Dec. 21, 1937. H. SIEMUND 2,103,198

CLEANING TOOL

Filed March 12, 1936

Fig. 1.

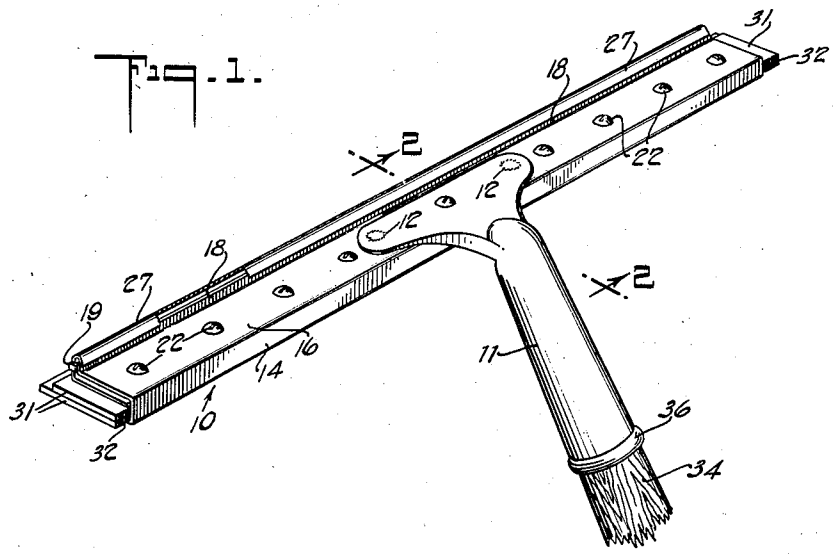


Fig. 2.

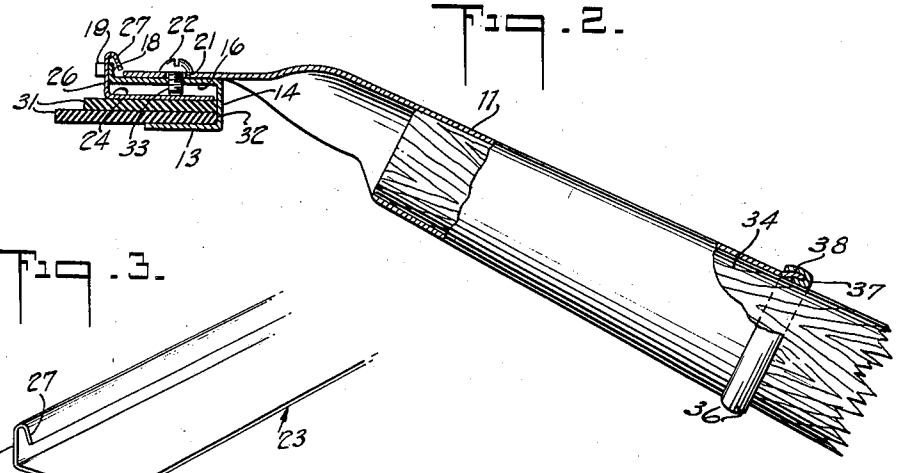
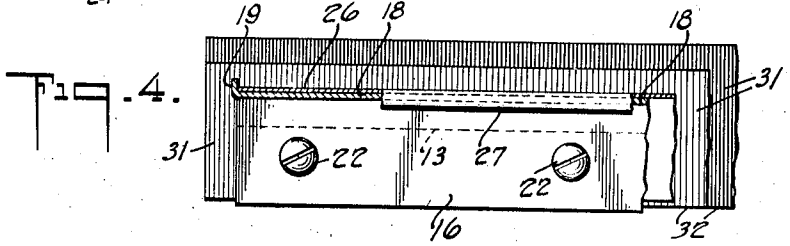


Fig. 3.

Fig. 4.



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Patented Dec. 21, 1937

2,103,198

UNITED STATES PATENT OFFICE

2,103,198

CLEANING TOOL

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Application March 12, 1936, Serial No. 68,488

7 Claims. (Cl. 15—245)

The present invention relates to improvements in cleaning tools, and it has particular relation to cleaning tools or devices of the squeegee type such as are used generally in the cleaning of windows, floors and the like.

In the conventional cleaning device of the character described, which is in general use today, the flexible material or wiping edge, such as composition, rubber, rubber and fabric, felt, etc., is secured therein by means of bolts or screws extending through the holder and through the material itself. In such devices, only one edge of the flexible material may be used and when that has become worn the material must be replaced. Furthermore, the material must be properly and accurately measured and punched to receive the fastening bolts or screws, which after a short time tear through by the strain put on the material during actual use. When this happens the efficiency of the device is impaired, and it is necessary to replace the wiping edge. It is not unusual in devices of this type to have to replace the flexible portion long before the usefulness of the material itself is destroyed because of one or more of the failures described above.

It is an object of this invention to obviate the disadvantages of the conventional type of cleaning device described above, and to provide a device of the character described, which is of simple and inexpensive construction, that will securely hold a flexible wiping edge in place without requiring the necessity of destroying one edge thereof by perforating it with holes necessary to secure it in the holder.

