

No. 634,090.

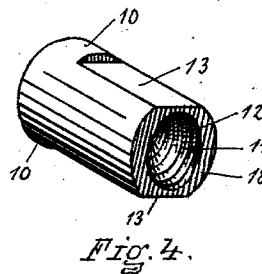
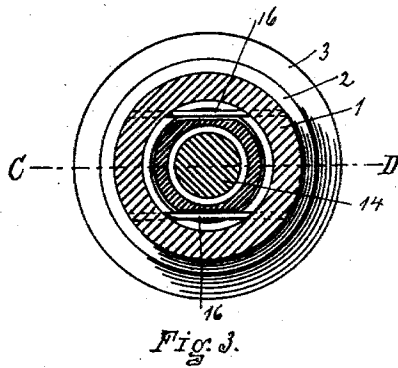
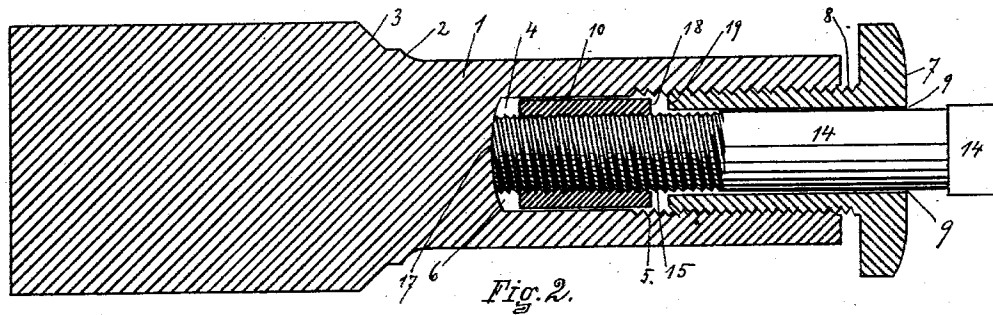
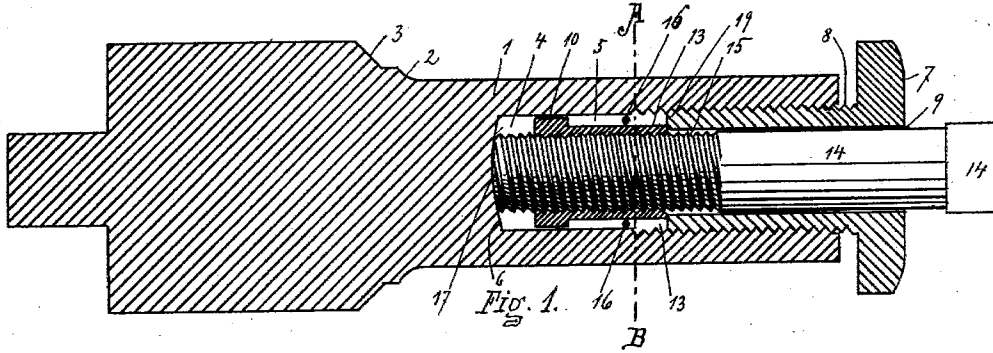
Patented Oct. 3, 1899.

