Jan. 17, 1956 F. ZOTTOLA 2,730,743

BUTTERFLY TYPE SPONGE MOPS

Filed Jan. 12, 1953

Fig. 4.

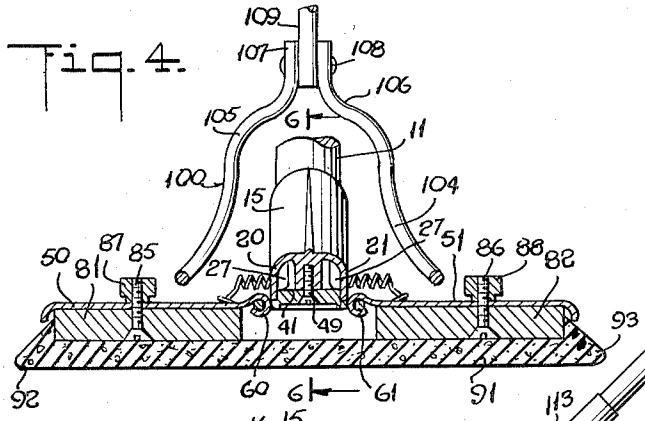


Fig. 1.

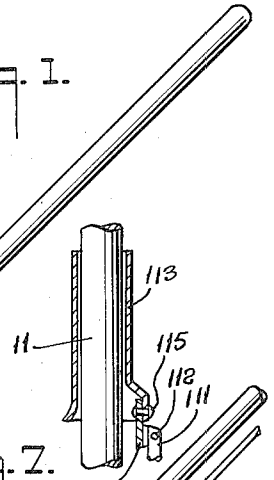


Fig. 6.

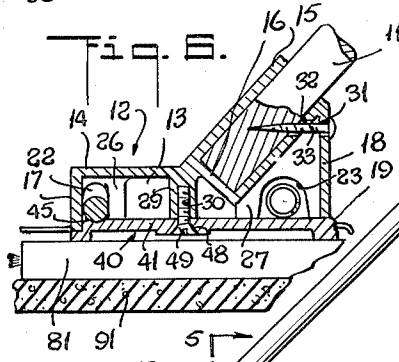


Fig. 7.

Fig. 2.

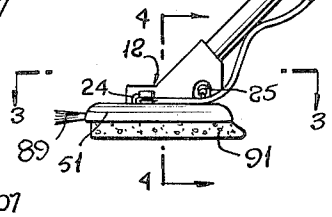


Fig. 5.

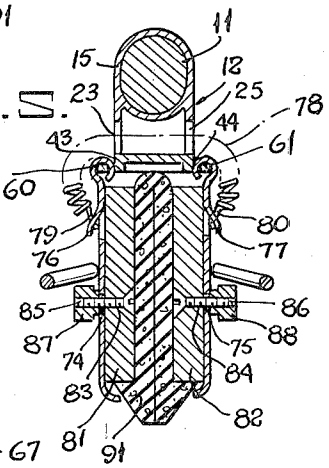
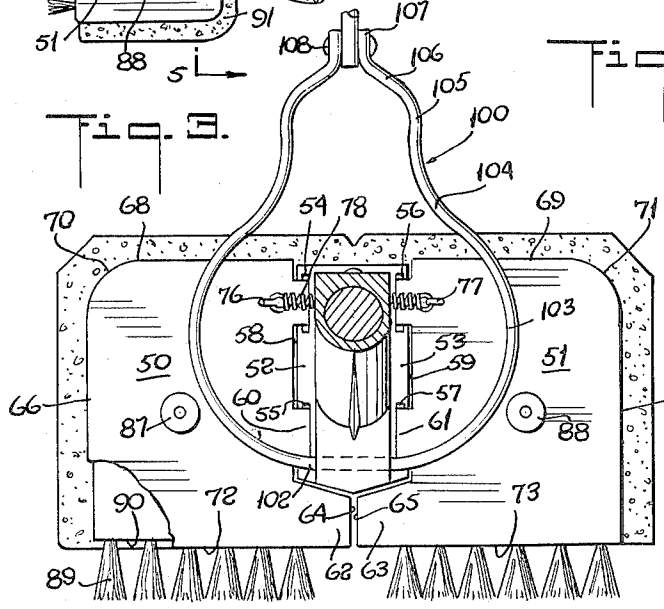


Fig. 3.



