

(No Model.)

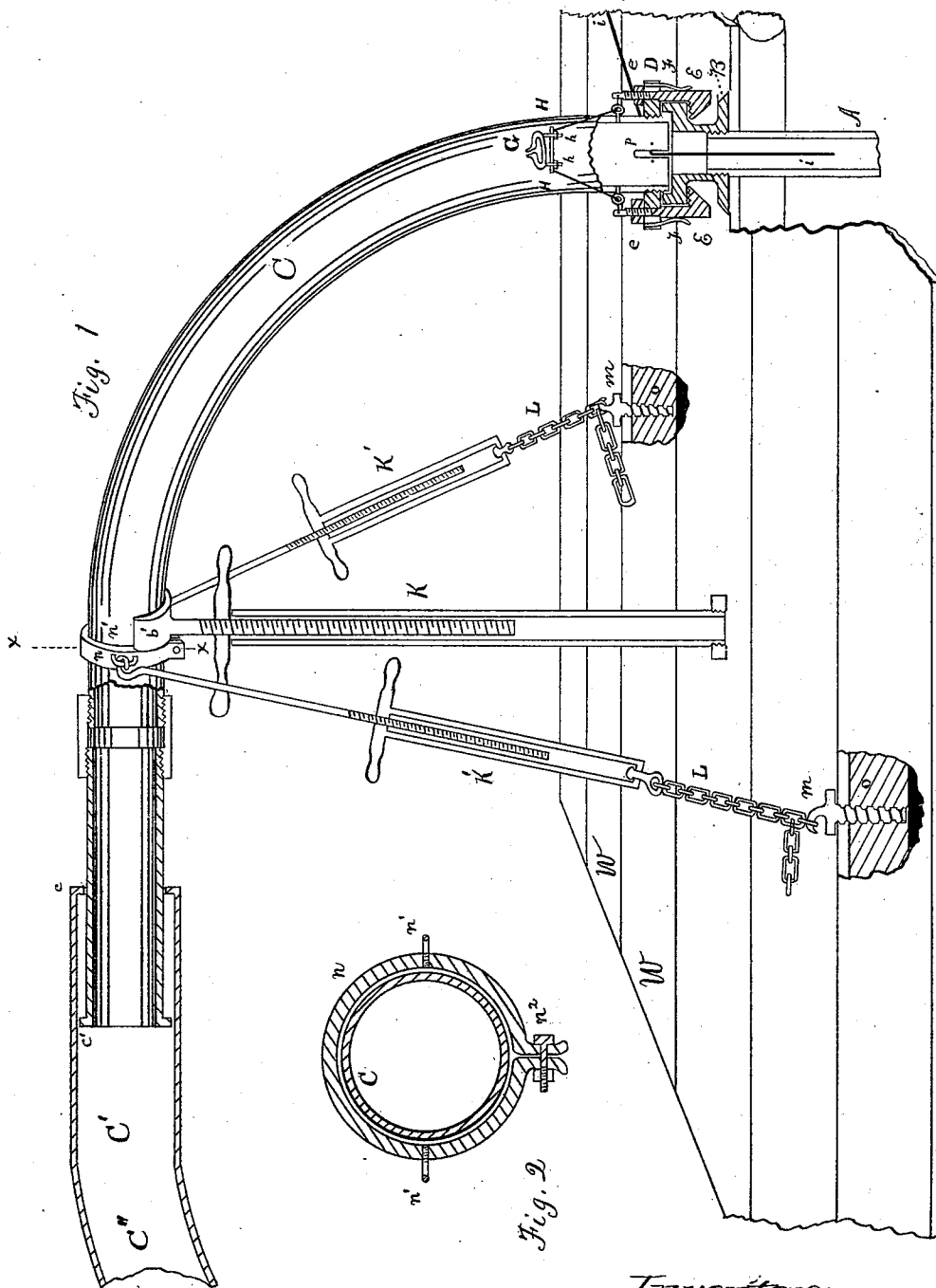
2 Sheets—Sheet 1.

V. GRETTTER.

TORPEDO FLOW CONTROLLER FOR OIL WELLS.

