A multi-purpose cleaning implement includes a base member supporting a sponge mop type work head and an auxiliary implement such as a brush, squeegee, scraper, spreader or similar implement. A rod handle is attached to the base by an adjustable attachment mechanism. The sponge mop type work head is releasably secured to the base member and a slip-on cover may be secured over the work head for polishing and similar operations. The slip-on cover includes a lamb’s wool, foamed plastic or similar working surface. The base further includes structure for housing the auxiliary implement in an out-of-the-way position. The adjusting mechanism includes a latch bolt engageable in slots in a strike plate with a latch pull or trigger mechanism.

2 Claims, 14 Drawing Figures
MULTI-PURPOSE CLEANING IMPLEMENT

BACKGROUND OF THE INVENTION

The present invention relates to cleaning implements, and particularly to cleaning tools of the sponge mop type with an adjustable handle. More particularly the invention relates to a combined sponge mop and accessory tool such as a brush, squeegee, scraper or spreader, which implement is adapted further for use with an accessory cover such as a polishing or buffing cover.

A wide variety of cleaning implements is known in the art. One such implement is shown in U.S. Pat. No. 3,267,505 issued Aug. 23, 1966, to George E. Seufert and Janet H. Seufert for “Rod-Handled Tool” which discloses a rod-handled tool with interchangeable and replaceable workheads for scrubbing, rinsing, mopping, waxing, painting or otherwise treating flat surfaces, and with the rod-handled tool adapted for changing the position of the workhead.

OBJECTS OF THE INVENTION

The principal object of the present invention is to provide a sponge mop type tool with an improved mop head assembly together with an accessory tool or implement such as a brush, squeegee, scraper, fibrous pad, abrasive pad, and the like. Another object of the present invention is to provide a mop head assembly of the foregoing type which is adapted for use with further accessories such as a slip-on cover of lamb’s wool, foam plastic or other material for use in the application and polishing of waxes and similar materials.

Another object of the present invention is to provide an improved mop head of the foregoing character in which the various accessory elements may be readily attached and detached, and yet are held securely in place during use of the implement.

Still another object of the present invention is to provide a mop head of the foregoing type which is suitable for sterilizing or autoclaving for use in applications requiring sanitary tools and conditions.

A further object of the present invention is to provide a mop head of the foregoing character which is adapted for use with sponge mop wringers of the type which squeeze the sponge and body portions of the mop head and collect the waste-laden liquid in a suitable container.

Still a further object of the invention is to provide an improved adjustable handle assembly for a mop head of the above type.

A further object of the present invention is to provide an improved adjustable handle assembly for a mop head of the above type which facilitates use of the mop head with a utility container including a sponge mop wringer.

Still another object of the present invention is to provide a mop head and adjustable handle assembly which is rugged, simple in construction, easy to operate, is suitable for use with a variety of mop and accessory implements, and is adaptable for a wide variety of uses in household, industrial and institutional situations.

Other objects and advantages of the present invention will become apparent from the following description of the invention taken in conjunction with the accompanying drawings.

SUMMARY OF THE INVENTION

The invention herein, in accordance with the foregoing objects, resides in a sponge mop structure wherein there is provided a generally flat rectangular base having a handle rod upstanding at one edge thereof and with a sponge mop applicator or workhead secured to one face. At the opposite edge from the upstanding handle, there is provided means for attaching a selected accessory implement or tool such as a brush, squeegee, scraper or the like. The handle attachment mechanism is adjustable in order to enable the user to adjust the angle of the handle with respect to the base. The flat base and sponge workhead secured thereon may be readily squeezed by an appropriate wringing mechanism in association with a utility container.

The mop base further includes means facilitating the attachment of slip-on covers which wrap around a sponge applicator or workhead to further enhance the utility of the mop head for additional purposes such as, for example, the applying and buffing of waxes, polishes and the like.

The base for the mop workhead is a generally flat rectangular member which may be formed of wood, plastic or metal. In the latter cases, the head may be either extruded or fabricated from sheet material. The base is defined by upper and lower faces or plates with intermediate longitudinal ribs. At one longitudinal edge the base is adapted to be secured to an adjustable handle assembly, while the opposite longitudinal edge is formed to receive an auxiliary implement, such as a brush or abrasive plastic pad mounted on a strip of wood or metal. One face of the base, usually considered the lower plate or face, is formed with depending members adapted to engage a mounting plate or bracket affixed to a sponge mop or other workhead. Channels or hooks are provided on the lower face for securing a slip-on cover, which is conveniently formed of a natural or synthetic wool or sponge facing.

