

(No Model.)

F. D. BLISS.  
AXLE NUT.

No. 427,825.

Patented May 13, 1890.

Fig. 1.

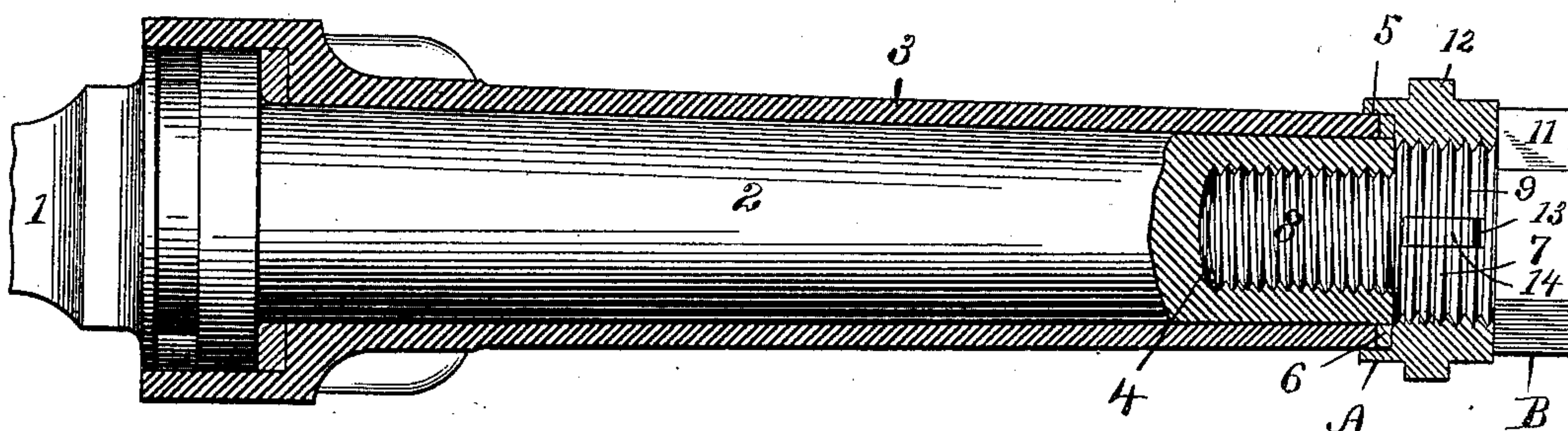


Fig. 2.

