Haskell Style Pipes for Band Organs

David Wasson

A year or two ago, one of my organ building friends commented that my band organ had no accompaniment violins that were pitched an octave below my main melody violins. This has been in the back of my mind for some time, because it is true that my accompaniment violins play in the same octave as the bottom octave of my melody violins. The musical effect is that sometimes the accompaniment violins get lost amongst the sound of the bottom melody violins. Most band organs have accompaniment violins that play below the melody violins, this helps to separate them musically, and they can also occasionally be used as an extension of the melody division. My music arrangements never use the accompaniment violins in this way, but there was still the problem of the accompaniment violin sound getting lost in the melody violin sound.

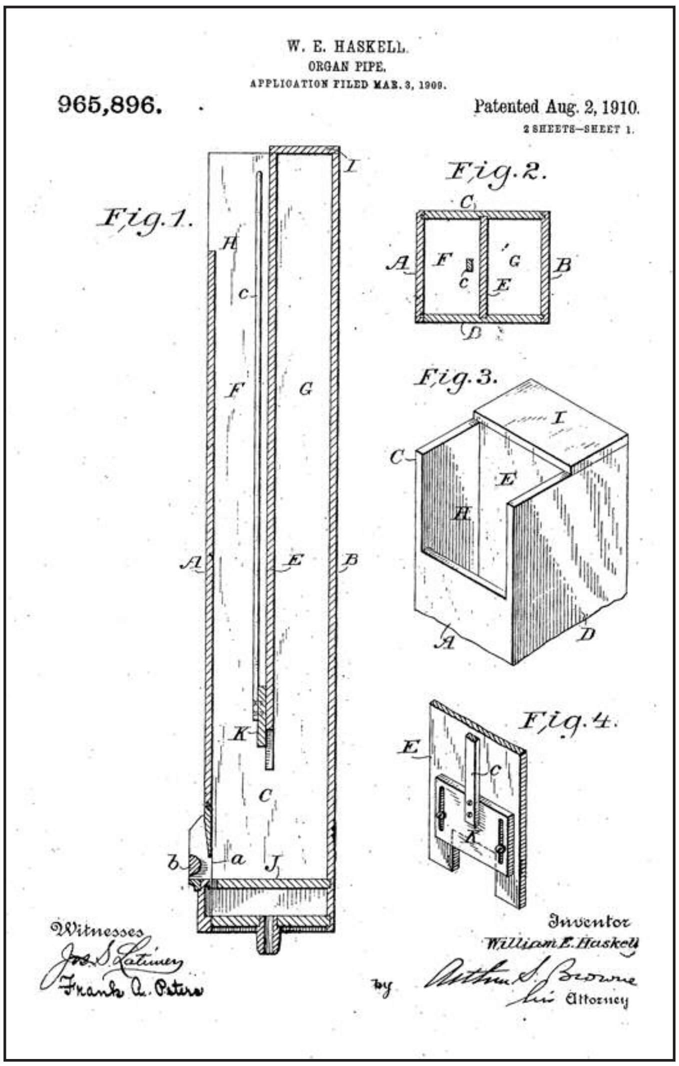

Figure 1. William Haskell's patent for his double-chambered pipe.

So, what to do? I could always replace my main accompaniment violins with violins played an octave lower, but this would mean replacing them with pipes twice as long. The position of my accompaniment violins is right at the front of my organ. Replacing them with pipes twice as long would look extremely out of place with respect to the rest of the other pipes. So this was not really a solution. Then, it occurred to me that at my place of employment (Organ Supply Industries, or OSI), we make pipes based on principles invented by William Haskell. Mr. Haskell was a clever pipe maker and inventor that worked for the Estey Organ Company during the first part of the twentieth century. Metal pipes that are too long, are sometimes "Haskelled" in order to fit inside a swell box or organ chamber. Our pipe voicers like these kinds of pipes, especially those of string tone. They are more easily voiced than those of full length. However, wood pipes that are to be "Haskelled" are built much differently than those of metal. One of the patent drawings of a wooden Haskell style pipe is shown in **Figure 1**. As you can see in the drawing, the pipe is divided into a front and back chamber. The divider does not come all the way down to the block. The tuner is at the bottom of the divider, and is adjusted by means of a handle that extends to the top of the pipe.

