Nov. 20, 1956 J. L. ELLMAN 2,770,828

CLEANING DEVICE, INCLUDING FLUID DISPENSING MEANS

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Fig. 3

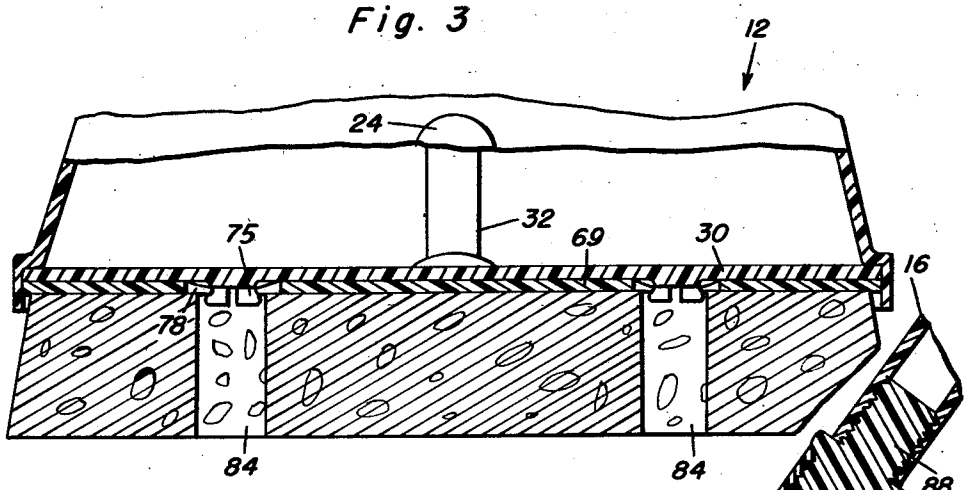

Fig. 4

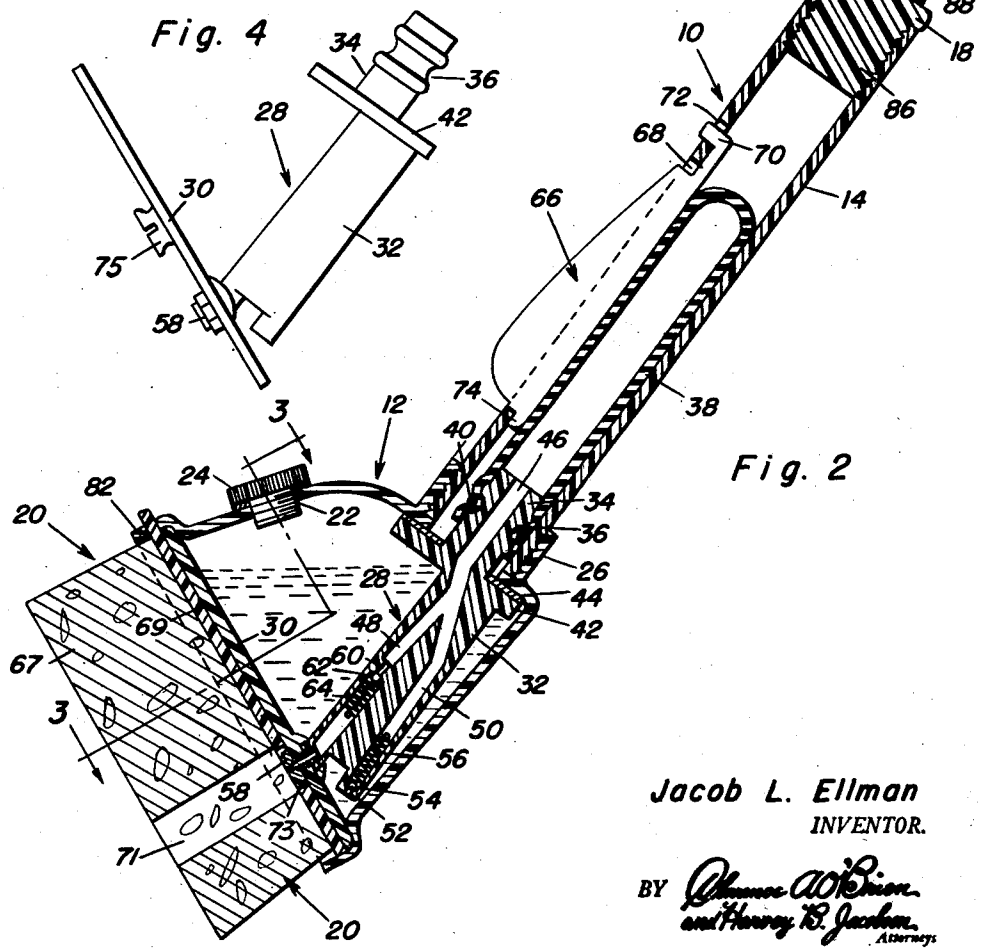

Fig. 2

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Fig. 5

Fig. 1

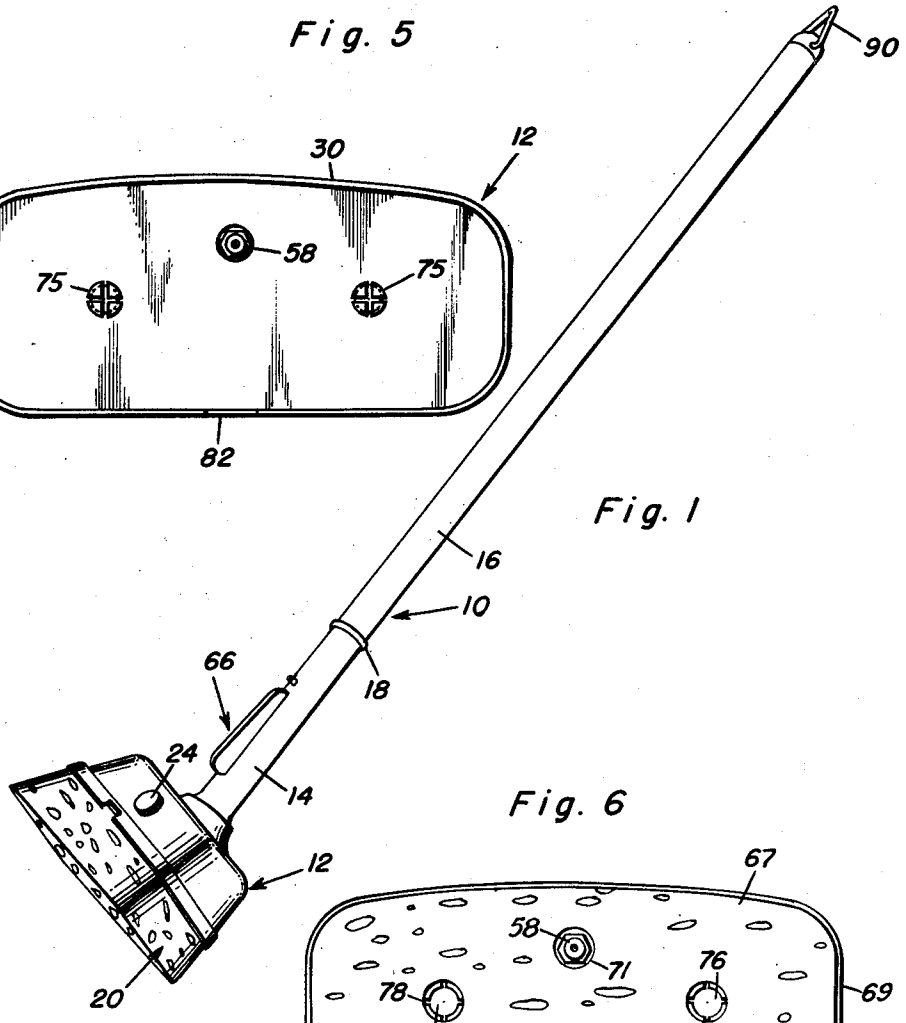
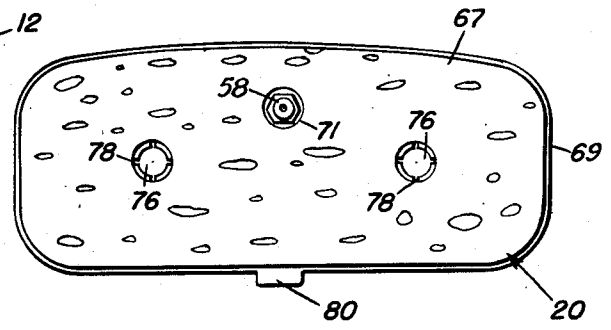


Fig. 6



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CLEANING DEVICE, INCLUDING FLUID DISPENSING MEANS

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Application September 26, 1952, Serial No. 311,651

3 Claims. (Cl. 15—131)

This invention relates in general to cleaning devices, and more specifically to cleaning devices having wiping elements adapted to be utilized for either cleaning or polishing.

The primary object of this invention is to provide an improved cleaning device which includes means for applying a fluid to a wiping element thereof whereby the application of initial or additional fluid to a surface being worked on will be possible while the cleaning device is in motion thus eliminating stoppage of operation for the purpose of adding fluid, thus saving time and energy.

