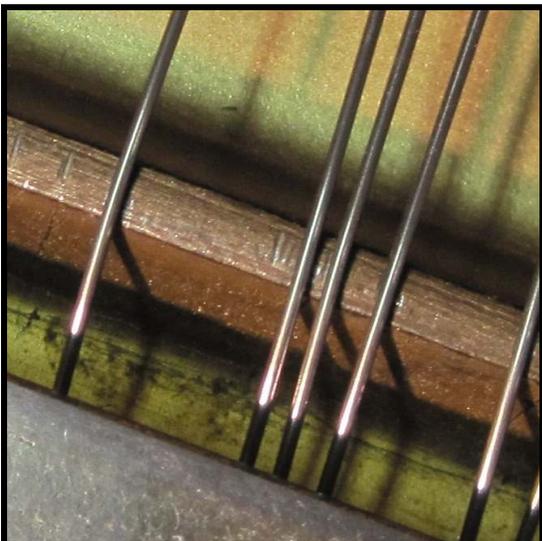


Step 53 : At this time, tap both tuning pins down the rest of the way so that the depth gauge is just touching the cast iron plate.



Step 54: Check the coils one last time to make sure that they are still perfectly tight. In the photo, the coil on the middle pin looks a bit loose, and should be re-tightened with the impact hammer.

Note: If the eye of the pin is partially covered by the upper winding of the coil, you've gone too far. Gently tap the coil back down with a flat-bladed screw-driver until the hole is fully exposed.

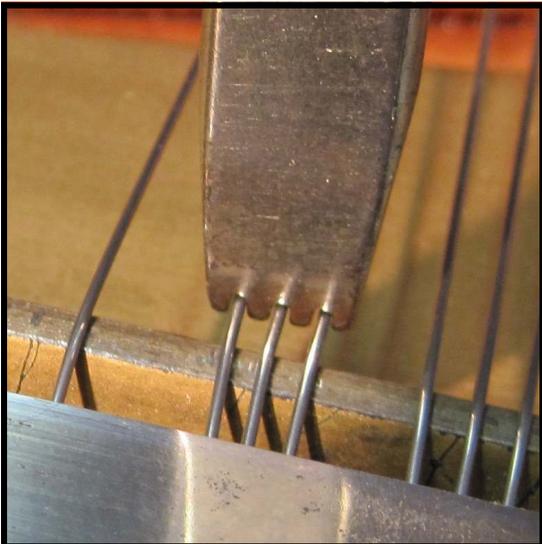


Step 55: Once the three strings for a note have been completed, check the spacing of the strings. Here, the center string is too far to the left.

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Step 56 : The spacing of the strings is most easily corrected before the string is brought up to full tension. Here, a small screwdriver is used in correcting the obvious misalignment. By placing the blade between two strings, and slightly rotating the blade, strings may be moved one way or the other.



Step 57 : Check the corrected spacing with a [string spacer \(Cat. No. 146, 134 or 133.\)](#) When the strings are correctly spaced, you should be able to place the slots on the strings without the strings moving or 'zinging' when the spacer is lifted.



Step 58 : Finish adding tension to the string by alternating between the two pins in gradually bringing the pitch up.

Once you complete the entire treble section of your project piano, you will be ready to move on to the bass strings. Part 3 of this series (see page 22 for preview) will help guide you through this process.

Belly Work / Repinning and Restringing the Upright Piano



Why Attention to Detail Matters . . .

The hallmark of the well-made piano is in its attention to detail. Sloppy workmanship in piano construction or in piano restoration do not do justice to the beauty of the instrument. In restoration particularly, one should at all times strive to do the very best work possible.

The bar has been set very high over the years by factories that produce the finest quality pianos. As a person working in a small shop with limited resources, one can only aim for achieving the same quality of workmanship, knowing that perfection in any one aspect is not possible, but should always be the goal.

In repinning and restringing a piano, the technician's care and attention to detail are on display for all to see. If not the owner, certainly future tuners and technicians will appreciate the quality of workmanship that is evident when one does his or her absolute best. As a technician, even if you're not 100% satisfied yourself (there's always that coil that could be just a little tighter, or that becket that not perfectly aligned), you'll know that your work represents your best effort, and you can be proud of your results. It matters indeed.

Visit the Schaff eStore to download the final installment of this series:

Schaff Piano Supply Company Presents:

**Repinning and Restringing
the Upright Piano**

Part 3 - Finishing With the Bass

Pally Work



By Chuck Behm

Ready to View

Next up: Finish up your repinning / restringing projects by installing a set of duplicate bass strings from Schaff. Step-by-step instructions will guide you through the process of repinning and restringing the bass section of your project piano in this final installment of the series.

Note: Tool and supply inventory for the entire repinning / restringing procedure will be given at the conclusion of part 3 of the series.

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Notes on Procedures