

Jan. 11, 1955

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2,698,955

DETACHABLE FASTENING MEANS FOR MOP STRUCTURES

Filed Nov. 4, 1950

2 Sheets-Sheet 1

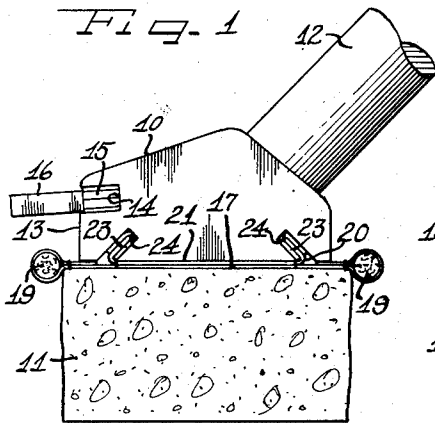
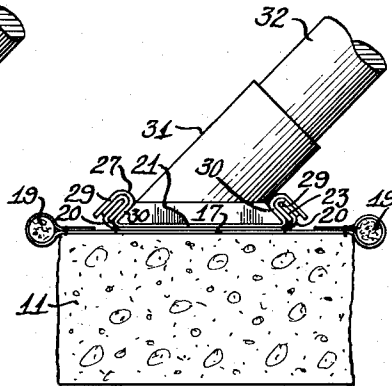


FIG-2

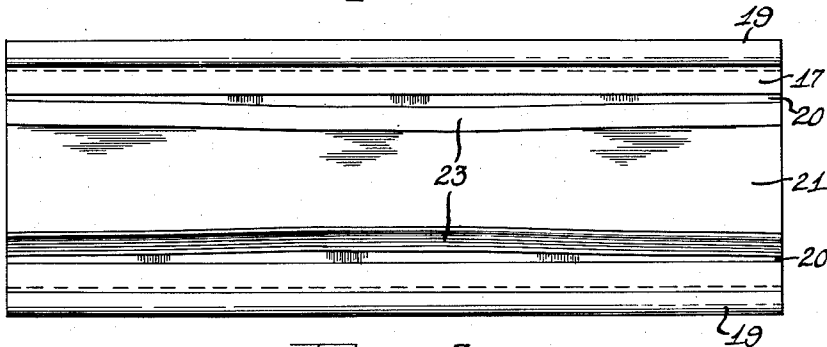


FIG-3

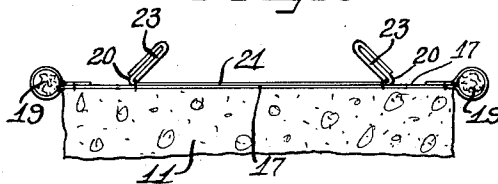
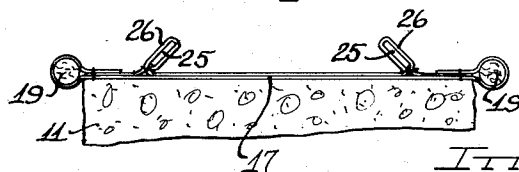


FIG-4



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Fig. 7

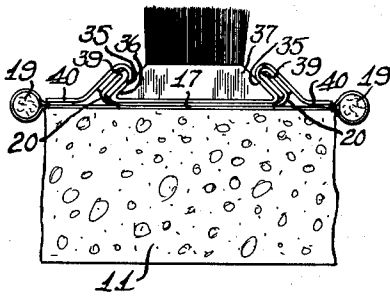
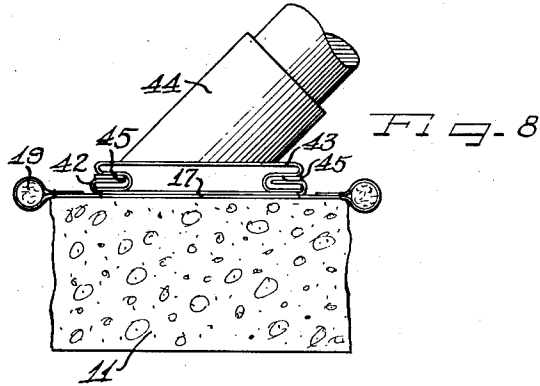


