

Nov. 2, 1971

C. VAN SPRONSEN

3,616,481

REPLACEABLE SPONGE MOP HEAD

Filed Feb. 18, 1970

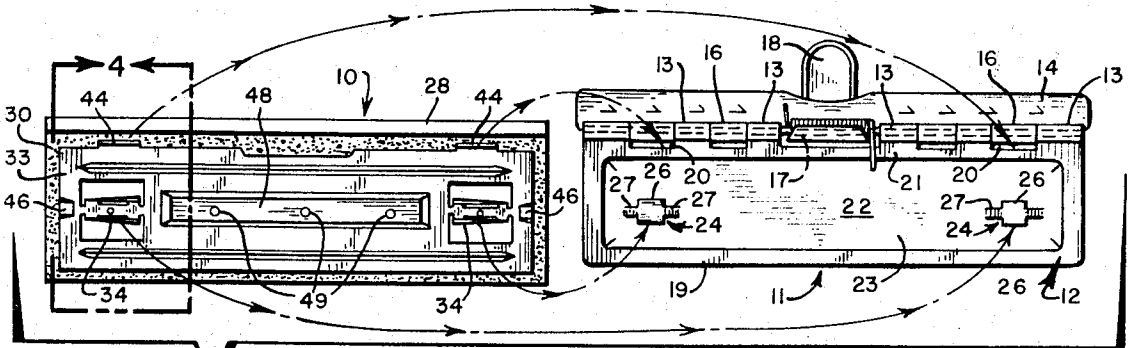


Fig. 1

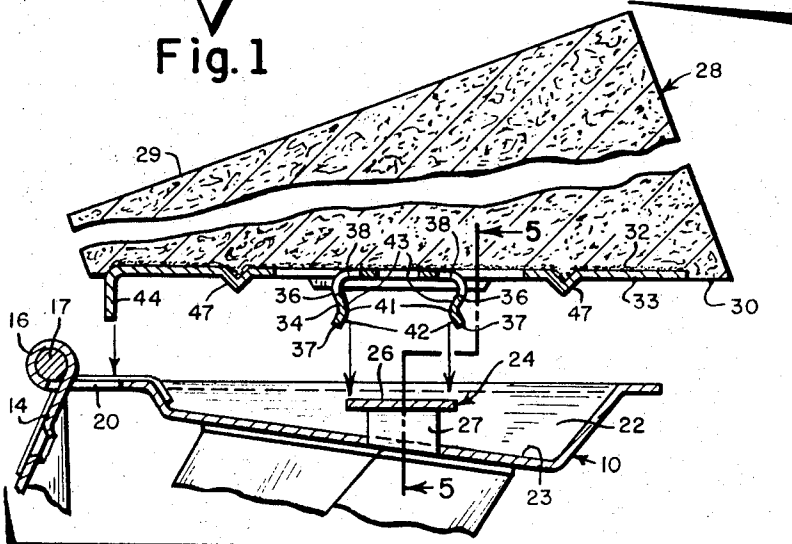


Fig. 2

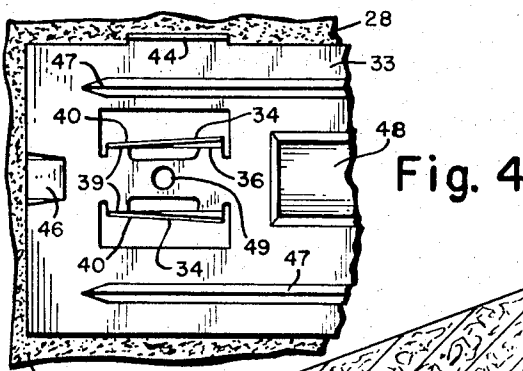


Fig. 4

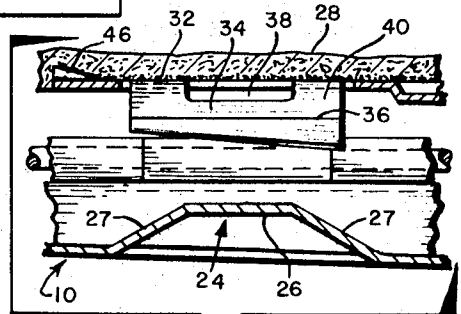


Fig. 5

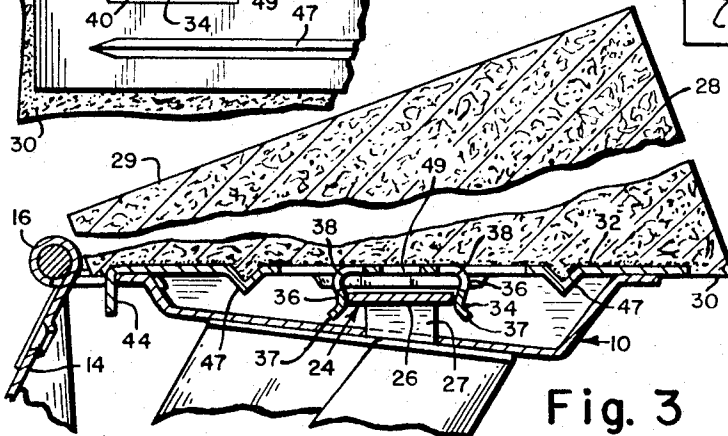


Fig. 3

INVENTOR.
CORNELIS VAN SPRONSEN
BY *Melvin H. Goss*
Attorney for Applicant

1

2

3,616,481

REPLACEABLE SPONGE MOP HEAD

Cornelis van Spronsen, Berea, Ohio, assignor to Nylonge Corporation, Cuyahoga County, Ohio

Filed Feb. 18, 1970, Ser. No. 12,272

Int. Cl. A47I 13/16

U.S. Cl. 15—244 R

8 Claims

ABSTRACT OF THE DISCLOSURE

A universal replaceable sponge mop head includes a sponge block having a rectangular backing plate cemented to a face thereof. The backing plate has integrally formed therewith a pair of longitudinally spaced fasteners, each including a pair of similar transversely spaced apertured resilient legs, provided with longitudinal ridges directed toward each other. Locating tabs project from the backing plate rear edge and the side edges are medially inwardly offset for the reception of a tool. Longitudinally spaced fastener receiving apertures are medially formed in the backing plate.

BACKGROUND OF THE INVENTION

The present invention relates generally to improvements in cleaning and scrubbing devices and it relates more particularly to an improved universal replaceable sponge mop head.

Sponge mops have been widely used for cleaning and scrubbing purposes and these generally include an elongated handle carrying a mounting plate, and a replaceable sponge mop head separably attached to the mounting plate, the sponge mop head comprising a block of regenerated cellulose sponge or a foamed soft synthetic organic polymeric material. The attachment between the mounting plate and the mop head should be such as to permit the simple and rapid replacement of the mop head and yet firmly secure the mop head to the mounting plate in a manner which will prevent their separation in normal use. Two types of couplings are commonly employed for separably connecting the mop head to the mounting plate, one in which screws secure the mop head to the mounting and the other in which the mounting plate is provided with outwardly projecting coupling buttons having enlarged rectangular heads which are slideably engaged by slotted female coupling elements. The latter type of coupling mechanism is difficult and inconvenient in its application and possesses other disadvantages and drawbacks. Replaceable mop heads have been proposed and available for use with both types of mounting plates but these possess the drawbacks of the latter type of coupling and otherwise leave much to be desired.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide an improved cleaning and scrubbing device.

