(No Model.)

C. W. SAGER.

PUMP.

No. 304,962. Patented Sept. 9, 1884.

Fig. 1.

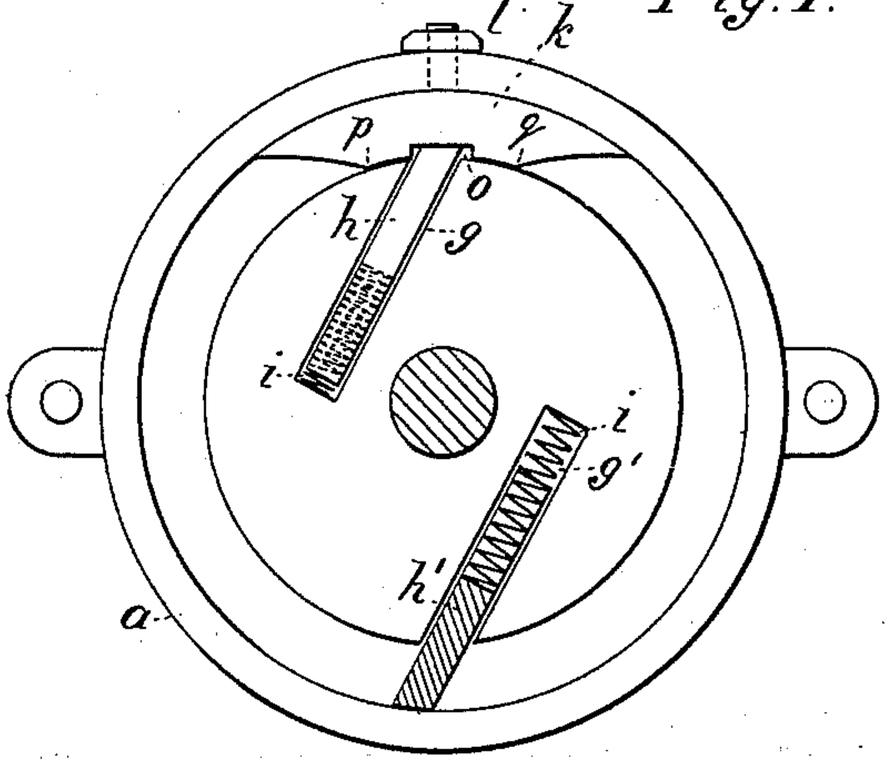


Fig. 2.

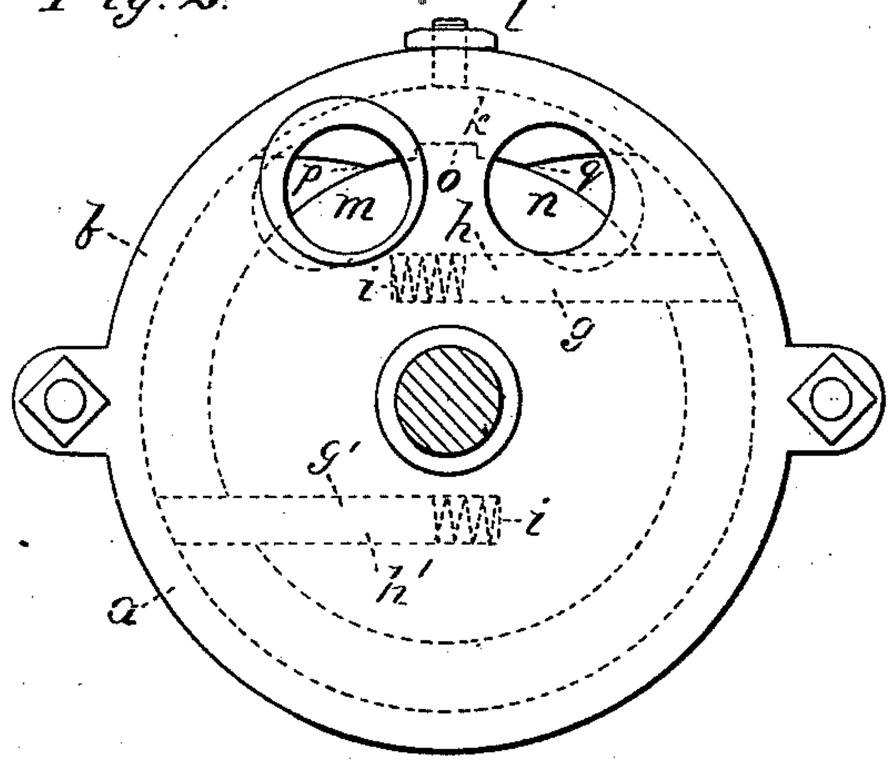


Fig. 3.

