May 3, 1938. E. C. AUBITZ 2,116,375

MOP CONNECTER

Filed Sept. 3, 1936

Fig. 1.

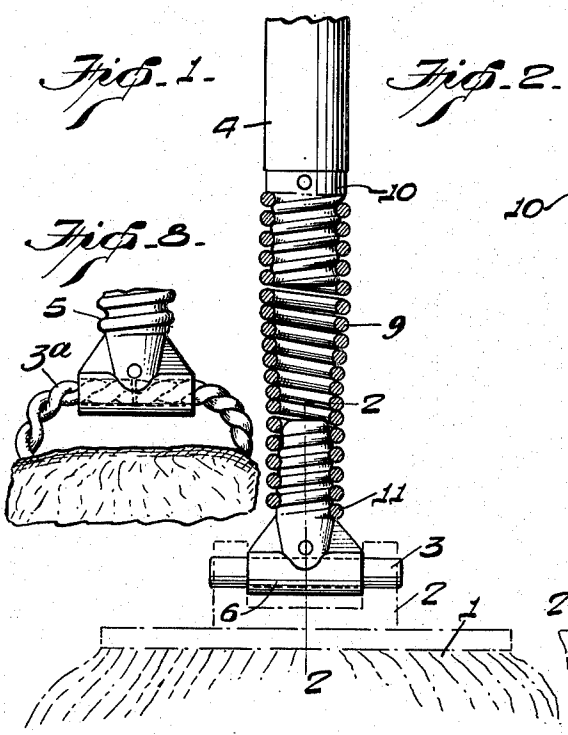



Fig. 2.

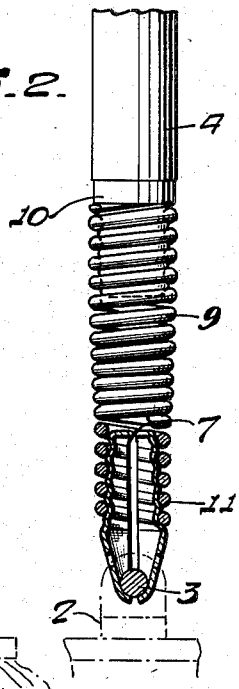



Fig. 3.

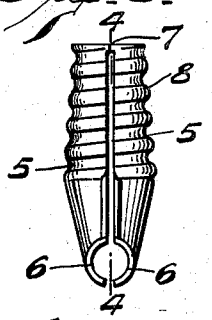



Fig. 8.




Fig. 4.

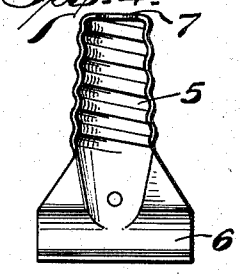



Fig. 5.

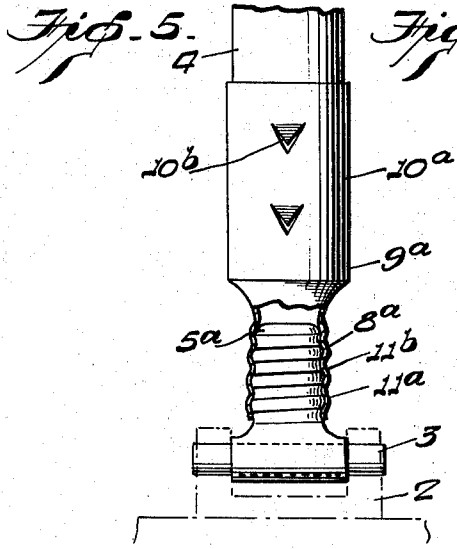



Fig. 6.

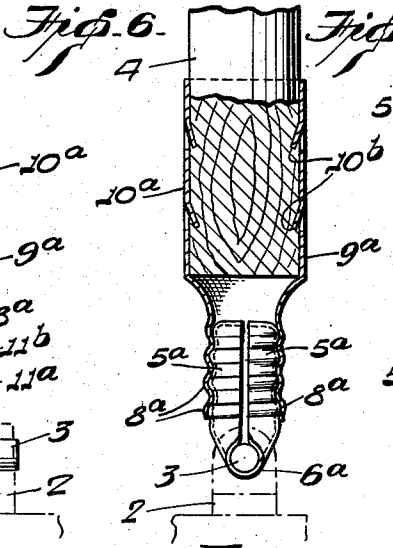
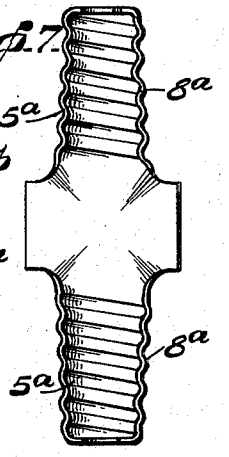



Fig. 7.

