

(Model.)

E. ERICSON.

FORCE PUMP.

No. 249,603.

Patented Nov. 15, 1881.

Fig. 1.

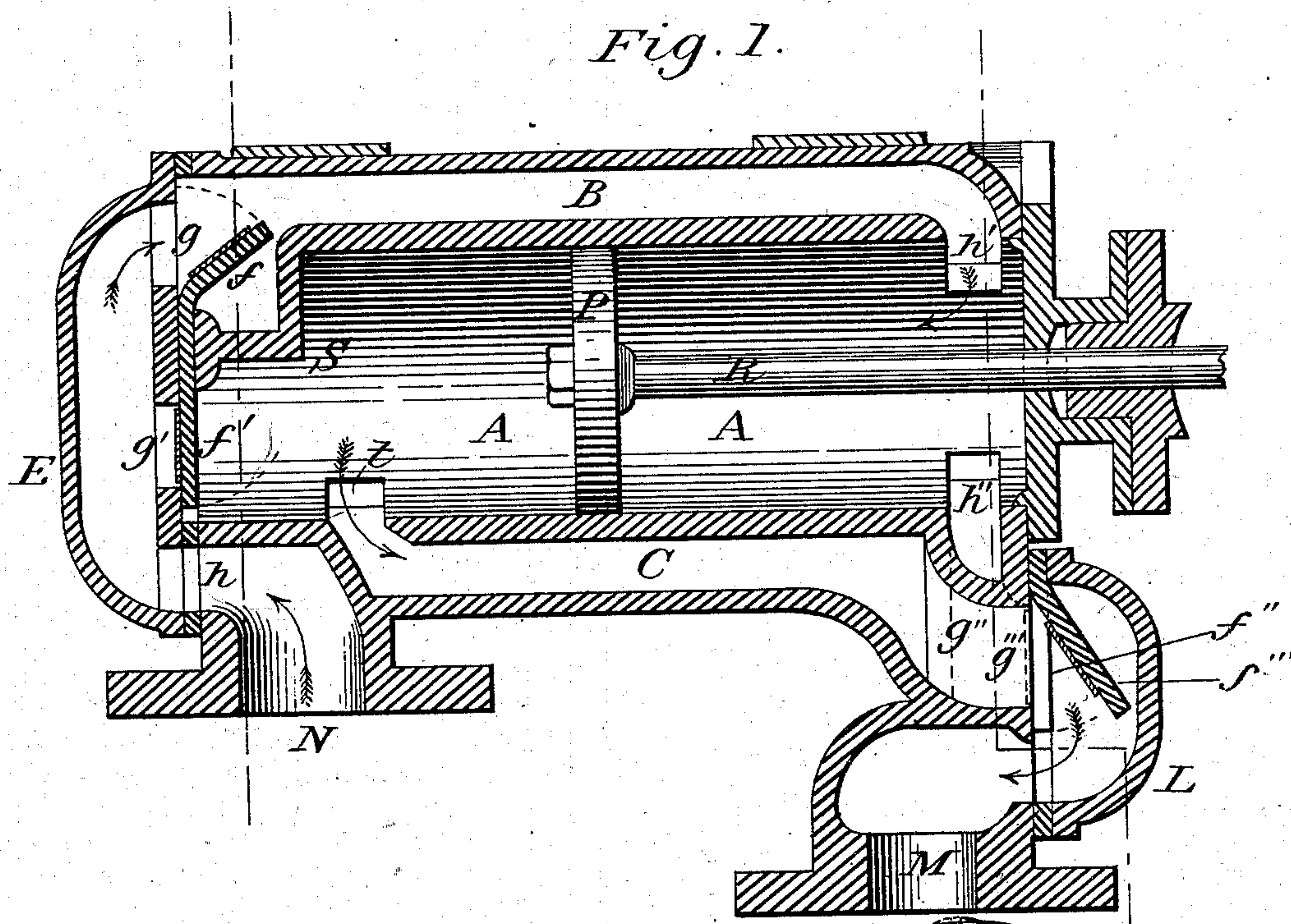


Fig. 2.