Another object of this invention is to provide an improved cleaning device which is so constructed and designed whereby the same may be utilized while the operator thereof is in a comfortable position, thereby eliminating certain labors and saving time with the foregoing of an accident which might happen in the bathtub or other similar places during its use.

Another object of this invention is to provide an improved cleaning device which has original and attractive design, lending grace and beauty to its environment, and thereby forming an added inducement for children to cleanup after use of bathtubs and other bowls, basins and sinks.

Another object of this invention is to provide an improved cleaning device which is of a relatively simple and compact construction and formed of readily obtainable material whereby the same may be economically feasible.

A further object of this invention is to provide an improved cleaning device wherein the cleaning fluid for the same is carried within the cleaning device and applicable directly to a surface being cleaned whereby contact with strong detergents and caustics may be eliminated.

A still further object of this invention is to provide an improved cleaning device which has integral means for dispensing cleaning fluids, said integral means permitting the use of stronger type detergents and the like than ordinarily would be used inasmuch as no part of the human body comes in contact with the fluid.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawings which form a material part of this application and in which:

Figure 1 is a rear perspective view of the cleaning device, which is the subject of this invention, and shows the general outline of the same;

Figure 2 is an enlarged fragmentary longitudinal vertical sectional view taken substantially through the center of the lower portion of the cleaning device of Figure 1 and shows the general construction thereof;

Figure 3 is a transverse sectional view taken substantially on the plane indicated by the section line 3—3 of Figure 2 and shows the manner in which a wiping element is detachably secured to the supporting portion of the cleaning device;

Figure 4 is a side elevational view of a pump device for the cleaning element, said pump device being adapted to supply fluid to the wiping element;

Figure 5 is an enlarged bottom plan view of the support portion of the cleaning device and shows the arrangement of a spray nozzle and means for attaching the wiping element thereto; and

Figure 6 is an enlarged bottom plan view of the wiping element and shows the general arrangement of openings therethrough, also being shown is a bottom portion of the support element.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the different views of the drawings.

Referring now to the drawings in detail, it will be seen that there is illustrated in Figure 1, the cleaning element, which is the subject of this invention, the cleaning element being referred to in general by the reference numeral **10**. The cleaning element **10** includes a housing which is referred to in general by the reference numeral **12**, the housing being connected to the lower end of a tubular handle portion **14**. Connected to the tubular handle portion **14** and extending upwardly therefrom is a detachable handle section **16**, the detachable handle section **16** being connected to the lower handle portion **14** by a connector **18**. Removably secured to the lower side of the housing **12** is a wiping element which is referred to in general by the reference numeral **20**.

Referring now to Figure 2 in particular, it will be seen that there is illustrated the lower portion of the cleaning device **10**. It will be noted that the housing **12** is hollow and is in the form of a reservoir for cleaning fluids and the like. In order that the cleaning fluids may be transferred into the housing **12**, the same is provided with a threaded filler opening **22** which is normally closed by a removable filler plug **24**.

It will be noted that the central upper portion of the housing **12** includes an internally threaded projection **26** in which is threadedly engaged the lower end of the tubular lower handle portion **14**. While the specific threaded connection has been illustrated, it will be understood that other fastening methods may be utilized. It will be noted that the hollow handle portion **14** is communicated with the interior of the housing **12**.

Disposed within the housing **12** and projecting outwardly into the hollow handle **14** is a pump assembly which is referred to in general by the reference numeral **28**. The pump assembly **28** includes an enlarged supporting plate **30** which has secured to the upper surface thereof an upwardly extending valve block **32**. The plate **30** is secured across the lower portion of the housing **12** in sealing relation thereto to form the bottom of the reservoir.

Carried by the upper portion of the valve block **32** and disposed within the lower portion of the handle **14** is an elongated tube portion **34** of the pump assembly. The tube portion **34** is provided with a plurality of annular grooves and projections **36** which have secured thereover at the lower end an elongated flexible bulb member **38**. The bulb **38** is provided with a locking ring **40** which secures the same to the sleeve portion **34**.

In order that the housing **12** may be separated from the handle portion **14** with which it communicates, the valve block **32** is provided with an integral enlarged annular flange **42** at its intersection with the sleeve portion **34**. Carried by the sleeve portion **34** is an enlarged gasket **44** which overlies the flange **42** and is disposed between the same and the upper portion of the housing **12** to form a seal therebetween to close the lower end of the handle portion **14**.

