

(No Model.)

2 Sheets—Sheet 1.

J. J. THIESEN.  
PUMP.

No. 540,200.

Patented May 28, 1895.

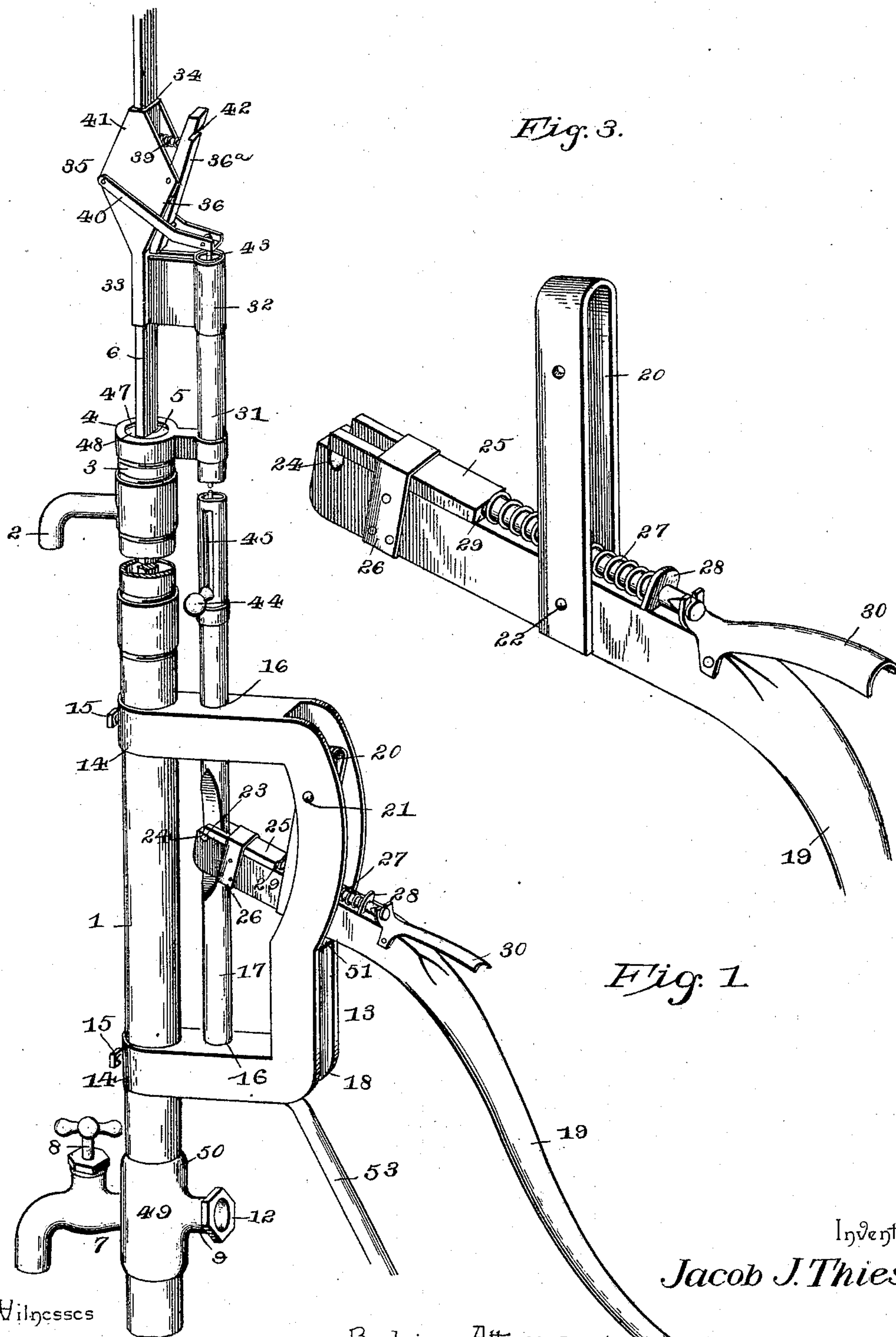


Fig. 1

Fig. 3.

Witnesses

Charles Ford.  
*[Signature]*

By his Attorneys.

