

No. 779,482.

PATENTED JAN. 10, 1905.

J. W. KOVALEK.
HUB ATTACHING MEANS.
APPLICATION FILED AUG. 20, 1904.

Fig. 1.

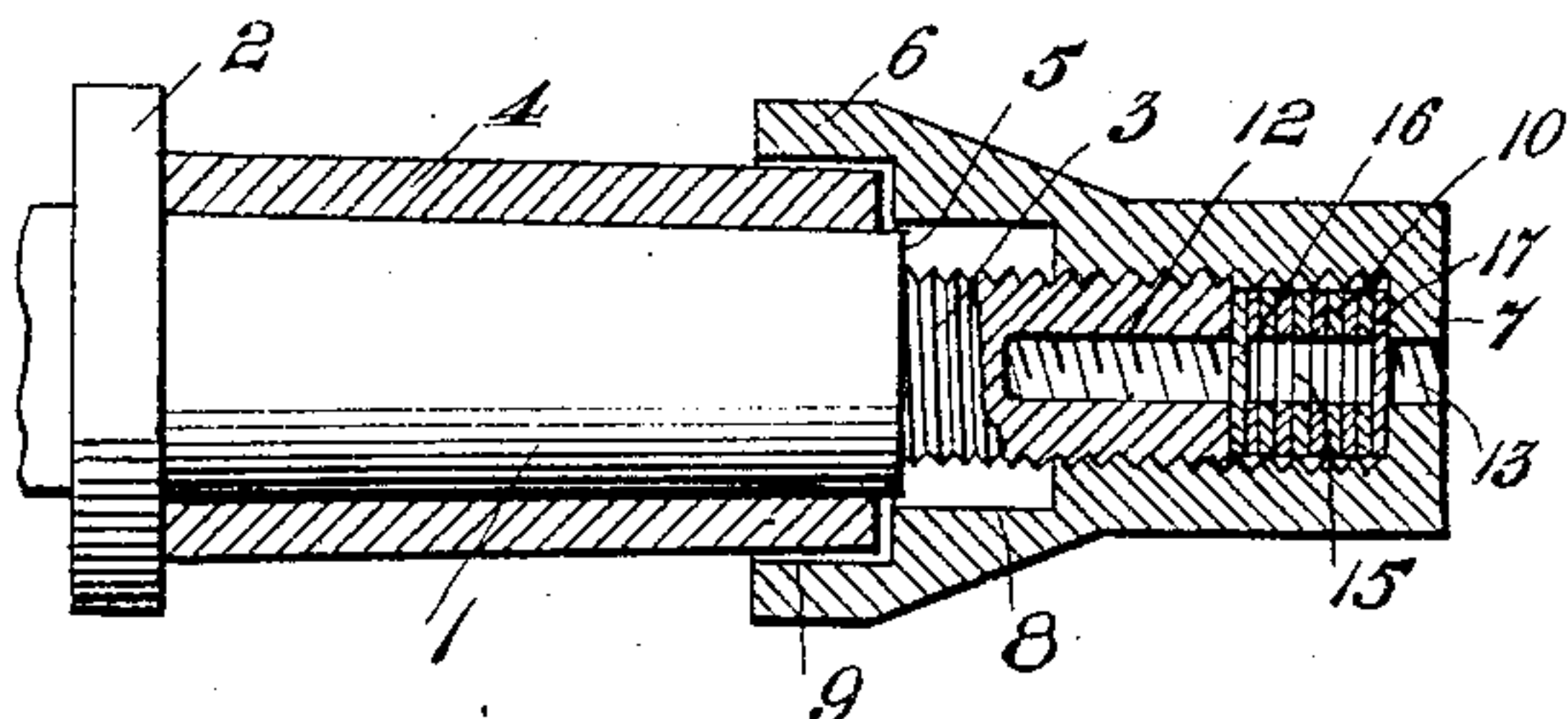


Fig. 2.