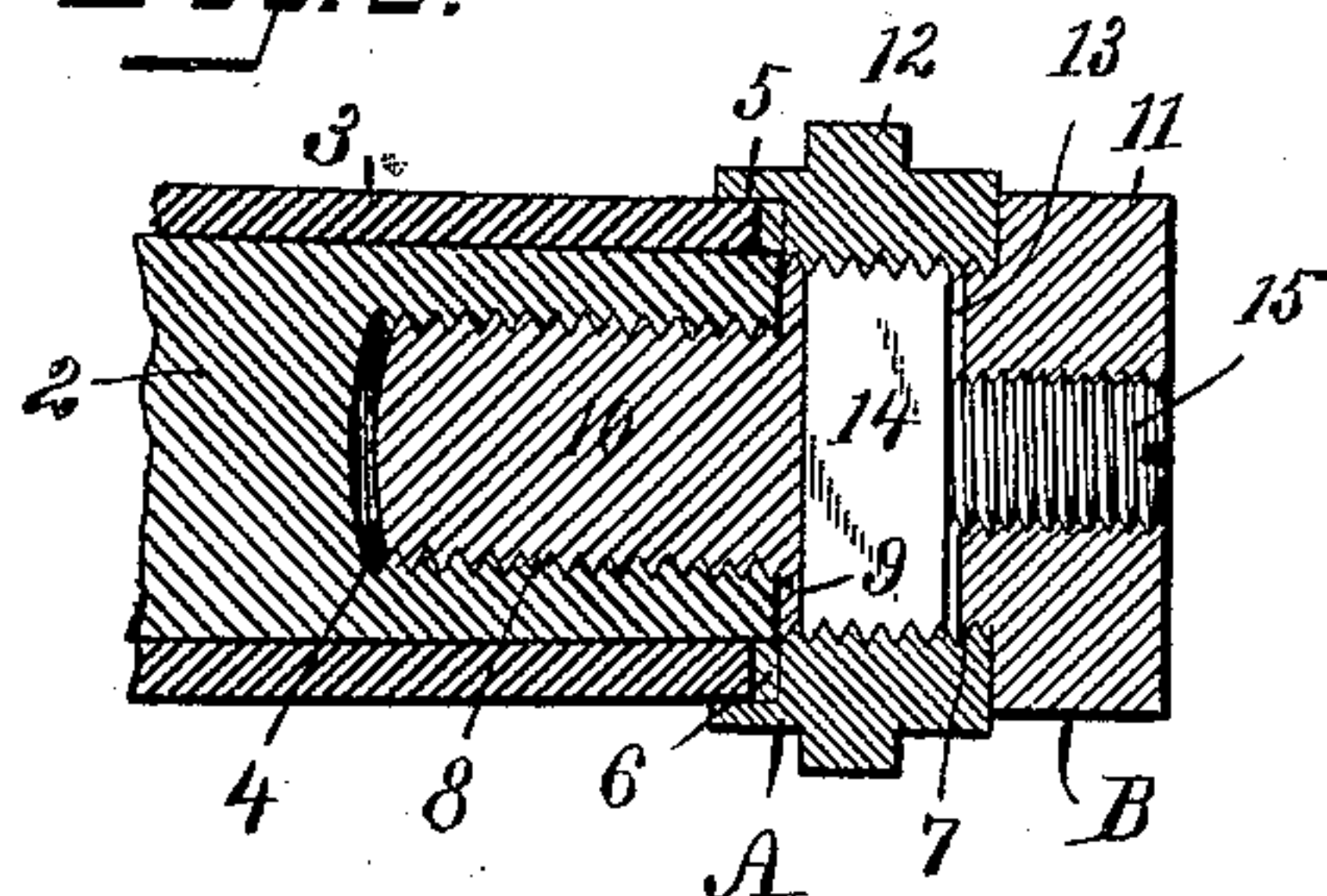


Fig. 3.

