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MOP HANDLE CONNECTION

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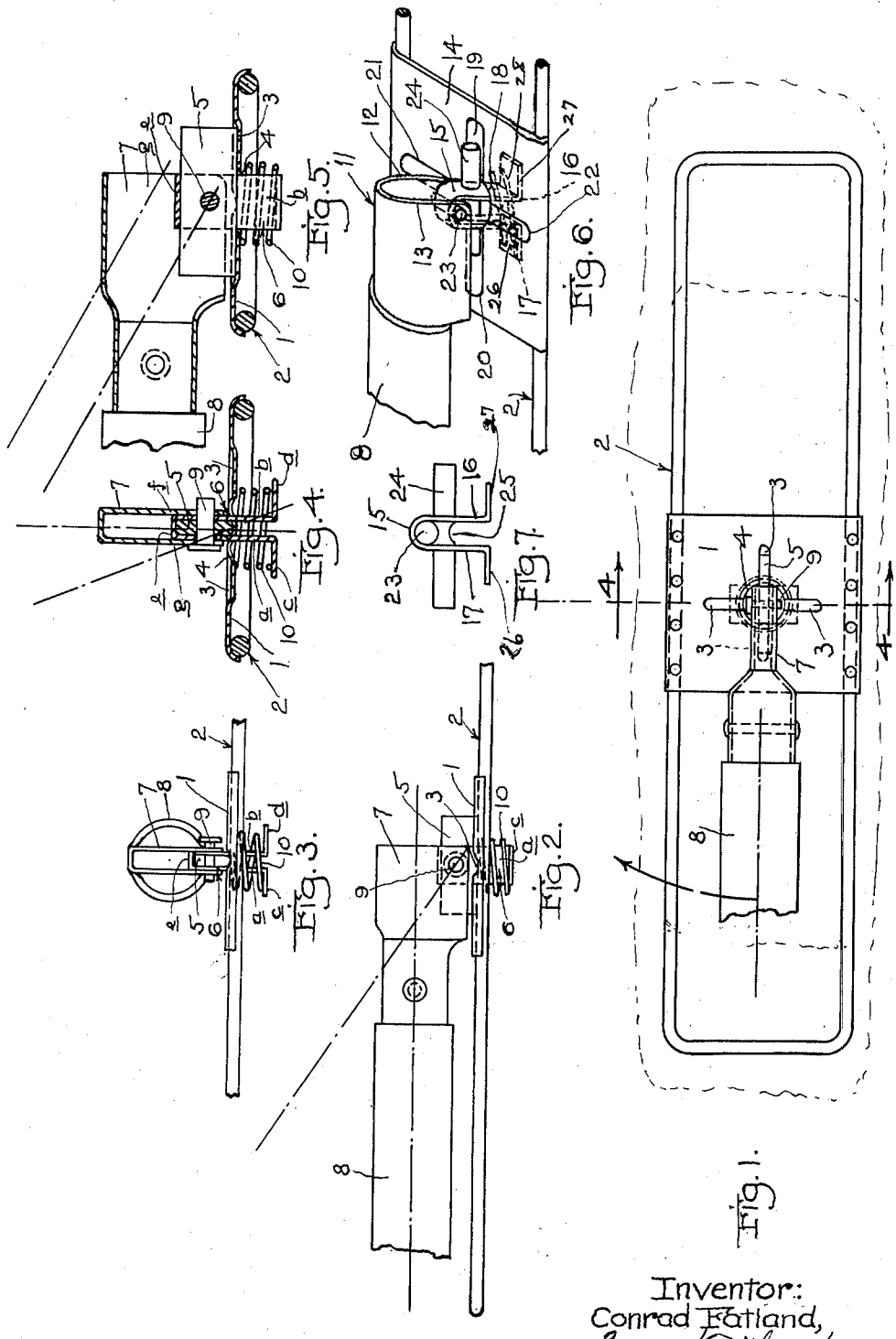


Fig. 1.

Inventor:
Conrad Fatland,
Conrad Fatland

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MOP HANDLE CONNECTION

Conrad Fatland, Chicago, Ill.

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3 Claims. (Cl. 306—3)

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This invention relates to dust mops, and one object of the invention is to provide an improved structure for connecting the head with the handle in a manner whereby the head may easily be changed from the transverse to the longitudinal position.

Another object of the invention is to provide means whereby the handle may be rocked laterally in the mopping operation.

A further object of the invention is to so combine utility and simplicity as to facilitate the production and assembly of parts. Other objects will be apparent from the specification.

