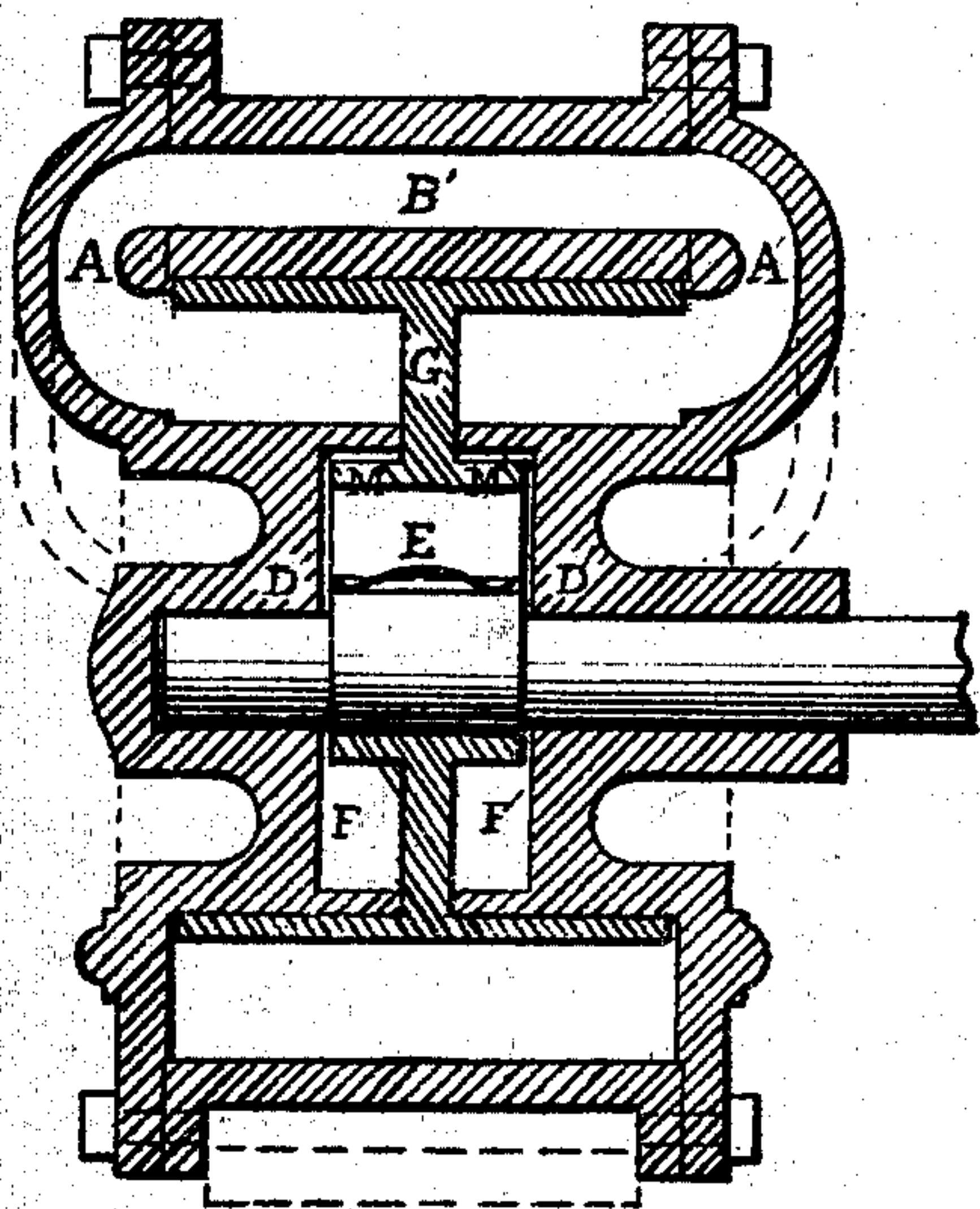


**W. B. ALLYN.**  
**Rotary Pumps.