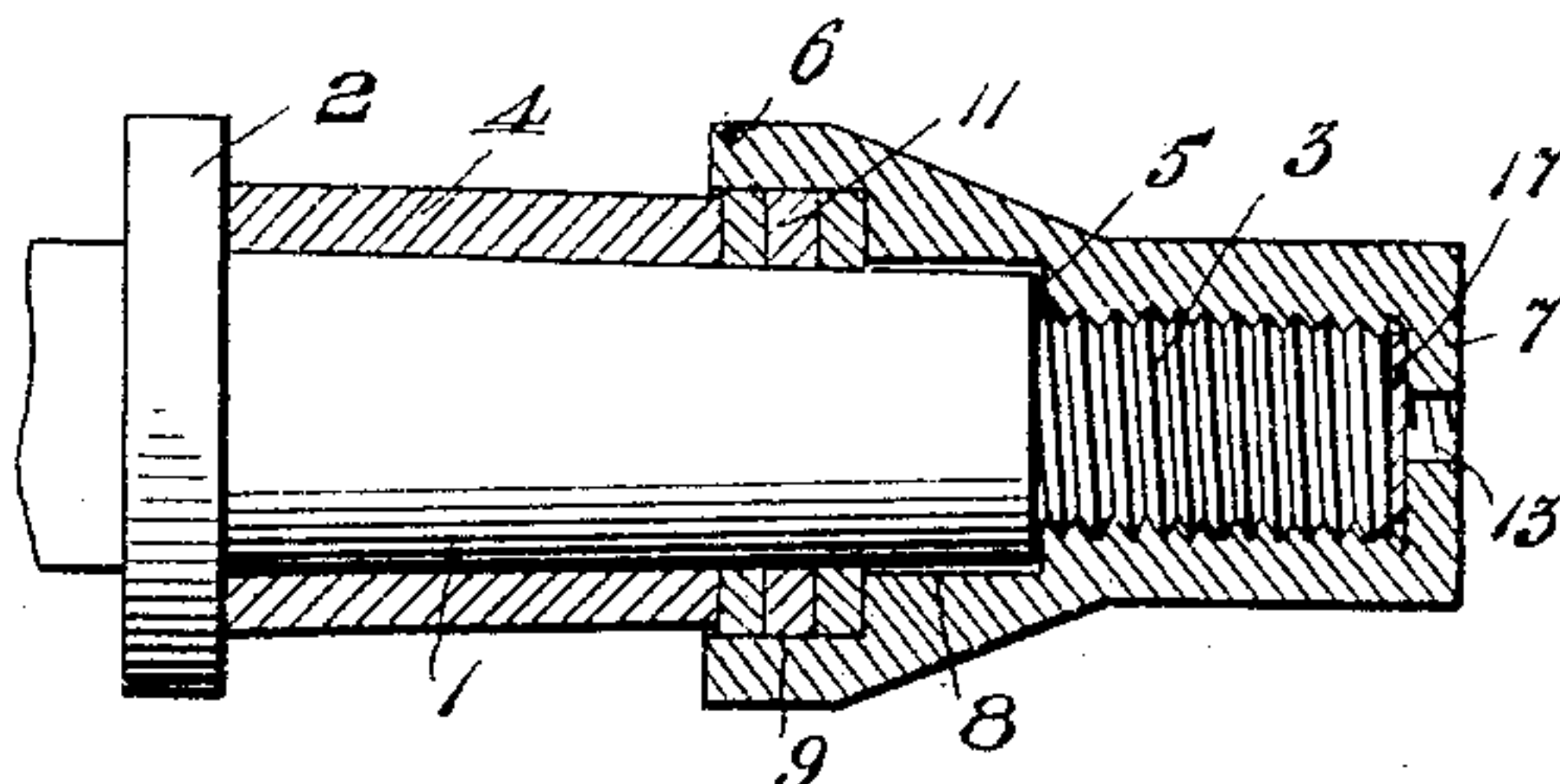


Fig. 3.

