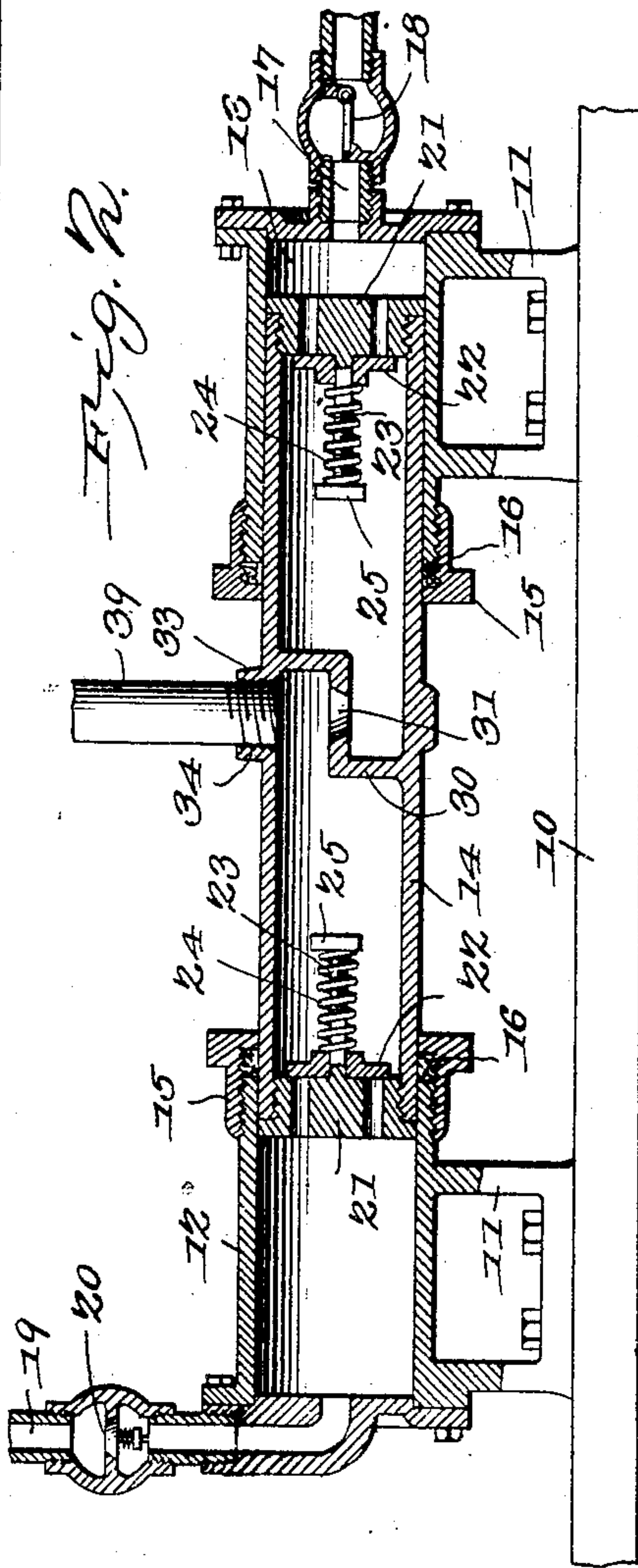
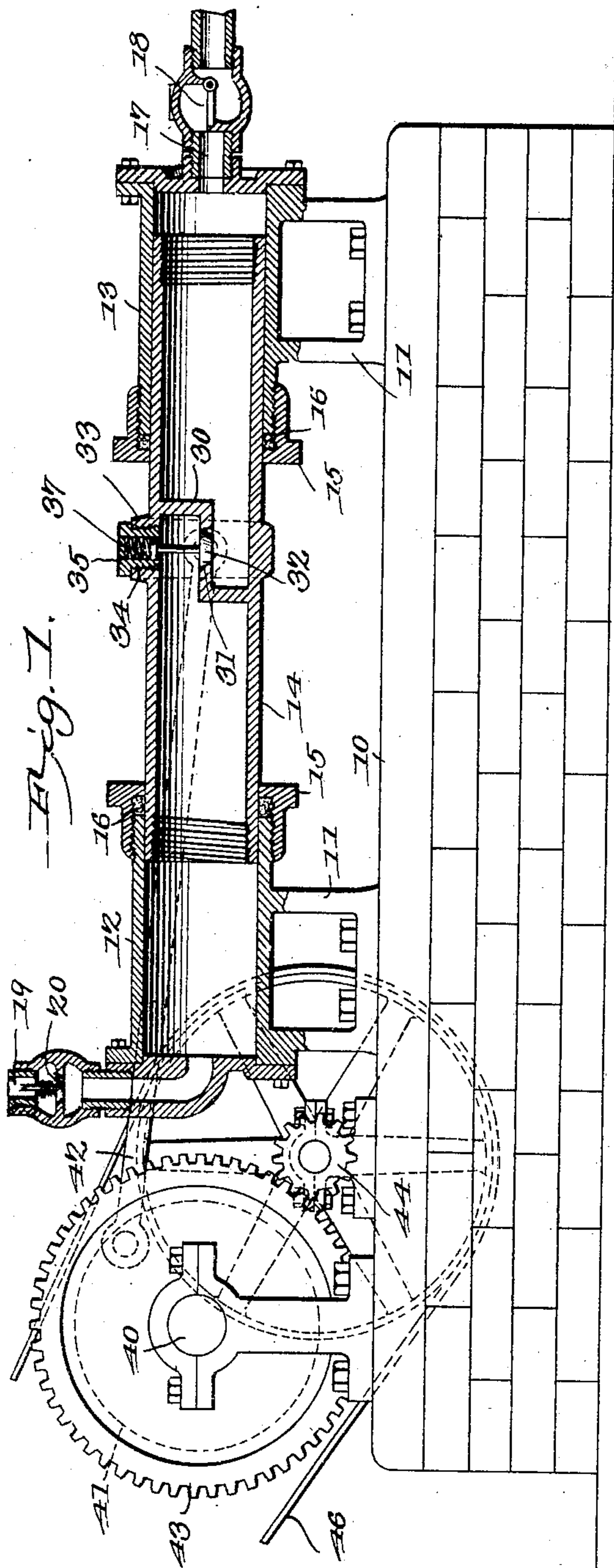


