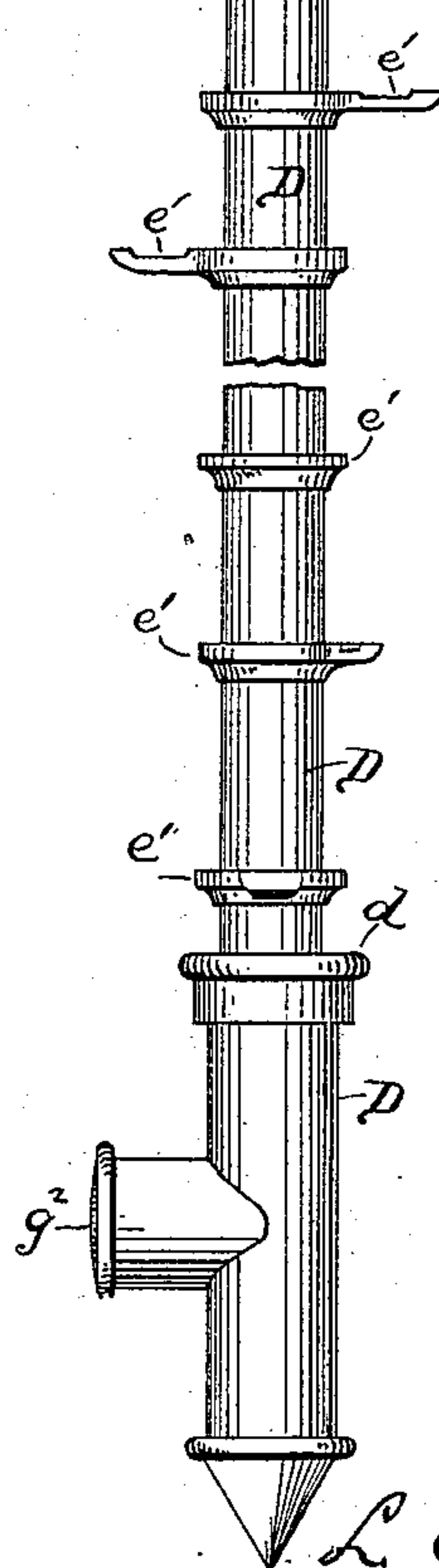