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2,730,743

BUTTERFLY TYPE SPONGE MOPS

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Application January 12, 1953, Serial No. 330,685

8 Claims. (Cl. 15—116)

The present invention relates to an improved mop construction. It is particularly directed to mops of the self wringing or squeezing type, this application being a continuation in part of my application Ser. No. 293,321, filed June 13, 1952.

The particular embodiment of the present invention, which is illustrated in the drawings, and which will be described hereinafter in greater detail, comprises generally, a handle, a head on one end of the handle, wings on opposite sides of the head for carrying a cleaning element and swingable toward and away from each other for sequeezing the cleaning element therebetween, and hand actuable means on the handle for effecting the swinging movement of the wings.

While it is old in the art to construct mops with provision for removing and replacing the cleaning element, mops have not heretofore been constructed with means for interchanging or replacing those elements other than the cleaning element. As mops of the self wringing type usually require a considerable number of structural elements, it is a costly procedure to dispose of an entire mop mechanism when a single element has become damaged or otherwise defective. However, this problem has continued as it was heretofore not thought economically possible to construct a mop mechanism having interchangeable and replaceable parts.

Accordingly, it is a principal object of the present invention to provide a mop of the type described in which the handle, head and actuating mechanism are quickly and easily secured to and detached from the remainder of the mop and each other. By the present invention, the mop handle, head and actuating mechanism may be secured to the remainder of the mop by a single quick acting fastener. Further the actuating mechanism may be removed from and replaced on the handle and mop head by a simple sliding movement, the handle and head being secured together by a single fastener.

It is another object of the present invention to provide a mop of the type described having a highly improved actuating mechanism and spring return means which cooperate to produce a more reliable and easily operated mop.

It is still another object of the present invention to provide a mop of the type described which is simple and durable, effective for its intended purposes, and which can be manufactured and sold at a reasonable cost.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features, combinations of elements, arrangements of parts, which will be exemplified in the construction hereinafter described and of which the scope of invention will be indicated in the following claims.

In the accompanying drawing in which is shown an illustrative embodiment of this invention:

Fig. 1 is a side elevational view of a mop embodying the invention and showing the mop in its position for squeezing the cleaning element;

Fig. 2 is a partial side elevational view of the mop in normal mopping position:

Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 2, with parts broken away;

Fig. 4 is an enlarged cross sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is an enlarged cross sectional view taken on the line 5—5 of Fig. 1;

Fig. 6 is a cross sectional view taken on the line 6—6 of Fig. 4;

Fig. 7 is a cross sectional view illustrating a hand actuable sleeve on the mop handle and its operating connection with the actuating mechanism.

Referring now more particularly to the drawing, **10** designates generally a mop embodying the present invention. The mop comprises an elongated handle **11**, of generally cylindrical form, which may be fabricated of wood, plastic or other suitable material.

On one end of the handle **11** is a mop head, generally designated **12**, of elongated form and disposed at an angle with respect to the handle. The mop head has its outer face cored out, as at **13**, and is formed with a longitudinally extending top wall **14**, and a socket **15** formed integrally with the top wall and extending upwardly and away from the latter. The socket is formed with its lower end closed by a wall **16**, its upper end being open to receive an end of the handle **11**. The head **12** is formed with a pair of parallel spaced depending end walls **17** and **18**, the end wall **18** being formed with a rectangular cutout portion **19** extending upwardly from its lower end. Intermediate the end walls **17** and **18**, the mop head is provided with a pair of parallel spaced depending side walls **20** and **21**. The side wall **20** is formed with a notch or cutout portion **22** extending upwardly from its lower edge and adjacent to the end wall **17**. There is also formed in the side wall **20** a notch or cutout portion **23**, spaced from the notch **22**, and extending upwardly from the lower edge of the side wall adjacent to the end wall **18**. The side wall **21** is formed with a pair of notches or cutout portions **24** and **25** extending upwardly from its lower edge and in alignment with the notches **22** and **23**, respectively. The side walls **20** and **21** are formed with a plurality of internal vertically extending ribs **26** and **27** which have their lower ends spaced above the lower edge of the side walls, for a purpose to be described hereinafter. Thus, the notches **22** and **24**, and **23** and **25**, and the cored interior **13** combine to form a pair of transversely extending open ended recesses in the outer face of the mop head **12**. Intermediate the ends of the head **12**, the top wall **14** is formed with a depending threaded lug **29** which is provided with an upwardly extending threaded aperture **30**. The lower end of lug **29** is spaced above the lower edges of the side walls **20** and **21** a distance equal to the spacing of the ribs **26** and **27** above the lower edges of the side walls. Extending inwardly through the end wall **18** and the wall of socket **15** are a pair of aligned bores **31** and **32**, through which a fastening element, such as a nail **33** may be extended into the handle **11**, for securing the handle within the socket.

