

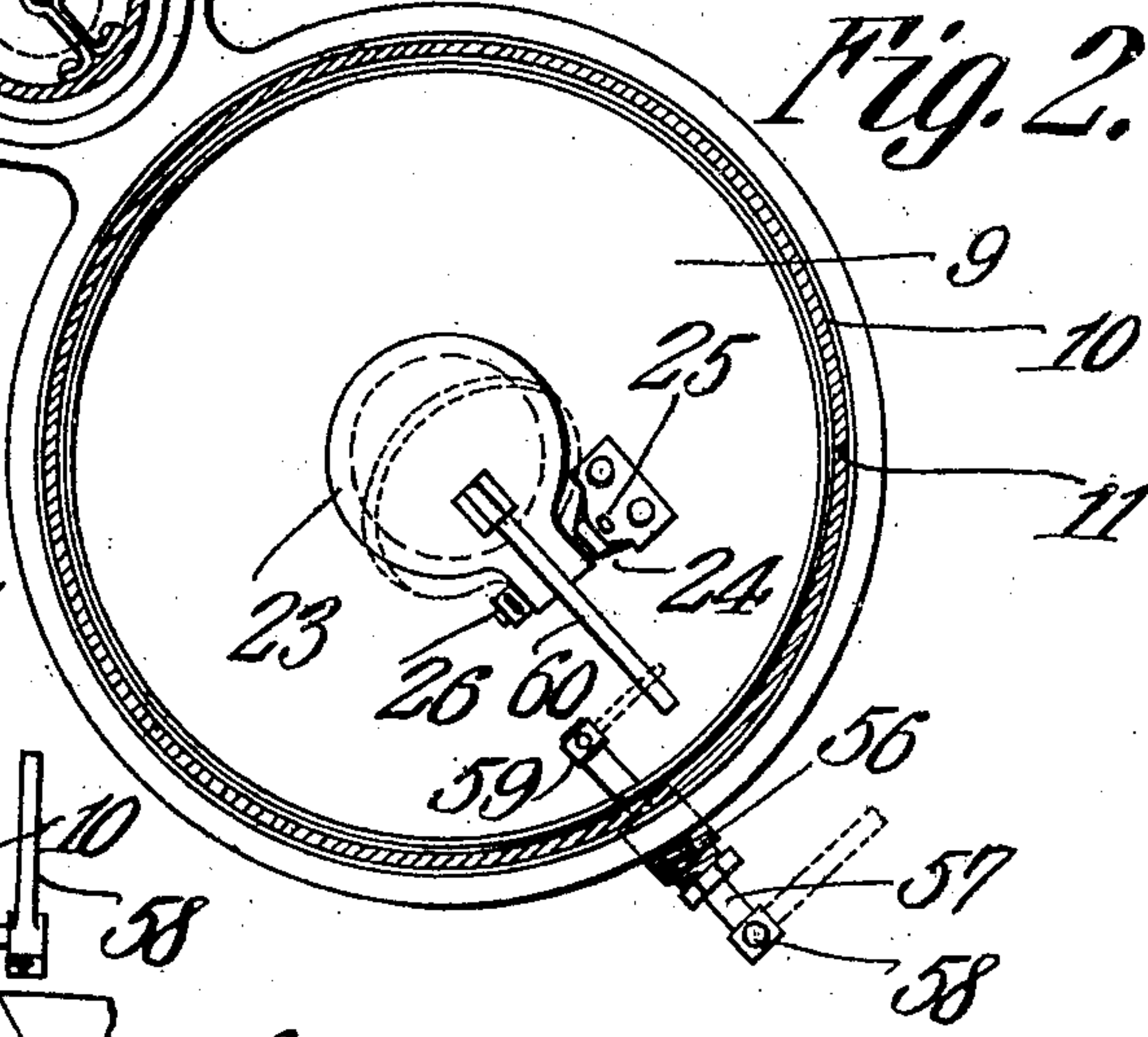
