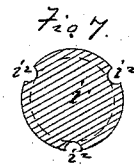
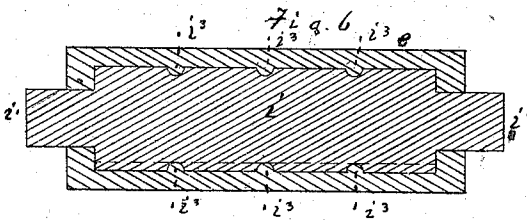
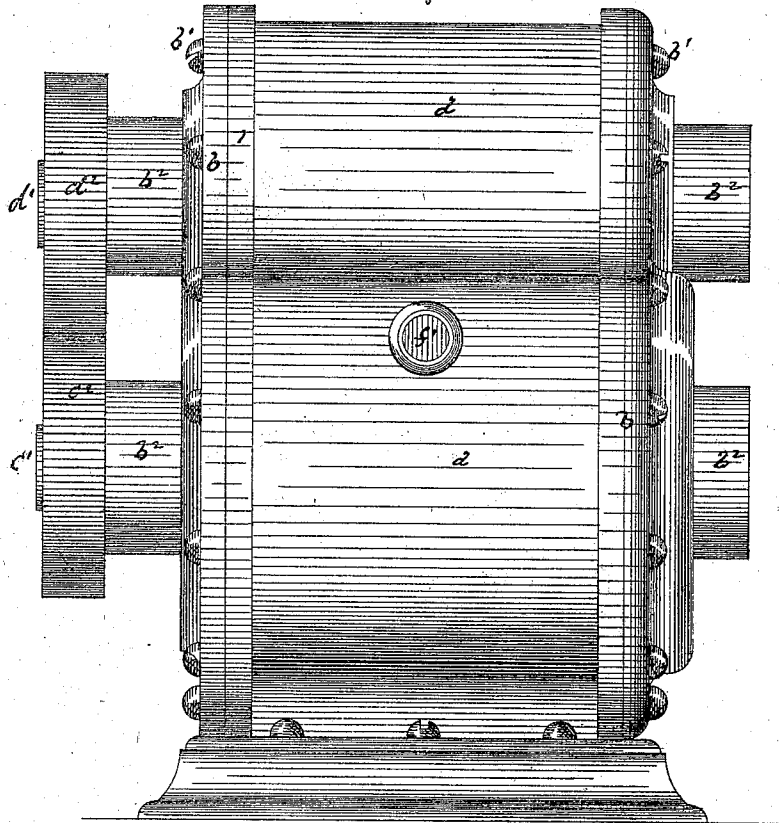


L. CHAPMAN.
Rotary-Engines or Pumps.

No. 137,056.

Patented March 25, 1873.

Fig. 1.