The adjustable handle mechanism includes a handle rod secured to a pair of handle arms pivotally mounted on a bracket which is in turn secured to the mop base plate. A locking mechanism is provided on the handle arms and bracket to permit the angle of the handle rod to be adjusted with respect to the mop base. The handle adjustment mechanism includes a spring-biased locking bolt or pin mounted on the handle arm structure and engageable with a selected slot on a slotted strike plate member secured to the base plate. Either a trigger projecting from the handle or a sleeve-like grip surrounding the mop handle rod is operatively connected to the locking bolt so that the user can readily release the locking bolt and reposition the handle rod at the desired angle with respect to the workhead.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the present invention. FIG. 2 is a perspective view similar to FIG. 1 but of a slightly modified form of the invention.

FIG. 3 is a front view of the form of the invention shown in FIG. 2.

FIG. 4 is a section view taken substantially in the plane of line 4—4 on FIG. 2 or 3.

FIG. 5 is a section view taken substantially in the plane of line 5—5 on FIG. 3.
FIG. 6 is a perspective view of a sponge mop work-head of the type utilized in connection with the implement shown in FIG. 2.

FIG. 7 is a section view taken substantially in the plane of line 7—7 on FIG. 6. FIG. 8 is a perspective view of an auxiliary implement of the type utilized in association with the implement shown in FIG. 2.

FIG. 9 is a perspective view of a slip-on cover of a type utilized in connection with the cleaning implement shown in FIG. 2.

FIG. 10 is a perspective view of a cleaning implement similar to that shown in FIG. 2 but with the slip-on cover of the type shown in FIG. 9 affixed thereon.

FIG. 11 is a section view taken substantially in the plane of line 11—11 on FIG. 10.

FIG. 12 is a partial perspective view of a cleaning implement similar to that shown in FIG. 10 but with a different auxiliary implement in association therewith.

FIG. 13 is a section view taken substantially in the plane of line 13—13 on FIG. 1.

FIG. 14 is a section view taken substantially in the plane of line 14—14 on FIG. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the drawings, a work-head and handle assembly embodying the present invention is formed with a work-head 20 having an elongated handle rod 21, generally circular in cross section, extending upwardly at an angle convenient for the user. The relative angle or position between the work-head 20 and the handle 21 may be adjusted to suit the user's convenience depending upon the particular task for which the tool is being employed. While cleaning tools and like implements are generally known, the present invention is embodied in certain new, useful and unobvious improvements in such implements which increase and enhance the utility of these tools.

The work-head 20 is formed by a generally flat or relatively thin body member or block 22 carrying an adjacent main tool or implement, such as a sponge 24, and an auxiliary tool or implement 25 selected from various types of accessory tools such as brushes of varying stiffness, abrasive plastic pads, scrapers, squeegees, spreaders and the like. In the form shown in the drawings, the work-head includes a readily detachable sponge mop type tool 24 associated with a selected accessory implement such as a brush as shown in FIG. 1. It will be appreciated that the sponge 24 may be of a selected consistency and further may additionally include scrubbing features or elements such as stiff fibers, steel or abrasive plastic padding, or the like. To further increase and enhance the utility of the work-head, means are provided which cooperate with the accessory and sponge mop elements to adapt the unit for still further function such as waxing and polishing. To this end, the structure contemplates the attachment of an auxiliary slip-on cover 26 as shown in the drawings.

The cleaning tool or implement shown and described herein is adaptable for cleaning not only floors, but also walls, ceilings and other surfaces. Accordingly, it is desirable to be able to position the angle of the body or work-head 20 with respect to the handle rod 21 in order that sponges, implements and the like carried on the body are directed in the most convenient position or angle for the particular task to be performed. To this end, an improved handle positioning assembly, indicated generally at 28, is provided as a part of the invention.

The new and improved mop base or head 20 embodying the present invention has, as its supporting base member, a generally rectangular flat base member or block 22 having upper and lower plane surfaces 30, 31, respectively, and further defining front and rear longitudinal side surfaces or planes 32, 33, respectively, and opposed side or end surfaces or planes 34, 35, respectively. The adjustable handle mounting assembly 28 is secured to the base member 22 adjacent the rear longitudinal side plane 33, thereby leaving the upper and lower surfaces or planes 30, 31 of the block substantially unobstructed. With this construction, the mop base or head 20 may be readily squeezed in a utility container wringer such as the apparatus shown in U.S. Pat. No. 3,614,802 or my copending application referred to above.