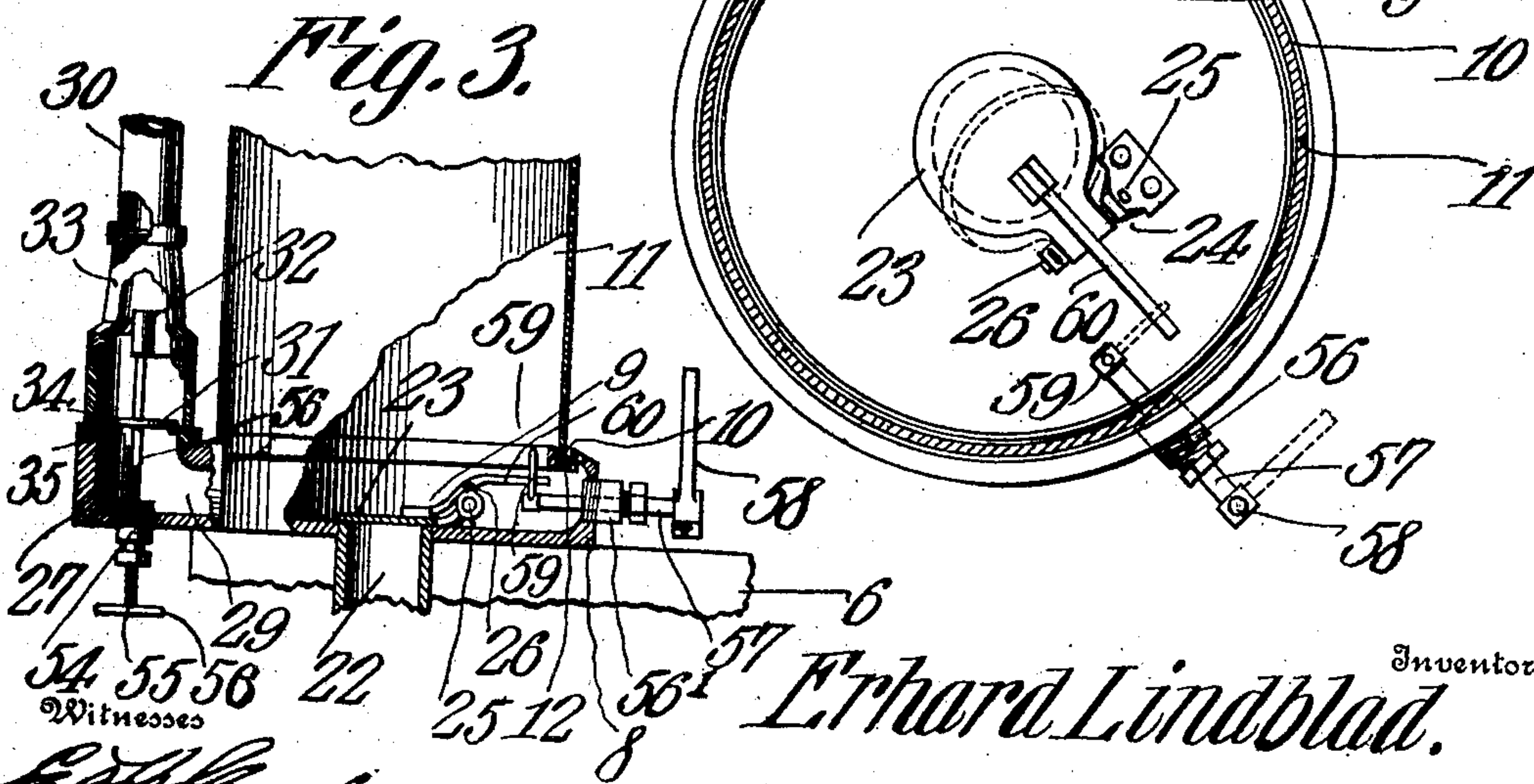
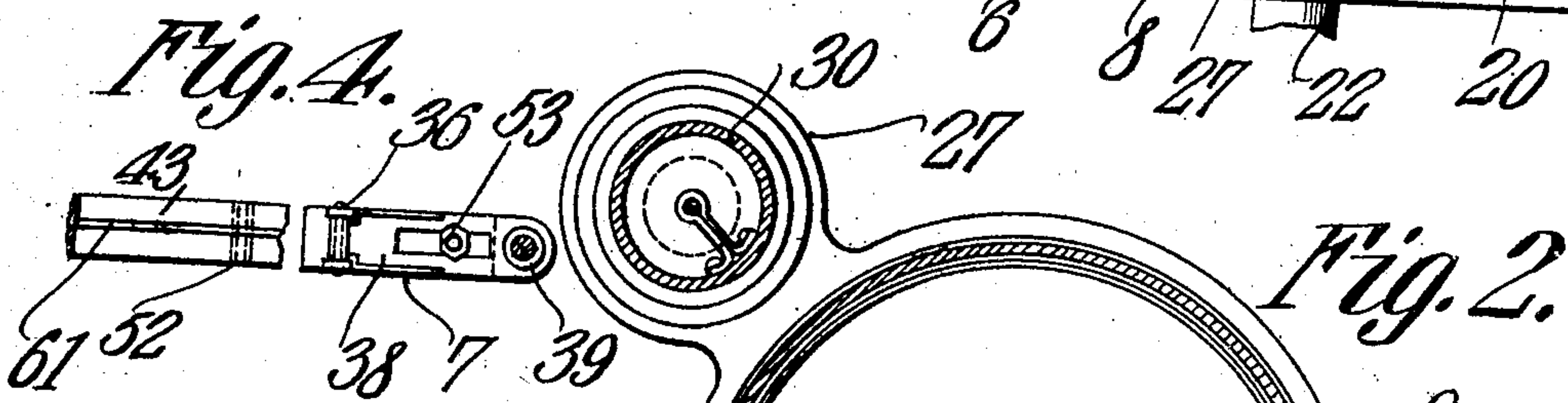