It will be noted that the valve block **32** includes an inverted Y-shaped passageway. The Y-shaped passageway is formed by an upper passageway **46** passing through the sleeve portion **34** and which communicates with a pair of spaced lower passageways **48** and **50** which are disposed within the valve block **32**. The lower passageway **50** has an intake opening **52** which communicates with the interior of the housing **12** and is adapted to receive liquid disposed therein. The intake opening **52** is normally closed by a ball valve **54** which is urged downwardly by a spring **56** disposed within the passageway **50**.

Carried by the plate **30** and projecting therebelow is a discharge nozzle **58**. The discharge nozzle **58** is communicated with the lower end of the passageway **48**. The passageway **48** is provided intermediate its ends with a discharge opening **60** which is controlled by a normally closed ball valve **52**. The ball valve **62** is urged to a closing position by a spring **64** disposed within the passageway **48**.

In order that the bulb **38** may be selectively compressed, there is provided an actuating lever **66**. The actuating lever **66** is partially disposed within an elongated slot **68** in the handle portion **14** and has a portion thereof engaging the bulb **48** and another portion thereof extending outwardly of the housing portion **12**. The actuating lever **66** is provided at its upper end with a tongue portion **70** disposed within a relatively small opening **72** in the handle portion **14** above the slot **68** and entering the same from the interior of the handle portion. The tongue in combination with the opening **72** forms a hinge permitting the pivoting of the actuating lever **66**. The lower end of the actuating lever is provided with a downwardly projecting flange **74** which engages the inner surface of the handle portion **14** adjacent the lower end of the slot **68** to form a stop therefor.

In the normal operation of the pump assembly **28**, the bulb **38** may be depressed by urging the actuating lever **66** inwardly. This results in fluid within the bulb **38** being urged to the Y-shaped passageway and into the passageways **48** and **50** from the passageway **46**. Inasmuch as the ball valve **54** prevents the fluid from entering the housing **12**, it will be seen that all of the fliud urged downwardly through the Y-shaped passageway will be urged through the discharge opening **60** and out through the spray nozzle **58**. It will be understood that the ball valve **62** will be moved to an open position by the pressure of the fluid.

When the actuating lever **66** is released, the bulb **38** will return to its normal configuration with the result that the actuating lever **66** is moved outwardly to the position illustrated in Figure 2. At this time, a vacuum is created in the Y-shaped passageway with the result that fluid is drawn up into the passageway **50** through the intake opening **52**. Inasmuch as the intake opening **52** is disposed within the fluid within the housing **12**, the same will be drawn up into the bulb **38**. Repetition of this pumping procedure will result in the transferring of fluid from within the housing **12** out through the spray nozzle **58**.

Referring now to Figures 2, 3 and 6 in particular, it will be seen that the wiping element **20** includes a generally rectangular sponge-like element **67** which is secured to the lower side of a backing element **69**. The sponge element **67** may be in the form of a natural sponge, synthetic sponge, or of any other suitable sponge-like material. It will be noted that the sponge element **67** is provided with an enlarged opening therethrough, the opening being referred to by the reference numeral **71**. The opening **71** is aligned with an opening **73** through the backing **69**, the spray nozzle **58** being aligned with and disposed within the opening **73** whereby the same is in a position to spray fluids, such as detergents, polish, etc. onto a surface through the opening **71**.

As is best illustrated in Figures 3 and 5, secured to the lower surface of the plate **30** and in spaced aligned relation is a pair of snap buttons **75**. These snap buttons **75** are resiliently received in spaced openings **76** in the backing **69**. Extending radially from the spaced openings **76** are slits **78** which are disposed in portions of reduced thickness surrounding the openings **76** so as to resiliently receive the snap buttons **75**. It will be understood that the snap buttons **75** and the openings **76** provide an attaching means for the wiping element which permits removal of the same. The wiping element is aligned with respect to the housing **12** by a centrally located flange **80** which projects rearwardly from the rear edge of the backing **69** and is received in a notch **82** in the housing **12** for centering the backing **69**. It will also be noted that the sponge element **67** is provided with openings **84** which communicate with the openings **76** in the backing **69**.

Referring once again to Figure 2 in particular, it will be seen that the connecting element **18** is provided with an enlarged externally threaded lower portion **86** which is removably engaged in the upper end of the handle portion **14**. The connecting element **18** also includes an upper portion or reduced size which is also externally threaded. The upper portion is referred to by the reference numeral **88** and is threadedly engaged within the lower portion of the handle portion **16**. It will be understood that the handle portion **16** is removable from the handle portion **14** to permit use of the cleaning device **10** in confined places. Also, as is best illustrated in Figure 1, the upper end of the handle portion **16** is provided with a ring-like element **90** which permits the hanging of the same on a convenient hook.

