

HAYS ORIGINAL BRASS RINGER

from the Hays & Glenn Tool Company

Operating Instructions

While the Ringer is a simple enough looking tool, it operates as a precision tool within relatively close tolerances. The theory is relatively simple too. Designed to permanently install brass rings on turned game calls, the Ringer relies on the malleability of brass, aluminum and copper metal bands.

Fig. 1 shows the typical installation method used for years by custom call makers. A glue joint between metal and wood will invariably fail since wood expands and contracts depending on its moisture content while the metal band expands and contracts with changes in temperature. Over a period of time, this small change in rate of movement will break the most persistent glue joint. Careful craftsmen overcome this failing by drilling and pinning the band with two or three pins of a similar metal, a time consuming and tedious effort. What's worse, at some point sooner than expected, a pin will fall out leaving an ugly hole in the band.

The HAYS ORIGINAL BRASS RINGER was developed over several months of trial and error by two custom callmakers, Billy Hays of Milan, TN and Ed Glenn of Boardman, OR. Their goal was to devise a method of "rolling" the metal edges of the bands to a smaller diameter than the inside of the band to mechanically lock the band to the call for a truly permanent installation. These "rolled" edges are similar, but technically not the same as crimping.

A mere .040" of the band's width on each edge is engaged by the shoulders inside the Ringer's roller and the flared guides outside these shoulders direct the compressed metal into tiny V-grooves cut into the tenon on which the band is installed.

The photos in these instructions demonstrate the process better than can be described in words.

Fig. 2 is a photo of the last prototype prior to the tool going into production. The tool may be ordered with a choice of roller widths for installing bands of nominal width of .5", .375" and .25". A fourth roller is available for adding soft craft wire to a .125" groove as Billy Hays has perfected. All the rollers are hardened tool steel and ride on a hardened axel held in place by a tiny set screw. The handle is 1" wide and 7.5" long. A complete set, handle and all four rollers, in a simple presentation box will be added to the product line.

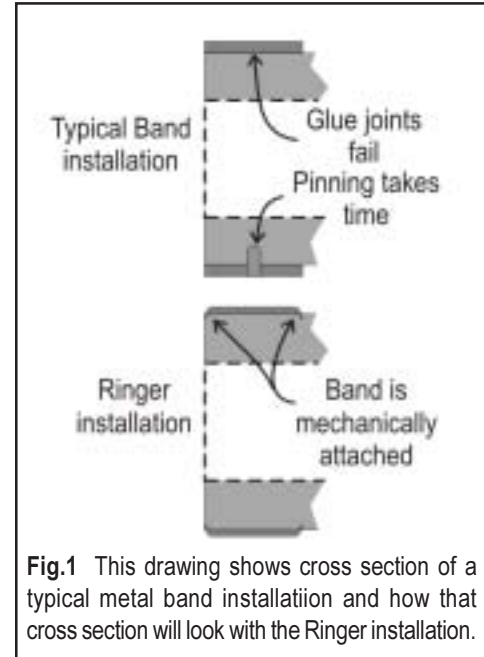


Fig.1 This drawing shows cross section of a typical metal band installation and how that cross section will look with the Ringer installation.



Fig. 2 This is the last prototype before the Hays Original Brass Ringer went to production. The production model is slightly different in detail but the performance and operation is the same as shown in this instruction article.

Perhaps the most critical step is to assure the band is of the correct width. **Fig 3** shows how a band must fit between the two outside flanges but still ride on both shoulders. Since the flanges are each .020" wide, this normally means a band must be .040" narrower than the nominal size of the roller. A band a few thousandths wider or narrower will work with a little practice. Since the Ringer works on the principal of displacing some of the metal from the edges into V-grooves cut into the blank, bands with thinner wall thickness work best. Bands with a wall thickness in the range of .025" - .032" are recommended. Bands as thick as .062" are very hard to roll securely.



Fig. 3 Check the band width against the roller carefully.

Next, sizing the tenon to seat the band requires some precision. The Ringer roller rolls against the band with some force while the lathe is running. This pressure may cause a loosely fitting band to spin on the tenon. Best results begin with a band that must be forced on the tenon so the friction is great enough to prevent the band from spinning on the call blank while the Ringer is rolling the edges into the V-grooves.

Fig. 4 shows the measurement of the inside diameter of an aluminum ring used in these instructions. Measure two or three places around the ring's diameter and average the measurements (if they differ because the ring is not perfectly round).

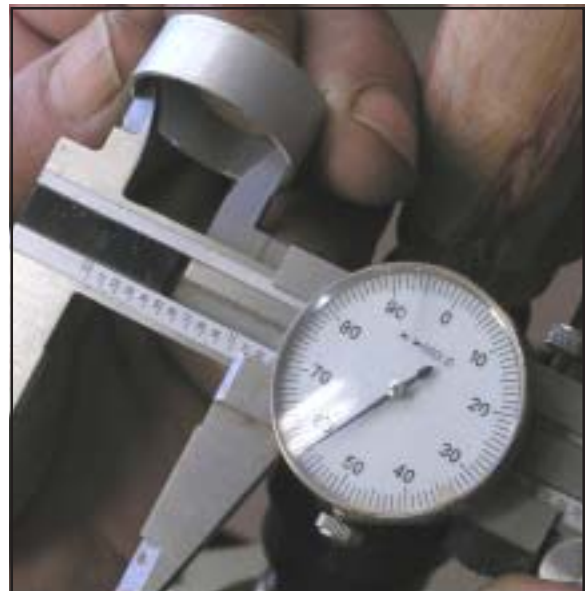


Fig. 4 Measure the inside diameter of the band

Carefully cut the tenon to a diameter .005-.015" larger than the inside diameter of the band. This will depend on the relative hardness of the call blank. Softer wood should be cut to the larger oversize dimension while harder wood can be cut a bit closer to the band's ID. You may find the band will be a little easier to position if you cut a very slight taper in the tenon, but not smaller than the band's ID. Final sizing may be done with sandpaper. **Fig. 5** shows a Tulipwood blank cut to .010" oversize.



