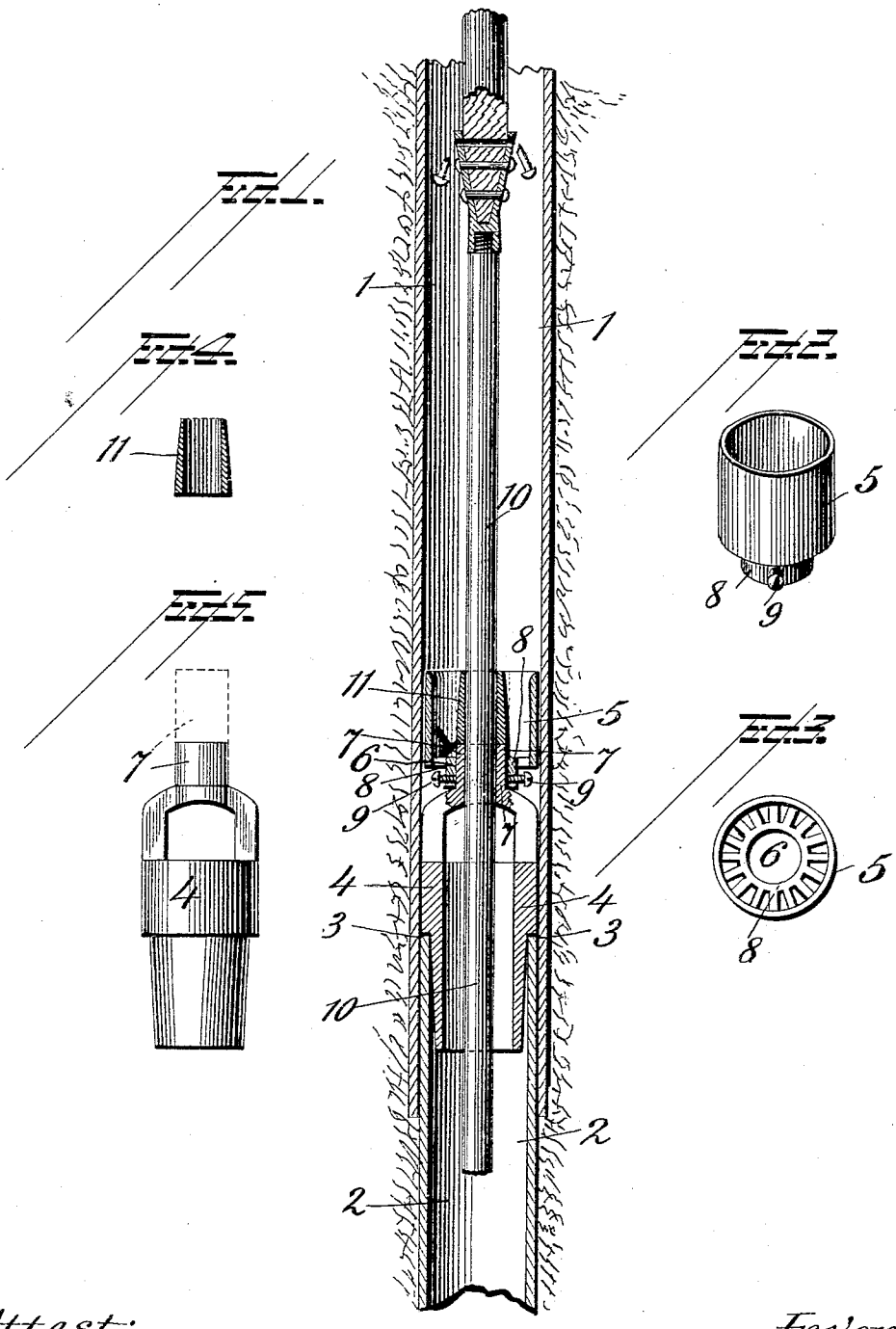
(No Model.)

J. H. GIBSON & T. D. SUTTON.

PUMP FOR OIL WELLS.

No. 504,679. Patented Sept. 5, 1893.



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UNITED STATES PATENT OFFICE.

JOHN HARVEY GIBSON, OF BRUIN, AND THOMAS DONLY SUTTON, OF CONOQUENESSING, PENNSYLVANIA.

PUMP FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 504,679, dated September 5, 1893.

Application filed September 13, 1892. Serial No. 445,804. (No model.)

To all whom it may concern:

Be it known that we, JOHN HARVEY GIBSON, of Bruin, and THOMAS DONLY SUTTON, of Conoquenessing, county of Butler, State of Pennsylvania, citizens of the United States, have invented certain new and useful Improvements in Pumps for Oil-Wells; and we do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to pumps for oil wells, and has for its object to provide a cup to catch the rivets that frequently become disconnected from the joints between the parts of the rod employed to move the piston rod or working valve up and down, and which rivets when they become disconnected drop down into the working barrel of the well and seriously interfere with the proper working of the pump or valves and cause injury to the valve rod or check and other portions of the pump by cutting and wearing the same, and at times become lodged between the working parts of the pump or valves and the working barrel.

