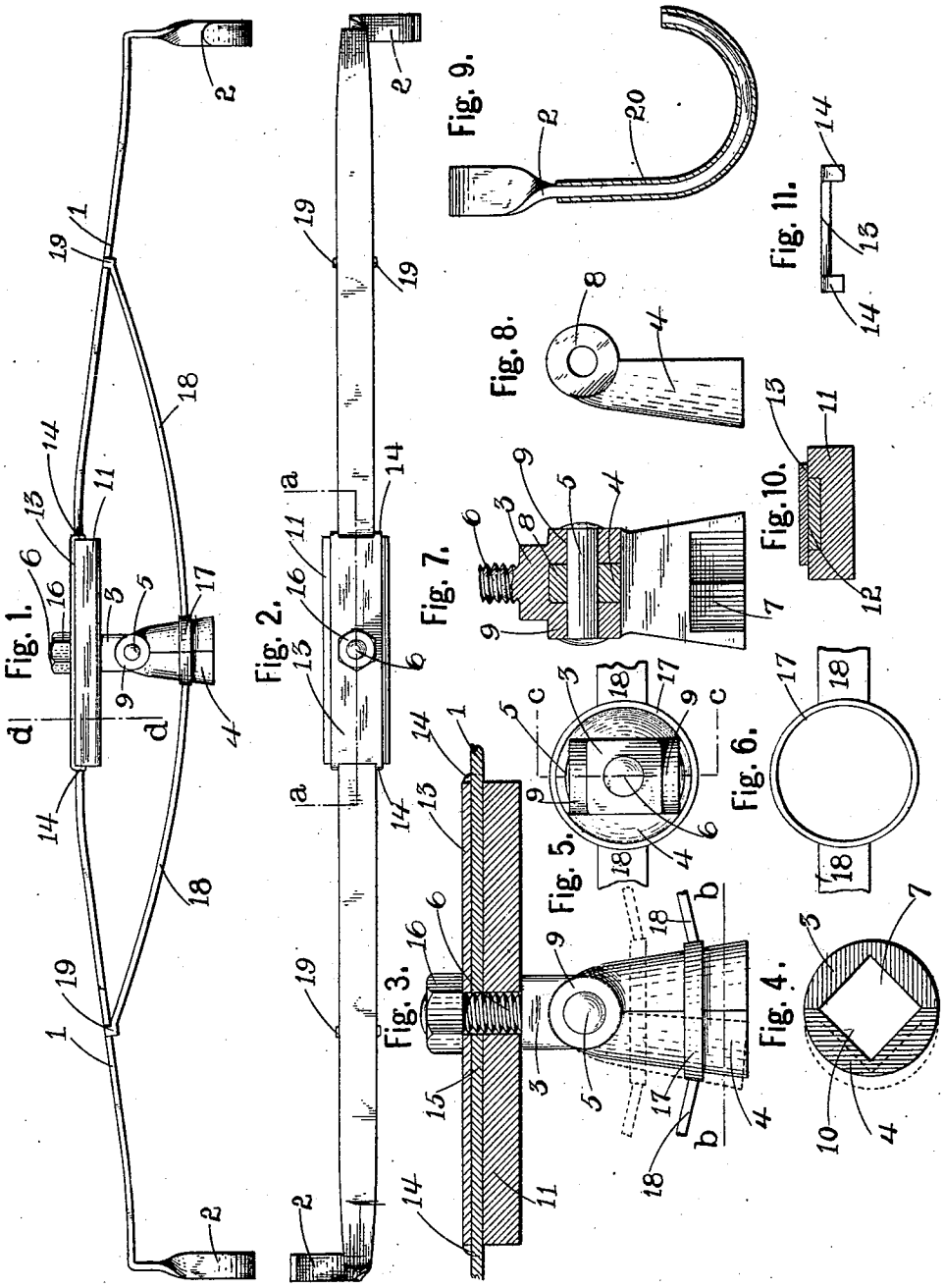
No. 676,661. Patented June 18, 1901.

