

When Good Pegs Go Bad

By Tom Croen

When a musician comes into my shop with a look of utter frustration on their face, I know they are having peg problems. Nothing on the violin can be more annoying than pegs that don't work. "Either they slip constantly or I can't turn the stupid things!" they confess. Glaring looks from intonation minded colleagues make the situation even worse while struggling to find that one spot where the pegs will hold.

The violin can be described as a machine that is made out of wood. It has moving parts and needs to function reliably under extensive use. The friction held tapered pegs are designed to turn with very little pressure in the matching pegbox holes, and their reliable function is critical for the player to achieve the precise intonation needed in playing.

Problems that develop due to wear and tear, climatic fluctuation, and travel, complicate tuning for the player, but it is not necessary to live with poorly functioning pegs. With care, pegs can last for years. What I would like to address here is why pegs go bad, and what can be done to prevent rapid decline.

Slipping is the most common problem with pegs. At some point all players will curse their pegs that are starting to slip, and are likely to cram the peg into the hole, relieved with their apparent success. But by doing this the peg has been made smaller due to compression, while the pegbox hole where the peg resides has been made larger. Since wood is not perfectly uniform in all directions the compression is not even. The slipping will turn into a wobble, and the cramming will become more frequent. It is the beginning of the end for the poor pegs. (See Fig 3) Should a crack develop by the pegbox hole, the slipping will be extreme.

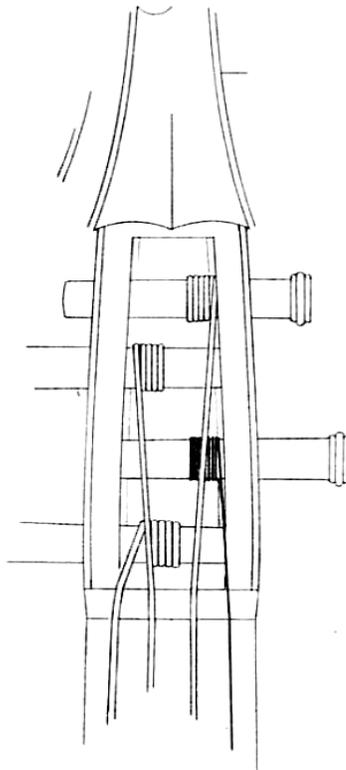


Figure 1. Illustrates different string windings scenarios. For simplicity the text identifies pegs with violin tuning, but the same issues exist for viola and cello.

Sometimes pegs seem to pop out of their holes. This occurs when the strings are wound on the peg too far from the pegbox wall. Since pegs are tapered they will back out of their holes if the strings pull that way (See the G peg in Fig 1). Ideally strings should be wound so they are close to the pegbox wall without touching (See the D peg in Fig 1).

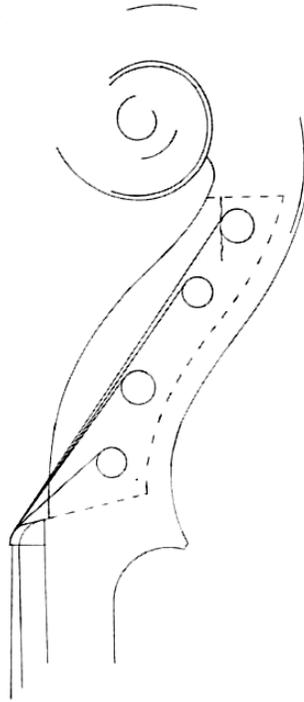


Figure 2. Illustrates peg location so that proper string clearance exists. The A string pegbox hole has a crack.

Peg lubricant is a material designed to allow the pegs to turn smoothly and stop securely in place. Applying too much peg lube can cause slipping. A very slight application of lubricant should suffice to achieve proper function. It is not advisable to force them into the holes. Remember, the pegs reside in holes that have no extra room. It is better to take the pegs out and wipe off some of the lubricant. Inadequate peg lubricant is one of the causes for sticking pegs, and can quickly lead to excessive wear. Using a little peg lube can be the simple remedy.

Sticking pegs are a common problem. Lopsided pegs and holes sometimes find certain positions where they get stuck, causing awkward jumping while tuning. However the most serious cause for this occurs when the strings are wound tightly against the pegbox wall. (See the A string in Fig 1). When a string is wound around a peg the series of windings become firmly anchored to the peg. The final windings will become wedged between the string and the pegbox wall, becoming very hard to turn, as if it is locked in place. Continued turning pulls the peg further into the hole causing compression damage (as mentioned above). When too much pressure is applied to turn the peg to its righteous tuning, cracks can develop around the hole.

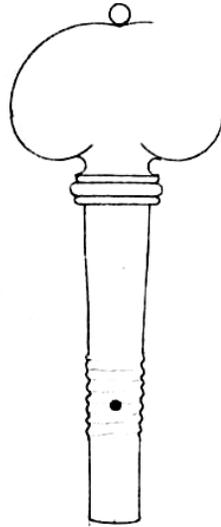


Figure 3. Illustrates a peg that has been compressed and needs replacement.

Winding the string against the pegbox wall this way can also be a cause for string breakage. The crimping of the string can cause the windings to fray and shear off. Breaking strings can also occur if there is rubbing of one string against another in the pegbox. A clue to this might be that while tuning one string, other strings go out of tune. This usually involves the A and D pegs and is typically due to the location of the pegs. Figure 2 illustrates how pegs can be laid out so that one string won't rub against another. It is not always avoidable, especially if the violin has had bushings, pre existing cracks, or an unusually shaped silhouette of the peg box.

Fluctuations in temperature and humidity can be a cause for slipping and sticking pegs. Many musicians travel frequently which exposes their instrument to rapid climatic changes. Wood will shrink when exposed to low humidity. The peg's diameter will decrease while the diameter of the pegbox holes increase. It is normal in that situation that the pegs will only function properly if they are pushed further into the hole. However when the humidity goes up these pegs will be dangerously tight in the holes. It is very important to relieve the pressure by backing the pegs out of the holes as they acclimate to their new condition.

Pegs will become lopsided as they age, requiring some maintenance. Truing up the shape of the pegs and pegbox holes is a common procedure, but eventually new pegs will need to be installed. The new pegs will be slightly larger than the previous pegs, but that is usually a good solution. Bushing the pegbox holes means plugging the holes with new wood. It is done when there is concern about making the holes too big or when repositioning of the pegbox holes is desirable. If however cracks develop in the instrument the repair is more serious. (See Fig. 2 for an example of a pegbox crack). The repair will have to resist the natural tendency for the peg to re-open the crack.

Fighting with the machine is an unneeded distraction. If tuning your instrument makes you mad stop and look at the pegs.

1. Do your pegs only hold with extreme pressure?
2. Do the pegs feel like they are locked in place before they are fully tuned up?
3. How are the strings wound on the peg.
4. Look for cracks.
5. Are the pegs really short, or sticking out the other side of the pegbox?
6. Are you using fine tuners to avoid disturbing the pegs?
7. If the head of a peg is in an awkward position for turning, try changing the length of the string that goes through the hole in the peg.
8. Cut the length of the string if the windings crowd on the peg.

As you play your instrument, it is always good to pay attention to the warning signs so that you can avoid costly repairs. If you are unsure of the condition of your pegs have a competent repair shop evaluate the situation. You will enjoy playing more when your tuning problems are gone.