Nov. 20, 1928. 1,692,302

A. O. HESSEMER

WELL CAPPING DEVICE AND CONTROLLING HEAD

Filed May 2, 1925 2 Sheets-Sheet 1

Fig. 1

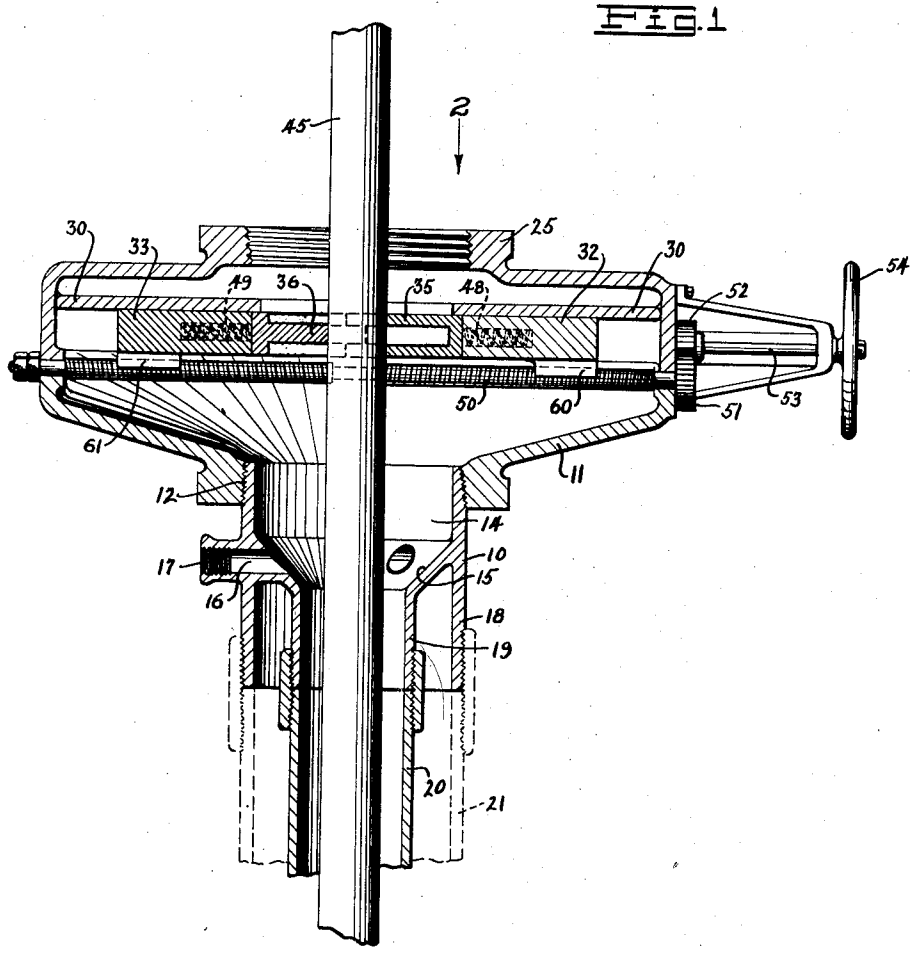

Fig. 2

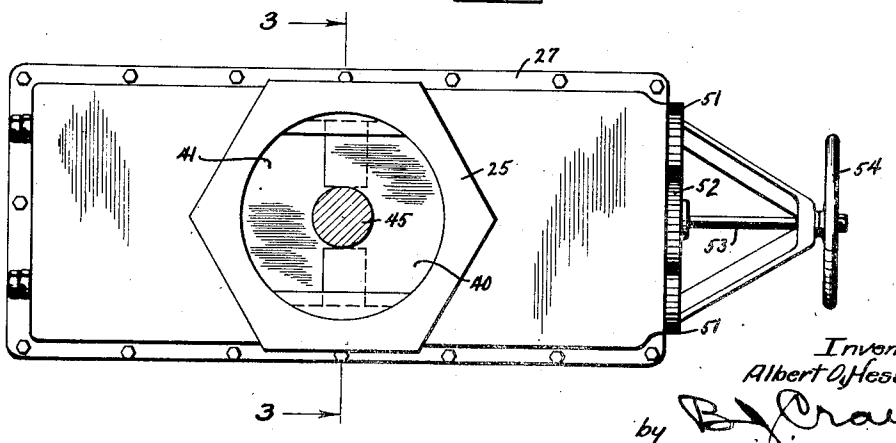

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Fig. 3

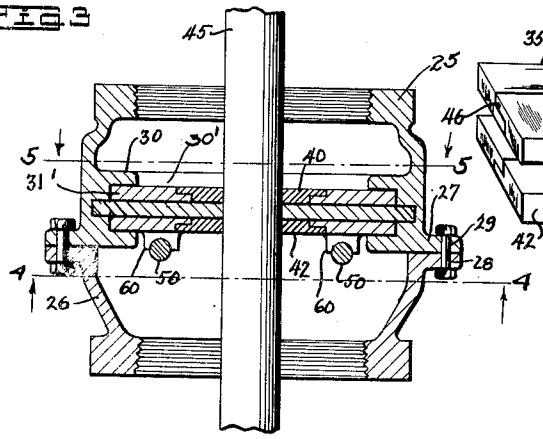


Fig. 6

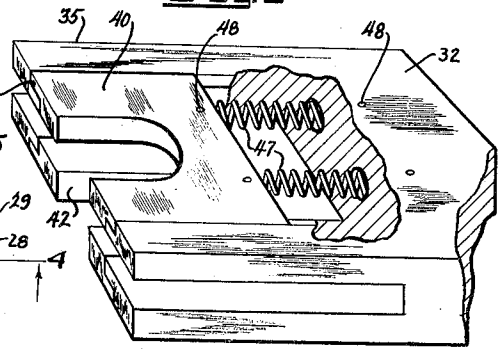
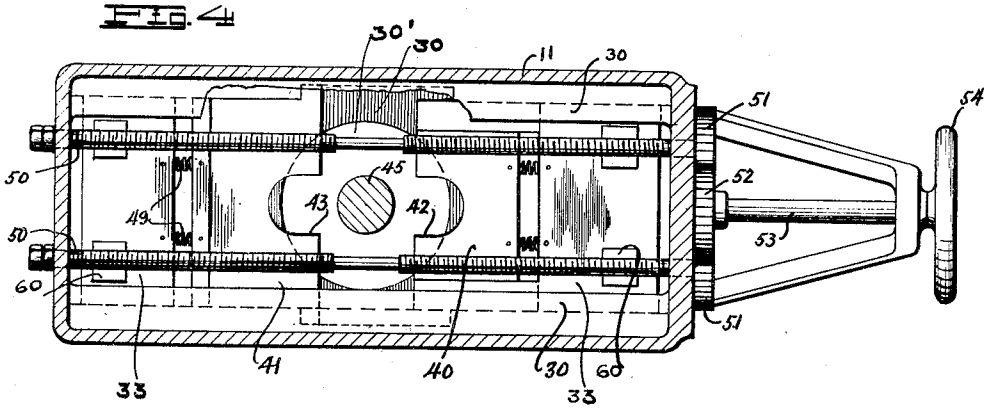


Fig. 4



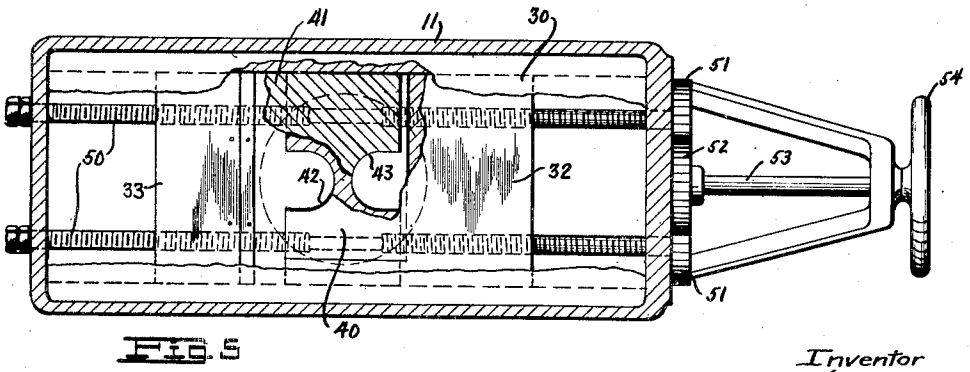


Fig. 5

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UNITED STATES PATENT OFFICE.

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WELL-CAPPING DEVICE AND CONTROLLING HEAD.

Application filed May 2, 1925. Serial No. 27 612

This invention relates to well capping devices and controlling heads.

The general object of the invention is to provide an improved well capping device which will act when the drill rod is in the well to cap the well without removing the drill rod.

Another object of the invention is to provide an improved well capping device wherein means is provided for capping a well regardless of whether the drill stem is in the well or is removed.

Another object of the invention is to provide a well capping device which will serve to cap the well when the drill rod is in the well and wherein the device is adapted for use with different sizes of drill stems.

Another object of the invention is to provide an improved valve for use in the well capping device.