The invention is particularly adapted to that class of oil well pumps in which is employed a valve of the general form illustrated in the drawings and which is known in the oil regions as a Crocker check which remains stationary in the top of the working barrel while the piston or valve rod reciprocates through the same; but it may also be employed with the devices which take the place of such a valve. In construction of the kind wherein the valve or piston rod reciprocates, the rod becomes seriously injured by these loose rivets dropping down the working barrel and bearing against the rod, and also by getting under the valve during its reciprocation. This invention seeks not only to catch the rivets and thus prevent them from dropping down to and below the Crocker check and working valve which are much damaged when they are drawn past the rivets extricating the rods, but also to hold the rivets away from the valve or piston rod after they have dropped into the cup which catches them so that after they are caught they will be held away from the reciprocating rod and will not be floated up and down with the oil in the working barrel, which if permitted will abrade the smooth surface of the barrel and impair its efficiency.

To the accomplishment of the foregoing objects and such other objects as may hereinafter appear, the invention consists in the construction and combination of parts hereinafter particularly described, and then sought to be specifically set forth by the claims.

Figure 1 is a vertical section of a portion of an oil well pump with our invention applied, the valve rod being in full lines. Fig. 2 is a perspective view of the rivet catching cup. Fig. 3 is a top plan view of the same. Fig. 4 is a section through the valve rod sleeve; and Fig. 5 is a side view of the valve.

In the drawings numeral 1 designates the tubing ordinarily employed in oil wells, and 2 the ordinary working barrel which ordinarily is about one-quarter of an inch less in diameter than the inside of the tubing so as to form a shoulder 3 on which rests the portion 4 of the valve casing. The parts and their construction below the valve will be the same as under the common construction generally in use and therefore need not be illustrated as the same is not necessary to a clear understanding of this invention.

The cup constituting this invention is designated by the numeral 5, and in diameter is about one-eighth of an inch smaller than the inside diameter of the tubing 1, thus leaving a space sufficient between the cup and the tubing to allow the cup to be withdrawn when the valve and other parts are taken out for the purpose of repairs, and yet not space sufficient to allow the detached rivets, whole or broken, to pass between the cup and the tubing. This cup has a perforated bottom so that the oil may pass freely up through the cup and is also formed in its bottom with a central aperture or opening 6 so that it may be slipped over a tubular extension 7 rising from the top of the portion 4 which forms a support for the cup, and around this opening 6 it is formed with a depending flange or collar

8, so that set screws 9, three or more, may pass through this collar and bear against the tubular extension 7 so as to secure the cup immovably in place above the valve. With the cup so constructed and applied it is held firm and immovable and will catch the rivets that may become detached from the operating parts above, and being immovable will not throw the rivets against the valve or piston rod 10 which reciprocates through the cup and portion below. With the further view of preventing the loose rivets from coming in contact with the reciprocating piston or valve rod, we place a sleeve 11 around the valve rod in line with the opening 6 in the bottom of the cup which brings it within the cup between the valve rod and rivets which will lie loosely in the cup, said sleeve being preferably as high as the top edge to the wall of the cup, thus effectually shielding the reciprocating valve or piston-rod from any abrasion or cutting which would result if the loose rivets were allowed to come in contact with the piston rod which reciprocates through the stationary cup. This sleeve however may be omitted if the tubular extension 7 from the portion 4 be carried out to the top edge of the wall of the cup. In order to have this cup serve its purpose to the fullest extent so as to prevent injury from the detached and loose rivets to any part of the pump, it is necessary that the cup should be immovable and that there should be a protecting sleeve between the rivets in the cup and the piston rod which reciprocates through the cup, and these results are obtained by the construction described, and the serious inconvenience, and injury experienced under constructions at present in use are overcome and prevented.

We have described with particularity the details of construction and arrangement of the cup and its interior protecting shield or sleeve between it and the reciprocating piston rod, but we do not confine ourselves to such details where the same results can be obtained by immaterial alterations in such details.

Having described the invention and set forth its merits, what is claimed is—

1. The combination with the reciprocating piston or valve rod, of a tubular extension supported above the valve casing, and a cup formed with a perforated bottom and a central aperture to fit around said tubular extension and held immovably around the piston rod adapted to reciprocate through the cup, substantially as and for the purposes described.

2. The combination with the reciprocating valve or piston rod, of a tubular extension supported around the piston rod, a cup separable from said extension and formed with a perforated bottom and a central aperture to fit around said tubular extension and provided with a depending collar or flange around said aperture, and securing means passed through said collar and bearing against said tubular extension to hold said cup immovably in place while permitting the piston rod to reciprocate through the same, said tubular extension extending through the cup to form a shield to prevent loose rivets in the cup from coming in contact with the reciprocating rod, substantially as and for the purposes described.

3. The combination with the tubular extension supported around the piston rod, and the reciprocating piston rod, of a cup having a perforated bottom and held immovably upon said extension, and a sleeve resting on said extension and made separate from and located inside the cup between it and the reciprocating piston rod to shield the rod in its reciprocation through the cup from loose rivets caught and retained by the cup, substantially as and for the purposes described.

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

JOHN HARVEY GIBSON.
THOMAS DONLY SUTTON.

Witnesses:
R. P. DAUBENSPECK,
V. F. T. KELLY.