

July 14, 1936.

J. PODOLSKY

2,047,704

HANDLE

Filed Dec. 30, 1932

2 Sheets-Sheet 1

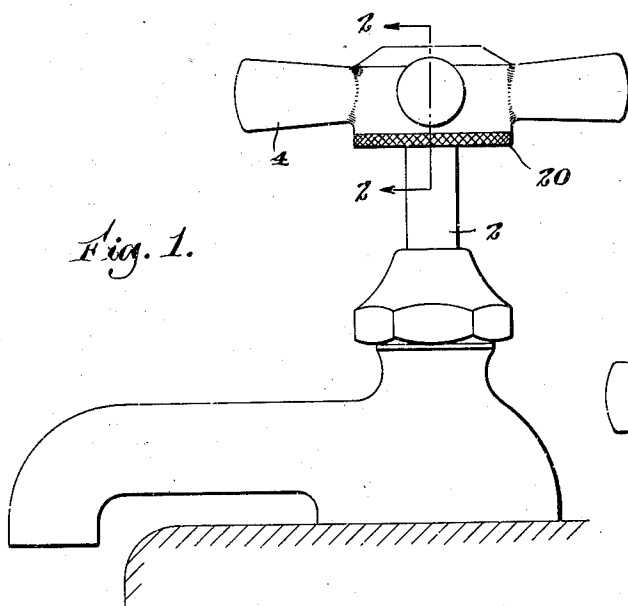


Fig. 1.

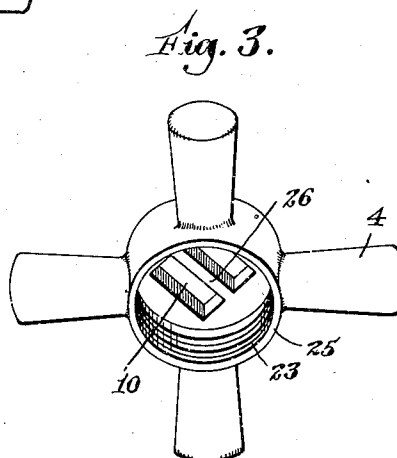


Fig. 3.

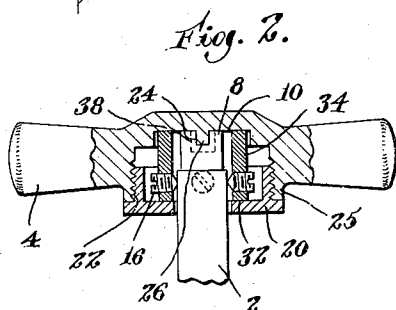


Fig. 2.

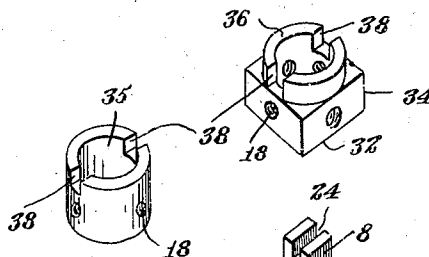


Fig. 4.

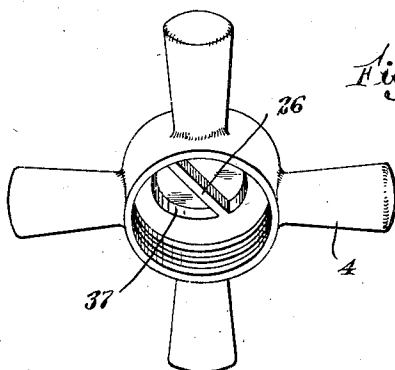
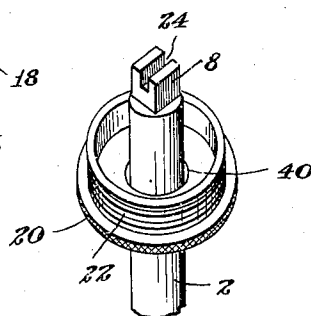


Fig. 5.



Inventor
Jacob Podolsky
by *Nand Reis*
Attorney

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J. PODOLSKY

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Fig. 6.

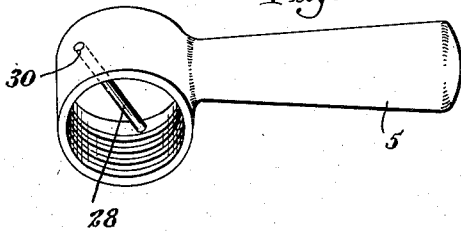


Fig. 7.

