

(No Model.)

F. G. SARGENT.
ROTARY PUMP.

No. 413,684.

Patented Oct. 29, 1889.

Fig. 1.

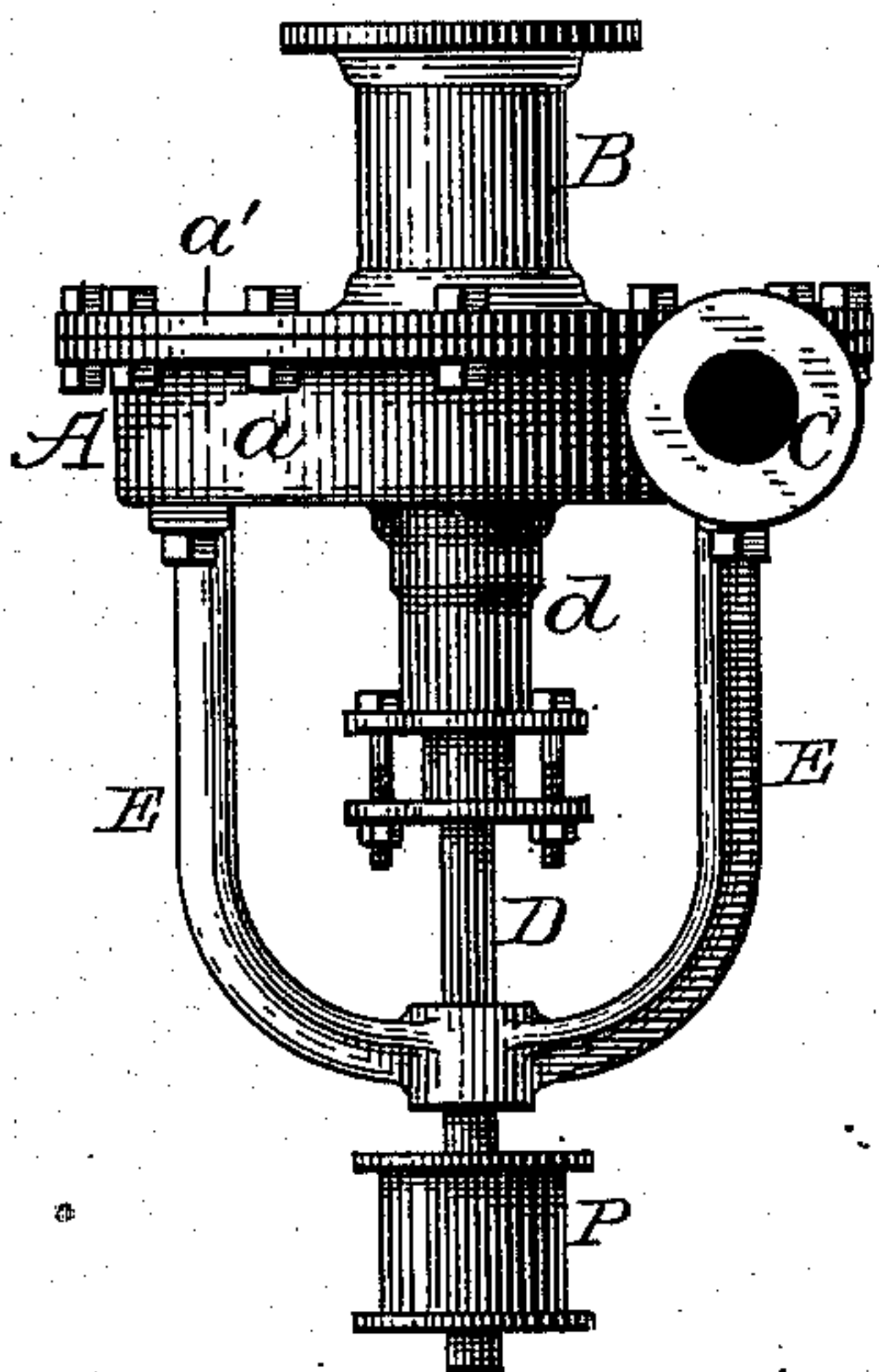


Fig. 2.

