

No. 709,557.

Patented Sept. 23, 1902.

E. A. PUGH.
CLEANER FOR GUNS.
(Application filed Sept. 22, 1899.)

(No Model.)

Fig. 1.

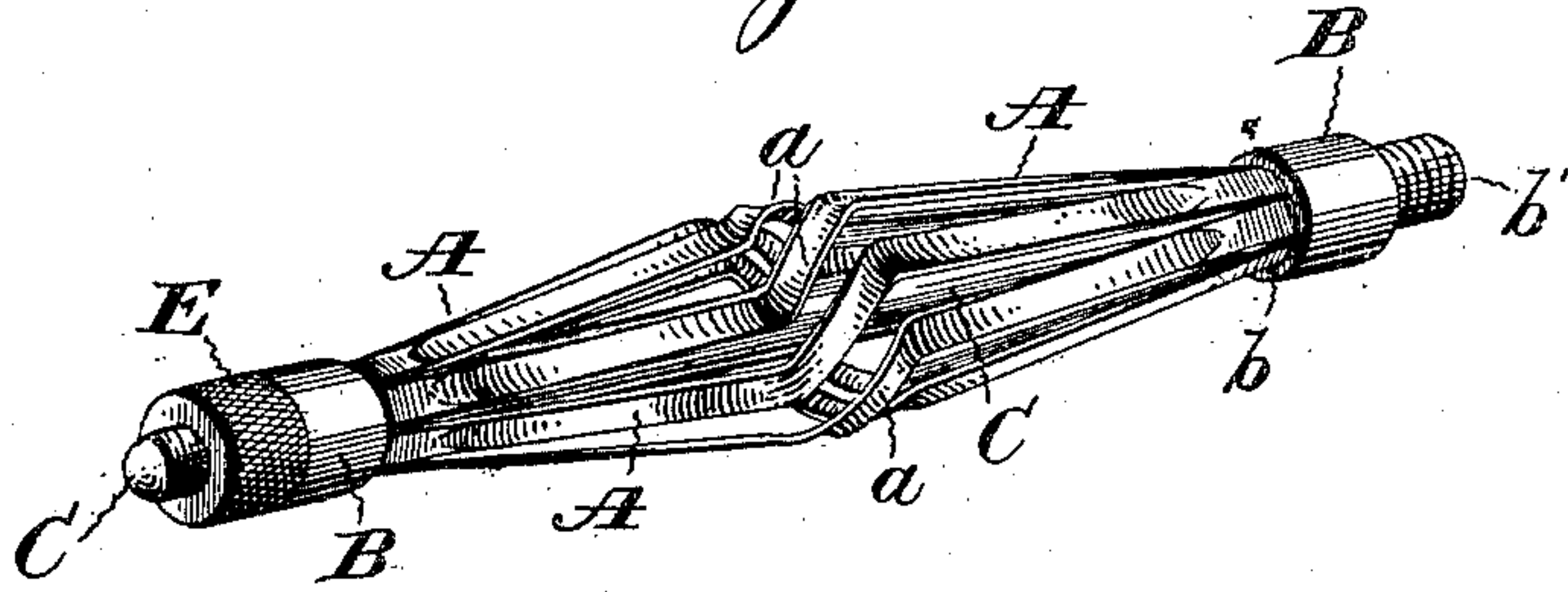


Fig. 2.

