

D. J. KISER.
 PUMPING MACHINERY.
 APPLICATION FILED DEC. 30, 1910.

992,002.

Patented May 9, 1911.

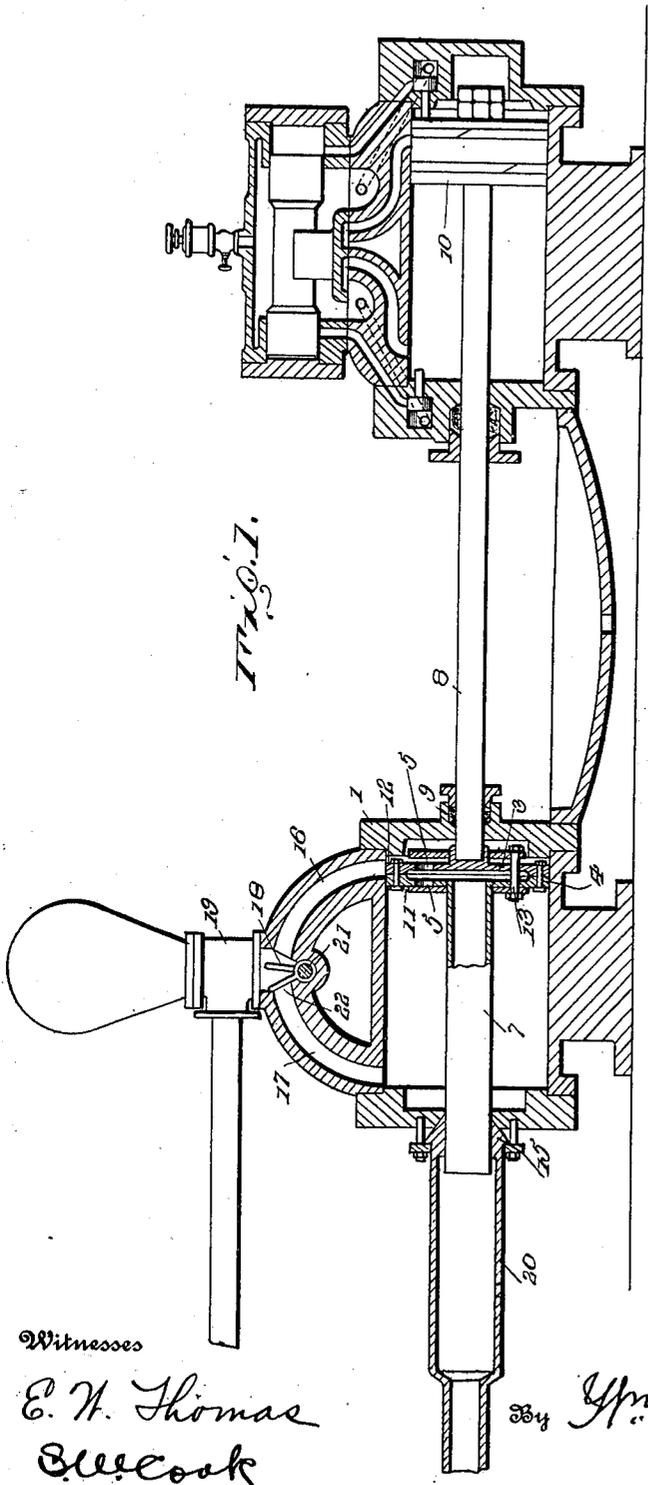


FIG. 1.

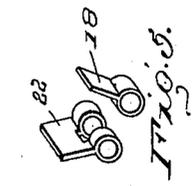


FIG. 5.

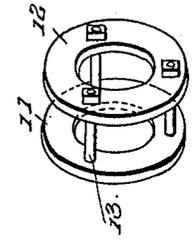


FIG. 7.

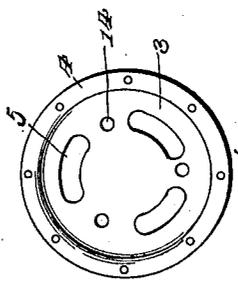


FIG. 3.

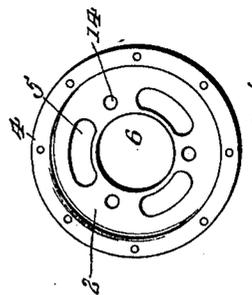


FIG. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

DAVID J. KISER, OF MORGANVILLE, GEORGIA.

PUMPING MACHINERY.

992,002.

Specification of Letters Patent.

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To all whom it may concern.

