

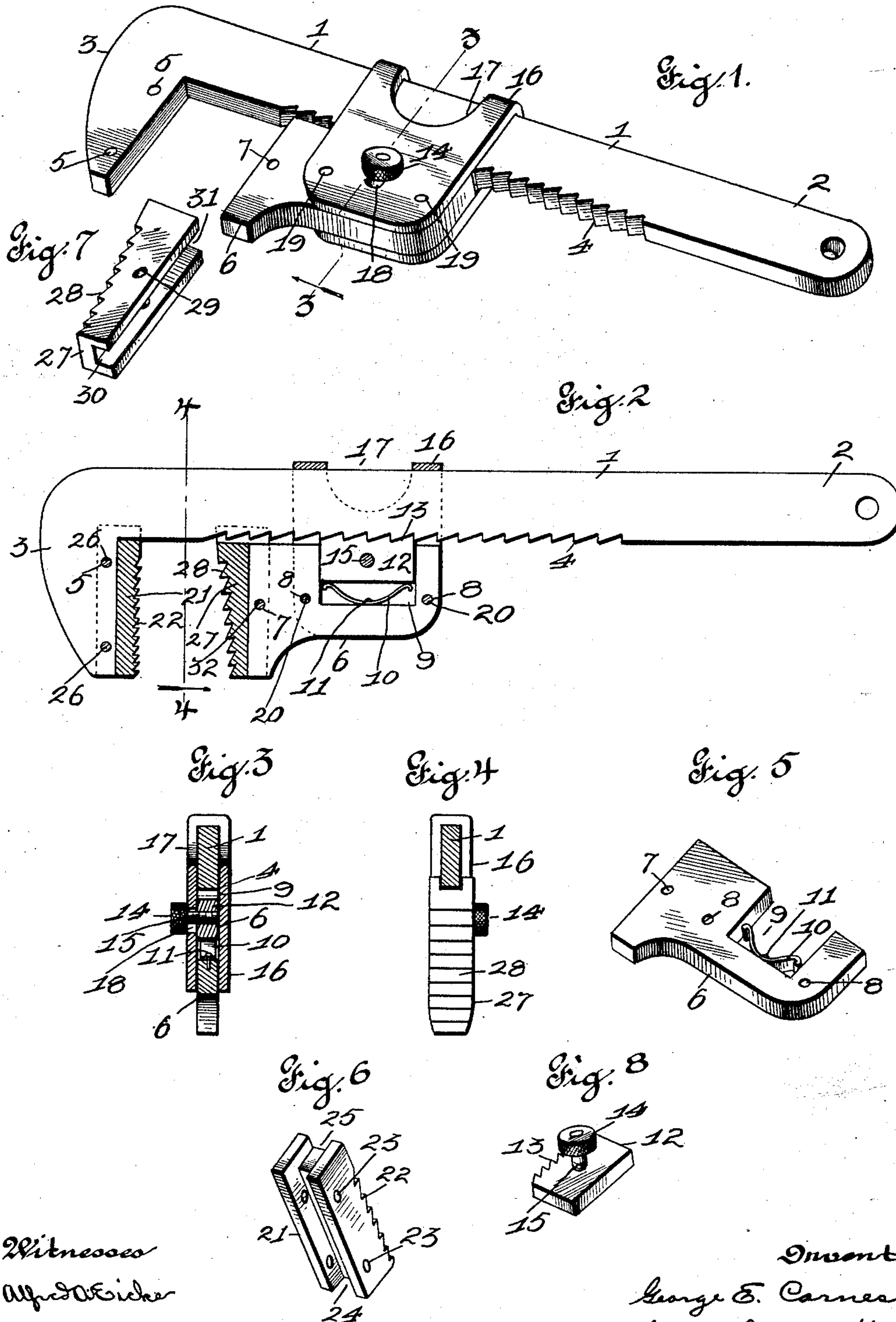
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G. E. CARNES.
COMBINED PIPE AND NUT WRENCH.

APPLICATION FILED APR. 7, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

GEORGE E. CARNES, OF ST. LOUIS, MISSOURI.

COMBINED PIPE AND NUT WRENCH.

SPECIFICATION forming part of Letters Patent No. 757,861, dated April 19, 1904.

Application filed April 7, 1903. Serial No. 151,551. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. CARNES, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in a Combined Pipe and Nut Wrench, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in combined pipe and nut wrenches; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

In the drawings, Figure 1 is a perspective view of my invention with some of the parts removed. Fig. 2 is a side elevation with parts in section. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1 looking in the direction the arrow is pointed. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 2 looking in the direction the arrow is pointed. Fig. 5 is a detail perspective view of a part of one of the movable jaws. Fig. 6 is a perspective view of one of the serrated jaws removed. Fig. 7 is a perspective view of the other serrated jaw removed. Fig. 8 is a perspective view of the locking-dog.

My invention has for its object the construction of a wrench which can be quickly adjusted and operated by one hand, and is especially designed for a pipe-wrench; but by removing certain parts it is equally applicable for use as a nut-wrench.

Referring to the drawings, 1 indicates the shank, which is provided with a handle portion 2 and with a fixed jaw 3. One edge of said shank is provided with a series of teeth 4. The fixed jaw 3, carried by the shank 1, is provided with transverse holes 5.

6 indicates the adjustable jaw, which is provided with a transverse hole 7 and with other transverse holes, 8. Said adjustable jaw 6 is also provided with a recess 9, and located in the bottom of said recess is a spring 10, which is secured to the adjustable jaw 6 by means of a pin 11.

