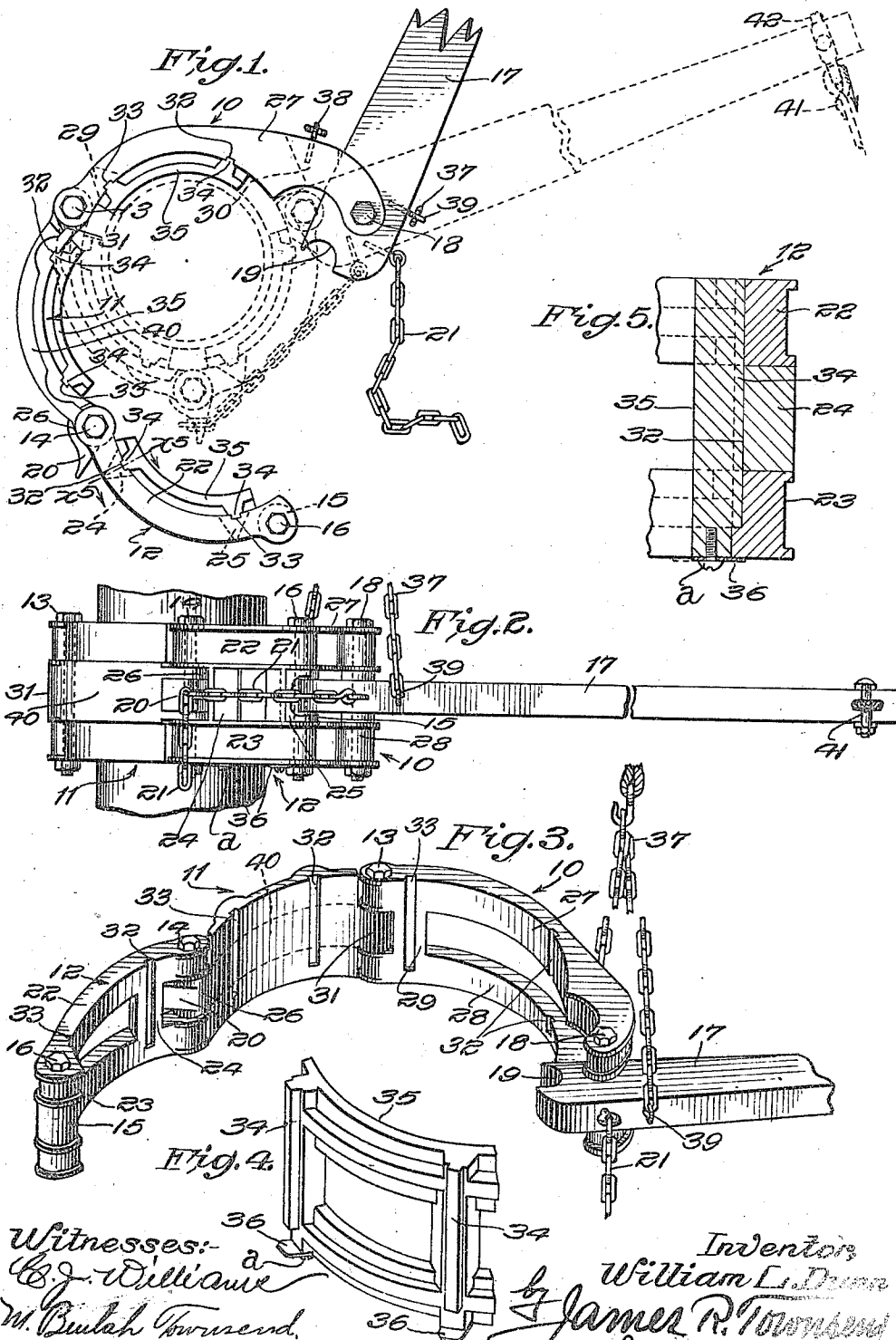


W. L. DUNN.
COMBINATION CASING WRENCH.
APPLICATION FILED OCT. 26, 1908.

958,698.

Patented May 17, 1910.



