(No Model.)

A. C. SMITH.

OIL WELL TUBING ATTACHMENT.

No. 605,756. Patented June 14, 1898.

Fig. 3.

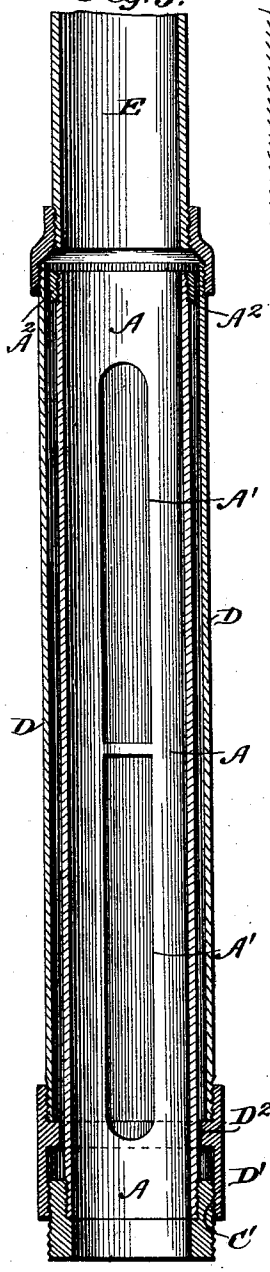


Fig. 1.

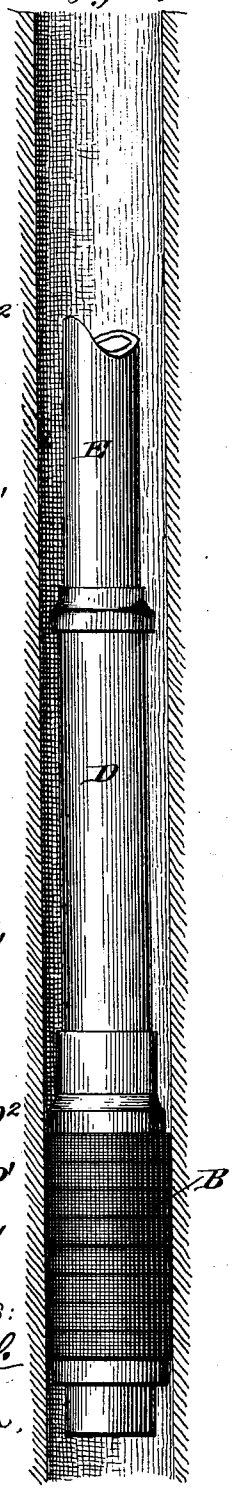


Fig. 2.

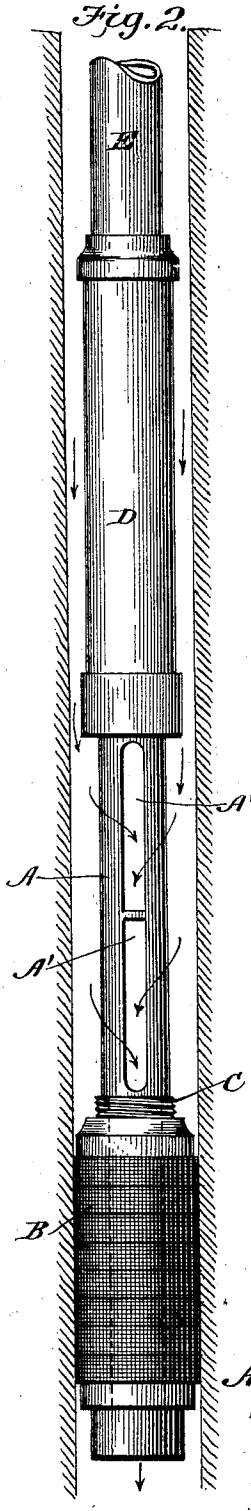
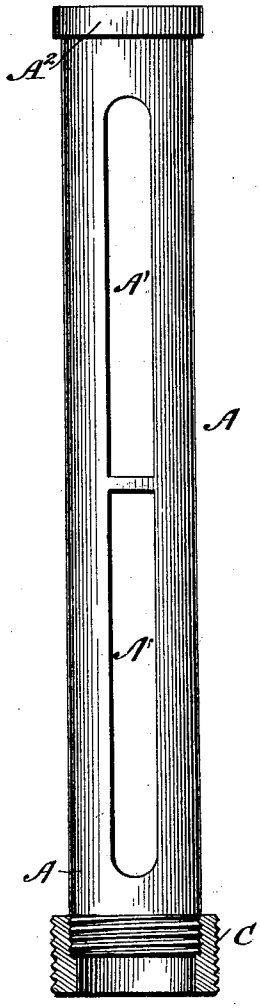


Fig. 4.



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UNITED STATES PATENT OFFICE.

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OIL-WELL-TUBING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 605,756, dated June 14, 1898.

Application filed December 17, 1897. Serial No. 662,330. (No model.)

To all whom it may concern:

Be it known that I, ANDY C. SMITH, residing at Sigel, in the county of Jefferson and State of Pennsylvania, have invented a new and useful Improvement in Oil-Well-Tubing Attachments, of which the following is a specification.

My invention is an improvement in oil-well apparatus, and has for an object to provide, in connection with the ordinary packer commonly used in gas-producing wells, means whereby to secure a discharge of the sediment and the like from above such packer preparatory to removing such packer; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of my improved devices in position for use. Fig. 2 is a similar view, the cover-sleeve being raised to expose the openings in the packer-tube section, such being the position of the parts for the discharge of the sediment. Fig. 3 shows the improved devices in longitudinal section, and Fig. 4 is a detail view of the packer tube-section.

