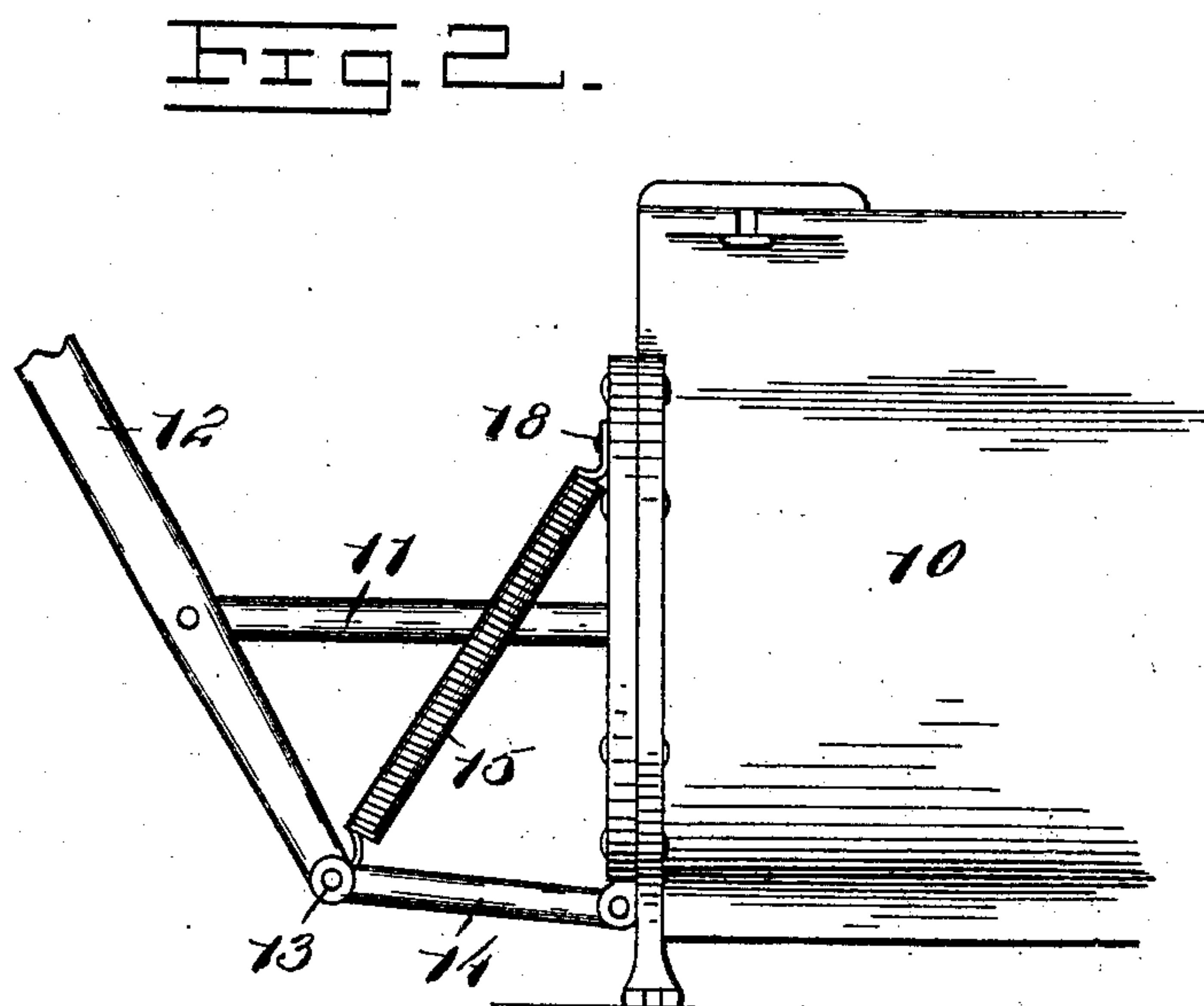