Another object of the invention is the provision of a cleaning device in which the flexible wiping edge may be sold and distributed in rolls from which individual strips may be cut to length and securely inserted in the holder without requiring any precision measuring and punching for the purpose of fastening in the holder.

A further object of the invention is the provision of a cleaning tool in which the flexible portion or wiping edge may be reversed when one side has become worn through use, without impairing the usefulness of the holder or the means of securing the material therein.

Another object of the invention is to provide a cleaning holder which will permit the use of one or more strips of flexible material without impairing or injuring the usefulness of the tool or its efficiency.

A further object of the invention is the provision of a device of the character described which will permit the use of strips of material of various thicknesses without requiring any adjustment or provision whatsoever.

Other and further objects and advantages of the invention reside in the detailed construction of the holder, which result in simplicity, economy and efficiency, and which will be apparent from the following description, wherein a preferred form of embodiment of the invention is shown, reference being had to the accompanying drawing, forming a part hereof, in which:

Fig. 1 is a perspective view, with parts broken away, of a cleaning holder embodying the improvements of my invention;

Fig. 2 is a cross-sectional view, partially in elevation, of the device shown in Fig. 1, the same being taken substantially along the line 2—2 thereof;

Fig. 3 is an enlarged, fragmentary, perspective view of the L-shaped clamping bar shown in the drawing of Figs. 1 and 2; and

Fig. 4 is a fragmentary plan view, on an enlarged scale, of the cleaning tool shown in Fig. 1.

Referring now in detail to the drawing, there is shown a metallic U-shaped supporting structure or member 10, having a handle or handle receiving means 11 mounted intermediate the top side thereof by means of spot welds 12, or other suitable fastening means. The U-shaped member 10 is formed integrally, having a short lower arm 13, an upstanding back portion 14 and a long top arm 16. The extreme outer edge 17 of the top arm 16 is provided with an upstanding flange 18, and forwardly extending projections 19 formed integrally therewith, which projections 19 extend from opposite ends of the arm 16 beyond the front edge thereof in the same horizontal plane as the flange 18. The top arm 16 of the U-shaped member 10 is provided with a series of spaced apertures 21, which are internally threaded to receive bolts 22.

A clamping or locking bar 23, of L-shape or angular construction, having a long flat horizontal arm 24 and a short vertical arm 26 having a rolled or curved edge portion 27 is adapted to be mounted pivotally over the upstanding flange 18 of the U-shaped supporting member 10, thereby positioning the flat arm 24 between the arms 13 and 16 thereof. It will be noted that the flat arm 24 is of a width substantially equal to the arm 16 of the U-shaped member 10, and that when the clamping bar 23 is suspended over the flange 18 by means of its curved edge 27, the projections 19 provide for proper centering and also prevent any cross-wise or longitudinal movement

or sliding of the two members 10 and 23 with respect to one another.

The flexible wiping edge, which consists of one or more strips of suitable material 31, is manually inserted or positioned between the clamping bar arm 24 and the lower arm 13 of the supporting member 10. While I have shown two separate strips of flexible material 31 of different widths, it is, of course, obvious and optional what number of strips are employed, or whether their thicknesses are the same. Manifestly, the widths of material and the thickness thereof may be varied at the discretion of the operator or user without imparting from the utility of the tool or from the limits of the invention.

In assembling the apparatus, the bolts 22 are unscrewed or withdrawn until the threaded shank 33 no longer projects entirely through the arm 16 of the member 10. Then the clamping bar 23 is positioned over the upstanding flange 18 by means of its curved edge 27 between the forwardly extending projections 19. In this position the horizontal arm 24 of the clamping bar 23 extends in substantially parallel relation between the arms 13 and 16 of the supporting member 10, and by reason of its being pivotally suspended over the flange 18 the arm 24 is free to move within the limits of the space between the two arms 13 and 16 of the member 10. The strips of flexible wiping material 31 are then positioned in the assembly between the under side of the arm 24 and the upper side of the arm 13, with the inside edge 32 of the material 31 in contact with the back 14 of the supporting member 10. In this position the bolts 22 are threaded through the apertures 21 of the arm 16 until they come in contact with the top of the arm 24 and force it tightly against the flexible strips 31 and arm 13, thereby tightly and fixedly securing the strips 31 between the arms 13 and 24 by a wedging or clamping action thus obviating the necessity of puncturing the material 31 with holes for the purpose of securing it in the holder.

Thus it will be seen that with my improved holder or tool, it is possible to vary the thickness or number of strips of flexible material to be used in the device without difficulty or loss of efficiency, and that in changing or replacing the wiping material it is only necessary to cut it to length, either from rolls or long strips, thereby obviating the necessity of making precision measurements and punching properly centered holes to correspond with the spacing of the clamping bolts or screws. It will also be apparent that, in my improved device, when one side of the wiping material has become worn and inefficient, the material may be reversed and the opposite edge utilized, which is a feature that is impossible when apertures or notches are cut into the one side for fastening purposes. Consequently, the useful life of the wiping material is increased two-fold by my novel fastening arrangement, thereby greatly reducing the cost of operating the holder. Furthermore, dealers in such tools need no longer carry large and expensive assortments of wiping blades or material, cut and punched to fit different types and makes of tools. Since with my tool any size or thickness of material may be used.