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Cornelius B. Chapman

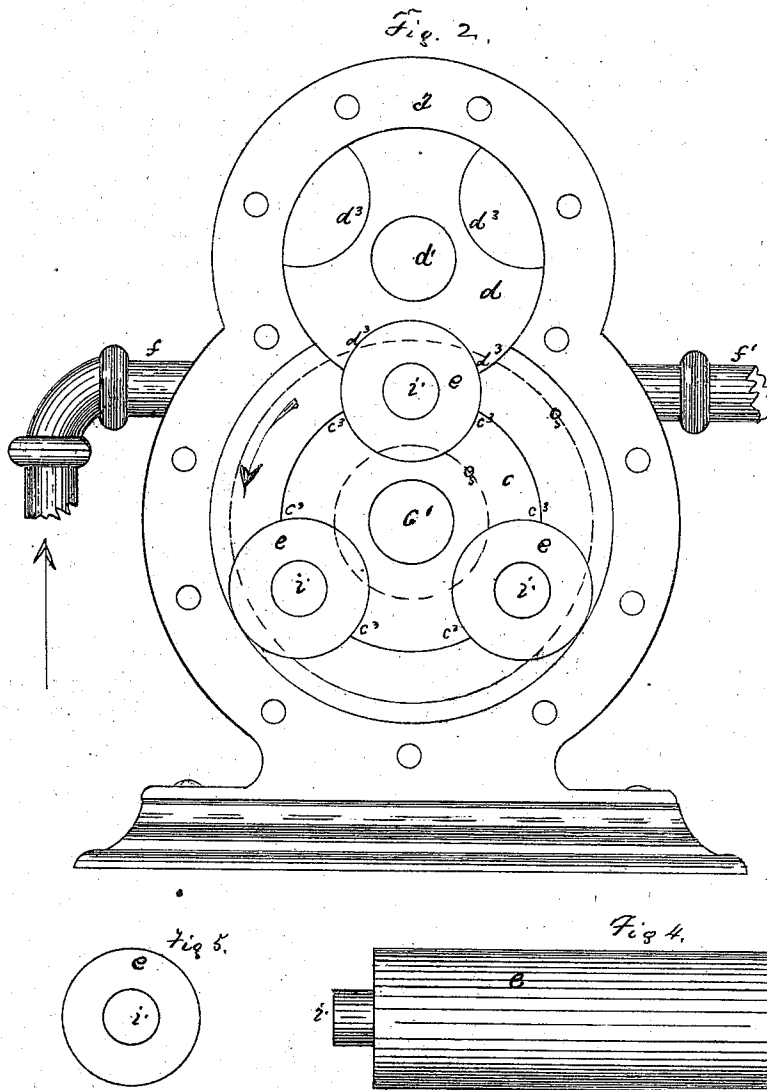
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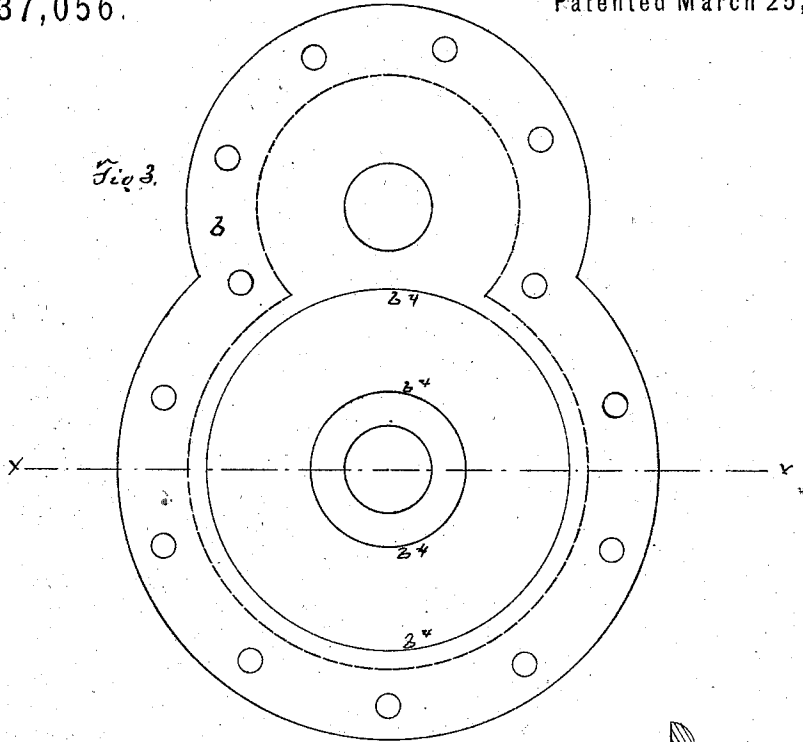


Fig 10.



Fig 9

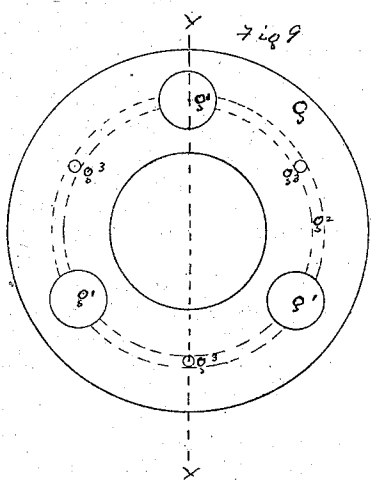
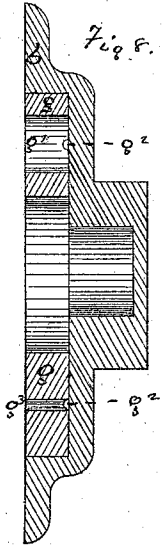


Fig 8.



