Feb. 5, 1957 J. L. HVALE 2,779,959

MOP WITH FOLDING SQUEEZER HEAD

Filed June 30, 1952

Fig. 1

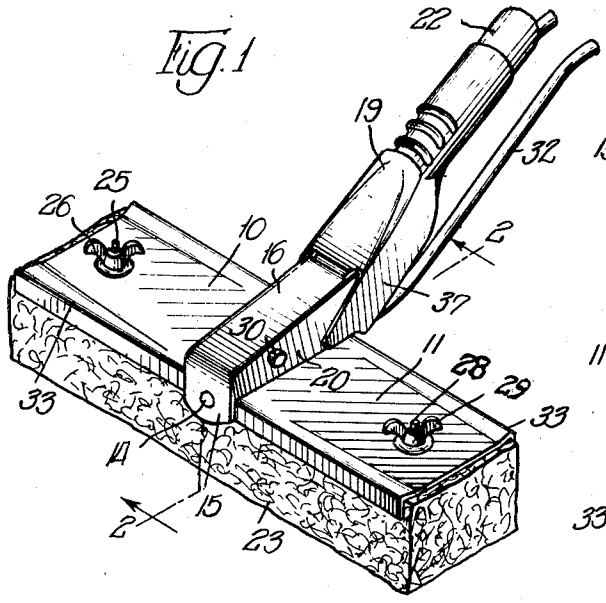


Fig. 4

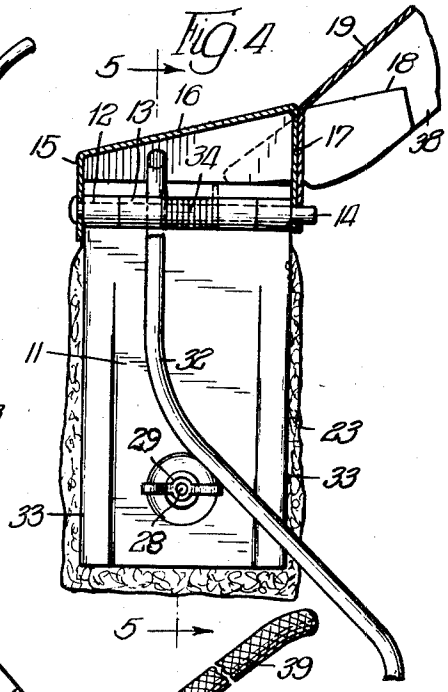


Fig. 2

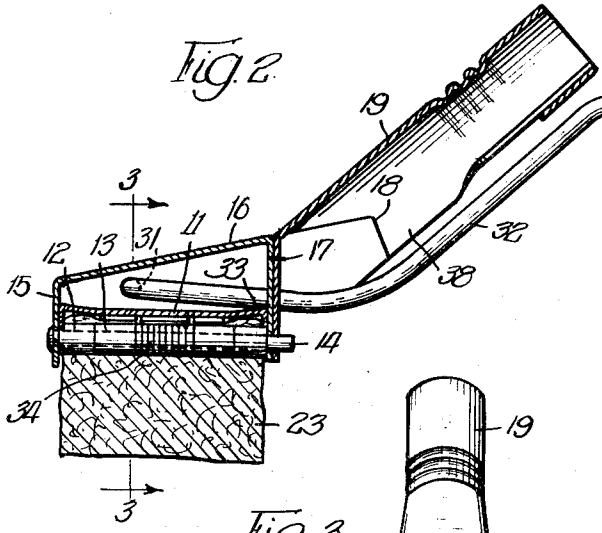


Fig. 5

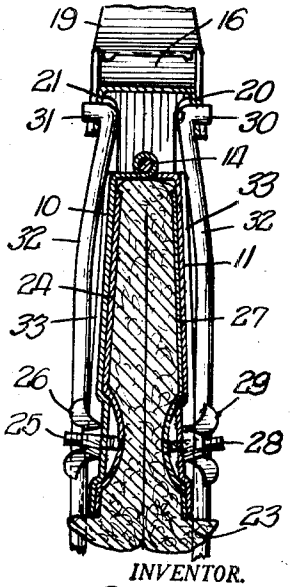
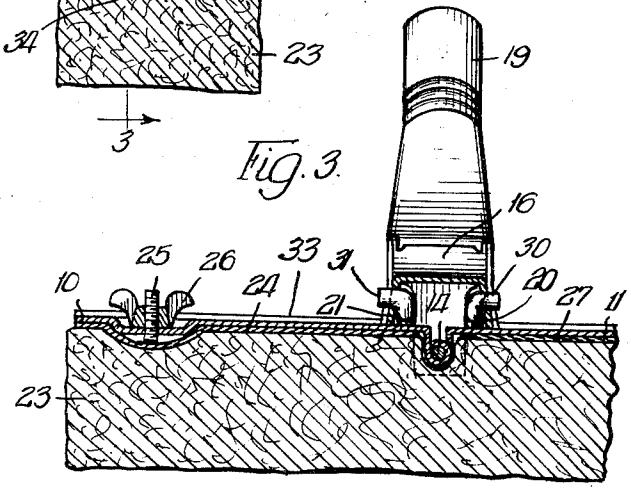


Fig. 3



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MOP WITH FOLDING SQUEEZER HEAD

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2 Claims. (Cl. 15—119)

This invention relates to mops, and more particularly to mops of the type shown wherein a mopping element is secured to a pair of panels which are joined for relative swinging movement between an outspread position and a juxtaposed folded position whereby the mopping element is squeezed by the panels when moved to such juxtaposed folded position.