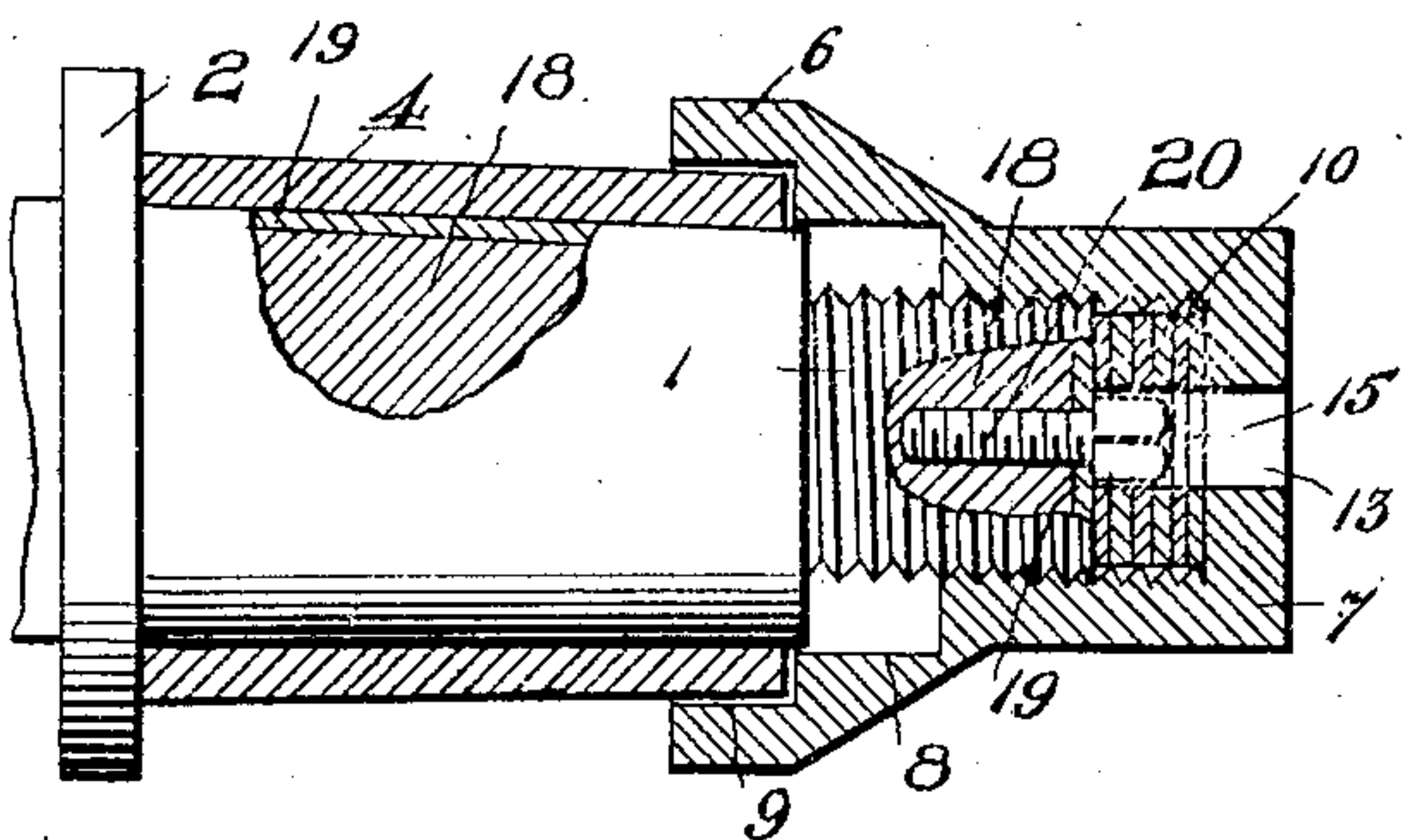


Fig. 4.

