No. 798,325. PATENTED AUG. 29, 1905.

G. H. DADDYSMAN, JR.

WRENCH.

APPLICATION FILED SEPT. 24, 1904.

Fig. 1.

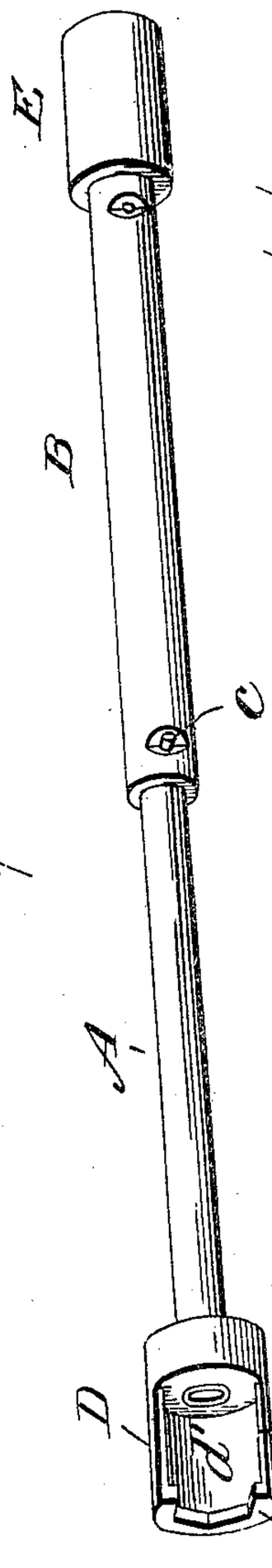


Fig. 2.

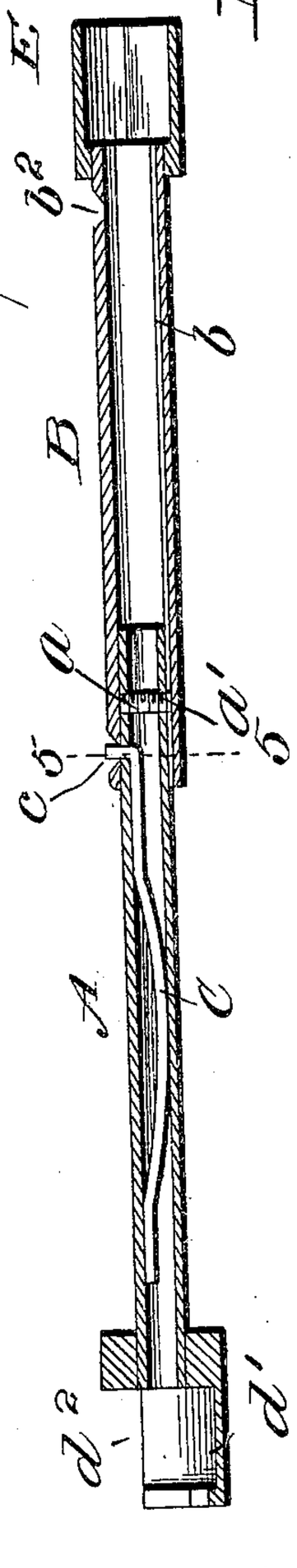


Fig. 3.

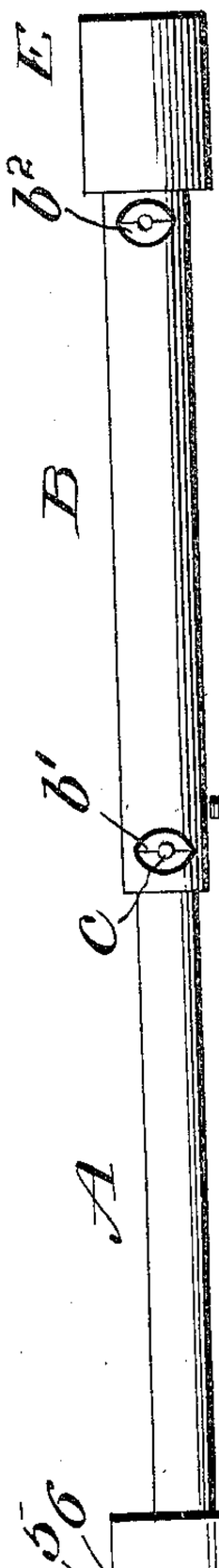


Fig. 4.