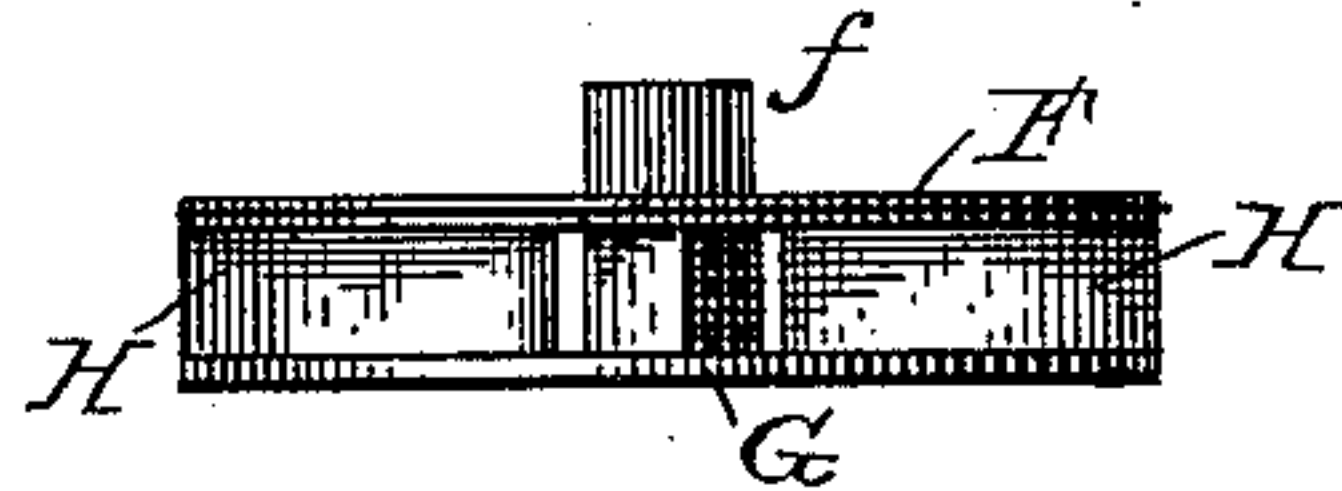


Fig. 3.

