Feb. 15, 1938. K. S. ROGERS 2,108,727

MOP

Filed Oct. 11, 1935

FIG. 2.

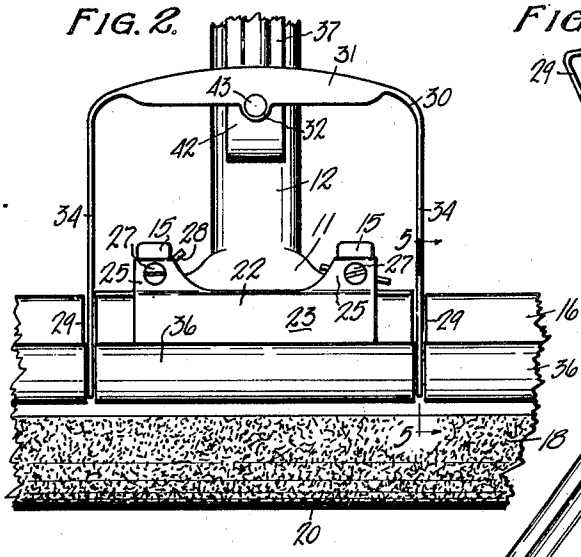


FIG. 5.

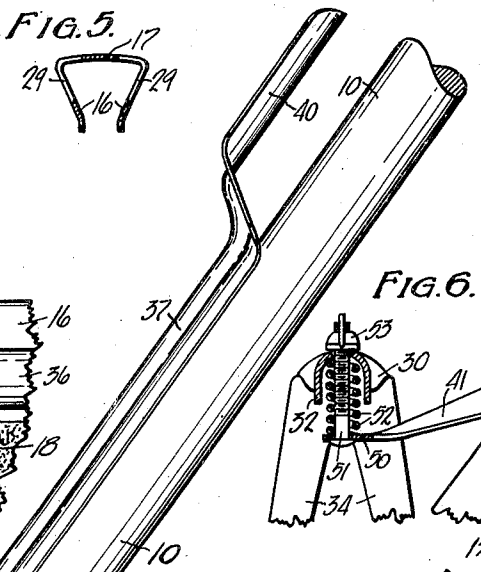


FIG. 6.

FIG. 1.

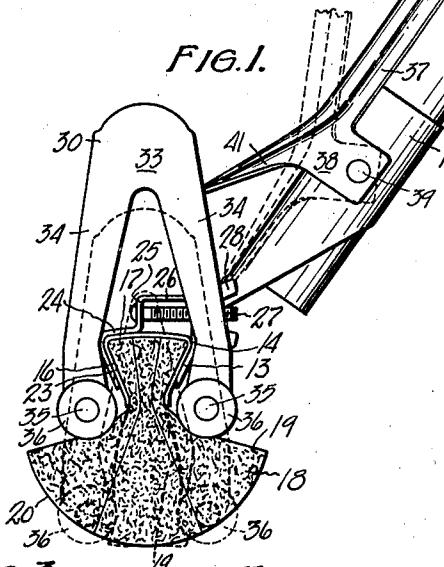


FIG. 4.

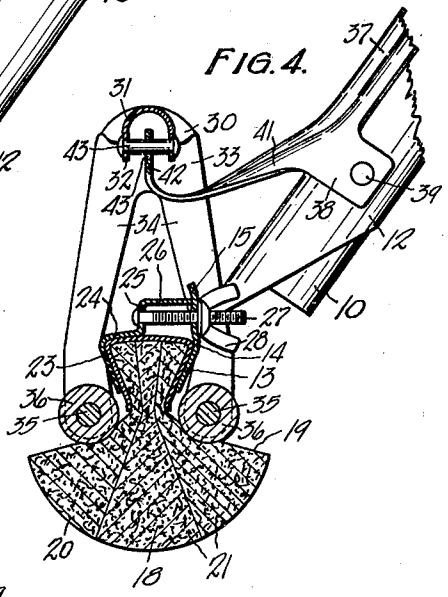
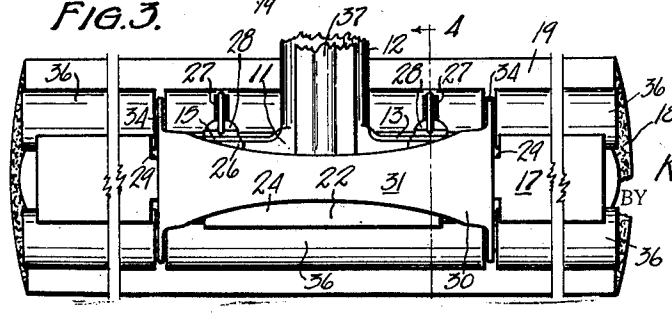


FIG. 3.



