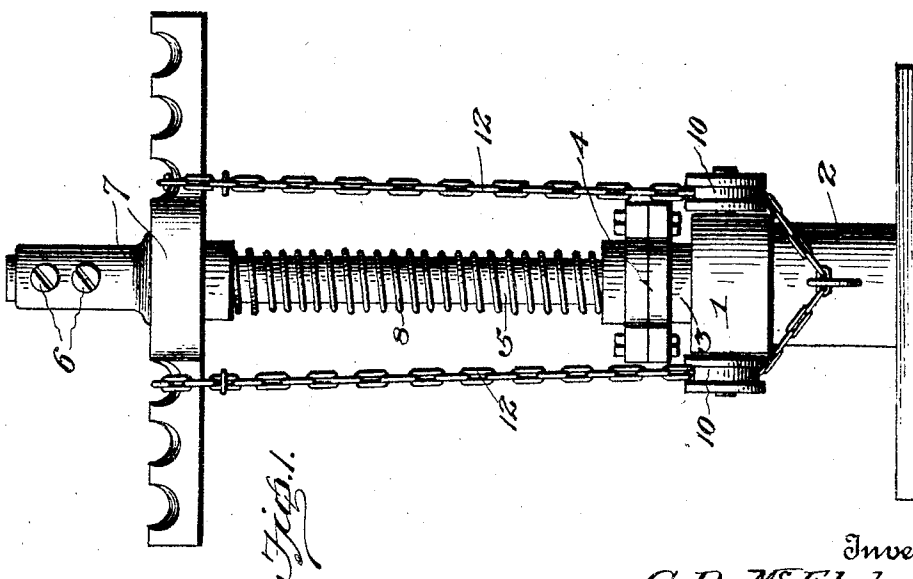
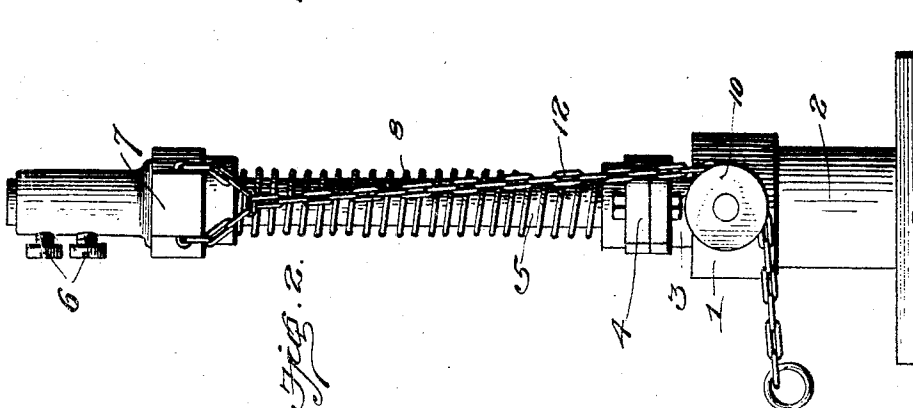
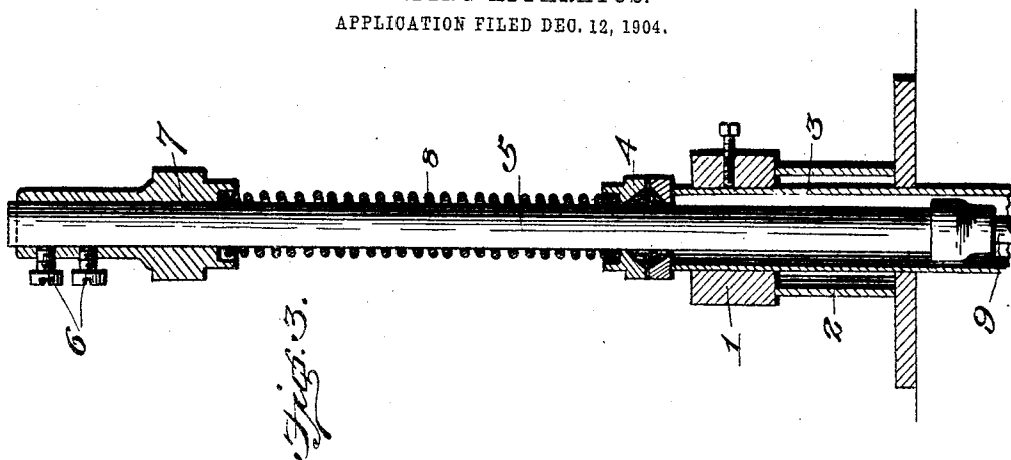


No. 786,665.