No. 250,232.

Patented Nov. 29, 1881.



Witnesses:
Chas. A. Emery.
H. L. Ramsey.

Inventor:
Victor Greutter
per Hallock & Hallock
Atty.

(No Model.)

2 Sheets—Sheet 2.

V. GRETTTER.

TORPEDO FLOW CONTROLLER FOR OIL WELLS.

No. 250,232.

Patented Nov. 29, 1881.

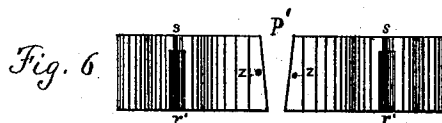
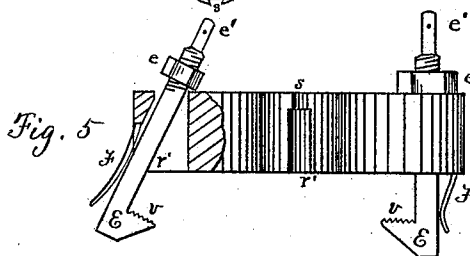
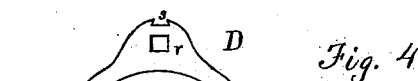
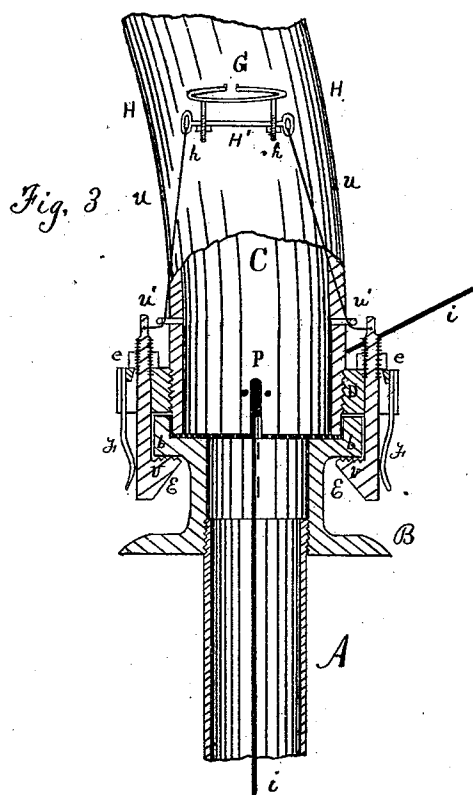


Fig. 7

Witnesses.
Casper Taylor
D. L. Lewis.

Inventor.
Victor Greutter,
by
Hallcock & Hallcock
attys.

UNITED STATES PATENT OFFICE.

VICTOR GRETTTER, OF BRADFORD, PENNSYLVANIA.

TORPEDO FLOW-CONTROLLER FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 250,232, dated November 29, 1881.

Application filed September 27, 1881. (No model.)

To all whom it may concern :

Be it known that I, VICTOR GRETTTER, of Bradford, McKean county, and State of Pennsylvania, have invented new and useful Improvements in Safety-Torpedo Flow-Controllers for Oil-Well; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters or figures of reference marked thereon.

My invention relates to oil-wells. In very many wells the oil and gas are driven out from the pipes or casing with great velocity, and the momentum of the stream bursts pipes, breaks down the tanks into which the stream is directed, and often raises the casing from its position and lets the water and mud in the well, causing great loss of material and greatly damaging the productive capacity. Especially is this the case immediately after torpedoing a well, when the accumulated liquid is suddenly forced out by the pent up gas and accelerated by the explosive force of the torpedo. So unavailing and disastrous have been the efforts to control the flow at such times that it is now customary to allow a well to waste its first and heaviest production upon the ground and in the air, for the column of escaping oil often shoots to the height of two hundred feet, and is wafted by the wind over acres of ground and covering everything within a large radius with oil. To say nothing of the great waste of oil, nor of the damage to ropes, machinery, buildings, and adjacent property, there is great danger of fire on such occasions, for many wells are located in the cities and towns throughout the oil-fields, and a majority of the wells are so closely adjacent to other wells and tanks as to be a standing menace to surrounding property. Many disastrous fires have originated in this manner, and many lives been lost.

