No. 754,138. PATENTED MAR. 8, 1904.

C. M. HEETER.

OIL WELL PACKER.

APPLICATION FILED MAY 11, 1903.

NO MODEL.

Fig. 1.

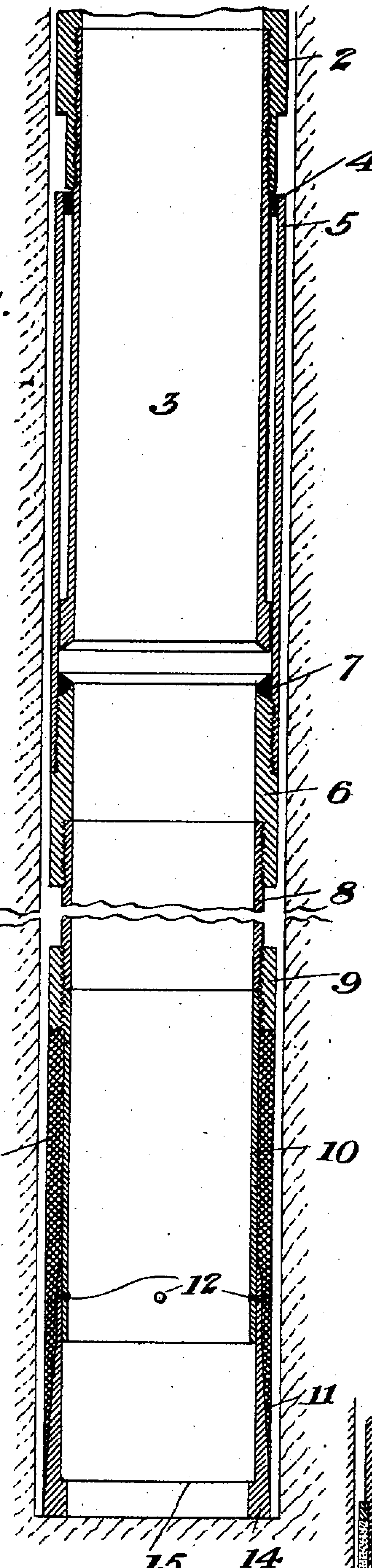


Fig. 2.

