

## Agraffes

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The agraffe was invented in 1808.

When you off-set to the left or the right, the speaking length is biased to move into the horizontal mode. The stiff piano wire rocks on the pivot point, so Errard solved this problem by having the string go through a bolt. The agraffe would sustain the downbearing.

Phosphorous bronze agraffes from Steinways in the 70's have a definite different sound. These were discontinued in 1983.

Ed modifies stock agraffes to bring out a warmer, clearer tone.

Harder material doesn't dampen as much in longitudinal modes and creates more ringing.

Clincket makes almost all the agraffes.

To nub off a regular twist bit so it doesn't jump into the metal and wreck the cut, use a V-shaped scraper.

The traditional string hole shape is too broad in a rounded curve. Ed makes it straight. He leaves the machined part in the middle, but he champions the hole to the same shape of the bit. This gives a narrower termination and allows the string to pivot.

When you put agraffes in, you want them to be tight at the shoulder. However, only a few will come out right. One way to adjust this is to swap out the ones that don't fit with some of the others. There are three ways to adjust these little differences:

- Use a millet by hand to take off some of the metal
- Add agraffe washers
- Tap a taper into the threads

To remove a broken agraffe:

- The best and easiest way is to use a reverse drill bit with a variable speed reverse drill
- Easy-outs can break off in the agraffe, but work when done carefully
- Carve a groove into it, heat it and chill it