It is an important object of this invention to improve the construction and reduce the cost of production of mops of this type and in connection with such improvement to provide the same with operating means of novel construction for effecting movement of the panels from an outspread mopping position to a juxtaposed folded mop squeezing position.

With this and other objects in view, the invention consists in the features of construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the claims appended hereto.

Fig. 1 is a fragmentary top perspective view of a mop constructed in accordance with the present invention.

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1, with parts in elevation.

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2, with parts in elevation.

Fig. 4 is a fragmentary side elevational view illustrating the mop when undergoing mop squeezing action.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Referring more particularly to the drawing, the reference numerals 10 and 11 designate a pair of panels or plates of metal or other suitable construction. While the panels 10 and 11 as shown in the drawings are of rectangular plan, it will of course be understood that a variety of other designs may be substituted without departing from the spirit of this invention. Hinge eyes 12 formed along one edge of the panel 10 cooperate with similar hinge eyes 13 formed along the corresponding edge of the panel 11 cooperate to receive a pintle 14. An angular flange 15 at one end of a bracket 16 and a flange 17 at the opposite ends of the bracket 16 provide a pair of spaced apart parallel ears having aligned openings in which the projecting ends of the pintle 14 have bearing support. Accordingly, the panels 10 and 11 are joined by said pintle 14 and the bracket 16 for relative swinging movement of said panels between an outspread position and a juxtaposed folded position. The bracket or support 16 is also provided with spaced walls 20 and 21 across the distance between the flange 15 and flange 17 and each of said walls 20 and 21 present straight edges engageable with the surface portions of the panels 10 and 11 therebelow in straddling relation to the axis of swinging movement of such panels so as to limit movement of the panels in a direction upwardly from a position wherein said panels are substantially coplanar. Wings forming continuations of the side walls 20 and 21 are welded or otherwise suitably fastened as at 18 to the inner surface of a separate tubular member 19. The tubular section 19 thus forms an extension of the

bracket 16 to provide a socket member adapted to rigidly contain the end of a handle 22, said handle being provided to manipulate the mop in actual mopping operations. It will be noted that the longitudinal axis of the handle 22 is arranged lengthwise of the axis of swinging movement of the panels 10 and 11 about the pintle 14.

A mopping element 23 of cellulose sponge material or the like is secured to the side of the panels 10 and 11 facing away from the bracket 16 whereby said mopping element 23, squeezed between the panels so as to express water from the element 23 when the panels are moved into juxtaposed folded position as shown in Figs. 4 and 5 of the drawing. A metal plate 24 secured by suitable adhesive to the surface portion of the mopping element 23 facing the panel 10 provides anchorage for the head of a screw 25 having a threaded shank projecting through an opening formed in the panel 10 in registry therewith and the portion of the shank so exposed through said opening in the panel 10 receives a securing nut 26. A similar metal plate 27 likewise secured to the portion of the mopping element 23 facing the panel 11 provides anchorage for a screw 28 having a threaded shank projecting through an opening in the panel 11 to receive a securing nut 29. Thus the metal plates 24 and 27 combined with the screw members 25 and 28 cooperate with the panels 10 and 11 to fasten the mopping element 23 to such panels 10 and 11. It will be understood, of course, that the metal plates 24 and 27 are spaced apart a distance sufficient to avoid any interference with the hinge connection between the panels 10 and 11.

The walls 20 and 21 of the braket 16 provide bearing support for trunnions 30 and 31 forming the ends of a camming lever 32. The camming lever is preferably constructed of a length of wire bent intermediate its ends so as to form a pair of arms 32 spaced apart a distance corresponding to the distance between the outer faces of the panels 10 and 11 when the latter are in folded juxtaposed position and the trunnions 30 and 31 constitute angularly outwardly bent end portions of said wire arms. The trunnions 30 and 31 accordingly provide an axis about which the arms 32 have swinging movement in path straddling the hinge joining the panels 10 and 11, and surface of the latter facing said arms 32 are thereby acted upon to gradually enter the space between said arms 32 as the portions of the arms straddling the bracket 16 are disposed in a retracted position along the walls 20 and 21 of the bracket generally parallel to the axis of swinging movement of the panels 10 and 11 to an advanced position extending generally radially of said axis. During such swinging movement of the arms 32 surface portions of the panels 10 and 11 facing said arms are acted upon at progressively increasing distances from the axis of said panels.