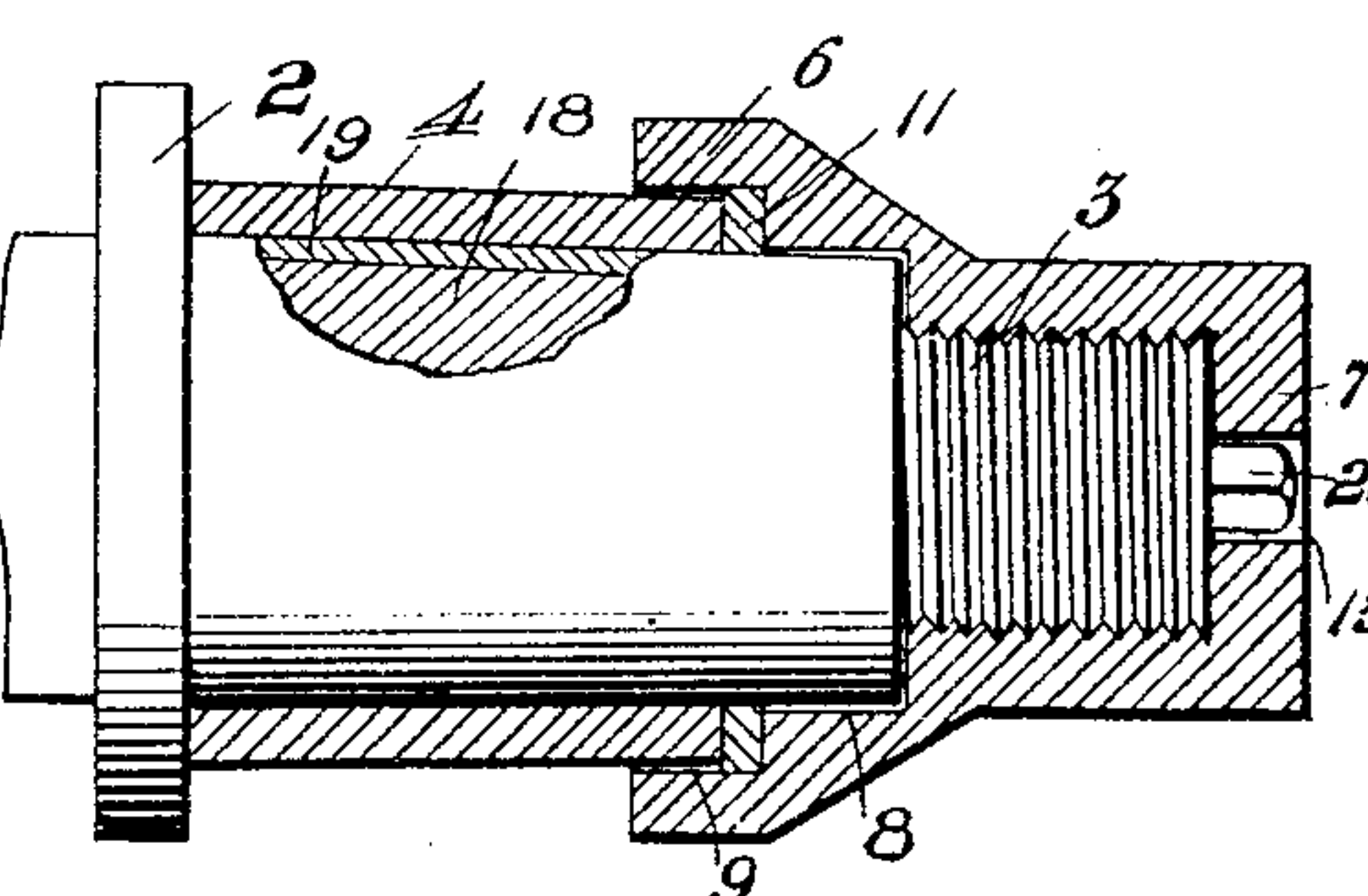


Fig. 5.