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UNITED STATES PATENT OFFICE.

LUKE CHAPMAN, OF COLLINSVILLE, CONNECTICUT, ASSIGNOR TO HIMSELF
AND WILLIAM J. WOOD, OF SAME PLACE.

IMPROVEMENT IN ROTARY ENGINES OR PUMPS.

Specification forming part of Letters Patent No. 137,056, dated March 25, 1873.

A.

To all whom it may concern:

Be it known that I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Rotary Pumps, which are applicable as well to rotary motors, meters, and blowers, of which the following is a specification, reference being had to the accompanying drawing, in which—

Figure 1 is a front elevation of the complete pump. Fig. 2 is an end elevation, with the plate which covers the end, removed so as to show the interior. Fig. 3 is a view of the inner face of such removed plate. Fig. 4 is a detached view of one of the cylindrical valves used. Fig. 5 is an end view of the same. Fig. 6 is a longitudinal section of the same. Fig. 7 is a cross-section of the inner metal core of the same. Fig. 8 is a transverse section of the plate shown in Fig. 3, and of the ring shown in Figs. 9 and 10 through the line *x x*. Fig. 9 is a view of the front face of this ring. Fig. 10 is an edge view of this ring.

The nature and purposes of this invention are the furnishing of a support and connection for the cylindrical valves used.

With the exceptions of the rings referred to, and the construction of the valves, this specification may well coincide with the specification contained in Letters Patent issued to me September 19, 1871, and numbered No. 119,011.

The letter *a* indicates the shell or case of the pump, composed of two intersecting cylinders. *b b* are the heads, which cover the front and rear of the same, appropriately fastened on by screws *b¹*, and having bearings and boxes *b²* for the shafts *c¹ d¹*, in which are fixed the revolving plunger *c* and the revolving cut-off *d* within the shell, and which are caused to revolve, with exactly equal motion, in opposite directions by the engaging gear *c² d²*. The driving-power may be applied advantageously to the shaft *c¹*. The cut-off *d* and plunger *c* are solid cylinders of equal diameter, having parti-circular valve-seats *c³ d³* cut in their surfaces. The

surfaces of the cut-off and cylinder would be in constant contact but for these valve-seats. The valves *e* are also cylinders just fitting in their seats and filling out to the inner surface of the shell *a*.

From this description, though brief, it is obvious that when the plunger rotates in the direction indicated by the arrow water will be taken in at pipe *f* and discharged at pipe *f¹*.

So far I have, for the purposes of these Letters Patent, described nothing new. I will now describe the new features:

In the inner face of each of the plates *b* is sunk a circular groove, *b⁴*, into which just fits, and freely turns, a ring, *g*, the face of the ring being flush with the inner face of the plate. In these rings are bored the holes *g¹*, to serve as bearings for the axes *i¹* of the cylindrical valves. These rings revolve with the plunger, and hold the valves accurately in place, furnishing at once a support and connection for them. In the back face of this ring is a small groove, *o²*, indicated by dotted lines in Fig. 9, into which small holes *g³* are bored from the front face of the ring, thus admitting water to the back side of the ring for the purpose of lubrication. These rings are one of the new features of this invention. The valves consist of an inner metal core, *i*, Figs. 6 and 7, and an outer casing of rubber, or other elastic material, *e*. The core *i* has lengthwise grooves or flutes *i²* on its surface, and also grooves *i³* running around it, which are filled by the rubber, thus holding the rubber from slipping on the core. The rubber forms an elastic packing for the valves.

I claim as my invention—

1. The rings *g*, when used to hold the valves in place, substantially as described.
2. The rings *g*, provided with the groove *g²* and the holes *g³*, substantially as described, and for the purpose set forth.

LUKE CHAPMAN.

Witnesses:

OLIVER F. PERRY,
CORNELIUS V. CHAPIN.