

No. 736,235.

PATENTED AUG. 11, 1903.

W. W. DINGEE.
PUMP FOR PORTABLE ENGINES OR THE LIKE.

APPLICATION FILED FEB. 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

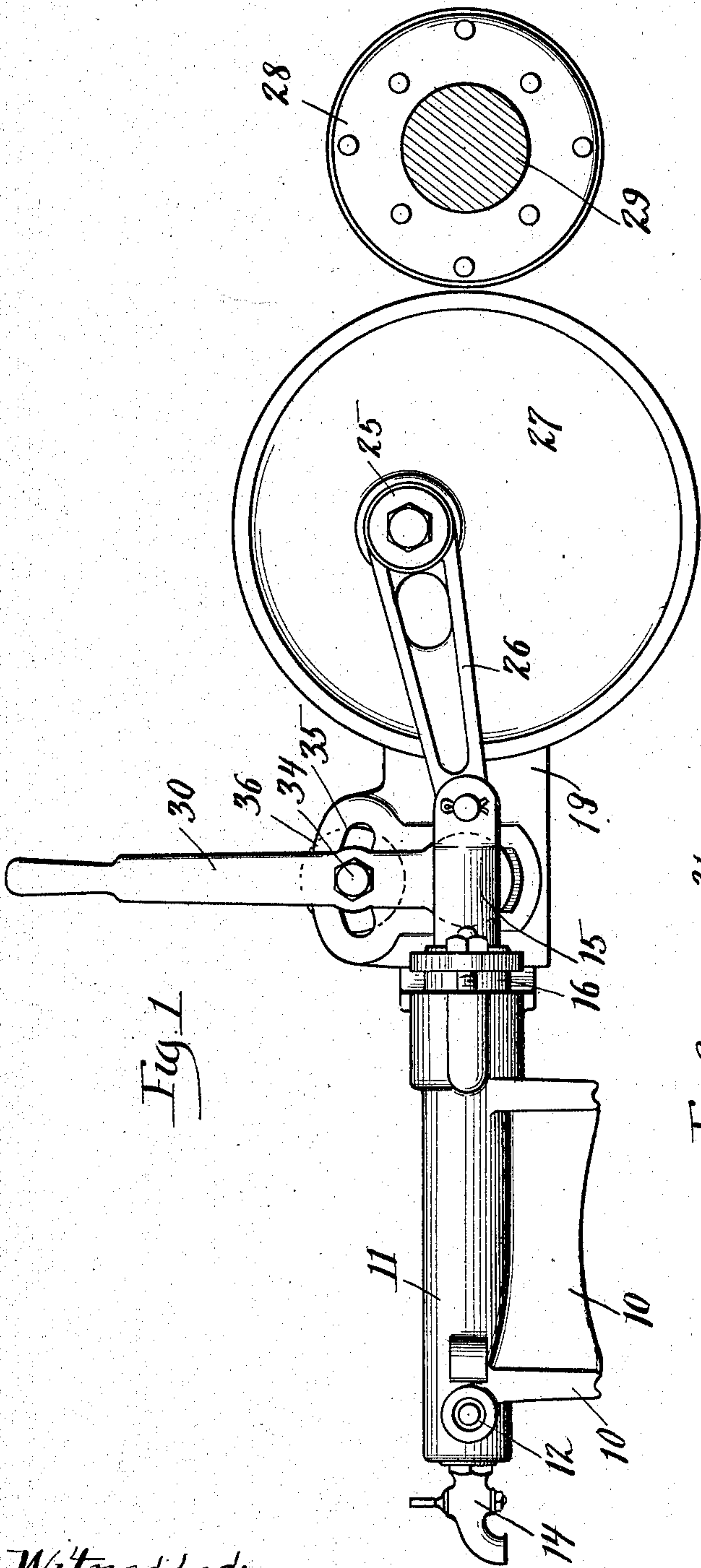


Fig. 1

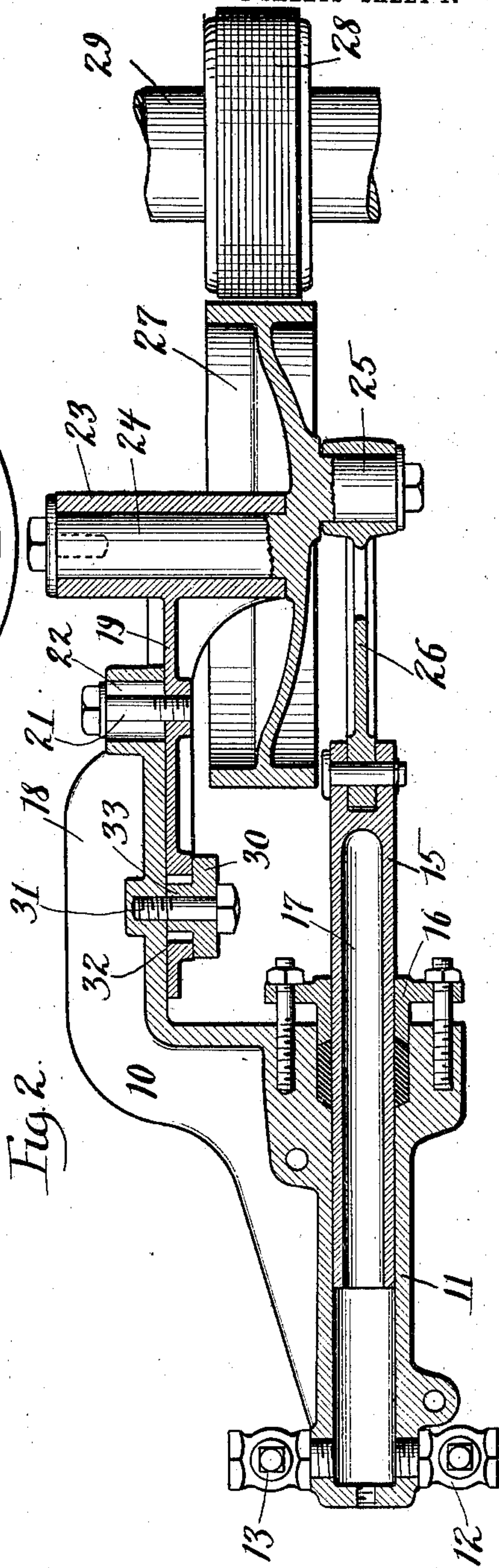


Fig. 2