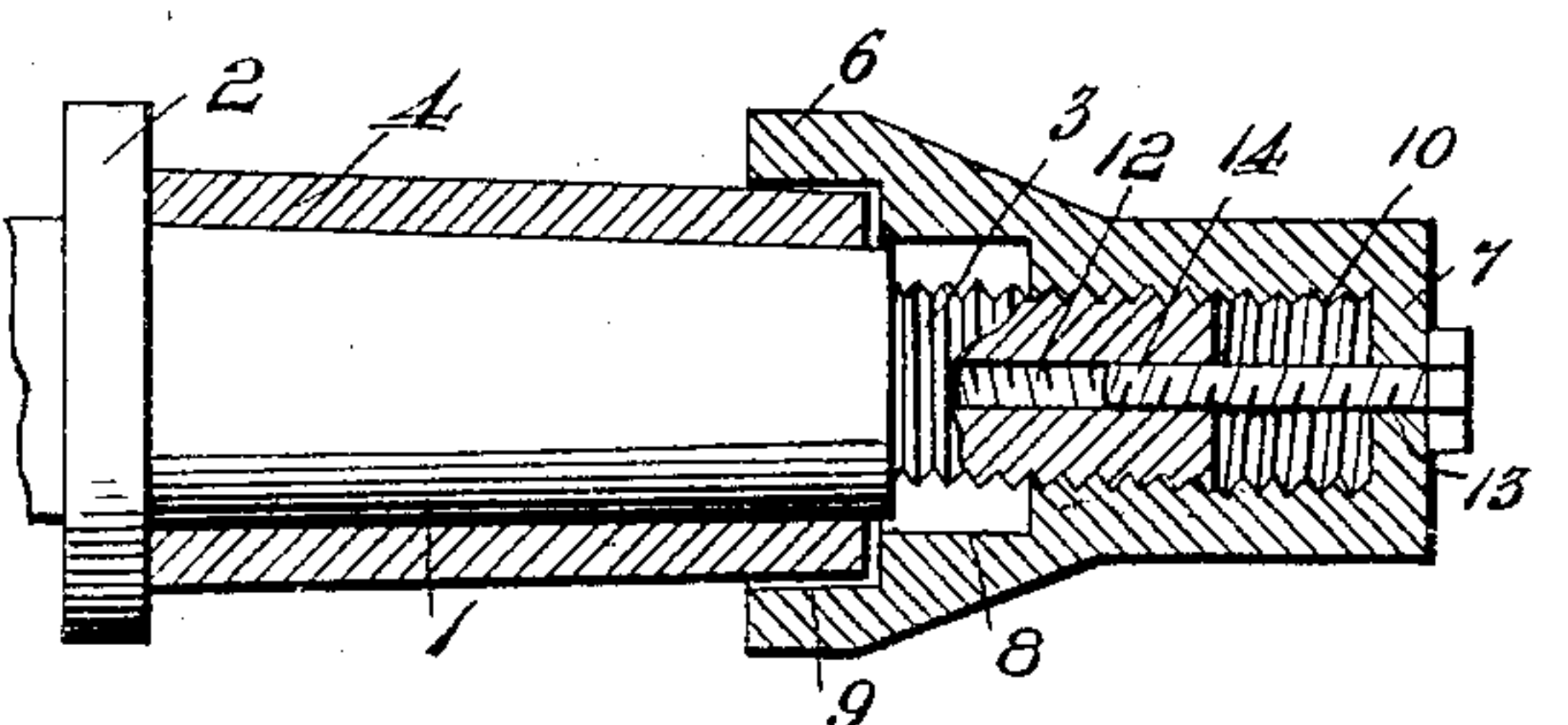