Witnesses:
J. Williams
W. Bulah Townsend.

Inventor:
William L. Dunn
by James R. Townsend
his atty.

UNITED STATES PATENT OFFICE.

WILLIAM L. DUNN, OF GAVIOTA, CALIFORNIA.

COMBINATION CASING-WRENCH.

958,698.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed October 26, 1908. Serial No. 459,631.

To all whom it may concern:

Be it known that I, WILLIAM L. DUNN, a citizen of the United States, residing at Gaviota, in the county of Santa Barbara and State of California, have invented a new and useful Combination Casing-Wrench, of which the following is a specification.

This invention relates to the class of apparatus for screwing and unscrewing well-casings, and the object is to provide a wrench of minimum size and weight and maximum efficiency which is capable of use on various sizes of oil-well-casing in the simplest and most convenient manner.

This invention embraces features which are applicable to the wrench patented to me March 31, 1908, by Letters Patent of the United States, No. 883,630, for apparatus for screwing well casings, in which only two gripping members are shown, one of which is pivoted to a lever.

The accompanying drawings illustrate the invention.

Figure 1 is a plan of a wrench embodying this invention as the same appears in the act of applying it to a well-casing. Dotted lines indicate a position when the loose end gripping-member is brought to a stop by engagement of the roller in the crotch of the lever. Fig. 2 is a side elevation showing the wrench in process of turning the casing. Fig. 3 is a perspective view of the wrench open and removed from the casing. The bushings are omitted. Fig. 4 is an enlarged perspective of one of the bushings detached. Fig. 5 is a sectional detail on line $x-x'$, Fig. 1. 10, 11 and 12 are concave gripping members pivoted together by pins 13 and 14.

15 is a roller pivoted at its axis by a pin 16 to the loose end of the terminal gripping-member 12.

17 is a lever pivoted by a pin 18 to the gripping-member 10 and provided with a crotch 19 to engage the roller 15.

20 is a retainer on the intermediate gripping-member 11, and 21 a connection fastened to the lever 17 and adapted to engage the retainer 20 to provide a loose stay to prevent the roller from becoming disengaged from the crotch.

The gripping-members 10 and 12 that have pivotal connection with the lever 17 are each formed of side bars or ribs connected together with posts intermediate the ends of said ribs.

22, 23 are the ribs of the gripping-men-

bers 12; and 24, 25 are the posts that connect the same. The ends of the ribs 22, 23 project beyond the posts to receive between them at one end the knuckle 26 of the intermediate clamping-member 11 and to receive between them at the other end the roller 15.

27, 28 are the ribs of the member 10; and 29, 30 are the posts thereof beyond which the ends of the ribs 29, 30 extend. At one end of the gripping-member 10 the ribs 29, 30 project to receive between them the knuckle 31 of the intermediate gripping-member 11, and at the other end of said gripping-member 10 said ribs 27, 28 project to receive between them the operating member or lever 17.

The inside faces of the gripping-members 10, 11 and 12 are semicircular in form and adapted when brought together upon the casing to fit the same tightly, and each of said faces is provided with two seats 32, 33, to receive tongues 34 on a bushing 35.

36 designates fasteners pivoted by bolts a to the bushings and adapted to swing to and from position to engage the gripping-member to hold the bushing in place when the tongues are seated in the seats; said seats extend only part way across the gripping member, and said ribs extend a corresponding distance across the bushing so that when the bushing is seated with its ribs at the bottom of the seats the fasteners may be turned to engage the gripping-member, thereby to retain the bushing on said member when the wrench is turned upside down.

37 designates a connection fastened to eyes 38, 39, one of which is on the post 30 of the member 10 and the other is on the lever 17. By means of this connection the wrench may be suspended for ready application to and removal from the well-casing. The intermediate gripping member 11 is ribbed as shown at 40 from knuckle to knuckle for strength, and the edges of the member extend beyond the sides of the ribs so that the gripping face of the member is the same width as the gripping faces of the members 10, 12.