Figure 2. Haskell bass pipes being glued up at O.S.I.

Mr. Haskell was a clever pipe maker and inventor that worked for the Estey Organ Company during the first part of the twentieth century.

Haskell style wood pipes are extremely valuable when building the largest of bass pipes, as they save considerable space and lumber. **Figures 2,3, & 4** show some of the Haskell style bass pipes we have made at O.S.I. These pipes are of 32-

Figure 3. Open end of Haskell bass pipe. The back chamber is adjustable by means of a stopper.

foot pitch, and over twelve inches in width and depth. It was my hope that I could make some little violins for my organ, based on the same principles to replace my main accompaniment violins. The solution was to hopefully have pipes of string tone, that play an octave lower than my current violins.

Figure 4. Partial set of Haskell bass pipes; stopper handles are visible.

After four days of experimentation in my spare time, and three prototype pipes later, I came up with proportions that would do what I wanted. My pipes are based loosely on Haskell's design. My main tuner is on the front of the pipe, like a "normal" band organ violin, and the chamber in the back is made adjustable by means of a stopper. When tuning these pipes, both the front chamber and the back chamber must be in balance pitch wise, or the pipe will not speak at all. The tone quality of my Haskell style pipes is not quite as stringy as a full-length violin. It is also a little more "windy" sounding. With more experimentation, I probably could eliminate these small problems. But, since these are accompaniment pipes, and not exactly what you would call a "solo" voice, they work very well. What I was looking for was a half-length pipe of string tone, and these pipes work perfectly in this respect.

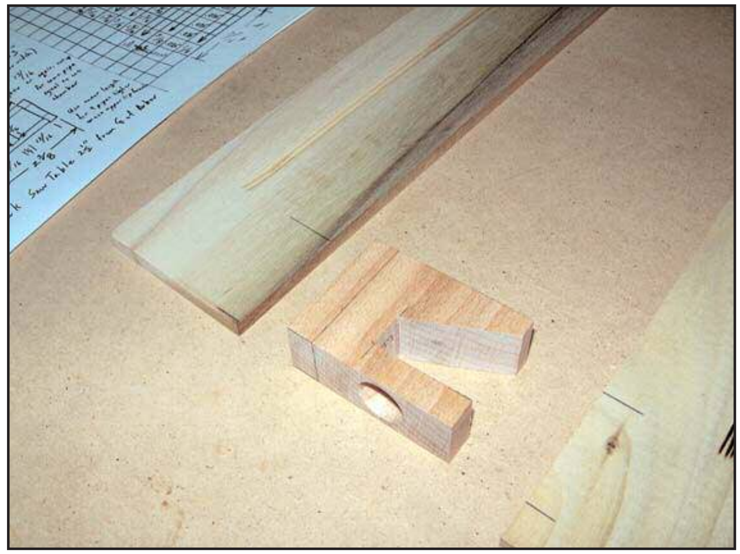

Figure 5. Block for band organ violin, Haskell style.

Haskell style wood pipes are extremely valuable when building the largest of bass pipes, as they save considerable space and lumber.