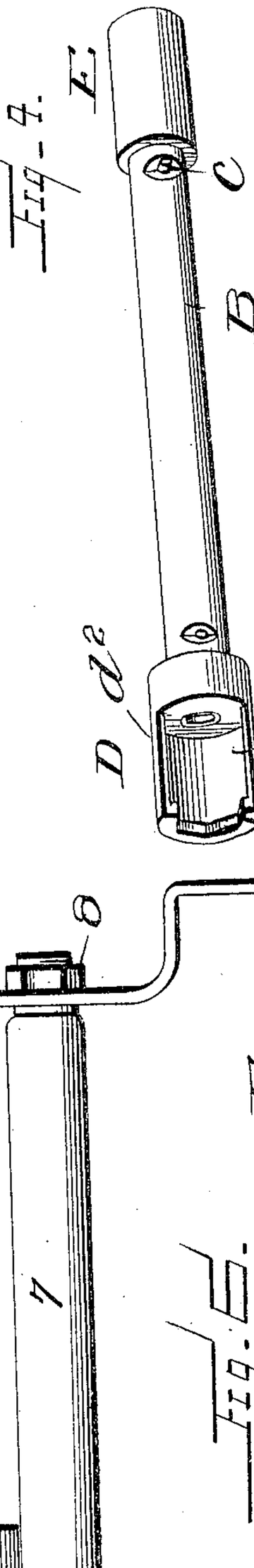
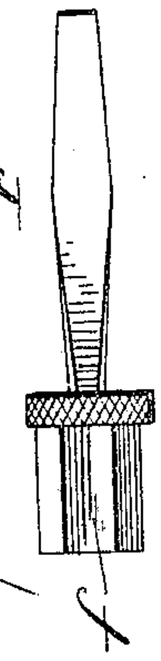


Fig. 5.



WITNESSES:

F. H. Hubbard

INVENTOR

George H. Daddysman Jr.

BY

Whittemore Wood & Co. ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE H. DADDYSMAN, JR., OF WASHINGTON, DISTRICT OF COLUMBIA.

WRENCH.

No. 798,325. Specification of Letters Patent. Patented Aug. 29, 1905.

Application filed September 24, 1904. Serial No. 225,767.

To all whom it may concern:

Be it known that I, GEORGE H. DADDYSMAN, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, which illustrate the best form in which I have contemplated embodying it, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 is a perspective view of my improved wrench, showing the telescoping handle extended. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a view of a telephone-fuse, showing my wrench in use in connection therewith. Fig. 4 is a perspective view of the wrench, showing the telescoping handle in closed position. Fig. 5 is a transverse section of Fig. 2 on line 5 5. Fig. 6 is a detail of a screw-driver bit attachment.

The object of my invention is to provide a wrench particularly adapted for use in installing telephones and in connection with switchboards and other electrical apparatus, where it is difficult or impossible to use wrenches of ordinary construction, owing to the close relation between the parts and the small size of the various nuts, bolts, and screws employed.

The central portion or handle of the wrench consists of two telescoping parts, preferably tubular, the one fitting into the other. Thus in the form of wrench herein shown, which is particularly adapted for telephone-work, this handle portion consists of a tube A, which fits within a larger tube B. One of said tubes is provided with a guiding projection, which fits in a longitudinal slot or groove in the other part to prevent one of said tubes from turning with respect to the other. In this instance I have shown the inner tube A provided with a screw-plug *a*, having a guiding portion *a'* projecting from the side of the tube and engaging a longitudinal groove *b* in the outer tube B. The tube B is also provided with a locking hole or aperture at each end, (lettered, respectively, *b'* and *b²*,) and the tube A is provided with a spring-catch to enter said locking-apertures to secure the tubes in the closed position, as shown in Fig. 4, or in the extended position, as shown in Figs. 1, 2, and 3. This spring-catch is conveniently formed of a piece of spring-wire C, bent so as to engage the inner wall of tube A and maintain itself in the required position without fastening and provided with an angularly-bent projection *c*, forming the catch. One of said tubes (in this instance tube A) carries my improved open socket-head D, which consists of a segment of a cylinder having at its extremity the wrench portion *d*, which is disposed transversely of the head and the tube or handle A and is very thin in a direction longitudinally of the head. The said head is cored out, as shown at *d'*, in rear of said wrench portion *d* to a diameter considerably larger than that of the wrench-opening, as is clearly shown in Figs. 1, 3, and 4. The head is thus provided on one side with the large opening *d²*, which extends through the cored portion *d'* and the wrench portion *d*, and thus enables the wrench portion *d* to be applied sidewise to the nut, as shown in Fig. 3. In telephone-work it frequently happens that a screw is provided with several nuts and washers which must be tightened or loosened separately. In Fig. 3 I have shown a part of a telephone-fuse to better illustrate the manner of using the improved wrench. In this figure a screw 1 is provided with a nut 2, washers 3 4, and outer nuts 5 and 6. In this figure I have shown how my improved wrench may be applied sidewise to the inner nut 1 without interfering with or touching the washers and nuts 5 and 6. After tightening the nut 1, nuts 5 and 6 may also be tightened separately. Fig. 3 also illustrates the desirablility of the extensible handle, as the projecting insulator 7 would prevent the use of the device in closed position. In like manner my wrench may be used over binding-posts and the like where the cored head accommodates the projecting parts and enables the wrench to be slipped over the base of the post. It will also be noted that there are no laterally-projecting parts on the wrench throughout its length, as such projections would interfere with the turning of the wrench in close places. To this end the locking-holes in tube B are preferably countersunk and the locking pins or studs *c* do not project beyond the wall of the tube. To extend or collapse the handle, it is only necessary to press in the locking-stud *c* with the thumb-nail, when the inner tube may be moved in or out, as required. It will also