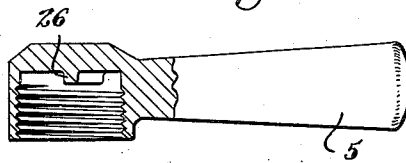


Fig. 8.

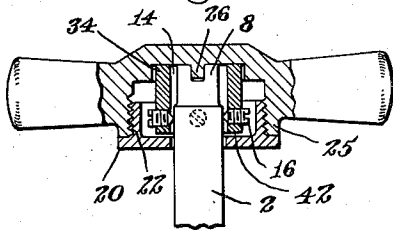


Fig. 9.

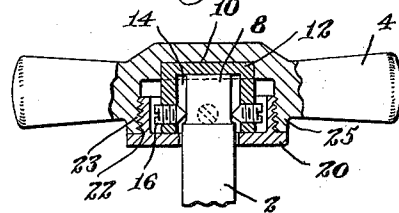


Fig. 11.

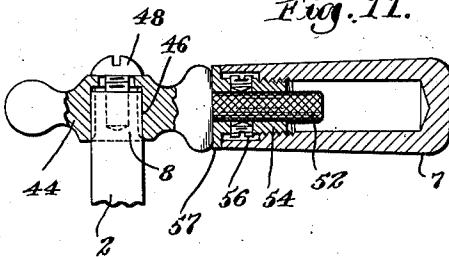


Fig. 10.

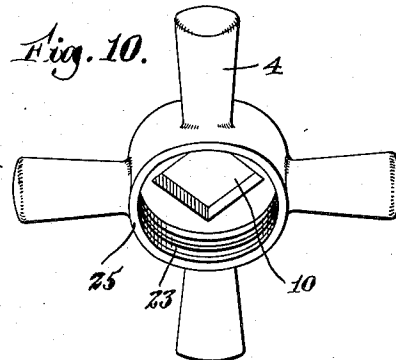


Fig. 12.

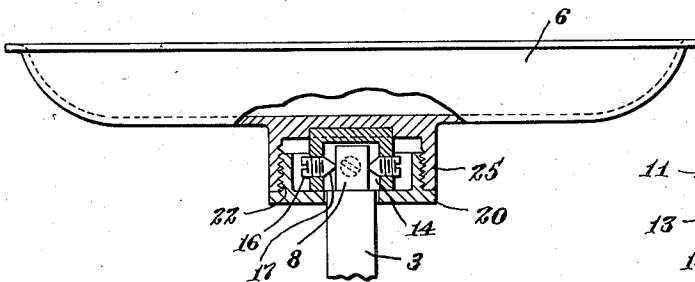
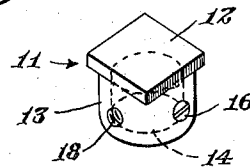


Fig. 13.



Inventor
Jacob Podolsky
by David Rines
Attorney

UNITED STATES PATENT OFFICE

2,047,704

HANDLE

Jacob Podolsky, Dorchester, Mass.

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16 Claims. (Cl. 287—53)

The present invention relates to handles and the like adapted to be fixed to a valve or other stems.

According to present-day practice, the valve handle is fixed to the valve stem in the factory, and the parts are then sold as a unit in the trade. When the handle becomes broken, it becomes necessary either to find a new handle to match the stem, or else to discard both elements and purchase a new combination of handle and stem. The first alternative is attended with difficulties because, the parts not being completely standardized, no one handle that is available in the stores will fit all valve stems; so that it becomes necessary to keep in stock a very large assortment of shapes and sizes. Even when the proper shape and size happens to be in stock, furthermore, it frequently happens that it will not fit the valve stem because of wearing down of the parts. The second alternative, therefore, is more often resorted to. It is, furthermore, frequently desirable to remove the handle from the stem, so as to prevent unauthorized turning of the latter, and this, too, is not convenient with most present-day constructions.

An object of the present invention, therefore, is to provide a new and improved device for attachment to a stem.

A further object is to provide a new and improved device for turning valve and other stems.

It has heretofore been proposed to provide a single handle that shall be readily adapted to the turning of a large number of different valve or other stems. Among the proposals of this character has been the use of a screw or screws for fastening the handle to the stem. Continued use of such a device, however, tends to cause the screws to wear grooves in the stem, thus endowing the handle with a certain degree of objectionable lost motion.