Positioned below and abutting the head **12** is a retaining plate, generally designated **40**. The plate **40** has a central raised or platform portion **41** which has its edges engageable with the inner surfaces of side walls **20** and **21**, and end wall **17**, to properly position the plate with respect to the head. The platform **41** is conformably received in the cutout portion **19** of end wall **18** and is of a height to abut the lower ends of ribs **26** and **27** and lug **29** when the plate abuts the lower edges of the side walls and end wall. Further, the platform **41** is provided with lateral shoulders **43** and **44**, conformably received in the notches **23** and **25**, there being a transversely extending

curved journal bearing 45 formed in the platform 41 and extending laterally beyond the platform to be conformably received in the notches 22 and 24. Thus, the retaining plate 40 is adapted to be seated on the outer face of the head 12 extending across or bridging the notches 22 and 24, and 23 and 25, to form a pair of open ended transversely extending passageways in the mop head 12. In order to detachably secure the retaining plate 40 to the mop head 12, the retaining plate is provided with a countersunk aperture 48 which is adapted to register with the aperture 30 and receive a quick acting threaded fastener 49 for holding the plate in position with respect to the head.

In order to mount a pair of wings 50 and 51 on opposite sides of the head 12, the plate 40 is provided with lateral extensions 52 and 53 having slots 54, 55, 56, and 57, formed therein. The wings 50 and 51 are similar in all respects, except they are reversed in direction. They may comprise metal plates having inner edges 58 and 59 from which extend spaced, lined tubular ears 60 and 61 which pass through the slots 54, 55, 56 and 57 for hinging the wings to opposite sides of the plate 40. The wings 50 and 51 extend forwardly beyond the end wall 17 of the head 12, and are formed adjacent their front ends with inward extensions 62 and 63 projecting toward each other in front of the head. The projection 62 and 63 have their inner edges 64 and 65 terminating adjacent each other. The wings 50 and 51 have outer edges 66 and 67, rear edges 68 and 69, and curved edges 70 and 71, inter-connecting the edges 66 and 68, and 67 and 69, respectively. The edges 66 and 67, 68 and 69, and 70 and 71 may be curled or beveled downwardly slightly, if desired. The front edges 72 and 73 of the plates or wings 50 and 51, respectively, may also be curled or beveled downwardly slightly.

It will now be understood that the wings 50 and 51 are normally in a laterally extending horizontal coplanar position. They may be swung downwardly about the hinged ears 60 and 61 to vertical positions as shown in Fig. 5. When that is done, the portions 62 and 63 swing upwardly at the same time. The wing plates 50 and 51 are formed with central through openings 74 and 75 for a purpose hereinafter appearing.

The wings 50 and 51 are formed with struck up lugs 76 and 77 adjacent their rear edges 68 and 69 and in alignment with the notches 23 and 25. Interconnecting the lugs 76 and 77 is a coil tension spring 78 having terminal hooks 79 and 80 for receiving and bearing against the lugs. The spring 78 extends through the passageway formed by notches 23 and 25 and rests on the adjacent portion of platform 41 and shoulders 43 and 44, and normally holds the wings 50 and 51 in horizontal coplanar position. If the wings are swung downwardly, spring 78 is tensioned so as to urge or bias the wings back toward their laterally extending or horizontal coplanar position when the wings are released.

Removably attached to the underside of the wings 50 and 51 are blocks 81 and 82, fabricated of wood or other rigid material. The blocks have substantially the outer contour of the wings (with the exception of the ears 64 and 65). The blocks are somewhat smaller, however, than the wings so that the beveled or curled edges 66 and 67, 68 and 69, 70 and 71, and 72 and 73, extend beyond the blocks. The blocks are of uniform thickness. They are formed with counter-sunk through openings 83 and 84 registering with the openings 74 and 75 in the wings. Extending through the openings 83 and 84 are screws 85 and 86, respectively, which also pass through the openings 74 and 75. Screwed to the upper ends of the screws 85 and 86 are nuts 87 and 88 contacting the top surfaces of wings 50 and 51, respectively. The heads of screws 85 and 86 are received in the countersunk portions of the openings 83 and 84 which are located at the undersides of the blocks 81 and 82. A row of brush bristles 89 are attached to the front edges 90

of the blocks 81 and 82 and project forwardly therefrom.