In the drawings:

Figure 1 shows a plan view of a mop head built according to my present invention and it also shows in dotted lines a conventional mop set in place on said mop head, the handle of the mop head being turned substantially parallel to the mop head and broken off to shorten the figure;

Figure 2 shows a side elevation corresponding to Figure 1, the handle being turned down substantially parallel to the mop head, and said figure showing by a broken line how the handle may be swung up on its pivotal support, it being possible to swing the handle on said pivotal support in a substantially vertical position;

Figure 3 shows a fragmentary side view similar to the central portion of Figure 2, but with the handle rotated to a position across the mop head, that is, at right angles to the mop head or at right angles to Figure 2;

Figure 4 shows a cross section taken on the line 4—4 of Figure 1, looking in the direction of the arrows, and on an enlarged scale, and it shows by a broken line how the handle may be rocked laterally, because there is sufficient clearance provided in the mounting of the U-shaped shaft on which the handle is mounted.

Figure 5 shows a view similar to that of Figure 4 but with the handle turned to a position at right angles to the position shown in Figure 4.

Figure 6 shows a fragmentary perspective view of a modified form of the invention with the handle lying parallel to said head; and

Figure 7 shows a detail view of the U-shaped shaft element of the modification shown in Figure 6, and it shows how the pivotal bar serves to lock the groove engaging bar in place as well as performing its pivotal function.

Continuing to refer to the drawings, as shown in Figures 1 to 5 the central portion 1 of the head 2 is formed of a single sheet of metal. A plurality of grooves 3 intersect at the hole 4 in a manner to provide pairs of aligned grooves adapted to engage the bar or pin 5, the axis of each groove passing through the vertical axis of the hole 4. A U-shaped shaft or member 6, mounted in the hole 4, comprises side members

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a and *b*, flanges *c* and *d* to support the spring 10 and a connecting member *e*, said side members *a* and *b* being spaced apart sufficiently to receive the bar 5 flatwise between the two. The bar 5 has a sufficient width in the vertical plane to permit the U-shaped member 7 on the end of the handle 8 to be pivotally mounted in the upper end of shaft 6 with the pivot 9 passing transversely through the sides *f* and *g* of member 7. The pin 5 has a length sufficient for its ends to extend to a substantial distance outwardly in a pair of the oppositely disposed grooves 3 to provide ample locking engagement between the pin 5 and said pair of the grooves 3.

In the modified form of the invention shown in Figures 6 and 7 the central portion 14 of the head 2 is formed of a single sheet of metal and includes a hole 18 and grooves 19, 20, 21 and 22 extending outwardly from said hole in a manner to form pairs of oppositely disposed aligned grooves the axis of each groove, passing through the vertical axis of the hole. The aforesaid central portion is identical with the corresponding central portion shown in Figures 1 to 5.

The U-shaped shaft element 15 shown in Figures 6 and 7, mounted in hole 18 includes side members 16 and 17, connected at the upper end, and flanges 26 and 27 extending outwardly from the lower end of each of the side members to provide support for a spring 28 surrounding the shaft. The aforesaid U-shaped shaft is the equivalent of the corresponding shaft shown in Figures 1 to 5.

As shown in Figures 6 and 7 a bar or pin 24 having a surrounding groove 25 centrally thereof is transversely positioned in and through the side members 16 and 17 of the U-shaped shaft 15 with its ends extending a substantial distance outwardly in a pair of the grooves 19 and 20, or 21 and 22, in a manner to engage said grooves. And a U-shaped member 11 is fixed to the end of the handle 8 whereby the handle is pivotally mounted on the upper end of the shaft 15 by a pivot bar 23 which passes transversely through the side members 12 and 13 of the member 11 and through the upper end of the shaft 15 between its side members 16 and 17. The pivot bar 23 when in position as aforesaid rests in the bearing groove 25 of the groove engaging pin 24 as a means to lock the pin 24 against longitudinal movement. This interlocking feature retains the bar 24 in fixed position without fixing it to the shaft 15 and thus simplifies the construction and assembly of parts and reduces the cost.

The U-shaped shaft element shown in Figures 1 to 5 and in Figures 6 and 7 is rotatably and slideably mounted in a centrally located hole in the central portion of the head with sufficient clearance to permit the attached handle to be

rocked laterally. A round shaft would not provide the same flexibility.

As shown in Figures 6 and 7 the pin 24 when in engagement with a pair of the grooves 19 and 20, or 21 and 22, serves to hold the U-shaped shaft 15 in vertical position at right angles to the pin, and said pin 24 serves as a pivot on which to rock the handle 8 laterally within the limits of the clearance of the shaft 15 in the hole 18.