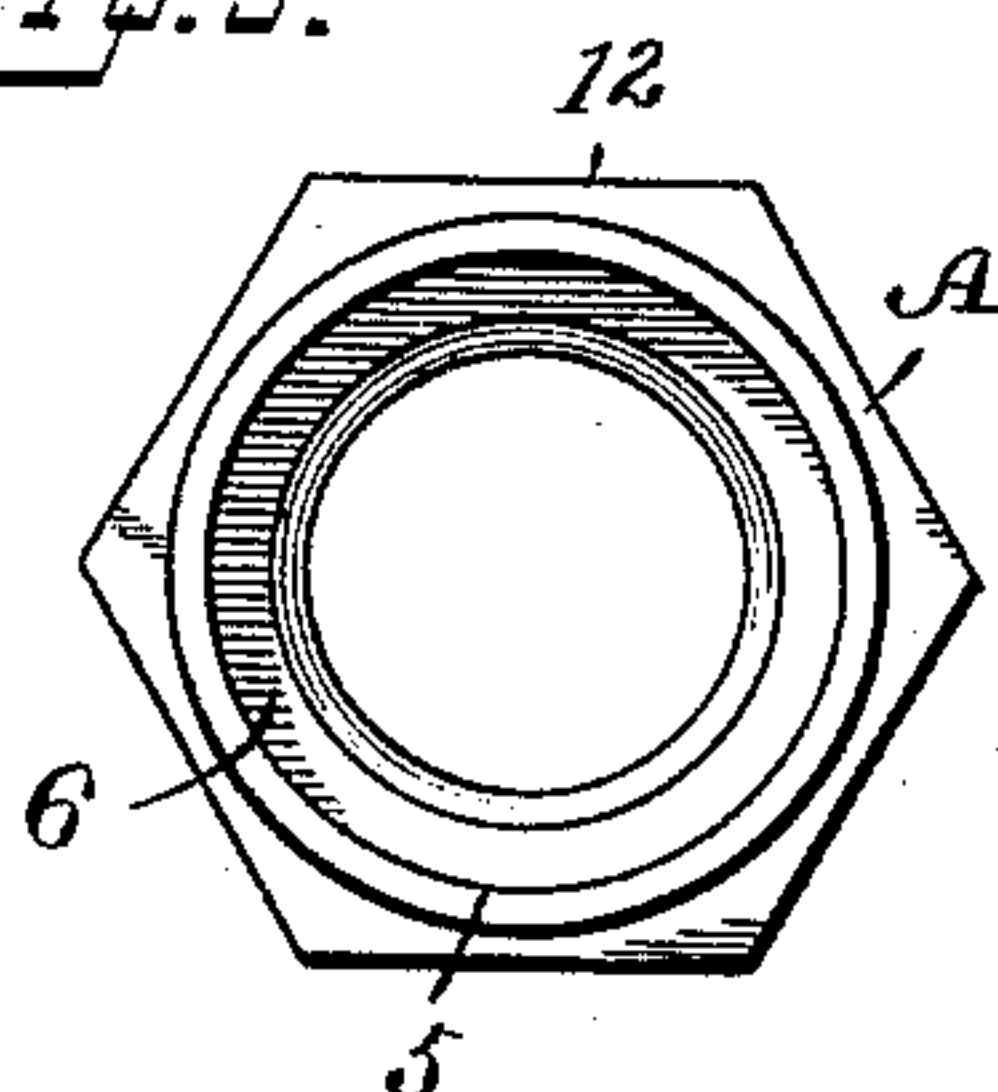


Fig. 4.

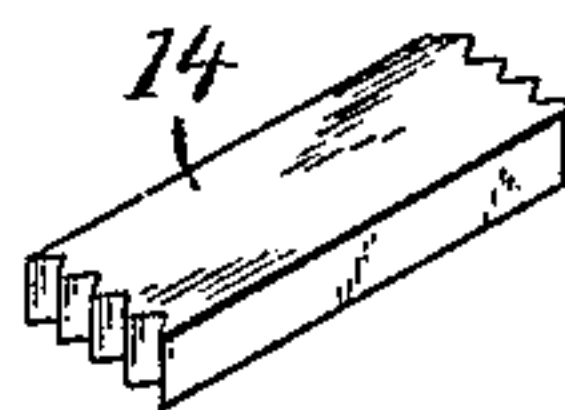


Fig. 5.