Attached to the undersides of the blocks 81 and 82 and traversing the space between the blocks is a mop pad 91 of sponge-like material. The pad may be made of synthetic sponge material or natural sponge material. Said pad 91 extends beyond the ends 66 and 67 of the wings 50 and 51, as at 92 and 93, and also extends beyond the curved edges 70 and 71, and the rear edges 68 and 69. When the wings 50 and 51 and the blocks 81 and 82 are in a horizontal coplanar position, the pad 91 is flat. At such time, the spring 78 is in a horizontal straight position as shown in Fig. 4. The pad 91 traverses the space between the blocks 81 and 82 as shown in Fig. 4 and maintains the wings 50 and 51 in coplanar position. The pad may be glued to the blocks or attached thereto in any suitable manner.

It will also be observed that when the wings are swung down in the manner hereinafter described toward each other, the pad 91 will be folded over in half about its mid-section in the space between the blocks 81 and 82, and the folding portions of the pad will be pressed together to squeeze out water therefrom.

Means is provided to swing the wings downwardly and toward each other. To this end, there is pivoted to the head 12, a wing folding or operating member 100. Said member 100 may be made from a single piece of round wire stock, symmetrical about its mid-portion. The operating or actuating member comprises a central straight wire portion 102 extending through the passageway formed by the notches 23 and 24 and journalled in the bearings 45 for swinging movement about an axis perpendicular to the axes of the ears 60 and 61. Extending from the central portion 101 are outwardly and rearwardly curved or bellied portions 103. Extending from the curved portions 103 are upwardly and inwardly inclined portions 104. These portions extend upwardly and rearwardly in inclined parallel relation as at 105.

Extending from the portions 105 are inwardly, rearwardly and upwardly inclined portions 106. Extending from said last named portions 106 are parallel spaced aperture ears 107 inclined upwardly and rearwardly. A transverse horizontal pivot pin 108 extends through the apertured ears 107 and traverses the space therebetween, Hinged to the pin 108 and received between the ears 107 is a lower apertured end 109 of a link 110. The link 110 may be made of round stock and its lower apertured end 109 may be flattened.

The upper end of link 110 is flattened as at 111 and apertured to receive a pivot pin 112. Slidable on the handle 11 is a sleeve or tube 113 having an outwardly flaring lower end 114. Riveted to the rear side of the underside of flaring end 114, as by rivet 115, is a connector bar 116, having a pair of parallel spaced ears 117 fixedly secured to its lower end. The upper flattened end 111 of link 110 is disposed in the space intermediate the ears 117, and the pivot pin extends through the ears and the end of link 110. By this construction, it will be noted that normal sliding operation of the sleeve 113 will not cause the rivet, connector bar 116, ears 117, or pin 112 to twist or turn.

When the wings 50 and 51 are in laterally extending or horizontal position, the outwardly bellied portions 103 of member 100 are located just above the wings. When the sleeve is pusher downwardly by the operator, the link 110 rotates the member 100 about the journal bearing 45 in a clockwise direction looking at Fig. 3. Portions 103 will press downwardly against the wings 50 and 51 to start them swinging downwardly. As the tube 113 continues downwardly on the handle, the portions 104 engage the wings to gradually press them further downward and together and finally portions 105 press the wings tightly together. During such action, the folded together pad portions are compressed to squeeze the water out of the pad.

After the mop is squeezed out, tube 64 may be slidably moved upwardly on the handle 11, causing the member

100 to be swung upwardly, or in a counter clockwise direction from the position of Fig. 1 to the position of Fig. 2. During such action the spring 78 which has been tensioned, pulls the wings upwardly to straighten out the mop pad. The pad itself will limit the upward swinging movement of the wings to a laterally extending or horizontal position.

After the mop is squeezed out, tube 64 may be slidably moved upwardly on the handle 11, causing the member 100 to be swung upwardly, or in a counterclockwise direction from the position of Fig. 1 to the position of Fig. 2. During such action the spring 78 which has been tensioned, pulls the wings upwardly to straighten out the mop pad. The pad itself will limit the upward swinging movement of the wings to a laterally extending or horizontal position.