In this class of wells when it is desired to remove the packer for any purpose such operation is rendered more difficult by the accumulation above the packer of sediment, &c., which not infrequently will strip the rubber from the packer, necessitating the application of new rubber to the packer and the separate withdrawal of the rubber from the well by means of suitable grabs or other suitable appliances. This difficulty in removing the packer is increased in many instances by the placing within the well of beans, rice, wheat, or other like substances, which will swell up and stop the sides of the well above the packer, it being common to use similar substances for such purpose. By my invention I seek to provide means whereby the sediment, including such foreign substances, may be discharged or cleared from above the packer, so the latter may be readily withdrawn when desired.

In carrying out my invention I provide a tube-section A, which connects at its lower end with the upper end of the packer B and which for convenience of reference I term the "packer" tube-section. At the base of the section A and the upper end of the packer B, I provide left-hand threads at C, by which to effect the detachable engagement or connection of the lower end of the cover-sleeve D, presently described. The section A may be of any suitable length, ordinarily from twelve to thirty inches long being sufficient, and this section A is usually of the same diameter as the main tube-section E, which latter is connected with the upper end of the cover-sleeve D, as shown.

The packer-section A is provided with openings A', through which the sediment may escape, as indicated by arrows in Fig. 2, when the parts are in the position shown in such figure, and the openings A' are preferably in the form of longitudinal slots of such size as to permit the egress of the sediment or the like without impairing too greatly the strength of the tube-section A.

The main tube-section E, as stated, connects with the upper end of the cover-sleeve D, and the latter may be regarded as forming a part of the main tubing. This cover-sleeve slides down over the tube-section A and is formed at its lower end at D' with left-hand threads for engagement with the threads C. The lower end of the cover-sleeve also operates as a piston to clear away or loosen and disintegrate the sediment and accumulations when it is desired to remove the packer, the reciprocation of the cover-sleeve tending to so loosen the sediment as to cause it to be carried down through the packer by the fluid from above, as will be understood from Fig. 2. The cover-sleeve D also operates as a jar in removing the packer, such sleeve being provided internally at its lower end with an upwardly-facing shoulder D^2, which engages beneath a downwardly-facing shoulder A^2 at the upper end of the section A, so the upward movement of the cover-sleeve D will cause the shoulder D^2 to jar beneath the shoulder A^2 and so loosen the packer, which may be withdrawn in the usual way. The shoulder A^2 is the lower end of a collar threaded on the upper end of the section A, and the shoulder D^2 is the upper end of a flange formed within a coupling threaded on the lower end

of the cover-sleeve, such construction being preferred for convenience in assembling the parts.

In the operation of my invention, the parts being in the position shown in Fig. 1, the tubing is practically complete and the gas or oil will flow up through the main tubing, as in the ordinary construction. When, however, it is desired to remove the packer, the tubing may be turned to the right, which will release the sleeve D from the left-hand threads C without detaching any of the sections of the main tubing E, and the cover-sleeve can now be raised to expose the openings through the section A to permit the escape of the sediment and clear the space above the packer to permit the ready removal of the latter, such clearing operation being accelerated, when necessary, by the reciprocation of the cover-sleeve D, as before described.

It will be seen that my invention may be regarded as involving tubing made in telescopic sections whose inner section is provided with openings for the passage of the sediment and whose outer section may be adjusted to cover or to expose the inner section for the purposes described.

By my invention it will be seen I provide means which render the removal of the packer easier and insure the removal of such packer in better condition than by the ordinary construction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The improvement in well-tubing herein described comprising the packer, having the left-hand thread at its upper end, the tube fixed to and projected upward from said packer and provided at its upper end with a downwardly-facing shoulder, such tube being provided with an opening and the cover-sleeve sliding on said tube provided at its lower end with a left-hand thread to engage that of the packer and having at such end an internal upwardly-facing shoulder to engage that at the upper end of the tube substantially as set forth.

2. In an apparatus substantially as described the combination of the packer having the left-hand thread at its upper end, the packer tube-section connected with and extended from the upper end of the packer and having an opening, the main tube-section and the cover-sleeve adapted at its lower end to engage the left-hand threads of the packer and also arranged to engage the upper end of the packer tube-section when the cover-sleeve is lifted, the cover-sleeve being independent of the packer whereby it may be moved without affecting the packing operation, substantially as described.

3. The improved apparatus herein described consisting of the packer having the left-hand thread at its upper end, the packer tube-section extended upward from the packer and having an opening and provided at its upper end with a downwardly-facing shoulder, the main tubing, and the cover-sleeve connected therewith and fitting down over the packer tube-section, such cover-sleeve being adapted at its lower end to engage the left-hand thread at the upper end of the packer and also having at its lower end an internal upwardly-facing shoulder whereby to engage the downwardly-facing shoulder at the upper end of the packer tube-section, the cover-sleeve being independent of the packer whereby it may be moved without affecting the packing operation, substantially as shown and described.

4. The combination of the packer, the tube projected up from the packer, and provided with longitudinal slots, and having the shoulder at its upper end, the left-hand thread at the upper end of the packer, and the cover-sleeve independent of the packer and movable over the tube above said packer, such cover-sleeve being arranged at its lower end to jar upon the packer, provided internally near such end with threads to fit those at the top of the packer and having near such end an internally upwardly-facing shoulder to bind beneath that at the top of the tube substantially as set forth.

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Witnesses:
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PERRY B. TURPIN.