Oct. 8, 1946. C. FATLAND 2,408,766

DUST MOP

Filed July 12, 1943

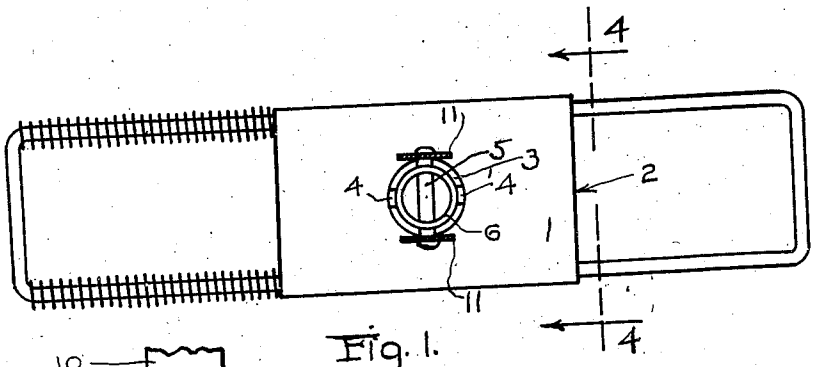


Fig. 1.

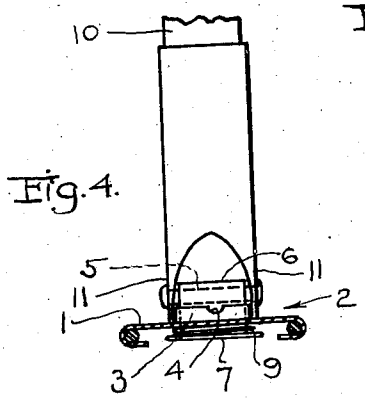


Fig. 4.

Fig. 2.

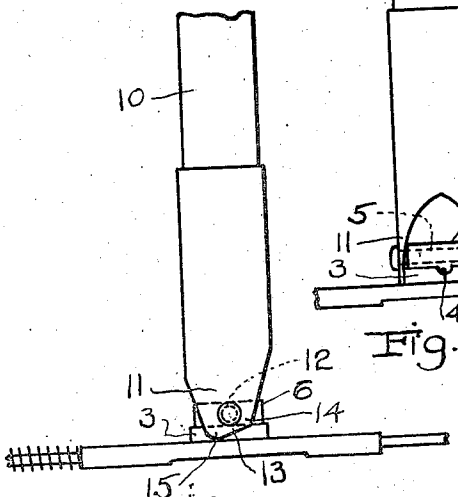


Fig. 3.

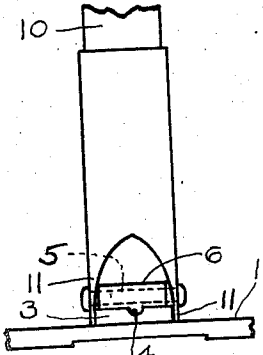


Fig. 7.

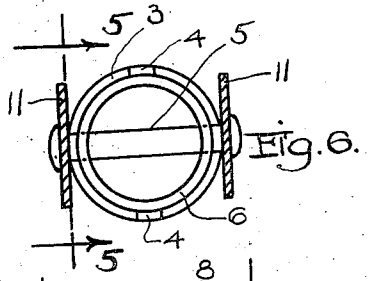


Fig. 6.

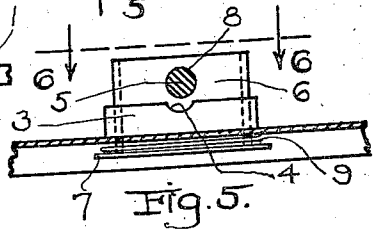


Fig. 5.

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Patented Oct. 8, 1946

2,408,766

UNITED STATES PATENT OFFICE

2,408,766

DUST MOP

Conrad Fatland, Chicago, Ill.

Application July 12, 1943, Serial No. 494,427

6 Claims. (Cl. 306—3)

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The present invention relates to dust mops and the like and has to do with means for joining the head to the handle, means for rotating the head about a centrally disposed shaft and means for locking the head in any one of a plurality of positions against individual rotation about the shaft.

