

Aug. 1, 1933.

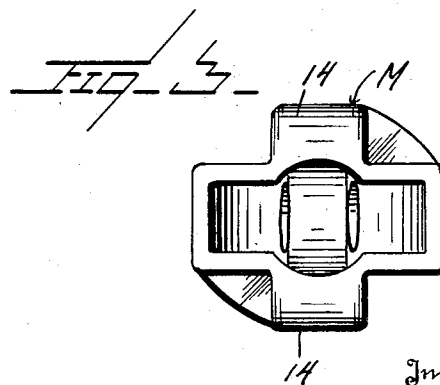
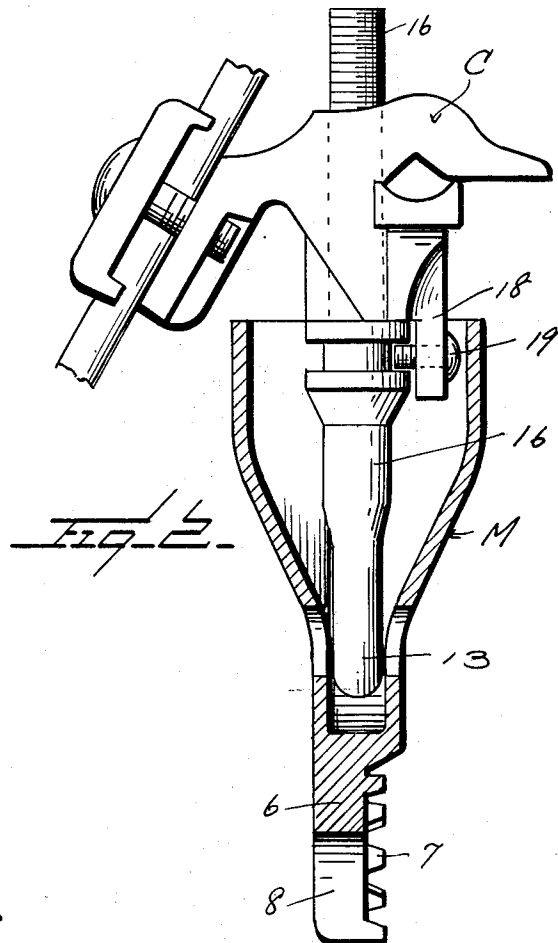
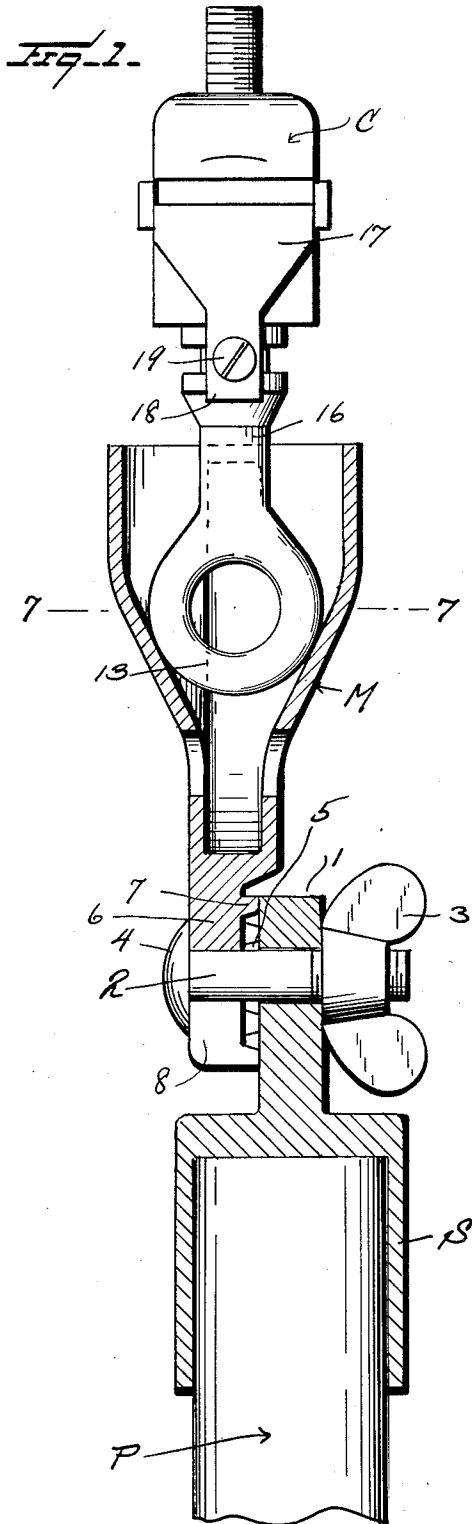
H. W. BODENDIECK

1,920,168

OPERATING MEMBER OR STICK FOR HOT LINE EQUIPMENT

Filed Dec. 23, 1930

3 Sheets-Sheet 1



Inventor
H. W. Bodendieck

By *Watson E. Coleman*
Attorney

Aug. 1, 1933.

