

(No Model.)

N. W. CONDUCT, Jr.
PUMP.

2 Sheets—Sheet 1.

No. 309,335.

Patented Dec. 16, 1884.

FIG. 2.

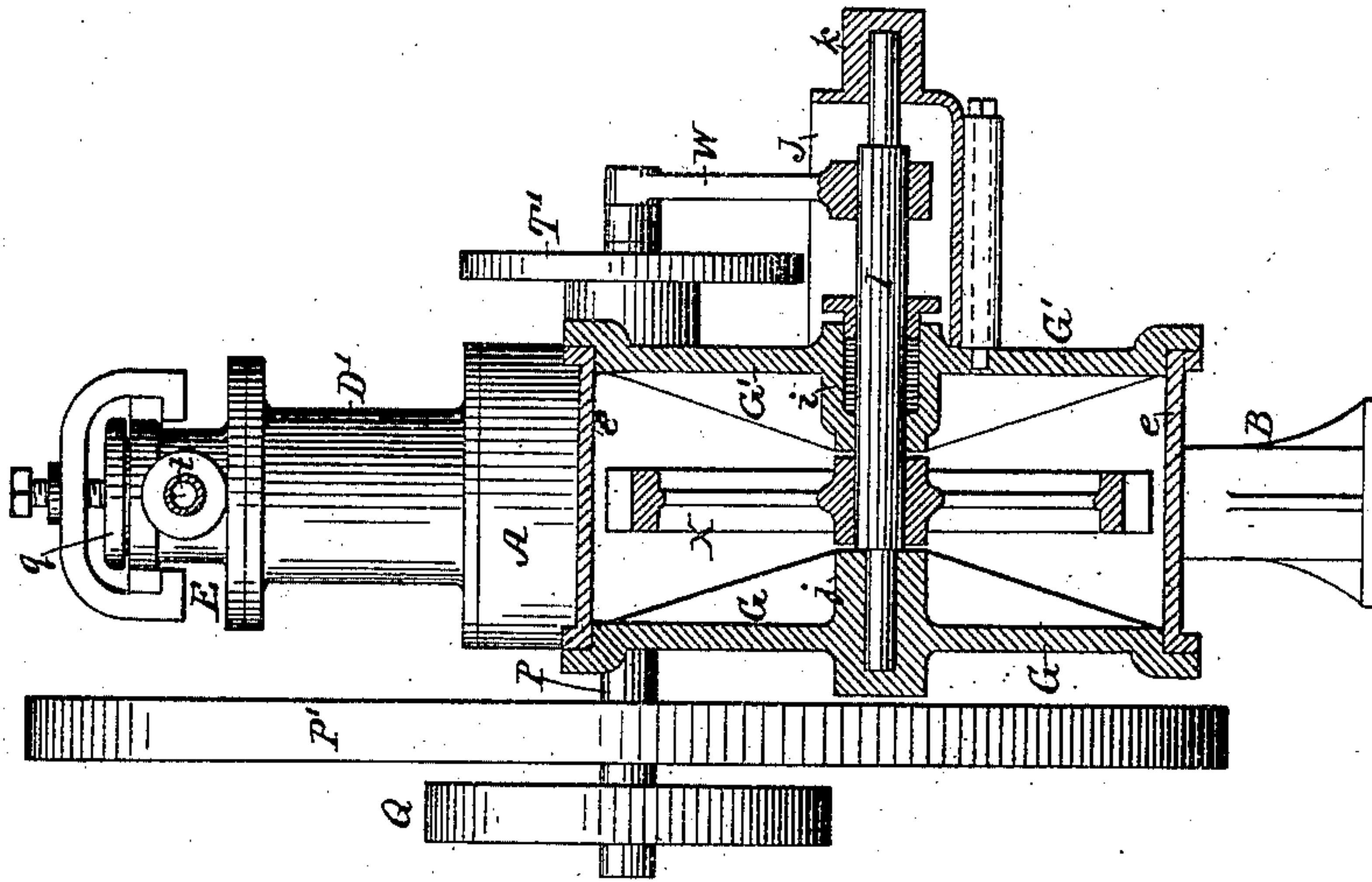
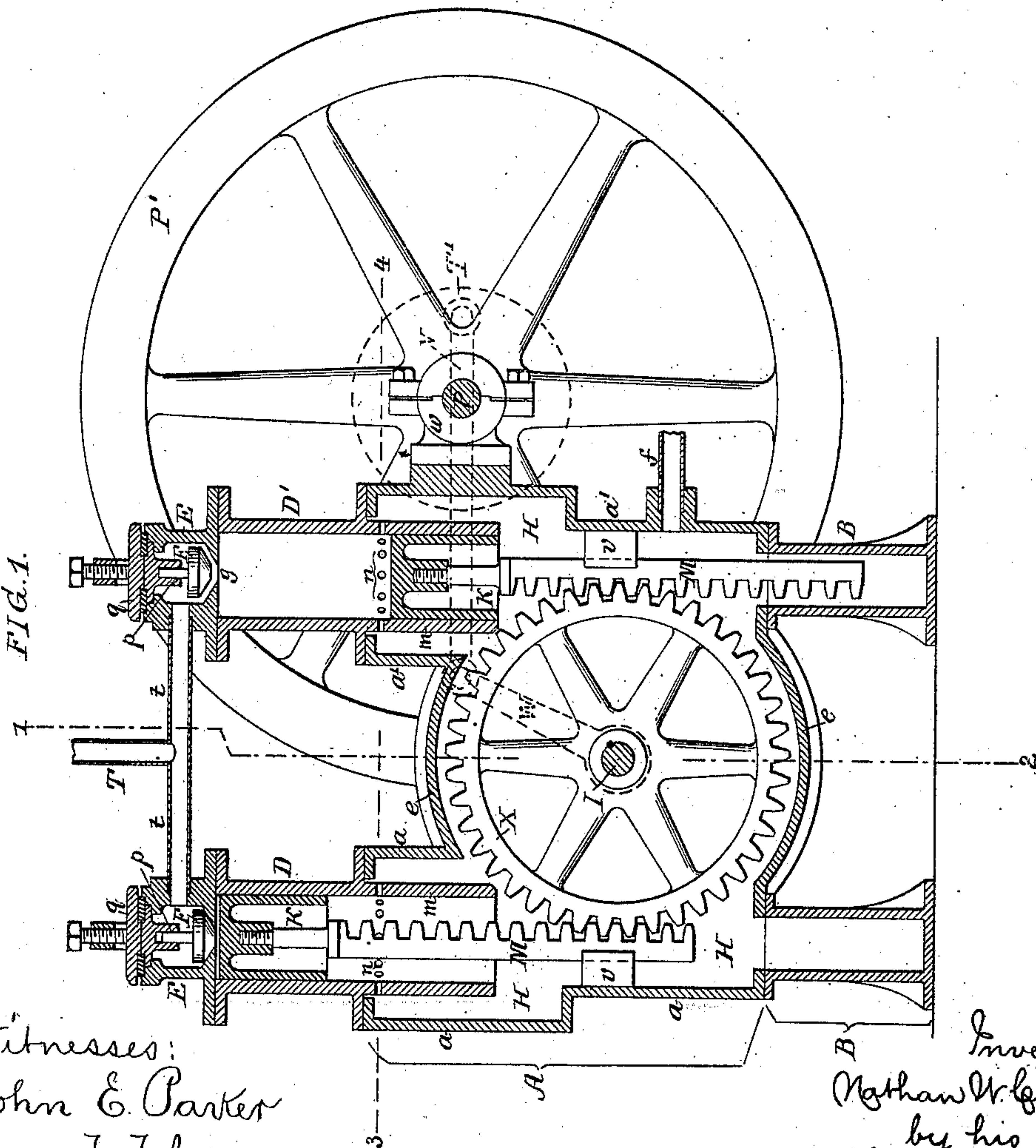