Another object of the present invention is to provide an improved sponge mop head.

Still another object of the present invention is to provide an improved replaceable sponge mop head which may be separably attached to mounting plates provided with various coupling means.

A further object of the present invention is to provide a universal replaceable sponge mop head characterized by its versatility, wide spread application, reliability and ease and convenience of replacement.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawing which illustrates a preferred embodiment thereof.

In a sense the present invention contemplates the provision of a replaceable sponge mop head comprising a block of sponge material, a backing plate secured to a face of said block of sponge material and a pair of longitudinally spaced separable fasteners positioned on the exposed face of said backing plate and characterized in that each of said fasteners includes a pair of transversely spaced outwardly projecting legs, at least one of said legs being transversely resilient, each of said legs having a projection located thereon spaced from the inner end of said leg and having an apex directed toward the other of said legs, each of said projections having inner and outer cam defining faces diverging from said projection apex.

In its preferred form, the backing plate is of rectangular configuration and each of the fastener legs extends longitudinally and has a longitudinal slot in the base thereof to delineate a pair of arms joined at their outer ends by a cross-piece to provide greater resiliency and freedom of movement to the fastener leg. The projections are in the form of longitudinal ridges disposed on the cross-pieces, the cross-piece outer edges forming angles with the ridges. Outwardly directed indexing tabs are positioned along the rear edge of the backing plate to facilitate the proper locating of the mop head on the mounting plate and the end borders of the backing plate are medially inwardly offset to provide recesses for the reception of the end of a screw driver to facilitate the detachment of the mop head from the mounting plate. The fastener members cooperate with mating rectangular headed coupling buttons on the mop mounting plate, and longitudinally spaced openings are medially positioned on the backing plate to permit its attachment by screws to a corresponding mounting plate.