When desired to remove the mop handle, head and actuating mechanism from the remainder of the mop, it is only necessary to remove the threaded fastener 49. To further disassemble the mop, the member 100 of the actuating mechanism may be moved outwardly from the notches 22 and 24, and the sleeves 113 may be slid over the free end of the handle 111, thereby entirely removing the actuating mechanism from the mop. The mop handle may be quickly and easily removed by simply withdrawing the fastener 33, and sliding the mop out of the socket 15 and the sleeve 113.

It will thus be seen that there is provided a device in which the several objects in this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments of the above invention, and as various changes may be made in the embodiments set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A mop comprising a downwardly and forwardly inclined handle having a lower front end, a head on the lower front end of said handle and at an angle with respect thereto, said head having opposite sides and an underface and extending forwardly of the lower end of the handle, there being a pair of transversely extending spaced recesses formed in the under face of said head and opening through the opposite sides thereof, a retaining plate abutting the under face of said head and bridging said recesses to form a pair of open ended transverse passageways, fastener means extending through said plate and into said head for securing said plate to said head, a pair of wings on opposite side of said head and connected to said plate for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways, means securing each end of said spring to the adjacent one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said passageways and rotatable therein, said member having portions engageable with said wings for effecting swinging movement of latter toward each other against the force of said spring when said member is rotated in one direction.

2. A mop comprising a downwardly and forwardly inclined handle having a lower front end, a head on the lower front end of said handle and at an angle with respect thereto, said head having opposite sides and an underface and extending forwardly of the lower end of the handle, there being a pair of transversely extending spaced recesses formed in the under face of said head and opening through the opposite sides thereof, a retaining plate abutting the under face of said head and bridging said recesses to form a pair of open ended transverse passageways, fastener means extending through said plate and into said head for securing said plate to said head, a pair of wings on opposite side of said head and connected to said plate for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways, means securing each end of said spring to the adjacent one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said passageways and rotatable therein, said member having portions engageable with said wings for effecting swinging movement of latter toward each other against the force of said spring when said member is rotated in one direction, hand actuable means slidable on said handle, and means operatively connecting said member to said hand actuable means for effecting rotative movement of said member upon sliding movement of said hand actuable means.

3. A mop comprising a downwardly and forwardly inclined handle having a lower front end, a head on the lower front end of said handle and at an angle with respect thereto, said head having opposite sides and an underface and extending forwardly of the lower end of the handle, there being a pair of transversely extending spaced recesses formed in the under face of said head and opening through the opposite sides thereof, a retaining plate abutting the under face of said head and bridging said recesses to form a pair of open ended transverse passageways, a screw fastener extending through said plate and into said head intermediate said passageways for securing said plate to said head, a pair of wings on opposite side of said head and connected to said plate for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways, means securing each end of said spring to the adjacent one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said passageways and rotatable therein, said member having portions engageable with said wings for effecting swinging movement of latter toward each other against the force of said spring when said member is rotated in one direction.

4. A mop comprising a handle, an elongated head on one end of said handle and at an angle with respect thereto, said head including a top wall having a socket for receiving said handle, a pair of spaced end walls depending from said top wall, and a pair of spaced side walls depending from said top wall intermediate said end walls, each of said side walls being formed with a pair of spaced notches extending upwardly from the lower edge thereof, each of the notches formed in one side wall being in transverse alignment with one of the notches formed in the other of said side walls, a retaining plate abutting the lower edges of said end and side walls and bridging said notches to form a pair of open ended transverse passageways, fastener means for securage said plate to said head, a pair of wings on opposite sides of said head and connected to said plate for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways and having its opposite ends each secured to one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said passageways and rotatable therein, said member having portions engageable with said wings for effecting swinging movement of the latter toward each other against the force of said spring when said member is rotated in one direction.

5. A mop comprising a handle, an elongated head on one end of said handle and at an angle with respect thereto, said head including a top wall having a socket for receiving said handle, a pair of spaced end walls depending from said top wall, and a pair of spaced side walls depending from said top wall intermediate said end walls, each of said side walls being formed with a pair of spaced notches extending upwardly from the lower edge thereof, each of the notches formed in one side wall being

in transverse alignment with one of the notches formed in the other of said side walls, a retaining plate abutting the lower edges of said end and side walls and bridging said notches to form a pair of open ended transverse passageways, fastener means for securing said plate to said head, a raised portion on said plate and conformably received in one of said passageways, a raised journal bearing portion formed on said plate spaced from said first named raised portion and conformably received in the other of said passageways, a pair of wings on opposite sides of said head and connected to said plate for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways and having its opposite ends each secured to one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said pasageways and rotable therein, said member having portions engageable with said wings for effecting swinging movement of the latter toward each other against the force of said spring when said member is rotated in one direction.

