A. STARR.

ADJUSTABLE BUSHING.

APPLICATION FILED FEB. 8, 1917.

1,242,066.

Patented Oct. 2, 1917.

Fig. 1.

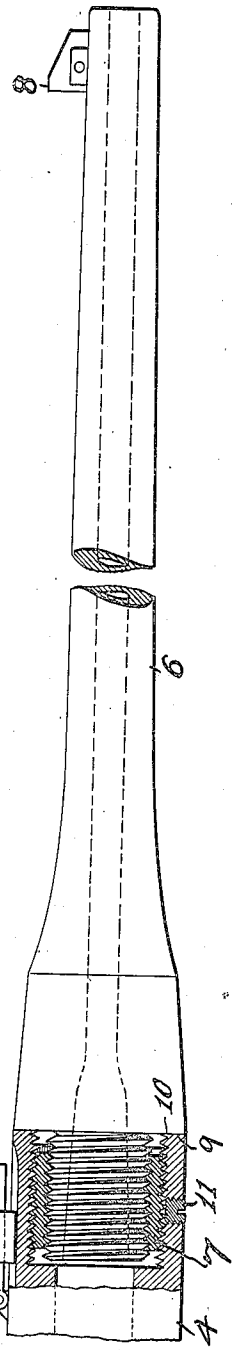


Fig. 3.

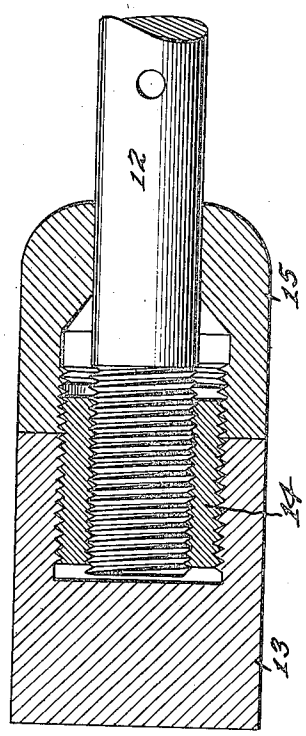
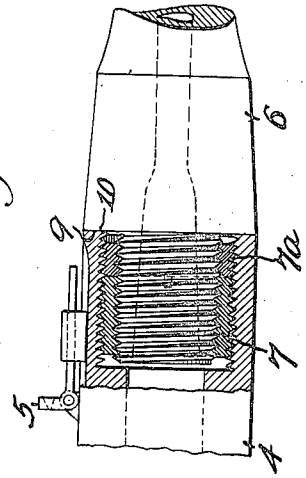


Fig. 2.



WITNESSES

George Taylor

J. E. Larsen

INVENTOR

Adolph Starr

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

ADOLPH STARR, OF NEW HAVEN, CONNECTICUT.

ADJUSTABLE BUSHING.

1,242,066. Specification of Letters Patent. Patented Oct. 2, 1917.

Application filed February 8, 1917. Serial No. 147,308.

To all whom it may concern:

Be it known that I, ADOLPH STARR, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Adjustable Bushings, of which the following is a specification.

My invention relates to the adjustment of rotatably assembled parts of a device as, for instance, the assembly of a gun barrel and body in such manner as to insure that the front and rear sights will be exactly alined, and my main object is to provide means establishing connection between said parts and adjustable relatively thereto to determine the angular positions of given points on said elements when the latter abut.

My invention is fully described in the following specification, of which the accompanying drawings form a part, in which like characters refer to like parts in each of the views, and in which:—

Figure 1 is a view, partly in section, showing a gun barrel assembled by means of my invention;

Fig. 2 is a similar view showing a modification; and

Fig. 3 is a sectional view of my bushing employed in the assembly of parts other than in a gun.