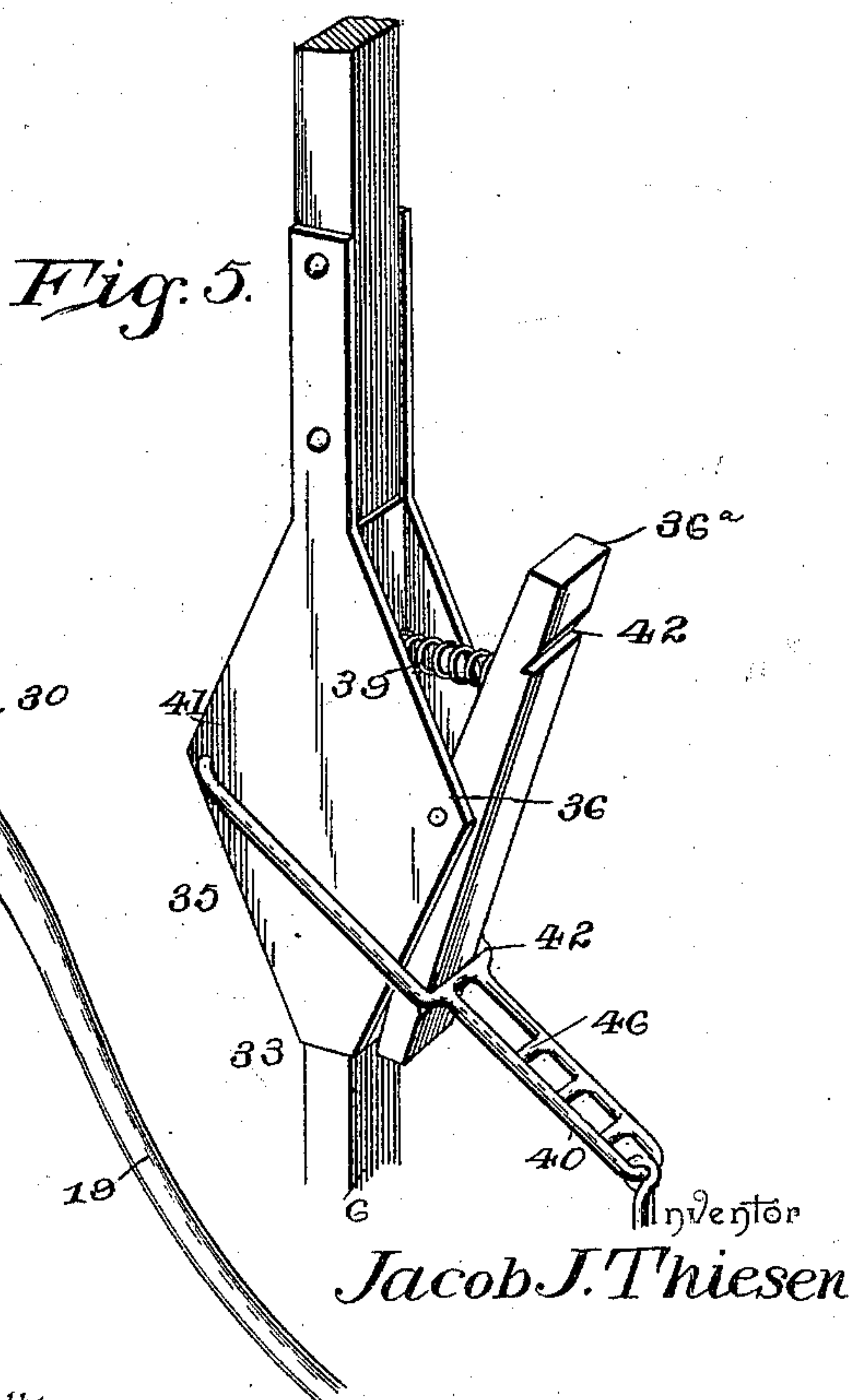
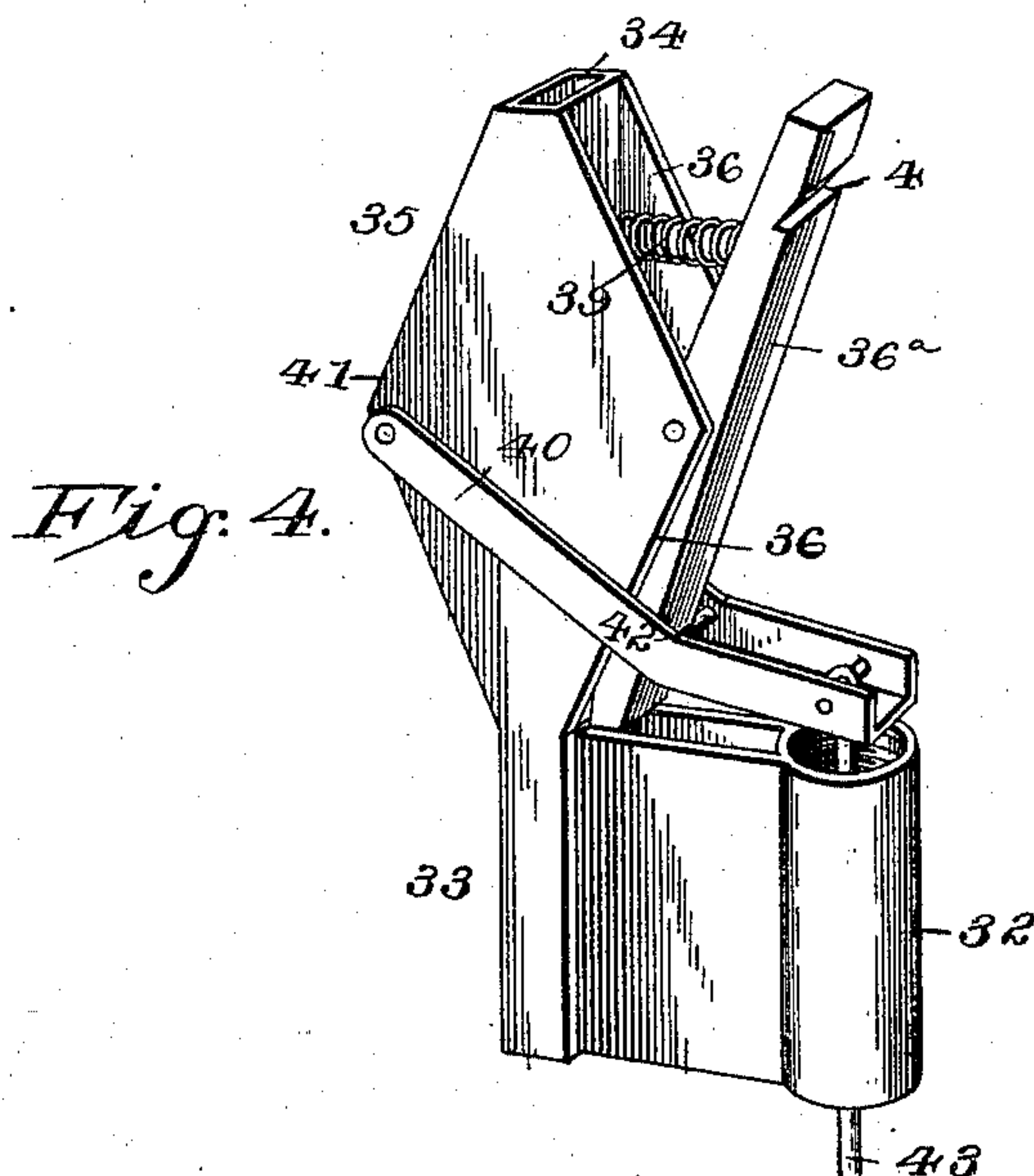
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Inventor  
Jacob J. Thiesen