This application is a continuation in part of applicant's application Serial No. 436,358 filed March 26, 1942, for "Dust mops," which issued to the applicant as Patent No. 2,325,598.

In conventional structures of similar types of mops the locking elements, which must be pulled apart to unlock, comprises a pair of plates relatively rotatable about a common axis and adapted each to engage the other by means of vertical apertures and corresponding stops in opposite plates. Whereas, my structure comprises a short vertical collar having oppositely disposed notches in its face in combination with a transversely positioned pivot adapted to engage the notches and to be automatically unlocked. Thus, the combination made possible by the use of a vertical collar, including the mounting of the handle on the collar, provides a unique and simplified structure in compact form.

One object of the invention is to provide a new and unique structure for joining the head to the handle and for easily changing the head from the transverse to the longitudinal position.

Another object of the invention is to provide means for automatically disengaging the locking elements in the structure.

A further object of the invention is to provide a mop having its head pivotally connected with the handle means for limiting the rolling movement of the head about the axis of the pivot.

And another object of the invention is to provide the required structure in a form combining details and simplicity with utility in a manner to facilitate the production and assembly of parts.

Other objects will be apparent from the drawing and specifications,

In the drawing:

Figure 1 shows a plan view of the device of the present invention, with the upper portion of the handle cut away.

Figure 2 shows a side elevation of the device, Figure 1;

Figure 3 shows a fragmentary side elevation similar to the central portion of Figure 2, but with the handle straightened up into vertical position so as to draw up the central sleeve of the rotary locking elements;

Figure 4 shows a cross-section on the line 4—4 of Figures 1 and 2, looking in the direction of the arrows;

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Figure 5 shows a fragmentary longitudinal section on the line 5—5 of Figure 6, looking in the direction of the arrows, being an enlarged scale as compared to the previous figures;

Figure 6 shows a plan section or view on the line 6—6 of Figure 5, looking in the direction of the arrows; and

Figure 7 shows a view similar to that of Figure 3, but with the handle element turned ninety degrees from the position of the handle element shown in Figure 3.

In the present form of the invention plate 1 of head 2 is preferably formed of a single sheet of metal and includes a collar 3 projecting vertically from the face of the plate with its central opening continuous to the under side of the plate. A multiplicity of equally spaced apart notches 4 are formed in the face of the collar in a manner to provide pairs of oppositely disposed notches adapted to engage the pivot 5, the axis of each pair of notches passing through the vertical axis of the collar 3.

A tubular shaft 6 having a flange 7 at its lower end and a transverse opening 8 at its upper end is mounted in the aforesaid collar 3 with its lower end extending a substantial distance below the under side of the collar and its upper end extending a substantial distance above the face of the collar, and a coil spring 9 is mounted on the shaft 10 between flange 7 and the under side of the collar.

With the tubular shaft 6 in place as heretofore indicated the handle 10 and head 2 are connected by forcing the shaft upward to a position where its transverse opening 8 and openings 12 in plates 11 register at the top of the collar 3 and inserting pivot 5 through said openings.

It is to be noted that collar 3, tubular shaft 6 and the handle 10 in vertical position have a common vertical axis and that the transverse axis of pivot 5 and the transverse axis of each pair of the notches 4 coincide with said common vertical axis.

The handle 10 is provided with plates 11 at its lower end which plates fit over the outside of collar 3. Openings 12 at the lower end of said plates are adapted to receive a pivot 5 and cams 13 at the lower end of the plates are positioned a substantial distance below the openings 12 and are adapted to engage the adjacent plate 1 of the head 2 in a manner to limit the movement of the head about the axis of pivot 5 and said cams are adapted to lift said pivot out of a pair of

the notches 4 when the handle is tilted to a vertical position as in Figures 3 and 4.

The cams 13 which are rotatable about the pivot 5 comprise a heel 14, a toe 15 and a base connecting the heel and the toe. With reference to a perpendicular line drawn through the axis of the pivot 5 the heel and the toe are substantially equidistant from the line and the distance between the toe and the pivot is substantially greater than the distance between the heel and the pivot thus providing an oblique base. In the mopping operation the handle 10 is held in an inclined position somewhat as in Figure 2 and the pivot 5 and a pair of the notches 4 are in locking engagement with the heel 14 in contact with plate 1 and the toe 15 spaced a substantial distance away from the plate, thus permitting limited freedom of the head 2 about the axis of pivot.

