B. L. BUDD.

GUN-CLEANING BRUSH.

No. 190,123. Patented May 1, 1877.

Fig. 1.

Fig. 2.

Fig. 3.

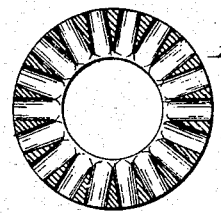


Fig. 5.

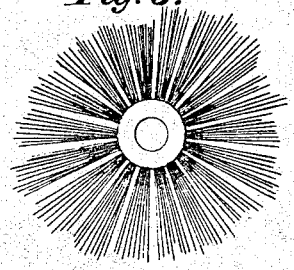


Fig. 6.

Fig. 4.


Fig. 7.

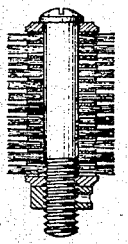


Fig. 8.

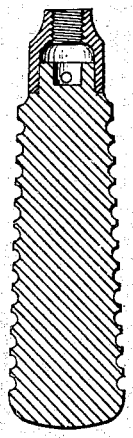


Fig. 10.

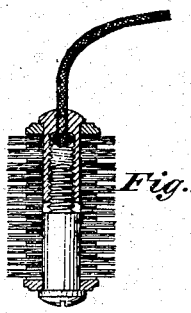


Fig. 9.

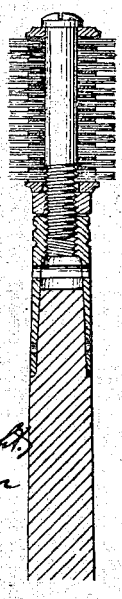
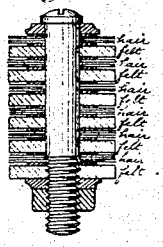


Fig. 11.

Fig. 12.



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# UNITED STATES PATENT OFFICE.

BERN L. BUDD, OF FAIRFIELD, CONNECTICUT.

## IMPROVEMENT IN GUN-CLEANING BRUSHES.

Specification forming part of Letters Patent No. **190,123**, dated May 1, 1877; application filed March 19, 1877.

*To all whom it may concern:*

Be it known that I, BERN L. BUDD, of the town and county of Fairfield, in the State of Connecticut, have invented a new and useful Improvement in Gun-Cleaning Brushes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to that class of implements which are used to facilitate the cleaning of a shot-gun or rifle after use.

It consists of a brush, or rather of a series of wheel-brushes placed upon a suitable pin, mandrel, shank, or other device, and so arranged as to produce a valuable cleaning implement, which, as we shall see, may be used for several purposes.

To manufacture this implement, I proceed as follows: I first take sheet metal of about one-tenth of an inch in thickness, and from this, with a suitable punch and die, I make disks or washers of five-tenths of an inch in diameter, and having a central hole of about five-twentieths of an inch in diameter. This disk or washer may be seen in Figure 1.

The punching of these disks from the sheet metal causes them to be somewhat distorted in shape. I am consequently obliged after punching out, to place them in another die, and flatten and true them up. I then, in a machine which I have devised and constructed for the purpose, drill in the periphery of these disks any number of holes which may be desired. I have found that, to make an implement for cleaning guns, the number may be from twelve to twenty. In a disk for a gun of No. 12 gage I ordinarily drill eighteen holes. These holes are drilled all the way through, from the periphery of the disk toward the center. We have, as a consequence, then, these holes meeting before they reach the circumference of the larger central hole running through the disk, and, as a matter of course, after these holes are all drilled, we find, upon examining the circumference of the central hole, that, instead of there being eighteen distinct and well-defined holes, the holes have run together, and have in lieu of these holes a groove running around the circumference of this central hole. This groove, we shall presently see, becomes of use.

Fig. 2 gives a view of this disk perforated on its periphery in the way I have described. Fig. 3 gives a section of the disk—that is to say, with one surface removed—and shows how the holes run together and form the groove. The holes, as will be seen in Fig. 4, meet at about the point marked *a*, and from that point out to the edge of central hole is the groove of which I have spoken.

After preparing these disks in the manner I have named, I now, by the ordinary method in brush-making, draw into the small holes on the periphery of these disks, with fine wire, knots of bristles, hair, tampico, wire, or such other substance as I may desire to have the brush made from. The use of the groove we have before spoken of is now seen. The wire with which the knots are drawn is continuous, commencing with the first and finishing with the last knot. This groove serves for the wire to lie in, as we pass from one knot to another, and when all the holes in the disk are filled the wire is, so to speak, hidden, or rather it is sunken so far, or far enough, below the surface of the circumference of the central hole that it offers no impediment to the introduction of a mandrel, pin, or shank.

Fig. 5 shows one of these disks as it looks after leaving the hands of the operator, who draws the knots into the peripheral holes, the knots of bristles being of irregular lengths.

I at first made the disks of brass, but of late I have found that a softer alloy, such as Britannia or pewter, presents decided advantages. First, it drills easier; next, in drawing the knots, being softer than brass, the brass wire used in drawing in the knots is not cut or broken, as it sometimes is when the disks are made of brass; and, finally, being a softer and more yielding metal, a number of them, when piled one upon another, will clamp together more firmly than a harder metal or alloy. I have made the disks also of wood and hard rubber. Wood will not admit of wetting the brush, which it is sometimes desirable to do; rubber admits of this, but is not so durable or satisfactory in other respects as the alloy I have spoken of.