The object of my invention is to provide safe and effective means for controlling the flow, and thus prevent such loss and accidents. The nature of my invention consists of a pipe of larger diameter and capacity than the casing, formed with a long and very gradual turn, and held in place by means that will hereinafter be set forth.

In the drawings, Figure 1 represents a perspective view of my invention, with some of the

parts shown in section; Fig. 2, a cross-section upon line *x x*; Fig. 3, an enlarged view of the foot of the pipe, and of the devices for attaching it to the casing-head; Fig. 4, a top view of the ring which carries the clutching-hook; Fig. 5, an elevation of the same ring, showing the clutching-hook in two different positions; Fig. 6, an elevation of the same ring in a different position, showing the recesses for the clutching-hooks and the slot to allow the passage of the torpedo-line, as hereinafter explained; and Fig. 7, a wedge which closes the slot in the pipe through which the torpedo-line passes.

A represents the casing of the well; B, the casing-head; C, the conduit or relief pipe; C', an extension of the relief-pipe; C'', a downward curve of the same; D, a ring or band attached to the bottom of the relief-pipe.

E E are clutching-hooks, which pass through mortises *r r r r* in ring D.

F F are springs to render the adjustment of the clutching-hooks automatic; G, one of two similar handles for lifting and adjusting the relief-pipe.

H H are studs projecting downwardly from handles G; H', (Fig. 3,) a cross-bar sliding up or down on studs H H.

h h are nuts for adjusting and retaining cross-bar H' in position.

i represents the line by which the torpedo is lowered; K, a temper-screw, by means of which the conduit-pipe C is adjusted and supported.

K' K' are temper-screws for guying and holding pipe C in position.

L L are chains to adapt the guys to various angles.

m m are screw-hooks to anchor the guys; n, a band bearing the staples n', serving as an attachment for the guys.

o o are sills of the derrick, to which the guys are anchored; P, a slot in conduit-pipe to admit the torpedo-line.

P', Figs. 4 and 5, represent a double wedge-shaped slot in ring D, corresponding in position and use to slot P in pipe C; *r r r r*, Fig. 4, mortises in ring D, to admit the shank of clutching-hooks E E; *r' r'*, Figs. 5 and 6, enlargements of the mortises at the lower end of same, extending outwardly from the said mortises to the outer circumference of ring D, thus allowing the lower end of the clutching-hooks

to be drawn back, as shown at the left-hand side of Fig. 5.

s s are recesses in the outer circumference of ring D, serving as seats for fastening the springs F F.

z z, Fig. 6, are rivets passing through ring D and pipe C, to compensate for the weakening of ring D by cutting slot P' through it; W W, the derrick-floor, on which my device is located.

b represents the enlarged rim of casing-head.

u u are cords for raising clutching-hooks.

u' u' are staples in pipe C, through which cords *u u* pass.

v v are the serrated jaws of the clutching-hooks E E.

The construction and operation of my device are as follows:

The casing A is usually the outer pipe of the well, although there is sometimes a larger one, called the "drive-pipe," used to reach through the dirt, sand, and gravel to solid rock. The well is drilled below this point. When the well is finished a torpedo is lowered to the bottom and exploded, the oil in the hole acting as a tamping device. The explosion of the torpedo forces the column of liquid out of the hole.

The means usually employed to save the oil were a pipe of uniform size, with and attached to the casing by means of an elbow, and have been so unsuccessful as to be discontinued. I obviate these difficulties by attaching to the casing-head a pipe, C, having a much larger diameter than the casing, and formed with a long and very gradual turn. This pipe is lengthened by attaching other pipes, C', to the outer end by means of a telescopic joint. This form of pipe may be put in a compact form for transportation, and insure the gradual enlargement of the pipe outwardly from the well. The downward curve C'' of pipe C' prevents the stream of oil from striking the sides of the tank and breaking it in pieces.