FIG. 1.



Witnesses:
John E. Parker
James J. Tobin

Inventor
Nathan W. Conduct, Jr.
by his Attys
Horton and Sons

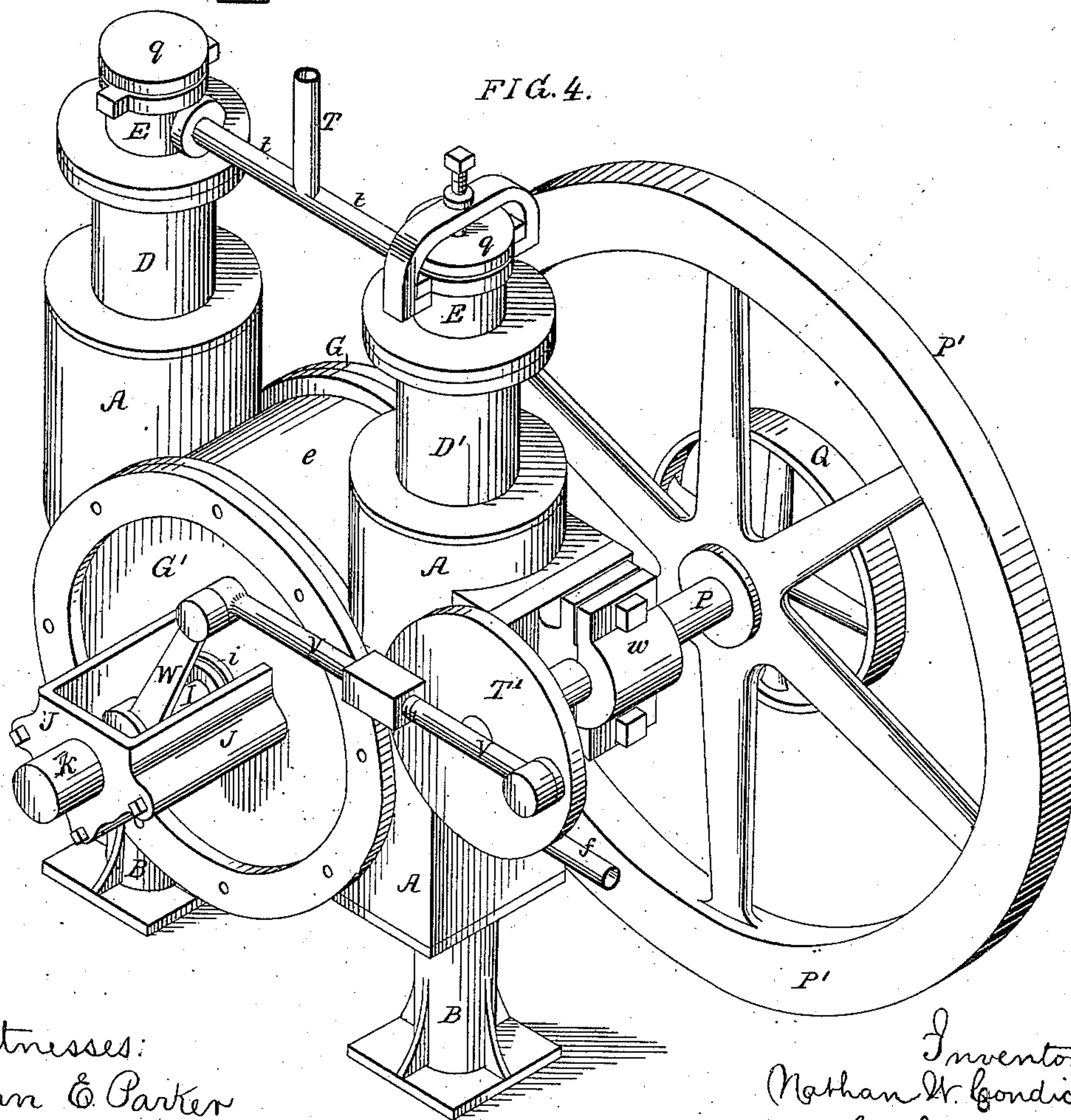
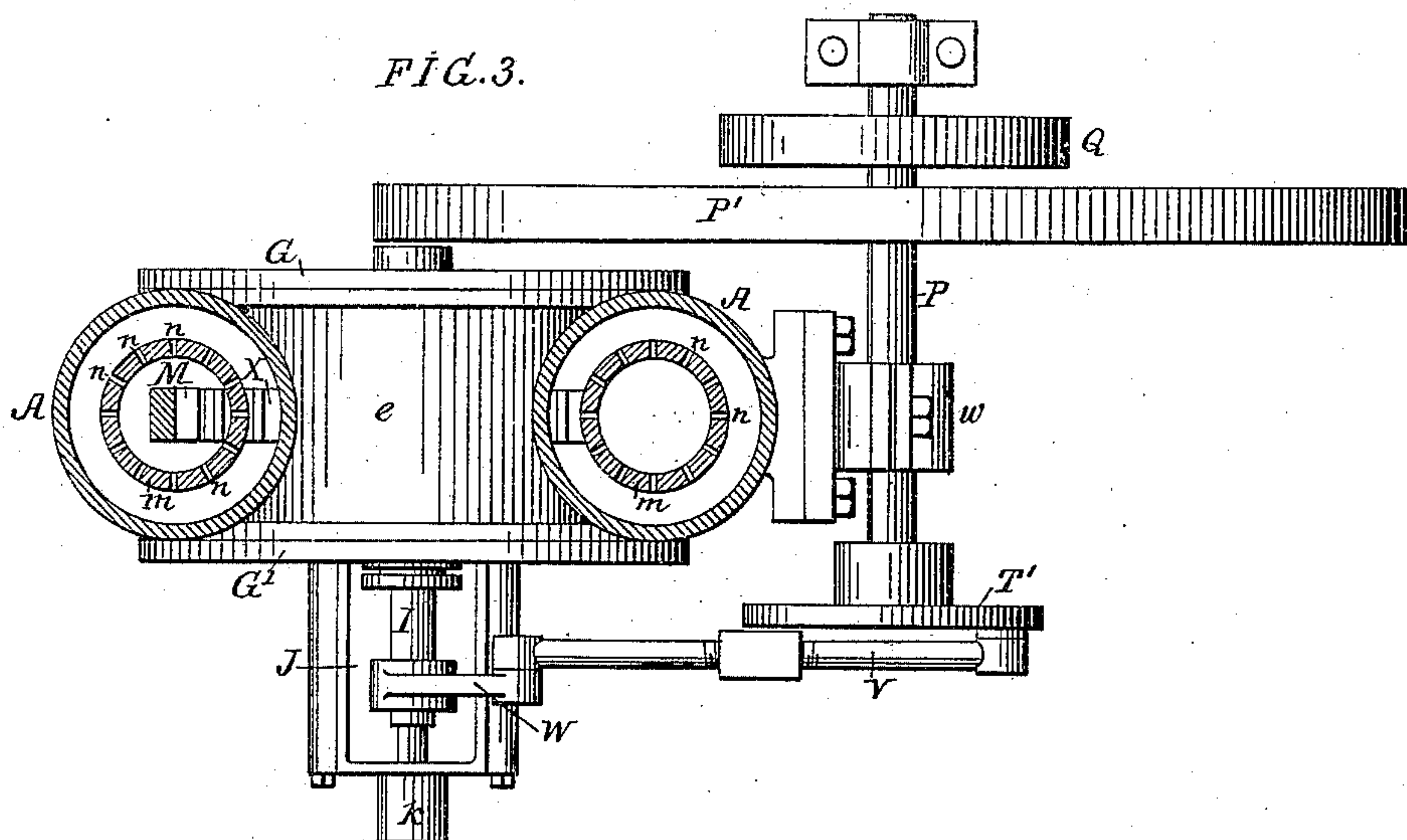
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Howson and Tans