The lateral rocking movement of the handle is provided to keep the dust swab in contact with the surface of the floor from end to end as the operator swings the mop to and fro laterally otherwise the operation would tend to lift the ends of the mop alternately.

Construction.—The cost of the construction of a U-shaped shaft with the required flanges is materially less than that of a round shaft with flanges.

Compared with conventional structures used for the purpose, a central sheet having a centrally located hole with pairs of outwardly extending grooves to engage a pin carried by a shaft or vertical, rotatable member positioned in the hole is very simple and inexpensive to make.

Assembly.—With the parts 5, 6, 7 and 10 in place as indicated insert pivot bar 9 in place to pivotally connect the handle 8 and the head 2. And with the parts 11, 15, 24 and 26, Figures 6 and 7, in place as indicated insert the pivot bar 23 in its place to pivotally connect the handle 8 and the head 14 and to lock the groove engaging pin 24 in place.

To change the head from the transverse or broad to the longitudinal or narrow position, or vice versa, manipulate the handle to rotate the U-shaped shaft with reference to the central portion of the head until the groove engaging bar registers with another pair of grooves and is urged into locking engagement with the pair.

It is obvious that changes may be made in details without departing from the spirit of the invention.

I claim:

1. A mop comprising a head having a central portion of sheet material, a hole in said central portion, a plurality of grooves extending outwardly from the margin of the hole in a manner to provide pairs of oppositely disposed grooves, a U-shaped shaft element rotatably and slidably mounted in said hole with its lower end extending a substantial distance below the under side of the aforesaid central portion and its upper end extending a substantial distance above said central portion, said U-shaped shaft including side members connected at the upper end and a flange extending outwardly from the free end of each of the side members, a spring mounted on said U-shaped shaft between its flanges and the under side of the aforesaid central portion, a groove engaging bar transversely positioned through the aforesaid side members with its ends in contact with a pair of the aforesaid grooves when said spring is somewhat compressed, a handle pivotally mounted on the upper end of the aforesaid U-shaped shaft by a pivot bar which extends through the upper end of the U-shaped shaft between the side members of the shaft in a position transverse to that of the aforesaid groove engaging bar thus providing a combination in which the U-shaped shaft is held in a relatively fixed vertical position against lateral movement in the direction of the axis of the groove engaging bar and in which the aforesaid U-shaped shaft and attached handle may be rocked laterally with reference to the axis of said groove engaging bar in a direction transverse to that of the axis of said groove engaging bar within the limits of the clearance of the U-shaped shaft in the aforesaid centrally located hole.

2. A mop comprising a head having a central portion of sheet material, a hole in said central portion, a plurality of grooves extending outwardly from the margin of the hole in a manner to provide pairs of oppositely disposed grooves, a U-shaped shaft element rotatably and slidably mounted in said hole with its lower end extending a substantial distance below the under side of the aforesaid central portion and its upper end extending a substantial distance above said central portion, said U-shaped shaft including side members connected at the upper end and a flange extending outwardly from the free end of each of the side members, a spring mounted on said U-shaped shaft between its flanges and the under side of the aforesaid central portion, a groove engaging bar transversely positioned through the upper end of the U-shaped shaft with its ends in contact with a pair of the aforesaid grooves when said spring is somewhat compressed, a handle pivotally mounted on the upper end of the U-shaped shaft by a pivot bar which extends through the upper end of the U-shaped shaft in a position transverse to that of the aforesaid groove engaging bar thus providing a combination in which the U-haped shaft is held in a relatively fixed vertical position against lateral movement in the direction of the axis of the groove engaging bar and in which the aforesaid U-shaped shaft and attached handle may be rocked laterally with reference to the axis of said groove engaging bar in a direction transverse to that of the axis of said groove engaging bar within the limits of the clearance of the U-shaped shaft in the aforesaid centrally located hole.

3. A mop comprising a head having a central portion of sheet material, a hole in said central portion, a plurality of grooves extending outwardly from the margin of the hole in a manner to provide pairs of oppositely disposed grooves, a U-shaped shaft including side members connected at the upper end and a flange extending outwardly from the free end of each of the side members rotatably and slidably mounted in the aforesaid hole, a bar transversely positioned through the side members of said U-shaped shaft with its ends in engagement with a pair of the aforesaid grooves, a groove surrounding said bar and intermediate to its ends, a handle pivotally mounted on the upper end of the aforesaid U-shaped shaft by a pivot bar which extends through the shaft between its side members in a direction normal position to that of the aforesaid bar, said pivot bar engaging the aforesaid groove surrounding the aforesaid bar and spring means for normally urging the aforesaid bar and grooves into cooperation.

CONRAD FATLAND.

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