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# UNITED STATES PATENT OFFICE

2,116,375

## MOP CONNECTER

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3 Claims. (Cl. 306—19)

The present invention relates to mop connecters whereby the mop head is attached to its handle, and the primary object of the invention is to provide a novel and improved mop connecter of this character which may be manufactured inexpensively and is capable of being manipulated with facility to attach or detach the mop head with respect to the mop handle.

More particularly, the invention provides a mop connecter which comprises a clamp or clip to engage a pin, wire or analogous member on the mop head and, a member attached to the mop handle and having a thread portion engageable with the clamp or clip and operative, by relative rotation of these parts, to close the clamp or clip and cause it to grip the attaching pin or mop wire or to release the clamp or clip and permit removal of said pin or wire for removal of the mop head.

To these and other ends, the invention consists in certain improvements and combinations and arrangements of parts, all as will be hereinafter more fully described, the features of novelty being pointed out more particularly in the claims at the end of this specification.

In the accompanying drawing:

Figure 1 is an elevation, partly in section, of a mop connecter according to one embodiment of the invention;

Figure 2 is an elevation of the structure shown in Figure 1 as viewed from one side thereof, a portion of this figure being in section on the line 2—2 in Figure 1;

Figure 3 is a detail view of the clamp or clip forming a part of the connecter;

Figure 4 is a section through the clamp or clip, taken on the line 4—4 in Figure 3;

Figure 5 is an elevation, partly in section, of a mop connecter constructed in accordance with another embodiment of the invention;

Figure 6 is a view partly in elevation and partly in section, of the connecter shown in Figure 5 as viewed from one side thereof;

Figure 7 shows the clamp or clip in the form in which it is stamped and prior to the folding thereof; and

Figure 8 shows the clamp or clip attached to a mop wire.

Similar parts are designated by the same reference characters in the different figures.

Mop connecters constructed in accordance with the present invention are applicable generally to mops having attaching means of different kinds on the mop heads. The preferred embodiments of the invention are shown in the accompanying drawing and will be hereinafter described in detail, but it is to be understood that the invention is not restricted to the precise constructions shown since equivalent constructions are contemplated and such will be included within the scope of the claims.

In the present instance 1 represents the mop head, which may be of any usual or well-known construction, that shown having a bracket 2 fixed to the top thereof, this bracket being in the form of a fork into which a connecting pin 3 may be inserted, or the mop head may be provided with a wire 3a for connecting it to a handle as shown in Fig. 8, and 4 represents the mop handle.

The connecter, according to the present invention, comprises a clamp or clip adapted to grip the pin, wire or other portion on the mop head, and a connecting member having means for attaching it at one end to the mop handle and having a portion at its opposite end which provides screw threads which are engageable with a similarly threaded portion on the clamp or clip and is operative, by a relative rotation of the connecting member and clamp or clip, to close the clamp or clip on the pin, wire or other part on the mop head and thereby grip it.

In the embodiment of the invention shown in Figures 1 to 4 inclusive, the clamp or clip comprises a pair of similar but separate jaws 5 which may be stamped from sheet steel or other suitable relatively stiff material. Each of the jaws is formed at one end with a substantially semi-cylindrical recess or channel 6, the axis of which is transverse to the length of the clamp, and the bodies of the jaws are approximately semi-tubular in form and are tapered in diameter toward the opposite end of the clamp. The jaws are of complemental form so that when assembled in operative relation their inturned ends 7 will bear against one another at their upper tapered ends to form a fulcrum about which the jaws may rock when the opposite ends of the jaws are relatively moved toward and from one another. The recessed or channeled portions 6 of the jaws are of a size and shape to receive the pin 3, wire 3a or equivalent part on the mop head, and the pin or wire engaging portion of the clamp is preferably of a width to fit within the fork secured on the mop head when such is used, as shown in Figure 1. The tapered or conical periphery of the clamp is provided with screw threads 8 adapted to be engaged by the threaded connecting member, each of the jaws 5 being provided with complemental portions of such threads conforming with the threads of a screw at opposite sides of its axis,

which threads may be formed by stamping so that they project from the outer surfaces of the jaws, the threaded periphery of the clamp or clip increasing in diameter toward the jaws 5, as clearly shown in Figure 3.

