

W. T. McLEAN, H. C. LYONS & C. R. CLARK.

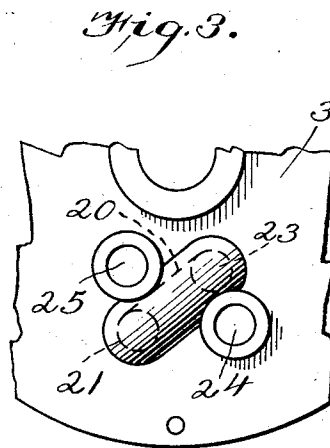
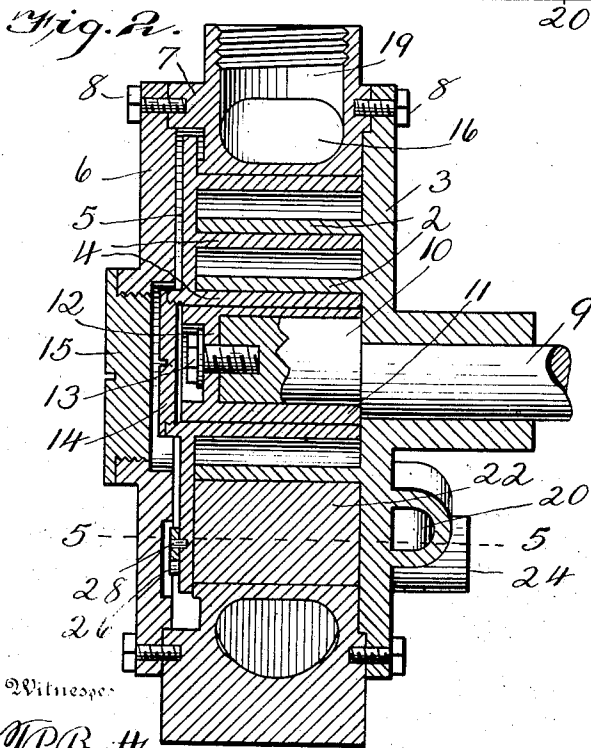
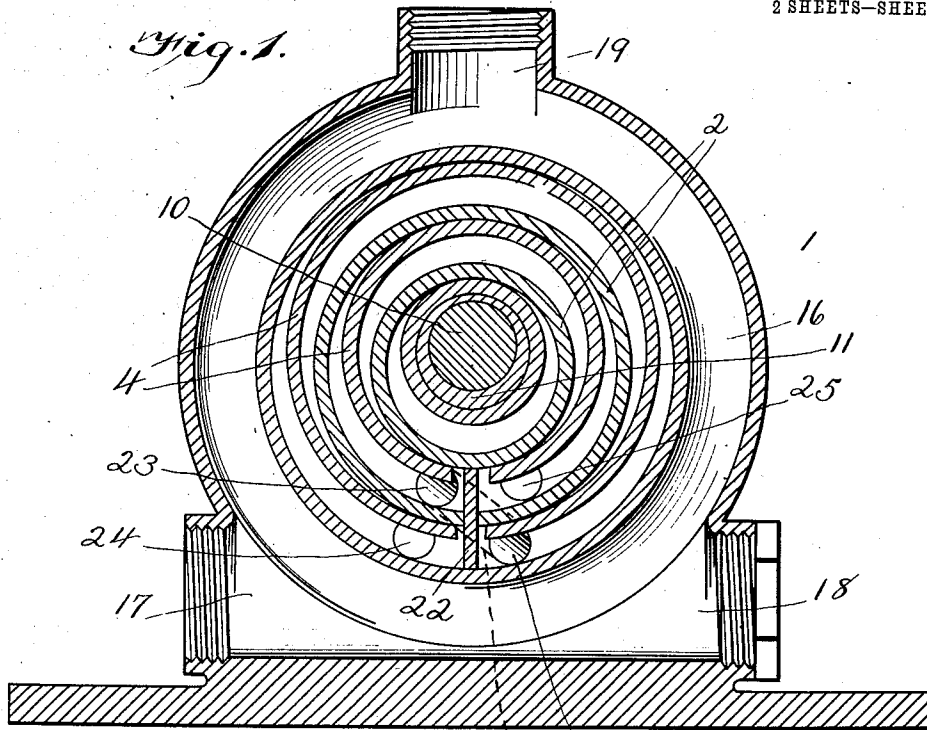
PUMP.