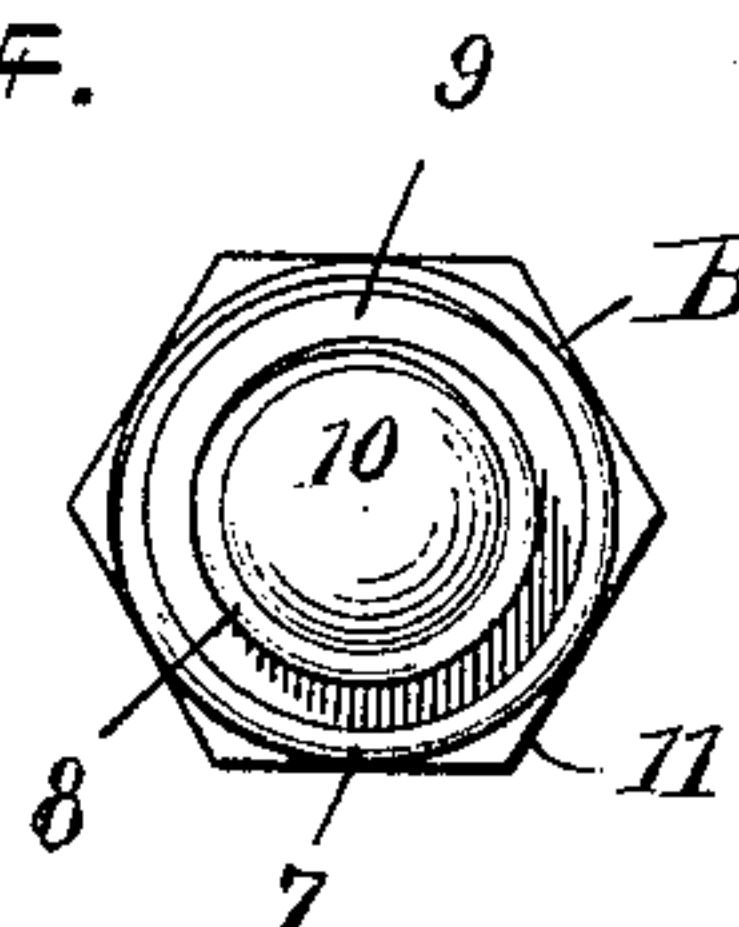
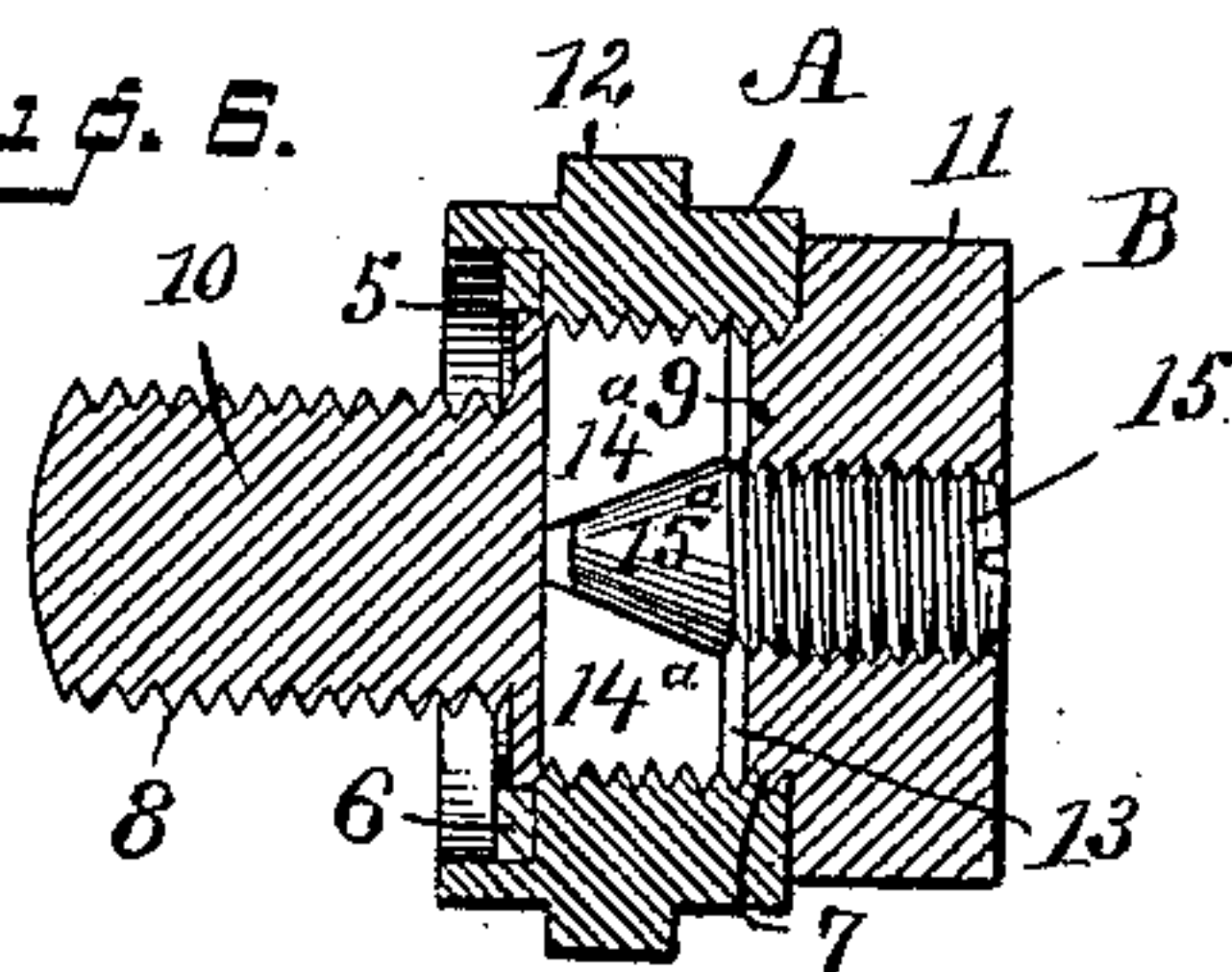


Fig. 6.



WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANCIS D. BLISS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-FOURTH TO SAMUEL T. ROGERS, OF SAME PLACE.

## AXLE-NUT.

SPECIFICATION forming part of Letters Patent No. 427,825, dated May 13, 1890.

Application filed March 17, 1890. Serial No. 344,119. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS D. BLISS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Adjustable Nuts for Carriage-Axles; 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 has for its object to simplify and improve the construction and operation of this class of devices. With these ends in view I have devised the novel axle-nut of which the following description, in connection with the accompanying drawings, is a specification, numbers and letters being used to denote the several parts.

Figure 1 is a longitudinal section of an axle-box and my novel axle-nut, showing the spindle of the axle in elevation, the outer end thereof being broken away to show the construction of the nut; Fig. 2, a longitudinal section of the end of the axle-box, the spindle, and the axle-nut, the plane on which the section is taken being at right angles to that in Fig. 1. Figs. 3 and 4 are plan views of the inner and outer parts of the nut detached; Fig. 5, a perspective of the locking-piece for the outer part of the nut detached; and Fig. 6 is a view corresponding with Fig. 2, illustrating a slightly-different way in which I have carried my invention into effect.