As hereinbefore indicated the handle and the head are pivotally connected. Cam means 13 limit the rocking movement of the head about the axis of pivot 5 to the movement permitted by the limited space between the base of the cam and the plate 1 as shown in Figure 2. This feature overcomes the objection to a rigid connection between the handle and the head and the objection to unlimited free movement of the head about said axis.

In order to automatically disengage the locking elements I provide the following means:

(a) The depth of the notches 4 is fixed at approximately one-third (⅓) of the diameter of pivot 5, that is, the notches are so formed that when the pivot is urged into locking engagement with a pair of the notches approximately two-thirds (⅔) of the pivot will remain exposed above the face of collar 3. In this arrangement the pivot presents an inclined plane at the point of contact with the top of the notches whereby the pivot is lifted from the notches as the collar and pivot are relatively rotated about a common axis. Or,

(b) The cams 13 provide means whereby the pivot 5 may be lifted from the notches 4 as heretofore indicated.

To change the head from the transverse or broad to the longitudinal or narrow position to meet requirements in mopping narrow or wide spaces hold the handle 10 in a more or less inclined position and rotate the head 2 about the transverse axis of the pivot 5 until the pivot registers with another pair of the notches 4 and is urged into locking engagement with the pair. Or, tilt the handle to a vertical position to make cams 13 engage plate 1 and lift pivot 5 from a pair of the notches 4 of collar 3 and rotate the head about the axis of the collar until the pivot registers with another pair of the notches and is urged into engagement with the pair as the handle is lowered.

It is obvious that details of the invention may be varied without departing from the spirit of the invention.

I claim:

1. In a mop, a mop supporting head, a circular collar fixed in a vertical position to the central portion of the head, a handle rotatably mounted on the collar, a pivot connected with and positioned transversely of the end of the handle, a plurality of notches in the face of said collar adapted to engage the pivot and spring means for normally urging the pivot and notches into cooperation.

2. In a mop, a mop supporting head, a circular collar fixed in a vertical position to the central portion of the head, a plurality of notches in the face of the collar, a shaft rotatably and slidably mounted in the collar with its lower end extending a substantial distance below the under side of the collar and its upper end extending a substantial distance above the upper end of the collar, limiting means at opposite ends of the shaft, a spring mounted on the shaft between the lower limiting means and the under side of the collar, a pivot transversely positioned in the upper end of the shaft in contact with the face of the collar when the spring is somewhat compressed, said pivot being adapted to engage the aforesaid notches, and a handle mounted on the pivot.

3. In a mop, a mop supporting head, a circular collar fixed in a vertical position to the central portion of the head, a handle associated with the collar, a pivot connected with and positioned transversely of the handle end, notches in the face of the collar adapted to engage said pivot, spring means for normally urging the pivot and notches into cooperation and a cam fixed with reference to the handle end and mounted on the pivot, said cam being adapted to engage the adjacent surface of the head and lift the pivot from said notches as the handle is raised to vertical position.

4. In a mop, a mop supporting head, a handle pivotally mounted on the head, a cam fixedly mounted on the handle end, said cam having an oblique base inclined downward from the heel and adapted to operatively contact the adjacent surface of the head, the distance between said pivot and said surface being so predetermined that when the base and surface are in paralleling relationship the two will be spaced apart somewhat to permit limited free movement of the head about the axis of the pivot.

5. In a mop, a mop supporting head, a circular collar fixed in a vertical position to the head, a handle rotatably mounted on the collar, a pivot connected with and positioned transversely of the end of the handle, a plurality of notches in the face of said collar adapted to engage the pivot and spring means for normally urging the notches and pivot into cooperation, the depth of said notches being less than one-half of the diameter of said pivot whereby more than one-half of the pivot will remain exposed above the face of the collar when the notches and pivot are urged into cooperation.

6. A mop comprising a head having a flat portion of sheet material, a hole centrally of said head bounded by an upwardly turned shoulder defining a circular collar, a bearing positioned in said circular collar, an outwardly flared circumferential portion on the bottom of said bearing, a spring around said bearing between said flared portion and the under side of the head, and a handle pivotally mounted to the upper side of said bearing.

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