12 indicates the locking-dog, which is adapted to be located in the recess 9 of the adjust-

able jaw 6. Said locking-dog 12 is provided with a series of teeth 13, which are adapted to engage the teeth 4 of the shank 1 when the wrench is in use. In operative position the locking-dog 12 is located in the recess 9 and mounted on the spring 10, said spring or its equivalent being adapted to hold the locking-dog in engagement with the teeth of the shank. The locking-dog 12 carries a thumb-screw 14, the shank 15 of which is adapted to be secured into a screw-threaded recess formed in the dog 12. By means of this thumb-screw 14 the locking-dog can be operated—that is, it can be moved away from engagement with the teeth 4 of the shank 1 by the operator applying his thumb or hand to the same.

16 indicates an adjustable strap or stirrup which is formed of a single piece of metal and having a cut-away portion 17. Said strap is bent so that the shank 1 will fit snugly in the same and is provided with an elongated hole 18 and transverse holes 19. Located in said strap 16 are the adjustable jaws 6 and the locking-dog 12, the said adjustable jaws 6 being secured within said strap by means of pins 20, passing through the holes 19, formed in the strap 16, and through the holes 8 of the adjustable jaw 6. When the locking-dog 12 is located in the recess 9 of the jaw 6, the shank 15 of the thumb-screw 14 is located in the elongated hole 18 of the strap 16. The object of having the elongated hole 18 is to permit the adjustment of the locking-dog 12—that is to say, the locking-dog 12 is held in engagement with the teeth 4 of the shank 1 by means of the spring 10 or its equivalent, and when it is desired to disengage the locking-dog from the teeth 4 the elongated recess 18 will permit of such disengagement.

The fixed jaw 3 carries a detachable jaw 21, and said detachable jaw 21 is provided with a series of serrations or teeth 22 and with transverse holes 23, a longitudinal groove 24, and a transverse groove 25. The jaw 21 is applied or secured to the fixed jaw 3 by means of pins 26, said pins being adapted to pass through the holes 23 and the holes 5. When said jaw 21 is so applied or secured to the fixed jaw 3, the inside edge of the fixed jaw 3 is located in the recess 24, and the inside edge of the shank

1 is located in the recess 25, and by means of the grooves 24 and 25 and the pins 26 the said jaw 21 is rigidly held to the fixed jaw 3—that is to say, there can be no lateral movement of said jaw 21 when it is so applied. When the jaw 21 is applied in the manner above described, the teeth of said jaw project toward the shank. The adjustable jaw 6 has also applied to it a wedge-shaped detachable jaw 27. Said detachable jaw 27 is provided with a series of teeth 28, a transverse hole 29, longitudinal recess 30, and a transverse recess 31, and said detachable jaw 27 is secured to the adjustable jaw 6 by means of a pin 32. When the detachable jaw 27 is secured to the adjustable jaw 6, the edge of the adjustable jaw 6 is located in the groove 29, and the inside edge of the shank 1 is located in the recess 31, by means of which construction said detachable jaw 27 is rigidly held in position on the adjustable jaw 6. When said jaw is so applied to the adjustable jaw 6, it is only necessary to use one pin 32, for the reason that the strain on said jaw 27 is transmitted to the shank 1. It will be noticed that when the jaw 27 is applied to the adjustable jaw 6, as above described, the teeth 28 project from the shank. It will also be noticed that the detachable jaw 27 is wedge-shaped or tapered, being widest at the end which engages with the shank 1. It will be seen from the foregoing description that I have constructed a wrench of but few parts, which may be quickly adjusted by one hand of the operator, and a wrench which can be equally used for pipework or for operation of nuts. The parts of my wrench are all made detachable, so that if one part is broken it can be replaced without buying a new wrench. In operating a pipe-wrench the jaws should be so adjusted that the pipe will go only to the center of the opening between the jaws and not go back against the shank. By the use of the wedge-shaped removable jaw I produce a flaring opening between the jaws, and I adjust this opening so that the pipe will just pass

into the outer part of the opening. Then as the wrench is pressed against the pipe the teeth will take hold, whereas if the opening between the jaws were square—that is, parallel jaws—it would be necessary to place the wrench in position upon the pipe and then push the jaws together, and it is almost impossible to make the teeth catch the pipe on account of the last motion in the sliding jaw.

I am aware that combination-wrenches have been made, and I do not claim such a construction broadly; but I believe that I am the first to make a combination-wrench with a wedge-shaped removable jaw and having my improved details of construction.

Having fully described my invention, what I claim as new, and desire to have secured to me by the grant of Letters Patent, is—

In a combined pipe and nut wrench, the combination with the shank 1, having the teeth 4; of the stirrup 16 fitting upon the shank and having the hole 18 and the two holes 19; the adjustable jaw 6 secured within the stirrup by means of the pins 20, and having the recess 9; the locking-dog 12 located in the recess 9 and having the teeth 13 to engage the teeth 4; the spring 10 in said recess to press the locking-dog against the shank; the thumb-screw 14 secured to the locking-dog by the shank 15 extending through the hole 18; the removable wedge-shaped jaw 27 having the longitudinal recess 30 in which the rigid jaw is mounted, and having the transverse recess 31 in which the shank 1 slides, and having the pipe-gripping teeth 28; said jaw being thinner at its front end than at its back end, so as to produce an outwardly-flaring opening, and the pin 32 securing said jaw 27 in position, substantially as specified.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

GEORGE E. CARNES.

Witnesses:

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ALFRED A. EICKS.