PATENTED APR. 4, 1905.

G. D. McELPHATRICK.
PUMPING APPARATUS.
APPLICATION FILED DEC. 12, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

GUSTA D. McELPHATRICK, OF FRANKLIN, PENNSYLVANIA.

PUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 786,665, dated April 4, 1905.

Application filed December 12, 1904. Serial No. 236,563.

To all whom it may concern:

Be it known that I, GUSTA D. McELPHATRICK, a citizen of the United States, residing at Franklin, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Pumping Apparatuses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pumping apparatus for oil or water wells.

The object of the invention is to provide a pumping apparatus in which the weight of the sucker-rod will be supported and which, together with the load or charge of fluid taken in at each operation of the pump, will be lifted by a spring, thereby relieving the operating mechanism or power of this extra load, only sufficient power being required to compress the spring and lower the pump-rods.

With this object in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of the upper end of a well-casing, showing the construction and arrangement of the apparatus. Fig. 2 is a similar view taken at right angles to Fig. 1, and Fig. 3 is a vertical sectional view of the device.

Referring more particularly to the drawings, 1 denotes the casing-head, which is arranged on the upper end of a well-casing 2 and in which is clamped or otherwise secured the upper end of the well-tubing 3, extending to the bottom of the well. On the upper end of the tubing 3 is arranged a stuffing-box 4, with which is adapted to work a polish-rod 5, to the upper end of which is adjustably secured, by means of set-screws 6, a cross-head 7. On the underside of the cross-head 7 is formed a seat which is engaged by the upper end of a coil-spring 8, arranged on said polish-rod between the cross-head and the upper end of the stuffing-box 4. The tendency of said spring is to raise and support said cross-head, the

polish-rod connected therewith, and the sucker-rod 9, which is attached to the lower end of said polish-rod.

Journaled at diametrically opposite points on the casing-head 1 are grooved pulleys 10, around which are adapted to pass the ends of a chain 12, said ends of the chain passing upwardly and being connected to the cross-head 7, as shown. Said cross-head is provided with a series of grooves whereby the ends of the chain may be adjusted thereon. To the opposite end of the chain 12 is adapted to be connected operating mechanism or power (not shown) by which the pump is operated.

When not in use the cross-head, polish-rod, and sucker-rods are supported in an elevated position by the spring 8. When it is desired to work the pump, power is applied to the chain 12, which will draw the same downwardly around the pulleys 10, thus forcing the cross-head and polish-rod downwardly against the tension of the spring, thereby compressing said spring and forcing the sucker-rods carried by the polish-rod into an operative position. The operating mechanism or power is now removed from the chain, which will permit the spring to be expanded, thereby raising the cross-head, polish-rod, and sucker-rods and also elevating the charge or load of oil or water which enters the well-tube when the sucker-rods are forced down, and thus expelling said oil or water at the proper discharging-place of the pump. The arrangement of the stuffing-box at the upper end of the well-tubing prevents said oil or water from being forced out at the upper end of the tubing around said polish-rod.

It will thus be seen that by the use of a pumping apparatus constructed as herein shown and described the lifting of the pump-rods, together with the charge or the load of oil or water, is accomplished by means of a spring. The greater the compression of said spring the more power will be exerted thereby in lifting the pump-rods and the charge or load of fluid to be expelled from the well.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a pumping device, the combination with a well tube and casing, of a stuffing-box arranged on the upper end of said tube, a grooved cross-head, a polish-rod connected to said cross-head and slidably mounted in said stuffing-box, a coiled spring arranged on said polish-rod, one end of said spring bearing on said stuffing-box and the opposite end

on the under side of said cross-head, whereby the latter, together with the polish-rod, the sucker-rods, and the load of oil or water carried thereby will be lifted at each stroke of the pump, pulleys journaled on said casing-head, a chain having its ends adjustably connected to said cross-head and passing beneath said pulleys to the operating mechanism of the pump, whereby said cross-head, polish-rod and the sucker-rods carried thereby are forced down into the well, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GUSTA D. McELPHATRICK.

Witnesses:

C. HEYDRICK,
JOHN L. NESBITT.