Dec. 16, 1930. L. M. THORNTON 1,785,216

REVERSIBLE MOP HEAD

Filed July 26, 1928

Fig.1.

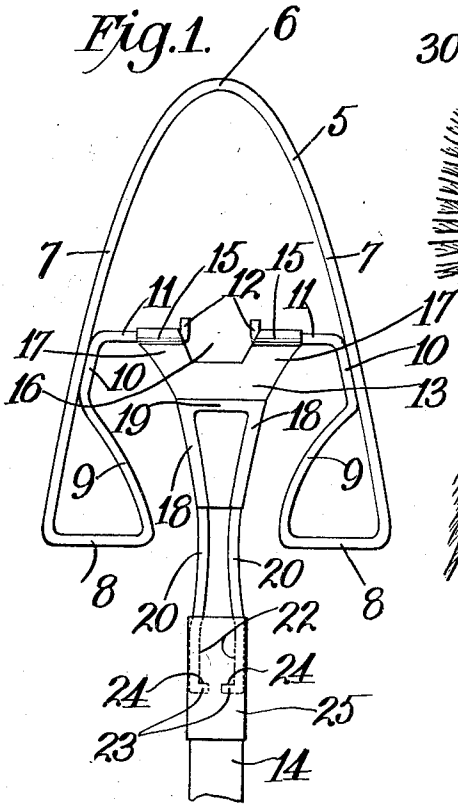


Fig.2.

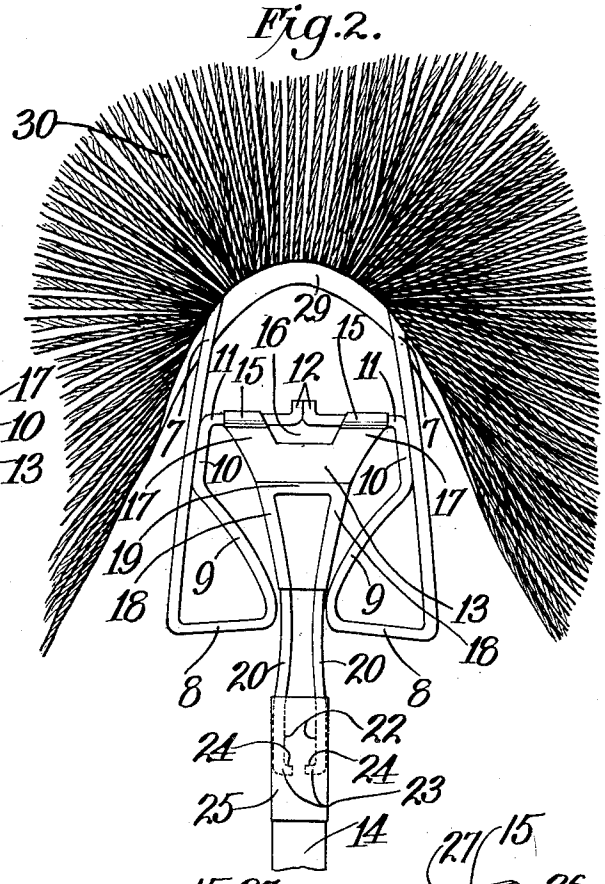


Fig.3.

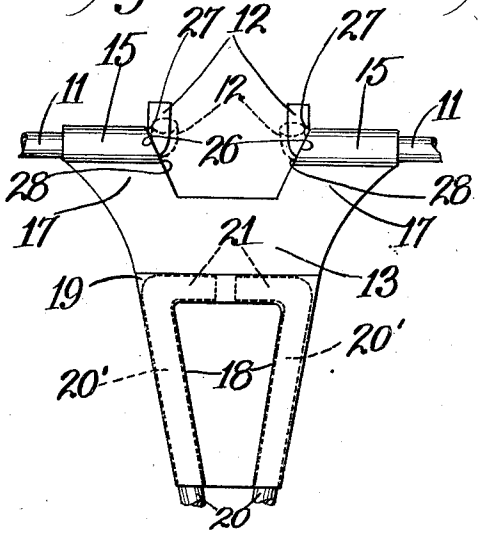
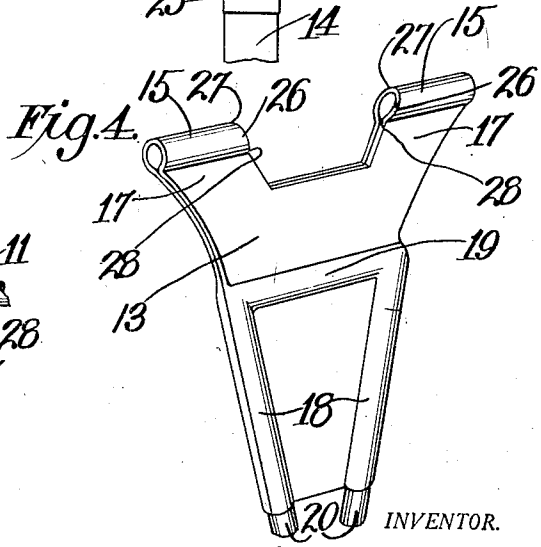