After these disks are filled with the knots they are next taken to a machine which I have devised and constructed for cutting the bris-

tles to a uniform length. This is accomplished by placing the disk upon an adjustable gage, which moves in or out toward or away from the cutting-edges of a peculiarly-constructed pair of shears, so that the length of the bristles, and consequently the diameter of the brush, may be any size, from a trifle larger than the disk up to three, four, or more inches in diameter, which is, of course, much larger than anything which would be needed for a rifle or shot-gun.

Fig. 6 shows one of the disks filled with knots and trimmed to a uniform length. After they are trimmed, and are, consequently, all of uniform diameter, any given number of the filled disks, depending upon the length of implement desired, are then arranged one on top of another in a pile, upon a pin, mandrel, or shank. Upon this mandrel they are clamped and held by suitable devices, acting from the ends of the mandrel toward its center. To this end I have preferred to form, upon one end of the mandrel, a head, which may be slotted to receive the blade of a screw-driver, or squared or otherwise altered in shape so as to fit into a wrench, in order to be held steady while a nut, toward the other end, working upon screw-threads there formed, is adjusted toward, or away from, the pile of disks. By loosening the nut these sections may be turned to change their relation to each other, bring the knots in all the disks in line, if desired, or adjust the knots contained in one disk just midway between the knots contained in the adjoining one, and thus, so to speak, change the character of the brush. By these means more uniform wear is insured. By tightening the nut, the disks are clamped and held permanently in position, and by removing it entirely they may be removed and replaced in different order, or others substituted in their stead.

Fig. 7 gives a sectional view of the implement composed of twelve disks, arranged upon a mandrel, with washers at both ends, and with the adjusting-nut, as described. It will be seen that when the nut is screwed up to its place it leaves a length of screw protruding sufficient to screw into the ebony handle, as seen in Fig. 8. When screwed into this handle it becomes what I call the "sportsman's breech-brush," and is an exceedingly useful implement for brushing out and cleaning out the recess in the breech of a breech-loading piece made to receive the cartridge-shell.

Fig. 9 shows the brush screwed onto the joint of cleaning-rod, in which it may be used either wet or dry, to clean out the interior of the barrels.

In Fig. 10 we have the disks arranged on a different kind of mandrel, which is composed of a male and female screw meeting in the center, the female screw being perforated in the direction of its length to receive a cord. Now if this cord be a little longer than the length of the barrels, and to the other end a weight be attached, and then if the weight be dropped through the barrel, and traction made on the cord, the effect will be to draw the brush implement through the barrel, and thus to clean it. The implement then becomes exceedingly valuable to the sportsman for use in the field.

In Fig. 11 we have a perspective view of the implement ready to be screwed into the handle, and used as a breech-brush or into the ordinary gun-cleaning rod, as an implement for cleaning the barrels.

Another use to which the implement may be profitably put is by screwing it either into the short handle or onto one of the joints of the cleaning rod, and employing it for cleaning the interior of cartridge-shells, either paper or metallic. These shells not unfrequently become foul from frequent firing, and may, with this implement, be readily cleaned before reloading them. The residuum in a foul shell, resulting from the combustion of the powder, the sulpheret of potassium being a hygroscopic substance, not unfrequently, especially in sea-shooting, becomes moist and muddy. Particularly is this the case in instances where inferior powder is used. The implement here becomes valuable, insomuch that it can be used with water, and by its aid the shells thoroughly cleaned.

I have modified the implement in another way, and have thus been enabled to furnish an implement which will answer all the purposes I have claimed for this at a reduced price.

The modification is effected by alternating with each brush-disk a disk of felt of the same diameter as the brush-disk. I prepare the felt about the tenth of an inch in thickness and very hard; then with suitable cutters cut out the disks with a central hole for the pin. Thus with six brush-disks and six felt disks we make an implement the same length as if made of all brush-disks.

Fig. 12 gives a view of the implement alternating the brush-disks with disks of felt.

It will thus be seen that this implement is valuable in its various modifications, and in the various uses to which it may be applied.

The metallic disks made to receive the "knots," instead of having the central perforation for the pin or mandrel round may have it square, triangular, or of any number of sides, and be set upon a mandrel of corresponding shape, being removed for each adjustment; but in such case the number of adjustments and of combinations formed is necessarily more limited than where the central perforation is circular, and the mandrel also circular, so that the disks may be turned freely thereupon.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gun-cleaning implement, the combi-

nation of a series of disks provided with peripheral knots with a mandrel and suitable clamping devices, substantially as described.

2. In a gun-cleaning implement, the combination of a series of disks provided with knots alternating with disks of thin hard felt with a mandrel and suitable clamping devices, substantially as described.

3. In a gun-cleaning implement, the combination of a series of disks provided with peripheral knots, with a mandrel adapted to be secured to a suitable holder and with clamping devices, whereby the disks may be clamped and held in any desired adjustment in relation to each other, substantially as and for the purpose described.

4. In a gun-cleaning implement, the combination of a series of disks having peripheral knots with a mandrel headed at one end, and adapted to be held against rotation, and at the other having a thumb-nut, whereby the disks may be clamped in position, the said mandrel terminating in a screw suitable for adjustment in a handle, or in one of the joints of the ordinary gun-cleaning rod, or perforated to receive a cord, substantially as and for the purpose described.

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Witnesses:
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