

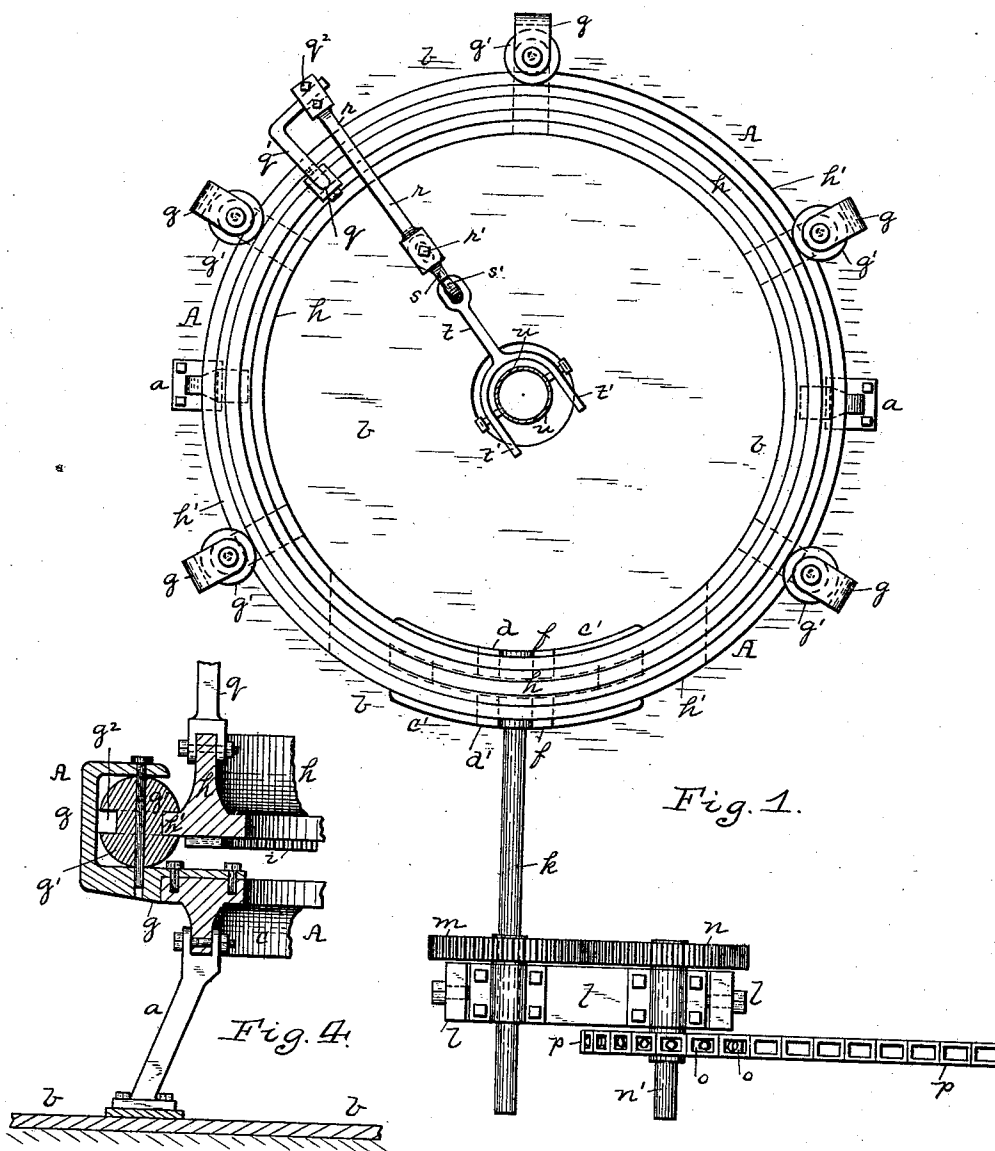
(No Model.)

2 Sheets—Sheet 1.

C. A. SARGERT.
APPARATUS FOR INSERTING AND WITHDRAWING CASING FOR OIL OR
LIKE WELLS.

No. 484,051.