**

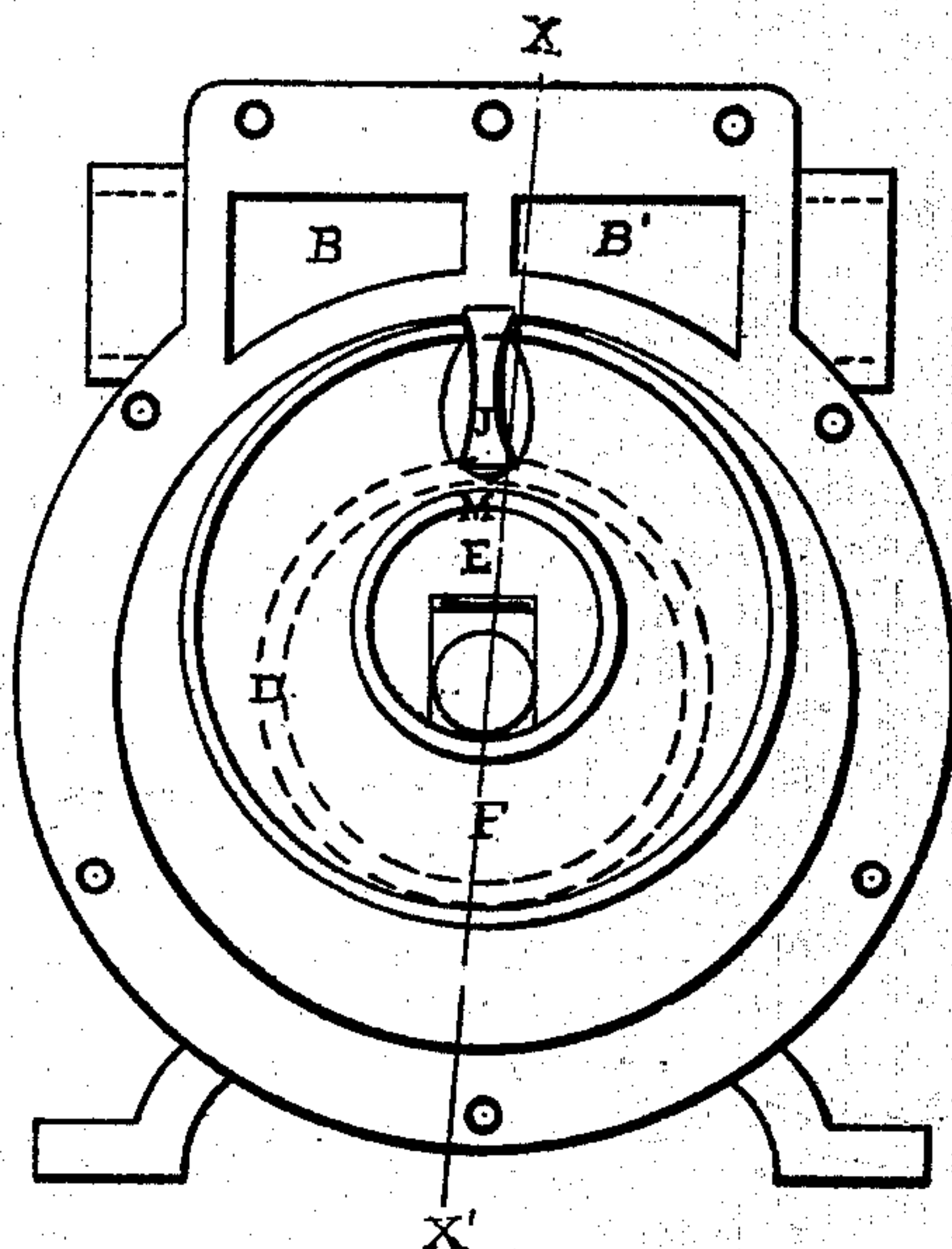
No. 146,741.