Witnesses:
Fredrick
Alberta Adamick

Inventor
William W. Dingee
By *Pierce & Fisher*
his Attorneys

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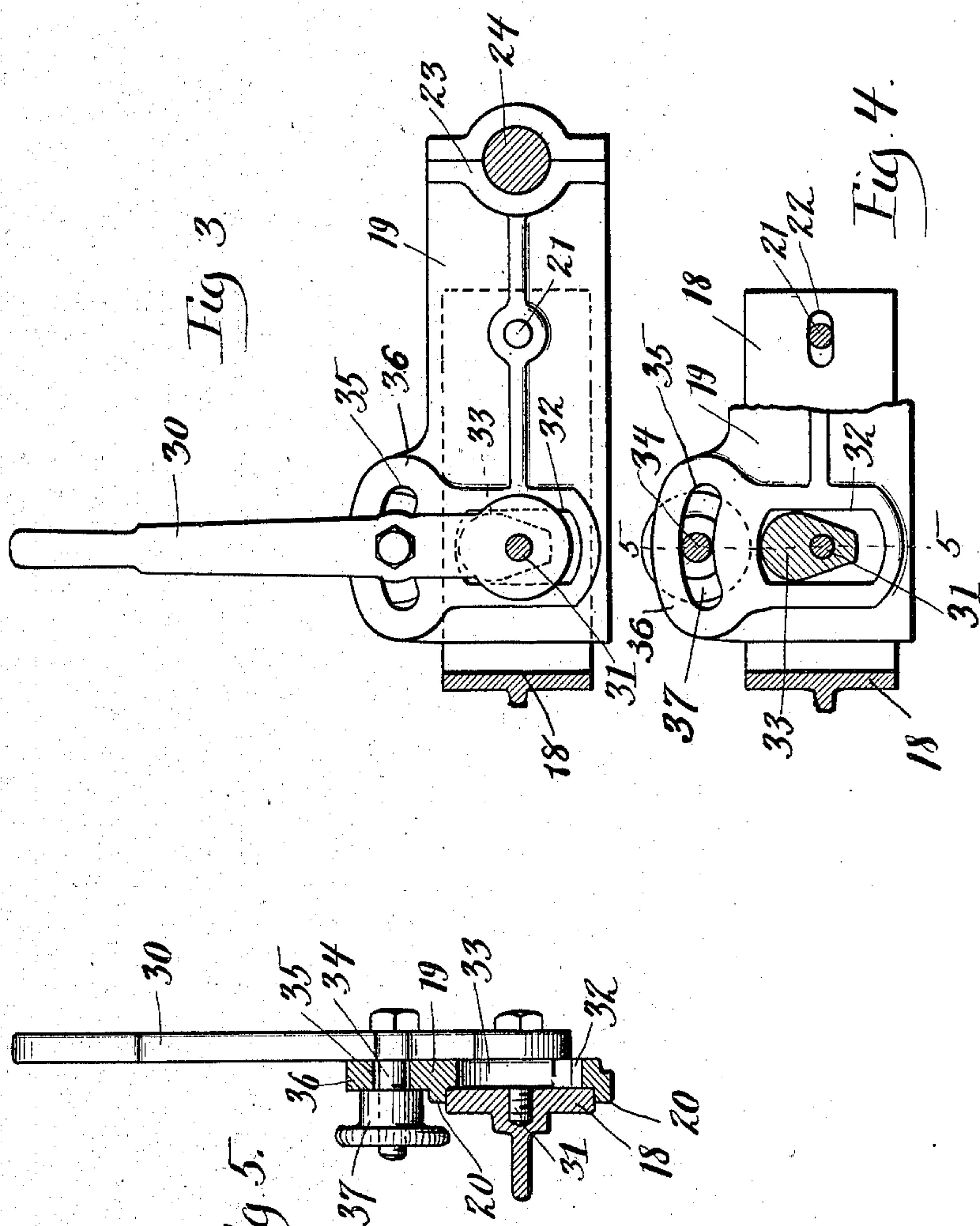
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Witnesses:
Alberta Adamick
Friedrich