Referring to Figs. 1 and 2, at 4 I have shown the body of a rifle, having a sight 5 thereon, and with which a barrel 6 is assembled by means of a bushing 7 screw threaded exteriorly for engagement with the body and interiorly for engagement with the threaded shank of the barrel, said barrel also having a sight 8 thereon and which it is imperative to have in exact alinement with the sight 5. The threads on the interior and exterior of the bushing are of different pitch as indicated.

In the usual manner of assembling guns the threaded shank of the barrel is in direct engagement with the threaded interior of the body and, when the shoulders 9 and 10 thereof are forced against each other in the screwing of the barrel into place, it frequently occurs that the sights are not in alinement thus requiring additional labor in fitting the barrel to the body.

With my bushing, however, all that is necessary is to note the direction and distance of the desired adjustment, remove the barrel, rotate the bushing accordingly, and return the barrel onto the body. Since the advancing movement of the revolving spiral represented by the internal thread of the bushing, across a given plane when the bushing is adjusted, will necessarily result in the advancing terminal of the spiral assuming a different angular position from that it previously occupied relatively to a given point on the body 4, it follows that in again engaging the barrel with the bushing, the point of engagement of the bushing with the barrel will be at a different angular position relatively to the selected points represented by the sights 5 and 8, than before the bushing was adjusted and the threads of different pitch will have disturbed the relative positions of the barrel and the body. Hence, when the opposed surfaces 9 and 10 again abut, the barrel and body and their respective sights will have a different angular relation from that which existed before the adjustment of the bushing. Thus, the necessary adjustment of the bushing can be made under any angular relation of the sights, in order to aline the latter when the body and barrel are brought to the abutting positions.

While the bushing may have a snug fit in the body, I may also employ a set-screw 11 to insure the bushing against accidental rotation, or I may make the bushing in two parts, Fig. 2, with the member 7^a serving as a lock for the member 7, or various other expedients may be employed.

In Fig. 3 I have shown a rod 12 assembled in a base 13 by means of my bushing 14, said bushing being shown of a length extending beyond the end of the base to receive a cap 15, this showing being merely to indicate one of many uses for the invention other than for guns.

The saving in time in gun assembling through the use of my invention is very great and neither strength nor rigidity are sacrificed by such use and, in view of the certainty of sight alinement, troops may carry extra barrels for instant replacement of damaged barrels while in the field, thus rendering a marked saving with respect to damaged rifles now discarded because of injury to their barrels.

While I have shown three adaptations of my invention, it will be obvious that many other forms thereof may be conceived to meet different conditions, and I reserve the

right to all such forms as come within the spirit of the invention and within the scope of the appended claims.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. The combination of co-axial, relatively rotatable elements and means establishing connection between said elements and adjustable relatively thereto to determine the angular positions of given points on said elements when the latter abut.

2. The combination with relatively rotatable coaxial elements, abutting on each other when assembled, of a bushing interposed therebetween and capable of rotation to optionally determine the angular relation of said elements when abutting.

3. The combination with rotatively coaxial elements, abutting on each other when assembled, of a bushing interiorly threaded to engage one element and exteriorly threaded to engage the other element the threads being of different pitch, said bushing being capable of rotation to vary its position relatively to the respective elements whereby to optionally determine the angular relation of given points on said elements when the elements abut.

4. The combination with rotatively coaxial elements, abutting on each other when assembled, of a bushing interiorly threaded to engage one element and exteriorly threaded to engage the other element the threads being of different pitch, said bushing being capable of rotation to vary its position relatively to the respective elements whereby to optionally determine the angular relation of given points on said elements when the elements abut, and means for locking said bushing in adjusted position.

5. The combination with rotatively coaxial elements, abutting on each other when assembled, of a bushing interiorly threaded to engage one element, and exteriorly threaded to engage the other element the threads being of different pitch, and a cap threaded onto said bushing, said bushing being capable of rotation to vary its position relatively to the respective elements whereby to optionally determine the angular relation of given points on said elements when the elements abut.

ADOLPH STARR.