Attention is directed to the features of the handle 11, which is of hollow construction and formed from a single piece of material, thereby being of a split construction, which provides for expansion when a wooden pole or handle member 34 is inserted therein when the tool is to be used in cleaning in places, such as floors or windows, out of reach of the ordinary operator. The hollow handle 11, as best shown in Fig. 2, is provided with a one piece non-expansible locking ring 36 mounted around the outer edge 37 of the handle 11. This ring 36 has a circumferentially extending slot or groove 38 along one side thereof into which is inserted the end 37 of the handle 11, and the two members are then tightly pressed together forming a tight and permanent fastening. While the handle 11 by reason of being formed from one piece of split construction, will expand upon the reception of a wooden pole 34 of slightly large diameter, the locking ring 36 being integral prevents expansion or splitting of the extreme outer edge 37 thereof, thereby providing positive means for frictionally maintaining the hollow handle 11 and the wooden handle 34 in locking engagement under ordinary operating conditions, but not preventing their ready separation when desired.

Although I have only described one modification which my invention may assume, it will be readily apparent to those skilled in the art that the invention is not so limited, but that various modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

What I claim is:

1. In a cleaning device of the character described, a U-shaped structure having means on one arm thereof for engaging a clamping bar in said structure, an angular clamping bar in said structure having means along one side for engaging said means of said U-shaped structure, a cleaning member having one edge thereof positioned between the clamping bar and the opposite arm of said U-shaped structure, and means for rigidly securing said cleaning member within said U-shaped structure.

2. In a cleaning device of the character described, a U-shaped structure having means on one arm thereof for engaging a clamping bar in said structure, an angular clamping bar in said structure having means along one side thereof for engaging said means of said U-shaped structure, means for preventing longitudinal movement of said clamping bar, a cleaning member having one edge thereof positioned between the clamping bar and the other arm of said U-shaped structure, and means for securing said cleaning member within said U-shaped structure.

3. In a cleaning device of the character described comprising a U-shaped supporting structure having means extending outwardly from one arm thereof for engaging a clamping bar in said structure, a removable clamping bar of L-shape construction in said structure having means along one side thereof for engaging said first mentioned means of said U-shaped structure, a cleaning member having one edge thereof positioned between the clamping bar and the opposite arm of said U-shaped structure, and means for securing said cleaning member within said U-shaped structure.

4. In a cleaning device of the character described comprising a U-shaped supporting structure having a flange projecting outwardly from one arm thereof for engaging a clamping bar in said structure, a removable clamping bar of L-shape construction in said structure having means along one side thereof for pivotally engaging said flange of said U-shaped structure, a cleaning member having one edge thereof positioned between the clamping bar and the opposite arm of said U-shaped structure, and means for securing

said cleaning member and clamping bar within said U-shaped structure.

5. In a cleaning device of the character described comprising a U-shaped supporting structure having handle receiving means mounted intermediate its ends, means extending outwardly from one arm of said U-shaped structure for engaging a clamping bar in said structure, a removable angular clamping bar in said structure having means along one side thereof for engaging said first mentioned means of said U-shaped structure, means for preventing longitudinal movement of said clamping bar, a cleaning member having one edge thereof positioned between the clamping bar and the opposite arm of said U-shaped structure, and means for wedgingly securing said cleaning member and clamping bar within said U-shaped structure.

6. A cleaning device of the character described comprising a U-shaped supporting structure having a handle mounted intermediate its ends, said U-shaped structure having a relative long upper arm and a relatively short lower arm, means extending along the edge of said upper arm for receiving a clamping bar, a removable clamping bar of angular shape having an inturned edge along one side thereof for pivotally engaging said means when the other side extends inwardly between the arms of said U-shaped structure, means extending outwardly from each side of said upper arm of said U-shaped structure for preventing longitudinal movement of said clamping bar, a cleaning member adapted to have one edge thereof positioned between the clamping bar and the lower arm of said U-shaped structure, and means mounted in the upper arm of said U-shaped structure for securing said cleaning member in said structure.

7. In a cleaning device, a handle supporting member of U-shaped construction, means positioned adjacent one edge for engaging a clamping bar in the supporting member, an L-shaped clamping bar in the supporting member having a rolled edge along its shorter side adapted to engage said clamping bar engaging means, a second means adjacent the first mentioned means for preventing longitudinal movement of said clamping bar, a cleaning member having one edge thereof wedgingly fastened between the long side of the clamping bar and the other side of said U-shaped member, and means mounted on said one side of the U-shaped member for causing said clamping bar to engage and secure said cleaning member tightly against the other side of the supporting member.

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