In practical use for large pipe or casing the gripping-members will be used without any bushings. For pipe or casing of smaller diameters, bushings of appropriate size will be mounted within the gripping-members so that the wrench will fit the smaller casing or pipe.

In practical use the open wrench will be suspended by the connection 36 and the workman will, by means of the lever 17, swing the gripping-members into position against the casing, and the loose or free end of the gripping-member 12 will then be swung around until the roller 15 comes into crotch 19, whereupon it will engage the innermost prong of said crotch. Thereupon the workman will bring the chain 21 around in place to engage the retainer 20. Then the handle will be operated by the jerk-line 41 and draw back 42 indicated in dotted lines in Fig. 1, as explained in my former patent, thereby screwing or unscrewing the casing as the case may be. As the lever is moved the purchase formed by the crotch 19 grips the roller tightly and said roller turns on its pivot 16 so that the friction between the lever and the gripping-member is negligible. When the casing has been screwed home and it is desired to unscrew it, the casing-wrench may be turned upside down and the lever operated in the reverse direction after the manner detailed in my said former patent.

The bushings are made in sets of three, those of each set being alike and those of all the sets being interchangeable.

The bushings are of a skeleton form, as shown in Fig. 4, the same being ribbed on the side opposite the gripping faces to rest upon the gripping faces of the gripping members 10, 11 and 12. This together with the skeleton form of the gripping members 10 and 12, greatly reduces the weight of the two especially in the case of thick bushings for handling smaller size pipe.

By providing the roller on the gripping member instead of on the lever, a reduction in the size of the lever is possible that greatly reduces the weight of the tool.

I claim:

1. A wrench comprising a plurality of gripping members pivoted together, a roller pivoted at its axis to one of said gripping members, and a lever pivoted to another of said gripping members and provided with a purchase to engage the roller.

2. A wrench comprising a plurality of gripping members, a roller pivoted at its axis to one of the gripping members, and a lever pivoted to another of said gripping members and provided with a crotch to engage the roller to tighten the gripping members.

3. A plurality of gripping members pivoted together, an antifriction roller on one of said members, a lever pivoted to another of said members and provided with a crotch to engage said roller, and releasable means for holding the lever in engagement with the roller.

4. A wrench comprising a middle grip-

ping member, two gripping members respectively pivoted to the ends thereof, and each formed of ribs provided with posts intermediate the ends of the ribs so that the ends of the ribs project to receive pins, the middle member being provided with a retainer, a roller pivoted to projecting ribs at one end of one of the end members, a lever pivoted between the projecting ribs of the other end member and arranged to engage said roller, and a chain connected with the lever and adapted to engage the retainer.

5. A wrench comprising pivoted gripping members provided with seats that extend only part way across the gripping faces of said members, and bushings provided with feathers to fit said seats and with latches to engage the gripping members to hold the bushings in place.

6. A casing wrench provided with gripping members and with skeleton bushings to fit inside the gripping faces of the gripping members, said bushings being detachably fastened to the gripping members.

7. A casing wrench provided with gripping members and with skeleton bushings for the gripping faces of said members, said bushings being detachably fastened to said gripping members.

8. A casing wrench provided with gripping faces and ribbed skeleton bushings to fit said gripping faces, the bushings being detachably fastened to said faces.

9. A casing wrench provided with ribbed bushings to fit the gripping faces of the wrench, said bushings being detachably fastened to said faces.

10. A casing wrench provided with seats in their gripping faces, bushings adapted to fit said faces and having feathers to fit said seats and latches pivoted to said bushings to engage said gripping members to hold the bushings seated.

11. A wrench comprising a plurality of concave gripping members pivoted together, a roller pivoted to the terminal of one of said gripping members and a lever pivoted to the terminal of another of said gripping members and provided with a purchase to engage the roller.

12. A wrench comprising a plurality of concave gripping members, a roller pivoted to one of the gripping members and a lever pivoted to another of said gripping members and provided with a crotch to engage the roller to tighten the gripping members.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 19th day of October, 1908.

WILLIAM L. DUNN.

In presence of—

JAMES R. TOWNSEND,
M. BEULAH TOWNSEND.