The first part of the pipe to make is the block. This is the part in the bottom that all of the sides are glued to. The block sets the width and depth of the pipe. One of the blocks is shown in **Figure 5**. The sides are glued to the block, but they must first be prepared with the groove for the center divider of the pipe, and the groove for the tuner. One of the sides is shown in **Figures 6 & 7**. The groove for the center divider allows the

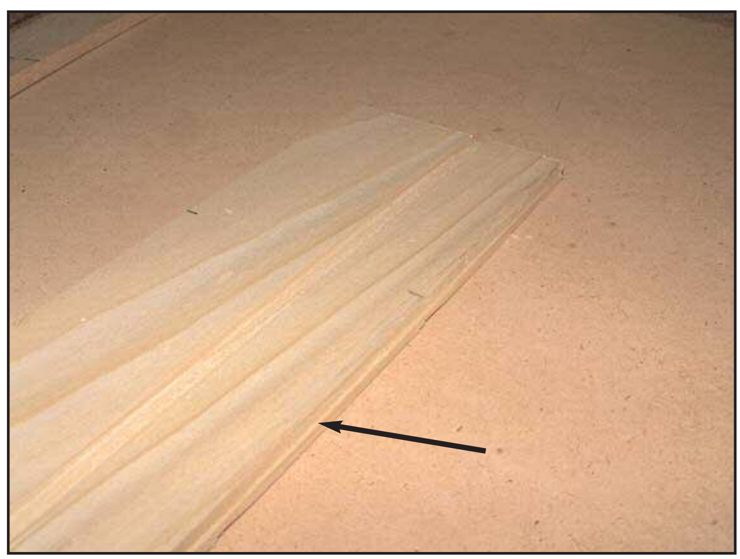

Figure 6. Arrow indicating edge of pipe side with groove for tuner.

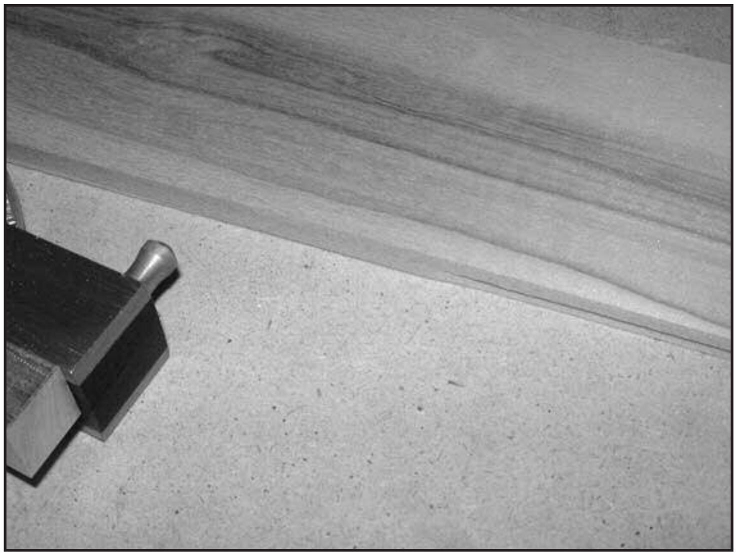

Figure 7. Pipe side with tuner groove, and center groove for center divider.

divider to come down to a distance of one pipe width above the block. The tuner groove I typically make twice as long as the tuner opening in length. The groove for the center divider I made on a table saw. The groove for the tuner I made with a little block plane shown in **Figures 8 & 9**. The blade of the plane