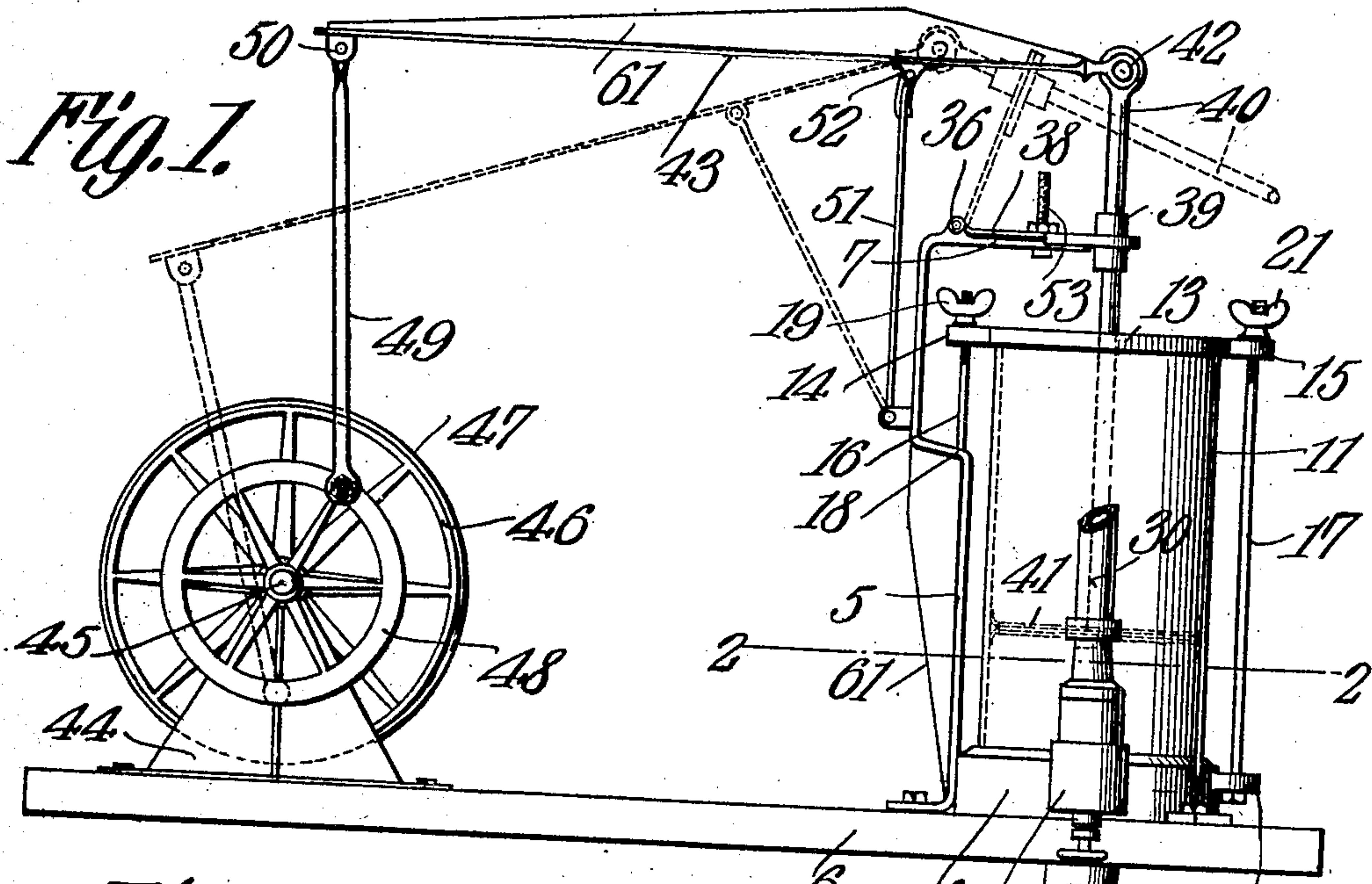
E. LINDBLAD.