Fig.4.



INVENTOR.

Leslie M. Thornton

BY Alfred R. Fuchs

ATTORNEY

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UNITED STATES PATENT OFFICE

LESLIE M. THORNTON, OF KANSAS CITY, MISSOURI

REVERSIBLE MOP HEAD

Application filed July 26, 1928. Serial No. 295,436.

My invention relates to mops and more particularly to reversible mop heads.

It is a purpose of my invention to provide a mop head of the above mentioned character that comprises a frame member that is preferably made principally of wire and that is so constructed that the same may be moved into a plurality of different angular positions relative to the handle of the mop and will remain in adjusted angular position. More particularly my invention comprises a wedge shaped frame member of wire, a clip member adapted to be mounted on the handle member and means for connecting the frame with the clip member so that the frame may be moved into any desired position relative to said clip and remain in adjusted position.

The frame member is preferably made of spring wire and comprises end portions that extend inwardly toward the central portion of the frame toward each other, said end portions being provided with laterally bent ends. The inwardly extending ends of the wire frame are mounted in a clip carried by the handle member so as to be pivoted on their longitudinal axes, extending through suitable ears in the clip for this purpose. It is a particular purpose of my invention to so construct the clip that the same will cooperate with the laterally bent ends of the wire frame to hold the frame in any desired adjusted position about the pivotal axis thereof relative to the clip. This is accomplished by providing spaced tubular ears on the clip between which the bent ends of the wire frame are located and to so form the edges of the ears adjacent the said ends that the same will act on the bent ends of the frame to exert a tension on the spring wire of the frame as the clip and frame are rotated relatively to each other to thereby create a friction between said bent ends and the clip that is sufficient to hold the frame in any desired position relative to the clip. Preferably the end edges of the tubular ears are bevelled off to form cam portions to accomplish this.

It is a further purpose of my invention to provide a mop head of the above mentioned character that is so constructed that the mop swab can be readily put in position on the head and readily removed therefrom. The resilient wire frame member is so constructed that the same may be contracted to make the swab more easily placed in position and readily removable. In order to provide for the contraction of the wire frame the end portions of the wire are spaced when in normal position and are adapted to be moved into proximity to each other to reduce the transverse dimension of the head of the mop sufficiently to permit the slipping of the glove-like body portion of the swab into and out of position.

Other objects and advantages of my invention will appear as the description of the drawings proceeds. I desire to have it understood, however, that I do not intend to limit myself to the details of construction shown or described, but that I intend to include as part of my invention all such obvious changes and modifications of parts as would occur to a person skilled in this art and as would fall within the scope of the claims.

In the drawings:

Fig. 1 is a face view of my improved mop head showing a portion of the handle associated therewith.

Fig. 2 is a similar view showing a portion of the swab and showing the mop head contracted to receive the swab.

Fig. 3 is an enlarged face view of the clip and portions of the frame showing the position of the laterally bent ends of the frame when under tension in dotted lines, and

Fig. 4 is a perspective view of the clip member.

Referring in detail to the drawings, the mop head comprises a frame 5, preferably made of spring wire and bent substantially at the center thereof to provide a forwardly extending rounded toe portion 6, the frame member further comprises side portions 7 that extend from the toe portions 6 in diverging relation toward the rear end portion of the frame and from such side portions the rear end portions 8 extend inwardly toward each other in spaced relation. The wire forming the frame is bent in an obliquely extending direction outwardly toward the side members of the frame as indicated at 9,

from the portions 8, and is provided with portions 10 that extend substantially parallel to the side portions 7 and are secured thereto in any suitable manner, as by means of spot welding. Thus a pair of elongated loop-like heel portions are provided at the rear end of the frame member 5 and the frame is stiffened adjacent said loop portions. From the portions 10 of the frame, the end portions 11 extend inwardly toward each other and lie on substantially the same axis, terminating in the laterally bent end portions 12.

