

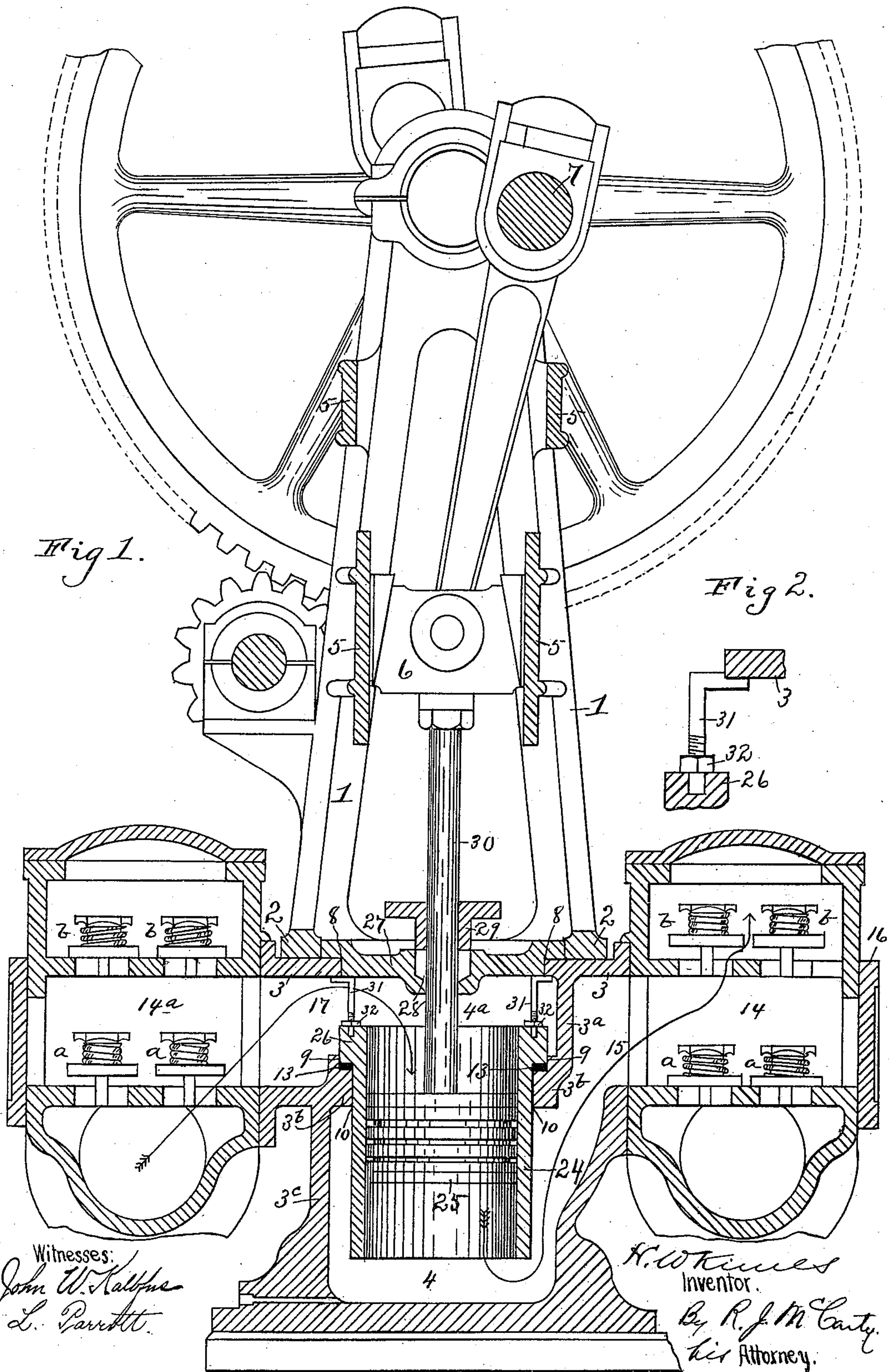
No. 616,849.

Patented Dec. 27, 1898.

H. W. KIMES.
PUMP.

(Application filed Sept. 21, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

HUGH W. KIMES, OF DAYTON, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 616,849, dated December 27, 1898.

Application filed September 21, 1898. Serial No. 691,499. (No model.)

To all whom it may concern:

Be it known that I, HUGH W. KIMES, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in pumps, and comprises means for converting the single-acting pump shown and described in my pending application, Serial No. 669,305, into a pump of the double-acting type, and vice versa.

The object of the said invention is to facilitate the work of construction by enabling the building of two types of pumps from a single set of patterns. This is accomplished by adhering to certain main structural features which are common to both types of pumps and in providing certain interchangeable parts, whereby the cost of construction is materially lessened and the shopwork greatly simplified. As preliminary to a detailed description of the invention reference is made to the accompanying drawings, of which—

Figure 1 is a vertical mid-sectional elevation of an upright double-acting pump constructed in accordance with my invention. Fig. 2 is an enlarged detail view of the means for holding the removable cylinder in position.

In a detailed description of the invention similar reference characters indicate corresponding parts.