E. MURPHY.

WAGON WRENCH.

(Application filed Mar. 8, 1901.)

(No Model.) 2 Sheets—Sheet 1.



Witnesses.

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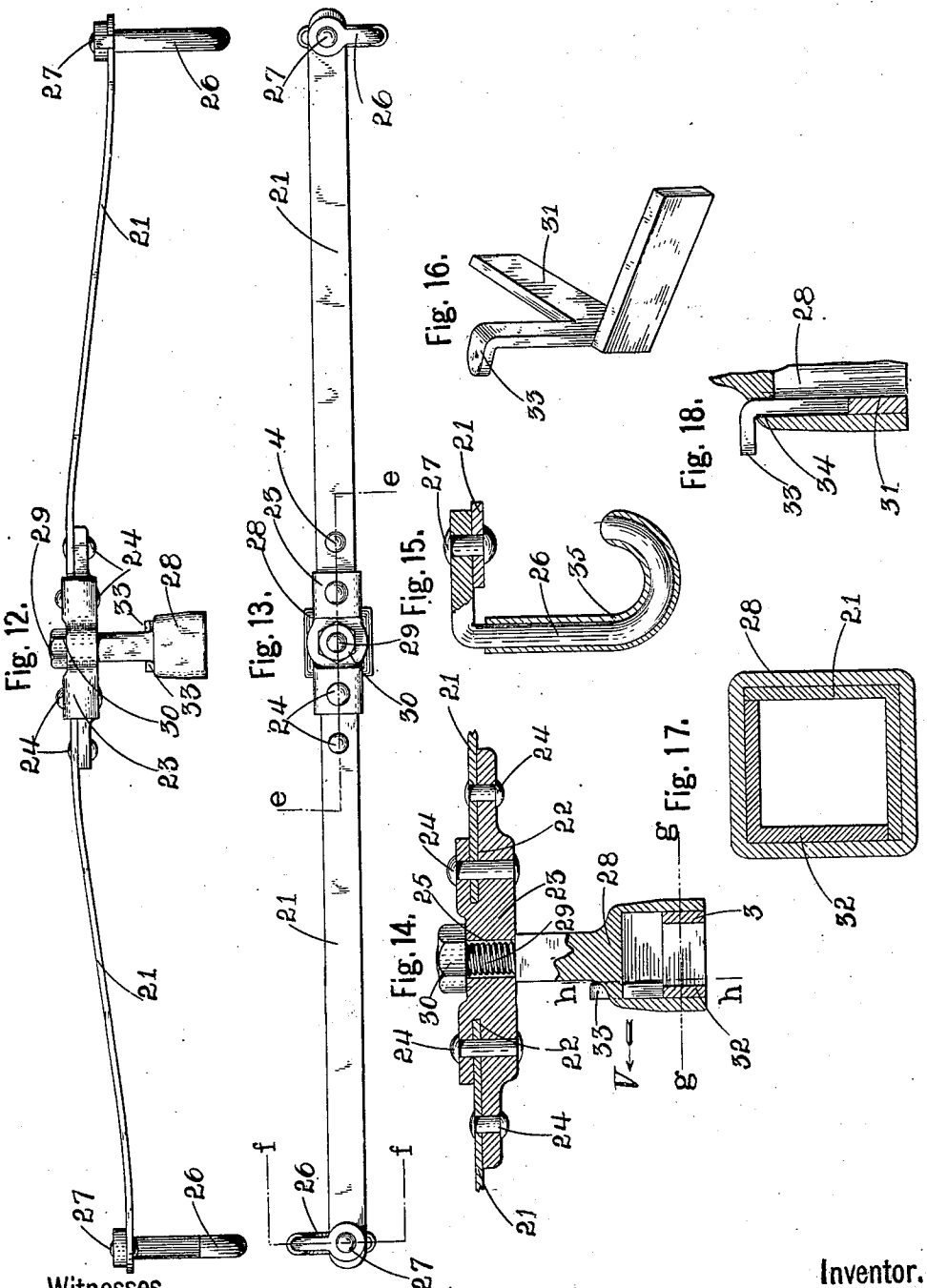

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UNITED STATES PATENT OFFICE.

