E. A. Harvey.

Brush.

No. 49,755. Patented Sep. 5, 1865.

Fig: 1.

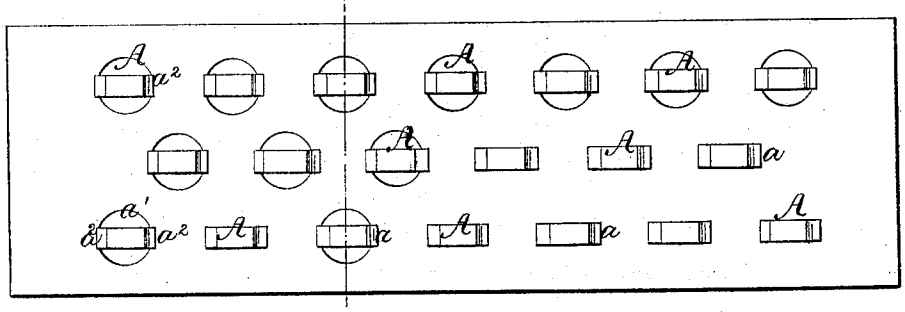


Fig: 2

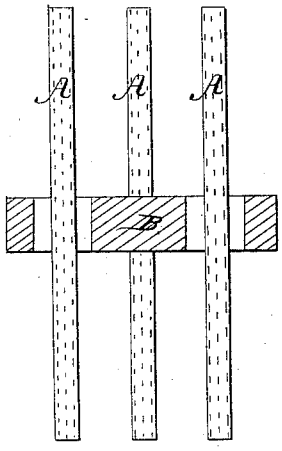


Fig: 3.

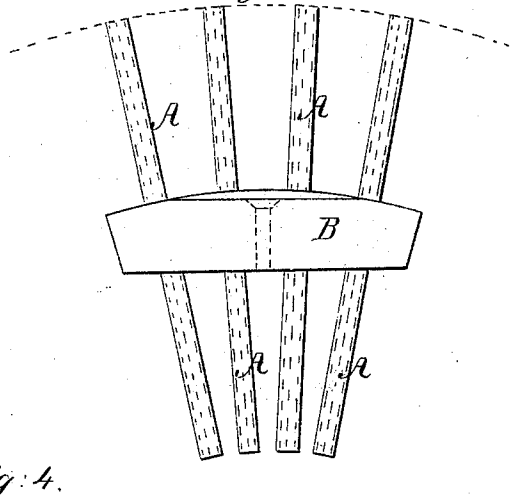
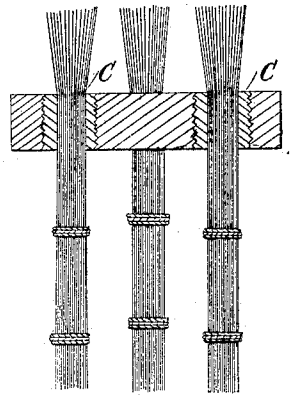


Fig: 4.



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UNITED STATES PATENT OFFICE.

E. A. HARVEY, OF WILMINGTON, DELAWARE.

BRUSH FOR CLEANING METALLIC PLATES.

Specification forming part of Letters Patent No. **49,755**, dated September 5, 1865.

To all whom it may concern:

Be it known that I, E. A. HARVEY, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Brush for Cleaning Metallic Plates and other Purposes; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is a side elevation of a reciprocating brush illustrating my invention. Fig. 2 is a transverse section of the same, the plane of section being indicated by the line *x x*, Fig. 1. Fig. 3 is a side elevation of a rotary brush constructed upon my improved plan. Fig. 4 is a sectional view, illustrating a modification.

Similar letters of reference indicate the same parts in the several figures.

The hog-bristles and other material of which metal-scouring brushes have hitherto been made are liable to lose their stiffness and elasticity both by the action of the water and by the constant torsion and deflection to which they are subjected when in use.

In the brush the subject of this invention the scouring medium consists of strips of rubber or other material, which are inserted in a suitable head in such a way as to leave a reserve of material—or, in other words, more than the effective portion thereof—so that as the said strips become worn by friction the acting or effective parts thereof may be elongated by pulling the strips forward in the head, which retains them. A property of the rubber adapts it to be thus pulled forward, but prevents any change in the position of strips under the pushing force which is applied thereto when the brush is in operation.

Other material—such as tampico and other suitable material—can be used as the scouring medium instead of rubber, and such material may be secured in the head by means of a rubber bushing, in the manner to be explained.

In order that others skilled in the branch of manufacture to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it with reference to the accompanying drawings.

A A A represent a number of strips composed of india-rubber or any analogous elastic material which will not be deleteriously affected by the action of the water or by torsion and deflection. These are fitted snugly in apertures *a* in the head B in the manner represented—that is to say, when the brush is first made the larger proportion of the strips project from the back of the brush, thus leaving a reserve to be brought into requisition as the operating part of the strips is worn away by friction. When the strips are thus fitted snugly in the head B the brush is complete without the application of pins or keys or other appliances for retaining the strips in place while the brush is in operation. Hence, while they cannot be pushed out of their normal operating position, the strips A may be pulled or drawn forward by hand as soon as they become worn at the ends, so that a regular scouring-surface may be maintained with obvious facility. The strips A are not liable to lose their elasticity; but apart from this it is believed that the material used constitutes a scouring medium superior to the bristles or other material heretofore made use of. When the strips are fixed in the flat openings *a* the swelling of the wood may cause them to be so tightly wedged and compressed as to render it difficult or impossible to draw the strips through when the reserve is to be made use of. Therefore I propose to make the apertures in which the strips are placed of the form represented by *a'*. These openings *a'* are round and have recesses a^2 at opposite sides. The edges of the rubber strips A enter the recesses a^2, so that only a sufficient portion of their sides near their edges are subjected to friction to hold them in place, while the remaining portion may bend, as represented, so as to assume the form of a curve. Hence the swelling of the wood can have little effect as regards the compression of the rubber, and the strips may at all times be adjusted with facility.

In Fig. 4, C represents a bushing, made of gum or analogous material, to provide for the use of fibrous material for scrubbing, which may be other than that of an elastic nature. Such strips fit tightly in the bushing C, and are used with a reserve in the same manner as those above described. The proportion between the reserve portion of the scouring material and that in operation is an optional mat-

ter, and may be varied to any desirable extent. Any material may be employed so long as the reserve is secured; but I prefer that which will not lose its efficiency by the action of water.

It is manifest that by providing a reserve of material—that is to say, the adjustment of the strips A—the brush is rendered more lasting and generally efficient than in the case of fixed bristles.

If desired, pins and keys of any kind may be used for retaining the strips so long as they admit of the adjustment of the same; but the self-retaining method described is preferable. The strips or pieces A may be flat, square, round, or of any other form.

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

1. Fixing elastic strips or other material, A, in the head B, so as to provide a reserve of material, which is made available when the strips are adjusted, as explained.

2. In a brush constructed as above specified, with sockets passing completely through the head, scrubbing strips or tufts composed of or surrounded by india-rubber, to adapt them to be adjusted as required and retain their positions in the head while in use, as explained.

3. Securing the fibrous material A in the head B by means of the elastic bushing C, substantially as described.

E. A. HARVEY.

Witnesses:
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W. F. HALL.