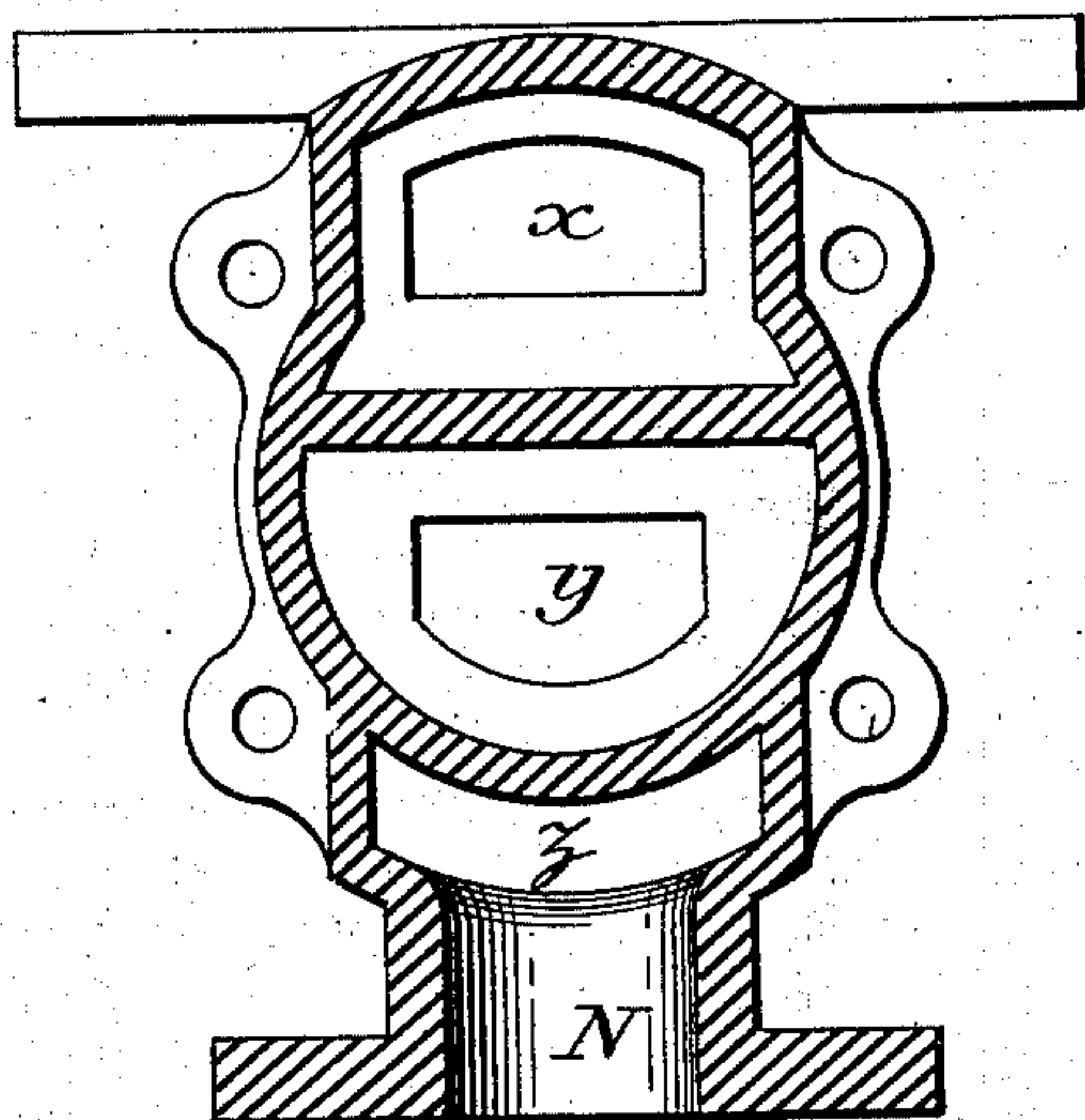
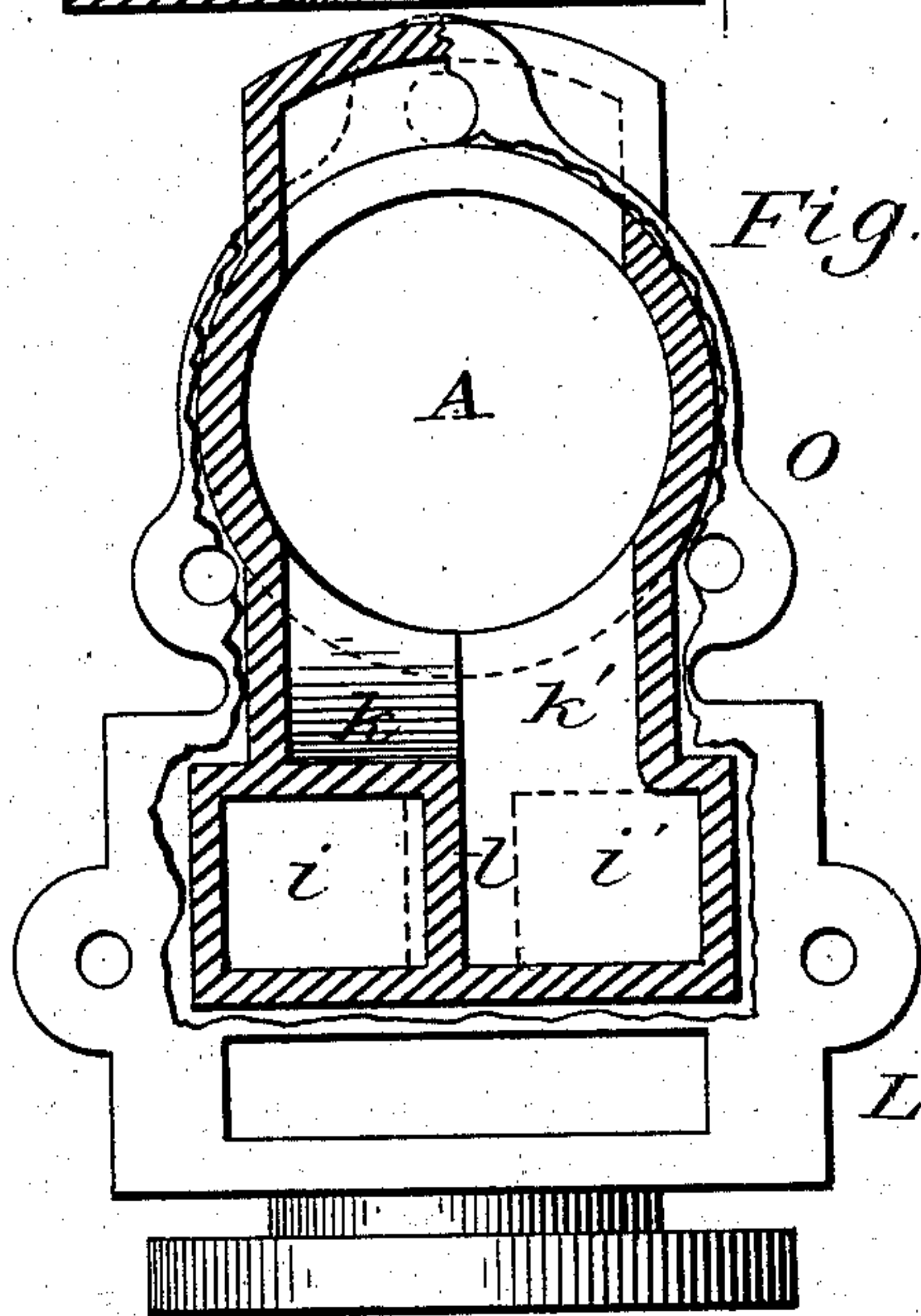


