(Model.)

2 Sheets—Sheet 1.

J. A. DOWER.

OIL WELL PACKER.

No. 249,228. Patented Nov. 8, 1881.

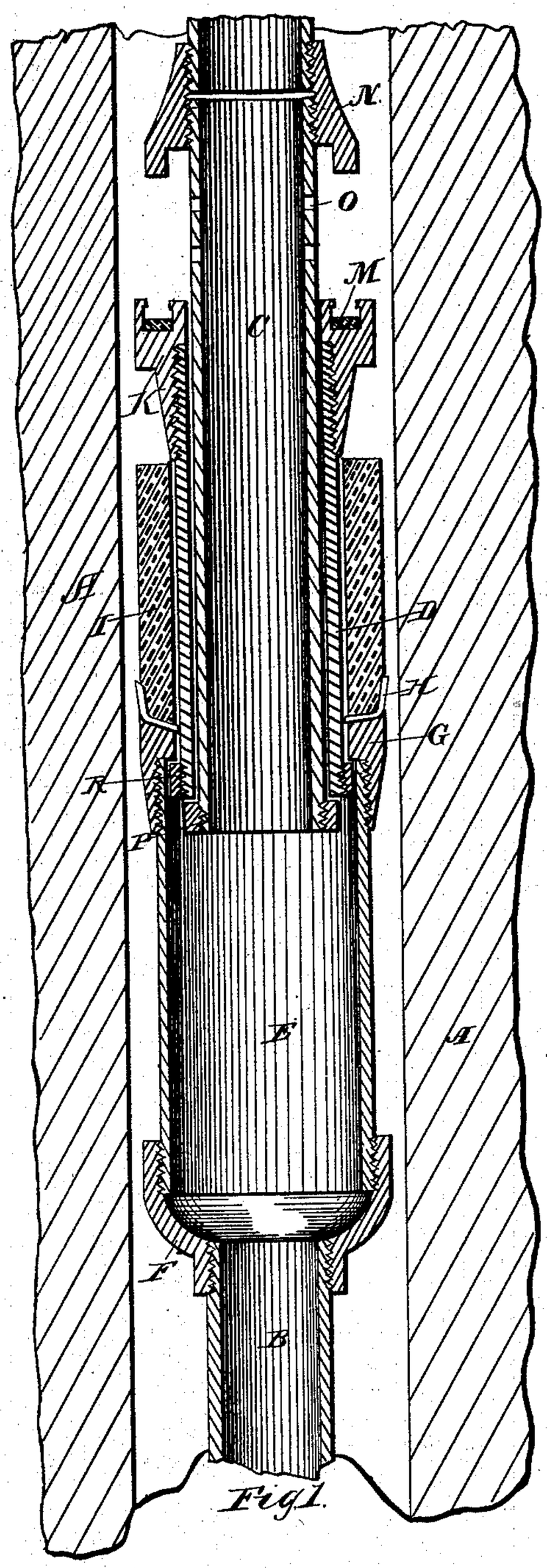

Fig. 1.

