Feb. 3, 1931. A. P. ORTOLON 1,790,761

TOOL

Filed Feb. 20, 1928

Fig. 1.

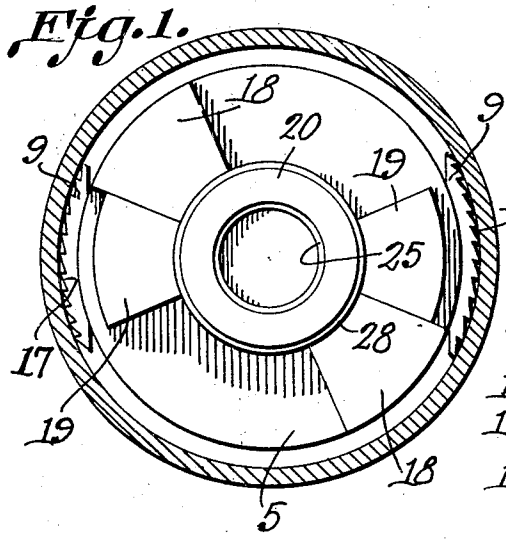


Fig. 3.

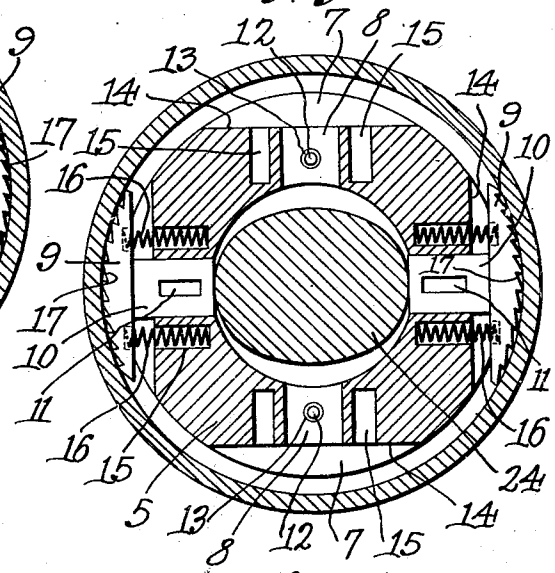


Fig. 2.

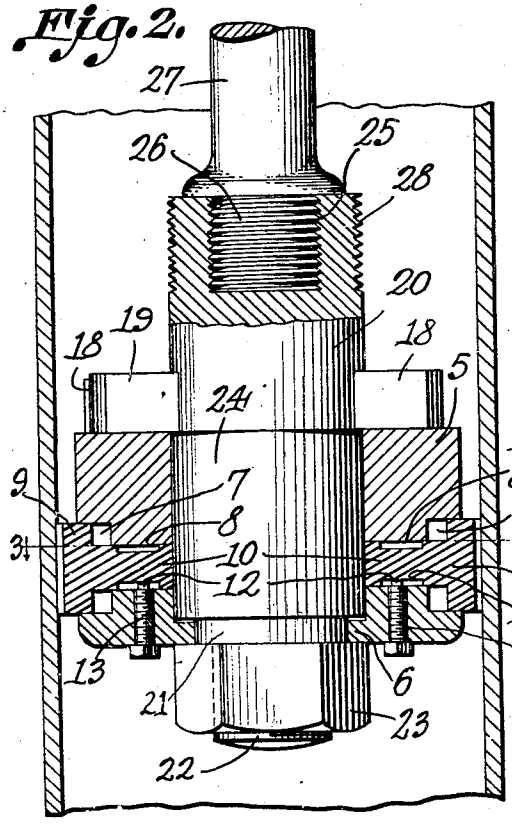
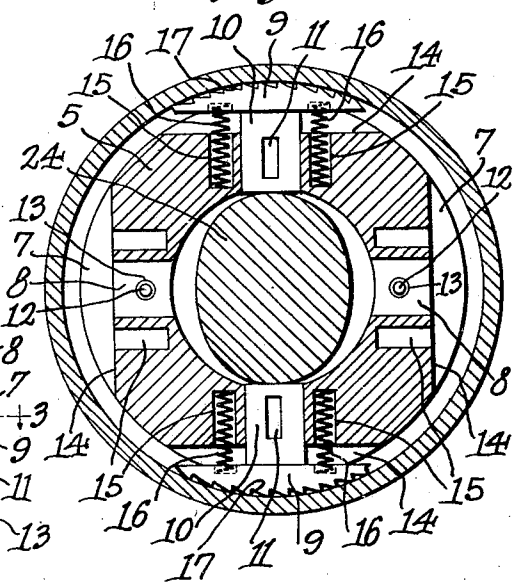


Fig. 4.