Fig. 5

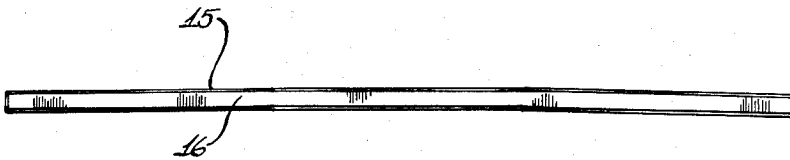


Fig. 9

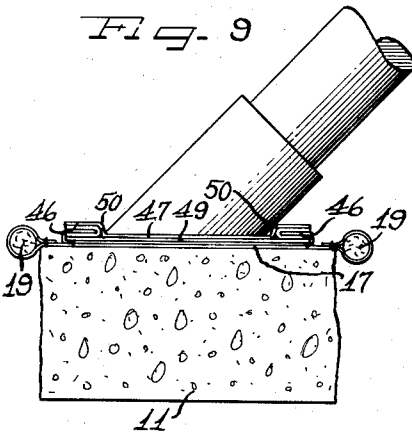
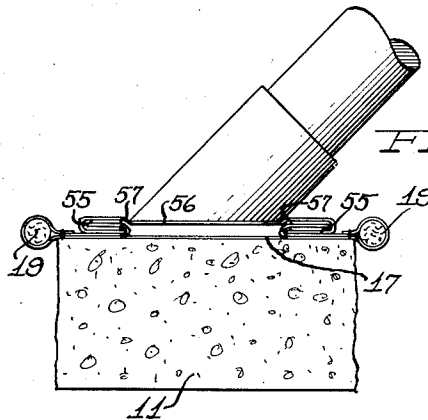


Fig. 10



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DETACHABLE FASTENING MEANS FOR MOP STRUCTURES

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Application November 4, 1950, Serial No. 194,056

2 Claims. (Cl. 15—244)

This invention relates to improvements in mop structures and more particularly relates to a new and improved fastening means for detachably securing a cleaning element to a cleaning or mop head.

An object of my invention is to provide a novel form of securing means arranged with a view toward securing a cleaning element to a cleaning head in a simpler and more expeditious manner than formerly.

A further object of my invention is to provide a new and improved form of securing means for detachably securing a cleaning element to a cleaning or mop head by the deformation of a resilient bar secured to the cleaning element and held in a deformed condition by the cleaning head and retained thereto by the tendency of the bar to regain its normal form.

A further and more detailed object of my invention is to provide a means for detachably securing a cleaning element to a cleaning head by the use of a pair of spaced resilient bars secured to the cleaning element and mounted thereon for movement with respect thereto about axes extending longitudinally of the cleaning element, and slidable into engagement with slotted portions of the cleaning head and held thereto by the tendency of the bars to regain their normal form.

A still further and more detailed object of my invention is to provide a new and improved form of securing means for detachably securing a cleaning element to a cleaning head by mounting a fabric backing on the cleaning element and mounting a pair of longitudinally extending bars on the backing for movement with respect to the cleaning element about axes extending longitudinally of the backing and providing two spaced rectilinear slots extending along the cleaning head for engagement with the bars and deforming the bars when inserted therein and positively holding the cleaning element to the cleaning head by the tendency of the bars to regain their normal form.

These and other objects of my invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawings wherein:

Figure 1 is a view in side elevation of a cleaning element secured to the cleaning head in accordance with my invention, showing the handle for the cleaning element broken away;

Figure 2 is a top plan view of a cleaning element showing the fabric backing and securing means constructed in accordance with my invention secured thereto;

Figure 3 is a fragmentary end view of a cleaning element having a fabric backing secured thereto, showing the securing bars secured to and extending along the backing;

Figure 4 is a view somewhat similar to Figure 3, but showing another way in which the securing bars may be secured to the backing than is shown in Figure 3;

Figure 5 is a front end view of a squeegee constructed in accordance with my invention showing the bow of the securing bar;