Be it known that I, DAVID J. KISER, a citizen of the United States, residing at Morganville, in the county of Dade and State of Georgia, have invented certain new and useful Improvements in Pumping Machinery; 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 improvements in pumping machinery. The novelty of the device resides in the construction of a valve-retaining piston to which the fluid is directly delivered from the suction pipe, and the combination of other parts necessary to the operation of the device.

The construction of the device is exceedingly simple and inexpensive; in fact, this type of pump can be manufactured at a fraction of the expense of the more common types, in which the valves and retaining cages are a very expensive item.

In this device the multiple valves are entirely eliminated, and a simple wing valve mounted in the delivery pipe and a double disk valve in the piston substituted.

The device in use produces an exceedingly high vacuum, and works efficiently with warm as well as cold fluid. All springs, a common nuisance in the usual type of pump, are eliminated, and an efficient and reliable pump results.

With the above and other objects in view this invention resides in the novel features of construction, formations, combinations and arrangements of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawing, in which—

Figure 1 is a vertical sectional view through the device; Figs. 2 and 3 are elevations of the two piston plates; Fig. 4 is a perspective view of the valve disks assembled, and Fig. 5 is a detailed perspective view of the wing valve.

Referring to the drawing by characters of reference, the numeral 1 represents a pump cylinder, in which reciprocates a piston composed of two circular plates 2 and 3. The circular plate 2 has a shoulder 4 formed on its periphery, and segmental openings 5 cut between the shoulder and a central hole 6, in which hole is fixed the inner end of a hollow piston rod 7. The plate 3 is similar

to the plate 2, except that it has no central opening, but is attached at that point to a solid piston rod 8, the other end of which extends out through the gland 9 in the cylinder 1, and is attached to suitable driving means, as the steam piston 10. A double disk valve is formed by the two disks 11 and 12, held rigidly a certain distance apart by suitable bolts 13, said bolts passing through the openings 14 formed in the piston plates 2 and 3. These disks are so formed that they cover the segmental openings 5, first on one plate and then on the other as the piston reciprocates, thus acting as a valve to admit the fluid from the hollow piston rod through the opening or chamber between the two plates 2 and 3, and from there into one or the other ends of the cylinder, depending on which way the piston is traveling. A gland 15 is provided in the end of the cylinder through which the hollow piston rod 7 passes, and has attached to its outer face a suction pipe 20, of larger diameter than the said piston rod. At the point where the two discharge pipes 16 and 17 from the ends of the cylinders merge into one and pass into the air dome or delivery pipe 19, a wing valve mounted on the shaft 21, and composed of two pieces 18 and 22, is provided, which serves to cut off the suction end of the cylinder from any back pressure when the opposite end is pumping.

The operation of the device is as follows: The piston on traveling to the right causes the disk 12 to close the sector-shaped openings 5 in the plate 3, and the fluid in front of the piston is forced out through the discharge pipe 16, causing the wing valve 18 to fall to the left and give a free passage from this end of the cylinder out through the delivery pipe 19. At the same time, the opposite end of the cylinder is being filled with fluid drawn in through the suction pipe 20 into the hollow piston rod 7, thence through the opening or chamber between the two opposite plates, and out through the sector-shaped openings 5 in the plate 2. On the reversal of the piston motion the double disk valve will shift to the other side, so that the disk 11 will close the sector-shaped openings 5 in the plate 2, the force of the fluid throwing the wing valve 18 to the right and allowing it to be forced out through the delivery pipe 19 as before, the fluid at the

same time being drawn into the cylinder to the right of the piston as previously described.

5 Having thus fully described this invention, what I claim as new and desire to secure by Letters Patent is:

10 A pump such as described consisting of a cylinder, a piston rod reciprocating through one end of the cylinder and a piston mounted on the end of the piston rod, a hollow piston rod extending out from the other side of the piston through a gland in the opposite end of the cylinder, a suction pipe of larger diameter than the hollow piston rod incasing
15 the end of the said hollow piston rod, discharge passages connecting the ends of the cylinder, a suitable valve placed at the junction of said passages and the piston com-

posed of two plates mounted, one on the end of the first mentioned piston rod, the other on the hollow piston rod, said plates secured together by bolts through their perimeter, a chamber formed between these plates, segmental openings in the plates, and two disks placed outside the plates held rigidly apart by suitable bolts loosely passing through holes in the plates, the said disks registering with the segmental openings in the plates, substantially as and for the purposes set forth. 20 25 30

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

DAVID J. KISER.

Witnesses:

R. F. TATUM,
S. J. HATE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