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UNITED STATES PATENT OFFICE

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TOOL

Application filed February 20, 1928. Serial No. 255,781.

This invention relates to well tools or wrenches, and more particularly to a tool especially designed for use in removing sections of oil well casings.

The primary object of the invention is to provide a tool of this character which may be lowered into a section of a well casing and operated to securely grip the section and rotate the section disconnecting it from its adjacent section so that it may be readily and easily lifted from the well.

Another important object of the invention is to provide a tool of this character which may be operated to rotate the section of the well casing to be removed, in a right hand direction or a left hand direction according to the type of threads formed on the section to be removed.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention hereinafter described and claimed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Figure 1 is a plan view of a tool constructed in accordance with the invention.

Figure 2 is a vertical sectional view through a section of a well casing, the body portion of the tool being shown in section, one of the stops being cut away.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a transverse sectional view through the device illustrating the jaws of the tool reversed for a left hand operation.

Referring to the drawing in detail, the tool includes a body portion 5 formed with a circular bore disposed through the central portion thereof, there being provided an inwardly disposed flange 6 at the base of the bore and forming a part of the body portion.

The body portion 5 is formed with lateral cut out portions 7 provided with reduced portions 8 that extend to the central bore of the body portion, the cut out portions being designed to receive the laterally movable dogs or jaws 9. As shown, these dogs are provided with inwardly extended portions 10 that move through the reduced portions 8 of the cut out portions 7, the portions 10 being formed with recesses 11 in their upper and lower surfaces to accommodate the reduced ends 12 of the screws 13. These screws 13 pass through threaded openings in the body portion and act to hold the dogs against displacement with respect to the body portion.

Due to the construction of the cut out portions 7, shoulders 14 are provided against which the dogs move when the dogs are in their retracted positions to the end that the tool may be dropped into the well casing to be removed. Adjacent to the cut out portions 7 and communicating therewith, are bores 15 disposed on opposite sides of the reduced portions 8 and are designed to accommodate the coiled springs 16 which have their inner ends engaging the bases of the bores, while the outer ends thereof engage the dogs associated therewith, the springs being of the expansible type to normally urge the dogs laterally.

Teeth indicated at 17 are formed on the dogs and are inclined towards one of the edges thereof, but owing to the fact that the body portion is provided with cut out portions in its four sides, it will be seen that these dogs may be removed and reversed and positioned in cut out portions at the opposite sides of the body portion to the end that the tool may be used in a reverse direction to unscrew the well casing section if the sections are secured by a coupling having a left hand thread.

Stops indicated by the reference character 18 extend upwardly from the upper surface of the body portion and are adapted to cooperate with stops 19 extending laterally from the mandrel 20, to limit the rotary movement of the mandrel when the tool is being positioned for operation.

The mandrel is formed with a shoulder 21 formed by the reduced portion 22 which is threaded to receive the nut 23 so that the mandrel may be readily and easily positioned

within the body portion, or removed therefrom. Thus it will be seen that the contact of the shoulder 21 with the flange 6 provides a support for the mandrel and permits the mandrel to rotate within the body portion.

As clearly shown by Figure 3 of the drawing the mandrel is provided with a section 24 substantially oval in cross section providing a cam to engage the inner ends of the inwardly extended portions 10 of the dogs to force the dogs outwardly into engagement with the well casing section to be removed.

At the upper end of the mandrel is a threaded bore 25 having threads of the right hand type, which threads cooperate with the threads 26 of the rod 27 so that the tool may be turned to the right while in operation, but should it be desired to turn the tool to the left, or in an anti-clockwise direction a rod having an internal threaded extremity may be positioned over the threads 28 which are of the left hand type, for unscrewing sections of a well casing held together by a coupling having left hand threads.

In the use of the tool, the tool is forced into the well casing to be removed, and the mandrel is rotated to force the dogs laterally into close engagement with the inner surface of the well casing, whereupon a further rotary movement of the wrench will act to unscrew the section of the casing where it may be lifted from the well.

I claim:

A tool for removing well casing sections, comprising a body portion having a central circular opening and having lateral openings communicating with the central opening, gripping jaws, extensions on the jaws and fitted in the lateral openings, means for normally moving the jaws laterally, a mandrel extended through the central opening, said mandrel being oval in cross section and adapted to engage the extensions of the jaws to force the jaws laterally, stops extending upwardly from the upper surface of the body portion, at opposite sides of the central opening, stops extending laterally from the mandrel and adapted to engage the first mentioned stops to restrict movement of the mandrel, and means for limiting outward movement of the jaws.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

ARTHUR P. ORTOLON.