

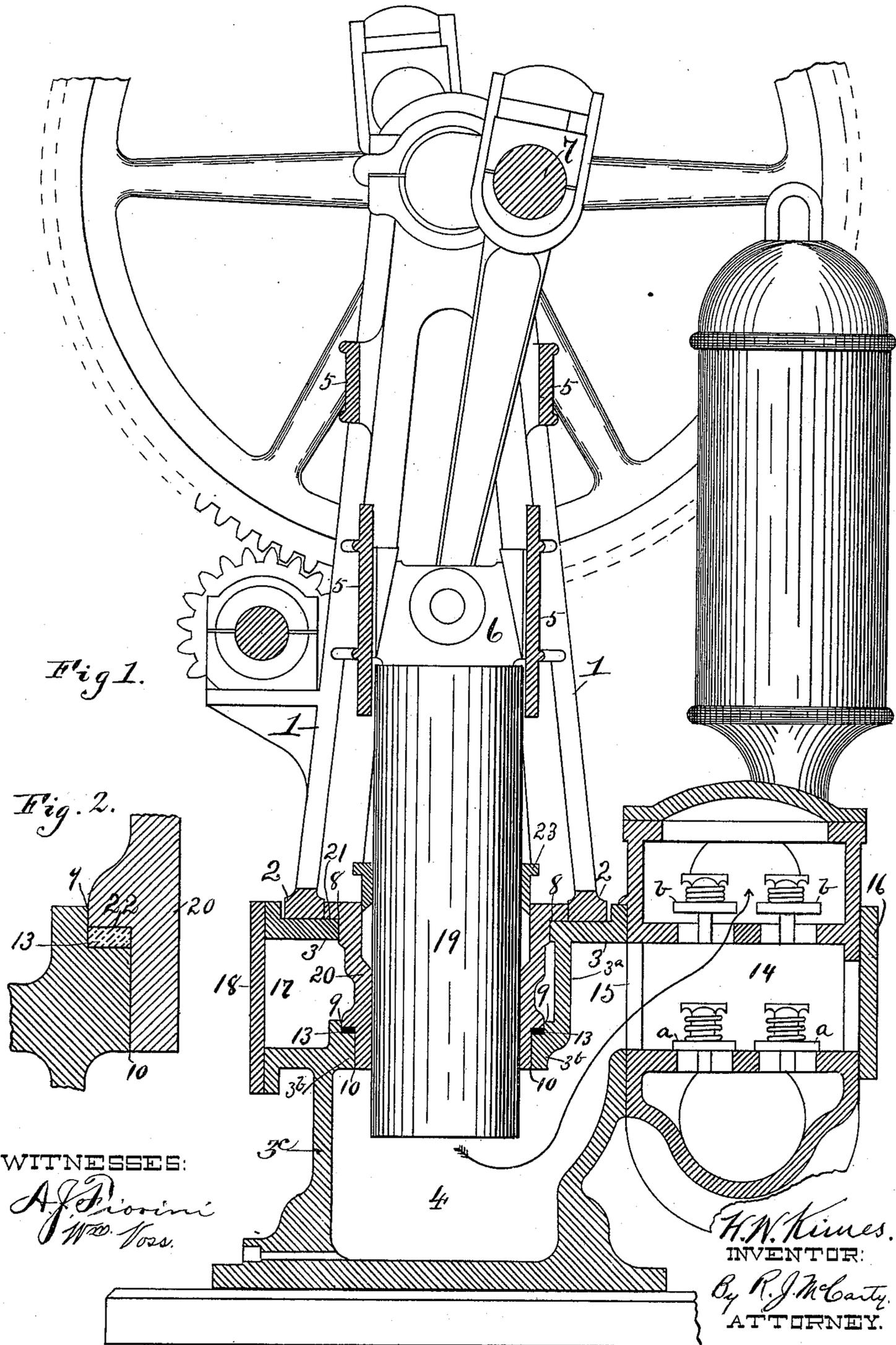
No. 614,396.

Patented Nov. 15, 1898.

H. W. KIMES.
PUMP.

(Application filed Feb. 7, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

HUGH W. KIMES, OF DAYTON, OHIO, ASSIGNOR TO THE STILWELL-BIERCE
AND SMITH-VAILE COMPANY, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 614,396, dated November 15, 1898.

