United States Patent

Du Crest et al.

[15] **3,663,981**

[45] **May 23, 1972**

[54] MOP HAVING COILED CLEANING ELEMENTS

[72] Inventors: **Malquin S. Du Crest; Stephen W. Du Crest,** both of Box 95, Tensas Parish, St. Joseph, La. 71366

[22] Filed: **Aug. 26, 1970**

[21] Appl. No.: **66,995**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 30,145, Apr. 20, 1970, abandoned.

[52] **U.S. Cl.** **15/225,** 15/228

[51] **Int. Cl.** **A47l 17/04**

[58] **Field of Search** ..... 15/115, 118, 147 R, 209 R, 15/209 AH, 210 R, 225, 226, 228, 229 R, 229 A, 234, 235

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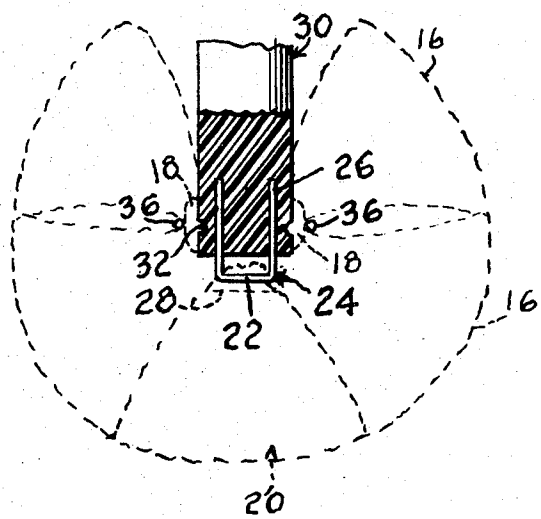
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Primary Examiner—Daniel Blum
Attorney—John X. Phillips

[57] **ABSTRACT**

A plurality of cleaning elements, two or more, are formed of long strips of nylon net gathered lengthwise centrally of the lengths of the strips and then rolled and the gathered centers of the elements fixed, whereupon one of such elements is fixed with respect to a socket, handle or other element therebelow in such a manner as to protect a surface being cleaned from direct contact with the socket or holder. The remaining elements are secured around the lower portion of the socket or holder and blend with each other and with the lower element to appear as one fluffy cleaning unit of substantial size.

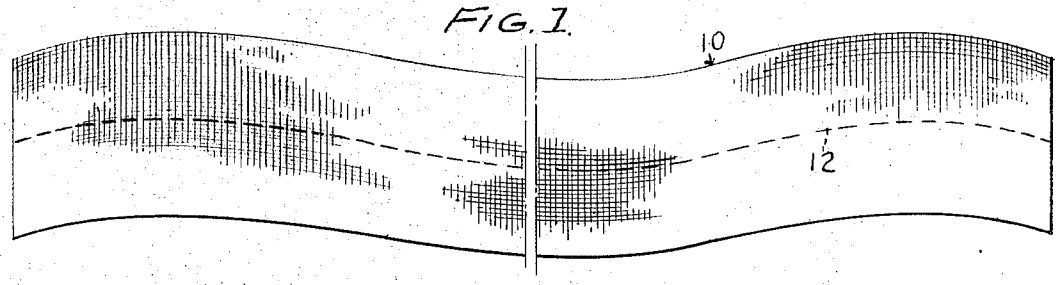
8 Claims, 16 Drawing Figures



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FIG. 1.



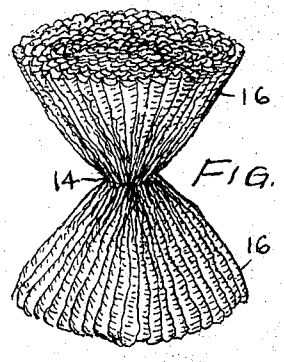


FIG. 2.

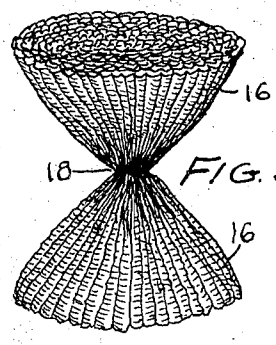
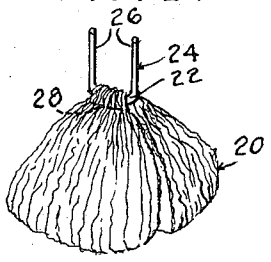


FIG. 3.

FIG. 4.



