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2,167,591

PUMP ROD GUIDE AND CHECK

Filed March 2, 1936

Fig.1

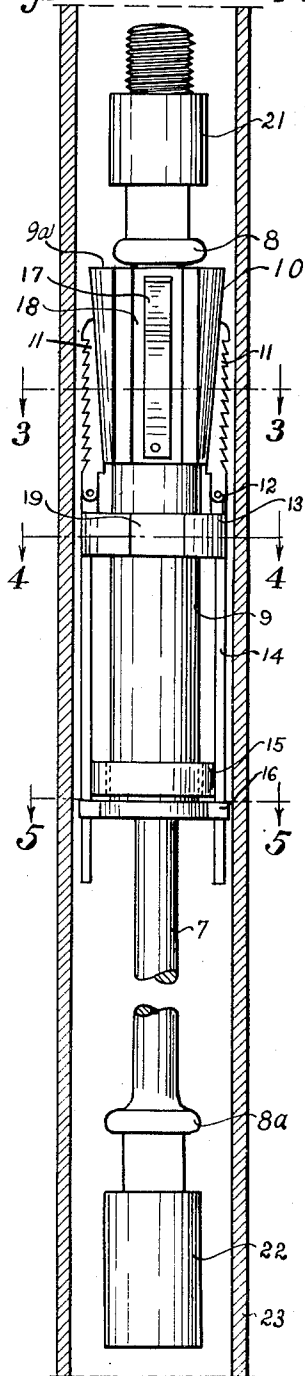


Fig.2

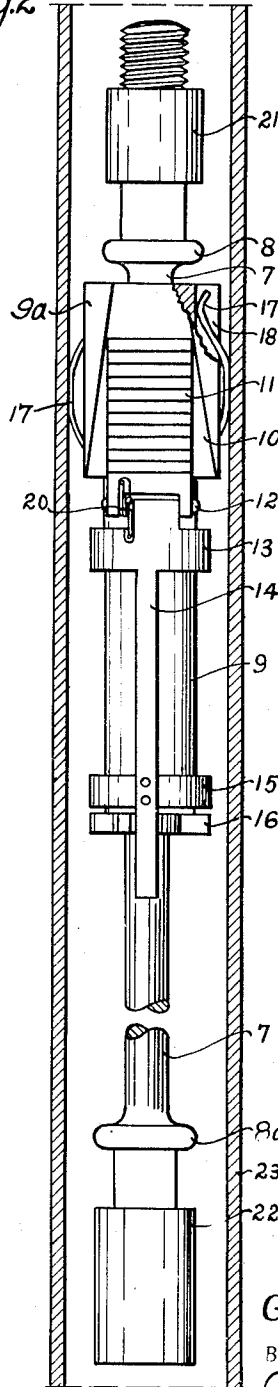


Fig.3

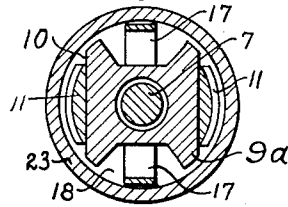


Fig.4

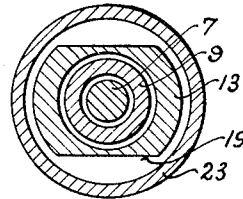


Fig.5

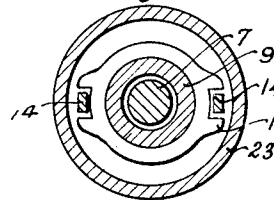
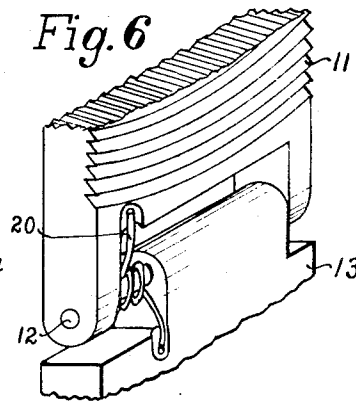


Fig.6



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PUMP ROD GUIDE AND CHECK

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3 Claims. (Cl. 255—28)

The invention relates to guide means for pump rods of oil and other deep wells and provides for catching and holding the rod in the event of breakage or other cause tending to permit the rod to fall.

The invention aims to provide a device that may be lowered to a desired point in the tubing of a well and held therein by friction, and which will guide the rod and protect the well tubing from wear and which, in the event of the rod tending to drop from any cause, will arrest the descent and prevent the rod from dropping.

