July 24, 1956 R. B. PARK 2,755,495

MOP FRAME AND HANDLE CONNECTING DEVICE

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FIG. 1

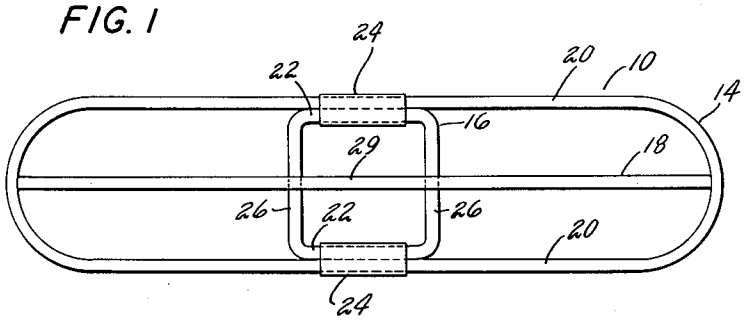


FIG. 2

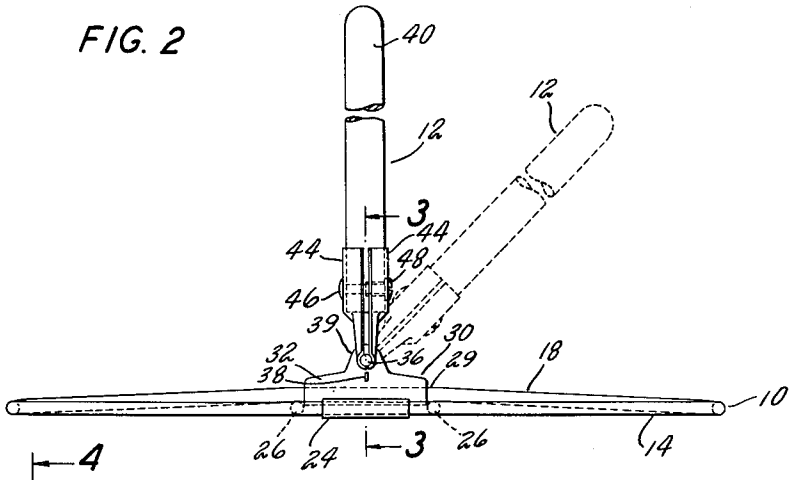


FIG. 3

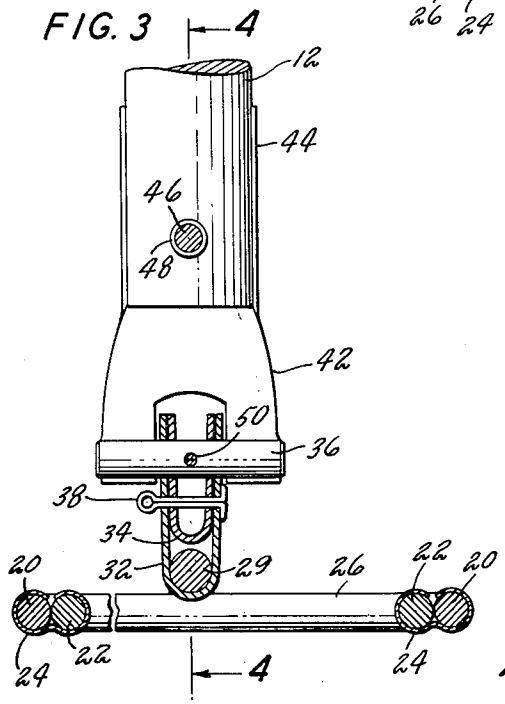
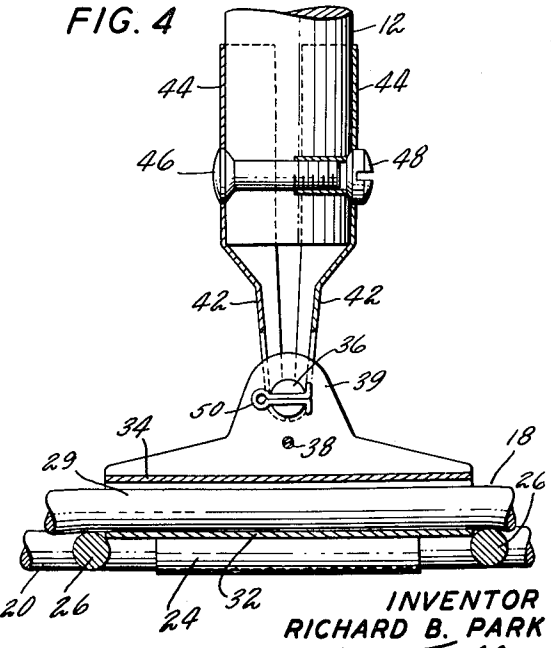


FIG. 4



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MOP FRAME AND HANDLE CONNECTING DEVICE

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This invention relates to a connecting device for providing a universal pivotal or swivel connection between the frame of a mop or other cleaning implement and the operator's handle therefor. This permits easy manipulation of the cleaning implement so that it can be made to assume any cleaning angle relative to the position of the operator's handle so as to facilitate the cleaning of relatively inaccessible areas.