In the mop base member or block 22 as shown, the upper and lower faces 30, 31 thereof are defined by spaced plates 36, 37, which for convenience in description will be referred to as being generally horizontal, joined together in spaced relation by one or more spaced, narrow, longitudinally extending vertical webs, two such webs 38, 39 being shown in the drawings. Further in the embodiment shown, one of the vertical webs 38 is positioned as an intermediate web approximately centrally between the upper and lower plates 36, 37, while a second web 39 is spaced from the central web and forms the rear longitudinal side edge surface of the block 22. The front portion of the block is open for purposes which will be described below.

At the open front plane of the block 22, the plates 36, 37 are formed with turned edges or flanges 40, 41. For defining a channel with these flanges, the plates are further provided with ribs 42, 43 defined on the inner faces of the plates 36, 37 substantially equidistant between the flanges 40, 41 and the intermediate web 38. The turned edge flanges 40, 41 and intermediate ribs 42, 43 define in association with each other a forward channel 44 for receiving a selected auxiliary implement 25 such as the body block of a brush, squeegee or the like.

For mounting within the body channel 44, the auxiliary implement 25 comprises a mounting block 46 (FIG. 8) which is shaped with a cross section substantially identical to the dimensions of the channel 44 and is of a length substantially equal to the length of the mop head body block 22. The auxiliary implement includes a brush 47 or similar device such as a squeegee 47' (FIG. 12) or other tool element. When the auxiliary implement 25 is mounted in the channel 44 the brush extends outwardly between the turned edge flanges 40, 41 into working position as shown in FIG. 1.

In order to enclose the brush or working element when the auxiliary element is not in use, it may be reversed with the brush or other device extending inwardly into a channel or inner channel 45 defined between the inner or intermediate ribs 42, 43 and the web 38 as shown in FIG. 5. With this construction, the brush is housed in a protected position. With the auxiliary brush turned inwardly, for example, the tool may be used in corners, the upper edges of walls against ceilings and in other places where it is desirable not to bump or mar an adjacent surface.
In order to receive and hold the auxiliary implement 25, the plates 36, 37 at least at their forward edges adjacent the flanges 40, 41 may be slightly resilient in order to provide a snug but tightly sliding fit with the implement block 46. The implement block 46 may be formed of wood, metal, plastic or other materials as desired, in accordance with the particular type of implement to be utilized. A variety of such implements may be provided with each mop head to enable the user to select the particular auxiliary tool to be employed for a given application.

The principal head or tool 24 of the mop as shown in the drawings is illustrated in the form of a sponge although it will be readily appreciated that other forms of work head elements may be utilized. In the form shown in the drawings, the sponge 24 is secured to the lower face 31 of the body block in a manner which securely holds the sponge in place and yet enables the user to readily replace it and insert another element if desired. To this end, the sponge 24 is provided with an attaching plate 50 (FIGS. 6 and 7) which is securely fastened to the upper surface of the sponge 24. The plate 50 includes a plurality of outwardly extending projections or tangs 51 which are adapted to be received in channels 52 defined on the lower face of the body block 22. The edges of the plate 50 from which the tangs project may desirably be turned downwardly to provide depending ribs 53 which bite into the upper surface of the sponge as shown in FIG. 7 when the plate 50 is mounted thereon. These ribs 53 hold the sponge against slipping or twisting with respect to the plate 50 and thereby increase the strength of the bond between the plate and the sponge.

For receiving the tangs 51 receiving channels 55 are defined by generally L-shaped members 54, 54 integrally formed on or otherwise secured to the lower plate 37. The tangs 51 are located on each longitudinal edge of the mounting plate 50 and are adapted to slide into and out of the channels 55 to securely hold the sponge work head 24 in place on the body block 22.

Various types of sponges or other tool heads 24 may be utilized. For example, a scrubbing sponge may be employed which includes an abrasive pad on its work surface, or which includes fibers secured, bonded or otherwise imbedded in the work face of the sponge. It will also be observed that the sponge face is generally parallel to the upper face of the body block 22 so that the work head assembly can be squeezed between the plates of a utility wringer in order to remove waste liquids or other liquids from the sponge body. The front and rear edge surfaces desirably slope outwardly so that the sponge is generally trapezoidal in cross section, with the large face being the working face. In this manner the user can easily work into edges and corners.