No. 786,100.

PATENTED MAR. 28, 1905.

J. R. COMPTON.
PUMP.

APPLICATION FILED DEC. 16, 1904.



Witnesses

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PUMP.

SPECIFICATION forming part of Letters Patent No. 786,100, dated March 28, 1905.

Application filed December 16, 1904. Serial No. 237,097.

To all whom it may concern:

Be it known that I, JAMES R. COMPTON, a citizen of the United States, residing at Alexandria, in the county of Dekalb and State of Tennessee, have invented a new and useful Pump, of which the following is a specification.

This invention relates to pumps, and has for its principal object to provide a novel construction which may be adjusted to form either a single or double acting pump—that is to say, a pump in which fluid is discharged at each alternate stroke—or one in which there is a discharge at each stroke, both types of pump having their peculiar advantages for use in connection with different classes of work.

A further object of the invention is to provide a device of this character which may be quickly converted from one type of pump into the other type by the engineer or attendant in charge and without the necessity of shipping the pump to the factory or workshop.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a pump constructed in accordance with the invention, the parts being adjusted to form a single-action pump. Fig. 2 is a similar view with the parts adjusted to form a double-action pump.

Similar numerals of reference are employed to indicate corresponding parts throughout both figures of the drawings.

The working parts of the pump are mounted on a suitable bed-plate 10, carrying a pair of standards 11, to which are secured pumping-cylinders 12 and 13, respectively, the adjacent ends of said cylinders being open and receiving a hollow plunger 14 of an external diameter approximately equal to the bore of the cylinders, and the end of each cylinder is

provided with external threads for the reception of a gland-nut 15, suitable packing-rings 16 being introduced between the ends of the cylinders and the nuts.

At the outer end of the cylinder 13 is a fluid-inlet pipe 17, which has a check-valve 18, opening in the direction of the cylinder. At the outer end of the cylinder 12 is a pipe 19, containing a reversible check-valve 20, which may be turned to open either in a direction toward or away from the cylinder. When the device is adjusted as a single-action pump, this pipe constitutes the discharge; but for a double-acting pump the pipe is employed as an inlet.

