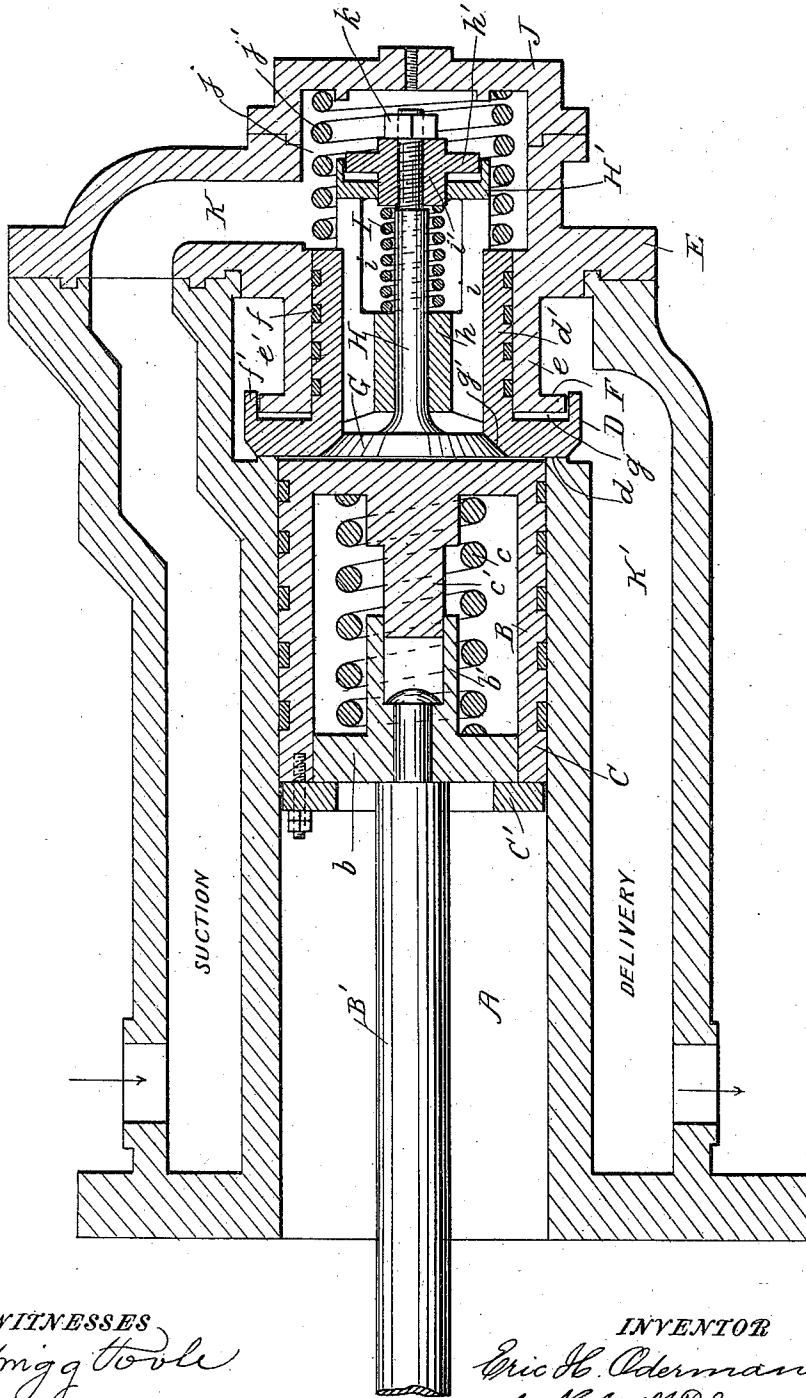


(No Model.)

E. H. ODERMAN.
PUMP.

No. 600,841.

Patented Mar. 15, 1898.



WITNESSES
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ERIC H. ODERMAN, OF WAYNESBOROUGH, PENNSYLVANIA, ASSIGNOR TO
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PUMP.

SPECIFICATION forming part of Letters Patent No. 600,841, dated March 15, 1898.

Application filed April 19, 1897. Serial No. 632,827. (No model.)

To all whom it may concern:

Be it known that I, ERIC H. ODERMAN, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Pumps; and I do hereby 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.

This invention relates to pumps; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawing the figure is a sectional plan view of the pump and its valves.

This pump is used for air or water or any other fluid or liquid.

A is the pump-cylinder, and B is its piston. The piston may be of any approved construction, but a yieldable piston is preferably used.