It has been further observed that by making the sponge work head 24 generally trapezoidal in cross section, with the narrower surface secured to the mounting block 22 and the wider surface serving as the work surface, liquids tend to be retained, to prevent dripping, and the spreading action is substantially enhanced. For example, when washing a wall, the upper sloping surface serves to catch liquid and prevents it from dripping down the wall when the mop is moved in an upwardly direction, while the lower sloping surface tends to spread liquid along the wall and prevent it from dripping.

To further enhance the utility of the sponge mop assembly and provide, for example, for its use as a polishing tool, means are provided for securing a slip-on wrapper or cover over the sponge work head 24. For some applications, it is desirable to utilize a natural or synthetic wool, tufted or looped fabric such as for polishing, application of liquid waxes or other surface treating agents. The cover may be a washable or throw-away item, and is essentially supported and shaped by the underlying sponge tool head 24. One illustrative slip-on cover 26 is shown in FIG. 9 and includes a length of fabric such as a stretch or elastic fabric member or base 58 having opposed loop hems 59 adapted to receive stiffening rods 60, 61 therethrough. One rod 60 is provided with a plurality of hooks 62 adapted to be engaged over the interlaced flange 41 on the forward edge of the block 22, the lower plate 37 is provided on its bottom surface 31 with a J-shaped channel 64 integral with or closely adjacent the rear sponge-securing L-shaped channel member 55. To engage with the J-shaped channel 64 on the plate 37, one of the rods 61 on the slip-on cover is essentially a double length rod one length 65 of which is stitched into the hems 59 of the fabric slip-on cover 26. The other leg 66 engages in the J-shaped channel 64 on the block plate 37. Also stitched, bonded or otherwise affixed to the slip-on cover is a body of the desired material 68 such as lamb's wool or other natural wool, a synthetic wool, foamed or tufted plastic or the like.

In order to accommodate the hooks 62 on the slip-on cover as they are engaged over the lower plate flange 37, the block 46 of the auxiliary implement 25 is desirably notched at appropriate spots on both its front and rear surfaces as shown in FIG. 8 to provide recesses 69 within which the hooks 62 may be received. These notches or cutouts 69 correspond in number to the cover hooks 62 and receive these hooks when the slip-on cover is positioned in place. The sponge head 24 provides a resilient backing and support for the particular fabric or material 68.

For scrubbing, waxing, polishing or buffing floors, the handle 21 is preferably positioned at an acute angle with respect to the face of the work head 24. In other words, the included angle between the handle 21 and the upper face 30 of the body block is an obtuse angle. The particular handle and work head position may, however, be inconvenient for other applications, such as washing walls, floors, ceilings, or in the event the user desires to work underneath a low object such as a table or bed. It is, therefore, desirable to be able to adjust the angle between the handle 21 and the work head 24 in order to position the work head according to the particular application. To this end, the invention embodies an improved positioning mechanism, one illustrative form of which is shown in the drawings.

Referring to the drawings, the handle 21 is adjustably secured to a handle bracket 70 as shown in FIG. 1 or directly to the body block or base member 22 as shown in FIG. 2. When a handle bracket 70 is utilized, it is in turn mounted along the body or base member 22 by means of fasteners 71 such as bolts, screws or the like.

For mounting the handle to the bracket 70 or body block 22 a pair of handle mounting arms 75 are provided which are pivotally mounted at one end to the bracket or body block and at their other end are either directly secured to the handle rod 21 by bolts 76 or may be provided with an internally threaded socket for
receiving a like threaded end on the handle rod. The arms 75 are braced to the bracket or body block by laterally extending braces 78 which are also pivotally mounted to the bracket or body block at their lower ends, while the upper ends of the braces 78 are secured directly to the handle supporting arms 75 by the bolts 76.

For purposes of pivotally mounting the handle mechanism, the arms 75 and supporting brackets 78 are engaged by pins 79 which extend through flanges 72 which are integral with either the bracket web 74 or are fastened to the rear edge of the body block 22 by the angle brackets 80 as shown in FIG. 2. With the foregoing construction, the handle can be positioned at any desired angle with respect to the base member 22 and thereby with respect to the main tool 24 and auxiliary tool 25.