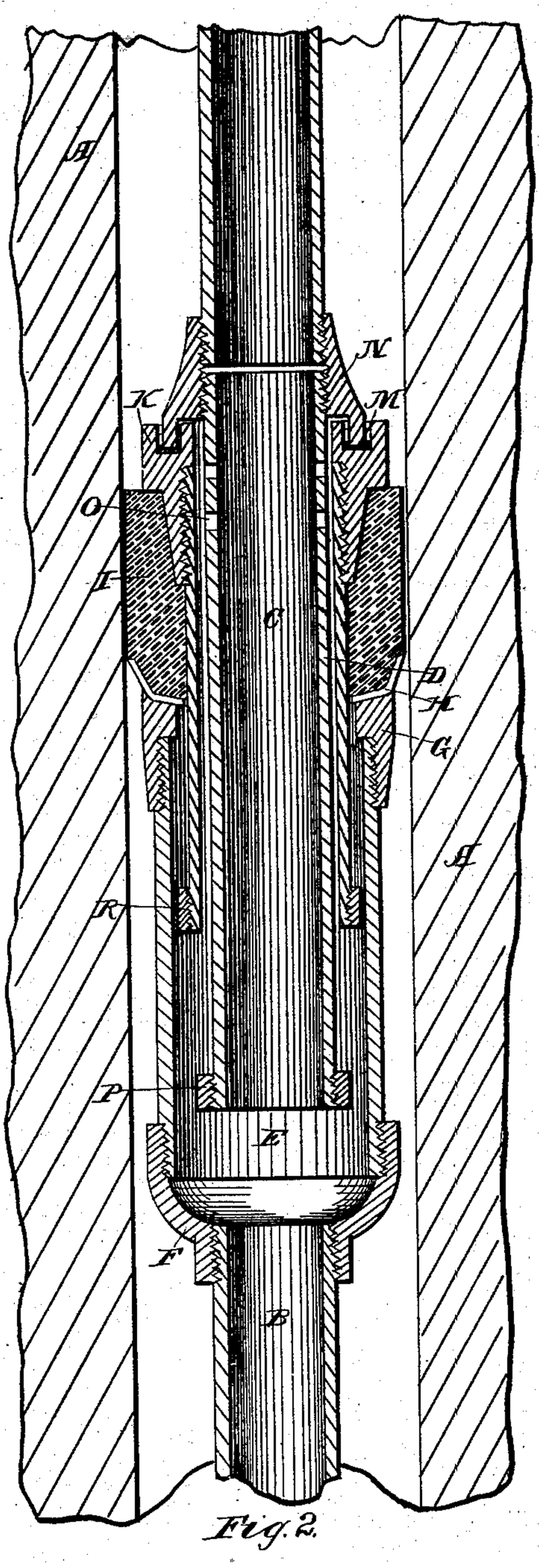

Fig. 2.

Witnesses.
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A. B. Howland

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By Joseph Smith
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(Model.)

2 Sheets—Sheet 2.

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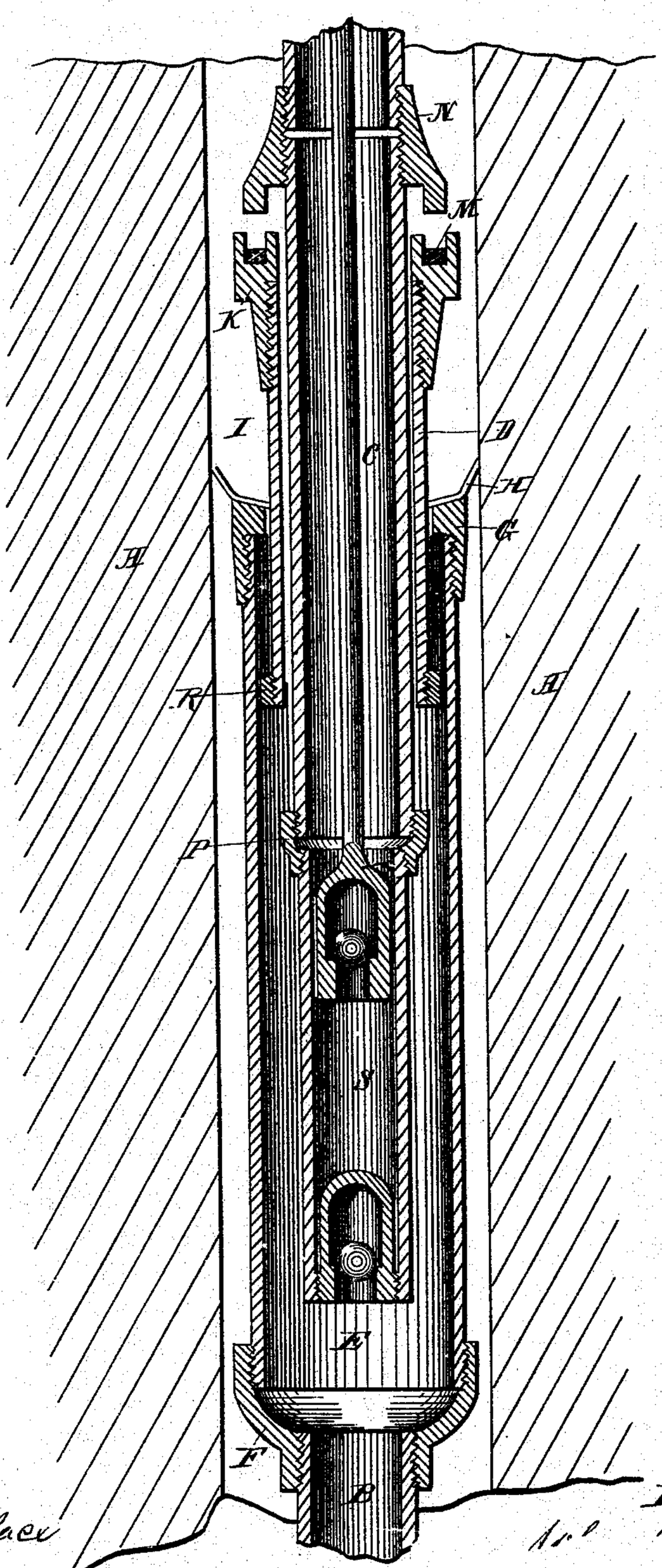
Fig. 3.



Witnesses.
Caleb Wallace
A. B. Howland

Inventor.
J. A. Dower

UNITED STATES PATENT OFFICE.

JOHN A. DOWER, OF TITUSVILLE, PENNSYLVANIA.

OIL-WELL PACKER.

SPECIFICATION forming part of Letters Patent No. 249,228, dated November 8, 1881.

Application filed March 25, 1881. (Model.)

To all whom it may concern:

Be it known that I, JOHN A. DOWER, of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Packers for Oil or Artesian Wells, of which the following is a specification.