Figure 6 is a view in side elevation of a cleaning element like that shown in Figure 1, showing another form of cleaning head than is shown in Figure 1 and illustrating a modified form in which my invention may be embodied;

Figure 7 is a view in side elevation of a cleaning element and modified form of cleaning head, illustrating another form in which my invention may be embodied;

Figure 8 is a view in side elevation of a cleaning element secured to a cleaning head in accordance with my

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invention, and showing still another form in which my invention may be embodied;

Figure 9 is a view in side elevation for a cleaning element secured to a cleaning head in accordance with my invention, illustrating another way in which the form of my invention illustrated in Figure 8 may be embodied; and

Figure 10 is a view in side elevation of a cleaning element and cleaning head illustrating still another form in which the cleaning element may be detachably secured to the cleaning head in accordance with my invention.

In the embodiments of my invention illustrated in Figure 1 of the drawings, a cleaning or mop head 10 is shown as having a relatively flat bottom portion abutting the top surface of a cleaning element 11 which may be detachably secured thereto, as will hereinafter more clearly appear as this specification proceeds. The mop head 10 has a handle 12 extending angularly upwardly from the rear end portion thereof at a flat enough angle to enable the cleaning element to readily pass underneath low furniture.

The cleaning element 11, as herein shown, may be made from a block of compressible material such as a natural or cellulose sponge, or any other like material, and is shown as comprising a rectangular block of cellulose sponge, such as is commonly used for cleaning and mopping purposes.

The mop head 10 is also shown as having a front vertical face 13 having a slot 14 extending therealong which may be rectilinear and which may form a support for a retaining bar 15 of a squeegee 16. The retaining bar 15 may be made of a flexible or resilient metal such as steel and may be clinched to said squeegee. Said retaining bar may also be bowed intermediate its ends and may be mounted in said slot from an end thereof and held thereto by the tendency of said bar to regain its normal form. The squeegee 16, projecting from the face 13, may be used for cleaning purposes and also may serve as an end bumper for the mop to prevent damage to the baseboards or furniture during mopping. It is, of course, obvious that, if desired, a brush (not shown) or various other forms of cleaning elements may be substituted for the squeegee 16. The bar 15 may be of a channel-like cross-section formed from strip steel bent along its longest axis and secured to the squeegee 16 as by crimping. While the bar 15 is described as being bowed, the slot 14 may be bowed instead to distort the bar and hold the squeegee 15 within said slot by the tendency of said bar to assume its original form.

Referring now in particular to the means for securing the cleaning element 11 to the cleaning or mop head 10, as shown in Figures 1, 2 and 3, the cleaning element 11 has a fabric backing 17 conforming in outline to the form of said cleaning element and secured to the top surface of said cleaning element as by cementing. The fabric backing may be made of a heavy canvas and may be of a single or double layer. The lateral edge portion of said backing may extend beyond the opposite sides of the cleaning element and may be wrapped around and sewed along the inner edges of resilient bumping members 19—19 extending beyond and along the sides of the cleaning element. The bumping members or elements 19—19 may be heavy cords or elongated rubber bumpers, preferably circular in cross-section, or any other suitable resilient members. The bumping elements 19—19 encased in the fabric 17 thus form flexible bumpers extending beyond and along the opposite outer edges of the cleaning element 11 and mop head 10 to prevent scarring of the furniture or woodwork by the mop head, either with or without the squeegee 16 mounted on the mop head.

The fabric backing 17 is shown in Figures 1, 2 and 3 as having spaced tabs 20—20 extending therealong formed from a second layer of fabric 21 secured to the top of the backing 17. The second layer of fabric may be sewed to the backing 17 inwardly of the outer margins of said backing 17 and the layer 21, leaving the tabs 20—20 extending from the seams sewing the layers together for substantially the entire length of the backing. Where a single layer of canvas is used, the tabs 20—20 may be formed by taking tucks in the canvas before cementing to the mop element.

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The tabs 20—20 may each be encased in a metal retaining bar 23 which may be crimped thereto. The bar 23 may preferably be made from a flexible or resilient strip metal such as steel and may be bent along its longitudinal axis and crimped to the tabs 20—20. The retaining bars 23—23 are shown in Figure 2 as being bowed intermediate their ends and when secured to the tabs 20—20 are free to move about axes extending longitudinally of the cleaning element for insertion in parallel spaced slots 24—24 extending along the mop head and opening to opposite ends thereof.