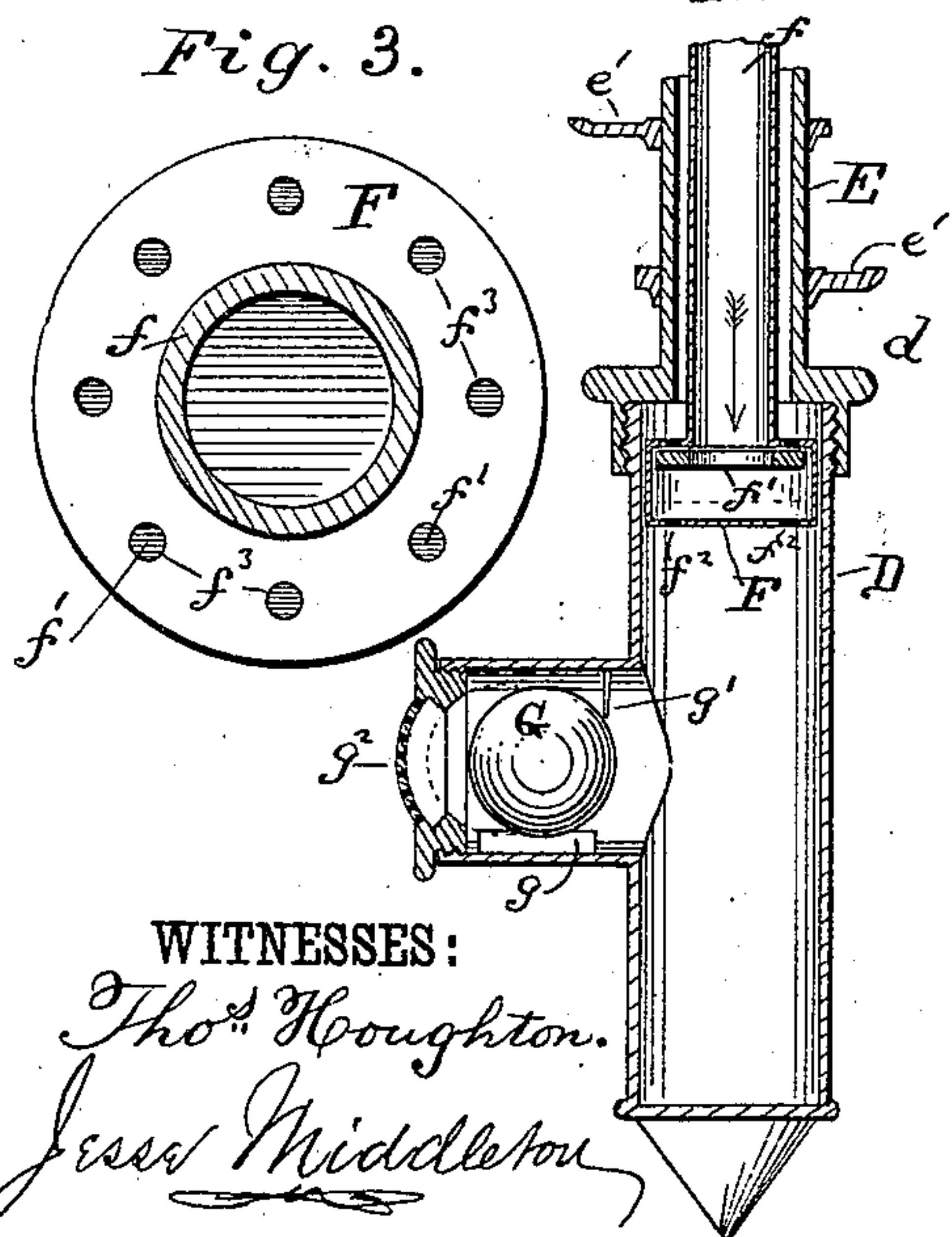
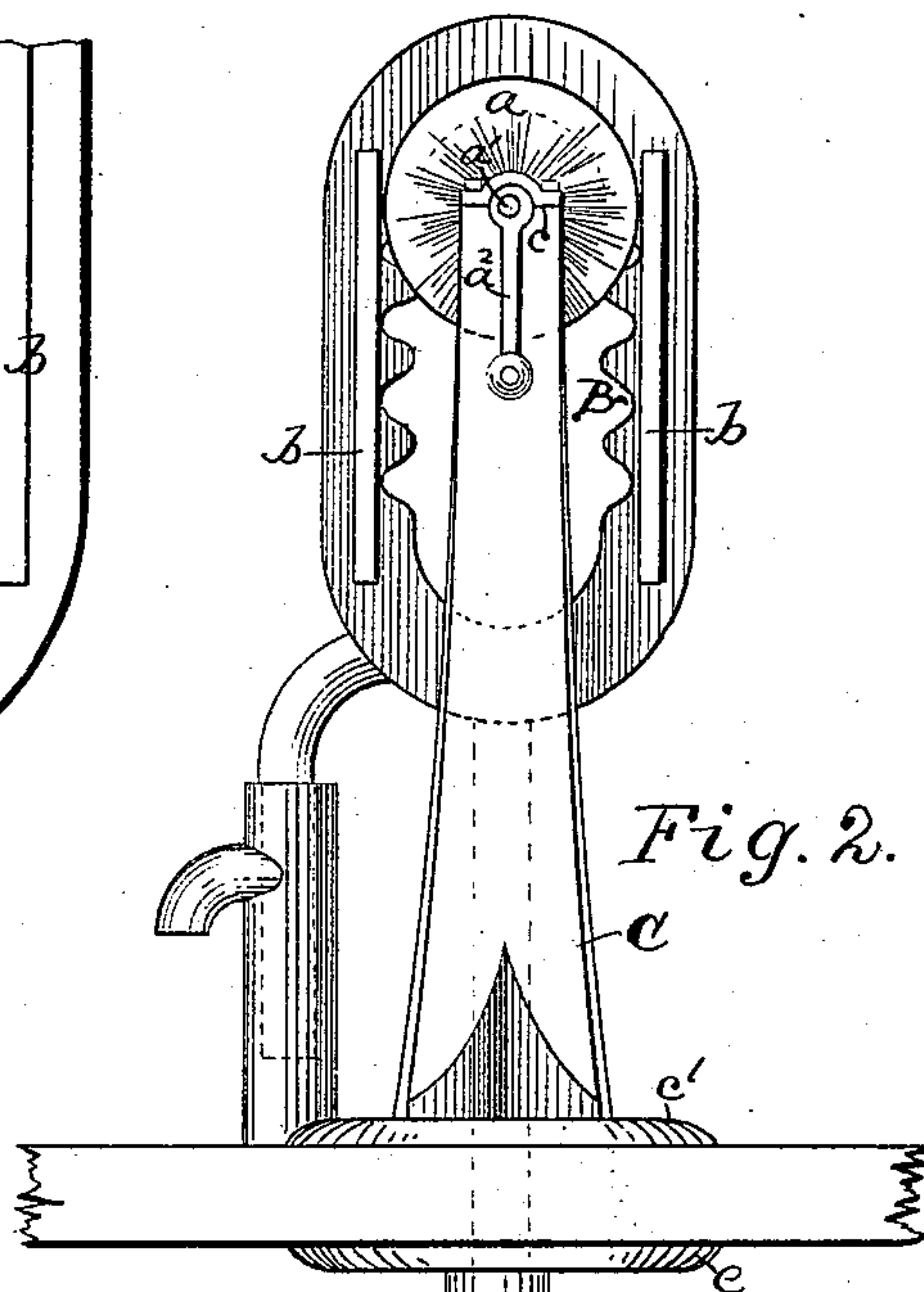