The ring D is secured upon the lower end of pipe C, and when in position for use rests upon the top of casing-head B. Through the mortises *r r r r* in ring D pass the clutching-hooks E E. These are provided at the lower end with an inwardly-projecting serrated jaw to reach under and embrace the enlarged rim *b* of the casing-head. By means of nuts *e e* on top end of clutching-hooks ring D is drawn down upon the top of casing-head B, and the joint between them being suitably packed the bore of the well is thus made continuous with pipe C. The handles G, which are used for lifting pipe C, are made or provided with stud-bolts H H, on which slides cross-bar H'. To this bar are attached the cords *u u*, which pass down through loops or staples *u' u'*, and are attached to the top of clutching-hooks E E. When grasping the handles G the cross-bar H' will be raised, and the cords *u* will draw the top of clutching-hooks toward pipe C and throw the jaws *v v*, Figs. 3 and 4, away from the cas-

ing-head rim *b b*, and allow instantaneous placing or removal of pipe C and its attachments.

The screw K is provided with an arc-shaped bearing, *b'*, serving as a support for pipe C, and, in combination with guys K' K', allows the fixing of pipe C with great rigidity. The guys K' K' are detachably connected by staples *n'* to the ring *n*, and are provided at the lower end with chains L L.

By means of these chains the guys are accommodated to the varying distances between the anchor-screws *m m*, which are located more or less apart, according to the distance between the derrick-sills *o o*. The slot P in pipe C and the corresponding slot P' in the ring D allow the passage of the line *i*, by which the torpedo is lowered into the well, and the wedge, Fig. 7, by being driven into slot P', effectually closes aperture P in pipe C.

To locate and operate my device the anchoring-hooks *m m* are inserted in the derrick-sills, the pipe C raised into nearly the position shown, the supporting-screw K placed under it, the guys K' K' hooked into rings *n*, the chains L L hooked upon the anchor-screw *m m*, the handles G and the cross-bar H', Fig. 3, are grasped, when, as will be remembered, the clutching-hooks E E are thrown out of the way, the pipe C is lifted and set upon the casing-head B, and the cross-bars H' are released, when the hooks E E are forced back by springs F F into position under the shoulder *b b* of the casing-head. All that remains to be done is to tighten the screws K and K' and the nuts *e e*, and to draw out the telescopic pipe C' to the desired length. The adjustment being thus found, if it be thought necessary, the pipe C may be lifted from the casing-head to allow the dropping of the weight to explode the torpedo, or the weight may be secured inside the casing-head by a small cord reaching out through the slot P, to be broken or cut out at the proper time. Then by driving the wedge, Fig. 7, into the slot P' the apparatus is ready to receive and conduct away the heavy volume of oil to a proper receptacle.

There are many ways of attaching pipe C to the casing A, and I therefore do not confine myself to the means shown.

What I claim as new is—

1. The combination, with the casing of an oil-well, of a relief-pipe larger in diameter than the casing, substantially as shown, and for the purposes set forth.

2. The combination, with the casing of an oil-well, of a pipe larger in diameter than the casing, and of a casing-head intermediately located, substantially in the manner shown.

3. The combination, with the casing-head of an oil-well, of the ring D and pipe C, substantially as shown.

4. In an oil-well, the combination of a casing-head with a ring, pipe, and clutching-hooks, substantially as shown and described.

5. In an oil-well, the combination of a casing-head with a ring, pipe, clutching-hooks,

and nuts, cords, and cross-bar, all arranged substantially as shown and for the purpose set forth.

5 6. In an oil-well, the pipe C, having slot P, located substantially as shown, and for the purpose set forth.

7. The combination of a pipe, C, with a ring, D, and a wedge, Fig. 7, substantially in the manner described.

10 8. The relief-pipe of an oil-well, having its outer end supported by and in combination

with an adjustable standard and held in place by adjustable guys, substantially as described.

9. The relief-pipe of an oil-well, having a telescopic extension, substantially as described. 15

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of September, 1881.

VICTOR GRETTTER.

Witnesses:

CASPER TAYLOR,
D. S. LEWIS.