F. G. MOTT.
CONE ADJUSTER AND NUT LOCK.

(Application filed Feb. 23, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES
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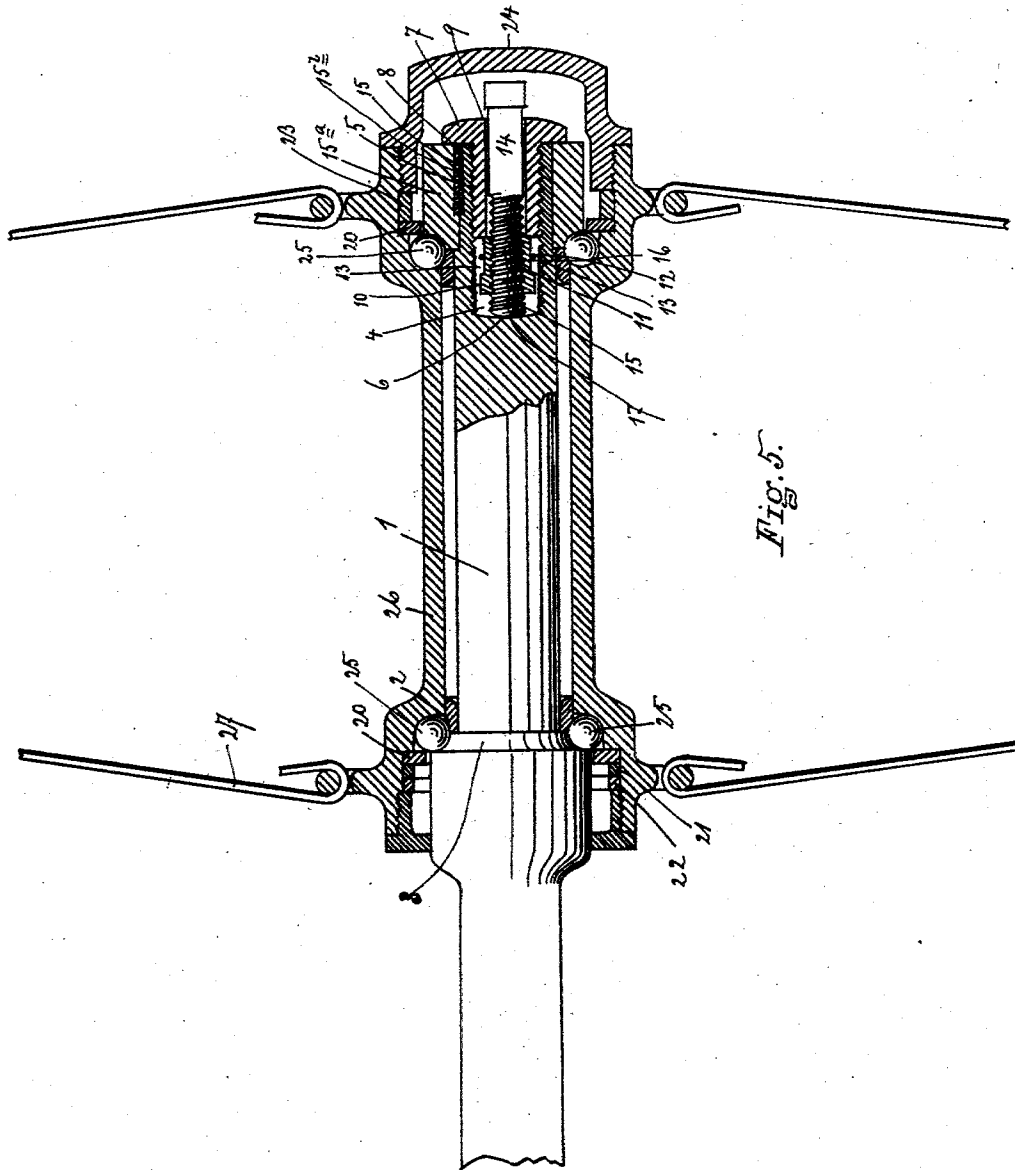
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UNITED STATES PATENT OFFICE.

FREDERICK G. MOTT, OF UTICA, NEW YORK.

CONE-ADJUSTER AND NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 634,090, dated October 3, 1899.

Application filed February 23, 1899. Serial No. 706,459. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. MOTT, a citizen of the United States of America, and a resident of Utica, Oneida county, New York, have invented certain new and useful improvements in Cone-Adjusters and Nut-Locks, of which the following is a specification.

My invention relates to a cone-adjuster and nut-lock; and it consists in the mechanism hereinafter pointed out and claimed.

In the drawings, Figure 1 is a vertical central section of a ball-bearing axle with my improved adjuster and nut-lock in position. Fig. 2 is a central section of the same on line C D. Fig. 3 is a cross-section on line A B of Fig. 1. Fig. 4 is a perspective view illustrating details of a thimble. Fig. 5 represents a vertical central section of a hub with my improved cone-adjuster and nut-lock applied, broken lines indicating parts removed, portions of the axle being shown in full lines.

In rubber-tire vehicles and light road-wagons where ball-bearings are used it is important to provide some effective as well as delicate means for adjusting the bearings of the parts, so that the parts may be held in the given position to which they are adjusted, and when in this position they may be locked to prevent the parts from working loose.

Having described in general terms some of the salient features of my invention and its application, I will now proceed to describe it more minutely, in which similar numerals refer to corresponding parts in the several views.

In the drawings, 1 represents a wheel-axle. 2 and 3 represent the ball-seats. In the instance shown in Fig. 5 a portion of the ball-seat is formed by sliding a metal ring on the axle. The outer end of the axle is provided with a central opening 4 in its length. The opening or tubular portion of the axle has suitable screw-threads 5 from the outer end inwardly, forming at the bottom of the opening shoulder 6. Into the outer end of the central opening 4 in the end of the axle I fit a hollow screw-threaded adjuster 7. The screw-threaded adjuster is provided on its extension 8 with suitable screw-threads corresponding with the screw-threads in the opening in the axle. The adjuster has a longitudinal open-

ing 9 through its length, the opening being preferably smooth. The adjuster 7, provided with screw-threads registering with the threads in the tubular opening in the axle, permits the adjuster to be turned down by a wrench to the nicety of adjustment desired, so that the wheel and its various bearings can be made to cooperate in running loosely and yet tightly, which constitutes the essence of a ball-bearing vehicle.