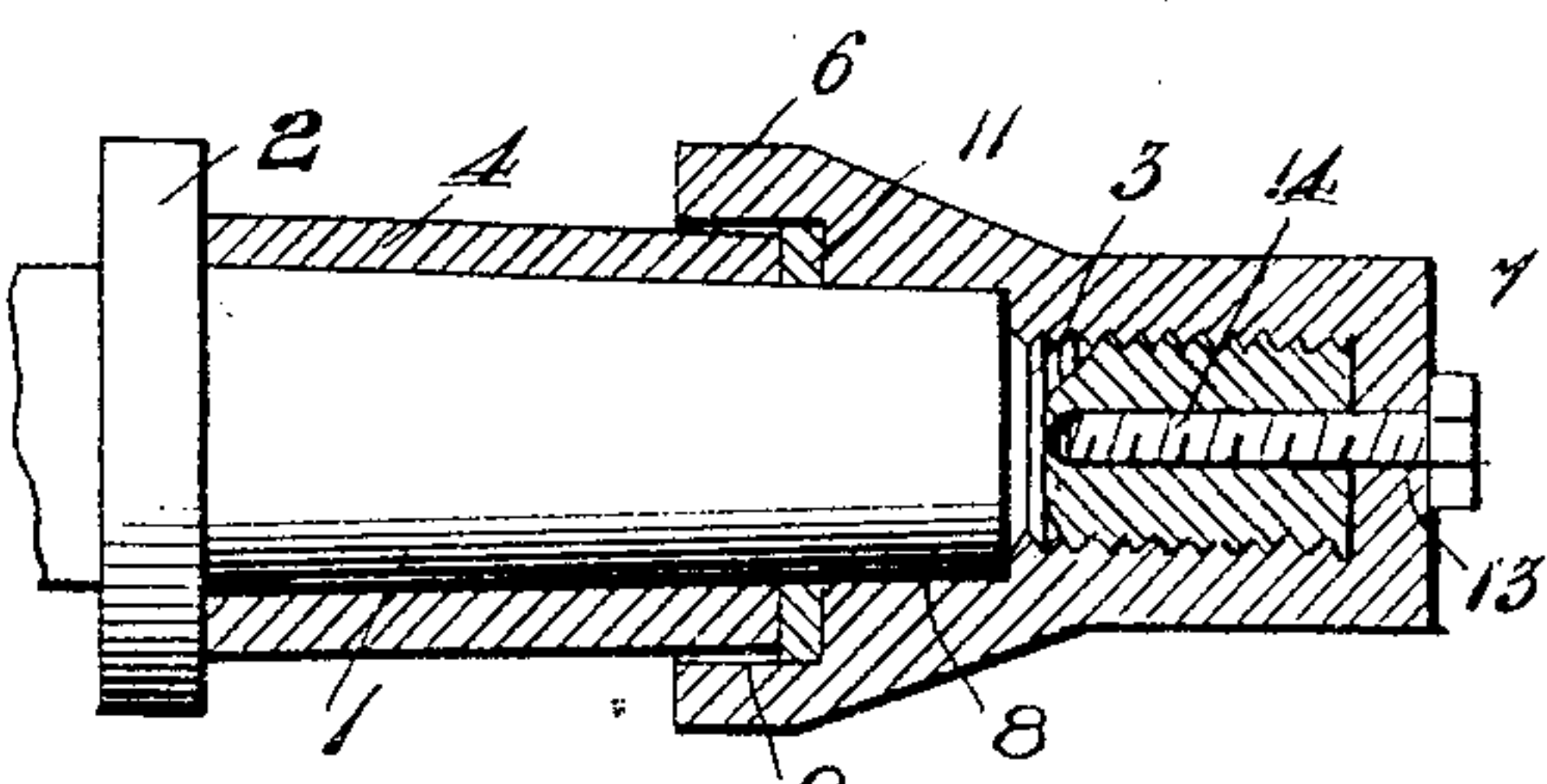


