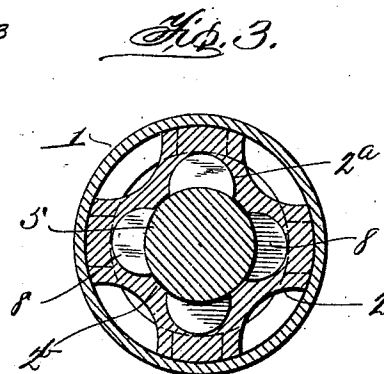
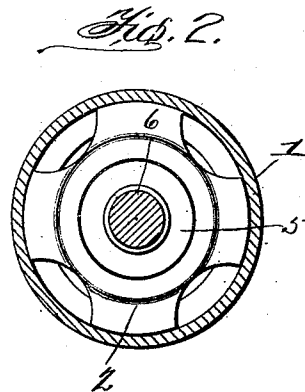
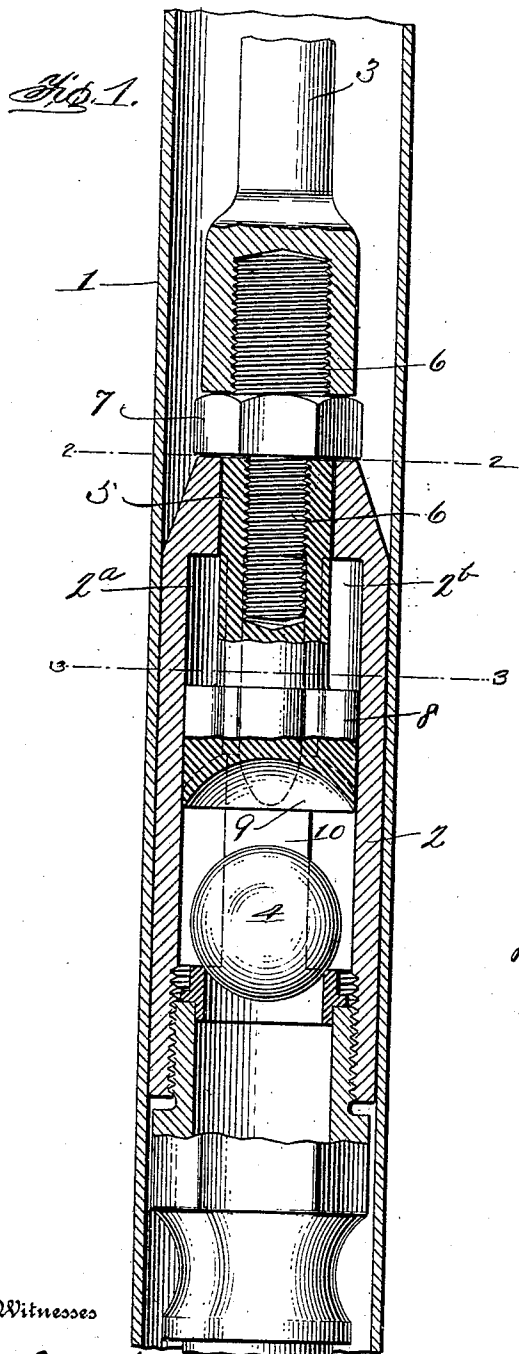


J. B. OEINK.
 BALL KNOCKER.
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969,489.

Patented Sept. 6, 1910.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN B. OEINK, OF FULDA, OHIO.

BALL-KNOCKER.

969,489.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN B. OEINK, a citizen of the United States, residing at Fulda, in the county of Noble and State of Ohio, have invented a new and useful Improvement in Ball-Knockers, of which the following is a specification.

This invention relates to a device for knocking loose the ball valve working in the usual valve cage of oil well pumps.

In oil wells there is provided a plunger having a portion known as the shoe in which the ball works. By reason of the nature of the material pumped through the plunger the ball often becomes coated with an adhesive material, such as asphaltum or the like and sticks to the roof or sides of the shoe. This prevents the ball from falling upon upward movement of the plunger, and it is often found necessary to pull the well in order to remedy the trouble. It is also common in many wells to employ upper and lower shoes upon the supposition that if the ball in one failed to work the other would operate. This difficulty my invention overcomes by connecting the shoe to the plunger operating rod, to the plunger, or to any other part which moves the shoe in the plunger, in such a manner that the connection forms a knocker which will always force the ball from the roof or sides in case the ball should adhere to either of them.

The jarring or knocking movement of this device always serves incidentally to jar the plunger loose from the walls of the working barrel should it at any time by reason of the adhesive nature adhere to the walls of the working barrel. But the main object of the invention is to knock the ball loose so that it will be unnecessary to pull the shoe to the surface in order to loosen the ball.

In the accompanying drawings, Figure 1 is a vertical section through the working barrel and a sliding shoe, and showing my invention applied thereto. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1.

In these drawings, 1 represents the working barrel, 2 the sliding shoe, 3 the operating rod for the purpose of moving the shoe in the working barrel and 4 the ball valve.

The rod 3 may be connected to any suitable motive power, in which case the plunger

practically becomes a part of the engine. In my invention I extend the shoe upwardly and the top is bored out to receive a freely movable pin 5 into the upper end of which is threaded a bolt 6 which carries a nut 7 formed integral with the bolt, and that portion of the bolt on the upper side of the nut is threaded into the lower end of the rod 3. Or it may be threaded directly into the lower end of the pump plunger rod, if desired. The pin 5 carries at its lower end ribs 8 and the shoe 2 is provided with suitable grooves 2^a in which said ribs slide, said grooves being closed at their upper ends so that the pin 5 cannot be withdrawn through the top of the shoe. The under face of said pin and ribs is concaved as shown at 9. This shoe is of such a length that on the down stroke the lower concaved end of the pin will project into the valve cage 10 of the shoe in which the valve ball 4 works.

It will be obvious that by grooving the sides of the bored portion for the pin in the upper extended portion of the shoe longitudinal ribs will be formed between said grooves as shown at 2^b in Fig. 3. As the shoe is forced downwardly the lower end of the pin is below the lower ends of these ribs, and the ball is in engagement with the concaved face 9 of the pin. As the plunger is drawn upwardly the pin will be lifted relative to the shoe, the ribs 8 of the pin moving up the grooves 2^a to the upper ends of said grooves. As the ribs 2^b prevent the ball from following the pin it will drop to its seat. But even if the ball should stick to the lower ends of the ribs 2^b, or to the sides of the upper portion of the cage, it would be struck by the pin upon commencement of the downward stroke the pin dropping relative to the shoe, the enlarged nut portion 7 striking the upper end of the shoe, and the lower end striking the ball, thus jarring the shoe and knocking the ball free.

What I claim is:—

1. The combination with a plunger having a loose ball working therein, of a pin operatively connecting said plunger to a motive power, said pin having a limited relative movement with respect to the plunger and the ball, and reciprocating through the upper portion of the plunger.

2. A device of the kind described comprising a sliding shoe, a ball valve therein, a pin working freely through the upper portion of the shoe, and ribs formed on the pin,
5 the shoe being provided with grooves to receive said ribs, the upper ends of the grooves being closed, the lower end of said pin be-

ing concaved and extending when the pin is in its lowest position, with respect to the shoe, below the lower ends of the grooves.

JOHN B. OEINK.

Witnesses:

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