W. W. McGOWAN, W. A. HELLER AND S. J. TIERNEY.

COMBINATION WRENCH.

APPLICATION FILED MAY 26, 1920.

1,386,345.

Patented Aug. 2, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

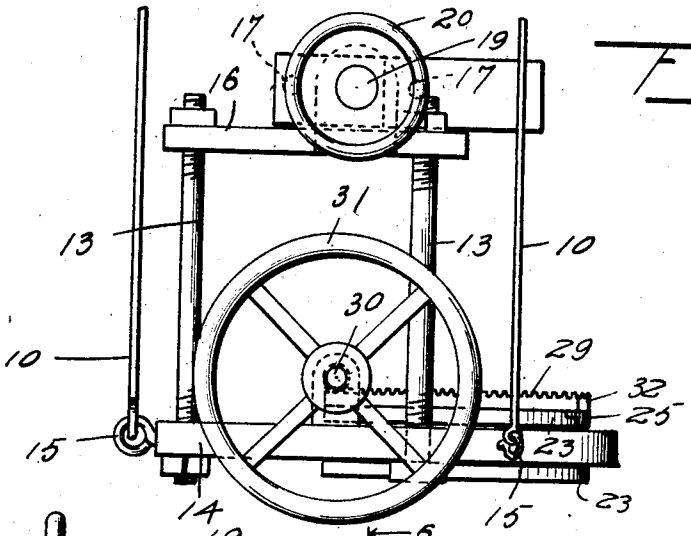

Fig. 2.

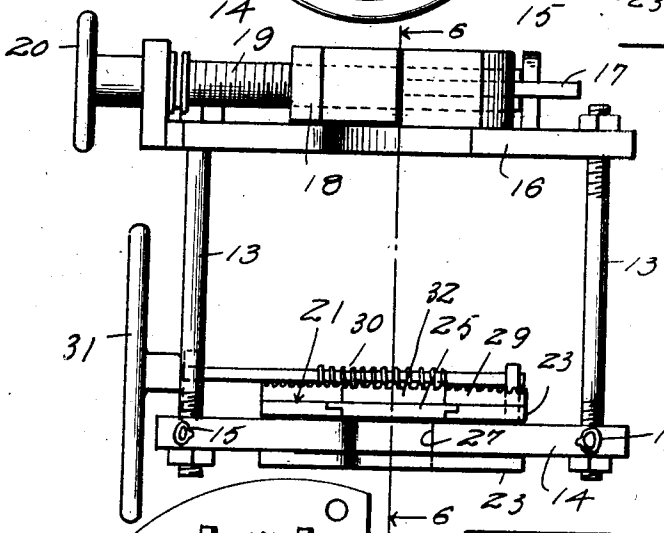

Fig. 3.

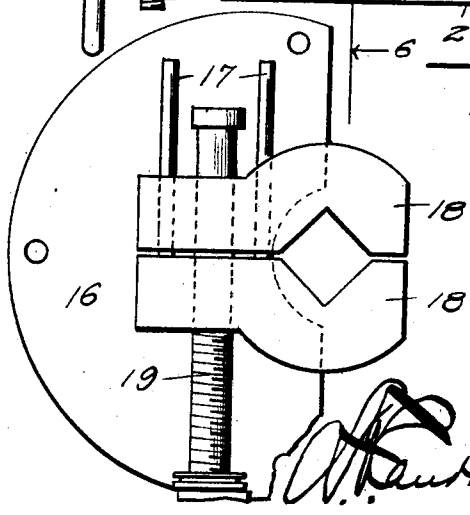

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Fig. 4.