Fig 5 Turn the tenon a bit oversize.

Cut the tenon at least .062" longer than the band is wide. A bit longer, say .125", works better. This extra length will be cut away in the usual design where the band is on the very end of the barrel. **Fig. 6** shows this extra length which you might take into consideration when cutting blanks to length.

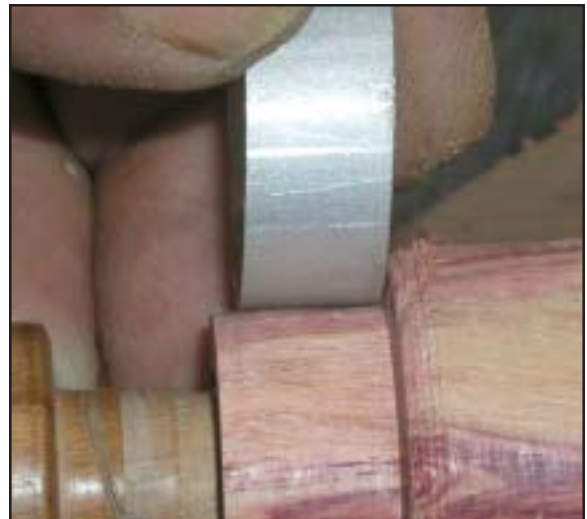


Fig 6 Make the tenon about 1/8" longer than the band.

Next, mark the tenon with the Ringer roller. Run the roller against the tenon only to mark the position of the V-grooves as shown in **Fig. 7**. Notice that the blank is only roughed-out at this stage and a shoulder represents the inner limits of the band position. Hold the Ringer roller against this shoulder and swing it slightly away from this shoulder to mark the tenon on the end.



Fig 7 Use the Ringer to mark the position of the V-grooves

Fig. 8 shows the V-grooves being cut into the tenon. A skew works well for this, held so it cuts straight in at the outer limits of the Ringer roller's flanges and extending in a bevel toward the inside of the band. Cut the V-grooves slightly deeper than the wall thickness of the band. You may not be able to roll them full, but the goal is to roll the edges of the band into the V-grooves at least as deep as the wall thickness. The shoulders inside the flanges of the Ringer's rollers are .040" larger than the center of the roller. You need not "bottom out" to the center of the roller in order to roll sufficient material into the V-grooves.



Fig 8 Cut the V-grooves to receive the Ringer's flanges and the rolled metal from the edges of the band.

With the oversized tenon, you'll have to use some method to force the band into position. An arbor press would be the ideal tool. In **Fig. 9** you see a rubber hammer doing the job. You may need to use a second band for a punch to seat the band in its position. Don't drive or press the band tight against the blank's shoulder, but leave a tiny crack for the Ringer's inside roller flange to straddle the band. If the band curls a bit of wood on the inside, remove it with the long point of skew.



Fig 9 Drive or press the band on the blank's tenon.

Now for the real performance of the HAYS ORIGINAL BRASS RINGER. With the blank back on a secure mandrel, turn the lathe speed down to 500 RPM or as close to that as you can. Position the tool rest as low as you can and set it back from the work so the Ringer can be placed under the band with the roller free to turn. The tool rest post should be directly under the Ringer, and firmly locked in place.

The goal for placing the tool rest is so you can start with the Ringer's roller in contact with the band on its underside and as you put downward pressure on the handle, the Ringer will swing in an arc intersecting the turning axis. This way you'll only have to exert downward pressure and not have to worry about forward pressure at the same time. **Fig. 10** shows the process under way. Note how the Ringer's roller shoulders begin to mark the band. You'll only need to run the Ringer until that mark shows about half of the band's wall thickness has been rolled into the V-grooves underneath. The displaced metal will have thinned and been rolled into the V-grooves by the outside flanges.

This whole rolling process takes but 30 seconds or so and will leave a permanently installed band that looks like the one in **Fig. 11**.



Fig 10 With the Ringer in place, it only takes 30 seconds to install a band.



Fig 11 You need only roll about half of the band's wall thickness.

Now you can trim the excess wood beyond the outer edge of the band and finish turning the call. When polishing the band, it's safe to turn or sand the inside mark made by the Ringer to a rounded profile. As a final touch on the outside end of the call, you can roll the edge of the band a bit more by approaching the edge with the center of the Ringer's roller at an angle.

Figs. 12 and 13 show the finished barrel and **Fig. 14** shows a collection of barrels, each with rings installed with the HAYS ORIGINAL BRASS RINGER.

More info? Feel free to e-mail:

Billy Hays at bhays@duckwhisperers.com

Ed Glenn at flyfisherman@windwave.org



Fig 13 The end of the barrel can be rolled even more.



Fig 12 The finished barrel still shows the Ringer's shoulder marks but they can be turned or sanded.



Fig 14 The Ringer works on brass, aluminum and copper; with rollers .5", .375" and .25" wide