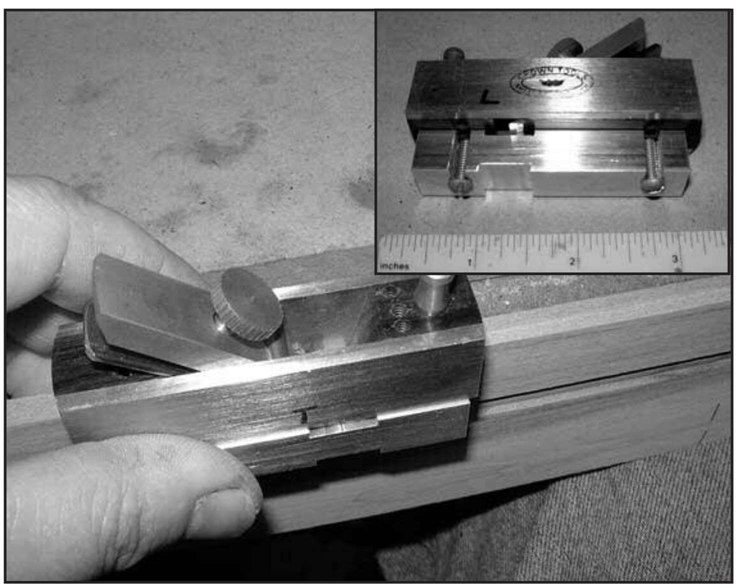

Figure 8 & 9 (inset). Miniature hand plane set up (above); below it is seen being used to cut the tuner groove.

protrudes exactly the distance of the thickness of the material of the tuner. Some experimentation has to be done in order to get this just right. Once set, cutting tuner grooves in pipe sides is quite easy. I also attached, with a couple of machine screws, a guide, to keep the plane square to the pipe side. This can be seen well in **Figure 9**.

After all of the grooves are cut, the sides can be glued to the block as shown in **Figure 10**. After the sides are glued on, the sides, along with the block, are machined to the proper depth of

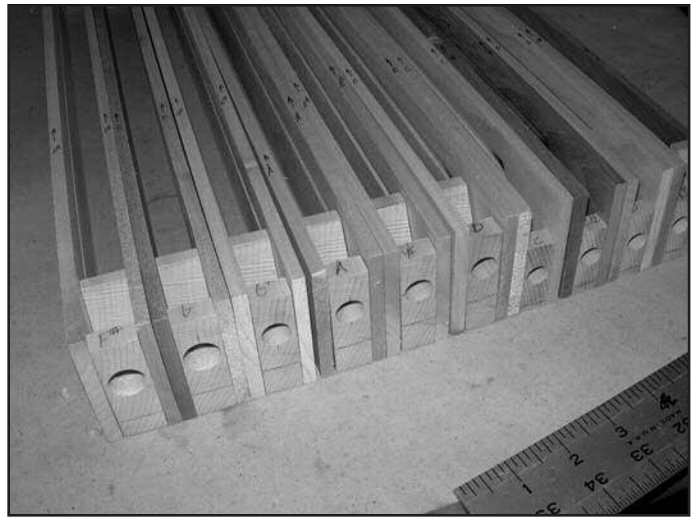

Figure 10. New pipes with sides glued to the block and center divider.

the pipe. This is shown in **Figure 11**. I leave the block slightly oversize in depth, so the sides can be machined to size along with the block. Next the backs can be glued on. But before I glue the backs on, I shellac all inside surfaces. The backs with shellac applied can be seen in **Figure 12**. Shellac is only applied on those surfaces that are not glued.

Figure 11. Pipe being machined to proper depth with thickness planer.

Figure 12. Pipe backs with shellac applied, ready to be glued to side and block assembly.

Figure 13. Pipes fronts with upper lips finished.

The windways are next cut in the blocks, and the upper lips are cut in the fronts. All of the fronts with the upper lips finished are shown in **Figure 13**. The inside of the front has shellac applied in a similar manner as was done to the backs. The fronts are being glued to the pipes in **Figure 14**. The clamps are home made especially for gluing up organ pipes.

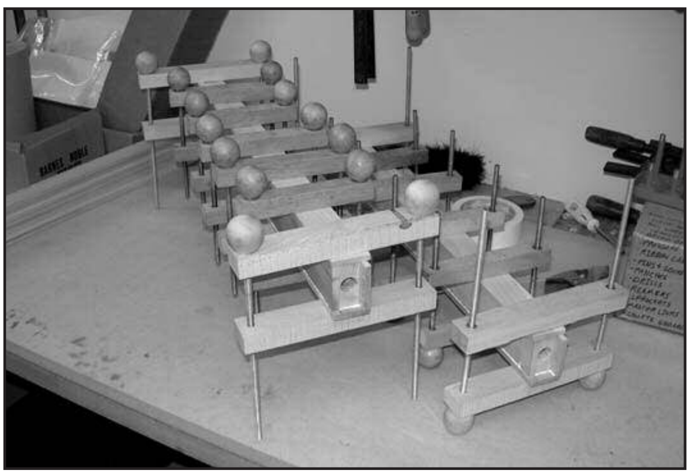

Figure 14. Fronts glued and clamped to pipe body.