The improved replaceable mop head is applicable to mop head mounting plates of various types and is easily and rapidly properly attached and separated, and in its attached position it is firmly secured to the mounting plate.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an inside plan view of a replaceable mop head embodying the present invention and an associated mop head mounting assembly, the mop head being illustrated in a separated position;

FIG. 2 is an enlarged fragmentary transverse sectional view thereof, the mop head being illustrated in a position attendant to its application to the mop mounting assembly;

FIG. 3 is a view similar to FIG. 2, the mop head being illustrated in its attached position;

FIG. 4 is an enlarged fragmentary plan view of section 4 in FIG. 1; and

FIG. 5 is a sectional view taken along line 5—5 in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing which illustrates a preferred embodiment of the present invention, the reference numeral 10 generally designates the improved replaceable mop head as employed with a mounting assembly 11 which is widely used and of well known construction. The mounting assembly 11 comprises a rectangular mounting plate 12 provided along its rear edge with longitudinally spaced integrally formed hinge knuckles 13 and a swingable apertured rectangular squeeze plate 14 provided along its lower edge with hinge knuckles 16 interdigitating the knuckles 13 and held thereto by a hinge rod 17. The squeeze is provided on its outer face with an outwardly directed handle 18.

The mounting plate 12 includes a planar rectangular frame defining peripheral flange 19 having longitudinally spaced recesses or slots 20 formed in the rear leg 21 thereof and located between and separating successive hinge knuckles 13. A well 22 is formed in mounting plate 12 and is delineated by a rearwardly upwardly inclined bottom wall 23 joined along its peripheral edges by upwardly outwardly inclined peripheral walls to the inner edge of mounting plate frame 19. Bottom wall 23 is also longitudinally upwardly outwardly inclined from its transverse medial axis.

Integrally formed with bottom wall 23 are a pair of longitudinally spaced male coupling elements or buttons 24 which are medially located and in transverse alignment with respective opposite outermost recesses 20. Each coupling element 24 comprises a flat horizontal rectangular coupling head 26 located between the levels of well bottom wall 23 and frame 19 and joined to bottom wall 23 by a pair of legs 27 of lesser transverse dimension than head 26 and diverging downwardly from opposite end edges of head 26 to bottom wall 23.

The mop head 10 comprises a rearwardly tapering block 28 formed of any suitable sponge material, for example, regenerated cellulose sponge, and includes a flat, bottom or outer working face 29 and an opposite flat inner face 30. Secured to the sponge block inner face 30 in any suitable manner such as by a layer of cement 32 is a rectangular backing plate 33 of lesser dimensions than block face 30 to provide a peripheral border of block face 30 about the outer edge of backing plate 33. The backing plate 33 is formed of a resilient material, advantageously being stamped and shaped from resilient sheet metal, and has integrally formed therewith a pair of longitudinally spaced medially located female coupling members 34, the center to center distance between coupling members 34 being about equal to that between coupling heads 26.

Each of the coupling members 34 includes a pair of transversely spaced outwardly directed, parallel, longitudinally extending resilient legs 36 of S-shaped transverse cross-section, the legs 36 being integrally formed with and preferably struck from backing plate 33. The outer longitudinal edges 37 of legs 36 are preferably inclined so as to be substantially parallel to the proximate face of the associated mounting plate wall 23 when mop head 10 is attached thereto. Formed in the base of each leg 36 is a longitudinal slot 38 which extends into base plate 33 and increases the resilient flexibility of legs 36 and delineates therein longitudinally spaced arms 39 connected at their outer ends by a cross-piece 40. The cross-pieces 40 are curved about longitudinal axes to provide longitudinally extending projections or ridges having apices 41 directed toward each other and outwardly diverging cam defining outer faces 42 and inwardly diverging cam defining inner faces 43. The transverse distance between confronting ridge apices 41 is less than the transverse dimension of coupling head 26 and the transverse distance between the free edges of outer cam faces 42 is greater than said head transverse dimension.

Projecting perpendicularly from the rear edge of backing plate 33 are a pair of rectangular positioning or indexing tabs 44 which are longitudinally spaced a distance corresponding to that between outermost slots 20 and are so related to fastener members 34 that when tabs 44 register with slots 20, fastener members 34 register with fastener members 24. A medial section 46 of each end border of backing plate 23 is inwardly inclined to inwardly offset the corresponding end edge whereby to afford a space for the reception of a screw driver so as to facilitate the separation of the mop head 10 from the mounting plate 12.

The backing plate 33 is reinforced by transversely spaced longitudinally extending ribs 47 formed therein and the medial section 48 of backing plate 33 is inwardly offset to form a well in the inner face of backing plate 23. A plurality of medially longitudinally spaced coupling

apertures 49, symmetrically located relative to the transverse axis of backing plate 33, are formed in offset section 48 and in backing plate 23 between fastener legs 36. Coupling apertures 49 function to engage corresponding screw fasteners to permit the attachment of the mop head 10 to a mop mounting plate employing coupling screws.