The opposite ends of the plunger 14 are provided with internal threads for the reception of perforated disks 21, the inner faces of which form seats for spring-pressed valves 22. Each disk carries an inwardly-projecting threaded stem 23, on which the valve is mounted, and surrounding the stem is a helical compression-spring 24, the stress of which may be adjusted by a nut 25. In both cases the valves open inward to admit water to the plunger and close to prevent the escape of water through the perforations. At the center of the plunger is a partition 30, dividing said plunger into two compartments of equal volume. The partition has a horizontal portion provided with an opening 31, the wall of which is faced to form a seat for a check-valve 32. At a point in alinement with the opening 30 the plunger is provided with a boss 33, having a threaded opening 34, into which may be screwed a plug 35. When the device is adjusted to form a single-action pump, the check-valve 32 is inserted through the opening 34 and seated on the wall of the opening 31, a spring 37 being employed to normally retain the valve in closed position. When adjusted to form a double-action pump, the perforated valve-disks 25 are screwed in the opposite ends of the plunger, while the intermediate check-valve is removed and the opening 33 receives the threaded end of a discharge-pipe 39, as shown in Fig. 2.

The pump may operate in any suitable manner, but by preference is operated from a shaft 40, carrying crank-disks 41, connected by rods 42 to trunnions on opposite sides of the cen-

tral portion of the plunger. The shaft 40 carries also a gear 43, intermeshing with a pinion of a shaft 44, the latter being driven from any suitable source of power, as by means
5 of a belt 46.

Where the device is employed as a single-acting pump—as, for instance, in feeding boilers—the check-valve 32 is placed in position and the valves and perforated disks at the opposite ends of the plunger are removed. The
10 parts being now in the position shown in Fig. 1, movement to the left will induce a flow of water or other fluid through the pipe 17 into the cylinder 13, the check-valve 32 remaining
15 closed. On reverse movement the check-valve 18 will close and check-valve 32 will open, permitting the water to pass to the cylinder 12. Movement to the left will now again close the check-valve 32 and the water will be forced
20 out through the pipe 19.

Where the parts are arranged, as shown in Fig. 2, for use as a double-action pump, movement of the plunger to the left will cause the water to flow from the cylinder 12 into the
25 plunger; but this movement is partly resisted by the water already in the plunger, which cannot escape from the right end of the plunger, and the water therefore passes out through the discharge-pipe 39, and at each stroke in
30 either direction water will pass out through the pipe 39, the discharge being continuous or practically so.

It is obvious that the valves of the plunger may be readily removed by loosening the cylinder-heads, and that the check-valve 32 may
35 be readily placed in position or removed from its seat through the opening 34.

Having thus described the invention, what is claimed is—

40 1. In a pump, a pair of connected cylinders,

open at their adjacent ends and provided with ports or piping connections at their outer ends, a plunger fitting within the two cylinders and provided with a partition having a fluid-passage, detachable valves arranged for closing
45 the opposite ends of the plunger, and the passage of the central partition, and means for reciprocating said plunger.

2. The combination with a pump, of a pair of cylinders open at their adjacent ends and
50 having piping connections at their outer ends, a reciprocating plunger fitting within both cylinders, a partition extending transversely of the plunger and provided with a fluid-passage, said plunger being further provided with a discharge-outlet in alignment with said fluid-passage, detachable valves at the opposite ends of
55 the plunger, and a removable valve for closing the fluid-passage of the partition.

3. The combination in a pump structure, of
60 a pair of axially-alined cylinders open at their outer ends, a plunger fitting within both cylinders, a partition dividing the plunger into two compartments, said partition having a fluid-passage, and the plunger being provided with
65 an opening in alignment with the fluid-passage, a check-valve insertible through said plunger-opening and arranged to close the fluid-passage of the partition, a removable plug for closing the plunger-opening, removable valves
70 for the opposite ends of the plunger, and a reversible check-valve disposed in one of the piping connections of the cylinders.

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

JAMES R. COMPTON.

Witnesses:

DEB DINGIS,
TURNER DINGIS.