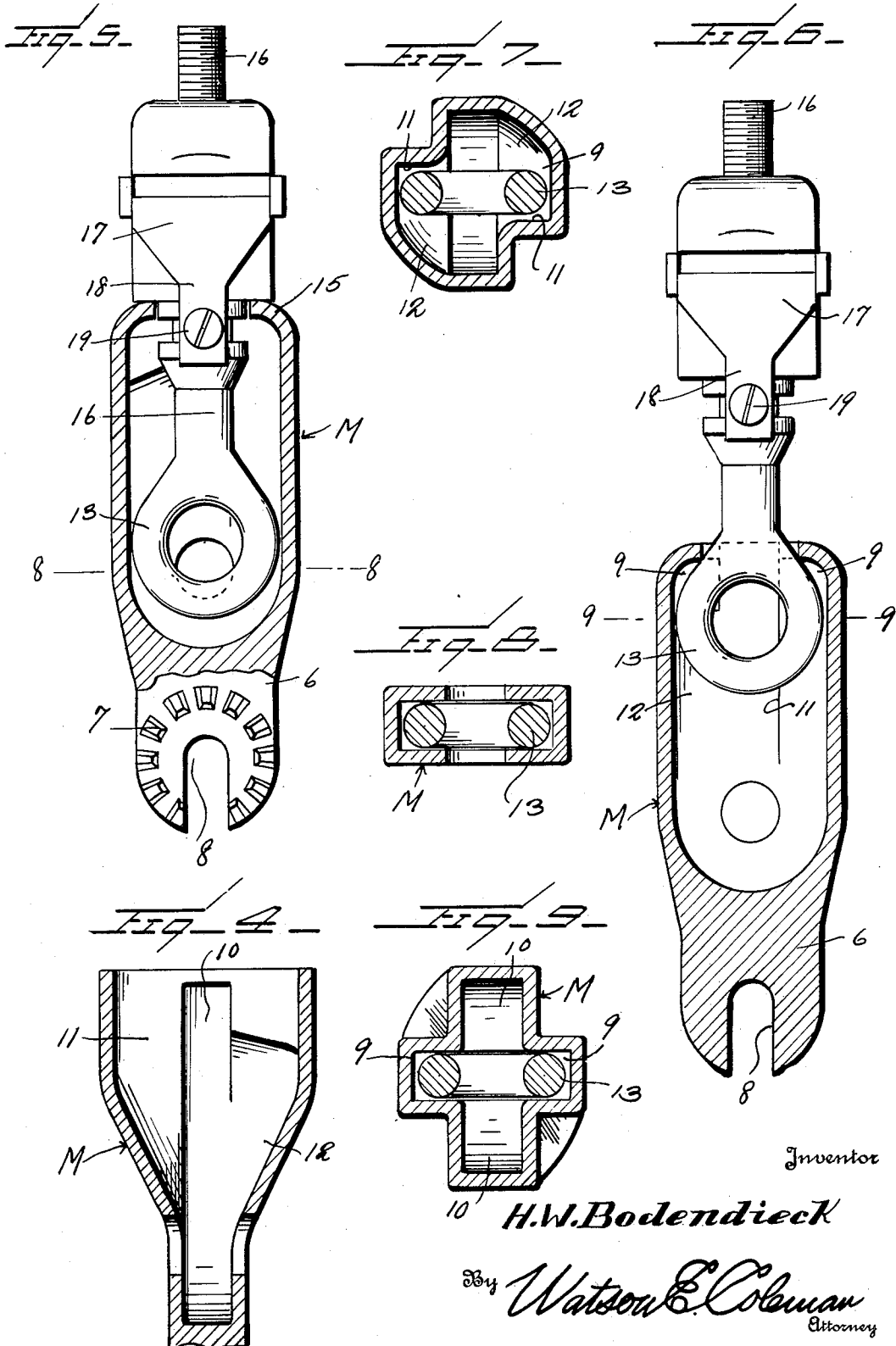
H. W. BODENDIECK

1,920,168

OPERATING MEMBER OR STICK FOR HOT LINE EQUIPMENT

Filed Dec. 23, 1930

3 Sheets-Sheet 2



Inventor

H.W. Bodendieck

By *Watson E. Coleman*
Attorney

Aug. 1, 1933.