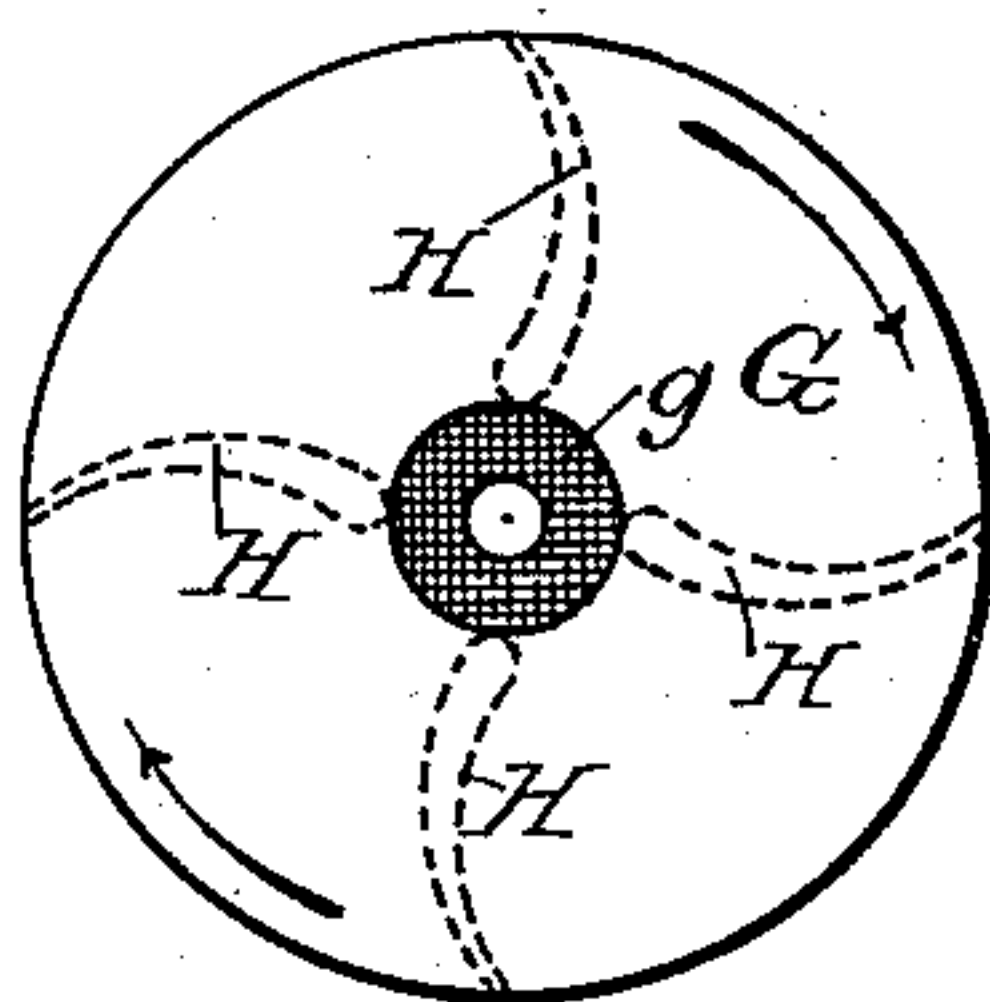


Fig. 4.