In so acting against the surface of the panels, the arms 32 ride on a wedge-shaped ridge formed along the rear edge of the panels 10 and 11 facing toward the handle 22. The portion of the ridge so engageable by the arms of the camming lever is inclined upwardly from its tip at the end thereof nearest the bracket 16. Thus, the ridge 33 cooperates with the arms of the camming lever to apply progressively increasing squeezing pressure on the mop element 23 as the arms of the lever are moved in a direction toward the front edge of the panels, whereby corresponding gradually greater compression of the mop element is obtained in a direction away from the axis of swinging movement of the panels.

As shown in the drawings, a similar ridge 33 is formed at both front and rear edges of each panel 10 and 11. Accordingly it is possible to reverse the panels 10 and 11 to facilitate assembly of the mop during manufacture.

A coil spring 34 encircling the pintle 14 operates to bias the panels 10 and 11 against the movement away

from a substantially coplanar position wherein said panels are engaged by the edges of the walls **20** and **21** of the bracket **16**.

It will be noted from Fig. 3 that the hinged connection between the panels **10** and **11** is located sufficiently below the general plane of the panels so as to accommodate squeezing of the mop element **23** between such panels without excessive crowding of the mopping element **23** in the region of said hinge.

As shown in Fig. 4 the nuts **26** and **29** projecting upwardly from the face of the panels **10** and **11** respectively are engageable with the arms **32** to limit swinging movement of the latter toward the front edge of the panels **10** and **11** thus preventing the arms from traveling beyond the outer end of the ridge **33**. The camming lever **32** is provided with a handle end portion **35** which is offset from the portion of the lever of which it forms a continuation so as to provide ample clearance between said portion **35** and the surface of the handle **22** offset thereto when the camming lever **32** is positioned in an idle position relatively close to the handle **22**. Any suitable means may be provided for retaining the camming lever in an idle position relatively close to the underside of the handle **22** so as not to interfere with the mopping operation. The tubular extension **19** is open throughout a section joining the bracket **16** so as to provide spaced apart side walls **37** and **38** between which the arms **32** of the camming lever are adapted to be releasably trapped when the lever is in idle position relatively close to the handle **22**.

A plate **39** of metal or other suitable material having opposite longitudinal edges thereof curled about the arms of the handle portion **35** of the camming lever reinforces the arms **32** against undesired spreading under pressure applied against said arms by the panels **10** and **11** incident to operation of the camming lever to squeeze the mopping element.

It may be desirable to provide a mopping element **23** in the form of a pair of sponge blocks which separate along a line coincident with the hinged connection between the panels **10** and **11** in lieu of a single block of sponge material, as shown.

While in the foregoing the preferred embodiments of the invention have been shown and described, it is understood that the invention is susceptible to such further alterations and modifications as fall within the scope of the appended claims.

What is claimed is:

1. In a mop, the combination of a pair of panels, a hinge connecting said panels for swinging movement of said panels between an outspread and a juxtaposed folded position including a pintle having projecting ends, a bracket having a pair of opposed ears in which the projecting ends of said pintle have bearing support, a pair of opposed parallel side walls extending between said ears and presenting longitudinal edges at equal distances in opposite directions radially of the pintle with which the panels are engageable to limit swinging movement of the panels in a selected direction, a lever pivotally mounted on said opposed side walls of the bracket having spaced apart camming arms between which said panels are engaged for movement in a direction away from said selected direction into a juxtaposed folded position, a tubular member forming a rearward extension of said bracket having its longitudinal axis arranged lengthwise of the hinge connecting said panels, said tubular member being joined to said bracket by connecting means presenting opposed surfaces between which portions of the lever are yieldably trapped when the panels are in outspread position, and a mopping element secured to said panels so as to be squeezed therebetween when said panels are so moved into juxtaposed folded position.

2. In a mop, the combination of a pair of panels, a hinge connecting said panels for swinging movement of said panels between an outspread and a juxtaposed folded position including a pintle having projecting ends, a bracket having a pair of opposed ears in which the projecting ends of said pintle have bearing support, a pair of opposed parallel side walls extending between said ears and presenting longitudinal edges at equal distances in opposite directions radially of the pintle with which the panels are engageable to limit swinging movement of the panels in a selected direction, a lever pivotally mounted on said opposed side walls of the bracket having spaced apart camming arms between which said panels are engaged for movement in a direction away from said selected direction into a juxtaposed folded position, handle attaching means joined to said bracket by connecting means presenting opposed wings between which integral rearward extensions of the side walls of the bracket are confined and fastened, opposed surfaces presented by said wings between which portions of the lever are yieldably trapped when the panels are in outspread position and a mopping element secured to said panels so as to be squeezed therebetween when said panels are so moved into juxtaposed folded position.

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