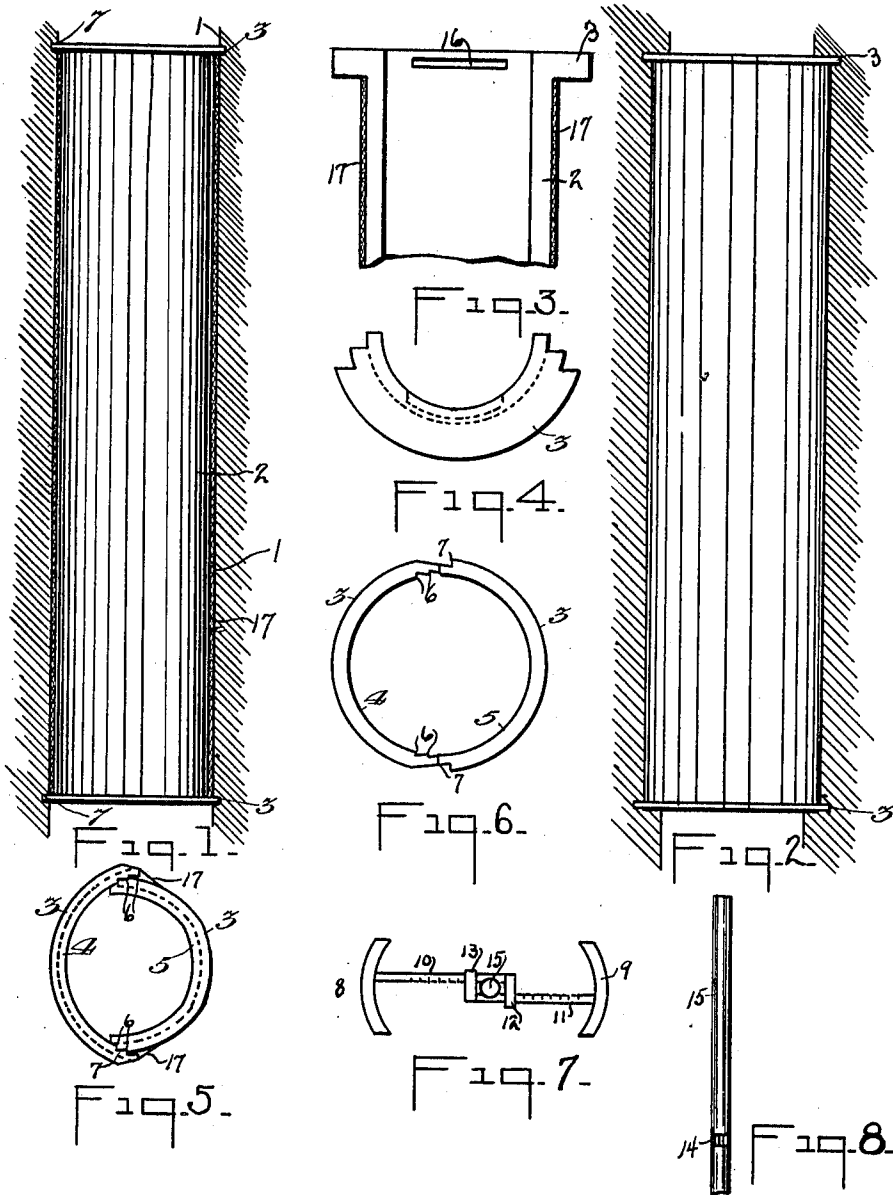


J. S. STEWART.
CASING MECHANISM.
APPLICATION FILED AUG. 10, 1909.

984,449.

Patented Feb. 14, 1911.



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JOHN S. STEWART, OF HOUSTON, TEXAS.

CASING MECHANISM.

984,449.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed August 10, 1909. Serial No. 512,250.

To all whom it may concern:

Be it known that I, JOHN S. STEWART, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Casing Mechanism, of which the following is a specification.

My invention relates to new and useful improvements in casing mechanism.

The object of the invention is to provide a pipe joint or casing which may be used in the process of drilling, to case off any undesirable flow which may be encountered. In drilling for oil particularly, an Artesian flow of water is often encountered, which now necessitates the lowering of casing pipe from the surface of the ground downward and bushing the same until the flow is cut off. This casing must then be left in place and the bore made smaller therebelow, thus requiring the use of a great amount of expensive casing as well as obstructing the progress of the work by reason of the lessened bore.