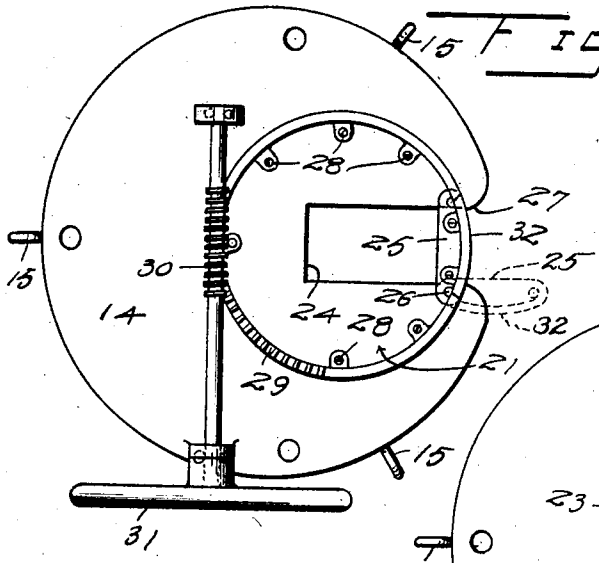


Fig. 5.

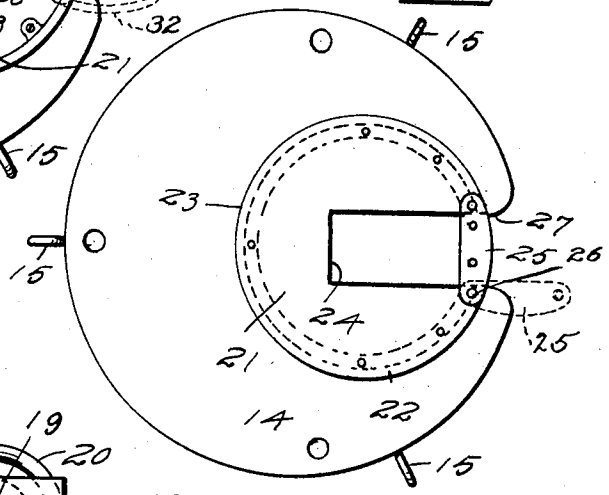
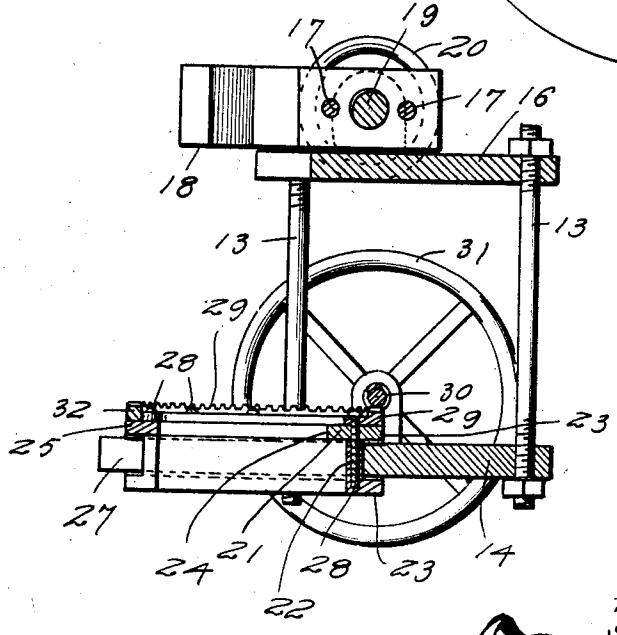


Fig. 6.



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COMBINATION-WRENCH.

1,386,345. Specification of Letters Patent. Patented Aug. 2, 1921.

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To all whom it may concern:

Be it known that we, WARREN W. McGOWAN, WILLIAM A. HELLER, and STEPHEN J. TIERNEY, citizens of the United States, residing at Okmulgee, in the county of Okmulgee and State of Oklahoma, have invented certain new and useful Improvements in Combination-Wrenches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the invention is to provide efficient means for making and breaking the joints or disconnecting or assembling the members of drill tools used in connection with oil gas and water wells, to take the place of the wrenches, jacks and other utensils and machines at present employed for this purpose and at the same time to give the operator a control of the tension which is to be applied to the screw joints so that the breaking of tools in the hole and causing the temporary and perhaps permanent discontinuance of work thereon and at the least the delay incident to the use of fishing tools, may be avoided together with the delays and damages incident thereto, and at the same time to provide a means for the purpose indicated wherein during the operation of breaking or making the joints the hole is open for other work and may be accomplished by a single operator, as distinguished from the present apparatus which requires the attendance of two operators and involves the temporary closing of the hole and hence the delay of other work in that connection; and with these objects in view the invention consists in a construction and combination of which a preferred embodiment is shown in the accompanying drawings, wherein—

Figure 1 is a front view of the device.