For adjustably fixing the handle position with respect to the base 22 to hold the handle at the desired angle, a spring biased bolt type locking mechanism 80 is provided. This locking mechanism or assembly 80 includes a pin, bolt or lock bar 81 engageable in a selected one of correspondingly shaped slots 82 in a slotted member 84 secured to either the handle mounting bracket 70 or directly to the base 22. The slotted member 84 is generally arcuate in shape and is provided with mounting means, for example upper and lower mounting flanges 85 as shown in FIG. 4, by means of which it is mounted on the bracket 70 or base 22.

For guiding the locking pin or bolt 81, spaced upper 30 and lower guide plates 86, 87 are secured between the handle supporting arms 75. In the form shown, the guide plates each have opposed laterally extending tangs 88 which project through correspondingly formed slots 89 in the handle arms 75. The bolt 81 slides through central apertures 90 in these guide plates 86, 87 and is spring biased to its outwardly extending or engaging position by a coil spring 91. The coil spring 91 surrounds the bolt 81 and acts between the upper guide plate 86 and a stop pin 92 extending through the bolt 81. The spring 91 urges the bolt 81 into locked engagement with a selected slot 82 in the locking member or strike plate 84, into

Means are provided for retracting or lifting the bolt 81 out of a given slot 82 against the force of the spring 91. For this purpose, a generally U-shaped member 94 surrounds the latch bolt 81 and extends upwardly generally parallel to the handle arms 75 to a point at which the free ends of its respective legs 95 are engaged with a sliding sleeve 96 positioned in surrounding relation with the mop handle rod 21.

By pulling upwardly on the sleeve 96 the U-shaped actuating member 94 pulls the latch bolt 81 against the force of the spring 91 and thereby disengages the bolt 81 from a slot 82 in the strike plate 84. The handle may then be swung to any desired position relative to the body block 22 and the latch bolt reengaged in the nearest hole to hold the handle in the new position. Alternatively, a trigger or like handle mounted assembly may be utilized to actuate the latch bolt 81.

It will be observed that a highly versatile cleaning implement has been provided in which each of the associated elements coacts to provide an enhanced utility for the implement. The coating elements provide a highly versatile tool suitable for a wide variety of cleaning, liquid applications, and related operations. The tool is of a construction which permits autoclaving for use in applications requiring sterile tools and conditions. The body block, sponge work head and auxiliary implements may be provided of any desired size, particularly length, so that the tool is adaptable not only for home use but also may be constructed in larger sizes for industrial and institutional use.

While certain illustrative embodiments and modifications have been shown in the drawings and described above in considerable detail, it should be understood that there is no intention to limit the invention to the specific forms disclosed. On the contrary, the intention is to cover all modifications, alternative constructions, equivalents and uses falling within the spirit and scope of the invention as expressed in the appended claims.

I claim:

1. In a multi-purpose cleaning tool comprising a base member having a handle rod thereon, the improvement comprising:

a pair of opposed spaced parallel plate members defining a generally rectangular base member having upper and lower faces and opposed front and rear longitudinal edges,

a plurality of longitudinally extending web members intermediate said plates,

one of said web members being spaced inwardly of and parallel to the front longitudinal edges of said plates and defining therewith a front channel in said base member,

opposed inwardly longitudinally extending flange means on the front longitudinal edges of said upper and lower plates,

opposed parallel inwardly directed longitudinal rib means on the inner faces of said plates intermediate said edge flanges and said one web for dividing said channel into front and rear sections,

a sponge-type workhead having attachment means thereon,

means on the lower face of said base member for releasably engaging the attachment means on said workhead for releasably securing said workhead to said lower face,

an auxiliary work implement tool including an elongated body block adapted to be received in the forward section of said channel with the tool extending outwardly between said plate flanges, said auxiliary tool body block being adapted to be reversed and inserted into said forward section of said channel with the tool portion thereof extending inwardly into the second section of said channel in protected relation with respect to said plates.

2. A multi-purpose cleaning tool as defined in claim 1 wherein the improvements further include a handle rod mounting means secured to said base member adjacent the rear longitudinal edges thereof and with the upper face of said base member substantially unencumbered, and

means adjustably securing said handle rod to said mounting means for adjustably positioning said handle rod at a selected angle with respect to the upper and lower faces of said base member whereby said base member may be selectively positioned to facilitate the use of said work head and said auxiliary tool.

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