1 denotes the axle proper, 2 the spindle, and 3 the axle-box. The box may be of any ordinary or preferred construction; but the spindle differs from ordinary spindles in that, instead of having a reduced threaded portion at its outer end for engagement by the axle-nut, the reduced portion is entirely dispensed with, and in lieu thereof I provide an internally-threaded recess 4 at the outer end of the spindle. The axle-nut is a compound nut, consisting of two essential parts, the inner of which I designate as A and the outer as B—a locking-piece and a set-screw. Part A is provided with a recess 5 at its inner end, which receives a hardened-steel washer 6, against which the end of the axle-box lies in use, as

clearly shown in Figs. 1 and 2, both the spindle and the axle-box extending a short distance into part A. The exterior of part A, or a portion of it, as shown in the drawings, is made polygonal, (see 12,) preferably hexagonal, as shown, to adapt it to receive an ordinary carriage-wrench when it is required to remove the nut from the spindle. This part is also provided with a reverse female screw-thread, which is engaged by a male thread 7 on part B. The inner end of part B is reduced in diameter and is provided with a male thread 8, which engages the thread in recess 4 at the outer end of the spindle.

For convenience in description I will designate the portion of part B having thread 7 as 9 and the portion having thread 8 as 10. At the outer end of part B is a polygonal portion 11, preferably made hexagonal, as shown, for engagement by a suitable wrench in adjusting, as will presently be explained.

13 denotes a transverse recess through portion 9 of part B, and 14 a locking-piece lying in said recess. The ends of the locking-piece are threaded to correspond with thread 7.

15 denotes a set-screw in the outer end of part B, the inner end of which bears against the locking-piece and acts, when tightened up, to press the threads at the ends of said locking-piece against the female thread of part A, thereby locking parts A and B securely together, so that in use part A can be removed from the spindle and turned back to place without the slightest danger of changing the adjustment of part B. In Fig. 6 I have shown the locking-piece as made in two parts, which I have designated as 14<sup>a</sup>. The inner ends of these parts are inclined outward, as clearly shown, and are engaged by the inner end of set-screw 15, which in this form is made coneshaped, as at 15<sup>a</sup>, the action in locking parts A and B together being precisely the same as in the other form.

The operation is as follows: In adjusting the nut set-screw 15 is loosened to release the locking-piece and part A is turned to move it outward on part B—that is, toward the right. Part B is then turned by applying a wrench to polygonal portion 11 until part 10 thereof is firmly seated in the threaded re-



cess in the end of the spindle. Part A is then turned toward the left until the end of the spindle bears against washer 6—that is to say, until the washer and the end of the spindle are closely in contact, so as to prevent lost motion, but at the same time permitting the axle-box to turn freely on the spindle. Set-screw 15 is then tightened up, causing the threads of the locking-piece to engage the female thread of part A, thereby locking parts A and B firmly together. Parts A and B do not require to be adjusted relatively to each other, nor does the set-screw require to be disturbed until there has been sufficient wear upon the end of the axle-box to require tightening up to take up lost motion.

In ordinary use the compound nut is removed by applying an ordinary carriage-wrench to polygonal portion 12 and turning it on and off in the usual manner. The operation of the form illustrated in Fig. 6 is precisely the same.

Having thus described my invention, I claim—

1. An axle-nut consisting of a part A, having a female thread, and a part B, having a male thread to engage part A, said part B being provided with a transverse recess and having therein a locking-piece whose ends are threaded to correspond with the thread of part B, and a set-screw, the inner end of which engages the locking-piece and acts to force the threads at the ends thereof against the thread of part A, so that when parts A and B have been adjusted relatively to each other they may be locked firmly in position by tightening up the set-screw.

2. An axle-nut consisting of a part A, having a female thread, and a part B, having a male thread to engage part A and a thread to engage the spindle, said part B being provided with a transverse recess and having therein a locking-piece whose ends are threaded to correspond with the thread of part B, and a set-screw, the inner end of which engages the locking-piece and acts to force the threads at the inner ends thereof against the thread in part A, as and for the purpose set forth.

3. The combination, with a carriage-spindle having at its outer end an internally-threaded recess, of a nut having a portion provided with a thread to engage said recess, an internally-threaded adjustable portion adapted to engage the outer end of the spindle, a locking-piece having threads engaging the adjustable portion, and a set-screw engaging the locking-piece, whereby the parts may be locked in position after adjustment.

4. In an axle-nut, part A, having a female thread, in combination with a part B, having a male thread to engage therewith and a male thread to engage the spindle, said part B having a transverse recess and a locking-piece threaded at its ends to correspond with the thread of said part, and a set-screw engaging the locking-piece to force the threads thereof into engagement with part A, as and for the purpose set forth.

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

FRANCIS D. BLISS.

Witnesses:

A. M. WOOSTER,  
ARLEY I. MUNSON.