B' is the piston-rod, which is rigidly secured to the disk b.

C is a cylindrical cup which forms the yieldable portion of the piston B.

C' is a ring secured to the cup C and bearing against the outer side of the disk b. A spring c is interposed between the disk b and the bottom of the cup C, and c' is a projection on the cup which is slidable in a guide b' on the disk b. The piston is provided with any approved packing, such as rings. Whenever the piston in its outer stroke strikes an obstruction, such as the end of the cylinder, the spring yields so that the cylinder and piston are not injured or broken by the concussion. A pump provided with a yieldable piston in this manner can work without the clearance at the end of the pump-cylinder which is usually requisite.

D is the delivery-valve of the pump. The seat d of this valve is on the end of the cylinder A, and the valve covers the bore of the cylinder. The stem d' of the valve is tubular and slides in a guide e, projecting from the cover-plate E, which is secured to the cylinder. The guide e projects within the valve-chamber e', and the stem d' of the delivery-valve is provided with packing, such as the rings f, so that nothing can leak past it. A flange

f' is provided on the periphery of the valve D and slides over a flange F on the guide e, so that a small chamber g is formed between the valve and the front end of the guide e. The guide e forms a stop which prevents the valve D from being forced too far away from its seat, and the presence of fluid in the chamber g prevents the valve from moving too suddenly.

G is the inlet or suction valve, which closes the tubular stem d' of the delivery-valve and rests on a seat g' at the front end of the said valve next to the piston. The stem H of the valve G is slidable in a guide h in the valve-stem d', and h' is a disk which is secured on the end portion of the stem H and is provided with means for adjusting its position longitudinally, such as the nut k.

H' is a short cylinder carried by the stem d', leaving passages i for fluid to pass through the stem. The disk h' is slidable in the cylinder H', and its hub i' is slidable in a hole in the bottom of the cylinder H'.

I is a spring which is interposed between the hub i' and the guide h, and which operates to close the suction-valve or to assist in closing it.

The bottom of the cylinder H' forms a stop for the disk h' to strike against, so that the suction-valve cannot move too far away from its seat, and the presence of fluid in the cylinder H' prevents the movements of the valve from being too sudden.

The cover-plate E is provided with a chamber j, the bottom end of which is closed by a cap J. A spring j' is interposed between the cap J and the end of the valve-stem d', so that the valve D is pressed onto its seat.

K is the suction pipe or passage which communicates with the chamber j, and K' is the delivery pipe or passage which communicates with the chamber e'. The action of the suction and delivery valves is similar to those ordinarily used; but the peculiar construction of the valves hereinbefore described, together with the yieldable piston, enables the pump to work without any clearance in its cylinder and without danger of breakage by reason of the piston striking the end or cover of the cylinder.

When the yieldable piston is moved toward

the valve D, the contents of the cylinder are compressed until the resistance of the spring j' is overcome; but the piston does not yield because the tension of the spring j' is less than that of the spring c . The contents of the cylinder are forced through the valve D until the piston comes in contact with the said valve and the piston then yields slightly. When the piston moves in the reverse direction, the valve D is moved forward in contact with it by the spring j' , so that the combined action of the spring-pressed valve and the yieldable piston operates to prevent any of the contents of the cylinder which have been forced out of it from reëntering it while the valve is closing.

What I claim is—

1. The combination, with a piston-rod, of a yieldable piston comprising a disk rigidly secured to the piston-rod and provided with a central guide, a cup in which the said disk is slidable, said cup being provided with a central projection slidable in the said guide, a ring retaining the disk in the cup, and a spring encircling the said guide and projection and pressing the said disk against the said ring, substantially as set forth.

2. The combination, with a pump-cylinder

provided with a valve-seat on its end, of a delivery-valve bearing on the said seat and provided with a tubular stem having an internal guide h , a brake-cylinder H' at its rear end, and a suction-valve seat at its front end; a suction-valve provided with a stem slidable in the said guide, a disk h' secured on the said stem and provided with a hub z' slidable in a hole in the bottom of the said brake-cylinder, and a spring interposed between the said hub and the guide h , substantially as set forth.

3. The combination, with a pump-cylinder having a valve-chamber at its end, of a plate closing the said valve-chamber and provided with a guide projecting within it and having a flange at its front end, and a delivery-valve seated on the end of the said cylinder and provided with a stem slidable in the said guide, and having a peripheral flange slidable over the said flange on the guide, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ERIC H. ODERMAN.

Witnesses:

WILL. A. HARBAUGH,
M. F. NEWMAN.