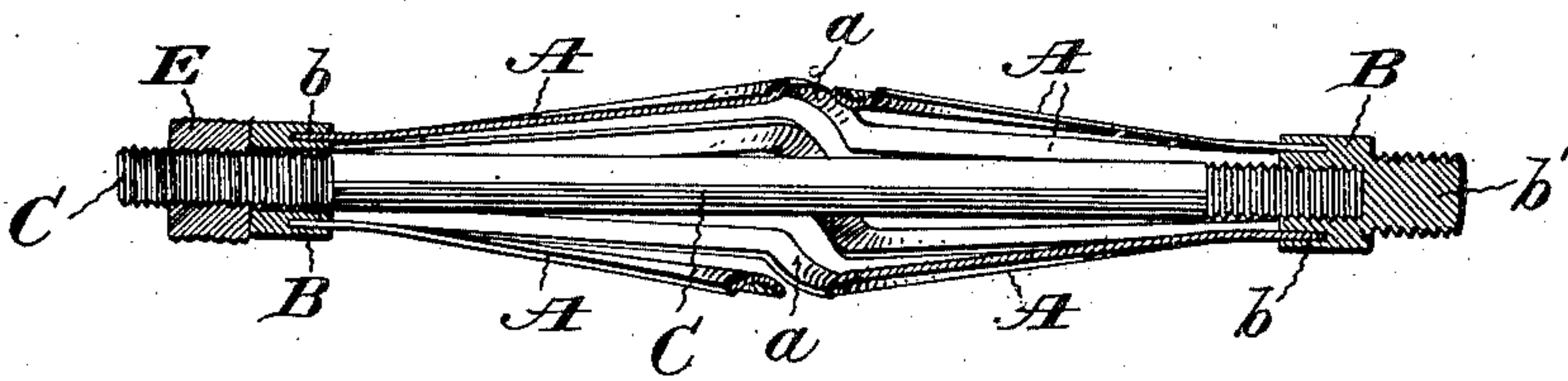


Fig. 3.

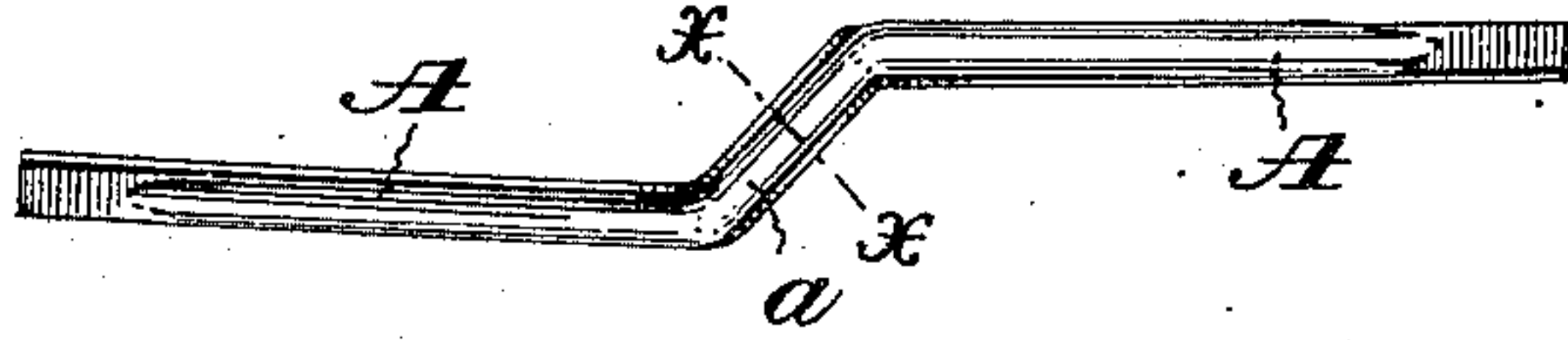


Fig. 4.



Witnesses:
Jas. E. Hutchinson.
Chas. Williamson.

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Prindle & Russell, his attys.

UNITED STATES PATENT OFFICE.

EDWIN A. PUGH, OF SPRINGFIELD, ILLINOIS, ASSIGNOR OF ONE-HALF TO
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CLEANER FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 709,557, dated September 23, 1902.

Application filed September 22, 1899. Serial No. 731,308. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. PUGH, residing at No. 1116 North Eleventh street, Springfield, in the county of Sangamon, and in the
5 State of Illinois, have invented certain new and useful Improvements in Cleaners for Guns, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a gun-cleaner embodying my invention. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detail view, in side elevation, of one of the
15 cleaner-bars detached; and Fig. 4 is an enlarged cross-section on the line xx of Fig. 3.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide a
20 simple and thoroughly-efficient cleaner for gun-barrels and other tube-form structures; and to this end said invention consists in the cleaner having the features of construction substantially as hereinafter specified.

In the carrying of my invention into practice I employ a circular series of thin bars or strips A and A , that consist each of two non-aligning portions which extend substantially parallel and a third portion a at the longitudinal center of the bar that extends obliquely
30 and has its opposite edges sharp. The respective ends of the bars A and A are secured to collars B and B , one of which is fixed to a rod C , that passes longitudinally through the series of bars, and the other of which collars is loosely mounted on said rod so as to be capable of movement along the same. Each bar A is bent or bowed so that it curves or arches outward between the collars B and B
35 from the rod, the portion a being farthest from the latter, and it also curves in a direction at right angles to the axis of the rod. Elastic or spring material, preferably brass, is used for the bars. The spring of the bars
45 is such that the bars tend to press inward toward the rod C and force the collars B and B apart and so contract the diameter of the device, while to expand such diameter there is provided a nut E , screwed upon a threaded
50 part of the rod that bears against the outer end of the movable collar B and is adapted

to press it toward the fixed collar. The peripheral surface of the nut is knurled or roughened to permit its ready manipulation by the fingers.