Figure 15. Pipe bodies before fronts are glued on. The windways are machined to depth, and material prepared for caps.

Figure 16. Open end of pipe is cut to length, and finished.

Material is prepared to make the caps from. These are the blocks at the bottom of **Figure 15**. After the fronts, backs, and caps are glued on, the sides of the pipes can be machined or sanded to be flush with the sides. I usually make my pipes over-size in length, and they can now be cut to proper length, and the ends finished. This is shown in **Figures 16 & 17**.

Figure 17. All pipes finished to length, and sides machined flush with the sides.

Metal pipes that are too long, are sometimes "Haskelled" in order to fit inside a swell box or organ chamber.

Because these pipes are slightly deeper than the pipes they are replacing, I had to make new toe boards to accommodate them. The pipe toe positions are laid out and then drilled and reamed to fit the toes. The tops of the new toe boards are shown in **Figure 18**. Because the valve for each pipe is not directly under each pipe, the toeboard must be grooved to get the wind from the valve to the pipe. The lay out for these grooves is

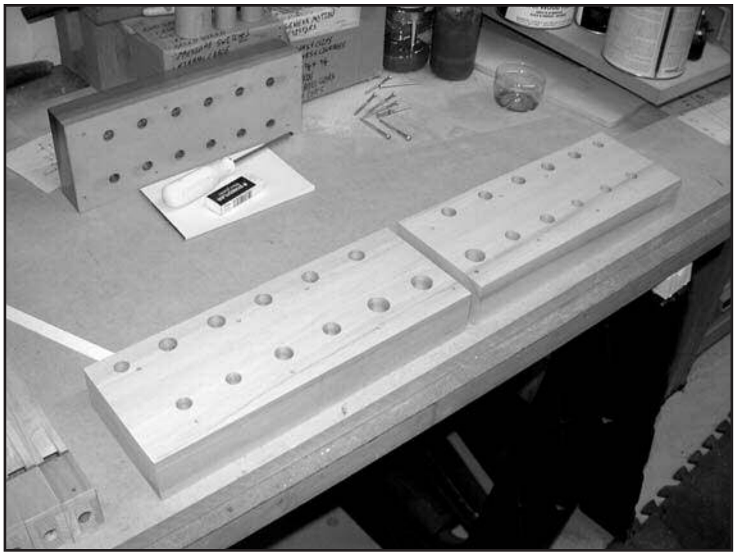

Figure 18. New toe boards to accommodate new pipe spacing.

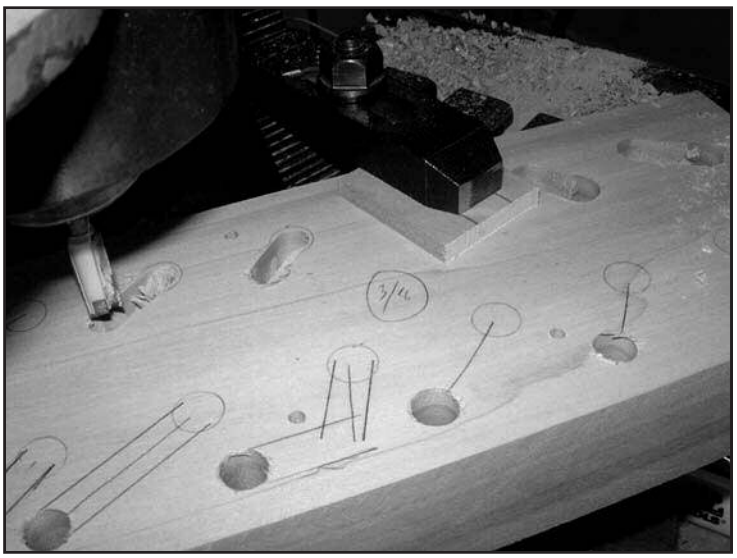

Figure 19. Bottoms of new toe boards are grooved to connect the wind supply to the toe.

