(No Model.) 2 Sheets—Sheet 1.

H. S. GRANNIS.

HOLDING ATTACHMENT FOR TINSMITHS' SQUARING SHEARS.

No. 413,778. Patented Oct. 29, 1889.

Fig. 1.

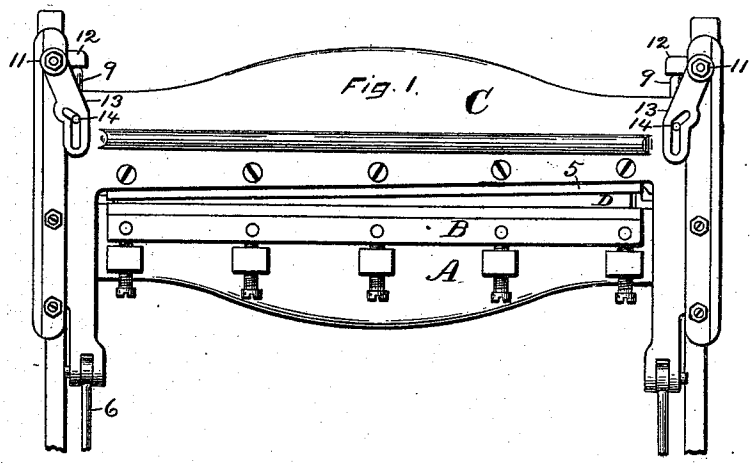
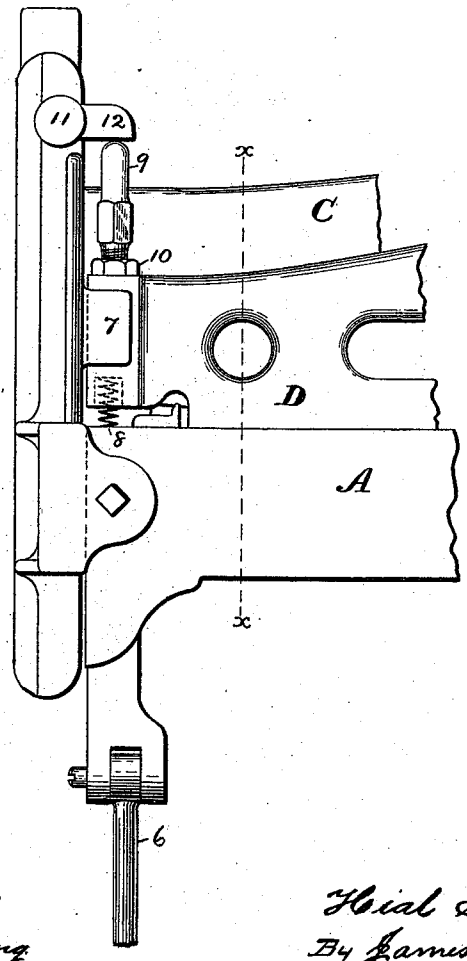


Fig. 2.



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W. H. Whiting

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(No Model.)

2 Sheets—Sheet 2.

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No. 413,778. Patented Oct. 29, 1889.

Fig. 3.

