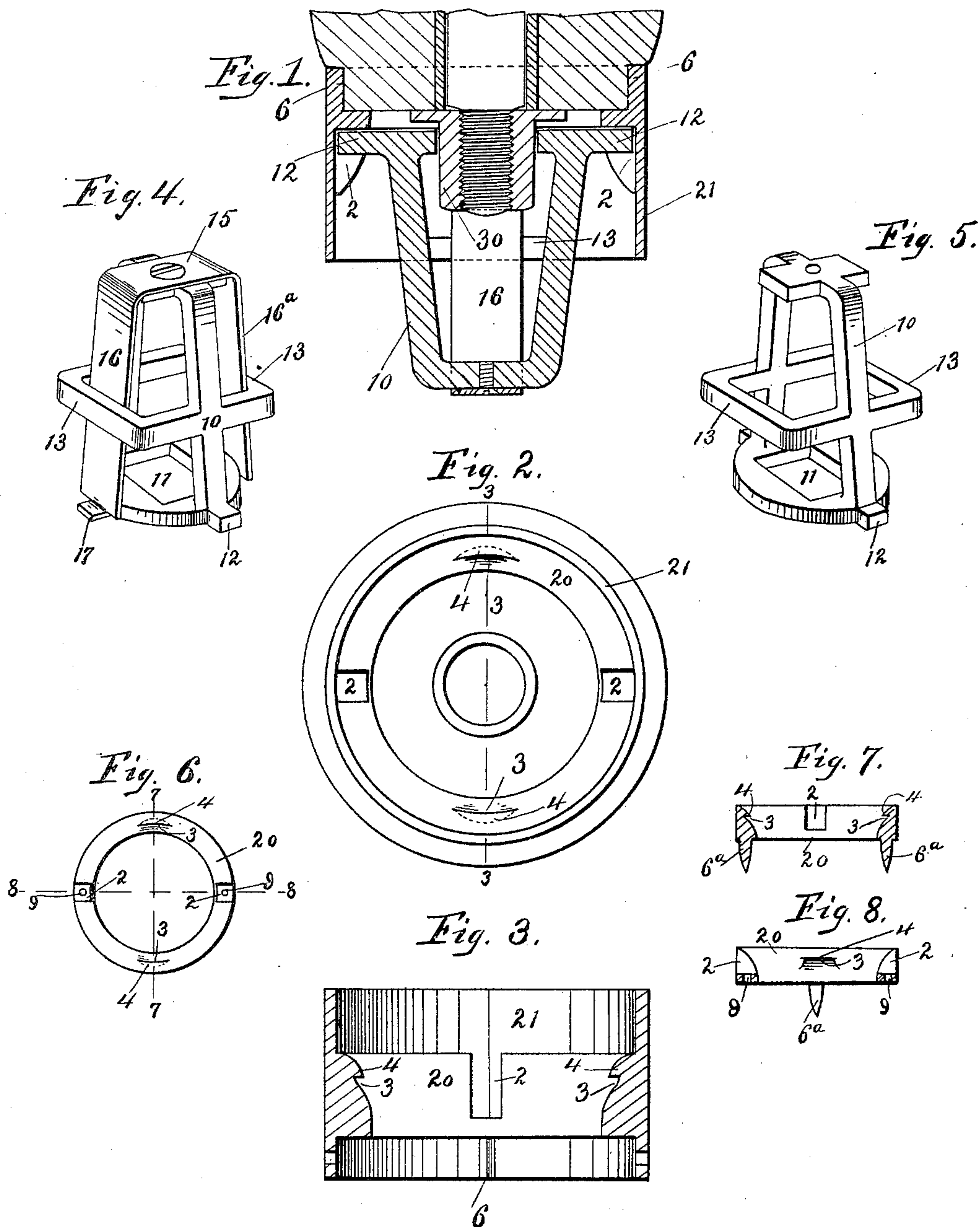


(No Model.)

C. A. CARMAN.  
VEHICLE WRENCH.

No. 453,576.

Patented June 2, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CLARENCE A. CARMAN, OF PATERSON, NEW JERSEY.

## VEHICLE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 453,576, dated June 2, 1891.

Application filed October 23, 1890. Serial No. 369,120. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE A. CARMAN, of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Vehicle Nut-Locks or Wrenches, of which the following is a full, clear, and exact description.

My invention relates to appliances of the class employed to remove axle-nuts from the threaded ends of the axle, the object of my invention being to produce a simple, cheap, and durable wrench or lock which may be readily adjusted to position, and which when in use will hold the nut so that it will not be liable to take up sand or other matter which would be apt to injure the axle-bearing.