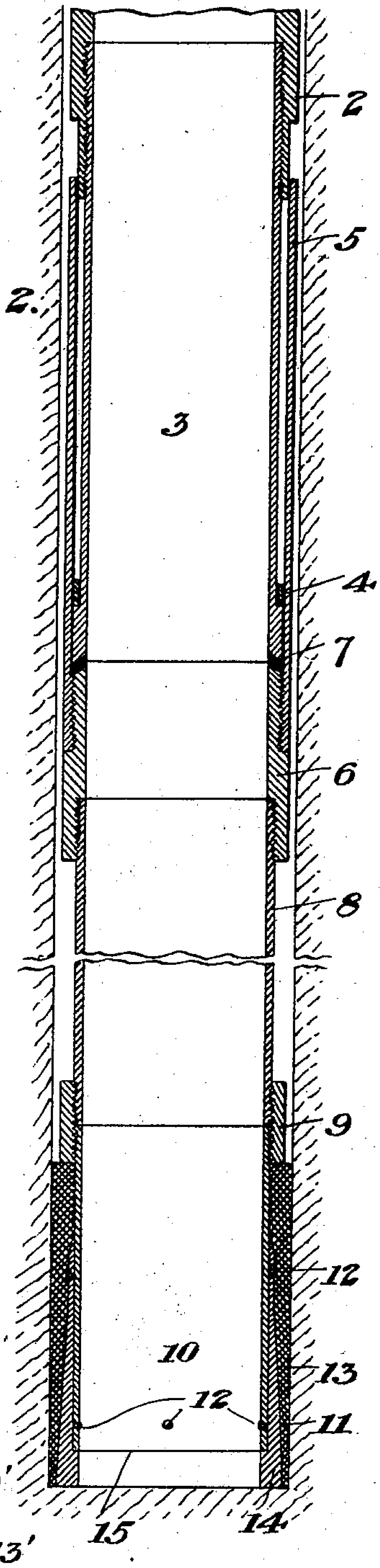
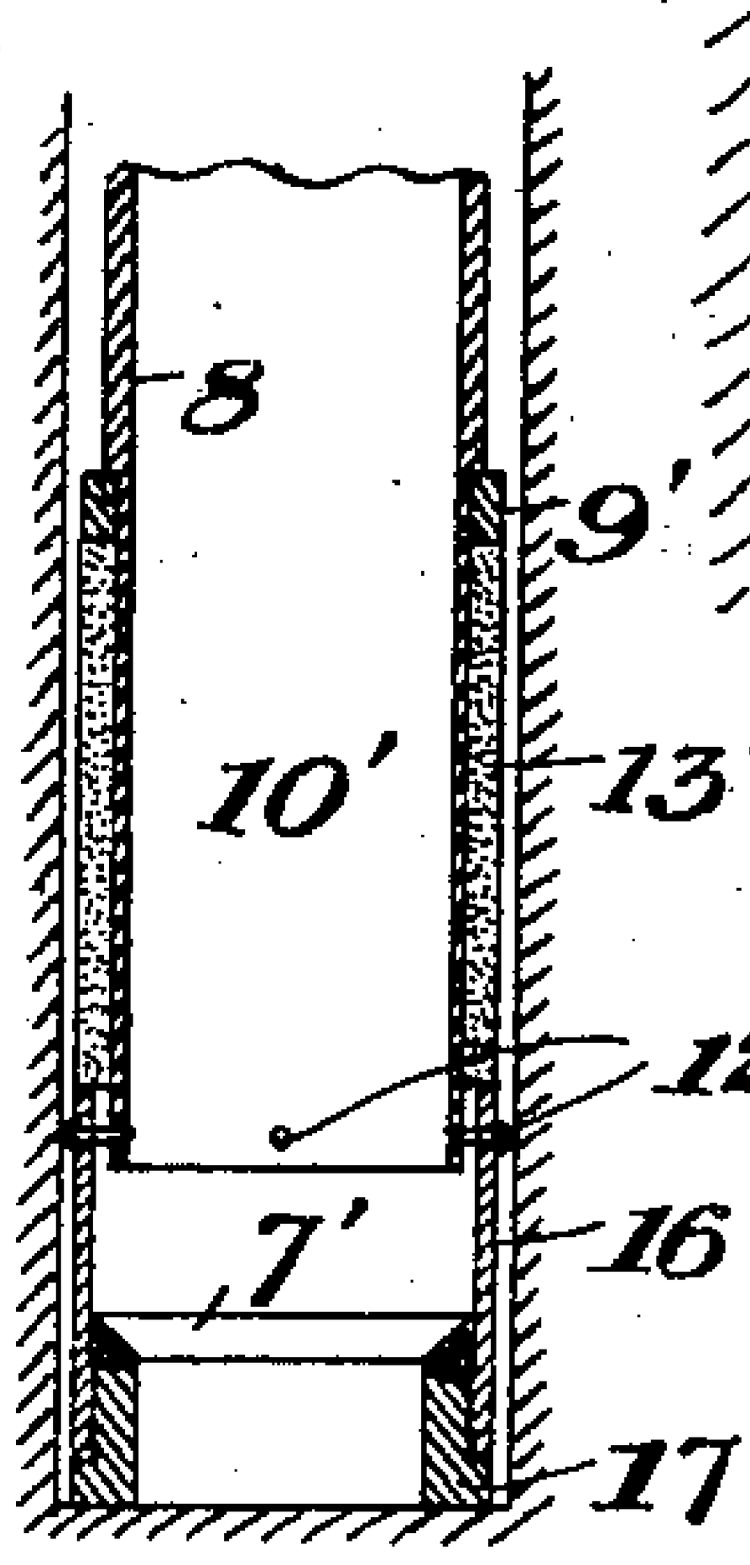


Fig. 3.



WITNESSES

INVENTOR

Charles M. Heeter

by Bakewell & Byrnes

his attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 754,138. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

CHARLES M. HEETER, OF BUTLER, PENNSYLVANIA.

OIL-WELL PACKER.

SPECIFICATION forming part of Letters Patent No. 754,138, dated March 8, 1904.

Application filed May 11, 1903. Serial No. 156,594. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HEETER, of Butler, Butler county, Pennsylvania, have invented a new and useful Oil-Well Packer, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a vertical section showing my improved packer at the bottom of a well with the parts in position before packing. Fig. 2 is a view similar to Fig. 1, showing the parts in the packed position; and Fig. 3 is a view similar to Fig. 1, showing a modified form.

My invention relates to the packing of deep wells, such as oil or gas wells, and is designed to provide for easy pulling out of the casing above the packer, leaving the packer in the well.