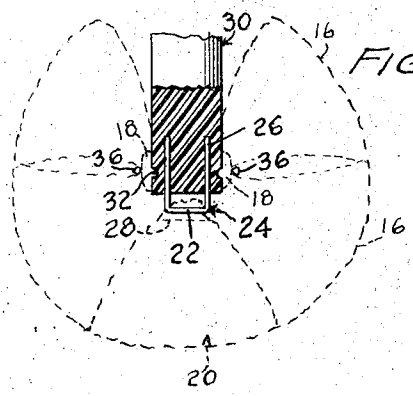


FIG. 5.

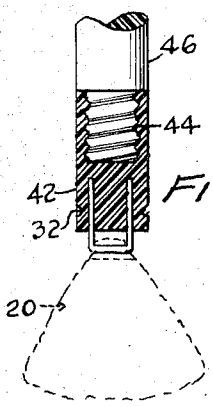


FIG. 6.

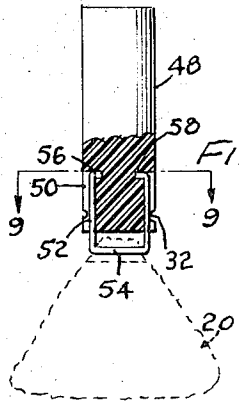


FIG. 7.

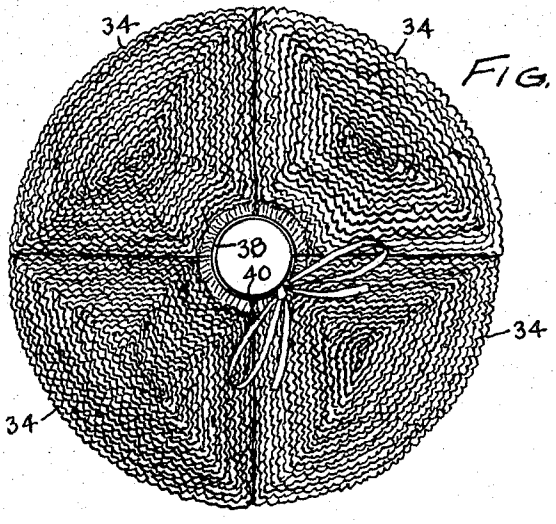
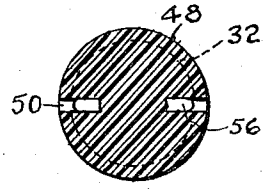


FIG. 8.

FIG. 9.



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FIG. 10.

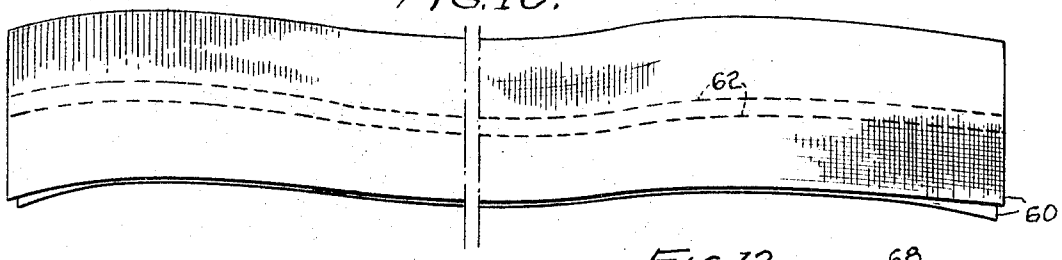


FIG. 11.

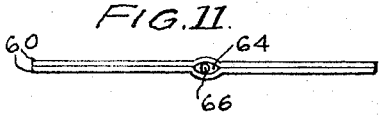


FIG. 12.

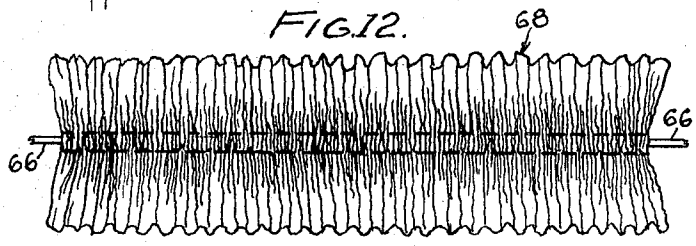


FIG. 13.

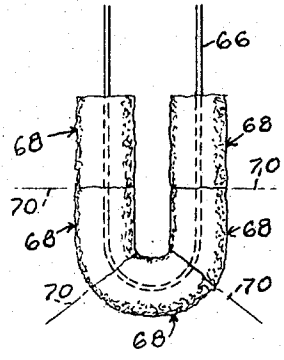


FIG. 14.