It is therefore another object of the present invention to provide a novel device of the above-described character that shall be absolutely certain in operation, and efficient, and without lost motion.

Still another object is to provide an improved construction permitting the efficient use of any of a large number of standardized handles and the like with a single stem; or, conversely, any of a large number of stems with a single handle and the like.

Other and further objects will be explained hereinafter and will be particularly pointed out in the appended claims, it being understood that it is intended, by suitable expression in the

claims, to express all the novelty that the invention may possess.

The invention will now be explained in connection with the accompanying drawings, in which Fig. 1 is an elevation of a valve handle embodying the present invention; Fig. 2 is a vertical section taken upon the line 2—2 of Fig. 1, looking in the direction of the arrows; Fig. 3 is an underside perspective, showing the parts separated, for clearness; Figs. 4 to 6 are perspectives of modifications; Fig. 7 is an elevation, partly in longitudinal section, of a further modification; Fig. 8 is a section, similar to Fig. 2, of further modification; Fig. 9 is a section of a further modification; Fig. 10 is a perspective of the handle of Fig. 9; Fig. 11 is a longitudinal section similar to Fig. 7 of another modification; Fig. 12 is an elevation, partly in section, as in Fig. 7, of still another modification; and Fig. 13 is a perspective of a detail.

Referring first to Fig. 1, a rotary stem 2 is shown provided with a handle 4 for turning the same. This handle may be of the crossier, all-metal form shown in Figs. 1, 2, 3, 5 and 8 to 10, or it may take any other form, such as the lever-shaped handles 5 or 7 of Figs. 6, 7 and 11. It may take other forms than handles, and a soap dish 6 is shown in Fig. 12, though the stem 3 on which it is mounted is not rotary, but is fixed. The stem 2 or 3 is ordinarily provided with a polygonal or cubical top 8 adapted to be received in a correspondingly shaped socket or opening provided upon the underside of the handle 4, as shown at 10 in Fig. 10. It is necessary, therefore, to keep in stock as many different handles, with correspondingly shaped sockets 10, as the stems 2 are provided with tops 8.

According to the present invention, however, a single handle 4, 5 or 7, or a single other article, such as the soap dish 6, may be utilized in connection with all stems 2 or 3 in use. It is thus possible to replace lost or broken handles, whether of metal, china or other materials, in all cases, and using all stems 2 or 3. To bring about this result, a polygonal member 11 is shown in Fig. 13, having a portion 12 shaped to correspond to the polygon 10, and provided with a cylindrical, polygonal or other conventionally shaped socket 14 within which may be received the top 8 of the stem 2. The member 11 may be cubical in shape, but it is preferred, for appearance sake, to have the portion 13 below the portion 12 externally cylindrical. Set screws 16 may be threaded through corresponding threaded openings 18 in the cylindrical walls of the member 55

12, and into and against the top 8 of the stem. The top 8 is thus received in the socket 14 and becomes fixed to the member 12 by the set screw or set screws 16.

5 The member 11 being of the same polygonal or cubical shape as the socket 10 in the handle 4 and as the opening 14 may be so designed as to receive a very large number of different sizes and shapes of stem 2, the combination of a single member 10
11 and a single handle 4 may thus cooperate with a very large number of different sizes and shapes of stem tops 8. Indeed, the member 11 and the stem may be regarded as, in effect, a single stem
15 having a constant size and shape of top 8 for co-operating with but a single corresponding size and shape of socket 10 in the handle 4.

The handle may be secured against accidental displacement from the member 11 by means of a collar 20 loosely mounted upon the stem and hav-
20 ing external threads 22 for cooperating with internal threads 23 provided upon a down-hanging sleeve 25 of the handle. In this manner, the polygonal exterior member 11 is detachably held
25 fixed in position in the polygonal interior socket 10 without accidental displacement, the parts co-operating to permit turning of the stem 2 by the handle 4.

A construction of this character is very satisfactory in the case of non-rotatable stems, such as the stem 3 of Fig. 12 for supporting the soap
30 dish 6, the parts being held together very firmly by the screws 16. When a rotary stem 2 is employed, however, continued rotation of the handle 4, 5 or 7 causes the screws 16 to dig circular
35 grooves or scores in the stem 2, even though the screws be provided with sharp-pointed ends 17.