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 249,603, dated November 15, 1881.

Application filed August 26, 1881. (Model.)

To all whom it may concern:

Be it known that I, ERIC ERICSON, a citizen of the United States, residing at Burlington, county of Des Moines, Iowa, have invented a new and useful Double-Acting Force-Pump, of which the following is a specification.

Figure I is a vertical cross-section, showing the course of the water as the piston is raised or lowered. Fig. II is a sectional view on line 1 1 of Fig. I. Fig. III is a sectional view on line 2 2 of Fig. I.

Similar letters of reference indicate corresponding parts.

My invention consists of a centrally-located piston-chamber, A, with solid piston P, and rod R extending through the cap O. On the sides of the chamber A are the channels B and C respectively. The channel C has the opening *t* into the chamber A. The channel B opens at *h'* into the chamber A, and is shaped at its base to form the shoulder or seat S, against which the piston P strikes in the downward stroke and which prevents also the possibility of the piston from coming into too close contact with the valve *f*.

g, *g'*, *g''*, and *g'''* are valve-seats with valves *f*, *f'*, *f''*, and *f'''* respectively, at the points indicated in the drawings.

E is the detachable base-piece, hollow, and provided with three perforations of peculiar form, *x*, *y*, and *z*, which is screwed to the lower end of the pump.

L is the cap of the mouth or egress opening, hollow, and with the solid partition *l* extending nearly across it from side to side. The perforation *i* leads into the chamber A. The perforation *i'* leads into the channel C.

The operation of my invention, which can be worked by a hand-lever or attached to a wind-mill, is as follows: The piston being raised from the shoulder S, the water flows through the ingress-opening N into the base-piece E through *h*; thence through the valve *f'* into the piston-chamber beneath the piston, the valves *f* and *f''* being closed meantime by suc-

tion. The piston is now lowered, the valve *f'* is thereby closed, and the water forced through *t* into the channel C, and thence through the valve *f'''* into the cap L, and out at the egress-opening or mouth M. Meantime suction has led water by way of the valve *f* into the channel B, and thence through *h'* into the piston-chamber above the piston. The operation of the piston is now reversed, and the water above it is forced through the valve *f''* into the cap L, and thence to the egress-opening. Thus by double action a continuous flow of water is kept up. Detachable cap and base pieces are used in order to admit of cleaning and removing obstructions without the necessity of removing the pump.

It is evident that the pump can be used in, partly in, or entirely out of, the water, according as pipes are used.

It is also evident that I do not wish to be confined to the exact form of construction here shown. Either valve can be removed at pleasure for any purpose without disturbing pump or pipes.

I am aware that double-acting force-pumps are already patented and in use, and such I do not broadly claim.

What I claim is—

1. In a double-acting pump, the chamber A, having shoulder S, and ports *h'* and *t*, and provided with piston P, combined with channels B and C, and valve-seats *g* *g'* *g''* *g'''*, and valves *f* *f'* *f''* *f'''*, all substantially as described.

2. In a double-acting pump, the chamber A, having shoulder S, and provided with piston P, and channels B and C opening thereinto at *h'* and *t*, and valves *f* *f'* *f''* *f'''*, operating as described, all combined with the hollow base E, perforated at *g*, *g'*, and *h*, and hollow cap L, having partition *l*, and the inlet N, and exit M, all substantially as described.

ERIC ERICSON.

Witnesses:

J. M. HOWARD,
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