A clip 13 is provided for securing the frame 5 to the handle 14. The clip 13 is preferably made of sheet metal doubled on itself to form the spaced tubular ear portions 15, the material of the clip being cut away to provide a space or opening 16 between the tubular ears 15, said tubular ears being located at the outwardly diverging leg portions 17. Said clip is further provided with an outstruck rib portion 18 running lengthwise thereof, and a transversely extending outstruck rib portion 19, forming channels within which the securing wires 20 having the inwardly bent end portions 21 are mounted, the two arms of the clip being secured together by spot welding or in any other desired manner to hold the wires 20 in the channels provided in the clip for the same.

The opposite ends of the wires 20 extend in grooves 22 provided in the handle member 14 and have inwardly directed end portions 23 mounted in recesses 24 provided in the handle 14 and intersecting the grooves 22, said members 20 being held in position in the grooves 22 and recesses 24 by means of the sleeve 25 secured to the handle 14 in any desired manner.

The tubular ear portions 15 receive the end or pivot portions 11 of the frame 5 and have the end faces 26 thereof bevelled in opposite directions so that the portions 27 thereof more remote from the handle 14 are spaced at considerably greater distances from each other than the portions 28 thereof nearest the handle. The wire frame member 5 is made of spring wire and is preferably so shaped that when the bent end portions 12 thereof are in engagement with the portions 27 of the end walls of the ears 15 the frame will be slightly under tension and the bent end portions 12 will be frictionally engaging therewith. Upon rotation of the frame 5 about the axis of the pivot portions 11 thereof, the laterally bent end portions 12 will ride along the inclined surfaces 26 of the ears 15 and will be drawn inwardly toward each other no matter in what direction the frame is rotated from the position shown in full lines in Figs. 1 and 3, such a position of the bent ends 12 being shown in the dotted lines in Fig. 3. The frictional grip of said laterally bent ends 12 of the frame is thus being increased as the same are rotated away from the full line position shown, and the frame 5 will be held in any desired angular adjusted position relative to the clip 13 and handle 14 due to such frictional engagement of the laterally bent ends 12 with the cam faces 26 formed on the ears 15.

It will be noted that the laterally bent end portions 12 of the frame are spaced from each other to permit the cams to act thereon as described above, and it will further be noted that the spacing of said laterally bent ends is such as to provide a gap of considerable width between the same. This is done so as to permit the insertion of the mop frame 5 into the relatively narrow opening 29 leading into the glove-like pocket portion provided in the swab 30 for receiving the frame. Upon reference to Figs. 1 and 2 it will be seen that the maximum transverse dimension of the frame at the portions 8 thereof, is more than the greatest dimension of the opening 29 transversely of the frame, as shown in Fig. 2. The swab 30 can be stretched transversely from the position shown in Fig. 2 to make the dimension transversely of the frame of the narrow opening 29 somewhat greater than that shown in Fig. 2. It will further be noted that the difference between this maximum transverse dimension of the mop swab opening 29, and the maximum transverse dimension of the frame, when the frame is in normal position, is less than the space between the ends 12 of the frame when said frame is in normal position. The spacing of the laterally bent ends 12 permits the rear portions of the frame to be contracted until the laterally bent ends 12 engage with each other, the major portion of the bending taking place in the relatively flexible forward end portion of the frame. The swab of the mop may be removed in a similar manner by contracting the mop frame.

It will be seen from the above that a mop head is provided that will permit the adjustment of the mop to any desired position relative to the handle and will permit reversal of the mop on the handle. It will also be noted that the mop head is so constructed that the mop swab can be easily put in position and removed from the mop frame.

Having thus described my invention what I desire to claim and secure by United States Letters Patent is:

1. In a mop head, a tapered resilient wire frame having a narrow end and a wide end, said frame having an opening in the wide end thereof providing normally spaced frame portions at opposite sides of said opening, the wire forming said frame terminating in normally spaced end portions inside said opening, and a clip for mounting the frame on a handle having spaced means thereon for pivotally and slidably mounting the spaced ends

of said wire on said clip in normally spaced relation so that said ends are free to move toward each other whereby said frame may be transversely contracted by moving the spaced portions thereof on opposite sides of said opening toward each other to assemble a mop swab therewith, said handle being swingable through said opening to reverse said mop.