MILK PUMP.

APPLICATION FILED MAR. 30, 1908.

916,732.

Patented Mar. 30, 1909.



E. Lindblad
S. J. Vickers

Erhard Lindblad.

Ca Snow & Co
Attorneys

UNITED STATES PATENT OFFICE.

ERHARD LINDBLAD, OF KOST, MINNESOTA.

MILK-PUMP.

No. 916,732.

Specification of Letters Patent.

Patented March 30, 1909.

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To all whom it may concern:

Be it known that I, ERHARD LINDBLAD, a citizen of the United States, residing at Kost, in the county of Chicago and State of Minnesota, have invented a new and useful Milk-Pump, of which the following is a specification.

This invention relates to milk pumps of that general class shown and described in my former application for United States Letters Patent filed on the 29th day of February 1908 under Serial No. 418589.

The primary object of the invention is to provide means for draining the pump cylinder and fluid conducting pipe preparatory to disconnecting the cylinder from the supporting frame for the purpose of cleaning the pump valves thereby to prevent waste of the liquid.

A further object of the invention is generally to improve and simplify the construction of the pump and to provide means for connecting the piston with a motor or other suitable source of power for operating the pump.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation of a pump constructed in accordance with my invention. Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a side elevation partly in section showing the arrangement of the pump valves. Fig. 4 is a sectional top plan view of the overhanging arm and its associated parts, a portion of the walking beam being shown in connection therewith.

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

The improved pump forming the subject matter of the present invention comprises a supporting frame or standard 5 having its lower end secured to a base plate 6 and its upper end bent laterally to form an overhanging arm 7, as shown.

Secured to or formed integral with the supporting frame 5 is a stationary head 8 having a shallow depression or chamber 9 formed therein and provided with a circumferential groove 10 for the reception of the lower edge of the pump cylinder 11, there being a pack-

ing 12 interposed between the cylinder and groove to prevent leakage between the parts. Formed on the upper end of the cylinder 11 is a relatively movable head 13 having oppositely disposed perforated lugs 14 and 15 for the reception of clamping rods 16 and 17. The clamping rod 16 is secured to and extended vertically from the offset portion 18 of the standard and is provided with a threaded terminal for engagement with a wing nut 19. The lower end of the clamping rod 17 extends through a perforated lug 20 on the stationary head 8 with its upper end passing through the lug 15 for engagement with a wing nut 21 similar in construction to the wing nut 19.

Depending from the bottom of the stationary member 8 and communicating with the chamber 9 is a suction pipe 22, which latter leads to a cream vat or other suitable source of fluid supply and is normally closed by a valve 23. The valve 23 is pivotally mounted in spaced ears 24 secured to the bottom of the stationary member 8, while the pivot pin 25 is detachably secured between the ears by a cotter pin 26 so that the pin may be readily removed when it is desired to detach the valve for the purpose of cleaning the same.

Extending laterally from the stationary head or member 8 is an enlargement 27 having a liquid passage 29 formed therein and communicating with the chamber 9 and through which the milk or cream passes into a conductor 30 leading to a milk heater, pasteurizer, churn, or the like. The passage of the milk through the pipe 30 is controlled by a check valve 31, the stem of which is seated within and guided by a bracket 32 secured to a pipe section 33. The upper end of the pipe section 33 is detachably combined with the liquid conductor 30 while the lower end thereof is threaded in a pipe section 34 having an inwardly extending flange 35 constituting the seat of the valve 31.