6. A mop comprising a handle, an elongated head on one end of said handle and at an angle with respect thereto, said head including a top wall having a socket for receiving said handle, a pair of spaced end walls depending from said top wall, and a pair of spaced side walls depending from said top wall intermediate said end walls, each of said walls being formed with a pair of spaced notches extending upwardly from the lower edge thereof, each of the notches formed in one side wall being in transverse alignment with one of the notches formed in the other of said side walls, a retaining plate abutting the lower edges of said end and side walls and bridging said notches to form a pair of open ended transverse passageways, fastener means for securing said plate to said head, lateral extensions on opposite sides of said plate, a pair of wings on opposite sides of said head and hingedly connected to said lateral extensions for swinging movement toward and away from each other, said wings being adapted to carry a cleaning element, a tension spring extending through one of said passageways and having its opposite ends each secured to one of said wings for yieldably holding said wings in their position of movement away from each other, a member extending through and beyond the other one of said passageways and rotatable therein, said member having portions engageable with said wings for effecting swinging movement of the latter toward each other against the force of said spring when said member is rotated in one direction.

7. A mop comprising a head formed with a top wall and with an upwardly and rearwardly inclined socketed portion, said head having side walls extending downwardly from the top wall and socketed portion, said head being further formed with a front wall extending downwardly from the top wall and with a rear wall extending downwardly from the socketed portion, said side walls being formed adjacent their front ends with a pair of aligned notches extending upwardly from the lower edges of said side walls, a retaining plate at the underside of said head, said retaining plate being formed with a raised platform received within the underside of the head, said retaining plate having side flanges formed with pairs of slots, wing formed with hook portions received within said slots for hingedly attaching said wings to said retaining plate, a mop element attached to the undersides of said wings and extending beneath said retaining plate, means for attaching the retaining plate to the underside of said head, a spring interconnecting said wings, said side walls being formed adjacent their rear ends with a second pair of aligned notches extending upwardly from the lower edges of the side walls, said spring passing through said second pair of notches for biasing said wings towards horizontal position, a mop handle having its lower end received within said socketed portion, means for fastening said mop handle to said head, a sleeve slidable on said mop handle, a member having a portion passing through and journalled within the pair of notches adjacent the front end of said side walls, said member having portions overlying the wings, and link means for attaching said member to said sleeve.

8. A mop comprising a head formed with a top wall and with an upwardly and rearwardly inclined socketed portion, said head having side walls extending downwardly from the top wall and socketed portion, said head being further formed with a front wall extending downwardly from the top wall and with a rear wall extending downwardly from the socketed portion, said side walls being formed adjacent their front ends with a pair of aligned notches extending upwardly from the lower edges of said side walls, a retaining plate at the underside of said head, said retaining plate being formed with a raised platform received within the underside of the head, said retaining plate having side flanges formed with pairs of slots, wings formed with hook portions received within said slots for hingedly attaching said wings to said retaining plate, a mop element attached to the undersides of said wings and extending beneath said retaining plate, means for attaching the retaining plate to the underside of said head, said platform being formed with a groove of curved transverse cross section at its upper face in alignment with the pair of notches at the front end of said side walls of said head, and a member having a portion passing through said notches at the front ends of said walls of said head and engaging said groove, a mop handle having its lower end received within said socketed portion, a sleeve slidable on said mop handle, a link interconnecting said member with said sleeve, said member having means to engage the upper sides of said wings to swing them downwardly toward each other when the sleeve is moved down on the handle, said side walls being formed adjacent their rear ends with a second pair of aligned notches extending upwardly from the lower edges of the side walls, and a spring passing through the notches at the rear ends of the side walls of the head, and means to attach the ends of said spring to said wings.

References Cited in the file of this patent

UNITED STATES PATENTS

548,622	Ballam	Oct. 29, 1895
2,251,384	Thomas	Aug. 5, 1941
2,643,407	Vosbikian et al.	June 30, 1953
2,646,587	Sjoblom	July 28, 1953
2,670,488	Richards et al.	Mar. 2, 1954
2,706,303	Ours	Apr. 19, 1955

FOREIGN PATENTS

135,776	Sweden	May 20, 1952
617,197	Germany	Aug. 14, 1935