(No Model.)

T. KORNER.

MACHINE FOR PUMPING ARTESIAN WELLS.

No. 287,444. Patented Oct. 30, 1883.

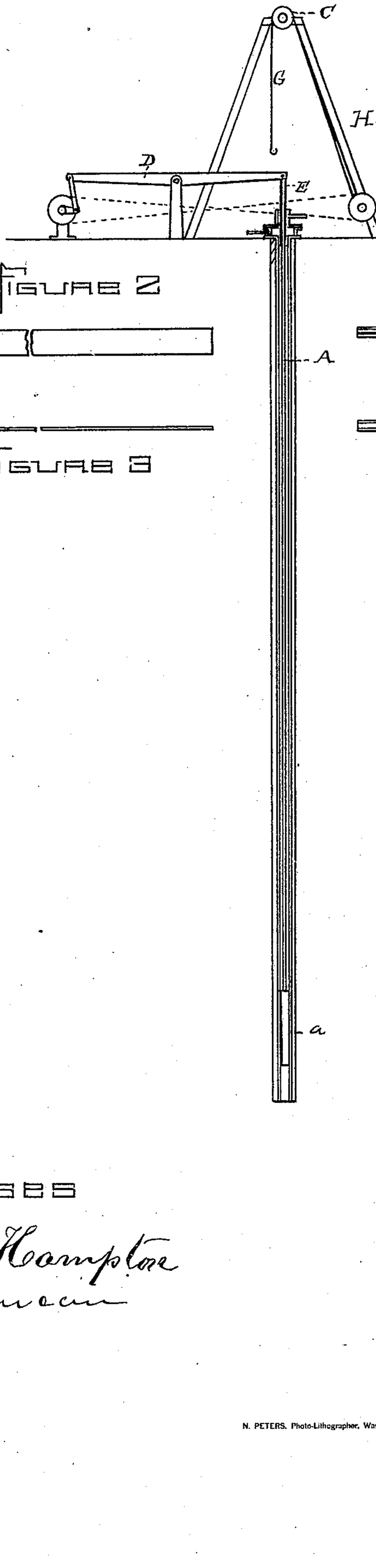

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

Witnesses

Thomas Hampton

H. J. Duncan

Inventor

Theo Korner

By Attorney

Walter Reese.

UNITED STATES PATENT OFFICE.

THEODORE KORNER, OF KNOX, PENNSYLVANIA.

MACHINE FOR PUMPING ARTESIAN WELLS.

SPECIFICATION forming part of Letters Patent No. 287,444, dated October 30, 1883.

Application filed November 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, THEODORE KORNER, of Knox P. O., in the county of Clarion and State of Pennsylvania, have invented a certain new and useful Improvement in Machinery for Pumping Artesian Wells; and I hereby declare the following to be a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in apparatus for removing and inserting the valves and valve-weights of Artesian-well pumps; and it consists in the hereinafter-described means whereby the operator is enabled to insert or withdraw the pump-valve and weight with increased facility, safety, and economy of time.

Sucker-rods are used in the pumping of oil and other Artesian wells, and heretofore have been constructed of wooden rods or sections of from twenty-five (25) to twenty-eight (28) feet in length and one and a half ($1\frac{1}{2}$) inch in diameter. They are provided with suitable means for attaching one to the other, and after being lowered into the well are connected with a walking-beam situated overhead, whereby a vertical or upward and downward motion is imparted, and the oil forced to the surface by means of the pump, which is attached to the bottom of the rod. It is often the case that these rods (being of wood and subject to wear) become inoperative and have to be drawn from the well for repair and changing the valve. In this case the upper end of the rod is detached from the walking-beam. A rope is carried upward over the pulley, which is stationed at the upper part of the derrick, and, passing downward, is attached to the sucker-rod. Motion is imparted by means of a stationary engine situated close by, and the rods are withdrawn upward out of the well and detached one section from the other; but in this way, the sucker-rods being composed of many sections, it is necessary to remove each individual section as it emerges from the well, and for this purpose a platform is stationed close to but underneath the pulley which is provided at the top of the derrick, upon which a workman stands and detaches the rods as they are drawn up. Another workman must at the same time be placed at the opening of the well, to assist in the operation of detaching. A great deal of delay is occasioned in this way, and, owing to the perilous position of the workman, especially that of the one underneath the platform, who receives the rods as they are detached, personal injury oftentimes ensues. A bad disconnection is sometimes made, and the workmen are liable to serious injury from the falling pieces. In my experience as an operator I have known of many accidents to happen in this way. The length of time which it ordinarily takes in this operation of withdrawing and lowering the rods is about from two (2) to six (6) hours, although I have known of cases in which a day has been consumed. In this operation of withdrawing the rods it is necessary to employ two (2) workmen besides the engineer. This is the usual practice in the oil-producing country and is followed by all operators.

For the benefit of others skilled in the art to which it appertains, I shall now describe my invention, reference being had to the accompanying drawings, forming a part thereof, in which—

Figure 1 represents a side elevation, partly in section, of a well with the pumping machinery in motion. Fig. 2 represents a plan view of one of my improved metallic flexible sucker-rods. Fig. 3 represents an edge view of the same. Fig. 4 represents a plan view of the sucker-rod when rolled in a round shape. Fig. 5 represents a plan view of the sucker-rod when rolled in an oval shape.

Like letters refer to like parts wherever they occur.

To obviate difficulties hereinbefore described, I employ the following means: A sucker-rod, A, is constructed by welding or riveting together strips or bands of metal until a rod of the required length is formed. This sucker-rod A at one end is provided with means whereby it may be attached to the pump-valve and weight *a*, and at the other end is provided with means whereby it may be attached to the mechanism for inserting or withdrawing it.

H represents a derrick of ordinary construction, which is situated immediately above the pump. At the top of said derrick a suitable pulley, C, is journaled, and at one side and near

the bottom of said derrick is situated a drum, B. Attached to said drum and passing over the pulley C is a rope, G, to whose free extremity the upper end of the sucker-rod is attached when it is desired to insert or remove the valve and weight.

D represents the ordinary walking-beam, and E the connection between the walking-beam and sucker-rod. Said mechanism D E is that commonly used in the operation of pumping, and forms no part of this my invention.

The operation of removing the valve and weight from the pump is as follows: The free extremity of rope G is attached to the upper end of the sucker-rod, and motion is imparted to the drum B. The rope G is thereby wound upon the drum, and the sucker-rod gradually withdrawn from the pump. As the operation proceeds, the sucker-rod is drawn over the pulley C and wound upon the drum B until finally the valve and weight are withdrawn from the pump. When it is desired to insert the valve and weight this operation is reversed.

The advantages of my improvement are easily seen. I do away with the presence of two skilled workmen, as by my method, when it is desired to raise the valve and weight from the well, the rod E is detached from the walking-beam D and sucker-rod A, and a rope, G, is attached to the sucker-rod, and it is wound upon the drum B and drawn from the well. This operation I claim can be performed in from fifteen (15) to thirty (30) minutes. It is also an advantage over the old method, inasmuch as it does away with the labor of two operators, who, while working under the old method, ran continual risk of bodily injury.

I am aware that flexible sucker-rods have been heretofore used. Such rods I do not therefore claim; but

What I do claim is—

An apparatus for removing and inserting the valves and valve-weights of Artesian-well pumps, which consists in the combination, with the valve and weight and derrick H, of a flexible sucker-rod, A, pulley C, drum B, and rope G, all arranged and operated in the manner and for the purposes described.

THEO. KORNER.

Witnesses:

JOHN S. KENNEDY,

WALTER REESE.