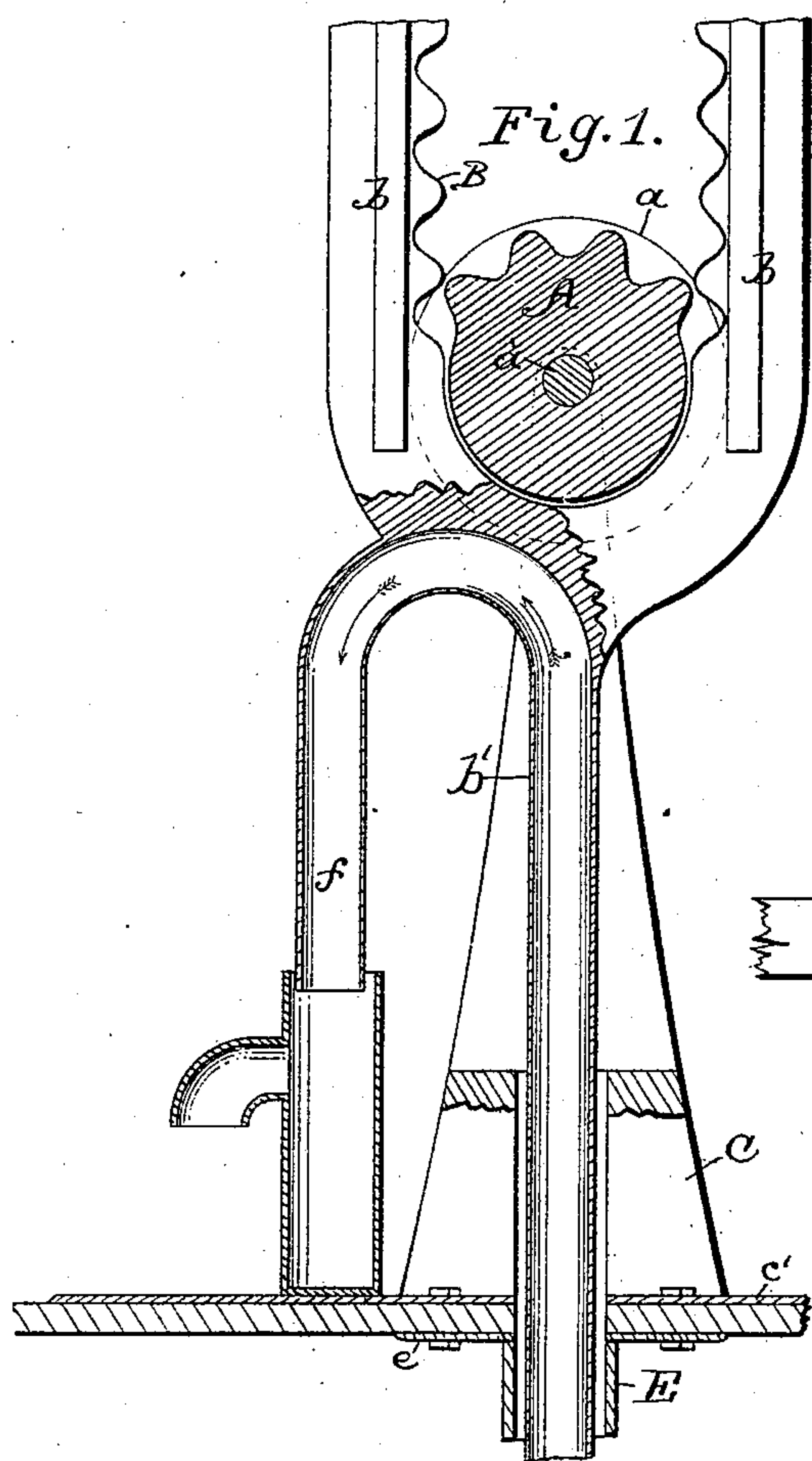