Pivotally mounted at 36 to the overhanging arm 7 is a slotted plate 38 carrying a tubular member 39 which forms a guide for the rod 40 of the piston 41, the upper end of the rod 40 being pivotally connected at 42 with a walking beam 43. Mounted on the platform beneath the walking beam are supporting brackets 44 in which is journaled a driving shaft 45 carrying relatively fixed and loose pulleys 46 and 47, the fixed pulley being connected through the medium of a belt

with a motor or other suitable source of power thereby to operate the piston. Keyed or otherwise rigidly secured to the shaft 45 is a crank disk 48 having one end of a pitman 5 49 pivotally connected thereto and its opposite end pivotally connected at 50 with the long end of the walking beam 43, thereby to actuate the same to reciprocate the piston. Extending laterally from the standard 5 is an 10 ear or lug in which is pivotally mounted one end of a link 51, the opposite end of which is pivotally connected at 52 with the intermediate portion of the walking beam 43. The slotted plate 38 is normally clamped in en- 15 gagement with the over-hanging arm 7 by means of a bolt or similar fastening device 53 which extends through the slot in said plate and engages the arm, as shown. It will thus be seen that when motion is trans- 20 mitted through the belt to the fixed pulley 46 the walking beam 43 will be oscillated to reciprocate the piston 41.

On the upward movement of the piston 41 the milk or liquid will be drawn upwardly 25 through the pipe 22 into the chamber 9 and on the downward movement of the piston the liquid in the chamber will be forced through the passage 29 and conductor 30 to the churn or pasteurizer, as will be readily understood.

30 Threaded in an opening in the base of the enlargement 27 is a bushing 54 carrying a threaded rod 55 having a terminal finger 56 by means of which the rod may be adjusted vertically thereby to open the valve 31 when 35 it is desired to drain the pipe 30 preparatory to cleaning the cylinder and its associated parts. Extending laterally from the stationary member 8 is a similar bushing 56' in which is journaled a stub shaft 57 having 40 its outer end provided with a detachable operating handle 58 and its inner end formed with a laterally extending arm 59 adapted to engage a rod 60 carried by the valve 23 so that by operating the lever 58 the arm will 45 depress the rod 60 to open the valve 23. It will thus be seen that by operating the rod 55 and handle 58, the valves 31 and 23 may be moved to open position so as to permit drain- 50 age of the conductor 30 and chamber 9 when it is desired to clean said valves, thereby to prevent waste or leakage of the cream or other fluid.

When the members 55 and 58 have been operated to drain the liquid from the pump 55 the rods 16 and 17 are removed and the fastening device 53 released after which a rearward and downward pressure is exerted on the walking beam 43 which causes the several parts to move to the dotted line position 60 shown in Fig. 1 of the drawings and in which position the cylinder may be readily detached from the stationary head 8 so as to expose the valves for the purpose of cleaning. After the parts are thoroughly cleaned 65 the walking beam and plate 38 are swung

downwardly to the full line position shown in Fig. 1 and the cylinder clamped in engagement with the stationary head 8 by adjusting the rods 16 and 17, the plate 38 being subse- 70 quently clamped in engagement with the over-hanging arm 7 by manipulating the fastening device 53 in the manner before described.

The standard 5 and walking beam 43 are each preferably reinforced and strengthened 75 by a longitudinal rib or fin 61.

While the mechanism herein shown and described is principally designed for pumping cream or milk from a vat or tank to a source of consumption it is obvious that the pump 80 may be used with equally good results for pumping water or other liquid.

Having thus described the invention what is claimed is:

1. A pump including a supporting frame 85 having an over-hanging arm, a slotted plate pivotally connected with the arm, a cylinder mounted on the frame and provided with in- 90 let and discharge ports, valves for controlling the flow of fluid through said ports, a piston operating within the cylinder, a rod 95 carried by the piston and extending through the free end of the slotted plate, a walking beam having one end thereof pivotally connected with the rod, a driving shaft, a pit- 100 man forming a pivotal connection between the driving shaft and the opposite end of the walking beam, a link forming a pivotal con- 105 nection between the intermediate portion of the walking beam and the supporting frame 100 and a fastening device extending through the slot in the plate for clamping the latter in engagement with the over-hanging arm.

2. A pump including a supporting frame 105 having an over-hanging arm, a slotted plate 105 pivotally mounted on the arm and provided with a terminal guide, a pump cylinder mounted on the frame and provided with in- 110 let and discharge ports, a piston operating within the cylinder, a rod secured to the pis- 110 ton and extending through the guide, a walk- ing beam pivotally connected with the upper end of the piston rod, a driving shaft a pit- 115 man forming a pivotal connection between the walking beam and driving shaft, a link 115 forming a pivotal connection between the in- termediate portion of the walking beam and the supporting frame, a fastening device ex- 120 tending through the slot of the plate and en- gaging the arm, and means for detachably 120 securing the cylinder in position on the sup- porting frame.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERHARD LINDBLAD.

Witnesses:

CHARLES A. HOLT,
W. A. BAURQUIN.