While the drawing illustrates a preferred embodiment of the invention, it is to be understood that in adapting the same to meet specific needs and requirements, the design may be varied and changes in the minor details of construction may be resorted to within the scope of the invention as claimed, without departing from the spirit thereof.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and the drawing hereto attached, in which:

Figure 1 is an elevational view of a rod guide and check embodying the invention, showing it applied and adapted to be adjusted within a well tubing.

Figure 2 is a similar view taken at a right angle.

Figure 3 is a cross section on the line 3—3 of Figure 1.

Figure 4 is a similar section on the line 4—4 of Figure 1.

Figure 5 is a section on the line 5—5 of Figure 1.

Figure 6 is a fragmentary perspective view of a slip and the part to which it is pivoted.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawing by like reference characters.

The numeral 23 designates the tubing of an oil or other deep well, and 7 a section of rod operable therein. The guide and check comprises an elongated tubular body 9 having a head 9a formed upon opposite sides with inclined faces 10. The rod 7 has a loose fit in the body 9 and is provided with enlargements forming stops 8 and 8a to engage the body 9 and move it to the desired position within the tubing 23. Flat springs 17, secured to the head 9a, engage the inner wall of the tube 23 to hold the device therein at the required adjusted position. These springs 17 are located in recesses 18 formed in the head 9a between the inclined faces 10.

Slips 11 are seated on the inclined faces 10 and are pivoted to a ring 13 and held seated by springs 20 mounted on the pivots 12. Arms 14 connect the ring 13 with a companion ring 15 slidable on the body 9. The lower ends of the arms 14 engage notches in a flange 16 at the lower end of the body 9, thereby maintaining the body and slips in given position, with the slips 11 on the inclined seats 10. The parts 13, 15 and 14 constitute a carrier for the slips and said carrier is slidable on the body 9 but prevented from turning thereon by the arms 14 and part 16. When the slips 11 and its carrier are at the lowest position on the body 9 the device may be moved freely within the tubing 23 to the desired position, as will be readily understood. The springs 17 retain the device in the located position which is such as not to interfere with the free movement of the pump rod 7. Should the rod break or tend to fall, the stop 8, being spaced an appreciable distance above the head 9a will strike the head 9a with such a sudden and large impact as to overcome the resistance offered by the inertia of the head 9a and body 9, friction of springs 17 against the casing and the friction of the spring-pressed slips 11 against the head 9a, and this impact moves the head 9a so quickly that it slides downwardly between the slips 11 which are still at rest because of their inertia. As the head moves relative to the slips 11, it forces them outward to grip the tube 23 and arrest the descent of the rod without injury to the rod or tubing. To release the rod, it is moved upwardly until the stop 8a strikes the body 9 and lifts it to permit withdrawal of the head 9a a distance to allow the slips 11 to release and, with the carrier, drop until the ring 15 engages the flange 16 or like part, thereby permitting the device to be adjusted within the well tubing in the manner aforesaid.

Having thus described the invention, what I claim is:

1. A combined rod guide and check comprising a body adapted for insertion into a well casing and constructed for slidably receiving a pump rod therethrough, said body having a head at one end thereof and a lateral stop at the other end, said head having lateral inclined faces, a carrier slidably mounted on the body between the stop and the head and having projections extending through the stop for preventing relative rotation, slips pivotally connected with the carrier in position to bear against the inclined faces, and friction means for holding the body in the well casing.

2. A combined rod guide and check comprising a body adapted for insertion into a well casing and constructed for slidably receiving a pump rod therethrough, said body having a head at one end thereof and a lateral stop at the other end, said head having lateral inclined faces, a carrier slidably mounted on the body between the stop and the head and having projections extending through the stop for preventing relative rotation, slips, pivot pins connecting the slips with the carrier in positions to bear against the inclined faces, a coiled spring at each pivot with the ends thereof bearing against the carrier and slip tending to press the slip against the inclined face, and friction means for holding the body in the well casing.

3. The combination with a pump rod having longitudinally spaced stops thereon, of a rod guide

and check comprising a body slidably sleeved on the rod between the stops, a carrier slidably mounted on the body for relative movement and having slips in position to engage a surrounding casing upon said relative movement in one direction, resilient means for normally holding the body in position in the casing for reciprocating movement of the rod relative thereto, the stops being arranged in transverse overlapping relation with the body and spaced apart a distance appreciably greater than the length of the body, whereby the rod may reciprocate relative to the body while said body is held in place in the casing by the resilient means but upon an extreme downward movement of the rod the stop above the body will engage and move the same to cause engaging movement of the slips.

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