The principal object of the invention is to provide a connection of the type described which is simple and inexpensive, which is of light weight and which can be readily assembled to and engaged with the mop frame and the handle.

A further object of the invention is to provide a connection of the type described which is adapted for use with a mop frame of standard construction.

Other objects of the invention will be apparent from the drawing and from the following specification.

In the drawing I have shown in detail a preferred embodiment of the invention, but it will be understood that various changes may be made from the construction shown, and that the drawings are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a plan view of a mop frame of the type with which a connecting device embodying the invention is adapted to be used.

Fig. 2 is a side view of a mop frame and an operator's handle and a connecting unit embodying the invention.

Fig. 3 is an enlarged transverse sectional view taken along the line 3—3 of Fig. 2.

Fig. 4 is a longitudinal sectional view taken along the line 4—4 of Fig. 3.

Referring to the drawing reference character **10** generally indicates a frame which is adapted to carry a mopping yarn body or other cleaning device and which is adapted to be attached to an operator's handle **12** in the manner hereinafter described. The mop body or cleaning device to be attached to the frame **10** may be of conventional construction and it is not shown as it does not constitute a part of the present invention. The frame **10** may be varied in size and shape as required.

Preferably, but not necessarily, the frame **10** includes an oblong structure **14**, a substantially rectangular structure **16** surrounded by the structure **14**, and a longitudinally extending bar **18**. The structures **14** and **16** and the bar **18** may be made of metallic or nonmetallic wire, bar stock or tubing. As shown each of the structures **14** and **16** is made by properly shaping a single strand of wire and then joining the ends thereof by any conventional means such as brazing, soldering or welding or such as any suitable mechanical device. The structure **16** is preferably contained within and located approximately equidistant from the ends of the oblong structure **14**, as best shown in Fig. 1. The longitudinal legs **20, 20** and **22, 22** of the respective structures **14** and **16** are attached to each other, preferably by clips **24** of sheet metal shaped to clamp around the adjacent longitudinal legs **20, 20** and **22, 22**. The longitudinally extending bar **18** is substantially on the longitudinal centerline of the structure **14** and is attached at its ends by brazing, soldering, welding or otherwise to the inner surfaces of the end portions of the said oblong structure. The bar **18** is of such length and is so shaped that it is bowed to pass over the structure **16** and it is preferably in engagement with the transversely extending legs **26, 26** of the said structure. The portion **29** of the bar **18** that passes over and extends between the transverse legs **26, 26** of the structure **16** serves as a horizontal longitudinal pivot bar with which a pivot bracket unit **30** may be engaged. The bar **18** is elevated above the other portions of the frame **10** to provide sufficient vertical clearance for the lower portion of the said pivot bracket unit **30**.

The bracket unit **30** preferably comprises two U-shaped brackets **32** and **34** of different size. As best shown in Fig. 3, the smaller bracket **34** is located within the larger bracket **32** in such a manner that the open ends of said brackets are substantially in alignment while the closed ends form a longitudinal passage to receive the pivot portion **29** of the bar **18**. Aligned holes of equal size are provided in the legs of the brackets **32** and **34** for receiving and fitting a transverse pivot pin **36**. When the bracket unit **30** is assembled on the pivot portion **29** of the bar **18** and when the pin **36** is inserted in the said holes, the axis of the pin lies in a plane which is perpendicular to the said pivot portion.

To facilitate assembly of the brackets **32** and **34** with each other and with the pivot bar **29**, the legs of the brackets may be provided with aligned holes for receiving a connecting element such as a cotter pin **38**. During assembly, this cotter pin **38** serves to retain the brackets in proper relationship until the pivot pin **36** is in place. Thereafter the cotter pin may be removed if desired, but removal is not necessary.

Preferably the longitudinal dimensions of the brackets **32** and **34** are such that the larger bracket **32** fits closely between the transverse legs **26, 26** of the structure **16**, only small working clearances being provided. Thus the said transverse legs **26, 26** prevent endwise or longitudinal movements of the brackets. To conserve material and to reduce weight, the brackets **32** and **34** may be reduced in longitudinal dimension at their upper open ends to form tablike projections **39**.

The pivot pin **36** is shown as being of such length that its end portions extend sufficiently beyond the brackets **32** and **34** to be engaged by the handle **12** as best shown in Figs. 2 and 3. The details of the handle **12** may be varied but as shown it comprises a shaft **40** and a yoke **42** at the lower end of the shaft.