The connecting member 9, as shown in Figures 1 and 2, is substantially in the form of a spring, it being composed of stiff steel or other wire wound helically or into the form of a spring having its convolutions preferably arranged closely together at its intermediate portion but spread apart at its ends. The upper end of the spring or connecting member is removably attached to the mop handle 4, as by threading it upon a correspondingly threaded steel or other metal sleeve 10 fixed to the lower end of the mop handle. The opposite or lower end 11 of the spring or connecting member is of a diameter to fit over the smaller end of the clamp or clip and its convolutions conform in pitch with the screw threads 8 thereon, so that the clamp may be inserted into this end of the connecting member and relative rotation between the connecting member and clamp will thread the connecting member onto the clamp and move it axially thereon, the taper of the threaded portion of the clamp acting to force the jaws of the clamp toward one another, the end of the spring or connecting member obtaining a firm grip on the tapered portion of the clamp or clip as it is screwed thereon.

In using the form of mop connecter just described, the end of the clamp having the transverse recesses or channels 6 therein is inserted, for example, in the fork or bracket 2 on the mop head, the pin 3 is then inserted endwise through one side of the fork and through the clamp and into the other side of the fork, the pin being received in the recesses or channels 6 of the clamp, or if the mop head is provided with an attaching wire $3^a$, the latter is inserted into the channels 6 of the clamp or clip. The other or tapered end of the clamp is then inserted into the lower end 11 of the spring or connecting member and the latter and the clamp are relatively rotated in the proper direction so that the convolutions of the connecting member engaging the tapered threads 8 on the jaws of the clamp will draw the connecting member on to the clamp and force the jaws thereof relatively toward one another. The jaws of the clamp will be thus caused to rock about the fulcrum 7 at one end of the clamp, and the opposite end of the clamp will grip or clamp the pin 3 or wire $3^a$ and thus secure the mop head to the spring or connecting member. When it is desired to remove the mop head from the connecting member and the handle attached thereto, it is merely necessary to rotate the connecting member 9 in a reverse direction thus causing the convolutions of its lower end 11 to unscrew from the clamp, and by reason of the tapered formation of the clamp, the grip of the clamp on the pin 3 or the attaching wire $3^a$ on the mop head will be released, thereby permitting this pin, when used, to be removed endwise from the clamp and the attaching fork or bracket on the mop head, or removal of the attaching wire on the mop head from the clamp.

In the embodiment of the invention shown in Figures 5, 6, and 7, the clamp, instead of being formed of two separate jaws, is composed of a single piece of sheet metal or other material of sufficient stiffness which may be stamped in the form shown in Figure 7 and then folded mid-way of its length to form an approximately circular socket $6^a$ at its folded end to receive the pin 3 or an attaching wire $3^a$ on the mop head, and a pair of jaws $5^a$ extending therefrom and arranged in opposed relation, these jaws being tapered in form and substantially semi-circular in cross section, similar to the clamp shown in Figures 3 and 4, and being provided on their peripheries with screw threads $8^a$ which may be stamped therein and arranged on the clamp as described with respect to Figures 3 and 4, the pitch of the threads $8^a$ on the jaws conforming with the threads of a screw at opposite sides of its axis. However, according to the clamp shown in Figures 5, 6, and 7, the longitudinal and end edges of the jaw do not bear against one another but are spaced apart, as shown in Figure 6, and the gripping of the pin 3, wire $3^a$ or like part by the clamp is accomplished by the forcing of the jaw portions $5^a$ toward one another about the folded end of the clamp as a fulcrum.