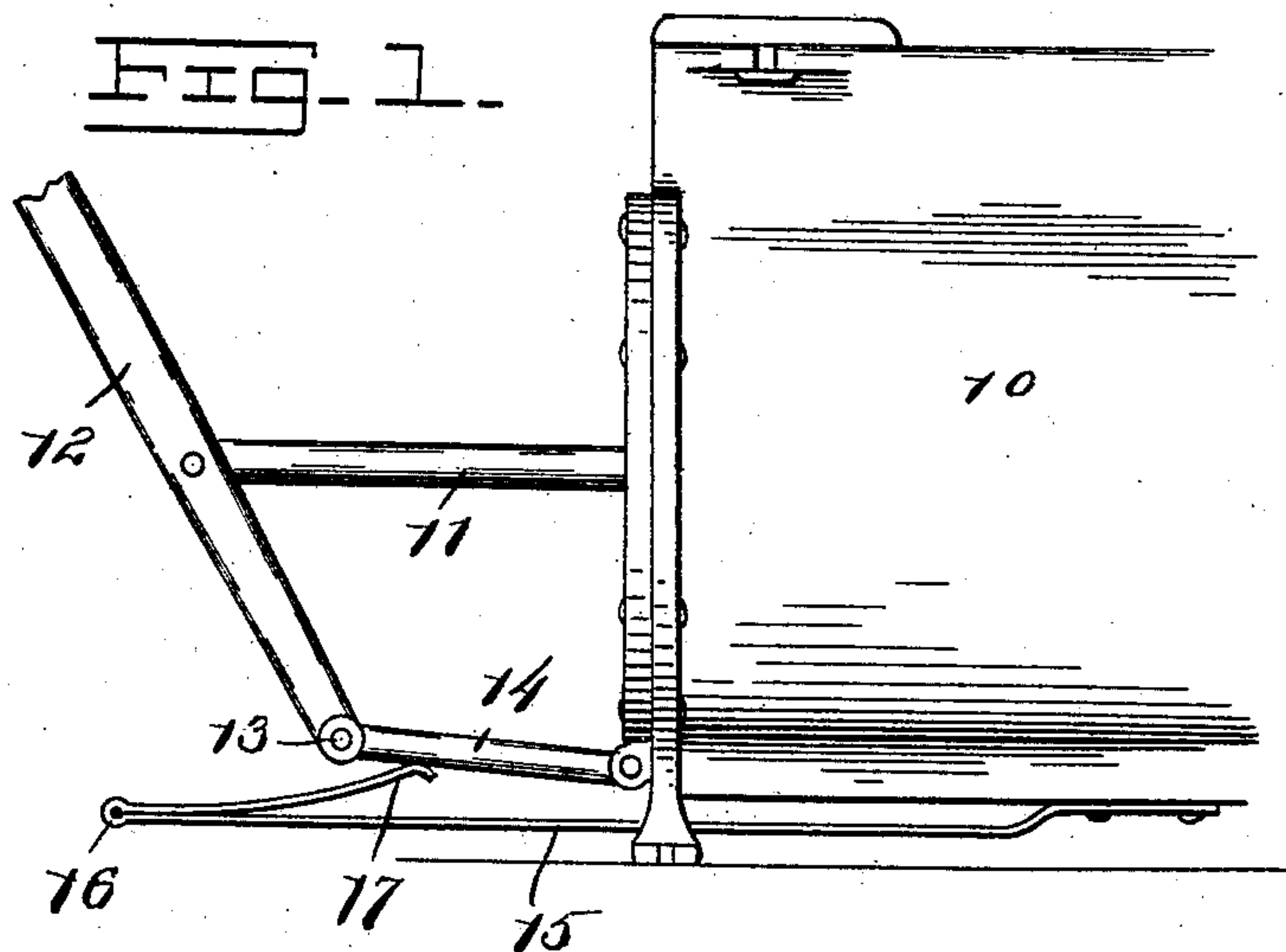