2. In a device of the character described, a resilient wire frame tapering lengthwise thereof and having an opening in the wide end thereof to permit transverse contraction of the wide end thereof and a mounting for said frame comprising inwardly extending pivots on said frame having the inner ends thereof normally spaced apart, the space between said pivots being in alignment with said opening longitudinally of said frame and means receiving said pivots for sliding movement toward each other and for pivotal movement therein, whereby said frame may be transversely contracted from normal position to bring the portions of the wide end of said frame on opposite sides of said opening close together to materially reduce the transverse dimension of said frame on the wide end thereof.

3. In a device of the character described, a spring wire frame having an open side and having inwardly extending aligning normally spaced end portions terminating in laterally bent end members, and a clip having means for attaching the same to a handle member and having spaced tubular bearings thereon in axial alignment, said bearings being much shorter than said inwardly extending end portions of said frame and pivotally receiving the end portions of said frame with the laterally extending bent end members mounted between said bearings in normally spaced relation and movable toward each other to transversely contract said frame, said frame being under tension after being assembled with said clip, and said bearings having faces on the adjacent ends thereof with which said laterally bent end members yieldingly engage.

4. In a mop head, a transversely contractible resilient frame having an open side providing spaced frame portions adapted for movement toward each other to decrease the maximum transverse dimension of said frame upon contraction thereof, said frame having inwardly extending end portions normally spaced from each other, and a clip having means thereon for attaching the same to a handle, said clip having spaced bearing members thereon pivotally receiving the inwardly extending end portions of said frame, and being cut away to provide a space between said bearing members, said end portions having laterally extending means thereon and said frame being transversely tensioned upon assembly with said clip, whereby said laterally extending means are yieldingly held in engagement with said spaced bearing members by the tension of said frame, said end portions lying in said space between said bearing members and being normally spaced from each other when assembled with said clip and movable toward each other to transversely contract said frame.

5. In a device of the character described, a tapered resilient wire frame having a wide end and a narrow end, said wide end having an opening therein to provide spaced frame portions on opposite sides thereof, said frame having inwardly extending pivot members thereon aligning with each other and lying between the narrow and wide ends of said frame, said pivot members having laterally extending means on the inner ends thereof, and a clip having a pair of spaced axially aligning bearings thereon, said bearings having end portions with which the laterally extending means on the pivot members engage to limit transverse expansion of said frame, said bearings receiving said pivot members and being spaced to permit said pivot members to be slid toward each other therein to obtain transverse contraction of said frame to bring the spaced frame portions at the wide end thereof into closely adjacent relationship.

6. A mop head comprising a frame having a tapering body portion provided with a rounded forward end portion and having its greatest width at the rear end thereof, said rear end comprising a pair of spaced heel portions movable toward each other to transversely contract said frame at its portion of greatest width and a pair of aligned pivot members extending inwardly from opposite sides of said frame forwardly of said heel portions and a clip having bearings for pivotally receiving said pivot members.

7. A mop head comprising a frame having a tapering body portion provided with a rounded forward end portion and having its greatest width at the rear end thereof, said rear end comprising a pair of spaced heel portions movable toward each other to transversely contract said frame at its portion of greatest width and a pair of aligned pivot members extending inwardly from opposite sides of said frame at a point substantially midway between the forward and rear ends of said frame, and a clip having aligned spaced bearings for pivotally and slidably receiving said pivot members, said pivot members having stop means thereon between said bearings and normally engaging the ends of said bearings.

8. A mop head comprising a frame having a tapering body portion provided with a rounded forward end portion and having its greatest width at the rear end thereof, said rear end comprising a pair of spaced triangular heel portions movable toward each other to transversely contract said frame at its por-

tion of greatest width and a pair of aligned pivot members extending inwardly from opposite sides of said frame at a point substantially midway between the forward and rear ends of said frame, the sides of said frame rearwardly of said rounded end being substantially straight.

9. A mop frame comprising a contractible resilient wire body of substantially triangular shape having a rounded forward end portion and having its greatest width at the rear end thereof, said rear end comprising a pair of normally spaced triangular heel portions providing an opening in the rear of said frame, and a pair of aligned wire pivot members extending inwardly from the side members of said frame substantially midway thereof and having stops on the inner ends thereof, said inner ends being normally spaced, and said side members being substantially straight from said rounded end to the rear end of said frame.

In testimony whereof, I hereunto subscribe my name this 20th day of July, 1928.

LESLIE M. THORNTON.