The slots 24—24 may be of a different form than the bars 23—23. Where the bars are bowed, said slots may be rectilinear to deform or straighten the bars 23—23 when inserted in the slots 24—24 and hold the cleaning element to the cleaning or mop head by the flexibility of the bars and their tendency to resume their bowed forms. The slots 24—24 are shown in Figure 1 as being inclined inwardly with respect to the cleaning head 10 in intersecting planes but may be inclined outwardly or may extend vertically or horizontally along opposite edges of the mop head 10 if desired.

In Figure 4 I have shown a modified form in which my invention may be embodied wherein flexible or resilient metal bars 25 are sewn within tucks 26 taken in the fabric backing instead of being crimped thereto. In this form of my invention the fabric backing extends around the bars and is sewed together adjacent the inner sides of the bars, the bars being carried within the fabric and preferably bowed, the bow of each bar retaining it in the respective slot 24 of the cleaning head.

In the form of my invention shown in Figure 6 the cleaning element 11, fabric backing 17, end bumpers 19—19, tabs 20—20, and retaining bars 23—23 are the same as in the form of my invention shown in Figures 1 through 3, so the same reference numbers will be used to refer to the cleaning element and its securing parts as were used in Figures 1, 2 and 3. In this form of my invention a cleaning or mop head 27 is shown as being formed from sheet metal and has downwardly opening annular retaining slots 29—29 extending along the outer sides of said cleaning element. The slots 29—29 may be formed by bending opposite side portions 30—30 of the mop head angularly inwardly and upwardly and then by reverse bending the end portions thereof to form parallel spaced rectilinear slots 29—29 extending along opposite sides of the cleaning head. The mop element may then be held to the mop head by the bowed retaining bars 23—23 by the tendency of the bars to assume their bowed form when straightened by insertion in the slots 29—29 in the same manner as in the form of my invention shown in Figure 1. It should herein be noted that in this form of my invention the mop head is spaced inwardly of opposite sides of the mop element and that the mop element itself protects the woodwork and furniture from the metal ends of the mop head but that the resilient bumpers 19—19 secured directly to the mop element also serve as a furniture protecting means. The extreme ends of the mop head (not shown) may be rounded or beveled to avoid any sharp corners.

The angularly inwardly turned ends or walls 30—30 of the mop head form a dovetail slot extending therealong which may have interengaging connection with the inclined wall portions of a socket 31 of a handle 32 to enable the handle to be detachably mounted thereon by sliding from the end thereof. The dovetail slot formed by the inwardly inclined walls may also form a slot to hold brushes or other cleaning elements, such as squeegees, dust mop heads, waxing pads and applicators, which may be detachably secured thereto if desired.

In the form of my invention illustrated in Figure 7, a mop plate or head similar to that illustrated in Figure 6 is shown as having laterally spaced facing angularly inwardly and upwardly bent wall portions 35—35 forming a dovetail slot 36 extending the length of the head for the reception and holding of a handle socket or a cleaning element such as a brush 37. The mop plate may then be bent backwardly along the wall portions 35—35 to form two inclined slots 39 extending in parallel relation with respect thereto along the mop head in converging planes, like the slots 29—29 of the mop head 27. The ends 40—40 of the downwardly bent portion of the mop plate may then extend outwardly along the

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top of the mop head in a horizontal plane to the outer sides of the mop element to form a backing thereof, it being understood that the corners of the plate are rounded or beveled.

Figure 8 illustrates still another mop head formed from a metal plate 43 having the major portion thereof spaced above the mop element in parallel relation with respect thereto and having a handle socket 44 secured to and extending angularly from the top of said plate. The plate 43 is herein shown as having outwardly opening retaining slots 45—45 extending along opposite sides thereof and formed by bending opposite edges of said plate inwardly and then reverse bending the edges outwardly in parallel spaced relation with respect to the inwardly bent portions thereof. The outwardly opening slots 45—45 receive and deform the retaining bars 23—23 and secure the mop element to the mop head by the tendency of the retaining bars to regain their normal forms. It is obvious that, if desired, the plate 43 may be inverted and the space between the inturned slotted portions thereof may form a securing means for a handle socket or cleaning tool.