2 Sheets—Sheet 2.

Patented May 28, 1895.

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Witnesses

By h i s Attorneys.

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# UNITED STATES PATENT OFFICE.

JACOB J. THIESEN, OF JANSEN, NEBRASKA.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 540,200, dated May 28, 1895.

Application filed February 15, 1894. Serial No. 500,289. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB J. THIESEN, a citizen of the United States, residing at Jansen, in the county of Jefferson and State of Nebraska, have invented a new and useful Pump, of which the following is a specification.

My invention relates to pumps, of the class adapted to be operated either by hand, wind-mill, or other power; and it has for its object to provide a simple, efficient and durable hand power; to provide means for attaching and detaching the operating power with facility, and without the manipulation of bolts, screws, or similar devices; to provide simple and adjustable means for the attachment of the hand-power to a pump-barrel; to provide means for attaining the accurate axial movement of the pump-rod in the pump-barrel, to avoid binding or cramping during operation; and to provide means for preventing the over-flow from the pump-barrel, without closing the upper end of the latter, whereby compression of air or liquid in the upper end of the pump-barrel is avoided.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a pump constructed in accordance with my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a detail view, in perspective, of the hand-lever and attachments, including its swinging support. Fig. 4 is a similar view of the clutch for connecting the power to the pump-rod. Fig. 5 is a similar view of a slightly-modified form of clutch, which is employed especially for connecting a pump-rod to a windmill plunger-rod when the clutch is arranged at a considerable height.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the pump-barrel, which is provided at a point near its upper end with an outlet 2 designed to discharge into a trough extending to an elevated tank or reservoir, or adapted for the attachment of a service pipe. (Not shown.) This outlet 2 is arranged below

the upper end of the pump-barrel to provide an over-flow receiver 3, to receive the surplus water which is elevated by the plunger, at each stroke, more rapidly than it can be carried off through the outlet. The upper end of this over-flow receiver, which is a part of the pump-barrel, is fitted with a cap 4, secured in place by contiguous threaded surfaces, as shown, and provided with an angular opening 5 for the passage of the pump-rod 6. The plunger is not illustrated in the drawings, and it may be of any suitable or preferred construction, and attached in any serviceable manner to the lower end of the pump-rod. The pump-barrel is provided, furthermore, with a lower outlet 7, provided with a cock or valve 8, which may be operated by hand; said lower outlet being adapted to be used to supply water in a building at a point below the plane of the tank or reservoir, and without first passing therethrough.

A safety device 9, is arranged in the pump-barrel, to prevent the bursting of the barrel when the contained water becomes frozen, such device consisting of a short tube 10 communicating with the interior of the barrel, a glass or other frangible partition 11 located in the said tube adjacent to the plane of the inner surface of the barrel, and guard-disks 12 of leather or similar flexible material arranged upon opposite sides of and in contact with said frangible partition. When the contents of the pump-barrel freeze the expansion acts upon the frangible partition and causes the latter to break, thus relieving the strain and preserving the barrel. The flexible guard-disks between which said partition is interposed protect the latter and hold it in place under ordinary circumstances of use and operation, but yield readily to the force of expansion when the contents of the barrel freeze.

13 represents a guiding frame or yoke, provided with the aligned sleeves 14 which embrace the pump-barrel and are secured at their desired elevation thereon by means of the set-screws 15. The frame is provided at its upper and lower ends with the registering guide-openings 16 in which is fitted for vertical reciprocation the slide-rod 17, and fulcrumed between the parallel side-bars 18 of the frame or yoke is an operating hand-lever



19 which is connected to the slide-rod. The connection of the hand-lever to the frame is by means of a swinging loop 20, fulcrumed as at 21 to the side bars 18, the said lever being pivoted, as at 22, between the parallel sides of the loop. The connection between the extremity of the hand-lever and the slide-rod is detachable and is constructed as follows: The slide-rod carries a pivot-pin 23, which is threaded at its center in a suitable perforation in the rod and is provided with smooth terminals which project beyond the sides of the rod. The end of the lever is provided with a seat 24 to receive the projecting extremities of the pivot-pin, the lever being bifurcated to pass upon opposite sides of the rod. A bifurcated retaining bolt 25 is slidably mounted in a keeper 26 upon the upper side of the lever and is adapted, when extended, to close the upper sides of the seats 24 and prevent the displacement of the pivot-pin when arranged therein. An actuating spring 27 is coiled upon the shank of said bolt and, bearing at its extremities, respectively, against an eye 28 on the lever and the shoulder 29 at the inner end of the bifurcated portion of the bolt, holds the same normally in its extended position; and a thumb-lever 30 is fulcrumed upon the hand-lever and is connected to the end of the bolt, whereby the latter may be withdrawn to discover the seats 24 and release the pivot-pin.

Coupled to the upper end of the slide-rod 17 is a tubular stem 31, which is fitted, removably, at its upper end in a collar 32 at one end of the casting 33. The casting is provided with a vertical opening 34 in which fits the pump-rod above the upper end of the pump-barrel. The pump-rod fits slidably in the opening in the casting 33, whereby when the hand operating mechanism is disconnected, by means hereinafter described, the pump-rod may slide freely therethrough when operated by any other power.