A further object of the invention is to provide a bowl for the controlling head of an oil well wherein threaded flanges of different diameters are provided on the bowl.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawings wherein Fig. 1 is a central sectional view through a well capping device and controlling head embodying the features of my invention; Fig. 2 is a top plan view looking in the direction of the arrow in Fig. 1; Fig. 3 is a section on line 3—3, Fig. 2; Fig. 4 is a section on line 4—4, Fig. 3, partly in elevation, showing the details of the controlling valve; Fig. 5 is a view similar to Fig. 4 on line 5—5, Fig. 3 showing the parts in another position and Fig. 6 is a perspective view partly broken away showing a portion of the improved valve.

Referring to the drawing by reference characters, I have shown my invention as embodying a body portion 10 having a head 11 secured thereon by a threaded portion 12. The body 10 includes a bowl portion 14 which is shown as provided with an inclined shoulder 15 the latter having discharge members 16 therein, threaded internally as at 17 for the reception of discharge pipes.

The lower portion of the body terminates in a pair of spaced flanges 18 and 19. These flanges enable my device to be used with well casing of small diameter which is illustrated in full lines at 20 or with well casing of larger diameter as illustrated in dotted lines at 21. It will be understood, of course, that more than the two flanges 18 and 19 may be arranged as desired, so that the controlling head may serve on casings of various diameters.

The head 11 previously referred to comprises an upper portion 25 and a lower portion 26. These two parts are provided with flanges 27 and 28 which may be removably secured together by bolts 29.

The upper head member 25 is provided with a solid plate 30 which has a central discharge aperture 30′ therein. Spaced from the plate 30 is a rib 31. The plate 30 and rib 31 provide a slot 31′ and in this slot 31′, I mount my improved capping valve. This valve comprises a pair of members 32 and 33 which slide within the discharge aperture 30′. The valve members 32 and 33 are adapted to interfit and for this purpose the outer end portions 35 of the valve 32 comprises a pair of spaced portions while the valve 33 has a portion 36 thereon which fits between the portions 35.

The valve members 32 and 33 are provided with spring pressed sliding blocks 40 and 41 which are provided with recesses 42 and 43 respectively. These recesses are arranged to receive the drill rod 45. The movable valve member 40 is provided with a rabbeted portion 46 which engages similar portions on the valve member 32 while springs 47 serve to normally push the movable portion 46 outwardly. Pins 48 serve to hold the springs 47 and the valve blocks 40 and 41 in the position shown. The block 41 moves within rabbets in the valve member 33 and is normally pushed outwardly by a spring 49.

When a drill rod is in the well and it is desired to close communication from the well, the valves 32 and 33 will be moved toward each other so that the movable valve blocks 40 and 41 will engage the drill stem and close the well. This position of parts is shown in Fig. 2 of the drawing. The movable blocks 40 and 41 it will be understood may be entirely removed from the body of the valve and other movable blocks substituted therefor. This will enable the apertures 42 and 43 to be of the same diameter as the drill stem to effect a tight joint.

If the drill stem is out of the well and it is desired to completely close communication to the well the valves will be operated so that they would entirely overlap as shown in Fig. 5 thus closing communication to the well.

In order to actuate the valve members, I

show a pair of elongated screws 50 which are mounted to rotate one at each side of the upper portion of the head. Each of these screws is provided with a gear 51 and the two screws may be simultaneously driven through a gear 52 on a shaft 53 by means of a hand wheel 54. The valve member 32 is provided with a pair of half nuts 60, while the valve member 33 is provided with a pair of half nuts 61. It will be noted that the portion of the screws which engage the half nuts 60 are right handed while the portions of the screws which engage the half nuts of the screws 61 are left handed. As a result of this, when the end wheel 54 is rotated, the valve portions 32 and 33 will simultaneously approach and retract from each other depending upon the direction of rotation of the hand wheel.

Having thus described my invention, I claim:

1. The combination with a casing head including a lower body part and an upper head portion, of a series of distributing outlets in said body portion, said head portion including two parts detachably secured together, one of said parts having an apertured plate therein, ribs in said head spaced from said plate, a pair of valve members movable on said ribs, one of said valve members having a spring pressed block movable therein, the other valve member also having a spring pressed block movable therein, one of said movable members comprising two spaced portions and the other member having a portion thereon adapted to fit between said spaced portions, said movable blocks having drill stem engaging slots therein, a threaded shaft extending through said head, one portion of said threaded shaft having right-hand threads and the other part of said shaft having left-hand threads, said valve members having threaded portions thereon engaging said threads and means for rotating said threaded shaft to simultaneously move the two valve members.

2. In a controlling head for oil wells, a body for attachment to a casing having a head thereon, a pair of sliding valve members in said head, spring pressed means on each of said valve members for engaging a drill rod to close communication to said well, said members being movable to close the well when said drill rod is out of the well.

In testimony whereof, I hereunto affix my signature.

ALBERT ORVALL HESSEMER.