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Patented Feb. 15, 1938 2,108,727

UNITED STATES PATENT OFFICE

2,108,727

MOP

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Application October 11, 1935, Serial No. 44,568

10 Claims. (Cl. 15—119)

This invention relates to mops, and particularly to a mop employing sponge rubber as a mopping element.

The primary object of the invention is to provide a mop of this character with novel means for extracting water from the mop element.

A further object is to provide a mop in which the carrier for the mopping element serves to guide a shiftable wringing roller assembly.

A further object is to provide a mop with a sponge rubber mop head with respect to which a rigid roller journaling frame is shiftable to extract water and dirt from the sponge rubber by compressing the same in a movement toward the outer end thereof.

Other objects will be apparent from the description and the appended claims.

In the drawing:

Figure 1 is a side view of the mop.

Figure 2 is a fragmentary front view of the mop.

Figure 3 is a fragmentary top plan view of the mop.

Figure 4 is a vertical transverse sectional view of the mop taken on line 4—4 of Fig. 3.

Figure 5 is a vertical transverse sectional view of the sponge holding channel taken on line 5—5 of Fig. 2.

Figure 6 is a fragmentary sectional view similar to Fig. 4, of a modified roller frame operating connection.

Referring to the drawing, which illustrates the preferred embodiment of the invention, the numeral 10 designates an elongated mop handle to the lower end of which is secured a bracket 11 comprising a sleeve 12 encircling and secured to the lower end of the mop handle, and a wide plate 13 angularly bent from said sleeve and including a transverse forward concave bend 14 in spaced relation above the bottom edge of plate 13. A pair of spaced apertured ears 15 extend upwardly from the plate 13 on opposite sides of and in spaced relation to sleeve 12, and in inwardly spaced relation to the ends of said plate 13. An inverted sheet metal channel having downwardly extending converging side walls 16 and a central upper transverse body portion 17 forms a carrier for a rubber sponge 18. The upper portion of sponge 18 is compressed in said carrier and the lower portion thereof tends to assume its normal expanded position or shape to provide its sides 19 in downwardly diverging relation and its bottom 20 in an arcuate formation or shape. The sponge rubber 18 is preferably formed of a plurality of layers 21 adhesively secured together at their abutting sides, the adhesive securing preventing stretching or distortion of the rubber sponge from its normal desired shape. The plate 13 is adapted to have face contacting engagement with the rear wall 16 of the sponge carrying channel.

A bracket 22 is provided with a lower flange 23 adapted to bear against the front wall 16 of the sponge channel, and an upper plate portion 24 bearing on the upper transverse wall 17 of the channel. A pair of apertured ears 25 extend upwardly from the inner edge of plate portion 24 of bracket 22 in substantially equally spaced relation to the ears 15, and said ears 25 are provided with rearwardly extending end portions 26 adapted to bear against the upper ends of the ears 15. A bolt 27 extends through the apertures in each registering pair of ears 15 and 25, and a thumb nut 28 is threaded on each bolt, whereby said bracket 22 is clamped to bracket 11. As the thumb nuts 28 are tightened, the point of engagement of part 26 of bracket 22 with ear 15 of bracket 11 serves as a fulcrum above bolt 27, whereby the plates 13 and 23 are swung in the direction of each other to firmly press against the walls 16 of the sponge channel. Opposed portions of the channel at the corners formed by the side walls 16 and the transverse member 17 of the sponge channel are cut away transversely thereof at 29 adjacent the ends of plate 13 and in spaced relation to the ends of said channel, for purposes to be hereinafter set forth.