Fixed to the upper end of the casting 33, and preferably forming a part thereof, is a socket-piece 35 provided with parallel ears 36 between which is pivoted a rocking latch 36 provided at one end with a pin 37 which aligns with a perforation in the side of the socket-piece and is adapted to engage one of a series of perforations 38 in the pump-rod. The pin 37 is preferably square or rectangular in cross-section and is tapered toward its free end, and the perforations 38 are similarly tapered, whereby the pin fits snugly therein without vibration or looseness. As the pin or the walls of the perforations become worn the pin extends farther into the perforation with which it is engaged. The object in providing a series of perforations 38 is to permit of relative vertical adjustment of the pump-rod.

An actuating spring 39 is arranged under the opposite end of the rocking latch from the pin 37, to normally hold the pin in engagement with the perforation in the pump rod, and to disengage the pin from said perfora-

tion I provide a swinging looped arm 40, having its arms pivoted to the ears 41 at the opposite side of the socket-piece from the above described ears 36, and bearing upon the outer surface of the latch. The latch is provided near its opposite ends with the shouldered notches 42. When the swinging arm is engaged with the lower notch of the rocking latch the pin of the latter is held in engagement with the perforation in the pump-rod against accidental displacement by jarring or otherwise; and when the said arm is engaged with the upper notch of the rocking latch, the latter is tipped in the opposite direction and its pin is held out of operative relation with the perforations of the pump-rod. For operating the swinging arm 40 I provide an operating-rod 43 which is slidably fitted in the bore of the tubular stem 31, is connected at its upper end to the said arm, and is provided at its lower end with a button 44, arranged in a slot 45 in the side of said tubular stem.

It will be understood that the hand-operating mechanism, as thus far described, can be used only when the windmill, or other power operating devices usually attached to pumps of this class, have been disconnected, and as said power operating devices form no part of my invention I have deemed it unnecessary to illustrate the same in the drawings. The socket-piece 35, with its locking attachments, may be secured to the rod 6, when it is desired to operate the pump by means of the handle 19, but when other power is employed, said locking devices must be disconnected by the means above described in order that the pump rod may slide freely through the socket piece. It is obvious that any suitable form of device for connecting the pump rod to the windmill or other power may be employed, whereby, when it is desired to use the hand-operating mechanism, said device may be disconnected to release the pump rod.

In Fig. 5 I have illustrated a slightly modified form of the clutch just described, in which the swinging arm is provided at its outer end with a series of cross-bars 46 for the attachment of the upper end of the operating-rod, and by attaching said rod to different cross-bars a greater or less movement of the rod is necessary to accomplish the desired movement of the arm. This form of clutch (which is identical with that above described in other respects), is designed for use in connecting the plunger-rod of a wind-mill, or other motor, to the upper end of the pump-rod; and it will be obvious that when the device is arranged in connection with a motor of this kind it may be attached thereto or to the hand operating mechanism, as above described, according to which is required, by the simple manipulation of the clutches, the operating-rods of which extend to within easy reach of the operator.

The operation of the mechanism will be readily understood from the above description, and it will be obvious that various



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

5 The preferred construction of the cap 4 above described is as follows: Said cap is provided at its upper end with an intumed tip or flange 47, which bears upon the periphery of a suitable washer 48 placed upon the up-  
10 per end of the pump-barrel and having the guide opening 5 formed therein. This construction is preferable for the reason that the washer may be replaced at small expense and is more readily removed and applied, and,  
15 furthermore, the angular shape of the pump-rod does not interfere with the rotation of the cap necessary to properly engage the threads thereof with those upon the pump-barrel.

It will be noted furthermore that the coupling 49 which carries the lower outlet 7 and the safety device 9 is provided with smooth-cylindrical extensions 50 which embrace the adjacent portions of the pump-barrel and prevent the vibration occasioned by the operation of the hand-lever from loosening the  
25 joints at this point.

A stop 51 is provided to limit the downward movement of the hand-lever, said stop being clearly shown in Fig. 2 of the drawings,  
30 and the hand-lever is provided at a suitable point with an enlargement 52 to strike said stop. A brace 53 is indicated in Figs. 1 and 2, and may be employed as an additional means for supporting and preventing vibration of  
35 the pump-barrel.

It will be understood from the foregoing description that any desired construction of fastening devices may be employed for attaching the pump to a building or to the tower of  
40 the wind-mill, but as these parts may be varied without affecting the operation or functions of the other features of the pump specific illustration and description are unnecessary.