APPLICATION FILED NOV. 16, 1908.

940,817.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

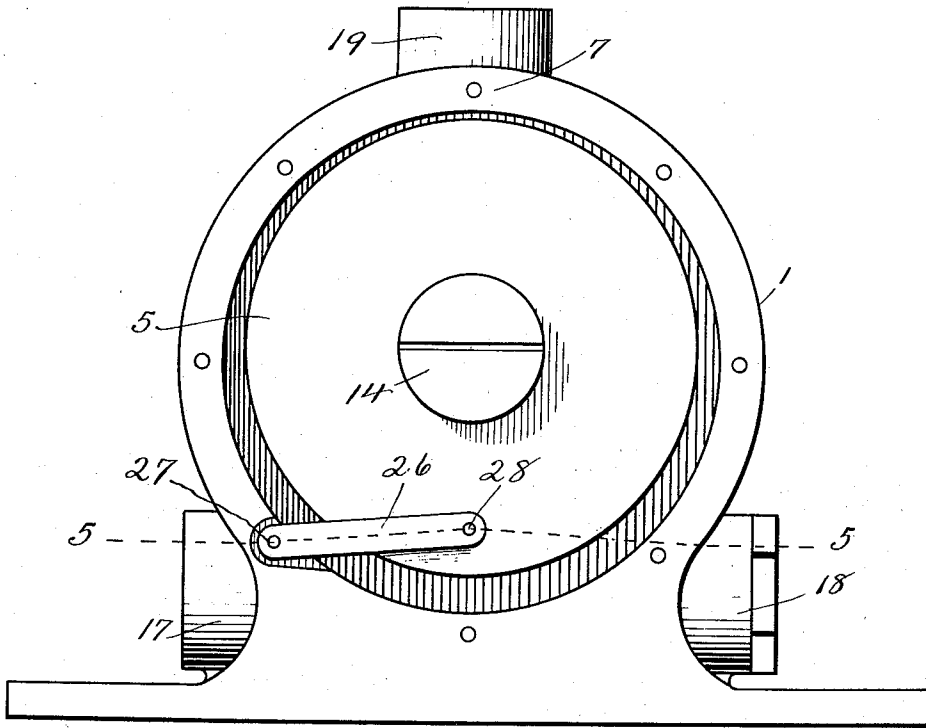
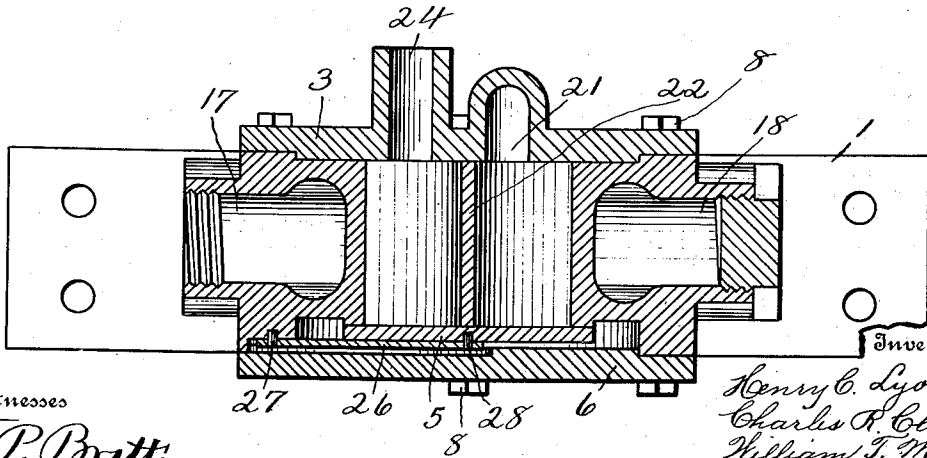


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PUMP.

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To all whom it may concern:

Be it known that we, WILLIAM T. McLEAN, HENRY C. LYONS, and CHARLES R. CLARK, citizens of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Pumps; and we do declare the following to be a full, clear, and exact description of the invention, such as 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 figures of reference marked thereon, which form a part of this specification.