In the form of my invention shown in Figure 9, outwardly opening retaining slots 46—46 are shown as being formed by a plate 47 secured to the top of a plate 49 as by welding or riveting, and having upwardly and outwardly turned outer shouldered portions 50—50 bent to extend in parallel relation with respect to the plate 49. The slots 46—46 receive and deform the inwardly turned retaining bars 23—23 and secure the mop element to said slots by the flexibility of the retaining bars, as in the form of my invention shown in Figure 8.

Still another form in which my invention may be embodied is shown in Figure 10. In this figure, two inwardly opening retaining slots 55—55 extend along the underside of a plate 56 forming the mop head. As herein shown, the slots 55—55 are formed by bending the edge portions of the plate 56 upwardly a slight distance to form shouldered portions 57—57 extending along each side of said plate. The edge portion of the plate 56 may then be bent outwardly to extend parallel to the mop element and then inwardly in parallel relation with respect to the outwardly extending portions thereof. This spaces the plate 56 above the top of the mop element and forms the inwardly spacing slots 55—55, receiving and deforming the outwardly turned resilient retaining bars 23—23.

It should here be noted that in this form of my invention the plate portion 56 of the mop head is spaced beneath the upper margins of the slots 55—55 and the shouldered portions 57—57 thereof abut the inner edges of the bars 23—23 and prevent said bars from backing away from the slots 55—55. In this form of my invention the bars 23—23 need only be bowed an amount necessary to provide sufficient friction between said bars and slots to prevent the mop element from falling endwise from the mop head when turned to extend in a vertical direction.

It may be seen from the foregoing that a simple, novel and improved retaining means has been provided particularly adapted to detachably secure a cleaning or mop element to a mop head by deforming a resilient retaining member and positively retaining the mop element of the mop head until removed by hand by the tendency of the retaining member to assume its normal form due to its resiliency.

It may further be seen that this holding means may be used for various types of cleaning devices such as squeegees, cellulose sponge types of mops, brushes, dust mops for waxing applicators, and that it provides a simple and extremely effective securing means for detachably securing a mop element to a mop head.

It may also be seen that the securing means of my invention depends upon the deformation of a resilient bar in a slot and the tendency of the bar to regain its natural form to hold it and the cleaning element to the mop head and may be made in various forms and arrangements and may be made of various materials other than metal, or metal and wood, or metal and plastic material, as long as one of the parts thereof has sufficient flexibility to always tend to spring back to its normal form when deformed.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

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I claim as my invention:

1. In a cleaning device, a mop head, a cleaning element, and means for detachably securing said cleaning element to said mop head including a slidable engaging connection between said cleaning element and said mop head including a plurality of slots extending along the bottom of said mop head and opening to the bottom and opposite ends thereof, and inclined with respect to the vertical in converging planes, a fabric backing secured to the back of said cleaning element and having two spaced flexible bars secured thereto inwardly of the margins thereof and extending therealong and mounted for pivotal movement with respect thereto about spaced axes extending longitudinally thereof, the slotted portions of said mop head being rectilinear and said bars being bowed intermediate their ends and slidable endwise into said slots and deformed thereby and held thereto by the flexibility of said bars.

2. A cleaning device comprising a mop head, a cleaning element, and means securing said cleaning element to said mop head including a fabric backing secured to the back of said cleaning element and extending therealong and having two longitudinally extending flexible tabs extending outwardly therefrom adjacent opposite outer sides thereof but inwardly of the outer margins thereof, a flexible metal bar secured to each of said tabs

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for movement therewith about parallel axes extending longitudinally of the mop head, and two inclined rectilinear slots extending along the mop head and opening to the bottom and opposite ends thereof, said bars being bowed transversely of the length thereof and said slots deforming and holding said bars and the cleaning element to the mop head by the tendency of said bars to regain their normal forms.

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