Fig. 2 is a side view of the same.

Fig. 3 is a plan view of the vise member.

Fig. 4 is a plan view of the wrench member.

Fig. 5 is a view similar to Fig. 4 with the feed worm and worm gear omitted.

Fig. 6 is a sectional view on the plane indicated by the line 6—6 of Fig. 2.

The apparatus is adapted to be suspended from a suitable overhead support (not shown) by means of cables 10, and consists essentially of upper and lower vise and wrench members 11 and 12 connected by stay rods or uprights 13, the lower or wrench member having a bed plate 14 provided peripherally with eyes 15 with which the lower ends of said suspending chains or cables are connected to the end that the wrench may be readily moved laterally with relation to the line of the tubing or rods which are to be engaged for the purpose of disconnecting the sections thereof at the usual screw joints provided therebetween.

The upper or vise member of the apparatus embodies a plate 16 engaged by the upper ends of the bolts or uprights 13 and having guides 17 upon which are mounted the relatively and laterally movable jaws 18 engaged by a feed screw 19 fitted with a hand wheel 20, said vise in operation being adapted to engage the lower end of the pipe or rod section above the joint to be separated.

The lower or wrench member of the apparatus in addition to the base plate 14, above mentioned, consists of a revoluble head 21 fitted in a bearing opening 22 in said plate and flanged as at 23 above and below the plane thereof to form a spool, said head having a diametrical seat 24 for engagement with the pipe or tube section below the joint to be separated, entrance to the seat being provided by means of a gate 25 which is hinged or pivoted as at 26 permitting it to be swung to the open or dotted line position shown in Fig. 4 when located opposite the opening 27 in the base plate.

Surmounting the revoluble head and for example attached thereto by screws 28 or the equivalent thereof is a worm gear 29 with which meshes a feed worm 30 having an operating or hand wheel 31, a movable section 32 being provided in said worm gear and secured to the gate 25 of the revoluble head, to swing outward therewith to permit of the introduction into the seat of the end of the pipe or rod section.

Obviously after the members of the wrench have been properly adjusted with reference to the rods or pipes of which a joint is to be made or broken, such adjustment being facilitated by the swinging suspension of the apparatus by means of the cables or chains 10, and the jaws of the vise

member have been closed to effectively engage the upper section, the operation of the hand wheel 31 will cause the rotation of the revoluble head of the wrench member to either engage or disengage the threads of the joints, and the resistance offered to this movement can readily be appreciated by the operator and the strain applied may be readily controlled, to avoid the disadvantages in the matter of overstraining and risking the breakage of the tube or pipe, which is common in connection with devices for this purpose heretofore employed.

What is claimed is:—

1. A wrench comprising upper and lower plates, rods connecting the plates in spaced relation, adjustable holding jaws carried by the upper plate for gripping a pipe section and capable of moving transversely of the upper plate, guides for said jaws and a wrench element carried by the lower plate to engage and turn the companion pipe section.

2. A wrench comprising upper and lower connected plates, a vise carried by the upper plate, a head rotatably supported by the lower plate and having a pipe engaging seat opening outwardly of one edge of the head, a gate for closing the seat, a ring gear secured to the head and having a removable section to coöperate with the gate to admit a pipe through the seat, and means engaging the gear for rotating the head.

In testimony whereof we affix our signatures in presence of two witnesses.

WARREN W. McGOWAN.
WILLIAM A. HELLER.
STEPHEN J. TIERNEY.

Witnesses:
W. O. Bassett,
W. A. Munson, Jr.