H. W. BODENDIECK

1,920,168

OPERATING MEMBER OR STICK FOR HOT LINE EQUIPMENT

Filed Dec. 23, 1930

3 Sheets-Sheet 3

FIG. 10

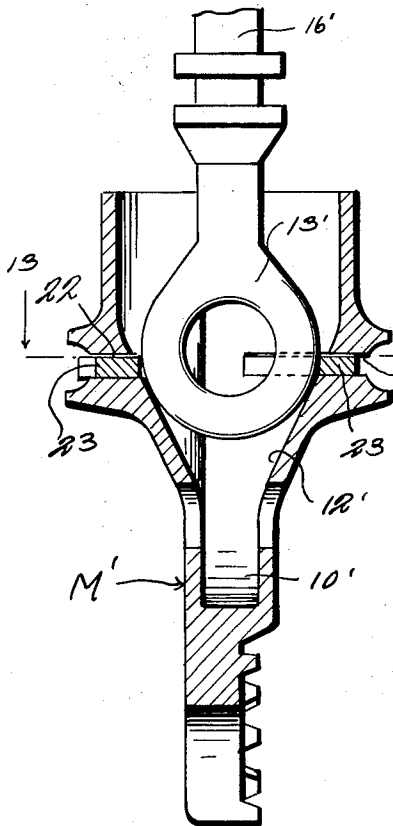


FIG. 11

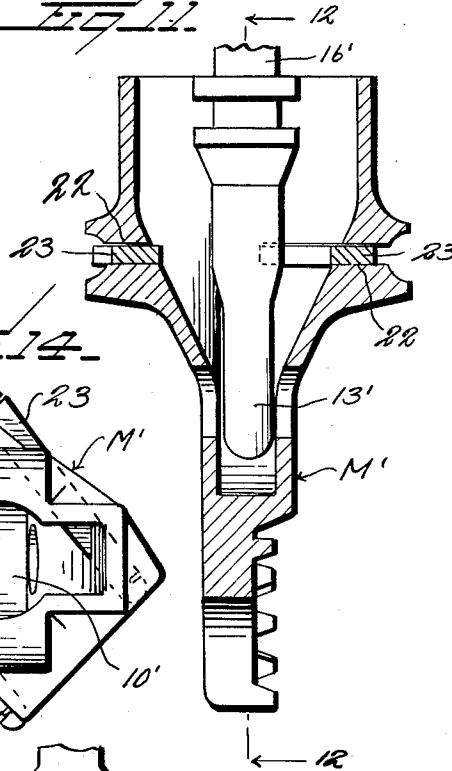


FIG. 14

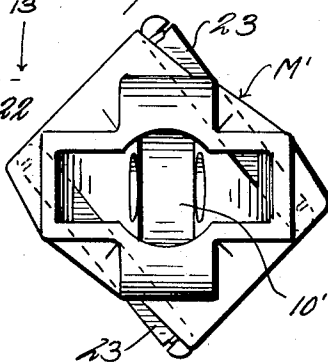


FIG. 12

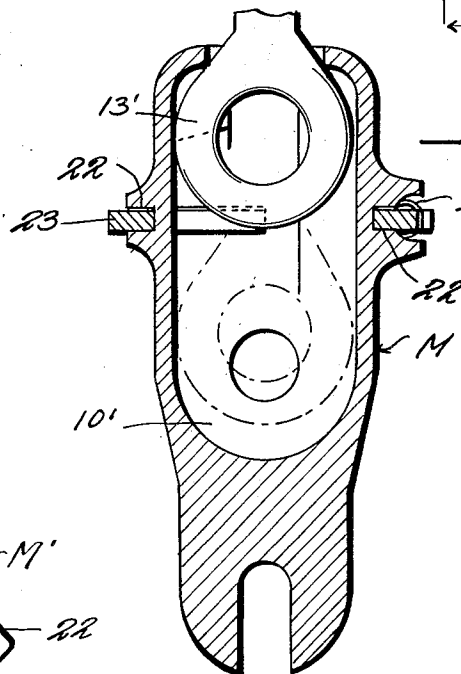
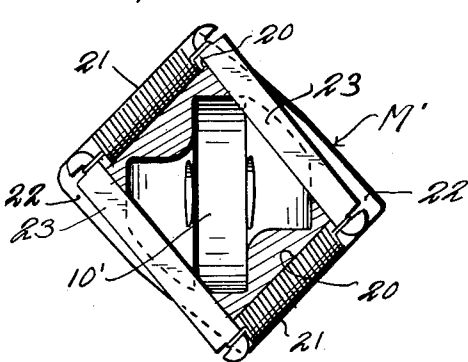