According to the preferred embodiment of the present invention, therefore, particularly for use with handles 4 or 5 for turning rotary valve stems 2, the stem 2 is turned directly from the handle
40 4 or 5, and not indirectly, through the medium of the interposed member 11. To effect this, the top end face 8 of the stem 2 is transversely slotted at 24, and the handle 4 or 5 is provided with a
45 corresponding, transversely disposed tongue 26 adapted to be positioned in the slot 24. The slot 24 may be formed in any stem top 8 in any desired manner, as by filing, and the tongue 8 may likewise be formed in any desired manner, as by
50 casting, illustrated in Figs. 2, 3, 5 and 7 to 9, or by means of a separate rod 28, fixed in holes 30 in the side of the handle 5, illustrated in Fig. 6. It does not require any very great degree of accuracy in filing the slot 24 to prevent relative ro-
55 tatable turning movement of the handle 4 or 5 and the stem when the stem 2 is received in the handle 4 or 5 and the tongue 26 or 28 is positioned in the slot 24.

There would, however, be danger of the tongue
60 26 or 28 slipping out of the slot 24 in a direction longitudinal of the stem 2, in response to turning movement of the handle 4 or 5. This is prevented by the collar 20 engaging against the lower end 32 of a spacer member 34, the upper end 36
65 of which engages against the bottom face of the socket 10.

Screws 16 are screwed through the walls of the spacer member 34, in the same way as through the walls of the member 11, and into engagement
70 with the stem 2. These adjustably threaded screws 16, at a plurality of points along the circumference of the spacer 34 do not, however, hold against the stem 2 to effect turning movement. Their function, rather, is merely to adjust the
75 stem transversely in the socket 35 of the spacer-

member 34, thus to center the stem 2 in the spacer member 34 relative to the stem 2 that is
fixedly received in the socket 35. The spacer 34, in turn, is itself centered relative to the handle 4 by having its upper end 36 positioned in the socket
5 10, which thus acts as a centering socket. To effect this result, the upper end 36 might be made square shaped, the same as the part 12 of the member 11, and of the same square dimension as the socket 10, thereby helping to prevent relative,
10 rotatable movement of the handle and the stem. That such help is not really necessary, however, is demonstrated by the fact that the socket may be circular and of the same diameter as the spacer
15 34, as illustrated at 37 in Fig. 5. It is preferred to make the end 36 round, but of substantially the same diameter as the length of the side of the said square. The bottom 32 may be square shaped, as
20 illustrated in Fig. 3, cylindrical or round, as shown in Fig. 4, or any other desired shape.

By having the socket 35 wide enough, it is possible to accommodate all sizes and types of stems 2 or 3, whether rotary or stationary, straight or
crooked, and for all kinds of valves, including steam, radiator and bath, as well as faucet, valves,
25 and whether made of metal or any other material, and irrespective of the height of the valve stem. The parts hold rigidly together, without lost motion, just as effectively as was the case with the original handle.

The upper portion 36 may be widely slotted at
30 38 so as to provide plenty of room for the tongue 26 or 28 to extend therethrough without, preferably, engaging against the sides of the slot 38. In this way, it is assured that the turning move-
35 ment of the handle 4 or 5 will not be communicated to the spacer member 34. If desired, however, the slot 38 may be made just wide enough to receive the tongue 26 or 28 snugly. On the other
40 hand, the area at the top end 36 may be made smaller still, and it may consist of several upward-projecting pins.

With this construction, it is not always essential that the socket 10 be employed, and it may be
45 omitted, as illustrated in Figs. 6 and 7, when the central opening 40 in the collar 20 is not so great as to cause the stem 2 to become positioned off center with respect to the handle 4 or 5.

The lower end 32 of the spacer member 34 acts as a stop, controlling the degree of tightening of
50 the collar 20. It is not necessary, however, that the collar 20 engage the lower end 32 of the spacer member 34, for it may be spaced therefrom, as illustrated at 42 in Fig. 8, without interfering with the cooperation of the handle 4 or 5 and the
55 spacer member 34 to prevent substantial relative movement of the handle 4 or 5 and the stem 2 or the spacer 35, in a direction longitudinal of the stem. The square shape gives greater body to the spacer member and helps, in some cases, to
60 center the device by engaging against the inside wall of the collar 20 or the down-hanging sleeve 25 of the handle 4 on which the threads 23 are formed.