45 Having thus described my invention, I claim—

1. In a device of the class described, the combination with a pump barrel and a pump-rod operating therein, of a clutch having a  
50 socket-piece to receive the pump-rod and provided with a perforation to register with one of a series of perforations in the pump-rod, a rocking-latch fulcrumed at an intermediate point to the socket-piece and provided at one  
55 end with a pin to engage one of the perforations in the pump-rod, a swinging arm connected to the socket-piece and adapted to engage either end of said latch to hold it in either its engaging or disengaging position, means  
60 for operating said swinging arm, and operating mechanism connected to the clutch, substantially as specified.

2. In a device of the class described, the combination with a pump-barrel and a pump-rod operating therein, of a clutch having a  
65 socket-piece to receive the pump-rod and provided with a perforation to register with one

of a series of perforations in the pump-rod, a rocking-latch fulcrumed to the socket-piece and provided with a pin to engage one of the  
70 perforations in the pump-rod, a spring to maintain the latch in its locking position, a swinging arm connected to the socket-piece and adapted to engage either end of the latch to rock the same in opposition to its actuating spring or lock it in its operative position,  
75 means for operating said swinging arm, and operating mechanism connected to the clutch, substantially as specified.

3. In a device of the class described, the combination with a pump-barrel and a pump-rod arranged therein, of a socket piece to receive the pump-rod, a spring-actuated rocking latch fulcrumed upon the socket-piece and provided with a pin to engage a perforation in the pump-rod, said latch being provided at opposite ends, in its outer surface, with shouldered notches, a bifurcated swinging arm arranged to engage either of said  
80 shouldered notches, an operating rod connected to the free end of the swinging arm, and means for operating the pump-rod connected to said socket-piece, substantially as specified.

4. In a device of the class described, the combination with a pump-barrel, of a pump-rod provided with a series of tapered perforations, a clutch having a socket-piece to receive the pump-rod, a spring-actuated latch, a tapered pin carried by the latch and adapted to engage one of the perforations in the pump-rod, means for operating the latch, and operating mechanism for the pump-rod connected to the clutch, substantially as specified.  
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5. In a device of the class described, the combination with a pump-barrel and a pump-rod arranged therein, of a slide-rod mounted in suitable guides, a hand-lever connected to the slide-rod, a clutch detachably connected to the pump-rod, and having a rocking pin-bearing latch and a swinging arm for operating said latch, a tubular stem supporting said clutch and connected to the slide-rod, and an operating-rod slidably fitted in the tubular stem and connected to said swinging-arm, substantially as specified.  
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6. In a device of the class described, the combination with a pump-barrel, a pump-rod arranged therein, a slide-rod mounted for operation in a direction parallel with the axis of the pump-barrel, and connections between the slide-rod and the pump-rod, of an operating hand-lever fulcrumed at an intermediate point, bifurcated to pass upon opposite sides of the slide rod and provided in its end with seats to receive the terminals of a pivot-pin carried by the slide-rod, a bifurcated spring-actuated bolt mounted upon the lever to close the seats in the end of the latter and secure the pivot-pin therein, and means for operating said bolt, substantially as specified.  
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7. In a device of the class described, the



- combination with a pump-barrel, a pump-rod arranged therein, a slide-rod mounted for reciprocation in a direction parallel with the axis of the cylinder, and connections between the slide-rod and pump-rod, of a hand-lever mounted in a swinging loop, and means for detachably connecting the extremity of the lever to the slide-rod, substantially as specified.
- 10 8. In a device of the class described, the combination with a pump-barrel and a pump-rod arranged therein, of a frame adjustably secured to the pump-barrel and provided in its upper and lower ends with registering  
15 guide openings, a slide-rod fitted in said guide - openings, connections between the slide-rod and the pump-rod, a swinging loop pivoted between parallel side-bars forming parts of said frame, and a hand-lever fulcrumed between the parallel sides of said  
20 loop, and means for detachably connecting the extremity of the lever to the slide-rod, substantially as specified.
- In testimony that I claim the foregoing as my own I have hereto affixed my signature  
25 in the presence of two witnesses.
- JACOB J. THIESEN.
- Witnesses:  
N. B. FRIESEN,  
D. LEWIS.