Inventor:
William W. Dingee
By Peirce & Fisher
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM W. DINGEE, OF RACINE, WISCONSIN, ASSIGNOR TO J. I. CASE
THRESHING MACHINE COMPANY, OF RACINE, WISCONSIN, A CORPO-
RATION.

PUMP FOR PORTABLE ENGINES OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 736,235, dated August 11, 1903.

Application filed February 13, 1903. Serial No. 143,164. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. DINGEE, of Racine, county of Racine, and State of Wisconsin, have invented certain new and useful
5 Improvements in Pumps for Portable Engines or the Like, of which the following is declared to be a full, clear, and exact description.

The invention relates to feed-water pumps for the boilers of portable, traction, or other
10 like engines and seeks to provide a simple and effective construction by which the feed-water pump may be operated directly from a moving part of the engine in connection with means for throwing the pump into and out
15 of operation while the engine is in motion.

The improved pump is designed as a substitute for the small steam-pump or so-called "cross-head" pump now commonly employed with portable and like engines. The steam-
20 pump is expensive, complicated, and not easily kept in repair. The objections to the cross-head pump are chiefly that it has too long a stroke, too rapid an operation, and it can only be stopped by stopping the engine.

The present invention seeks to overcome the objections noted; and it consists in the features of construction, arrangement, and combinations of parts set forth in the following description, illustrated in the accompanying
30 drawings, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in elevation of the improved pump. Fig. 2 is a longitudinal section thereof, taken in a horizontal plane. Figs. 3 and 4 are detailed views
35 of the shifter mechanism for throwing the pump into and out of operation. Fig. 5 is a detailed section on line 5 5 of Fig. 4.

A suitable pump-frame 10 is provided, by
40 which the pump may be secured in suitable position upon the engine to which it is to be applied. A pump-cylinder 11 is secured to or formed in piece with the pump-frame 10, and at its closed end is provided with the
45 usual check-valves 12 and 13 and with a pet-cock 14. A piston 15, preferably of the plunger type, reciprocates longitudinally through the open end of the cylinder 11, and the open end of the cylinder is provided with the usual
50 stuffing-box 16. An ordinary air-cushion

may be provided for the outlet of the pump, or, as shown, the air-cushion may be formed by a longitudinal open bore 17, formed in the plunger-piston 15.