Considering the operation of the improved mop head 10 when applied to a mounting plate 12, the mop head 10 is attached merely by inserting indexing tabs 44 into outermost notches 20 and then pressing the mop head 10 about the hinge defined by tabs 44 and the forward edges of notches 20 so that fastener members 34 bear on fastener heads 26. The edges of fastener heads 26 engage fastener outer cam faces 42 to spread legs 36 and permit the passage of heads 26 past ridge apices 42 until backing plate 33 and mounting plate 23 are in firm abutment and are maintained therein by the engagement of fastener head 26 by the inner cam faces 43. Lateral movement of the mop head 10 relative to the mounting plate 12 is limited by the indexing tabs 44 in slots 20.

Separation of the mop head 10 from the mounting assembly 11 is accomplished by inserting the end of a screw driver between a backing plate offset section 46 and mounting plate 12 and twisting or tilting the screw driver to separate the respective borders of backing plate 33 and mounting plate 12 whereby to separate the backing and mounting plates in the area of the separable fasteners 24 and 34, the head 26 spreading the fastener legs 36 by acting on the inner cam faces 43 to permit the passage of the head 26 outwardly past the ridge apices 41. The other pair of fasteners are similarly uncoupled, if not previously uncoupled, by twisting a screw driver between the opposite offset section 46 and the mounting plate 12 to complete the detachment of the mop head 10 from the mounting assembly 11.

Where the mop head 10 is to be screw coupled to a corresponding mounting plate, apertures 49 are employed for this purpose in the known manner.

While there has been described and illustrated a preferred embodiment of the present invention, it is apparent that numerous alterations, additions and omissions may be made without departing from the spirit thereof.

What is claimed is:

1. A replaceable sponge mop head comprising a block of sponge material, a backing plate secured to a face of said block of sponge material and a pair of longitudinally spaced separable fasteners positioned on the exposed face of said backing plate and characterized in that each of said fasteners includes a pair of transversely spaced outwardly projecting legs, at least one of said legs being transversely resilient and having a longitudinally extending opening formed in the base thereof to delineate a pair of spring arms projecting from said backing plate and a cross-piece connecting the outer ends of said spring arms, each of said legs having a projection located thereon spaced from the inner end of said leg and having an apex directed toward the other of said legs, each of said projections having inner and outer cam defining faces diverging from said projection's apex and said projection on said resilient leg being disposed on said cross-piece.

2. The replaceable sponge mop head of claim 1 wherein each of said fastener legs is transversely resilient and is integrally formed with said backing plate and has a longitudinal slot formed in the base thereof to delineate a pair of longitudinally spaced spring arms projecting from said backing plate and a cross-piece connecting the outer ends of said spring arms, each of said projections comprising a longitudinally extending ridge formed on and extending along the length of said cross-piece.

3. The replaceable sponge mop head of claim 2 in which a plurality of longitudinally spaced apertures are medially formed in said backing plate.

4. The replaceable sponge mop head of claim 2 wherein said backing plate is of rectangular configuration and

5

has a portion of an end border thereof inwardly offset for the reception of a tool.

5. The replaceable sponge mop head of claim 2 including an indexing element positioned along a border of said backing plate.

6. The replaceable sponge mop head of claim 2 wherein said backing plate is of rectangular configuration and including a pair of longitudinally spaced inwardly directed locating tabs positioned along a longitudinal edge of said backing plate.

7. The replaceable sponge mop head of claim 5 wherein the outer edge of each of said cross-pieces is at an angle to the corresponding apex thereof.

8. A replaceable sponge mop head comprising a block of sponge material, a backing plate secured to a face of said block of sponge material and a pair of longitudinally spaced separable fasteners positioned on the exposed face of said backing plate and characterized in that each of said fasteners includes a pair of transversely spaced outwardly projecting legs, at least one of said legs being transversely resilient, each of said legs having a longitudinally extending ridge positioned proximate the free end of said leg and having an apex parallel to said back-

6

ing plate and directed toward the other of said legs and said ridge having inner and outer cam defining faces diverging from the apex of said ridge and the outer edge of said leg being at an angle to said ridge apex.

References Cited

UNITED STATES PATENTS

665,672	1/1901	Downey	-----	248—226 E UX
1,055,350	3/1913	Nixon	-----	34—95.2
2,469,451	5/1949	Burrus	-----	248—316 D X
2,632,192	3/1953	Mallory	-----	15—119 A
2,840,839	7/1958	Benedetti	-----	15—244 A X
3,008,164	11/1961	Herman et al.	----	15—244 R X
3,457,579	7/1969	Shea	-----	15—244 R X

FOREIGN PATENTS

132,501	5/1949	Australia	-----	15—403
---------	--------	-----------	-------	--------

DANIEL BLUM, Primary Examiner

U.S. Cl. X.R.

248—226 E