UNITED STATES PATENT OFFICE.

NATHAN W. CONDUCT, JR., OF JERSEY CITY, NEW JERSEY.

PUMP.

SPECIFICATION forming part of Letters Patent No. 309,335, dated December 16, 1884.

Application filed March 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, NATHAN W. CONDUCT, JR., a citizen of the United States, and a resident of Jersey City, New Jersey, have invented certain Improvements in Pumps, of which the following is a specification.

My invention consists of an improved pump, which, although applicable to the forcing of liquids or air, has been designed more especially for forcing gas in ice-machines.

My improvements, which are fully described hereinafter, have been directed mainly to simplicity and economy in construction and to the discharging of very nearly the entire contents of the barrel at each stroke of the piston.

In the accompanying drawings, Figure 1, Sheet 1, is a vertical section of my improved pump; Fig. 2, a transverse section on the line 1 2, Fig. 1; Fig. 3, Sheet 2, a sectional plan on the line 3 4, Fig. 1, and Fig. 4 an exterior perspective view of the pump.

As regards the general structure of the pump, it will be well in the first instance to refer to the main casing A, which, with the tubular legs B B, constitutes the frame of the structure. This casing A, which is preferably cast in one piece, comprises the two vertical portions *a a* and *a' a'*, into which extend the lower portions of the barrels D D', and which rest on and are supported by the legs B B and the connecting portion *c*, preferably in the form of a section of a horizontal cylinder, to which are secured the two covers G G'.

The above-mentioned parts inclose a space, H, which constitutes the inlet-chamber of the pump, and of which *f* is the inlet-pipe. A shaft, I, extends through a stuffing-box, *i*, in the center of the cover G', and has one bearing in but does not extend through a central hub, *j*, on the cover G, and another bearing, *k*, on a reservoir, J, which is secured to the cover G', and which is intended to contain oil, glycerine, and water or other liquid which will act as a seal for the stuffing-box, for, as the pump is mainly intended for forcing gases in ice-machines, it is important that every precaution should be taken to prevent leakage. The barrels D D' of the pump are precisely alike, and hence a description of one will suffice. The lower portion *m*, of the bar-

rel extends into the inlet-chamber and communicates directly therewith, both at the lower open end and through a number of orifices, *n*, arranged in a circle at the points shown. To the top of the barrel is secured a valve-chest, E, containing a valve, F, which has its seat on the edge of an opening, *g*, made in the bottom of the chest, and forming, when the valve is open, a direct communication between the interior of the said chest and the pump-barrel. A suitable guide, *p*, for the spindle of the valve is confined between the top of the valve-chest and the removable cover *q* of the same. The chests of the two pumps communicate through pipes *t t* with the main discharge-pipe T. In each barrel is a piston, R, which has no other packing than that afforded by such gas (if the pump be used for forcing gas) as may find a lodgment in a number of grooves cut in the piston. Each piston is secured to the upper end of a rack, M, and each rack is guided by a projection, *v*, in the casing A.

While I do not desire to restrict myself to any specific mechanism for operating the rock-shaft I, I prefer to use that which can be best explained in connection with the perspective view, Fig. 4, where it will be observed that a driving-shaft, P, provided with a fly-wheel, P', and belt-pulley Q, has a bearing, *w*, on the casing A, and it may have, in addition to this, an outside bearing. To the shaft is secured a crank-wheel or crank, T', a pin on which is connected by a rod, V, to the end of an arm, W, which is secured to the rock-shaft I, the latter carrying a cog-wheel, X, which gears into the two racks M M.

The driving mechanism is such that each piston when at the limit of its upward movement will be near the under side of the valve-chest which forms the cover of the barrel, and when at the limit of its downward movement will be in a position to expose the inlet-openings *n* of the barrel.

The operation of the pump will be understood without explanation.

It is important in forcing gas that as much as possible of the contents of each barrel should be discharged before the piston commences its downward movement, for which reason the beveled seat for the valve in the

valve-chest extends to, or very nearly to, the lower edge of the opening *g* in the bottom of the chest.

5 The pump, it will be seen, is simple in construction, and it has proved to be most effective in practice.

10 The combination of an inlet-chamber, a barrel having a series of openings communicating with the said chamber, and a piston which at the limit of its inward movement exposes these openings is the invention of Thomas Rose, and forms the subject of an application for a patent made by him and bearing even date herewith.

15 There may be an inlet-chamber and four barrels communicating therewith, in which case two cog-wheels, *X*, on the shaft *I* will be required for the operation of four pistons.

I am aware that the pistons of duplex pumps

have been operated by a vibrated cog-wheel 20 gearing into racks attached to the piston. This feature, therefore, I do not claim; but

I claim as my invention—

The combination of the casing *A*, the inlet-chamber *H* therein, the barrels *D D'*, extend- 25 ing into the said chamber and having lateral openings *n*, and discharge-valves, with the pistons, guided racks, and cog-wheel *X*, all contained in the said chamber, and with the rock-shaft *I*, partly contained therein, but project- 30 ing at one end from the casing *A*, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NATHAN W. CONDUCT, JR.

Witnesses:

JOHN M. CLAYTON,
HARRY SMITH.