The modification illustrated in Fig. 11 has to
65 do with a type of handle in common use, comprising a metal portion 44 having an opening 46 in which the top 8 of the stem 2 is received, and in which it is held by a screw 48 against a flange 50. The metal portion 44 is provided with a stem 52
70 over which a china, porcelain or other frangible handle (not shown) is mounted. When this frangible handle becomes broken, the whole device is required to be discarded or thrown away.

According to the present invention, however, an 75

externally-threaded sleeve 54 is mounted over the stem 52, and is held in position thereon by one or more screws 56. A plurality of screws 56 is preferable, because helping to center the sleeve 54 on the stem 52, though the centering difficulties are not serious. An internally-threaded metal or other handle 7 is then threaded on the externally-threaded sleeve 54, into contact with a circular, peripheral flange plate 57 of the sleeve 54. The new device is permanent, thus being a great improvement upon the old, frangible handle (not shown), but a new handle 7 may always be threaded upon the sleeve 54 in substitution for the old when desired.

The invention offers a very convenient, satisfactory and inexpensive replacement of broken or lost handles for stems, necessitating the keeping by the dealer of but a minimum of stock. No cement or other adhesive is required. In all cases, furthermore, the screws 16, the slot 24 and other unsightly parts are hidden from view, thus greatly improving the appearance of the device.

Further modifications will occur to persons skilled in the art and all such are considered to fall within the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A device of the class described for use in association with slotted stems of different sizes and having a member provided with an oversized socket for receiving loosely the end of any of said stems with a wall of said end substantially spaced from a wall of said socket, means for fixing said end against movement in the socket with said wall of said end substantially spaced from said wall of said socket, a member having a tongue adapted to be positioned in the slot of the slotted stem to prevent relative rotatable movement of the tongued member and stem, and means cooperating with the oversized-socket member for preventing relative movement of the tongued member and the stem in a direction longitudinal of the stem.

2. A device of the class described for use in association with stems of different sizes each having a transversely disposed slot in one end face thereof, and having a member provided with an oversized socket for receiving loosely the end of any of said stems with a wall of said end substantially spaced from a wall of said socket, means for fixing said end against movement in the socket with said wall of said end substantially spaced from said wall of said socket, a member in which the stem is adapted to be received and having a transversely disposed tongue adapted to be positioned in the slot to prevent relative rotatable movement of the tongued member and the stem, means for holding the oversized-socket member in predetermined relation to the tongued member to center the tongued member relatively to the stem, and means for holding the tongued member and the stem against relative movement in a direction longitudinal of the stem to prevent the tongue from becoming displaced from the slot.

3. A device of the class described comprising a stem, a member, means connecting the member non-rotatably to the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a member for centering the first-named member relatively to the stem, the second-named member having an oversize socket in which the stem is loosely received, means for fixing the stem in the socket, and means cooperating with the second-named member for preventing relative movement of the

first-named member and the stem in a direction longitudinal of the stem.

4. A device of the class described comprising a stem, a member, means connecting the member non-rotatably to the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a spacer having an oversized socket for receiving the stem loosely, means for centering the spacer relatively to the stem with the walls of the socket spaced from the stem and for preventing rotation of the stem in the spacer socket, and means for preventing relative movement of the member and the spacer in a direction longitudinal of the stem.

5. A device of the class described comprising a stem, a threaded member, means connecting the member non-rotatably to the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a spacer having an oversized socket for receiving the stem loosely, means for centering the spacer relatively to the stem with the walls of the socket spaced from the stem and for preventing rotation of the stem in the spacer socket, and a threaded collar threaded upon the threaded member and cooperating with the spacer to prevent relative movement of the member and the stem in a direction longitudinal of the stem.

6. A device of the class described comprising a stem, a member, means connecting the member non-rotatably to the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a spacer having an oversized socket for receiving the stem loosely, a plurality of screws adjustably threaded in the wall of the spacer at a plurality of points along the circumference of the spacer and adapted to engage the stem to fix the spacer to the stem and to center the spacer relatively to the stem with the walls of the socket spaced from the stem, and means cooperating with the spacer to prevent relative movement of the member and the stem in a direction longitudinal of the stem.

7. A device of the class described comprising a stem, a member having a centering socket, means connecting the member non-rotatably to the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a spacer centered by the centering socket and having an oversized socket for receiving the stem loosely, means for centering the spacer relatively to the stem with the walls of the socket spaced from the stem and for preventing rotation of the stem in the spacer socket and for holding the stem against longitudinal movement in the spacer, and means for preventing relative movement of the member and the spacer in a direction longitudinal of the stem.