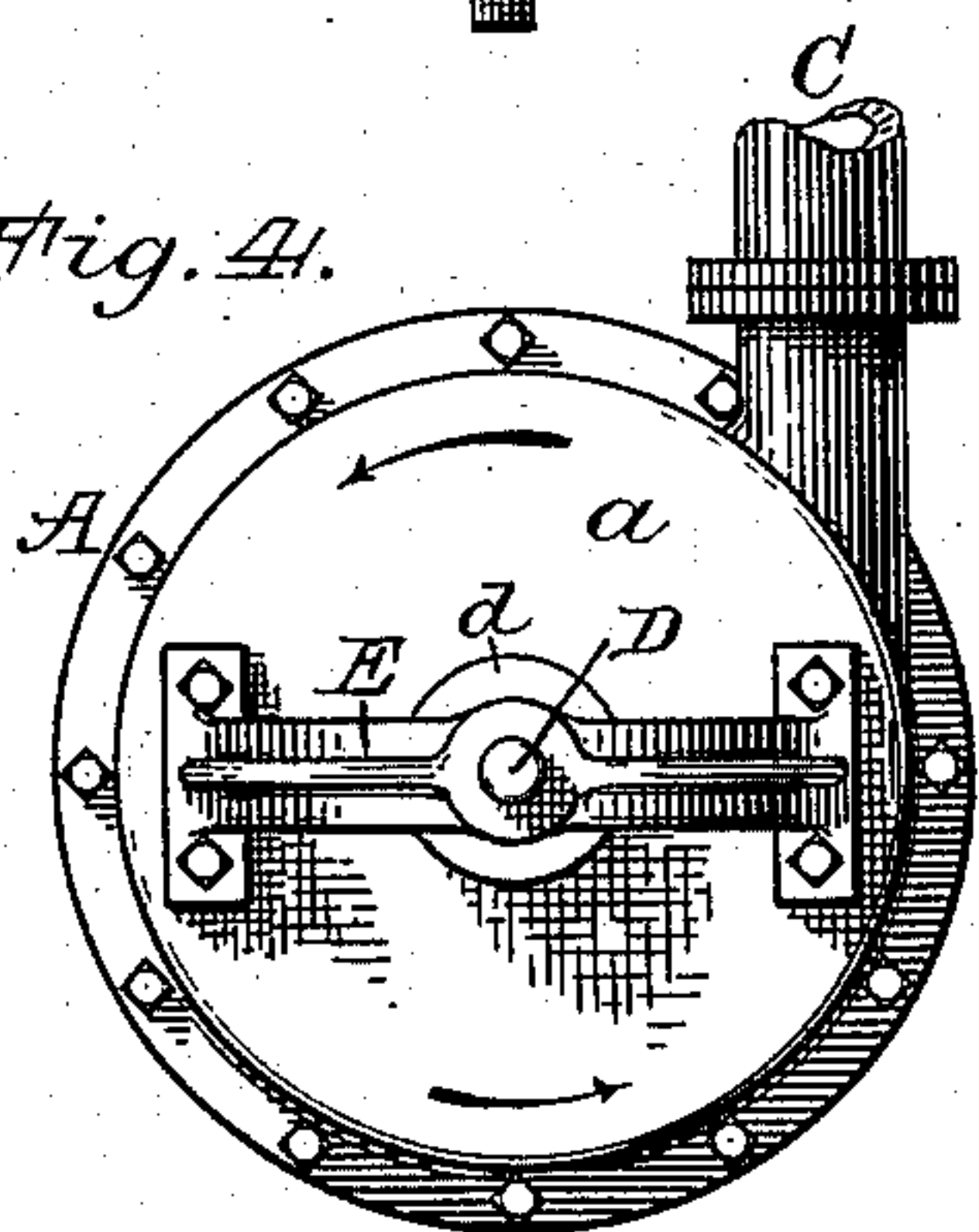


Fig. 5.