My improved casing is designed to be made in comparatively short joints and when an objectionable flow is encountered the joint is lowered until it is opposite said flow and then expanded by means hereinafter described until it shuts off the flow and at the same time leaves the bore, its original size. The drilling process may then be continued without obstruction and the bore below said casing joint may be the same size as it is thereabove.

My invention also comprehends a mechanism whereby said pipe joint may be expanded, said mechanism being operative from the ground surface.

With the above and other objects in view, my invention has particular relation to certain features of construction and operation an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 is a view, in elevation of the exterior portion of a casing section showing a sectional view of the surrounding gunny sacking. Fig. 2 is a side elevation of a complete section of the casing expanded with the surrounding sacking removed. Fig. 3 is an enlarged sectional view of one end of the casing showing the engaging flange. Fig. 4 is an end elevation of the view shown in Fig. 3. Fig. 5 is an end view of the cas-

ing unexpanded. Fig. 6 is an end view of the device expanded. Fig. 7 is a plan view of the expanding mechanism and Fig. 8 shows a section of the operative rod of said mechanism.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 refers to the internal surface of the well bore and 2 refers to the body of the casing joint.

The numeral 3 designates circular projecting flanges carried by the ends of the casing. When the casing is being lowered it is contracted sufficiently to allow these flanges to freely enter the bore as shown in Fig. 1, but when the same is expanded as shown in Fig. 2, the flanges are buried in the walls of the bore and thus any stream encountered intermediate the ends of said joint, is effectually cut off.

In practice, the joints are composed of two longitudinal pipe sections 4 and 5 as shown in Figs. 5 and 6. One of these sections 4 has longitudinal internal rack teeth 6 at either edge designed to engage with similar external rack teeth 7 carried by the edges of section 5. The casing joint is contracted, as shown in Fig. 5 when being lowered into the well, section 5 resting within section 4. The casing is then expanded, as will be presently described, and the elasticity of section 5 causes its rack teeth to engage with the corresponding teeth of section 4 and the joint is thus held in its expanded position.

The expanding mechanism is shown in Fig. 7 and comprises two similar oppositely disposed arcuate members 8 and 9 carrying respectively, inwardly extending arms 10 and 11. These arms carrying at their free ends laterally extending sleeves 12 and 13, respectively, through each of which the other arm slides, as shown. The inner sides of the arms are provided with rack teeth designed to engage with rack teeth 14 carried by the operative rod 15. This rod extends to the surface where it may manually or mechanically be operated and the expanding mechanism thus enlarged or contracted.

The sections 4 and 5 each carry arcuate recesses, as 16, near one end, designed for the purpose of receiving the arcuate members 8 and 9. The expanding mechanism

may thus be used to lower the casing joint to the desired place, as well as to raise the same, and to expand said joint when the desired point is reached.

- 5 In order to insure against any possible leakage through the joints, between sections 4 and 5, the entire casing joint may be surrounded by gunny sacking, as shown in Figs. 3 and 5, and designated by the numeral 10 17. It is, of course, to be observed that any suitable material may be used for surrounding the casing joint in the manner just described, but it is, preferably, made of hemp or some material which will swell or expand 15 when it becomes wet and thus serve as a bushing between the casing joint and the wall of the well bore, and thus assist in shutting off any undesirable flow.

What I claim is:—

- 20 1. A casing mechanism composed of two semicylindrical pipe sections, the free edges of one of which are embraced by the free edges of the other; a plurality of rack teeth carried by the said free edges of the 25 former and upon the outer surface thereof, and also a plurality of rack teeth carried by the free edges of the latter and upon the internal surface thereof; said teeth extending longitudinally the full length of the sections, and being so disposed that as the 30 mechanism is expanded the respective rack

teeth will engage with each other and hold said mechanism in its expanded position.

2. A casing mechanism composed of two semicylindrical pipe sections, the free edges 35 of one of which are embraced by the free edges of the other; a plurality of rack teeth carried by the said free edges of the former and upon the outer surface thereof, and also a plurality of rack teeth carried by the free 40 edges of the latter and upon the internal surface thereof; said teeth extending longitudinally the full length of the sections, and being so disposed that as the mechanism is expanded the respective rack teeth will engage 45 with each other and hold said mechanism in its expanded position; annular flanges carried upon the external surface of the extremities of said sections for engaging with the internal surface of a well bore said 50 sections being also provided with arcuate depressions at their extremities in the internal walls thereof for engaging with a device for lowering or raising the same.

In testimony whereof I have signed my 55 name to this specification in the presence of two subscribing witnesses.

JOHN S. STEWART.

Witnesses:

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