8. A device of the class described comprising a stem having a transversely disposed slot in one end face thereof, a threaded member having a transversely disposed tongue adapted to be positioned in the slot to prevent relative rotatable movement of the member and the stem but permitting relative movement of the member and the stem in a direction longitudinal of the stem, a spacer having a socket for receiving the stem, means for holding the stem against longitudinal movement in the spacer, and a threaded collar threaded upon the threaded member and cooperating with the spacer to prevent relative movement of the member and the stem in a direction longitudinal of the stem.

9. A device of the class described for use in association with stems of different sizes each having

a transversely disposed slot in one end face thereof and having a member provided with an oversized socket for receiving loosely the end of any of said stems with a wall of said end substantially spaced from a wall of said socket, means for fixing said end against movement in the socket with said wall of said end substantially spaced from said wall of said socket, a member in which the stem and the first-named member are adapted to be received and having a transversely disposed tongue adapted to be positioned in the slot to prevent relative rotatable movement of the tongued member and the stem, and means for holding the tongued member and the stem against relative movement in a direction longitudinal of the stem to prevent the tongue from becoming displaced from the slot.

10. A device of the class described for use in association with stems of different sizes each having a transversely disposed slot in one end face thereof and having a member provided with an oversized socket for receiving loosely the end of any of said stems, means for centering said end in the socket spaced from the walls of the socket and for fixing the centered end in said socket, a member in which the stem is adapted to be received and having a transversely disposed tongue adapted to be positioned in the slot to prevent relative rotatable movement of the tongued member and the stem, and means cooperating with the oversized-socket member for holding the tongued member and the stem against relative movement in a direction longitudinal of the stem to prevent the tongue from becoming displaced from the slot.

11. A device of the class described for use in association with stems of different sizes and having a member provided with an oversized socket for receiving loosely the end of any of said stems, means for centering said end in the socket spaced from the walls of the socket and for fixing the centered end in said socket, a second member, means connecting the second member non-rotatably to the stem but permitting relative movement of the second member and the stem in a direction longitudinal of the stem, and means cooperating with the oversized-socket member for preventing relative movement of the second member and the stem in a direction longitudinal of the stem.

12. A device of the class described for use in association with stems of different sizes and comprising a handle member and an oversized-socket portion for receiving loosely the end of any of said stems, means connecting the free end of the stem to the handle member non-rotatably but permitting relative movement of the handle member and the stem in a direction longitudinal

of the stem, means for centering said end in the socket portion spaced from the wall of the socket portion and for fixing the centered end in said socket portion, and means cooperating with said handle member and said socket portion for preventing relative movement of the handle member and the stem in a direction longitudinal of the stem.

13. A device of the class described for use in association with stems of different sizes comprising a member provided with an oversized socket for receiving the end of any of said stems, a member having a sleeve for receiving the first-named member, the first-named member being provided with adjustable means for clamping the said end against movement in the socket centrally of the second-named member, and means cooperating with the members for locking the members against relative movement in a direction longitudinal of the stem.

14. A device of the class described for use in association with stems of different sizes comprising a spacer provided with an oversized socket for receiving the end of any of said stems, the spacer being provided with adjustable means for centering the said end in the socket and for clamping the centered end against movement in the socket, a member for receiving the spacer with the said end centered and clamped in the socket thereof, and means for locking the member and the spacer with the said end centered and clamped in the socket thereof against relative movement in a direction longitudinal of the stem.

15. A device of the class described for use in association with stems of different sizes comprising a spacer provided with a socket for receiving the end of any of said stems, a member having a threaded sleeve for receiving the spacer, the spacer being provided with adjustable means for clamping the said end against movement in the socket centrally of the member, and a threaded collar loosely mounted on the stem and threaded upon the threaded sleeve for locking the spacer and the member against relative movement in the said direction longitudinal of the stem.

16. A device of the class described for use in association with stems of different sizes and having a threaded handle member and an oversized-socket portion for receiving loosely the end of any of said stems, a plurality of means extending through the wall of said oversized-socket portion and into engagement with the stem to center the stem in the socket portion, and a threaded collar threaded upon the threaded handle member and within which the plurality of extending means and the socket portion are enclosed so as to be concealed.

JACOB PODOLSKY.