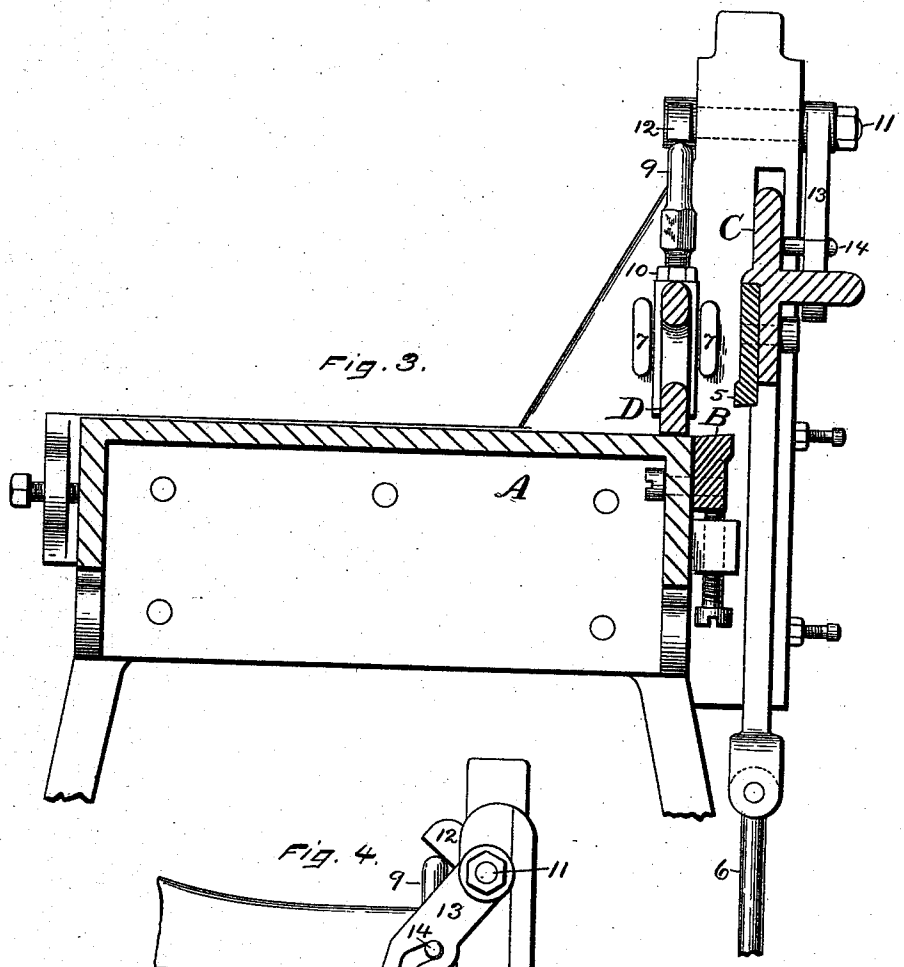


Fig. 4.

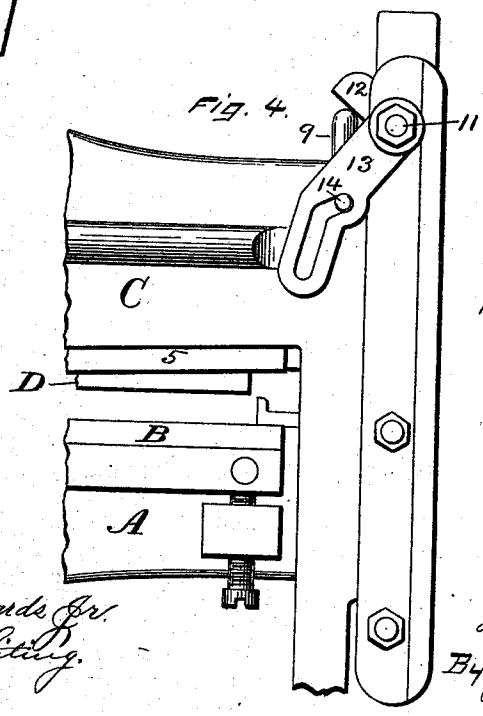
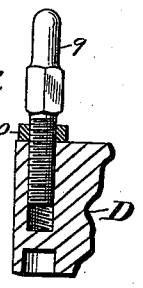


Fig. 5.



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UNITED STATES PATENT OFFICE.

HIAL S. GRANNIS, OF SOUTHINGTON, CONNECTICUT, ASSIGNOR TO THE PECK, STOW & WILCOX COMPANY, OF SAME PLACE.

HOLDING ATTACHMENT FOR TINSMITHS' SQUARING-SHEARS.

SPECIFICATION forming part of Letters Patent No. 413,778, dated October 29, 1889.

Application filed February 6, 1889. Serial No. 298,894. (No model.)

To all whom it may concern:

Be it known that I, HIAL S. GRANNIS, a citizen of the United States, residing at Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Holding Attachments for Tinsmiths' Squaring-Shears, of which the following is a specification.

My invention relates to improvements in holding attachments for tinsmiths' squaring-shears; and the object of my improvement is to automatically hold the plate firmly upon its bed prior to the cutting action of the shears.

In the accompanying drawings, Figure 1 is a rear elevation of the main portion of a tinsmith's squaring-shears (the feet and foot-treadle being omitted) with my improvement attached. Fig. 2 is a front elevation, on a larger scale, of one end of the same. Fig. 3 is a transverse section on line *x x* of Fig. 2 on the same scale. Fig. 4 is a rear elevation, on the same scale, of one end of said shears with the shear blade and holder in their most elevated positions; and Fig. 5 is a partial section and partial elevation, on the same scale, of one end of the holder.