When it is desired to utilize the cleaning device **10**, the sponge element **67** of the wiping element **20** is placed into engagement with a surface to be cleaned. The actuating lever **66** is then pressed inwardly with the result that any fluid disposed within the housing **12** is sprayed onto the surface through the opening **71**. The cleaning device **10** is then utilized in the same manner as a mop to clean the floor. When additional cleaning fluid is deemed necessary, the actuating element **66** is once again pressed inwardly in order to spray the cleaning fluid on the surface being cleaned.

While the wiping element **20** has been illustrated and described as including a sponge element, it will be understood that wiping elements **20** of different designs including felt pads, etc., may be removably secured to the housing **12** for forming other household functions. For example, the cleaning device **10** may be utilized for both applying wax to a floor and also for polishing the same by placing the correct type of wiping element on the lower end thereof.

The housing, pump assembly, and handle portions of the cleaning device **10** are preferably formed of plastic although other suitable materials, including aluminum, may be utilized. It will be understood that the material utilized in the cleaning device **10** must be such as to resist attack by the fluid adapted to be disposed within the reservoir portion of the housing **12**.

Inasmuch as the cleaning fluid is distributed both to the surface being cleaned and the wiping element, it will be seen that the cleaning fluid does not come in contact with the body of the user of the cleaning device which is the subject of this invention. Therefore, detergents which are harmful to the hands may be utilized for cleaning purposes. Such detergents facilitated the cleaning operation and require less work.

While the wiping element has been illustrated and described as being attached to the plate **30** by snap buttons, it will be understood that the invention is not so limited, the connection between the wiping element and the plate **30** may be varied in both types of fastener utilized and the relative position of the same.

The operation of this device will be understood from the foregoing description of the details thereof, taken in connection with the above recited objects and the drawing. Further description would appear to be unnecessary.

Minor modifications of the device, varying in minor details from the embodiment of the device illustrated and described here, may be resorted to without departure from the spirit and scope of this invention, as defined in the appended claims.

Having described the invention, what is claimed as new is:

1. A cleaning and polishing implement comprising an upright handle having a hollow lower portion, a hollow housing secured to said handle at the lower end thereof, said housing having an open lower end, a plate secured to said housing and normally closing said open lower end to form in combination with said housing a liquid reservoir, a wiping element underlying said plate, fastening means detachably securing said wiping element to said plate, a liquid pump assembled with said plate as a unit, said liquid pump including a valve assembly and a pump member, said valve assembly being disposed within said housing and adapted to communicate with both the interior of said housing for receiving liquid therefrom and with said wiping element for distributing liquid thereto, said pump member being disposed in said hollow lower portion, means carried by said handle for actuating said pump member.

2. A cleaning and polishing implement comprising an upright handle having a hollow lower portion, a hollow housing secured to said handle at the lower end thereof, said housing having the interior thereof initially communicated with said hollow lower portion, said housing having an open lower end, a plate secured to said housing and normally closing said open lower end to form in combination with said housing a liquid reservoir, a wiping element underlying said plate, fastening means detachably securing said wiping element to said plate, a liquid pump secured to said plate, said liquid pump including a valve assembly and a pump member, said valve assembly being disposed within said housing and adapted to communicate with both the interior of said housing for receiving liquid therefrom and with said wiping element for distributing liquid thereto, said pump member being disposed in said hollow lower portion, means carried by said handle for actuating said pump member, said valve assembly extending into said hollow lower portion and sealing said housing relative to said hollow lower portion to prevent the escape of liquid into said hollow lower portion.

3. A cleaning and polishing implement comprising an upright handle having a hollow lower portion, a hollow housing secured to said handle at the lower end thereof, said housing having the interior thereof initially communicated with said hollow lower portion, said housing having an open lower end, a plate secured to said housing and normally closing said open lower end to form in combination with said housing a liquid reservoir, a wiping element underlying said plate, fastening means detachably securing said wiping element to said plate, a liquid pump secured to said plate, said liquid pump including a valve assembly and a pump member, said valve assembly being disposed within said housing and adapted to communicate with both the interior of said housing for receiving liquid therefrom and with said wiping element for distributing liquid thereto, said pump member being disposed in said hollow lower portion, means carried by said handle for actuating said pump member, said valve assembly extending into said hollow lower portion and sealing said housing relative to said hollow lower portion to prevent the escape of liquid into said hollow lower portion, said pump member being in the form of a collapsible bulb, means releasably securing said bulb to said valve assembly.

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