Patented Oct. 11, 1892.



Witnesses:
Dora L. Dorsey
J. T. Kay

Inventor:
Charles A. Sargent
By Kay, Totten & Cooke
attorneys.

(No Model.)

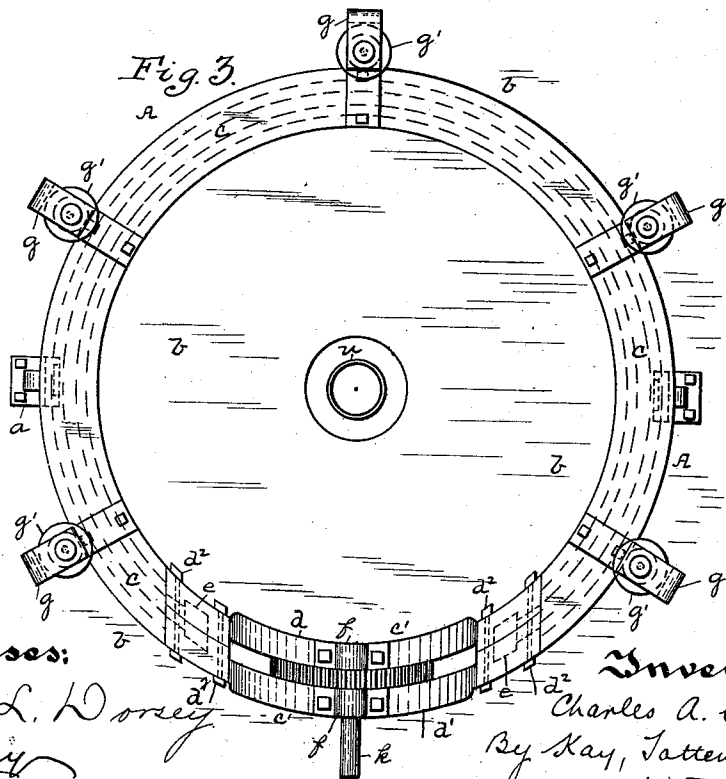
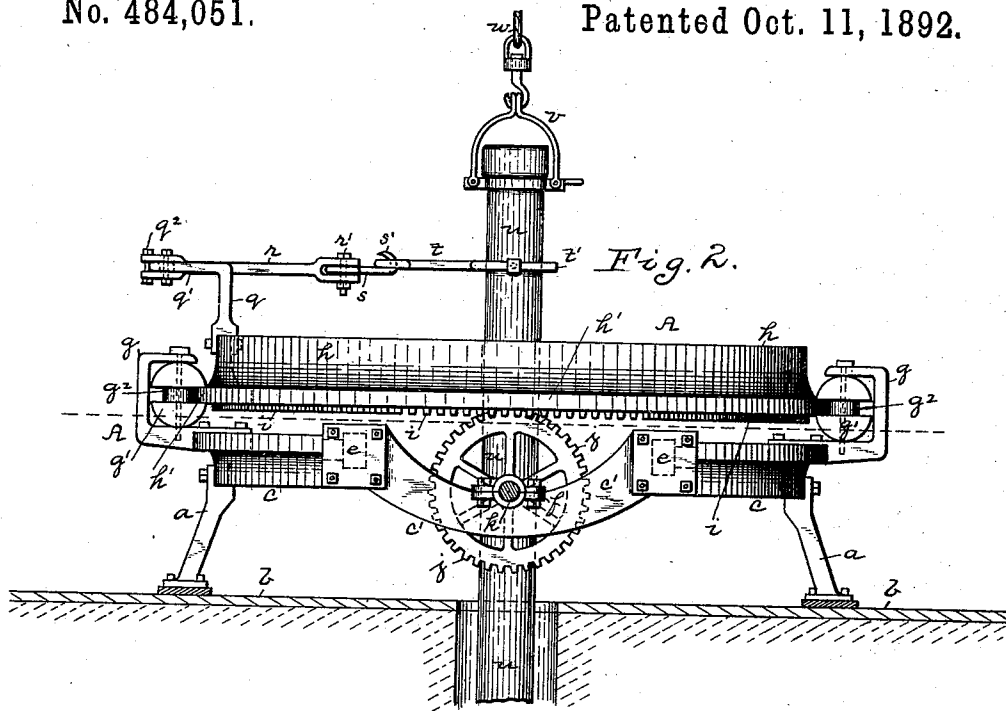
2 Sheets—Sheet 2.