The shears proper may be of any ordinary construction, and consist of a frame mounted upon suitable legs and provided with a bed A, to which a stationary shear-blade B is attached, and a slide or gate C, carrying a moving shear-blade 5, said slide or gate being depressed by means of a suitable treadle, (not shown,) which treadle is connected to said slide by means of the rods 6 6, all as in the ordinary squaring-shears, and therefore not requiring a more definite description.

I provide a vertically-moving holder D, which is guided at each end by suitable guiding-lugs 7 7, and which is thrown upwardly by means of a spiral spring at each end, one of which springs 8 is shown in Fig. 2. Projecting upwardly from each end of the holder D is an adjustable bearing-stud 9, screw-threaded at its lower end, which lower end fits into a threaded hole in the upper edge of said holder, as shown in Fig. 5. A lock-nut 10 is provided for securing this adjustable stud when adjusted. At each end of the machine there is a rock-shaft 11, the front end of which has a rocker-arm 12, whose under face bears against the upper end of the adjusting-stud 9. The rear end of this rock-shaft has a slotted arm 13, the slot being angular in form, as shown in Figs. 1 and 4. The sliding gate C carries a pin or stud 14, which fits the slot in said slotted arm 13, and by the vertical movement of said pin operates said slotted arm to work the rock-shaft. When the slide or gate C is in its most elevated position, the pin 14 will be at the upper end of the angular slot in the slotted arm 13, thereby throwing the ends of the rocker-arms 12 at the opposite end of the rock-shaft 11 into their most elevated position, as shown in Fig. 4, thereby releasing the holder D, so that its springs 8 lift said holder from the bed A and permit a sheet of metal to be inserted between the shear-blades for cutting, as in the ordinary machine.

When the sheet of metal has been brought into position to bring the proper point for cutting between the shear-blades, the slide or gate C is depressed in the ordinary manner, when the pin 14, moving in the upper portion of the slotted arm 13, which portion extends at an angle to the path of said pin, causes said arm and rock-shaft 11 to rock in the direction to depress the ends of the rocker-arms 12, which, bearing upon the upper ends of the adjustable bearing-studs 9, force the holder D downward upon the metal and firmly clamp it between said holder and the bed A. The pin then passes into the vertical portion of the slot in the slotted arm, which is coincident with the path of the pin 14, as shown in Fig. 1, and the gate C continues its downward movement without any tendency to move the holder D, merely holding it in place as the moving shear-blade descends to cut the metal. The slot in the slotted arm 13 is so formed that the holder D impinges upon the metal to hold it before the shear-blade has descended far enough to begin its cutting action. The bearing-studs 9 are made adjustable, in order to enable the throw of the holder D to be regulated, so that it shall properly pinch any given thickness of metal or other material being cut when the pin 14 is within the vertical portion of the slot in the slotted arm 13.

I am aware that prior patents for shearing-

machines show a holder adapted to pinch and hold the work while it is being cut, said holders being forced in one direction by springs and in the other direction by cams or cranks on the shaft that operates the slide, and the same are hereby disclaimed.

I claim as my invention—

1. In a squaring-shear, the combination of the shear-slide, the holders, the rocker-arm, mechanism connected with said shear-slide for operating said rocker-arm, and the adjustable studs 9 intermediate said rocker-arm and holder, substantially as described, and for the purpose specified.

2. The combination of the bed, slide, and blades of a tinsmith's squaring-shears with the pin 14, attached to said slide, the angularly-slotted arm 13, rock-shaft 11, rocker-arm 12, the adjustable bearing-studs 9, and the holder D, substantially as described, and for the purpose specified.

3. The combination of the bed, slide, and blades of a tinsmith's squaring-shears with the pin 14, attached to said slide, the angularly-slotted arm 13, rock-shaft 11, rocker-arm 12, and the holder D, substantially as described, and for the purpose specified.

4. In a squaring-shear having a holder and operating mechanism, the combination of the slide or gate C, bearing the pin 14, and the slotted arm 13, the slot of which has one portion extending at an angle to the path of said pin and another portion coincident with the path of said pin, whereby the angular portion operates the slide and the coincident portion acts to hold the slide, substantially as specified.

5. The combination of the slide, the bed, the holder D, springs for lifting said holder, and mechanism intermediate said holder and slide for depressing said holder through the movement of said slide, substantially as described, and for the purpose specified.

6. The combination of the slide, the bed, the holder D, the adjustable studs 9, mounted on said holder, and mechanism intermediate said slide and studs for pressing upon the ends of the latter to depress said holder through the movement of said slide, substantially as described, and for the purpose specified.

HIAL S. GRANNIS.

Witnesses:
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