The sharp edges on the opposite sides of each of the bar portions a are preferably made by the formation of a longitudinal groove in the outer side of the bar. This groove may be readily made by stamping or pressing a
55 flat bar in suitable dies to bend it, so that in cross-section it is concavo-convex, and preferably this grooving is not confined to the portion a , but is extended therefrom along each of the other portions, stopping short or
60 ending, however, before the collars B and B are reached, so that there is an ungrooved or flat portion adjacent to each collar. The grooving of the bar portion a by bending not only provides the two sharp edges, but it
65 also greatly stiffens the bar, and it is because of the stiffening effect produced that I extend the grooving along the other parts of each bar, as above described. My purpose in leaving the flat or ungrooved portions at each end
70 of the bar is to locate the places of greatest flexibility at such points, which are those nearest the rod C , and thus avoid the possibility of any portion of the bars intermediate the portions a and a and the ends getting
75 higher than the portions a and a when the bars are excessively bowed.

A convenient way of uniting the bars A and A and the collars B and B is to form in one end of each collar B an annular groove b
80 and to insert in the latter the ends of the bars and solder them to the collar. The fixed collar B is preferably screwed on the end of the rod C , and projecting from said fixed collar is a threaded stud b' , by which the tool
85 may be coupled to an operating-rod.

To clean a gun-barrel with my tool, it is attached by means of a stud b' to a cleaner-rod, and by means of the nut E the bars A and A are sprung outward until the diameter of the
90 tool at the series of oblique portions a and a is expanded to make it slightly greater than the gage or bore of the barrel. The tool is now passed through the latter one or more times. In its passage through the barrel the
95 sharp edges of the bar portions a and a , being oblique or crosswise of the line of travel
100

of the tool and pressing gently against the barrel-surface, will scrape or cut from such surface whatever fouling may be thereon by an easy drawing action. Whatever is taken
 5 off by the forward cutting edge of each portion a will pass through the spaces between the bars, and should such forward edge fail to remove the fouling substance the second or rear edge will engage it and it will be de-
 10 posited in the groove. Without the groove and with a flat surface there would be likelihood of matter adhering to such surface, and acting to prevent contact with the barrel it would render the bar ineffective. The angu-
 15 lar length of each bar portion a is such that the several portions overlap circumferentially, so that the entire surface of the gun-barrel in a circumferential direction is engaged by the cutting edges, and hence no por-
 20 tion of the barrel-surface is missed when the tool is passed through the barrel. It will be seen that by the series of inclined portions a and a all of the advantage of a continuous spiral scraping device is secured, and yet the
 25 lack of rigidity of a continuous spiral is avoided, for the strain on the portions a and a in a direction endwise of the tool is sustained nearly in a direct line from end to end by the longitudinally-extending portions of
 30 the bars A and A.

The tool can be used without being attached to a cleaner-rod by attaching it instead to a cord, and after first passing the cord through the barrel then drawing the tool
 35 therethrough. The material of which the cleaner-bars are made, whether brass or other metal, must of course be softer than the gun-barrel to avoid scratching of the latter; but

though softer, and consequently wearing away, the scraping edges of the bars will re- 40
 main sharp, because of their grooved form.

While the details of construction shown and described are desirable, as resulting in a most satisfactory tool, and hence are prefer- 45
 ably used, it is to be understood that the scope of the invention extends to constructions that may be dissimilar to the one shown and described.

Having thus described my invention, what I claim is— 50

1. A cleaner for guns, &c., consisting of a tool provided with a series of longitudinally-extending, flexible bars, each having intermediate its ends a portion extending cross- 55
 wise of the tool to form a scraper, and each bar, intermediate its ends being concavo-convex in cross-section, substantially as and for the purpose described.

2. In a cleaner, the combination of a rod, two collars thereon, a series of bars interposed 60
 between said collars, having longitudinally and obliquely extending portions, said bars being flat, or substantially flat in cross-section adjacent the collars, and concavo-convex in cross-section at other points, and means for 65
 moving one collar along the rod relative to the other, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of 70
 August, 1899.

EDWIN A. PUGH.

Witnesses:

JOHN HOLVEY,
 RICHARD HOLVEY.