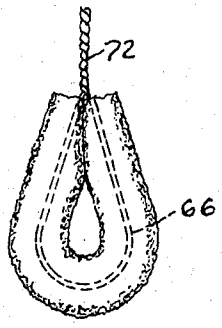
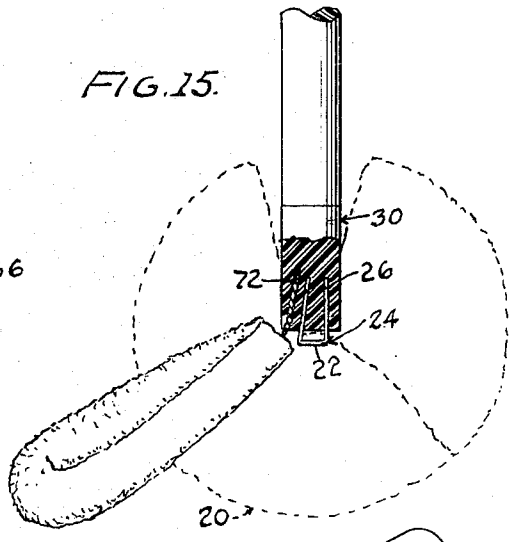


FIG. 15.



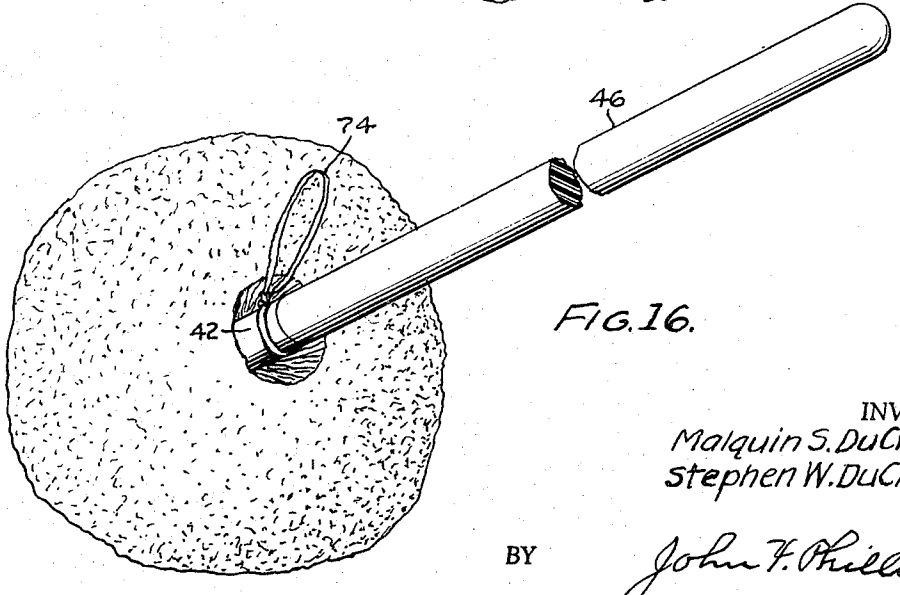


FIG. 16.

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MOP HAVING COILED CLEANING ELEMENTS

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of our corresponding application, Ser. No. 30,145, filed Apr. 20, 1970, now abandoned.

BACKGROUND OF THE INVENTION

The invention relates to the field of cleaning implements, such as mops, and has particular relation to the use of mop elements formed of nylon net or any suitable open-ended material from the new synthetics such as those made of polyvinyls, polyesters, or polyethylene, or any other suitable synthetic resins commonly known as plastics. These hydrophobic fibers are desirable for use as mops for the reason that they are non-porous, non-absorbent and not harmed or affected by moisture or cleaning agents, and they provide an effective cleaning action.

Single elements of such material as nylon net are now in use as cleaning elements, and are particularly effective for cleaning pots and pans because of their efficient scrubbing action, especially in the presence of cleaning compounds. These single cleaning elements are relatively small, do not cover substantial surfaces and are not adapted for use with handles whereby the person cleaning can scrub bathtubs, toilet bowls and the like without bending or stooping. Moreover, efforts to secure such elements to handles have been impractical since the lower ends of the handles can come into contact with and scratch surfaces being cleaned, this being particularly true of enameled surfaces.