The pump-housing is constructed with its sides or standards 1 slanting outwardly from top to bottom and terminating at the latter point in feet 2, through which it is rigidly secured to the pump-deck 3. The pump-case projects down and forms an inner partition-wall 3^a on one side, that terminates in an inwardly-extending horizontal ring or support 3^b above the pump-chamber 4 and which is integral with the lower upright wall 3^c. It

will thus be seen that one portion of the annular support 3^b is suspended from the deck 3, and the opposite side of said support or ring is supported on the lower wall 3^c. The upper partition-wall 3^a is on one side only of the pump-casing. This is an essential feature of the construction, as an inclosed passage on one side of the pump is thereby provided. Integral with the housing there are formed vertical guides 5, that serve to direct a reciprocating cross-head 6, which is driven from the crank-shaft 7. The said guides 5 also serve to withstand the strain incidental to the thrusts imparted by said crank-shaft. The guides 5 and the inner vertical faces of the feet 2 of the housing are bored at one and the same operation, as are also the inner annular walls or faces 8, 9, and 10 in the inner surface of the pump-casing, so that a true alinement of the housing and pump-casing is insured and rendered easy in setting up the pump. An annular ledge is provided at the inner extremity 3^b of the case by the formation of the walls 9 and 10, upon which is supported a gasket or packing-ring 13. The annular face 9 provides a wall that extends above the upper surface of the packing-ring. The pump-chamber 4 communicates with the valve-chamber 14 through passage 15, the said valve-chamber being closed by a removable bonnet 16.

a and *b* are induction and discharge valves inclosed in a valve-casing which is separate from the pump-casing. The above description describes structural features that are common to the single-acting pump shown and described in my pending application hereinbefore referred to.

24 is a removable open-ended piston-cylinder with a piston 25 working therein. This cylinder is projected down into the pump-chamber 4 a substantial distance and is supported on the ring or annular support 3^b. In this position it is maintained by bolts 31, which have their upper ends turned. These bolts enter openings in the cylinder, and by means of nuts 32 on the screw-threaded portions thereof they may be turned until their upper ends are made tight against the deck 3 of the casing. The upper end of the said cylinder has an annular shoulder 26, which is in contact with the packing-ring 13 and

abuts against the annular wall 9, thus making a tight joint. The major portion of the cylinder being projected down into the chamber, there is formed above said cylinder an upper pump-chamber 4^a, which is sealed from the lower chamber 4 and has communication with passage 17, leading to an additional valve-chamber 14^a and valves *a b*.

In the pending application hereinbefore referred to the passage 17 is an inclosed chamber, but in the present adaptation it becomes a passage from the upper end of the piston-cylinder to the extra valves necessary for a double-acting pump. The extra valve-casing is separate from the pump-casing. Therefore it is detachable. A head 27 closes the upper side of chamber 4^a and provides a stuffing-box 28, through which and the packing-gland 29 the piston-rod 30 works. The said rod is fitted to the cross-head 6, and the piston is fitted with adjustable packing-rings.

Having described my invention, I claim—

1. In a pump-casing having a deck 3, a downwardly-projected wall 3^a extending from one side of said deck and terminating in a lower annular support 3^b and lower wall 3^c, in combination with a removable cylinder having its upper end supported on said annular support, and valves and their cases, the said valve-cases being constructed and arranged to be detachable from the pump-casing, substantially as and for the purposes specified.

2. In a pump, the combination with a casing having an upper deck 3, and a downwardly-projected wall 3^a on one side terminating in a lower annular support 3^b, a lower chamber 4, a passage 15 leading therefrom to a valve-chamber, the wall 3^a forming the inner wall of said passage, a piston-cylinder projected into said chamber 4 with its upper end supported on the annular support 3^b of the pump-casing, a packing-ring between the piston-cylinder and the annular support 3^b, an upper chamber 4^a above said cylinder, and a passage leading therefrom to a valve-chamber, substantially as and for the purposes specified.

3. In a pump, a casing having a deck 3, a downwardly-projected wall 3^a extending from one side of said deck and terminating in a lower parallel ring or annular support 3^b and wall 3^c, in combination with a removable cylinder supported on said ring 3^b, valves and their casings, the said casings being constructed and arranged to be detachable from the pump-casing, and means for holding the cylinder in position, substantially as and for the purposes specified.

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

HUGH W. KIMES.

Witnesses:

A. J. FIORINI,
R. J. MCCARTY.

It is hereby certified that Letters Patent No. 616,849, granted December 27, 1898, upon the application of Hugh W. Kimes, of Dayton, Ohio, for an improvement in "Pumps," were erroneously issued to said Kimes as owner of the said invention; whereas said Letters Patent should have been issued to *The Stillwell-Bierce & Smith-Vaile Company, of same place*, said company being owner of the entire interest, as shown by the record of assignments in this office: Also, in heading, the line "Application filed September 21, 1898, Serial No. 691,499," should read *Original Application filed February 7, 1898, Serial No. 669,305, Divided and this application filed September 21, 1898, Serial No. 691,499*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 24th day of January, A. D., 1899.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.