A roller mounting frame 30 is mounted for vertical reciprocation relative to the mop head structure. Frame 30 is of general U-shape and comprises a central substantially horizontally extending portion 31 of curved cross sectional configuration provided with spaced central depending ears 32, and parallel downwardly extending end portions 33 terminating in spaced arms 34. The arms 34 are aligned with cut-outs 29 of the sponge channel and extend in downwardly diverging relation for the major portion of their length, and terminate in substantially vertical portions provided with downwardly inwardly converging inner edges. The major spacing of the arms 34 of each pair is slightly greater than the major width of the sponge channel. At their lower ends the arms 34 journal shafts 35 of hard rubber rollers 36 in inwardly spaced relation to the ends of said rollers. In its normal position the wringing roller assembly is positioned as illustrated in full lines in Fig. 1, with the rollers 36 positioned in engagement with sponge 18 adjacent the lower ends of walls 16 of the sponge channel, and the point of greatest spacing of arms 34 positioned

adjacent the top portion of the sponge channel which is of greatest width.

An operating member or lever 37 for the wringing roller assembly extends longitudinally of the handle 10 and is provided with ears 38 adjacent its lower end and pivoted to the handle 10 and sleeve 12 at 39. At its upper end the lever 37 is provided with an off-set 40 spaced from handle 10 and forming a hand grip portion. Beginning at a point adjacent ears 38 the lower end 41 is bent away from sleeve 12, and terminates in an upwardly directed end portion 42 positioned between ears 32 of roller frame 30. A rivet or other suitable member 43 is secured to and extends between said ears 32, and extends loosely through an aperture 43 in said lever part 42.

In the use of the device, excess water and dirt collected by sponge 18 may be wrung or extracted therefrom by pivoting lever 37 to downwardly shift frame 30 and the rollers carried thereby, which lever pivoting downwardly shifts the lever part 42 connected to said frame 30. In the downward movement of the frame 30, the arms 34 thereof enter the cut-outs 29 in the sponge channel to be guided thereby. The rollers 36 move downwardly in uniform axially spaced parallel relation, compressing the sponge 18 as they do so, and thus effectively extract the water which is pushed ahead of the rollers toward the lower end 20 of the sponge and which carries dirt particles with it. Thus the sponge is freed of contained dirt while being wrung. When the rollers have reached their lowermost position, as illustrated in dotted lines in Fig. 1, the sides 19 of the sponge thereabove will be curved as illustrated in dotted lines in Fig. 1, and tend to hold the rollers and frame in their lower position. Upon return movement of the rollers, however, particularly as they approach normal position, the sponge serves to upwardly urge the rollers. When the mop has been wrung and is ready for use, the rollers and their frame are disposed in an out-of-the-way position, and the upwardly directed pressure applied by sponge 18 to the rollers serves to hold lever 37 tight against handle 10. The rollers 36 preferably project outwardly of the arms 34 of frame 30 a sufficient distance to form guards or bumpers whereby neither the frame 30 nor the sponge channel can strike or mar an object against which the mop is pushed. Likewise, the sponge channel terminates short of the ends of sponge 18 and rollers 36 as illustrated in Fig. 2, whereby said last named members prevent marring of an object struck by the ends of the mop head.

The mop is readily assembled and disassembled. Thus by removal of bolts 27, the sponge channel is released from the mop handle. The sponge and channel may then be removed from the mop as a unit, by longitudinally sliding the same through the opening between arms 34 provided and shaped to accommodate such sliding. It will thus be seen that, should the sponge 18 wear out, it may readily be replaced. The channel cut-outs 29 serve as guides to insure proper positioning of parts upon reassembly, as well as serving the function of guiding the movement of frame 30 relative to said channel. The cooperating ears 25, 26 and 15 which are connected by screws 27 provide simple means for securing the parts together in operative rigid relation to handle 10, and also serve, through plates 14 and 23 to reinforce the channel walls 16 and to tighten their grip on sponge 18.

The use of a rubber sponge in a mop as described has been found to be very effective for cleaning purposes, to lessen the amount of free water on the object to be cleaned, to collect sand and grit from napped or piled fabrics; and serves the additional function in the instant device of eliminating necessity of means cooperating with the rollers to urge them together as is conventionally employed in the art.