SUMMARY OF THE INVENTION

The present device is made up of two or more nylon net elements in strip form, of appreciable width, for example, four inches. These strips are long and while the number of strips employed is not limited, it is preferred that five strips be employed for a reason which will become apparent. Each of these strips is relatively long, for example, 72 inches and each strip is gathered longitudinally from end to end centrally of its width, whereupon the strip is rolled. Under such conditions, the center of the roll representing the gathered longitudinal center line portion will be small, and the element will expand into substantially conical form on opposite sides of such gathered center. In gathering the strips, the gathered line may be fixed in any suitable manner, for example by stitching, but it is preferred that pressure and heat be employed to fuse the material.

After such gathered strip has been rolled, the contracted central portion is preferably reduced in size by applying circumferential pressure and heat to fuse the turns of the wound strip to anchor it into shape. One of the elements thus formed is bent at its center over the cross member of a U-shaped holder, the two ends being bent downwardly and diverge in all horizontal directions because of their normal conical formation as described above. Just below the transverse element of the U-shaped member, such cleaning element is then either lock stitched or fused under pressure, thus preventing the U-shaped member from ever coming into contact with the surface being cleaned.

The remaining gathered, rolled and fused elements, which may be four in number, then have their central portions arranged in circumferentially spaced relation around a plug, socket or handle to the bottom end of which the U-shaped member is connected. A binding flexible element is then tied around the centers of such cleaning elements to fix them to the socket or the like, which may be broadly termed as a holder. This holder may be circumferentially grooved near its lower end so that the binding element tied therearound will enter such groove between the gathered central portions of the cleaning elements to fix them against sliding movement along the holder. The flexible tying element is preferably nylon cord, although any metallic wire may be employed, preferably of non-ferrous material to prevent its rusting or corroding. Each of the elements tied around the holder will flare out vertically from the gathered center as well as circumferentially, and these elements blend with each other and with the bottom element to appear as a single large fluffy cleaning element.

The cleaning elements may be of any desired color to enhance the attractiveness of the article, and its appearance may be improved by tying a colored bow of ribbon around the holder above the cleaning unit. The holder also may be provided with a loop by which the implement may be hung upon a hook. With the structure described, the holder may be provided with a long handle whereby such units as a bathtub or toilet bowl can be readily and thoroughly cleaned without the users having to bend, stoop or kneel. The device provides not only an effective cleaning unit, but it is impossible for any hard elements of this structure, such as the U-shaped member or holder to come into contact with the surface being cleaned, thus preventing the scratching of the surface.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan or perspective view of one of the nylon or similar strips used in the making of the device, a portion of the strip being broken away;

FIG. 2 is a perspective view of one of the cleaning elements after it has been longitudinally gathered and rolled;

FIG. 3 is a similar view after the contracted center of the element has been fused;

FIG. 4 is a perspective view of the lowermost cleaning element mounted on the U-shaped member;

FIG. 5 is a sectional view of the lower end of a holder showing the adjacent cleaning elements in dotted lines;

FIG. 6 is a similar sectional view showing the holder in the form of a socket having a handle attached thereto;

FIG. 7 is a similar section showing a modified manner of attaching the U-shaped member to the lower end of a holder or handle;

FIG. 8 is a plan view of the device;

FIG. 9 is an enlarged detail section on line 9—9 of FIG. 7;

FIG. 10 is a view similar to FIG. 1 showing a strip formation for the making of an appurtenant device to be used with the mop;

FIG. 11 is an end elevation of the same;

FIG. 12 is a plan view of the section of the strips shown in FIG. 10 after being gathered;

FIG. 13 is a side elevation of a plurality of the strips in FIG. 12 mounted on a U-shaped frame;

FIG. 14 is a similar view with the upper ends of the frame twisted together;

FIG. 15 is a sectional view showing the main mop in dotted lines and the appurtenant mop in solid lines attached to the holder; and

FIG. 16 is a perspective of the main mop showing the use of a relatively long handle and showing the main mop appearing as a single unit.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the numeral 10 designates a strip of material used in making the mop. This strip is preferably formed of nylon net but may be made of any of the materials previously described. Two or more of the strips will be used in the making of the mop, and it is preferred that a number of the strips, for example five, employed for convenience in handling as will become apparent. The strip shown in FIG. 1 may be of any width and in practice it has been found that a strip 4 inches wide is desirable. This strip, by suitable mechanical means, is gathered along the longitudinal center line indicated by the numeral 12 to substantially reduce the length of the strip. After the strip has been gathered in this manner, the reduced central length is fixed, for example by stitching the strip, but preferably by fusing the material of the net. After being thus fixed as to length, the strip is wound from end to end and will then appear as shown in FIG. 2, the gathered cen-

tral portion **14** being of relatively small diameter and with the material of the cleaning element diverging upwardly and downwardly, as at **16** in substantially conical form. The center **14** is then subjected to a circumferential contracting force with applied heat to further reduce the center as at **18**, the material being fused by the heat so that it will retain the shape shown in FIG. **3**.