FIG. 13



Inventor

H. W. Bodendieck

334

Watson & Coleman
Attorney

UNITED STATES PATENT OFFICE

1,920,168

OPERATING MEMBER OR STICK FOR HOT
LINE EQUIPMENT

Henry W. Bodendieck, Taylerville, Ill.

Application December 23, 1930. Serial No. 504,364

10 Claims. (Cl. 81—53.)

This invention relates to an operating member or stick for hot line equipment, and it is an object of the invention to provide a device of this kind which may be readily and conveniently engaged with the desired equipment to facilitate the placement of the equipment in desired working position without danger to the lineman or other operator.

Another object of the invention is to provide a device of this kind with means whereby the same may be caused to interlock in substantially an automatic manner with the desired part of the equipment, and wherein the member or handle is of a character to effectively protect the lineman or other person against injury by an electrical current passing through the line being operated upon.

An additional object of the invention is to provide a device of this kind embodying means whereby the same may be readily and conveniently engaged with its work and in a manner permitting the stick proper to be disposed at such varying angles which may be required to facilitate the use of the member or handle.

It is also an object of the invention to provide a device of this kind wherein means are employed to effectively maintain the operating member or stick and the equipment with which it is employed becoming accidentally disengaged.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved operating member or stick for hot line equipment whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a fragmentary view partly in section and partly in elevation of an operating member or handle constructed in accordance with an embodiment of my invention and operatively engaged with a hot line clamp;

Figure 2 is a view partly in section and partly in elevation of the socket member of my improved operating member or handle showing the same in effective or locking engagement with the equipment;

Figure 3 is a view in top plan of the socket member as herein set forth;

Figure 4 is a fragmentary longitudinal sectional view taken through the socket member free of its work;

Figure 5 is a view partly in section and partly in elevation of the socket member as herein disclosed and engaged with its work, the line of section being substantially at right angles to the line of section of Figure 4;

Figure 6 is a view similar to Figure 5 but showing the socket member in a second position with respect to its work;

Figure 7 is a sectional view taken substantially on the line 7—7 of Figure 1;

Figure 8 is a sectional view taken substantially on the line 8—8 of Figure 5;

Figure 9 is a sectional view taken substantially on the line 9—9 of Figure 6;

Figure 10 is a view in section of a socket member constructed in accordance with a further embodiment of my invention, an associated portion of the equipment being in one position;

Figure 11 is a view similar to Figure 10 showing the equipment in a second position;

Figure 12 is a sectional view taken substantially on the line 12—12 of Figure 11 with the equipment indicated by broken lines in one position and in full lines in a second position;

Figure 13 is a transverse sectional view taken substantially on the line 13—13 of Figure 10 with the equipment omitted;

Figure 14 is a view in plan of the outer or open end of the socket member as comprised in this further embodiment of the invention.

As disclosed in the accompanying drawings, P denotes a pole comprised in my improved operating member or handle, said pole being preferably of wood and treated in a manner to render the same non-conductive of electricity. At this time it is to be stated that the invention as herein embodied is generally known to the trade as a "hot stick".

Suitably affixed to one end portion of the pole P is a socket S provided with an outstanding lug 1 having freely disposed therethrough a headed shank 2. Threaded upon one end portion of this shank 2 is a nut 3 coacting with one side of the lug 1 whereby the shank 2 together with its head 4 operates to effectively clamp to the lug 1 an end portion of a socket member M. The side face of the lug 1 remote from the nut 3 is provided with outstanding teeth 5 between which are adapted to engage teeth 7 carried by an outstanding web or plate 6 arranged at the

inner or closed end of the socket member M. These teeth 7, as particularly illustrated in Figure 5, are arranged in a circular manner, and it is to be understood that the teeth 5 are similarly arranged upon the lug 1 so that the socket member M may have its longitudinal axis adjusted as desired to either side of the longitudinal axis of the pole P or, as particularly illustrated in Figure 1, with the longitudinal axis of the socket member M substantially aligned with the longitudinal axis of the pole P. The desired swinging or lateral adjustment of the socket member M in either direction may be readily accomplished by readily loosening the headed shank 2 and tightening the nut 3 after the socket member M has been moved or shifted to the desired selective adjustment.