A modified construction of the device is illustrated in Fig. 6, and comprises a different form of interconnection between lever 37 and roller frame 30. In this construction the bent end 41 of lever 37 terminates in an apertured portion 50 bent away from sleeve 12 and extending substantially horizontally and in spaced relation below cross member 31 of roller frame 30. The bolt 51 passes through the aperture of part 50 and vertically from said part to and through an aperture in cross member 31 of the roller frame. A coil spring 52 encircles bolt 51 and bears at its opposite ends on roller frame cross member 31 and on lever part 50. A thumb nut 53 is threaded on bolt 51. The purpose of this modified construction is to adjust the roller frame relative to the sponge 18 so that, should said sponge stretch, the rollers 36 can nevertheless be shifted to traverse the stretched dimension thereof and thus completely extract the water from the sponge. In other words, adjustment of thumb nut 53 can be made to either lengthen or shorten the spacing of lever part 50 and cross member 31, so that the limit of movement of the rollers 36 upon actuation of the lever may be adjusted to obtain an increased outer limit relative to the sponge frame upon tightening of nut 53 or a reduced outer limit upon loosening of nut 53.

I claim:—

1. A mop comprising a channel mounting a mopping member therein, an open rigid frame reciprocable relative to said mopping member and including a pair of spaced arms extending on opposite sides of said channel, a pair of rollers immovably journaled in spaced parallel relation on the ends of said arms, said channel having slots for guiding movement of the arms transversely of said mopping member, and means for reciprocating said frame.

2. A mop comprising a handle, an angularly disposed channel carried by said handle, a sponge gripped in said channel with the projecting portion thereof flared, means for mounting said channel on said handle, an open rigid frame movably mounted on said channel and spanning said channel, a pair of spaced rollers immovably journaled on said frame and normally positioned on opposite sides of and adjacent the mouth of said channel, and means for reciprocating said frame on said channel to shift said rollers and compress said sponge therebetween.

3. A mop comprising an inverted channel gripping a portion of a sponge which flares from the mouth of the channel, a unitary rigid frame reciprocable transversely of and mounted on said channel journaling parallel rollers positioned on opposite sides of said sponge and spaced apart less than the flared dimension of said sponge, and means for depressing said frame to compress said sponge, the expansive action of said sponge normally holding said frame in stationary raised inoperative position.

4. A mop comprising a handle, a channel carried by said handle at an angle thereto, a sponge gripped in said channel and flaring from the mouth of said channel, a unitary rigid frame reciprocable transversely of and mounted on said

channel journaling rollers positioned on opposite sides of said sponge and spaced apart less than the flared dimension of said sponge, and means pivoted to said handle, operable to depress said frame and compress said sponge, the expansive action of said sponge normally positioning said rollers and frame to press said means to stationary inoperative position against said handle.

5. A mop comprising a handle, an inverted channel having downwardly converging sides gripping a portion of a sponge which flares from the channel mouth, means for securing said channel to said handle and a rigid shiftable frame movably mounted on said handle and immovably journaling spaced rollers positioned on opposite sides of said sponge and adapted to compress said sponge when shifted transversely thereof, said sponge normally pressing said rollers and frame upwardly into the concavities formed by said channel sides and flaring sponge portion.

6. A mop comprising a handle, a carrier fixed to said handle and mounting a mopping member therein, a unitary frame mounting rollers engaging opposite sides of said mopping member, and shiftable transversely of said carrier, frame shifting means carried by said handle and including an adjustable member for controlling the limit to which said rollers may be moved relative to said carrier upon shifting of said frame.

7. A mop comprising a handle, a carrier unit having an expansible mopping member therein, a rigid frame unit arching the carrier, said frame unit having rollers at opposite sides thereof in fixed predetermined spaced relation and engaging opposite sides of the mopping member, one of said units being reciprocable relative to the other to wring said mopping member between said rollers and means carried by the handle and cooperating with said handle to mount said units and effect said reciprocation.

8. A device as set forth in claim 7 including spaced arms carried by the frame and on which the rollers are mounted and recesses in opposite sides of the carrier and in which said arms move during the downward movement of the frame.

9. A device as set forth in claim 7 including means whereby the limits of movement of the units may be varied.

10. A device as set forth in claim 7 wherein the mopping member is formed from a resilient expansible material and normally bulging whereby said frame and rollers will be held by the bulging thereof in inoperative position.

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