Assuming that the element shown in FIGS. **2** and **3** will form the bottom element of the mop, this element indicated by the numeral **20** in FIG. **4** will be bent at its center **18** to extend across the transverse element **22** of a U-shaped member **24** having upstanding parallel ends **26**. After the element **20** is thus bent into position, it is stitched below the transverse element **22** as at **28** or heat and pressure are applied to the material along the line **28** to fuse the element and thus fix it to the U-shaped member. Because of the formation of the rolled element in FIGS. **2** and **3**, it will be apparent that the element will diverge downwardly in all horizontal directions as shown in FIGS. **4** and **5**.

The U-shaped member **24** is then anchored to a suitable holder. In FIG. **5** this holder is indicated by the numeral **30** and may be formed of thermoplastic with the ends **26** embedded in the plastic while soft and the setting of the plastic will fix the U-shaped member in position. The member **30** forms the holder for the entire mop structure and may be of sufficient length so that the upper end may be grasped as a handle where the surface to be cleaned is readily accessible without bending or stooping. Near its lower end the holder **30** is preferably provided with a circumferential groove **32** for a purpose to be described.

The remainder of the mop is then formed of one or more and preferably four of the strips **10** for convenience in handling. Assuming that four such elements are employed, each will be formed as shown in FIGS. **2** and **3** to form elements **34** (FIG. **8**), central portions **18** of which will be arranged against the holder **30** around the groove **32**. In FIG. **8** a definite line of demarcation has been shown between the elements **34** for the purpose of clarifying the arrangement of the surrounding mop elements. It will become apparent, however, that due to the irregularity of the material and its gathering, no physical line of division will appear between the elements **34** and they will appear as a solid surrounding net structure. After being so placed in position, the elements **34** are fixed to the holder by a binding flexible element **36**. This element is preferably nylon cord but any non-ferrous wire may be employed. Because of the reduced size of the center **18** (FIG. **3**) of each element, the flexible element **36** will engage in the groove **32** between the element centers **18**. Thus the surrounding elements will be fixed to the holder, and they will blend with each other and with the bottom element **20** to appear as one mop unit, and the net material employed will preferably be of an attractive color. Above the mop unit as a whole, a colored ribbon **38** may be tied around the holder **30** and may be provided with a bow knot **40**, thus enhancing the attractiveness of the device.

In FIG. **6** a holder **42** is shown which may be identical with the holder **30** except that it is provided with a threaded axial opening **44** to receive the threaded lower end of a handle **46** which may be of any desired length, for example 35 inches, so that such units as bathtubs and toilet bowls may be effectively cleaned without requiring the operator to bend, stoop or kneel. The threaded connection of the handle in FIG. **6** is merely illustrative, and it will be apparent that any means may be employed for connecting the holder and the handle. It also will be apparent that the device may be provided with handles of different lengths for convenience in different uses of the mop.

In FIG. **7** a different type of holder **48** is employed which need not be in the form of a thermoplastic element as in FIG. **5**. The holder **48**, for example, may be formed of wood grooved at opposite sides as at **50** to receive the upstanding arms **52** of a U-shaped member **54**, the upper ends **56** of which may be turned inwardly to snap into recesses **58** formed in the holder **48**.

The mop as described is highly effective in use for cleaning open accessible surfaces. Some surfaces, for example in toilet bowls, are not so accessible, in which case the form of the device shown in FIGS. **10** to **15**, inclusive, is preferably used. In this case a plurality of superimposed strips **60** are used and these strips are gathered and then preferably fused along spaced lines **62** (FIG. **10**) to form a tunnel **64** between such lines through which may be inserted a relatively stiff wire **66** (FIG. **11**). When so gathered, each pair of superimposed strips will be shaped as generally shown in FIG. **12** to comprise one element of an auxiliary mop indicated as a whole by the numeral **68**. The wire **66** will be relatively long and it is preferred that five of the units **68** be threaded on the wire **66**. After being so threaded thereon, the wire will be bent into U-shape as shown in FIG. **13**. If five units **68** are employed, adjacent units will terminate as indicated by the dotted lines **70** although because of the nature of the material, these lines will not be visible. The ends of the wire **66** project beyond the uppermost units **68** and these projecting ends are then bent together and twisted as at **72**, whereupon these ends are inserted into a holder such as the holder **30** together with the upwardly extending ends **26** of the U-shaped member **24**. The auxiliary mop unit formed by the elements **68** will then project downwardly and outwardly as shown in FIG. **15** to be inserted around the upper portion of the trap of a toilet bowl, which is ordinarily inaccessible.