The yoke **42** is shown as being of two-piece construction, but it will be understood that it could be made of one-piece construction. The said yoke is bifurcated at its lower portion and is constructed to provide two aligned partly cylindrical recesses which receive and fit the end portions of the pivot pin **36**. Preferably the yoke is so connected with the pin as to prevent endwise movement thereof. As shown, the yoke **42** has two similar spaced legs **44, 44** which are of substantially semi-circular cross sectional shape to closely fit and securely engage the handle shaft **40**. The legs **44, 44** of the yoke **42** have aligned apertures which register with a central aperture in the shaft **40**. A bolt **46** and a nut **48** extend through the said apertures and serve to connect the legs **44, 44** with each other and with the shaft **40**. The yoke **42** is preferably so formed that the partly cylindrical bottom recesses thereof pinch and frictionally grip the end portions of the pin **36** when the bolt and nut are tightened. Thus the yoke **42** has a snug or pinch fit engagement with the

pin **36** so that the yoke serves to retain the pin in place and to prevent endwise movement thereof.

While endwise movement of the pin **36** is preferably prevented by the yoke **42**, an additional means may be provided for also preventing or at least limiting such endwise movement. As shown, the pin **36** has a central transverse hole and a pin **50**, which may be a cotter pin, extends through this hole and between the legs of the inner bracket **34**. When the cotter pin **50** is provided, any substantial endwise movement of the pin **36** is prevented in the event that the pin is not properly pinched and held by the yoke **42**.

It is evident that a connecting device embodying the invention provides for both longitudinal and transverse pivotal motion of the handle with respect to the frame. The handle is movable about the longitudinal axis of the pivot bar **29** and is also movable about the transverse axis of the pivot pin **36**, and a universal pivotal or swivel connection is thus provided. The low center of connection between the bracket unit **30** and the bar **18**, with relation to the surface being cleaned, eliminates any tendency of the mop or cleaning implement to tip or roll during operation.

The invention claimed is:

1. In a handle connecting device for a mop, the combination of a mop frame having a horizontal bar, a bracket unit comprising two U-shaped brackets having different sizes and each having a downwardly facing closed end and parallel upwardly extending legs, the smaller one of the said brackets being within the larger one thereof with the outer faces of the legs of the smaller bracket engaging the inner faces of the legs of the larger bracket and with the closed end of the said smaller and larger brackets respectively above and below the horizontal bar so that the bracket unit is pivotally movable about the axis of the bar, said brackets being provided with holes in their legs near the ends thereof which holes have a common axis perpendicular to the said faces of the legs, a pivot pin passing through said holes, and a mop handle engaging said pin and pivotally movable with respect to the bracket unit about the axis of the pin.

2. In a handle-to-frame connecting device for a mop, the combination of a horizontal bar attached to the frame, a bracket unit comprising two U-shaped brackets having different sizes and each having a downwardly facing closed end and parallel upwardly extending legs, the smaller one of the said brackets being within the larger one thereof with the outer faces of the legs of the smaller bracket engaging the inner faces of the legs of the larger bracket and with the closed ends of the said smaller and larger brackets respectively above and below the horizontal bar so that the bracket unit is pivotally movable about the axis of the bar, said brackets being provided with holes in their legs near the ends thereof which holes have a common axis perpendicular to the said faces of the legs, a pivot pin passing through said holes, a yoke engaging said pin, means in addition to said pin to connect said brackets, and a handle shaft attached to said yoke and pivotally movable with the yoke about the axis of the pin.

3. In a handle to frame connecting device for a mop, the combination of a horizontal bar attached to the frame, a bracket unit comprising two U-shaped brackets having different sizes and each having a downwardly facing closed end and parallel upwardly extending legs, the smaller one of the said brackets being within the larger one thereof with the outer faces of the legs of the smaller bracket engaging the inner faces of the legs of the larger bracket and with the closed ends of the said smaller and larger brackets respectively above and below the horizontal bar so that the bracket unit is pivotally movable about the axis of the bar, said brackets being provided with holes in their legs near the ends thereof which holes have a common axis perpendicular to the said faces of the legs, a pivot pin passing through said holes and having its end portions projecting beyond the brackets, a yoke connected with the projecting end portions of the pin, and a handle shaft rigidly attached to said yoke and pivotally movable with the yoke about the axis of the pin.

4. In a handle to frame connecting device for a mop, the combination of a horizontal bar attached to the frame, a bracket unit comprising two U-shaped brackets having different sizes and each having a downwardly facing closed end and parallel upwardly extending legs, the smaller one of the said brackets being within the larger one thereof with the outer faces of the legs of the smaller bracket engaging the inner faces of the legs of the larger bracket and with the closed ends of the said smaller and large brackets respectively above and below the horizontal bar so that the bracket unit is pivotally movable about the axis of the bar, said brackets being provided with holes in their legs near the ends thereof which holes have a common axis perpendicular to the said faces of the legs, a pivot pin passing through said holes and having its end portions projecting beyond the brackets, a yoke connected with the projecting end portions of the pin, means engaging the pin between the legs of the smaller bracket for limiting endwise movement of the pin, and a handle shaft rigidly attached to said yoke and pivotally movable with the yoke about the axis of the pin.

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