Patented Jan. 27, 1874.

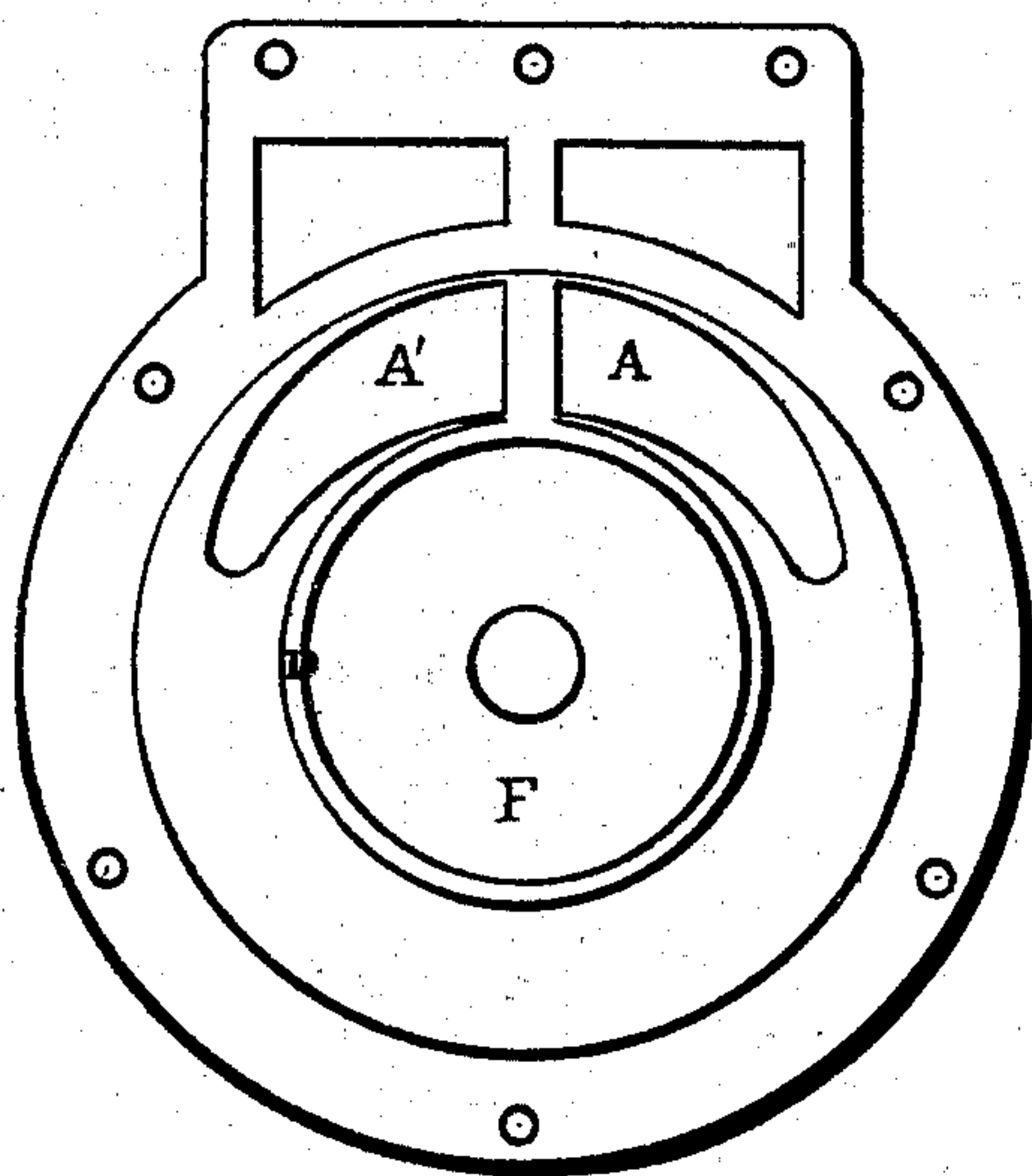
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*

*J. F. Weyman.*

*D. J. Foster.*

*Inventor:*

*William B. Allyn.*



# UNITED STATES PATENT OFFICE.

WILLIAM B. ALLYN, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. **146,741**, dated January 27, 1874; application filed July 24, 1873.