EDWARD MURPHY, OF DEPEW, NEW YORK.

WAGON-WRENCH.

SPECIFICATION forming part of Letters Patent No. 676,661, dated June 18, 1901.

Application filed March 8, 1901. Serial No. 50,318. (No model.)

To all whom it may concern:

Be it known that I, EDWARD MURPHY, a citizen of the United States, residing at Depew, in the county of Erie and State of New York, have invented certain new and useful Improvements in Wagon-Wrenches, of which the following is a specification.

My invention relates to an improved device for setting wheel-nuts; and the main object of the invention is to provide the device with a simple arrangement for changing the size of the socket to fit the nut that can be varied to accommodate the device to nuts of different sizes.

It also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved device. Fig. 2 is a top plan view of my improved device. Fig. 3 is an enlarged fragmentary view, partially in section, on line *a a*, Fig. 2. Fig. 4 is a section on line *b b*, Fig. 3. Fig. 5 is a detached top view of the socketed member. Fig. 6 is a detached view of the locking-ring and fragments of its spring-arms. Fig. 7 is a section on line *c c*, Fig. 5. Fig. 8 is a detached view of one of the pivoted parts of the socketed member. Fig. 9 is an end view, partially in section, of one of the spoke-hooks. Fig. 10 is a section on line *d d*, Fig. 1. Fig. 11 is an enlarged detached end view of the top locking-plate. Fig. 12 is a side elevation of a modified device. Fig. 13 is a top plan view of a modified device. Fig. 14 is a section on line *e e*, Fig. 13. Fig. 15 is an enlarged detached view of one of the modified detachable spoke-hooks, partially in section, on line *f f*, Fig. 13. Fig. 16 is a perspective view of one of the angular space-reducing plates. Fig. 17 is a section on line *g g*, Fig. 14. Fig. 18 is a fragmentary section on line *h h*, Fig. 14, looking in the direction of the arrow V.

In referring to the drawings in detail like numerals designate like parts.

The invention consists of two parts or members, a spring part or member having hook ends adapted to be sprung over the spokes in a wheel and a socketed member secured to the spring member and adapted to receive the wheel-nut, said socketed member having means for varying the size of the socket to receive nuts of different sizes.

In the preferred adaptation (shown on the first sheet of drawings, Figs. 1 to 11) the spring member (designated by the numeral 1) is formed in one piece and has its opposite ends bent to form the integral hooks 2. The socketed member is formed in two portions 3 and 4, which are pivoted together by the pivot 5. The portion 3, which is the larger portion, has a reduced screw-threaded upper end 6, (see Figs. 3 and 7,) and its lower part is provided with a depression 7, of substantially V-shaped form in cross-section, which forms one-half of the square nut-receiving socket. The smaller portion 4 has an upper eye 8, which is fitted and partially secured in the space between the two eyes 9 of the larger portion 3, and a lower depression 10, of substantially V-shaped form in cross-section, similar to the depression 7, which, together with the depression 7, forms the nut-securing socket when the two parts are pivoted together. A comparatively long lower plate 11 has a central longitudinal groove 12 in the upper surface, in which the middle part of the spring member is fitted, and an upper plate 13 is superimposed upon the top surface of the middle portion of the spring and has a pair of separated legs 14 at each end, which project downward on each side of the spring and prevent lateral movement of the upper plate on the spring. A vertical opening 15 is formed in the upper and lower plates and the interposed portion of the spring, through which the screw-threaded upper end of the socketed member is fitted, and a lock-nut 16 is screwed upon the projecting upper end of the screw-threaded part, thereby rigidly securing the upper and lower plates and the spring together in their superimposed position. The two pivotal portions of the socket member are locked together by a collar 17, which fits around the two portions, and oppositely-disposed spring-arms 18 extend from the collar and have forked ends 19, which straddle the spring member. The spring-arms serve to maintain the collar in its lower position with a spring tension. The outer

surface of the pivotal portions is tapered or beveled, so that it gradually enlarges in size from the top downward, and the collar in moving downward presses against the beveled surface, thereby bringing the two pivotal portions together. (See Fig. 3.) The hooks are covered with rubber or other suitable material 20 to prevent injuring the surface of the spoke. (See Fig. 9.)