The machine-frame 10 is provided with a
55 forwardly-projecting offset portion 18, upon which is mounted the longitudinally-movable support or supplemental frame 19. The outer face of the supplemental frame 19 is provided at its upper and lower edges (see Fig. 5) with
60 projecting flanges 20, which overlap the upper and lower edges of the portion 18 of the pump-frame, so that the latter form guideways upon which the supplemental frame 19 may have a limited longitudinal movement in line with
65 the pump-cylinder 11. The engaging faces of the supplemental frame 19 and of the pump-frame portion 18 are nicely fitted to hold the supplemental frame against lateral move-
70 ment, and the latter is supported upon the main frame by a headed bolt 21, (see Fig. 2,) extending through a longitudinal slot 22 in the outer end of the portion 18 and threaded into the supplemental frame 19. The outer
75 end of the supplemental frame 19 is formed to a suitable journal-box 23, within which is rotatably mounted the pump-actuating shaft 24. The pump-actuating shaft 24 is connected to the plunger-piston 17 preferably by means
80 of a crank-pin 25 and a connecting-rod 26. A pump-actuating wheel 27 is operatively connected to the actuating crank-shaft 24 and is preferably mounted directly on said crank-shaft or formed in piece therewith, as indicated in Fig. 2.
85

A drive-wheel 28, with which the pump-actuating wheel 27 engages, is operatively connected to a revoluble part of the engine and in this instance is shown mounted directly on the engine crank-shaft, (indicated at 29.) In
90 order that the wheels 27 and 28 may be readily engaged and disengaged to start and stop the pump, said wheels preferably form members of a friction drive, and for this purpose one of said wheels (in this instance the drive-
95 wheel 28) is formed of compressed paper or other suitable material which may be adapted to hold the frictional connecting parts in engagement without undue slipping.

Any suitable means may be employed for 100

shifting the supplemental frame 19 to throw the cooperating wheels 27 and 28 into and out of engagement; but in the present instance a shifter is provided in the form of a lever 30, pivotally mounted upon a pin 31. The pin 31 extends through an enlarged opening or cam-slot 32 in the supplemental frame 19 and is secured to (see Figs. 2 and 5) the portion 18 of the pump-frame. An eccentric or cam 33, secured to or formed in piece with the shift-lever 30 at its pivoted end, extends within the cam-slot 32 of the supplemental frame 19. When the shift-lever 30 is operated, the cam 33 serves to move the supplemental frame 19 a sufficient distance to throw the cooperating friction-wheels 27 and 28 into and out of engagement.

Means are preferably provided for locking the supplemental frame and parts carried thereby in shifted position, and in the present instance such means comprises a pin 34, which is connected to the shift-lever 30 intermediate its ends and which projects through a segmental slot 35 in an upwardly-extending portion 36 of the supplemental frame 19. A lock-nut 37, threaded upon the end of the pin 34, may be brought to bear against the outer face of the projection 36, and thus lock the parts in shifted position.

By the simple arrangement shown the pump-actuating means may be quickly thrown into and out of engagement with the swiftly-running parts of the engine without danger. The pump-actuating wheel 27 is preferably larger than the drive-wheel 28 to reduce the speed of the pump-piston. The crank-pin 25 may be readily set at proper distance from the crank-shaft 24 to give the desired short stroke to the pump-piston 15. By the particular manner in which the supplemental frame 19 is mounted upon the pump-frame portion 18 the actuating crank-shaft 24 and wheel 27 are accurately held and guided in their to-and-fro shift in line with the cylinder and its piston 15. The to-and-fro shift of the supplemental frame 19 to move the wheel 27 to and from the wheel 28 need only be very slight to engage and disengage these friction-wheels and throw the pump into and out of operation. Furthermore, it will be observed that the pump-actuating shaft 24 and wheel 27 are arranged between and in line with pump-cylinder 11 and the drive-wheel 28, so that during the inward or forcing stroke of the pump, which is made against the boiler pressure, the friction-wheels 27 and 28 will be crowded together and any undue slipping between such wheels thus prevented.

It is obvious that the details of structure may be varied by the skill of the mechanic without departure from the essentials of the invention.

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

1. A pump for portable engines and the like comprising a cylinder, a piston within

said cylinder, a pump-actuating shaft and wheel connected to said piston and a shiftable support whereon said actuating-wheel is journaled.