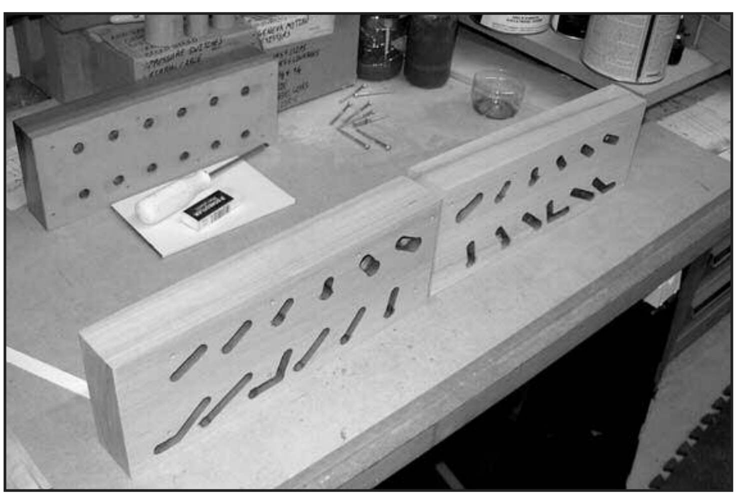

Figure 20. Finished toe board bottom, with all grooves sealed with shellac.

Figure 21. New Haskell violins in place on new toe board.

shown in **Figure 19**. It is mostly a matter of "connecting the dots." After the grooves are cut, they are sealed with shellac as shown in **Figure 20**. The pipes are shown in position on the new toe boards in **Figures 21 & 22**. The empty row of holes in the front is for the forte accompaniment violins. **Figure 23** shows the finished pipes with the stoppers and tuners in place.

Figure 22. New left and right toe board with accompaniment Haskell violin pipes in place.

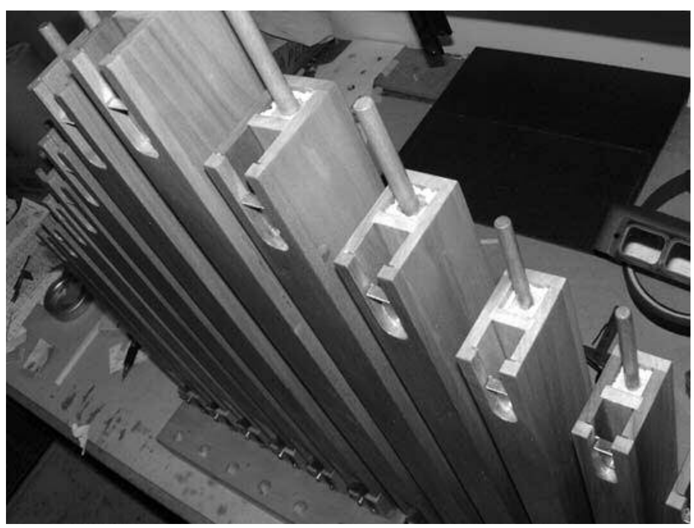

Figure 23.Finished pipes with stoppers and tuners in place. The front and back chambers of these pipes are clearly visible.

David Wasson has been building and experimenting with pneumatic devices for automatic musical instruments for over thirty years. Much of his inspiration for band organ construction has come from fellow organ builders, especially Ken Smith of Ohio