E. L. PRATT.

Gun-Scraper.

No. 47,260. Patented Apr. 11, 1865.

Fig: 1.

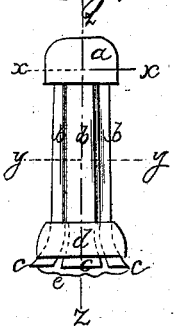

Fig: 2.

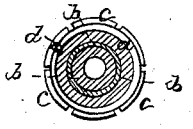

Fig: 4.

Fig: 3.

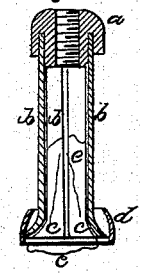

Fig: 6.

Fig: 5.

Witnesses
F. Gould
S. M. M. Suttire.

Inventor
E. L. Pratt
by his Atty
W. B. Ewbank

UNITED STATES PATENT OFFICE.

E. L. PRATT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SCRAPERS FOR CLEANING GUN-BARRELS.

Specification forming part of Letters Patent No. **47,260,** dated April 11, 1865.

To all whom it may concern:

Be it known that I, E. L. PRATT, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Gun-Cleaner; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification is a description of my invention sufficient to enable those skilled in the art to practice it.

Letters Patent of the United States numbered 43,573 were granted to Moses G. Crane, dated July 19, 1864, for an improved gun-cleaner, which Letters Patent were assigned to me, as may be seen by assignment recorded August 1, 1864, in Liber O^{7}, page 60 of Transfers of Patents at the United States Patent Office.

My invention relates to the construction of gun-cleaners having the general peculiarities of form and operation seen in the instrument so patented—that is to say, to an instrument having a series of expanding scrapers arranged in a circular form, and expanded by contact of the cleaner with the bottom of the barrel, such expansion carrying the scrapers against the sides of the bore, so as to clean the barrel as the instrument is withdrawn, while, when it is inserted, the scrapers are closed together and slip down the bore without a scraping impingement.

My improvement consists in constructing the cleaner of a series of thin plates or blades cut separately out of steel or rolled metal and set into a grooved or mortised shank or foundation piece at one end to secure them in position.

The "Crane" scraper referred to (or the blades thereof) has up to the time of my invention been made from a solid piece of metal bored and turned into shape. It has been found extremely difficult to so construct an instrument in this manner that the spring-blades shall possess equal strength or thickness, or the exact strength requisite for the springs; but by making the springs of sheet-steel the gage of the steel determines the strength of the blade, and enables me to construct at all times cutting-blades of uniform strength, elasticity, and thickness, and scrapers made of such blades are more substantial and reliable and can be manufactured at one-half the cost of the others.

In the previous construction of this instrument it has been necessary to insert a pin into the shank of the cleaner to keep the encompassing-ring from slipping off; but I dispense with this pin by slipping the blades through the ring before they are all applied to the shank-piece, making the shank-piece of a greater diameter than the inner diameter of the ring. When the instrument is thus put together, it will be readily understood that the ring cannot slip off. This dispenses with the pin and saves the cost of its application.

Figure 1 of the drawings shows a view of the scraper made in accordance with my invention; Fig. 2, a cross-section on the line *x x*, and Fig. 3 a section on the line *z z*, of Fig. 1. Fig. 4 is an end view of the shank-piece.

a denotes the shank or foundation piece *b b*, the spring-blades each having a scraping-edge, *c*, and the series being held together by an encompassing-ring, *d*, as in the previous construction. The shank-piece has a circular recess or groove cut in it to receive the upper ends of the spring-blades, which ends are made of such width that the series fills the groove, as seen in Fig. 2. When the blades are so inserted, the ring *d* is drawn over upon and so as to hold the scrapers in position, and then the ends in the grooves are soldered. The blades may be inserted in a shank-piece recessed or grooved on its outer surface and hammered down upon the blades, as seen in Fig. 5, which shows a section of such a modification; but I prefer the construction I have described.

In making the scraper, while drilling the hole for the insertion of the ramrod, by placing a barrel-saw over and around the drill to represent the exact size of the circle wanted for the insertion of the blades, both the annular groove or boring and the center hole are cut out at one and the same operation.

In punching out the blades care should be taken to have them made of the exact size necessary (at the narrowest end) to entirely fill the circular groove at its greatest depth, and, if made to taper adjacent to the groove, it gives room for the solder to fill or partially fill between them, locking them firmly in position. Each blade is stamped or swaged, so as to have a curved form in cross-section (as seen in Fig. 6, which is a cross-section on the line *y y* of Fig. 1) corresponding to the general cylindrical

form of the tool, instead of having the flat form as cut from the sheet of metal. This shaping increases the strength of the blade and prevents it from bending, as will be readily understood. When the scraper is completed, the ring *d* can slip easily over the blades from the shank-piece *a*, over which it cannot pass to the scrapers *c*, the ring being slipped over the blades before they are all fastened upon the piece *a*, or the blades slipped through the ring, as before described. The inner surface of each spring is curved at its lower end, so that the scraping end of the instrument is trumpet-mouthed, as seen in Fig. 3, and within this mouth and between the blades I insert a swab, *e*, the swab being pushed up into the scraper so that it will project through the space between the blades, which will keep it in place. The lower surface projects beyond the mouth and serves to clean the breech of the gun, while the edge of the swab prevents the dirt removed by the scrapers from falling to the breech as the instrument is being withdrawn from the arm. This wad or swab-piece, or a separate one, may be driven within the tube to increase the outward pressure of the spring-blades, as circumstances may require.

I claim—

1. The spring-blades when cut from sheet metal and swaged or stamped into form, substantially as set forth.

2. The attachment of the blades to a shank or foundation piece, in the manner substantially as described.

3. The construction of the gun-cleaner, by which the ring is prevented from slipping therefrom, substantially as set forth.

4. The employment of the swab, in combination with the spring-blades, substantially as set forth.

5. The construction of the spring-blades, by which they form a trumpet-mouth, substantially as described.

E. L. PRATT.

Witnesses:
J. B. CROSBY,
F. GOULD.