No. 884,265.

PATENTED APR. 7, 1908.

J. CHAN.
PUMP ATTACHMENT.
APPLICATION FILED SEPT. 13, 1906.

2 SHEETS—SHEET 1



Witnesses

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Joseph Chan,

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Charles H. [Signature]

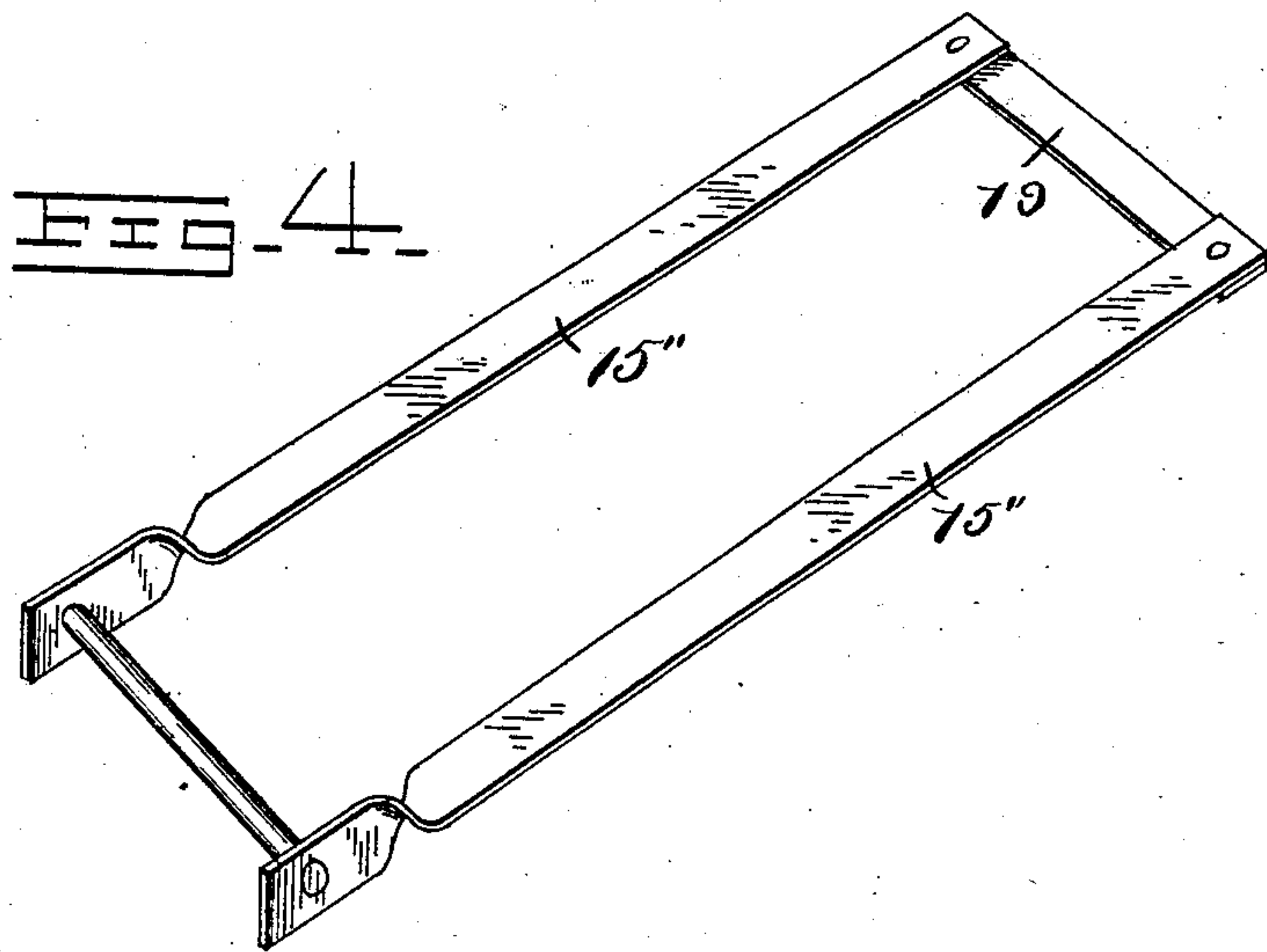
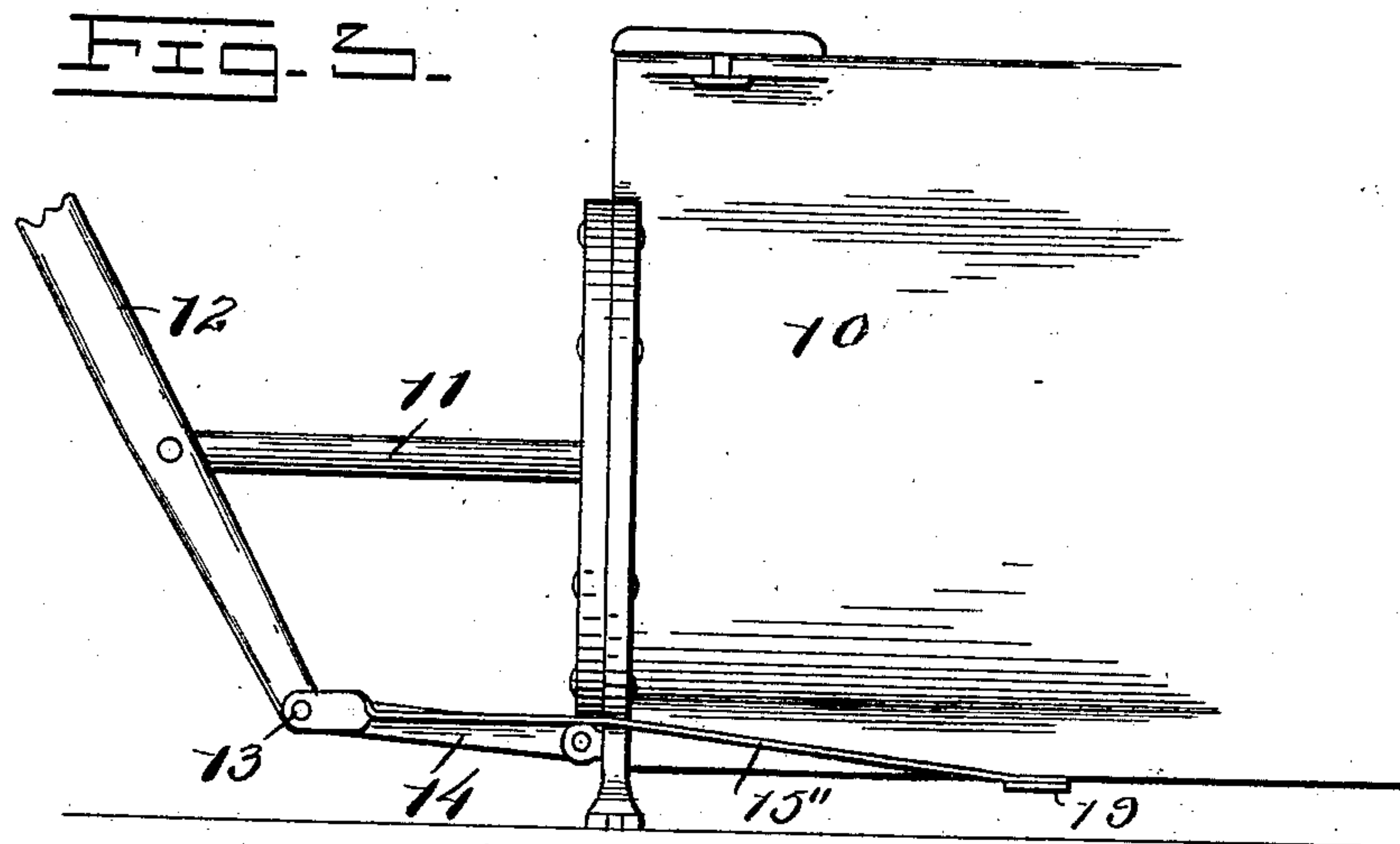
Attorneys