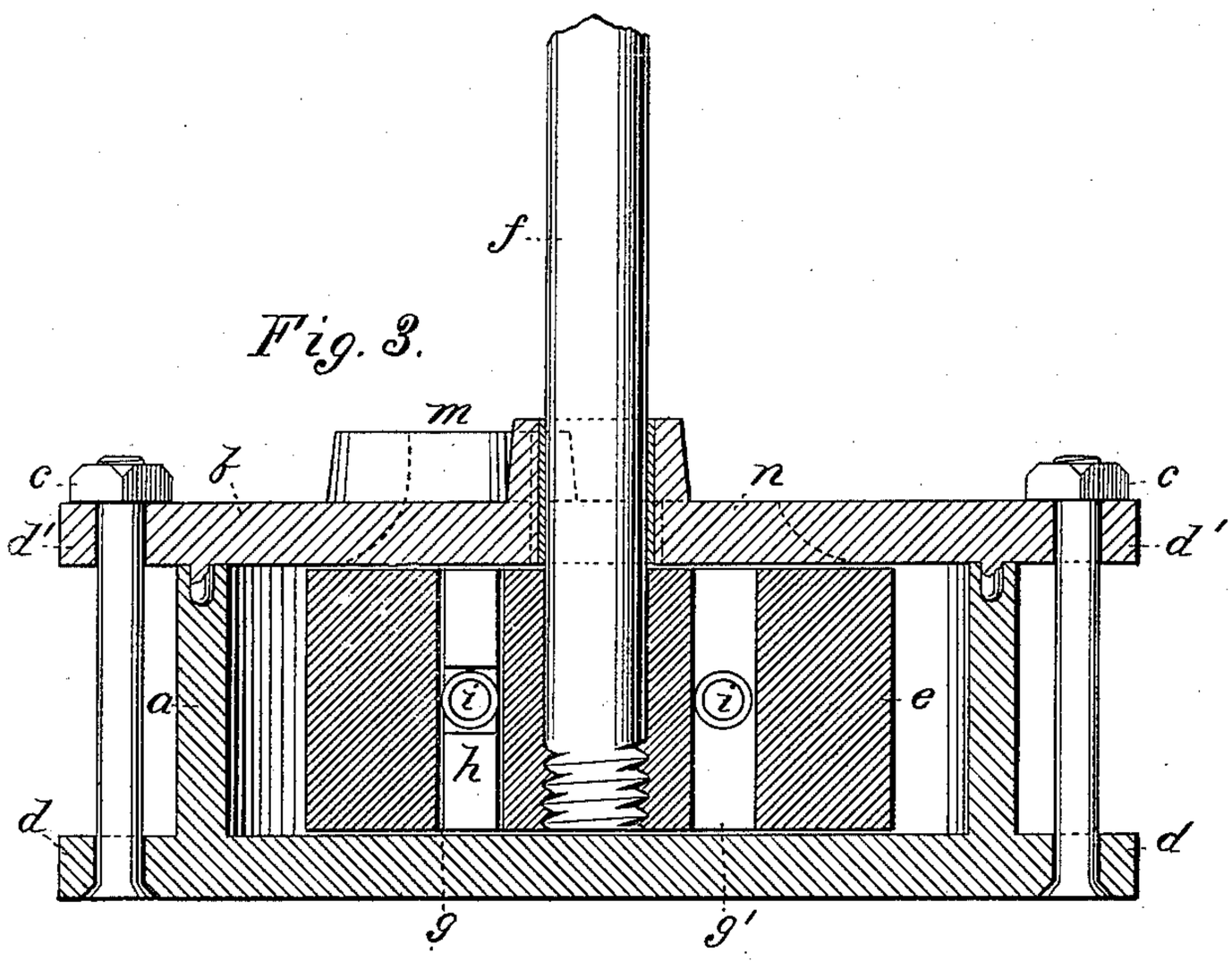
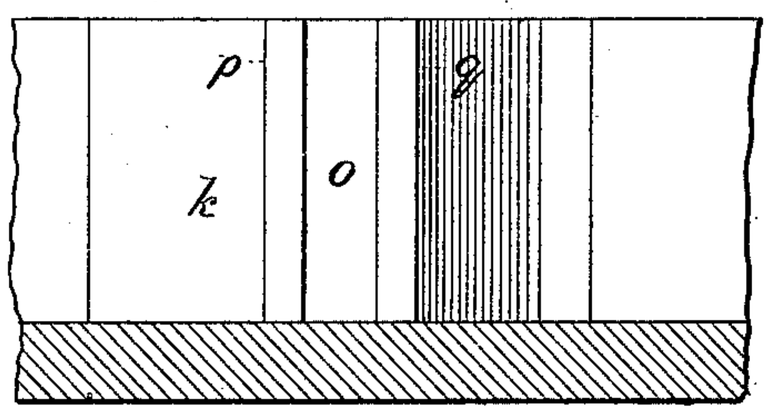