The socket member M rocks or swings about the shank 2 as a pivot and in order that the web or plate 6 may have ready application to the shank 2, said web or plate is provided with an open slot 8. Upon proper loosening of the shank 2, it is believed to be obvious that the socket member M through the medium of this slot 8 may be conveniently applied to or disengaged from the shank 2 without the necessity of entirely freeing the shank 2 from the lug 1 as it is only necessary to loosen the shank 2 to permit complete separation of the teeth 7 of the web or plate 6 from the teeth 5 of the lug 1.

The socket member M is of fixed formation and is of any desired metal or material which can be effectively employed for the purposes desired. As herein set forth, the socket member M is substantially of a bell formation with the outer or open end being relatively narrow and elongated as particularly illustrated in Figure 3, the longitudinal axis of said outer open end being herein set forth as substantially at right angles to the path of swinging movement of the socket member relative to the shank 2. The socket member substantially midway of its elongated outer end at its opposite sides is provided with the internal pockets 9 in communication throughout their lengths with the main chamber 10. One side wall of each of the pockets 9 is straight and extends substantially the entire length thereof providing a stop shoulder 11 while the opposite side wall of the pocket 9 is provided with a similar straight wall or shoulder. The opposite side wall of each of the pockets 9 has its major lower portion disposed on a spiral curvature 12 and substantially merges with the side wall of the main chamber 10 of the socket member.

By this particular internal formation of the socket member M when a member, such as the eye member 13 to be hereinafter referred to, is received within the socket member M said socket member and eye member will have relative turning movement of approximately forty-five degrees bringing the eye member 13 substantially at right angles to the longitudinal axis of the elongated outer open end of the socket member, whereby the eye member 13 and the socket member M are effectively locked one to the other in a manner whereby the eye member 13 may be rotated as desired or otherwise manipulated with the liability of accidental separation of the socket member M from the eye member 13 substantially eliminated.

The outer walls 14 of the pockets 9 at their top portions are disposed inwardly, as at 15, to provide stop members which, when the eye member 13 or its equivalent is substantially at right an-

gles to the longitudinal axis of the outer open end of the socket member M, is prevented from being withdrawn from within the socket member.

It is also believed to be self-evident that as the eye member 13 or its equivalent enters the socket member M the relative rotation of such elements will be accomplished automatically. To effect the desired separation of the socket member M and the eye member 13 either of these elements must be manually rotated to return the eye member 13 to such position to permit the socket member M to be freed therefrom.

As herein disclosed, the eye member 13 is carried by the outer end portion of an operating shank or member 16 for one of the jaws of a wire clamp, although the same may be comprised in other equipment. One of the jaws 17 of the clamp C, as herein disclosed, is provided with an inwardly directed arm 18 having threaded there-through a headed member 19 coacting with the shank 16 in a manner whereby the two jaws of the clamp C are supported for relative movement one toward the other upon rotation of the shank 16. This arm 18, however, provides a means whereby when the eye member 13 or its equivalent is sufficiently extended within the socket member M it also enters the chamber 10 of the socket member to prevent relative rotation of the clamp C or kindred equipment and the socket member M thus facilitating the desired application of the clamp C or kindred equipment upon a hot line wire or other work.

After this engagement of the clamp or equipment with the work, the pole P and socket member M are permitted to drop with respect to the clamp or kindred equipment as illustrated in Figure 6 whereby the shank 16 may be readily rotated to move the jaws of the clamp C one toward the other as may be desired, or to effect the desired adjustment of a movable part of a hot line equipment of some other type.

While I have hereinbefore particularly referred to the eye member 13 it is to be stated that this is intended to include any form of cross member or head which can be effectively employed in connection with the socket member M to obtain the desired locking engagement therebetween as hereinbefore set forth.

In the embodiment of the invention as illustrated in Figures 10 to 14 inclusive, the member M' is constructed in substantially the same manner as the member M hereinbefore referred to except that this socket member M' at a desired distance inwardly from its outer or open end is provided at opposed points with the transversely disposed grooves or channels 20. In each one of these grooves or channels 20 is arranged a retractile coil spring 21 of desired tension and of required length. Substantially coplanar with the grooves or channels 20 the socket member M' in two other opposed portions is provided with the grooves or channels 22 substantially at right angles to the grooves or channels 20. The central portions of these grooves or channels 22 open into the interior of the member M' so that the elongated flat bars 23 placed within these grooves or channels 22 partially intersect the bore of the socket member.