C. A. SARGERT.

APPARATUS FOR INSERTING AND WITHDRAWING CASING FOR OIL OR
LIKE WELLS.

No. 484,051.

Patented Oct. 11, 1892.



Witnesses:

Dora L. Dorsey
G. L. May

Inventor:

Charles A. Sargent.
By Kay, Tatten & Cooke,
attorneys

UNITED STATES PATENT OFFICE.

CHARLES A. SARGERT, OF ROCHESTER, PENNSYLVANIA.

APPARATUS FOR INSERTING OR WITHDRAWING CASING FOR OIL OR LIKE WELLS.

SPECIFICATION forming part of Letters Patent No. 484,051, dated October 11, 1892.

Application filed May 18, 1892. Serial No. 433,418. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SARGERT, a resident of Rochester, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Inserting or Withdrawing Casing for Oil or Like Wells; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to apparatus for inserting casing in oil or like wells and for withdrawing the same, its object being to provide a form of apparatus which will greatly reduce the time and labor heretofore necessarily expended in the performance of this operation.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a plan view of my improved device. Fig. 2 is a vertical side view. Fig. 3 is a plan view with the top ring removed. Fig. 4 is an enlarged detail view in section of the manner of guiding the revoluble ring and the manner of supporting the same.

Like letters of reference indicate like parts in each.

The frame A is composed of the standards or struts *a*, bolted to the floor *b* of the derrick, said standards or struts supporting the stationary ring *c*. For purposes which will be fully hereinafter disclosed, the circumference of the ring *c* is provided with the tilting or canting section *c'*, which is composed of the segments *d d'*, bolted together by the bolts *d²*. To provide for the tilting or canting of the section *c'*, the said section is connected to the circumference of the ring *c* by the swivel-joint *e*. (Shown in dotted lines in Figs. 2 and 3.) The section *c'* is provided with the journal-box *f*. Secured to the stationary ring *c* are the brackets *g*, carrying the idle rollers or pulleys *g'*, said rollers or pulleys having the annular grooves *g²* formed therein. The revoluble ring *h* is supported above the stationary ring *c*, said revoluble ring *h* having the projecting edge or flange *h'* adapted to fit within the annular grooves *g²* of the idle-rollers *g'*, said rollers assisting to support the said ring *h* and acting as guides to prevent said ring from wobbling during its rotation. The lower face of the ring *h* is provided with

the teeth *i*, with which the gear-wheel *j* is adapted to engage. This gear-wheel *j* is mounted on the shaft *k* between the segments *d d'*, which compose the tilting section *c'*, said shaft being journaled in the journal-box *f*. The opposite end of the shaft *k* is journaled in suitable bearings in the standard *l*. Mounted on the shaft *k* is the gear-wheel *m*, adapted to mesh with the gear-wheel *n* on the counter-shaft *n'*, journaled in the standard *l*. A sprocket-wheel *o* is secured to the counter-shaft *n'*, a driving-chain *p* passing therefrom to a suitable power-driven shaft, such as that on which the bull-wheel is mounted. Bolted or otherwise secured to the rim of the revoluble ring *h* is the upright arm *q*, which is preferably provided with the outwardly-projecting extension *q'*, said extension being pivoted to the arm *r* by the bolt or pin *q²*. The opposite end of the arm *r* is pivoted to the link *s* by the bolt or pin *r'*. The link *s* is formed with the hook *s'*, which is adapted to engage with the lever *t*. The lever *t* is provided with a bifurcated end *t'*, adapted to embrace the casing *u* and be secured thereto in such manner that when the revoluble circle *h* is revolved the casing *u* will likewise revolve to screw it into place. This construction provides a connection between the revoluble ring *h* and the casing *u*, which has a certain amount of play at each joint. By having the arm *q* formed with the outwardly-projecting extension *q'* a greater amount of leverage is obtained when the ring *h* is revolved to turn the casing *u*. Any other suitable form of connection between the ring *h* and the casing *u* may, however, be employed.