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2 SHEETS—SHEET 2.



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JOSEPH CHAN, OF LOWRY, MINNESOTA.

PUMP ATTACHMENT.

No. 884,265.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed September 13, 1906. Serial No. 334,449.

To all whom it may concern:

Be it known that I, JOSEPH CHAN, a citizen of the United States, residing at Lowry, in the county of Pope, State of Minnesota, have invented certain new and useful Improvements in Pump Attachments; and I do hereby 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 has relation to tank pumps, and pumps of other kinds in which the operating lever is pivotally connected above its lower end with the outer end of the piston rod, and is pivotally connected at its lower end with the outer end of a link or links the inner ends of which latter is pivoted on the casing or other part of the pump, thus forming a toggle or knee joint at the point of the connection of the lever with the links.

The described construction is provided in order to enable the lever to effect approximately a right line action on the piston-rod in reciprocating the piston in the pumping cylinder. It will be understood that if the pivoted connection of the lower end of the lever were rigid, the point of pivotal connection between the end of the piston and the lever, would, in the operation of the latter describe an arc of a circle, causing the piston rod to bind in its bearings and interfere with a proper operation of the piston. Theoretically, as hereinbefore indicated, by providing a toggle or knee joint in the lever, between its point of power and fulcruming in the operation of the lever, the resistance of the piston-rod against being moved out of a right line would tend to straighten the toggles, compensating for the arc-line movement and allow the lever to effect a straight pull on the piston-rod. In practice, however, it is found that the force necessary to cause the toggle or knee joint to straighten in the operation described is so great as to fail to overcome the objections stated as before existing.

By my improvements I fully obviate the difficulties specified, said improvements being in the nature of a spring acting on the toggles or links or on the joint, with a tendency to straighten it, with stress or tension at least equal to the resistance offered thereto in the operation of the lever.

The invention is shown as embodied in the means illustrated in the annexed drawings,

forming a part of this specification, in view of which the invention will first be described with respect to its construction and mode of operation and then be pointed out in the subjoined claim.

Of the drawings;—Figure 1 is a side view of what is commonly known as a "tank pump", having my improved attachment applied thereto. Fig. 2 is a like view showing a modification. Fig. 3 is also a side elevation showing a variation in form and arrangement of the spring from that illustrated in Fig. 1. Fig. 4 is a perspective view of the spring and its immediate connections included in Fig. 3.

Similar figures of reference designate similar parts or features, as the case may be, wherever they occur.

In the drawings 10 designates the stationary cylinder or body of a pump that may be the form shown, or of different design. 11 is the piston-rod that is connected with the piston inside of the cylinder of the pump, and operates the same as the piston-rod is operated. The outer end of the piston-rod is pivotally connected with the operating lever 12, which is pivoted at its lower end as at 13 to the outer end of a link or links 14, that are in turn pivoted at their inner ends to the frame or casing of the pump. All of the parts thus far described may be of usual form, construction and function.

15 designates a spring formed from a strip of spring steel, having a portion 16 at one end bent back upon the main length and turned upward at its end 17. The main portion of the spring is extended under the pump from the forward end to or beyond the longitudinal center of the body of the pump on its bottom, the spring 15 at its forward end projecting beyond the lower end of the lever with the end 17 of the portion 16 inclining up and bearing against the bottom of the links 14, so as to effect the straightening of the toggle or knee-joint 13 when the lever 12 moves outward to draw on the piston-rod, and so maintain a right-line movement of the outer end of the piston-rod, as hereinbefore stated.

In Fig. 2 the invention is shown as embodied in two helical springs 15' one of the ends of each of which is secured to the upper part of the casing of the pump, as at 18, the other ends being connected with the toggle joint 13, the spring operating to straighten

the toggle joint as the lever moves outward and compensate for any tendency of the said lever to carry the piston 11 out of a right-line movement.

5 In Figs. 4 and 5 which show another form of means embodying the invention the spring 15'' is shown as consisting of two leaves connected at their forward ends with the pivot of the toggle joint 13 and extending rear-
10 wardly over the links 14 to or toward the center of the cylinder of the pump at its bottom, where they are connected with a cross-piece 19 that extends under the cylinder casing. With this construction the springs 15'' tend
15 to bear upward on the toggle joint 13 and overcome all tendency of the piston-rod to be moved out of a right-line as before specified.

By my improvements, in addition to what
20 has hereinbefore been said, the operation of the pump is made easier, and the wear on the packings of the piston, piston-rod and the valves is greatly lessened.

It is recognized that other changes may be
25 made in the form of means than those shown

as embodying the invention without departing from its general nature or spirit.

What is claimed is:—

The combination with a stationary pump-cylinder and its reciprocatory piston-rod, of 30 a lever for operating the piston-rod pivoted to the outer end of the latter above the lower end of the said lever, a link pivoted at its inner end to the pump-cylinder and at its outer end to the lower end of the lever, forming a 35 toggle-joint between the two latter devices, and a spring arranged to operate on the toggle-joint with a tendency to straighten the same as the lever is operated to draw the piston-rod outward whereby the movement of 40 the piston and piston-rod are maintained in a right line and undue wear on the piston-packing is avoided.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOSEPH CHAN.

Witnesses:

I. M. ENGBRETSON,
ANDREW QUITNEY.