*To all whom it may concern:*

Be it known that I, WM. B. ALLYN, of Boston, State of Massachusetts, have invented an Improvement in Rotary Pumps, of which the following is a specification:

This invention is an improvement on an improved rotary pump, for which Letters Patent of the United States, No. 104,403, were granted to me June 21, 1870.

The object of my invention is to provide increased facilities for the ingress and egress of the water, and to obtain greater bearing-surface for the piston on the eccentric-wheel. The first is accomplished by constructing passages A A' in both head-plates, which connect the interior of the case with chambers B B', from which the suction and discharge pipes extend; the second, by constructing flanges M M' around the central hole of the piston G, in which the eccentric E works to lengthen the bearing, and forming recesses F F' in the ends of the hubs D D' into which the eccentric-wheel E and flanges M M' extend, as shown in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of my invention, taken in the plane indicated by the line *x x'*, Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a view of the inner face of one of the head-plates.

Each head-plate is provided with two passages, A A', one of which connects the cylindrical case with the chamber B', from which the suction-pipe extends, and the other forms a connection between the case and a similar chamber, B, to which the discharge-pipe is attached.

In order to obtain the greatest area of the passages at the points where they connect with the cylindrical chamber, they may be constructed in the form shown at A A', Fig. 3, which is desirable on account of their indirect course. This peculiar shape is necessary to insure the opening and closing of the passages at the proper time by the piston, which acts as a balanced slide-valve, and is obtained by describing a segment of a circle concentric with and within the outer edge of the piston when it is at its highest point, (according to the position of the pump, as shown in the drawings,) and again concentric with and outside of the chamber of the piston when it is at the lowest

point of its revolution. The openings when made of any other shape must be within these lines. The remaining portion can be made in any convenient form to connect with the chambers B B'.

The addition of the chambers B B' besides making it convenient to attach the pipe, also afford suitable places for an air-chamber, and an opening for priming the pump when necessary.

In the improved form of piston no openings are made in the partition outside of the bearing, excepting that in which the abutment J works. The flanges M M' project equally on both sides of the partition, more or less, according to the length of bearing on the eccentric E required.

The recesses F F' in the hubs D D' are of sufficient depth to allow the flanges M M' to work free, while the end of the hubs D D' are in contact with the partition in the piston.

The advantages of the addition of the flanges M M', besides obtaining a greater bearing, are that they allow the partition of the piston G to be made only of sufficient thickness to have the required strength, while heretofore it had to be thick enough to get the bearing required on the eccentric, thereby reducing the lateral pressure occasioned by the partition extending through from the suction to the discharge sides of the piston from one-half to two-thirds. This is necessary for the reason that the piston is kept in contact with the case by a spring situated between the eccentric and shaft, the object of which is to allow the piston to recede when passing over sediment. It also produces a more even stream, in consequence of the partition taking up less room in the interior of the piston, the result of which is a more even strain on the belt or other device used to operate the pump.

This improvement is also applicable to blowers and motors made on the same principle.

I do not claim round water-passages in one side of the pump; neither do I claim the piston G when made with a thick partition with water-passages through it and without the interior flanges M M' or the hubs D D', when made with a flush face on their inner ends, as these have been used before; but



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

1. The passages in the head-plates approximating the shape shown at A A', Fig. 3, in combination with the chambers B B', constructed as and for the purpose set forth.

2. The flanges M M' on the partition of the piston G, in combination with the recesses F

F' in the hubs D D', constructed and operating substantially as and for the purpose herein shown and described.

WM. B. ALLYN.

Witnesses:

JAS. B. BELL,

ALLAN W. WRIGHT.