Fig. 6.



Witnesses

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HUB-ATTACHING MEANS.

SPECIFICATION forming part of Letters Patent No. 779,482, dated January 10, 1905.

Application filed August 20, 1904. Serial No. 221,512.

To all whom it may concern:

Be it known that I, JOHN W. KOVALEK, a citizen of the United States, residing at Battlecreek, in the county of Madison and State of Nebraska, have invented a new and useful Hub-Attaching Means, of which the following is a specification.

This invention relates to axle-spindles, and has for its object to provide improved means for securing hubs thereon, so as to prevent rattling of the hubs and to conveniently take up looseness and wear.

Another object of the invention is to provide an improved connection between the hub-attaching nut and the spindle and to arrange for the convenient adjustment thereof when it is desired to shift the hub-attaching nut upon the spindle to take up wear upon the hub-box.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a sectional view of an axle-spindle equipped with the hub-attaching device of the present invention. Fig. 2 is a similar view showing the hub-attaching device adjusted to its inner limit. Figs. 3 and 4 are similar views showing the invention applied in connection with a wooden axle having a metallic skein. Figs. 5 and 6 are similar sectional views showing a modification of the invention.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

Referring first more particularly to Figs. 1 and 2 of the drawings, 1 designates a metallic axle-spindle of the form commonly employed for buggies and similar light vehicles and is provided near its inner end with the usual annular collar or shoulder 2 with its outer end reduced, as at 3. Upon this spindle is fitted

the usual metallic hub-box 4, which engages the collar of shoulder 2 at its inner end and terminates at about the shoulder 5, formed by the reduced spindle portion 3. These parts are common and well known, and therefore may be varied considerably in form without affecting the spirit of the present invention.

In carrying out the present invention the reduced externally-threaded spindle portion 3 is provided at its outer end with a longitudinal opening 12, which is threaded reversely to the direction of the external threads. There is also provided a hollow substantially cylindrical hub-attaching nut 6, which is closed at its outer end by an end wall 7, and from this end wall the interior of the nut is screw-threaded and of a diameter to fit the screw-threaded terminal of the axle-spindle. This screw-threaded portion terminates short of the inner end of the nut, and the inner end portion of the nut beyond the screw-threaded part is enlarged, and in this enlargement the bore of the nut is increased, as at 8, and further terminally increased, as at 9, thereby to produce a stepped series of annular flanges of an internal diameter to loosely embrace the main portion of the spindle and the hub-box 4 when the nut is adjusted inwardly, as in Fig. 2. When the nut is originally fitted in place, the terminal flange 9 embraces the outer end of the hub-box, and the inner flange 8 embraces or is adjacent the outer extremity of the main portion of the spindle, there being a space between the outer extremity of the spindle and the back or rear end of the nut, and in said space is fitted a plurality of fillers 10 in the form of perforate disks, so that when the nut has been screwed inwardly to bind the fillers snugly between the outer extremity of the spindle and back of the nut the latter will be effectually locked against being accidentally backed off from the spindle, and thereby the hub will be held properly in place. The fillers 10, which are preferably of metal, should have sufficient elasticity to be slightly compressed under the tightening of the nut, and thereby capable of expanding to automatically take up any looseness which might occur between the threads of the nut and the threads of the spindle.

To take up wear between the end of the flange 8 and the adjacent end of the hub-box 4, the nut is removed and one or more of the fillers 10 removed, after which the nut is re-
 5 placed upon the spindle and adjusted inwardly to cause the flange 9 to overlap the box 4 to the desired degree, as indicated in Fig. 2 of the drawings. After repeated adjustments there will of course be considerable space be-
 10 tween the outer end of the flange 8 and the adjacent end of the axle-box, and it is proposed to fill up this space by one or more washers 11, so as to prevent the escape of oil and also to prevent the ingress of dust, dirt, and the
 15 like.