PUMP.

No. 326,434.

Patented Sept. 15, 1885.



WITNESSES:

Thos Houghton.

Jesse Middleton

INVENTOR:

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BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

LAWRENCE A. KELLY, OF DAYTON, WASHINGTON TERRITORY.

PUMP.

SPECIFICATION forming part of Letters Patent No. 326,434, dated September 15, 1885.

Application filed February 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE A. KELLY, a citizen of the United States, residing at Dayton, in the county of Columbia, Washington Territory, have invented certain new and useful Improvements in Pumps, of which the following is a description.

Figure 1 is a sectional elevation through the center of my improved pump. Fig. 2 is a side view of the same. Fig. 3 is a plan view of the pump-piston, showing the piston-rod in section.

My invention relates to pumps; and it consists in the detailed construction and combination of the parts hereinafter fully described, by which the pump is made double-acting and caused to discharge a continuous stream of water through a pipe, which also forms the piston-rod of the pump, and receives a reciprocating movement from a double rack driven by the continuous rotation of a semi-cogless pinion, provided with guide-plates for keeping the said double rack in position.

In the accompanying drawings, similar letters of reference indicate corresponding parts in all the figures.

A is a semi-cogless pinion provided with guide-plates *a*, one on either side of it, and mounted on the shaft *a'*, provided with the crank *a''* at one end for operating it. A similar crank may be attached to the opposite end of shaft *a'*; or a belt-pulley or other driving-gear may be mounted thereon for driving by power when required.

B is a double rack provided with guide-plates *b*, and with a rod, *b'*, connecting it with the piston-rod of the pump.

The continuous rotation of pinion A will cause the cogs on it to engage alternately with each of the racks, and will impart to them the reciprocating movement necessary for working the pump.

The guide-plates *a* keep the double rack B in position sidewise, while the guide-plates *b* prevent the cogs of pinion A from entering too deeply into gear with the cogs of the said rack.

C is an upright frame provided with bearings *c*, in which the shaft *a'* works, and with

the flange *c'*, for securing it to the wood-work or masonry round the top of the well.

D is the pump-cylinder provided with the cover *d*.

E is a pipe connecting the cover *d* with the flange *e*, bolted to wood-work or masonry at the top of the well.

e' is a step, a series of which may be fastened to the pipe E, and serve as a ladder for gaining access to the pump in the wells.

F is the piston of the pump, provided with the hollow piston-rod *f*, the top of which is connected to rod *b'*. The piston F is made hollow and provided with the annular disk-valve *f'*, worked by the pressure of the water, and adapted to cover the holes *f''* in the bottom of the piston while the upstroke is being made, and to cover similar holes, *f'''*, in the top of the said piston during the downstroke.

G is the suction-valve working frictionless on the ways *g*, and provided with the stop *g'*.

g'' is a strainer to prevent dirt from getting into the valve.

At every upstroke of the piston F all the water in the upper part of the pump-cylinder is forced through the holes *f'''* in the top of the said piston, and up the hollow piston-rod *f*, which also serves as a discharge-pipe. Water is also at the same time drawn through the suction-valve into the space below the piston. At the downstroke this action is reversed. The water beneath the piston is forced through the holes *f''* in the bottom of the said piston up the hollow piston-rod, and water is drawn into the space above the piston through the suction-valve.

In order to support and steady the pump-cylinder in the bottom of the well, I prefer to form the bottom of the sand-cylinder in the form of a pointed cone; or I attach thereto a casting of that shape which penetrates partially into the bottom of the well, and thus holds the pump secure. I attach a section of pipe to the frame-work at the top of the well for the nozzle of the piston-pipe *f* to work in, thus preventing the water from splashing when discharged.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

In a pump, the combination, with the hollow piston-rod having at its lower end a
5 valved piston, of the cylinder with a valved inlet-pipe, and the stand-pipe having a spout, and with the discharging end of said hollow

piston-rod telescoping and working in said stand-pipe, substantially as and for the purpose set forth.

LAWRENCE A. KELLY.

Witnesses:

O. C. WHITE,
M. A. BAKER.