Fig. 4.



WITNESSES

Willetta Anderson.
John T. Morrow

INVENTOR

Conrad W. Sager
by Anderson & Smith
his ATTORNEYS

UNITED STATES PATENT OFFICE.

CONRAD W. SAGER, OF FULTON, INDIANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 304,962, dated September 9, 1884.

Application filed August 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, C. W. SAGER, a citizen of the United States of America, resident at Fulton, in the county of Fulton and State of Indiana, have invented certain new and useful Improvements in Pumps; and I 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 letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a plan view, the top being removed and the shaft shown in section. Fig. 2 is a plan view with the top in place. Fig. 3 is a vertical sectional view, and Fig. 4 is a detail view of the abutment-piece.

This invention has relation to rotary force-pumps; and it consists in the construction and novel arrangement of devices, as will be hereinafter fully described, and particularly pointed out in the claim appended.

Referring by letter to the accompanying drawings, *a* designates the pump-cylinder, having its top *b* fitted snugly thereon, and secured in place by the bolt-rods and nuts *c*, said rods being passed through lugs *d d'* on the cylinder and its top plate, as shown.

e designates the piston, which is secured to the shaft *f*, and is provided with the vertical valve-seats *g g'*, which extend inwardly from the periphery of the piston on parallel chord-lines on opposite sides of the shaft, beginning at opposite ends of said chord-lines, and extending inwardly for about two-thirds of their lengths, as shown.

h h' designate the valves, which are slotted in their inner ends for the reception of the valve-springs *i i*. The face-edges of the valves are rounded off on one side to fit the contour of the cylinder. An abutment-plate, *k*, of the same height as the inside of the vertical wall of the cylinder is secured in against the inside of said wall by a screw-bolt, *l*, passed through the wall from the outside into the abutment-plate, as shown. The abutment-plate is located directly under the inlet and outlet *m* and *n* in the top plate of the cylinder. The inner face of the abutment-plate is provided at its middle with a shallow vertical recess, *o*, and for a short distance on each side of this recess the face conforms to the periphery of the piston—viz., from the point *p* to the point *q*—and from these two points the face inclines slightly outward to the ends of the plate *k*, as shown in the drawings. By this construction of the recess and the relative arrangement of the valves *h h'*, it will be perceived that the piston will be prevented from a reverse movement within the cylinder. The cylinder is submerged in the well, and the water enters the inlet *m*, and the valve carries the water around in the cylinder and drives it against the abutment-plate, and up through the outlet *n* into the pipe through which it is discharged. This valve *h*, just described, in making its trip, bears against the first incline of the abutment-plate, and passes on the curve in the face, and when it reaches the vertical recess in the middle it is suddenly shot into said recess by its spring *i*, which is thereby relieved from the maximum pressure up to this time, and is given a little play for its start out at the other side of the recess to the curve, and then down the incline at that side, beginning its next trip. The valve *h'* follows and operates in a similar manner. The piston rotates rapidly and the water in the cylinder packs it sufficiently to enable me to throw water a long distance through the pipe, and also through hose attached thereto. The shaft-bearing is in the center of the top plate, the under face of the piston resting on the bottom of the cylinder.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a force-pump, the abutment-plate *k*, having the vertical recess *o*, and the curves and inclines on each side thereof, in combination with the piston having spring-valves adapted to engage said plate, substantially as specified.

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

CONRAD W. SAGER.

Witnesses:
J. M. MORRIS,
G. W. PETERS.