The main mop is illustrated in FIG. **8**, for example, will appear generally in practice as shown in FIG. **16** and the upper end of the holder may be provided with a loop **74** by which the mop may be hung on a suitable hook. As stated, the handle **46** may be of any desired length and at least one such handle of approximately 35 inches in length should be provided to render practicable the use of the mop without the operators having to stoop, bend or kneel for cleaning low surfaces such as bathtubs, toilet bowls or floors.

The material used in making the body of the mop, while highly flexible, is relatively hard-surfaced and provides an effective scrubbing unit. Thus the present device provides a relatively large mop for rapidly covering large surfaces and may be freely and vigorously used on surfaces which are capable of being scratched, such as enamel surfaces. The placing of the lower mop element **20** prevents the lower end of the holder or U-shaped member from coming into scraping contact with the surface being cleaned, thus protecting such surface from damage while subjecting it to an efficient cleaning action. By means forming no part of the present invention, the gathering of the net strips may very quickly and efficiently carried out and the assembling of the elements is quick and simple, thus presenting a highly efficient cleaning implement which may be manufactured at a very reasonable cost. The use of the auxiliary mop element shown in FIG. **15** permits inaccessible surfaces to be reached and the substantial gathering of the relatively stiff materials prevents any portion of the wire **66** from coming into contact with the surface being cleaned.

Specific reference has been made to the use of the materials named above in the making of the mop elements, and particularly nylon net, because of the highly desirable characteristics of this material. As stated above, it is relatively stiff to provide an effective scrubbing action and the material is hydrophobic. As a result, the material is unaffected by detergents and other scrubbing compounds which readily rinse from the mop, whereupon a shaking of the mop will dislodge substantially all water therefrom. The invention, however, is not limited to the use of any particular material in the making of the mop elements.

We claim:

1. A mop comprising a holder having upper and lower ends, a lower mop element at the lower end of said holder, and a plurality of upper mop elements surrounding said holder above the lower end thereof and flaring downwardly over said lower element, each said upper mop element being formed of a rolled strip of fabric constricted centrally of the width thereof and having said constricted portion fixed to said holder, and means for securing said lower element to the bot-

tom of said holder so as to prevent the lower end of said holder from coming into contact with a surface being cleaned.

2. A mop according to claim 1 wherein said lower mop element is formed of a rolled strip of fabric constricted centrally thereof to be folded over a transverse element of said lower element securing means, and means for fixing opposite portions of said lower mop element together beneath said transverse element.

3. A mop according to claim 1 wherein said upper mop elements surrounding the lower end portion of said holder are tightly rolled lengthwise from end to end and constricted centrally of the width of the strip material whereby the material above and below the restricted portion flares outwardly with the portion below said constricted portion flaring to merge with said lower mop element.

4. A mop according t claim 3 wherein said upper mop elements are engaged against said holder in circumferentially spaced relation, and means for binding said constricted portions tightly to said holder.

5. A mop according to claim 4 wherein said means for securing said lower mop element to the lower end of said holder comprises a U-shaped member having upper arms secured to said holder and a lower transverse element beneath the lower end of said holder, said lower mop element comprising a long strip of material rolled from end to end and having its portion centrally of the width of such strip of material constricted and folded over said transverse element to depend from said holder on opposite sides of said transverse element, opposite sides of said lower mop element being secured together beneath said transverse element.

6. A mop according to claim 5 wherein said lower mop element is formed of a fusible plastic material, opposite sides of said lower mop element being secured together by fusing the material thereof beneath said transverse element.

7. A mop according to claim 3 wherein said upper mop elements are gathered longitudinally of said strip of material intermediate the width thereof and then tightly rolled, the gathering of the material providing the upper mop elements with a constricted central portion with the portions of the strip flared outwardly.

8. A mop according to claim 6 wherein each said upper mop element is formed of a fusible plastic fabric, the opposite sides of each said strip around said constricted portion being fused together.

* * * * *