Application filed February 7, 1898. Serial No. 669,305. (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 numerals of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in pumps, and comprises means for converting a single-acting pump 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 the 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 providing other interchangeable parts that may be utilized to convert the single-acting pump to one of the double-acting type, and vice versa. In other words, through the structural features hereinafter described it is possible to construct from a single set of patterns parts that are adapted to erect both a single and a double acting pump. This materially lessens the cost of construction and greatly simplifies the shopwork of production.

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 view of an upright single-acting pump constructed in accordance with my invention. Fig. 2 is an enlarged sectional view of the joint between the removable stuffing-box and the pump by which the pump-chamber is sealed.

Throughout the specification similar reference characters indicate the same parts.

The housing is constructed with its sides or standards 1 tapering outwardly from top

to bottom and terminating at the latter point in feet 2, through which the said housing is bolted or otherwise rigidly secured to the deck 3 or upper side of the pump-case in which the pump-chamber 4 is formed. The said case projects down and forms an inner partition-wall 3^a on one side, which ends in an inwardly-projected ring 3^b above the chamber 4 and which is integral with the pump-wall 3^c. It will thus be seen that one side of the annular support or ring 3^b is suspended from the deck 3 and the opposite side is supported on the lower vertical wall 3^c.

From the above description it will be seen that there is a partition-wall 3^a on one side only of the casing. This is an essential feature in the construction.

Integral with the housing there are formed vertical guides 5, which serve to guide a reciprocating cross-head 6, that is driven from the crank-shaft 7. These guides also serve to withstand the strain due to the thrusts imparted by said crank-shaft. The said guides 5 and the inner vertical faces of feet 2 of the housing are bored at one and the same time and 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 proper alinement of the housing and case 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, as is clearly shown and which will be again referred to hereinafter. The pump-chamber 4 communicates with the valve-chamber 14 through a passage 15, the said valve-chamber being closed by a removable bonnet 16.

a and *b* are induction and discharge valves. The valve-cases are separate from the pump-casing, and one or the other of said valve-cases may be removed, as shown in Fig. 1. Diametrically opposite the upper portion of the passage 15 there is a chamber 17, closed by a removable bonnet 18 and sealed from the pump-chamber 4. This chamber 17 is

formed in the pump-casing proper, but is not utilized for any purpose in the single-acting pump, as shown in Fig. 1.

19 is a displacing-plunger, which may or may not be an integral part of the cross-head 6.

20 is a removable stuffing-box, which is turned off to provide annular shoulders 21 22 to match the pump-casing. The latter shoulder 22 engages with the packing-ring 13 and abuts with the face 9 above said packing-ring. (See Fig. 2.) There is thus formed a tight joint which seals the pump-chamber 4 and the adjacent chamber 17, thereby preventing air from entering the latter chamber.

23 is a removable packing-gland or bushing seated in the upper end of the stuffing-box 20 and in which the plunger 19 works. It will be noted that the stuffing-box 20 fills the entire space above the pump-chamber 4 to the deck or upper surface of the pump-casing and forms the inner wall of the side chamber 17.

Having described my invention, I claim—

25 1. In a pump, the combination with the pump-casing having a lower chamber 4 and a passage 15 leading therefrom, the said pump-casing having an upper deck 3 and downwardly-projected wall 3^a forming the inner wall of the passage 15 and terminating in a lower annular portion 3^b, a packing-ring supported on said annular portion, a stuffing-box mounted on said parts 3 and 3^b and forming a seal between the lower chamber 4 and the side chamber 17, a packing-gland in said

stuffing-box, and a plunger working in said stuffing-box and gland substantially as herein described.

2. In a pump, a casing having an upper deck 3, a downwardly-projected wall 3^a extending therefrom on one side and terminating in an annular portion 3^b below said deck, a chamber below said annular portion, a passage 15 leading therefrom to a valve-chamber, and a chamber 17, in combination with a stuffing-box mounted on the parts 3 and 3^b of said casing and forming an inner wall of the chamber 17, a packing-ring between the annular portion 3^b and the lower portion of the stuffing-box, and a plunger working in said stuffing-box, substantially as shown and described.

3. 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 parallel ring 3^b and wall 3^c, in combination with a removable stuffing-box supported on said deck 3 and ring 3^b and forming a seal between the lower chamber 4 and the side chamber 17, valves and their casing, the said casing being constructed and arranged to be detachable from the pump-casing, 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:

W. B. NEVIN,
R. J. McCARTY.