Each of the springs 21 has one extremity engaged with an end portion of one of the bars or members 23 with the opposite end portion of the spring operatively engaged with a corresponding extremity of the second bar or member 23. By this arrangement the springs 21 serve to normally maintain the central portions of the bars or

members 23 projected within the member M' yet readily permitting said bars or members 23 to have yielding separating movement as required and for a purpose to be hereinafter explained. It is also preferred that these bars or members 23 be positioned below but in relatively close proximity to the internal portion 12' of the clamp member disposed on a spiral curvature.

When the eye member 13' forming part of the equipment with which the socket member M' is to be engaged, is received within the socket member M' it will readily force outwardly or separate the bars or members 23 so that said eye member 13' and the socket member M' will have relative turning movement of approximately forty-five degrees, bringing the eye member 13' substantially at right angles to the longitudinal axis of the elongated outer open end of the socket member M' as illustrated in Figure 11. When in this assembly the eye member 13' will be positioned below or inwardly of the portions of the bars or members 23 projected within the socket member M' whereby the socket member M' and the associated equipment are effectively held against accidental separation. When it is desired to remove the socket member M' from the equipment such relative rotation of course is given to the socket member M' and the eye member 13' one with respect to the other to assure the desired outward or separating movement of the bars or members 23. This release movement, however, cannot be readily accomplished unless the shank 16' is held against rotation. This non-rotation of the shank 16' can be readily accomplished in many ways, as for example when the equipment constitutes a clamp the shank 16' will be held against rotation when the jaws are not clamped in contact or when the jaws of the clamp are in firm contact with the work therebetween.

It is also to be particularly noted at this time that the effectiveness of the bars or members 23 is assured by the fact that they enter within the socket member M' in what might be termed in diagonal relation with respect to the main chamber 10' of the socket member M'.

From the foregoing description it is thought to be obvious that an operating member or stick for hot line equipment constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. An operating member of the class described comprising a socket having a main chamber, and angularly disposed pockets at opposite sides of the chamber in communication therewith, the open end of the chamber of the socket being elongated, the longitudinal axis of said open end being substantially at right angles to the plane of the pockets, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket.

2. An operating member of the class described comprising a socket having a main chamber, and angularly disposed pockets at opposite sides of

the chamber in communication therewith, each of the pockets having one side wall substantially straight from end to end, the second side wall having its inner portion substantially spirally curved for mergence with the chamber, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket.

3. An operating member of the class described comprising a socket having a main chamber, and angularly disposed pockets at opposite sides of the chamber in communication therewith, each of the pockets having one side wall substantially straight from end to end, the second side wall having its inner portion substantially spirally curved for mergence with the chamber, the straight wall and curved wall of one pocket being reversed to that of the similar walls of the second pocket, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket.

4. As a new article of manufacture, a device for engagement with a member having a head comprising an operating stick, a socket member carried by said stick to receive the head, said socket member being provided with means therein causing the socket member and head to have relative turning movement as the head enters the socket member, said means engaging the head and as the head moves inwardly of the socket member to hold the head against withdrawal therefrom after the relative turning movement of said head and socket member.

5. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket, and retaining means extending within the socket.

6. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket, opposed retaining means extending within the socket, and means for yieldingly holding said retaining means in such position.

7. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, the main chamber being expanded towards its mouth or opening in a dimension transverse to the extension of the pockets, said dimension being reduced at its inner end to the cross section of the socket, and yielding retaining means extending within the socket.

8. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, opposed channels in the outer faces of the socket, said channels having their central portions opening within the socket, holding bars arranged within said channels, and yielding means engaging said

bars for normally maintaining the central portions of said bars projected within the socket.

9. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, opposed channels in the outer faces of the socket, said channels having their central portions opening within the socket, and yielding retaining means extending within the channels.

10. An operating member of the class described comprising a socket having a main chamber, angularly disposed pockets at opposite sides of the chamber in communication therewith, opposed channels in the outer faces of the socket, said channels having their central portions opening within the socket, opposed retaining means extending within the channels, and means for yieldingly holding said retaining means in such position.

HENRY W. BODENDIECK.

15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150