The connecting member $9^a$, according to the embodiment of the invention shown in Figures 5 and 6, is composed of a sleeve or tube of metal or other suitable material having a handle-receiving portion $10^a$ which is preferably cylindrical in form to receive the lower end of the handle, and has spurs or sharp teeth $10^b$ punched or struck inwardly therefrom so that they will grip the handle and retain it. The other or lower end $11^a$ of the connecter is flared or tapered and formed with a screw thread $11^b$ which is correspondingly tapered and is adapted to receive the tapered jaws $5^a$ of the clamp and to engage the tapered screw threads $8^a$ thereon when the sleeve and clamp are relatively rotated, the engagement of the screw threads $8^a$ on the clamp with the tapered thread $11^b$ causing the tapered lower end of the sleeve to be drawn axially onto the tapered clamp, thereby forcing the jaws of the clamp toward one another and thereby causing them to grip the pin 3, wire $3^a$ or other mop head attaching part. In using a mop connecter according to this embodiment of the invention, the folded end of the clamp having the socket $6^a$ therein is placed within the fork or bracket 2 secured to the mop head, the pin 3 is inserted into the fork and through the clamp, when such is used, or if an attaching wire is used on the mop head, it is inserted in the socket $6^a$ of the clamp, and the sleeve $9^a$ having the mop handle attached thereto is applied to the clamp so that its threaded portion $11^a$ fits over the tapered jaws of the clamp, and by rotating the sleeve in the proper direction relatively to the clamp, the sleeve will be drawn by the tapered thread engagement onto the clamp and will force the jaws thereof toward one another, thereby causing these jaws to grip the pin 3 or the attaching wire $3^a$ in the socket $6^a$ of the clamp. Detachment of the mop head from the handle may be readily accomplished by unscrewing the sleeve from the clamp sufficiently to release the grip of the clamp on the pin 3 or wire $3^a$, thus permitting the pin to be removed endwise from the clamp and fork or bracket on the mop head, or the attaching wire on the mop head to be removed from the clamp.

It will be understood of course that a connecter like the connecter 9 in Figures 1 and 2 may be used with a one-piece clamp such as that shown in Figures 5, 6, and 7, and that the sleeve form of connecter $9^a$ in Figures 5 and 6 may be used with a clamp of the two-piece form shown in Figures 1 to 4 inclusive, the mode of operation being similar in either instance. The spring connecter 9 shown in Figures 1 and 2 affords a flexible connection between the handle and mop

head and the connecter shown in Figures 5 and 6 affords a rigid connection when such is desired.

In both forms of the clamp or clip shown, the shank which is engaged by the connecting member is composed of a pair of jaws each of substantially semi-circular cross section, the sides of each jaw form in effect flanges which render it rigid longitudinally, and the merging of these portions of the jaws into the transversely extending pin or wire-receiving portion of the clamp provides a strong and rigid connection between these parts which will effectually resist bending or breakage, although the clamp may be stamped in dies or otherwise formed from sheet metal or other suitable material and thus can be manufactured inexpensively and with facility.

I claim as my invention:—

1. A mop connecter means comprising a clamp provided with relatively movable jaws adapted at one end to clamp rigidly a mop-head-connecting member passing through the jaws and extending beyond both sides of the jaws, said jaws collectively having a conically tapered externally screw threaded portion at the other end, the smaller end of said tapered screw threaded portion being remote from the first-mentioned end, and a helically coiled spring adapted for attachment to a handle and partly surrounding the threads of said tapered screw threaded portion, the part of the spring entered by the said tapered screw threaded portion being disposed in an imaginary cone which intersects the imaginary cylinder of said spring part, a portion of said cone being of greater diameter than the internal diameter of said part of the spring.

2. A mop connecter means comprising a clamp provided with relatively movable jaws, a mop-head-connecting member, said jaws at one end gripping said member against movement relatively to the clamp with portions of the connecting member extending beyond opposite sides of the jaws, said jaws collectively having a conically tapered externally screw-threaded portion at the other end, the smaller end of said tapered portion being remote from the first-mentioned end, and a handle attaching member having an end surrounding and threaded on said tapered screw-threaded portion of the clamp and operative by relative rotation between it and the clamp to close the jaws of the clamp upon the connecting member to grip it.

3. A mop connecter comprising a clamp composed of a pair of complemental semi-tubular jaws each recessed transversely at one end to grip a part on the mop head and collectively tapered conically toward their other ends and provided exteriorly with correspondingly tapered screw threads, the smaller ends of the tapered threaded portions of the jaws being located at the ends of the jaws remote from their recessed ends and having transversely extending portions which are turned inwardly toward one another and abut edgewise to form fulcrum elements which project toward one another, and a member having means at one end for connecting it to the mop handle and having a portion at its other end providing a screw thread engageable with the screw threads on the tapered portions of the jaws and operative by relative rotation of said member and the clamp to move the recessed portions of said jaws relatively toward one another about the abutting edges of said fulcrum elements as a fulcrum to grip said part on the mop head.

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