The back or outer end of the nut is provided with an opening 13 corresponding in diameter to the opening 12 of the spindle and threaded in correspondence therewith for the
 20 reception of a headed screw 14, as shown in Figs. 5 and 6 of the drawings, the head of the screw lying at the outer side of the nut, and by reason of the reverse direction of the threads of the screw and the external threads
 25 of the reduced portion of the spindle 3 the nut is locked against accidental working off of the spindle. When the screw is employed, the fillers 10 are omitted and wear is taken up by removing the screw 14, then screwing the
 30 nut inwardly a suitable distance, and finally replacing the screw 14 with its head lying in engagement with the outer end of the nut.

When the spindle is provided with the screw-threaded socket 12 and the screw 14 is
 35 omitted, an imperforate filler 16 should be placed against the outer extremity of the spindle, so as to close the open outer end of the socket, and a similar imperforate filler 17 is placed within the back of the nut to close the
 40 perforation 13, thereby to exclude foreign matter from access to the interior of the nut, and to thus prevent accumulations of dirt within the socket 12. By this arrangement the spindle and the nut will always be in con-
 45 dition for the reception of the screw 14 whenever it is desired to employ the same.

Figs. 3 and 4 of the drawings show the adaptation of the present invention to a wooden
 50 axle 18, having a metallic skein 19 fitted thereon and held thereto by means of a screw-threaded fastening 20 piercing the outer closed end of the skein and the adjacent end of the wooden axle. This skein is of the usual form and the other parts of the device are
 55 precisely the same as hereinbefore described, the only difference being in providing a comparatively large opening 21 in the closed end of the nut, so as to permit of the passage there-
 60 through of the head of the screw 20, the fillers 10 of course being provided with central openings approximately corresponding to the size of the opening 21, so as to accommodate the head of the screw 20.

From the foregoing description it will be

understood that when the box 4 has been worn
 65 down to the extent indicated in Fig. 2 and a new full-length box is substituted therefor, as in Fig. 5, there will be considerable space be-
 70 tween the back 7 of the nut and the end of the spindle which was originally taken up by the fillers; but as these fillers have been removed and probably lost or misplaced the threaded
 75 socket 12 and the opening 13 in the back of the nut are made use of to receive the screw 14, so as to lock the nut against turning. It
 80 will now be understood that while the threaded socket 12 and the opening 13 are not included in the means for locking the nut against
 85 turning in Fig. 1, they permit of the application of the screw 14, as in Fig. 5, should the fillers become lost, and therefore the provision
 90 of the threaded socket and the opening in the back of the nut are very important features of the present invention, as they provide for the reception of a screw to lock the nut should
 95 the fillers become lost. Moreover, the opening 13 in the nut permits of the application of the latter to a wooden axle having a metallic skein, as in Figs. 3 and 4, the openings in the fillers accommodating the head of the
 100 fastening 20 in the initial application of the nut and the opening 13 in the back of the nut accommodating the head of the fastening when all of the fillers have been removed, as in Fig. 4.

Having thus described my invention, what I claim is—

1. The combination with a spindle having an externally-threaded part and provided in its end with a threaded longitudinal socket, a
 100 nut fitted to the externally-threaded part of the spindle and adjustable thereon, the outer end of the nut being closed and provided with a perforation in alinement with the socket, centrally-perforated removable fillers filling
 105 the space between the back of the nut and the end of the spindle to produce frictional engagement between said members, and an imperforate filler to close the socket in the
 110 spindle.

2. The combination of a spindle having a threaded terminal provided with a threaded longitudinal socket, a nut adjustable upon the threaded terminal of the spindle and provided in its back wall with an opening in alinement
 115 with the threaded socket of the spindle, and a plurality of loose removable fillers within the nut between its back wall and the spindle and provided with corresponding central open-
 120 ings in alinement with the threaded socket and the opening in the back of the nut.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN W. KOVALEK.

Witnesses:

T. M. MORRIS,

HERMAN HOGNEFL.