be noted by reference to Figs. 2 and 5 that the locking-stud projects from tube A on the side opposite the guiding projection *a'*, thus holding the tubes A and B at two opposite points to prevent them from turning with respect to each other.

I prefer to provide the tube B with a wrench-head E to fit a different-size nut, and the wrench-head E may be of the same form as the head D, or, as shown herein, it may be an ordinary socket-head which is adapted to fit a different-sized nut, like, say, the nut 8 in Fig. 3. I prefer to provide as an attachment a screw-driver bit F, provided with a butt *f*, shaped to fit the socket E, so that the device may be used with this attachment to turn a screw when desired.

What I claim, and desire to secure by Letters Patent, is—

1. A wrench or tool having a hand-engaging portion, a wrench portion disposed transversely thereto and open at one side, and portions connecting said wrench portion with the hand-engaging portion, of greater diameter than the nut-engaging recess of the wrench portion, and having an opening in line with the opening in the wrench portion, substantially as described.

2. A wrench or tool having a hand-engaging portion and a hollow wrench-head, having a wrench portion at its outer end, and its interior cored out to a greater diameter than the opening in the wrench portion, said head being cut away at one side to form an opening communicating with the nut-engaging opening of the wrench portion, whereby the said wrench portion may be applied sidewise to a nut, substantially as described.

3. A wrench or tool having an extensible hand-engaging portion and a hollow head at one end thereof, said head being provided at its outer end with a wrench portion disposed transversely of the hand-engaging portion, said head being cut away at one side and being cored out in rear of said wrench portion to a greater diameter than the nut-engaging recess thereof, substantially as described.

4. In a wrench or tool, the combination with the hand-engaging portion comprising two tubes, one telescoping within the other, guiding means for preventing said tubes from rotating with respect to each other, and a locking device within said tubes and having no projecting parts, for holding said tubes from longitudinal movement, when in closed or extended position, the said locking device cooperating with the said guiding means in preventing the rotation of said tubes with respect to each other, of a head secured to one of said tubes, substantially as described.

5. In a wrench or tool, the combination with the hand-engaging portion comprising two tubes, one telescoping within the other, a projection on one of said tubes engaging a guiding-groove in the other tube, and a locking-catch, secured to one of said tubes, on the side opposite the guiding-groove, and engaging the other tube, to prevent the longitudinal movement of said tubes, with respect to each other and to coöperate with said projection and guiding-groove, in strengthening the connection between said tubes to resist torsional strains, of a head secured to one of said tubes, substantially as described.

6. In a wrench or tool, the combination with two telescoping tubes, one provided with a projection engaging a guiding-groove in the other, the outer tube being provided on the side opposite said groove and projection, with locking-apertures, countersunk on the outer side, said inner tube being provided with an internal spring having a locking-stud for engaging said locking-apertures in the outer tube, to prevent the longitudinal relative movement of said tubes, and to assist said projection and guiding-groove in resisting torsional strains, the countersinking of said locking-apertures permitting the disengagement of said locking-stud, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE H. DADDYSMAN, Jr.

Witnesses:

L. P. Whitaker,

J. K. Moore.