2. A pump for portable engines and the like comprising a main frame, a cylinder mounted thereon, a piston in said cylinder, a pump-actuating shaft connected to said piston, an actuating-wheel mounted on said shaft, a supplemental frame whereon said actuating-shaft is journaled, said supplemental frame being longitudinally movable on said main frame in line with said cylinder and means for locking said supplemental frame in shifted position.

3. A pump for portable engines and the like comprising a main frame, a cylinder mounted thereon, a piston in said cylinder, an actuating-shaft connected to said piston, a pump-actuating wheel connected to said shaft and forming one member of a friction-drive and a supplemental frame shiftable mounted upon said main frame whereon said pump-actuating wheel and shaft are journaled.

4. In pumps for portable engines and the like, the combination with the engine-shaft, of a pump-frame, a cylinder mounted on said frame, a piston in said cylinder, an actuating crank-shaft and friction-wheel connected to said piston, a cooperating friction drive-wheel operatively connected to said engine-shaft and a shiftable supplemental frame whereon said pump-actuating wheel and shaft are journaled.

5. In pumps for portable engines and the like, the combination with the engine-shaft, of a friction drive-wheel operatively connected thereto, a pump-cylinder, a plunger-piston in said cylinder, a pump-actuating shaft and friction-wheel between said drive-wheel and said cylinder and operatively connected to said piston and a support movable in line with said cylinder whereon said pump-actuating shaft and wheel are journaled for shifting said friction-wheels into and out of engagement.

6. In pumps for portable engines and the like, the combination with the engine-shaft and with a friction drive-wheel operatively connected thereto, of a pump-frame, a cylinder on said frame, a plunger-piston in said cylinder, an actuating crank-shaft and friction-wheel connected to said piston and journaled in line between said pump-cylinder and said friction drive-wheel, a supplemental frame whereon said pump-actuating shaft and friction-wheel are journaled, said supplemental frame being longitudinally movable on said pump-frame for throwing said friction-wheels into and out of engagement and means for locking said supplemental frame in shiftable position.

7. In pumps for portable engines and the like, the combination with the engine-shaft and with a drive-wheel operatively connected thereto, of a pump-frame, a cylinder on said

frame, a piston in said cylinder, an actuating crank-shaft and wheel operatively connected to said piston, a supplemental frame whereon said pump-actuating wheel and shaft are journaled, said supplemental frame being movably mounted on said pump-frame, a shift-lever for said supplemental frame and means for locking said lever and parts controlled thereby in shifted position.

8. In pumps for portable engines and the like, the combination with the engine-shaft and with a drive-wheel operatively connected thereto, of a pump-frame, a cylinder on said frame, a piston in said cylinder, an actuating crank-shaft and wheel operatively connected to said piston, a supplemental frame whereon said pump-actuating wheel and shaft are journaled, said supplemental frame being movably mounted on said pump-frame, a shift-lever journaled on said pump-frame, a shifter-cam connected to said lever and engaging a slot in said supplemental frame, a locking-pin connected to said lever and engaging a segmental slot in said supplemental frame and a lock-nut on said pin.

9. In pumps for portable engines and the like, the combination with the engine-shaft and with a friction drive-wheel operatively connected thereto, of a pump-frame, a cylinder mounted on said frame, a plunger-piston in said cylinder, an actuating crank-shaft and friction-wheel operatively connected to

said plunger-piston and arranged in line between said cylinder and said friction drive-wheel, a supplemental frame whereon said pump-actuating shaft and wheel are journaled, said supplemental frame being longitudinally movable on said pump-frame in line with said cylinder and to and from said friction drive-wheel for throwing said pump-actuating friction-wheel into and out of engagement with said friction drive-wheel, a shifter for said supplemental frame and means for locking the same in shifted position.

10. In pumps for portable engines and the like, the combination with the engine-shaft and with a friction drive-wheel operatively connected thereto, of a pump-frame, a cylinder on said frame, a plunger-piston in said cylinder, an actuating crank-shaft and friction-wheel connected to said plunger-piston and journaled in line between said pump-cylinder and said friction drive-wheel and a supplemental frame whereon said pump-actuating crank-shaft and wheel are journaled, said supplemental frame being longitudinally movable in line with said cylinder and to and from said friction drive-wheel for throwing the pump into and out of operation.

WILLIAM W. DINGEE.

Witnesses:

EDWIN E. RUSSELL,
FREDERICK LEE NORTON.