Our invention relates to the class of pumps, but more particularly to an air pump so constructed and arranged that the air or gas is forced from one piston to another forming a high pressure pump of two or more stages.

Our invention consists in the novel construction of the pump and particularly in the construction which provides for forcing the air or gas from one piston to another.

Our invention also consists in the novel construction for preventing the pistons from pounding against the dividing wall.

Our invention further consists in certain other novel details of construction and in combinations of parts, all of which will be first fully described and afterward specifically pointed out in the appended claim.

Referring to the accompanying drawings: Figure 1 is a vertical transverse section through the pump. Fig. 2 is a vertical longitudinal section through the pump. Fig. 3 is a fragmentary view of front wall of casing, showing location of parts therein. Fig. 4 is an elevation of pump with rear plate or cover removed. Fig. 5 is a horizontal section taken on line 5-5 of Fig. 2.

Like numerals of reference indicate the same parts throughout the several figures in which:

1 indicates the pump which comprises the stationary pistons 2, which are arranged on the front wall or casing 3 of the pump.

4 indicates the eccentric pistons which are arranged on a wall or plate 5 Fig. 2.

6 indicates the rear wall or plate of the pump, and 7 the shell to which the front and rear walls or plates 3 and 6 are secured, preferably by means of screws or bolts 8 as shown in Fig. 2. It will be seen from this

figure that the shaft 9 has an eccentric enlargement 10 therein while a rotatable bushing 11 is arranged on the eccentric enlargement 10. The rotatable eccentric bushing 11 is provided with a rear wall 12 and a central opening to receive a screw or bolt 13 which is threaded into the eccentric enlargement 10 of the shaft 9. It will also be seen from Fig. 2 that the eccentric pistons 4 are mounted on the eccentric bushing 12, and that the wall or plate 5 of said pistons is threaded to receive a cap 14.

Referring to the rear wall or plate 6 of the pump it will be seen that the same is threaded to receive a cap 15, said cap being of such a size as to permit removal of the cap 14 in order to rotate the eccentric bushing 11 on the eccentric enlargement 10 of the shaft 9 in order to adjust the eccentric pistons.

The shell 7 is cored at 16 communicating with two ports 17 and 18 at the bottom of the shell, this coring forming a water jacket for the pump for the purpose of cooling the same. A port 19 is also provided at the top of the shell as shown in Fig. 1.

It will be seen from Fig. 1 that a cored passage 20, shown in dotted lines, connects the port 21 on one side of the dividing wall or partition 22 with a similar port 23 on the opposite side of the dividing wall or partition 22, said port 23 being in a higher stage than the port 21; while similar ports 24 and 25 are also provided, said port 24 being an intake port and the port 25 the discharge port.

Referring to Figs. 4 and 5, it will be seen that a link 26 pivoted to the shell 7 at 27 and to the plate 5 at 28 is employed to prevent the pistons 4 from pounding against the portion 22, said link allowing the pistons to operate freely.

In operation, the port 24 is the intake port, said port 24 being as shown in Fig. 1 in the lowest stage. The air or gas entering the port 24 is forced around the piston to the opposite side of the dividing wall or partition 22 escaping through the port 21 and passing along the cored passage 20 to the port 23, in the next stage where the air or gas is forced around the piston to the opposite side of the dividing wall or partition 22 and into the port 25 and discharged from the pump the air or gas being subjected to a higher pressure in each succeeding stage.

As it is the practice usually to suitably jacket pumps of this type the same may be effected by means of the coring 16 in the shell of the pump, although of course it is
5 obvious that the extent of the jacket depends upon the capacity of the pump and the number of stages which determines the extent of compression of air or gas within the pump. The greater the compression and the greater
10 the number of stages the more efficient must be the water jacket.

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent of the United States is,—
15 A pump of the character described comprising a suitable shell or casing, stationary pistons and movable pistons therein, an ec-

centric for operating said movable pistons, a dividing wall or partition for said pistons, a port or passage leading from one stationary and one movable piston on one side of
20 said dividing wall or partition to another stationary piston and movable piston on the opposite side of said stationary wall or partition.

In testimony whereof, we affix our signatures, in presence of two witnesses.
25

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