To the end above mentioned my invention consists, essentially, of a ring formed with open-mouthed recesses adapted to receive laterally-extending projections that are carried by the wrench proper, said ring being also formed with overhung recesses adapted to receive lateral projections that are formed upon or carried by spring-arms, which arms are in turn carried by the wrench or lock, all as will be hereinafter more fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar reference-figures indicate corresponding parts in all the views.

Figure 1 is a central sectional view of my improved vehicle nut-lock or wrench, the same being represented as it appears when applied for use. Fig. 2 is a face view of a hub adapted for use in connection with my lock or wrench. Fig. 3 is a sectional view of the hub-band, the view being taken on line 3 3 of Fig. 2. Fig. 4 is a perspective view of the lock or wrench. Fig. 5 is a perspective view of the lock or wrench, the spring-arms being removed. Fig. 6 is a face view of a modified form of ring. Fig. 7 is a cross-sectional view on line 7 7 of Fig. 6, and Fig. 8 is a cross-sectional view on line 8 8 of Fig. 6.

In the drawings, 10 represents a frame formed with a socket 11, laterally-extending projections 12, and retaining cross-bars 13. To the upper portion of the frame 10 there is secured a spring-strip 15, said strip being bent to form arms 16 and 16<sup>a</sup>, which said arms are

provided with laterally-extending projections 17.

The above construction is my preferred form of lock or wrench; but I desire it to be understood that many changes in construction might be made without departing from the spirit of my invention.

The lock or wrench above described is used in connection with a band or ring 20, which may be made integral with the hub-band 21, as shown in Figs. 1, 2, and 3, or the ring 20 may be made distinct from the hub-band 21 and be arranged for connection with the hub proper, such a construction being shown in Figs. 6, 7, and 8; or, if desired, the ring could be secured to the hub-band 21. In any event I should prefer to form the ring 21 with recesses 2, adapted to receive the lateral projections 12 of the frame 10, and with other recesses 3, that are overhung by lips 4, said recesses 3 being of proper form to be readily entered by the spring projection 17.

In applying the lock or wrench the vehicle-nut 30 enters the socket 11, the spring-arms 16 and 16<sup>a</sup> being at this time grasped and pressed inward, so that the projection 17 will clear the lips 4 as the projections 12 enter the recesses 2. After the projections 12 have entered the recesses 2 the pressure upon the spring-arms is relaxed and their projections 17 are allowed to enter the recesses 3 beneath the lips 4, whereby the lock or wrench is held from displacement. After the lock or wrench has been applied as just described the nut 30 may be removed by turning the wheel in the proper direction, and then the wheel may be removed from the axle, and as the wheel is so removed the nut will be held in position and will not be liable to take up grit and dirt. To return the nut to its normal position, the wheel is again adjusted to place upon the axle and turned in an opposite direction until the nut is home.

To relieve the devices employed to secure the band 21 to the hub, I prefer to form said band with one or more inwardly-extending projections 6, which enter the peripheral face of the hub.

In Figs. 6, 7, and 8 I illustrate a construction adapted to hubs that are supplied with bands 21, whereas the construction illustrated



in Figs. 1, 2, and 3 is more especially designed for application to new hubs.

In the construction shown in the last three figures of the drawings the recesses 2 are formed, as are also the overhung recesses 3, in rings that are separate from the bands 21. In this case the rings are made with projections 6<sup>a</sup>, which enter the outer end of the hub and take up any torsional strain, the rings being held from displacement by screws which are passed through apertures 8, located, preferably, as shown in the drawings.

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

1. As a new article of manufacture, a ring adapted for connection to a vehicle-hub and formed with open-mouthed recesses and with overhung recesses, substantially as described.
2. The combination, with a ring adapted for connection with a vehicle-hub and formed with open-mouthed recesses and with over-

hung recesses, of a lock or wrench having projections adapted to enter the open-mouthed recesses, and with spring-arms which carry projections adapted to enter overhung recesses, substantially as described.

3. The combination, with a frame formed at its inner end to receive a nut and having laterally-extending projections at said inner end, of spring-arms secured to the wrench and provided with laterally-extending projections, substantially as described.

4. The combination, with a frame formed at its inner end to engage a nut and provided with lateral projections and with cross-bars, of spring-arms carried by the frame, extending within the line of the cross-bars and provided with laterally-extending projections, substantially as described.

CLARENCE A. CARMAN.

Witnesses:

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ARTHUR L. KENT.