My invention relates to those packers in oil-wells placed around the tubing at or above the top of the sand or oil-producing rock, the object of the packer being to prevent the free escape of the gas around the outside of the tubing and utilizing it to force the oil up through the tubing, producing what is called "flowing." The tubing has a telescopic joint, and with a collar upon both the upper and lower section, the packing rim or cylinder being placed between the two collars and distended by the weight of the upper section of tubing pressing upon it, the packing-ring being supported by the lower section, which rests on the bottom of the well. As a matter of course, when the packer is in use the water and débris collect in the well above the packer and create a great pressure upon it, which has to be overcome when it is necessary to remove the tubing from the well.

The object of my invention is to enable me to relieve the packer from that pressure by admitting the fluid to the well before the packer is started from its place. This I accomplish in the manner illustrated in the drawings, in which—

Figure 1 is a section of the tubing, telescopic joints, and packer as suspended in the well before reaching the bottom; and Fig. 2 a section of the same when in place and resting on the bottom of the well. Fig. 3, Sheet 2, is a section similar to Fig. 2, but with the addition of a working barrel or pump attached to the upper section of tubing, to illustrate the method by which the well, packed for flowing, may be pumped without removing the packer.

The same letters are used in the different figures to designate the same parts.

A represents the walls of the well; B, the lower section of tubing, which rests on the bottom of the well, and which is perforated to allow the fluid to enter the tubing; C, the upper section of tubing, reaching to the mouth of the well; D, a short section of slightly greater diameter inside than the outside diameter of C, and through which C plays; E, a short and still larger section, into which D plays freely, and which is firmly connected to B by the reducer F. On the upper end of the section E is the collar G, supporting the leather cup H, which incloses the lower portion of and supports the rubber or elastic ring I, which loosely surrounds the section D. On the upper end of the section D is the collar K, which collar is made conical at the lower end, and is also recessed or grooved on its upper side to receive the elastic packing-ring M.

To the section of tubing C is secured the collar N, having its lower edge tongued and fitted to enter the groove on the upper side of the collar K and rest on the packing-ring M.

In Figs. 1 and 2 are the holes or perforations O in the tubing C, just below the collar N.

To the lower end of the sections C and D are secured the collars P and R, which respectively engage with the lower end of the section D and the collar G. This admits of the suspension of the whole contrivance from the section C of the tubing.

The operation is as follows: As the apparatus is adjusted and lowered into the well it is extended, as shown in Fig. 1. When the lower end of the section B reaches the bottom, the section C following down, the tongue on the lower side of the collar N enters the groove on the upper side of the collar K and rests on the packing-ring M, thus forming a tight joint between the sections C and D. Still pressed downward by the weight of the tubing, it forces the section D downward, forcing the cone on the lower side of the collar K inside the packing-ring I, compressing the packing, and expanding it and the leather cup H against the walls of the well, and effectually cutting off any passage of fluid up or down. When it is required to draw the tubing the section C is first raised, disengaging the collar N from the collar K, and admitting the fluid from the outside of the tubing to pass down between C and D, and also through the perforations O into the tubing, thus filling the well below the packing-ring I and relieving it from the pressure, when the whole can easily be drawn from the well.

Some wells need to be pumped occasionally, and to do this it is necessary to provide some escape for the gas, as well as to admit atmospheric pressure to the fluid. Ordinarily it has been considered necessary to remove the packer to accomplish this. I accomplish it in the man-

ner illustrated in Fig. 3, Sheet 2, which shows the same contrivance, except that a working-barrel, S, is attached to the bottom end of the section C of the tubing, and the section E is made sufficiently long to receive it. The openings O in the section C are also omitted. When arranged for pumping the tubing C is raised, disengaging the collars K and N, when the gas escapes freely between the sections C and D, and the well pumps in the ordinary manner.

As a further advantage to be gained by my construction, the vertical play of the section C inside the section D, being entirely free from contact with the elastic packing-ring I, admits of jarring, if it is necessary to do so, in releasing and removing the packer.

I make no claim for the section D telescoping with the section E, nor for the collar G, leather cup H, rubber packing-ring I, nor the cone on the lower part of the collar K, as all these have been previously patented or used.

I claim as my invention—

1. In the tubing of an Artesian well, the section D, telescoping with the section E, the section D having surrounding it the elastic packing-ring I, and with the collar K, in combination with the section C, telescoping with the section D, the collar N on the section C engaging with the collar K on the section D, the joint being packed by the elastic packing M, and with the openings O in the section C, substantially as described, and for the purposes herein set forth.

2. In the tubing of an Artesian well, the section C, telescoping with the section D, the section C having a collar, N, engaging with a collar, K, on the section D, the joint between the two collars being packed or rendered fluid-tight, in combination with any packer connected with or surrounding the section D, substantially as described, and for the purposes herein set forth.

3. As a device by which Artesian or oil wells packed for flowing can be pumped without removing the packer, the upper section, C, telescoping with the section D, which has the packing-ring surrounding it, an annular space being left between the two sections, and with the collar N upon the section C engaging with the collar K upon the section D, so that by slightly raising the section C a free passage is made for gas or fluid inside the packing-ring, substantially as described, and for the purposes herein set forth.

JOHN A. DOWER.

In presence of—

SAMUEL GRUMBINE,

A. S. RALSTON.