For locking and securing the parts I provide tubular screw-threaded non-rotating thimble 10, Fig. 4. The tubular opening 11 through the same is provided with screw-threads 12. On the inside of the non-rotating thimble, for preventing the thimble from rotating, I preferably cut the portion of this circular body into flat form 13 on opposite sides of the thimble. Any other method of keeping the thimble from rotating may be employed, the intent being to keep the thimble from rotating and yet permit it to move in the direction of the length of the axle-opening. The thimble is placed loosely in the tubular opening in the ends of the axle at the bottom of said openings. In order to lock the adjuster 7 when it has received the requisite adjustment, I provide set-screw 14, which is inserted through opening 9 in the adjuster. The screw-threads 15 on the end of set-screw 14 are turned and screwed into opening 12 in the thimble. By turning the set-screw in the thimble the latter is drawn up into contact with the end face of the adjuster, thereby locking the parts together. For preventing collar 15^a from assisting in working loose from the adjuster 7 I key collar 15^a to the end of the axle at 15^b. The thimble 10 in this instance is prevented from rotating in the bottom of the axle-opening by pins 16 16, Figs. 1, 3, and 5, which in this instance pass through suitable openings in the axle, so that the pin will pass over the flat surfaces 13 13 of the thimble on either side, the thimble being provided at its sides with cut-away surfaces, which permits its end movement when set-screw 14 is turned in the thimble, so that the end 17 of the set-screw rests against the bottom of the tubular opening in the axle. By turning the set-screw the thimble is drawn into locking contact with the face 18 of the

thimble by bringing the end thereof into contact with the end 19 of the adjuster and when sufficiently tightened will hold adjuster 17 in a fixed position to which it may have been
5 adjusted, so as to give the appropriate bearing to the wheel for securing the best results.

For maintaining the balls in their seat I provide band 20, slipped over the axle in one instance and over the collar on the axle in
10 the other, and for excluding the dust from the parts I provide leather washers 21 22, Fig. 5, and at the opposite end I provide felt packing 23, the parts being held together by screw-threaded cap 24, so that balls 25 will
15 carry the load, and by the arrangement of the adjusting and locking mechanism the parts may be adjusted and locked into the desired degree of tension for securing most satisfactory results in a ball-bearing axle. The hubs
20 26 are provided with ordinary metal spoke 27 and are arranged in common form in ball-bearing axles and will be sufficiently understood without further explanation.

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

1. An axle provided with a screw-threaded opening in its ends, the combination with the tubular screw-threaded non-rotating
30 thimble in the axle-openings, a set-screw for engaging the thimble and moving the same in the direction of the length of the opening, for the purposes stated.

2. An axle having longitudinal screw-threaded openings from the outer ends thereof, in combination with a tubular screw-
35 threaded adjuster, a non-rotating screw-threaded thimble in the openings arranged to move in the direction of the length of the

openings, and a set-screw, for the purposes stated. 40

3. An axle provided with openings from its outer end in the direction of its length, a tubular movable adjuster working in the axle-opening, a non-rotating tubular thimble arranged to move in the direction of the length
45 of the axle-opening in the bottom of the axle-opening and a set-screw for moving the thimble into contact with the adjuster for locking the parts, substantially as set forth.

4. A tubular axle provided with screw-
50 threads in the tube, in combination with a tubular screw-threaded adjuster, a movable non-rotating screw-threaded thimble and a set-screw, for the purposes stated.

5. A tubular axle having internal screw-
55 threads at its ends, a tubular screw-threaded adjuster, in combination with a screw-threaded thimble arranged to move in the direction of its length and mechanism for preventing the rotation of the thimble and the set-screw
60 operating the thimble, for the purposes stated.

6. A tubular axle provided with screw-
65 threads in the tubular ends of the axle, in combination with a tubular screw-threaded adjuster, a tubular screw-threaded thimble having one or more of its outer surfaces flattened, a pin for preventing the thimble from rotating, and a set-screw for operating the
thimble, for the purposes stated.

Signed by me, at Utica, New York, this 28th
70 day of January, 1899.

FREDERICK G. MOTT.

Witnesses:

C. HERBERT WILSON,
PETER P. SMITH.