In ordinary constructions when a well is abandoned a casing-cutter is lowered within the casing to cut it off near the bottom and leave a small part of the casing in the hole. The expense and trouble of this operation is avoided by my construction by reason of a frangible joint, which is broken as the packer is set or packed. The invention is also of advantage where several strings of casing are used of different diameters. In such case where oil or gas is obtained there is no way of cutting the outside strings of casing, and it is necessary to work it loose with machinery at the top of the hole. This often fails where the hole caves, and if the casing is pulled apart, as often occurs, the greater part of it is usually left in the hole. My invention enables the various strings to be drawn up when desired, thus saving greatly in the cost of deep wells.

In the drawings, referring to the form of Figs. 1 and 2, 2 represents a casing-section having a shell or sleeve 3 secured thereto by an inner thread connection. The shell 3 extends through a shallow metal ring 4, which is threaded within the upper end of an outer casing-section 5. Within the lower end of this casing-section is screwed a hollow plug connection 6, at the upper end of which is located a packing 7 of lead or similar material. A casing-section 8 is threaded to the plug 6 and at its lower end is connected to an outer sleeve 9, within which is secured a packer-shell 10. A lower cone 11 surrounds the lower part of the shell 10 and is secured to it by rivets 12. An annular packing 13, of lead, rubber, or other suitable material, extends around the packer-shell and around the cone. The lower portion 14 of the cone is arranged to rest upon the bottom of the well, as shown. The ring 4 and the rivets 12 are made of such strength that they will not be broken during the lowering of the casing in the well; but when the casing reaches the bottom or a resistance is otherwise formed the weight of the superimposed casing will shear off the rivets 12 and the threads of the ring 5 and allow the shell 3 to slide down and rest on the lead packing 7. At the same time the weight of the casing drives the packer-shell 10 downwardly within the cone until the lower end of the shell rests upon the limiting-shoulder 15. During this action the lead gasket is forced down around the cone by the collar 9, and is thus expanded, so as to effectually pack the bottom of the hole. The casing is thus packed externally at the bottom and at the same time is packed at the joint between it and the packer internally. If it is desired to remove the casing from the well, all that is necessary is to draw it up, when the shell 3 will be lifted from the lead packing, and the casing will pull out of the packer, from which it was disconnected at the time of packing.

In the form of Fig. 3 I show the lower shell 10′ of the packer as provided with a shoulder or ring 9′, bearing upon a rubber sleeve 13′. The lower end of this gasket bears upon a sleeve 16, which is riveted to the lower end of the shell 10′. An inner shoe 17 is screwed within the lower end of the collar 16, and on it rests an annular lead packing 7′. In this case when the shoe 17 rests at the bottom of the well the weight of the casing will shear off the rivets, and the ring 9′ will compress the rubber as the shell 10′ descends. The lower end of the shell 10′ then reaches and compresses the lead packing 7′, at which time the rubber is swelled out to thoroughly pack the lower end of the hole.

The advantages of my invention result from

doing away with the cutting of the casing and tubing by a casing-cutter, which is used at great expense; and also from preventing the pulling apart of strings of the casing and losing a part of such casing. The use of the frangible joint disconnects the casing from the packer at the time of packing, so that the casing may be lifted at any time without the necessity of cutting it free from the packer.

The arrangement of the packer, the frangible connection, the casing or tubing, &c., may be varied widely without departing from my invention, since I consider myself the first to use a frangible connection between casing or tubing and the packing device.

I claim—

1. A deep-well casing or tubing, and a packer connected thereto by a frangible joint; substantially as described.

2. A casing or tubing having a packer connected thereto by a frangible joint, and an inner sealing-gasket for the casing; substantially as described.

3. A casing or tubing having a telescopic connection with a packer, the connection being held against movement by a frangible joint arranged to be severed by the weight of the casing; substantially as described.

4. A packer for deep wells having an expansible gasket, an expanding device therefor, and a frangible connection between the packer and the expanding device; substantially as described.

5. A packer having an annular expansible gasket, an expanding-shoe, and a frangible connection forming the sole connection between the shoe and the packer, the shoe being arranged to expand the gasket when the connection is broken; substantially as described.

6. A casing or tubing having a packer secured thereto by a frangible connection, an inner sealing-gasket, and a telescopic connection arranged to engage and compress the inner gasket when the frangible connection is broken; substantially as described.

7. A deep-well packer having a casing, an annular gasket surrounding the casing with its lower end flush with the bottom end of the packer, both resting upon the bottom of a hole, and a shoulder on the casing bearing upon the flat top edge of the gasket, whereby the gasket aids in holding the weight of the casing; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES M. HEETER.

Witnesses:
GEO. B. BLEMING,
JOHN MILLER.