In placing the device on a vehicle-wheel the spring-arms 18 are pulled toward the spring member by the operator, thereby raising the collar 17 and permitting the pivotal portions to separate, the pivotal portions are fitted over the nut, the spring-arms 18 are released, thereby forcing the collar 17 down and rigidly clamping the two pivotal portions upon the nut, the hook ends are caught over the spokes, and the device, together with the wheel, is turned, thereby unscrewing the nut.

In the modification the spring member is formed in two sections 21, the inner ends of which are fitted in recesses 22 in a center plate 23 and rigidly secured to said plate by the rivets 24. This plate is provided with a central vertical opening 25. The hooks 26 are formed separate from the spring portions and are fastened to the outer ends of the spring portions by the rivets 27. The socket member 28 has a socket in its lower end, which is substantially square in cross-section, and a screw-threaded upper portion 29, which is fitted through the opening 25 in the center plate. A lock-nut 30 is secured upon the projecting end of the screw-threaded upper portion 29 to rigidly secure the socket member to the spring member. The size of the socket in the socket member is varied by means of two angular plates 31 and 32, each one of which forms two sides. (See Fig. 17.) These plates have a vertical movement and are raised or lowered by means of the vertical finger-pieces 33, which project through the openings 34 in the socket member. The upper ends of these finger-pieces are bent outward to form convenient projections for the operator's fingers. The hooks in the modified form are also covered with suitable material, such as rubber, 35, to prevent injuring the polished surface of the spokes.

I claim as my invention—

1. A vehicle-wheel wrench comprising a spring member, a center plate fitting against the spring member and having an opening and a socket member having means for varying the size of the socket and a screw-threaded portion passing through the opening in the center plate.

2. A vehicle-wheel wrench comprising a spring member and a socket member having two pivotal portions each of which has a depression forming one portion of the socket one at least of which is movable and means for clamping said portions upon a nut.

3. A vehicle-wheel wrench comprising a spring member and a socket member having two pivotal portions, each provided with a depression forming one portion of the socket, and spring means for clamping said portions upon a nut.

4. A vehicle-wheel wrench comprising a spring member, a center block for said spring member, a socket member having a screw-threaded upper end passing through the spring member and the center block, and a lock-nut on said end.

5. A vehicle-wheel wrench comprising a spring member having hooks fitting over the wheel-spokes, a central block having an opening, and a socket member having a socket to receive the vehicle-wheel nut and a screw-threaded upper end passing through the opening in the block, and a lock-nut on said end.

6. A vehicle-wheel wrench comprising a spring member having hooks fitting over the wheel-spokes, a comparatively long center plate supporting the spring member, a socket member having a socket to receive the nut and a screw-threaded upper portion fitting through the spring member and center plate and a lock-nut upon the projecting end of the screw-threaded upper portion.

7. A vehicle-wheel wrench comprising a spring member, a center plate having a depression to receive the spring, a socket member and means for securing the plates and members together.

8. A vehicle-wheel wrench comprising a spring member having integral spoke-hooks, a socket member having two pivotal socket portions, a clamping-collar and oppositely-disposed spring-arms extending from the collar, with their ends tensioning against the spring member.

9. A vehicle-wheel wrench comprising a spring member having integral spoke-hooks, a socket member having two pivotal socket portions, a clamping-collar and oppositely-disposed spring-arms extending from the collar and having forked ends straddling the spring member.

10. A vehicle-wheel wrench comprising a spring member having hooked spoke-holding ends, a center plate having a depression to receive the spring, a depending portion having a socket to fit on the wheel-nut and a screw-threaded upper portion extending through the spring and center plate, and a lock-nut on the projecting end of said screw-threaded upper portion.

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