The operation of my improved apparatus is as follows: When it is desired to insert a section of casing or tubing, the said casing is supported by the swivel connection *v*, secured to the cable or rope *w*, which passes up over a suitable pulley at the top of the derrick. The casing is lowered by means of the cable *w* to bring the lower end thereof into position to engage the threads of the last piece inserted. The lever *t* is then secured to the casing *u*, when power is applied to rotate the shaft *k*. This will drive the gear-wheel *j*, and through it the ring *h*. As the ring *h* rotates and as the lever *t* is secured to the cas-

ing *u*, the result is that the casing *u* is likewise rotated, so that its end is screwed into the upper end of the section of casing last inserted. The swivel *v* permits the turning of the casing *u* without the twisting of the cable *w*. In this manner the casing may be quickly inserted and screwed into the preceding section. The apparatus may be set up and operated by two men, whereas in the ordinary manner of inserting casing it required from four to six men. At the same time it insures a better connection between the sections of casing, as by applying the power in the manner described the sections may be screwed up tighter, so reducing the liability of the casing separating at its joints when it is desired to raise the same. The swivel-joint *e* provides for the tilting or canting of the shaft *k* in case the floor of the derrick should sag to one side or the other, thus enabling said shaft *k* to maintain its position parallel with said floor. This sagging of the derrick floor is liable to occur, as the weight of the casing already inserted is carried by the floor for a certain length of time after the insertion of each section of casing. In this manner the shaft *k* is relieved of any strain which otherwise might be thrown upon it by any change in the floor. The rotation of the ring *h* may be reversed when it is desired to unscrew the sections of tubing by changing the sprocket-wheel *o* from the counter-shaft *n'* to the main shaft *k*, or it may be reversed by clutch mechanism, as may be desired.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In apparatus for inserting or withdrawing casing for oil or like wells, the combination, with the frame, of a tilting or canting section, a power-shaft journaled in said tilt-

ing or canting section, and connections between said power-shaft and a revoluble ring, and connections carried by said ring to connect said ring to the casing, substantially as and for the purposes set forth.

2. In apparatus for inserting or withdrawing casing for oil or like wells, the combination, with the frame, of a tilting or canting section carried thereby, a power-shaft journaled in said tilting or canting section, a gear-wheel on said shaft adapted to engage with teeth formed on a ring supported by said frame, and connections carried by said ring to connect said ring to the casing, substantially as and for the purposes set forth.

3. In apparatus for inserting or withdrawing casing for oil or like wells, the combination, with the frame, of the revoluble ring *h*, the upright arm *q*, provided with the outwardly-projecting extension *q'*, the arm *r*, the link *s*, provided with the hook *s'*, and the lever *t*, adapted to engage with the casing, substantially as and for the purposes set forth.

4. In apparatus for inserting or withdrawing casing for oil or like wells, the combination of the stationary ring *c*, the idle-rollers *o*, the revoluble ring *h*, supported by said rollers and carrying connections to connect said ring *h* to the casing, the tilting or canting section *c'* in said stationary ring *c*, the journal-box *f*, the driving-shaft *k*, and the gear-wheel *j*, adapted to engage with the toothed face *i* on said revoluble ring *h*, substantially as and for the purposes set forth.

In testimony whereof I, the said CHARLES A. SARGERT, have hereunto set my hand.

CHARLES A. SARGERT.

Witnesses:

ROBT. D. TOTTEN,
J. N. COOKE.