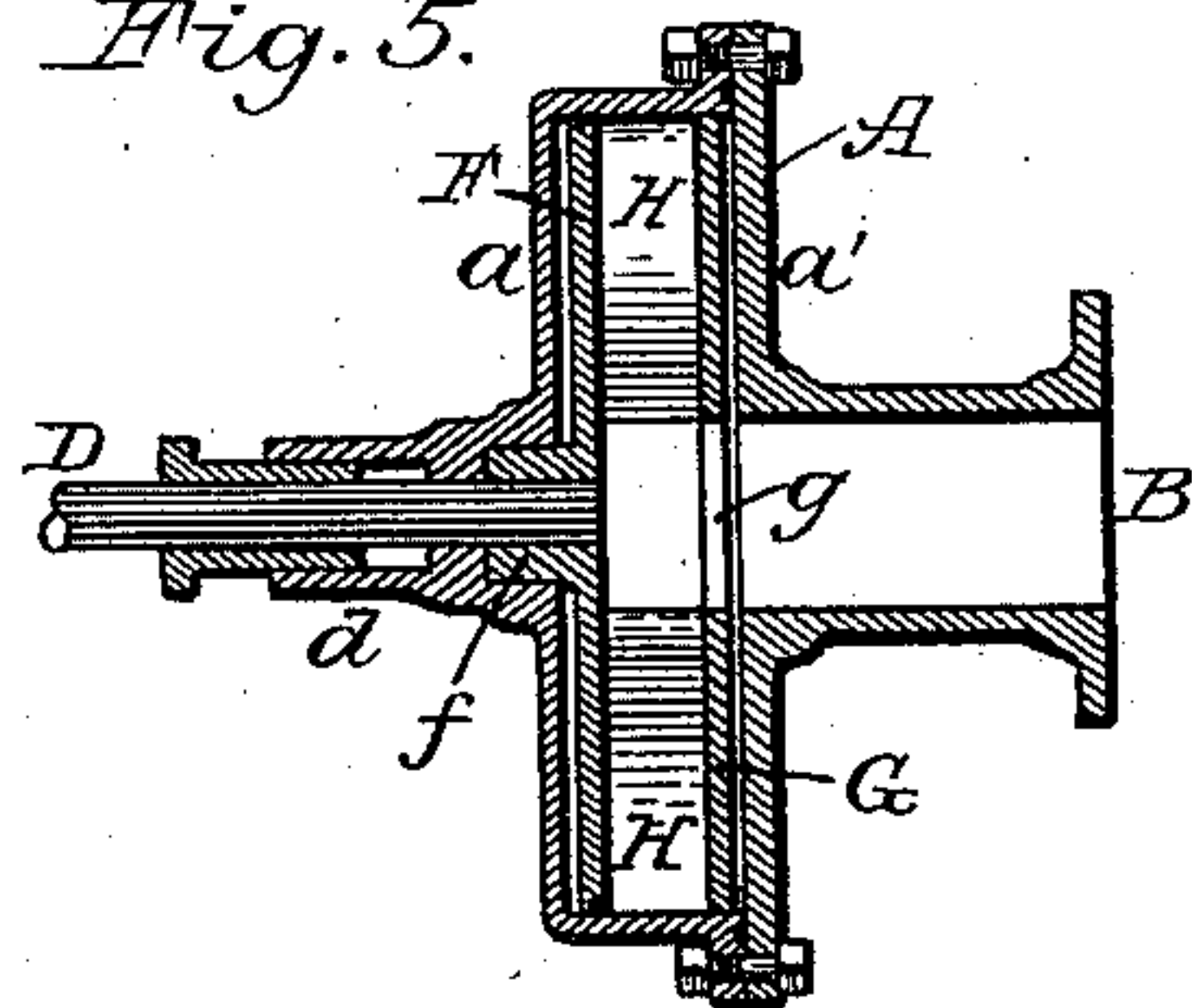


Fig. 6.

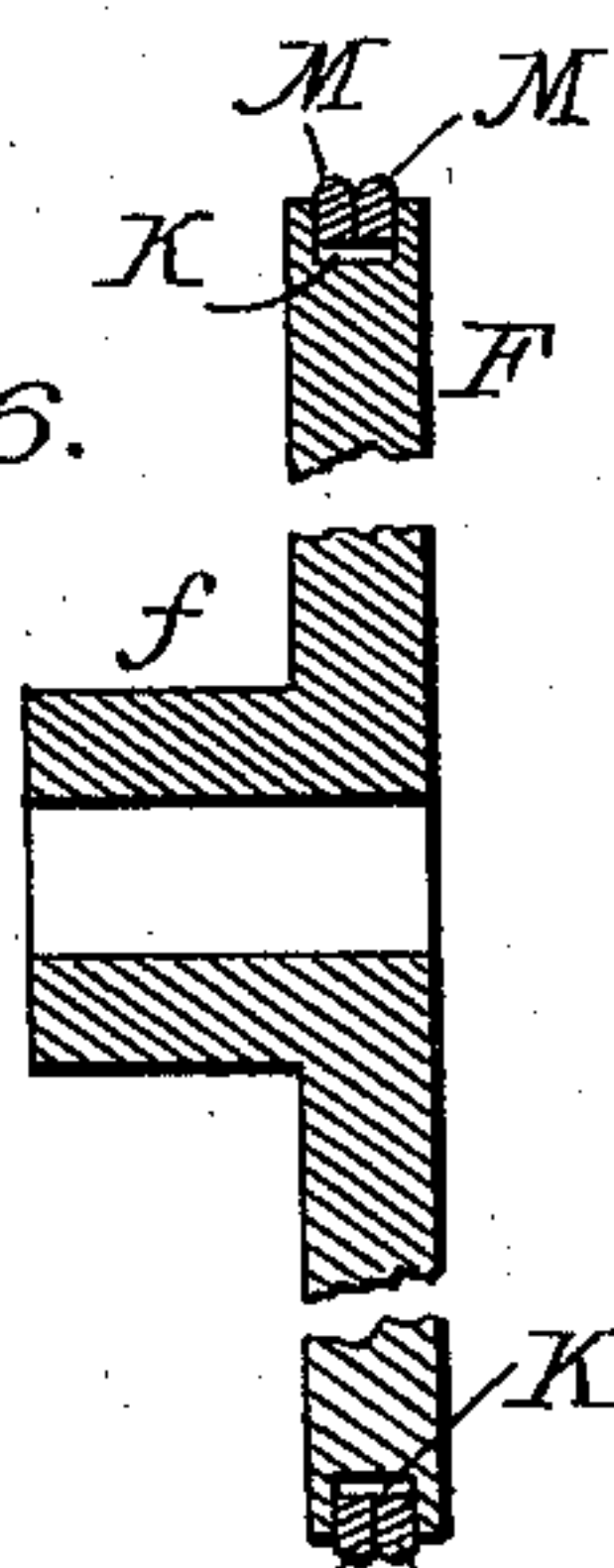
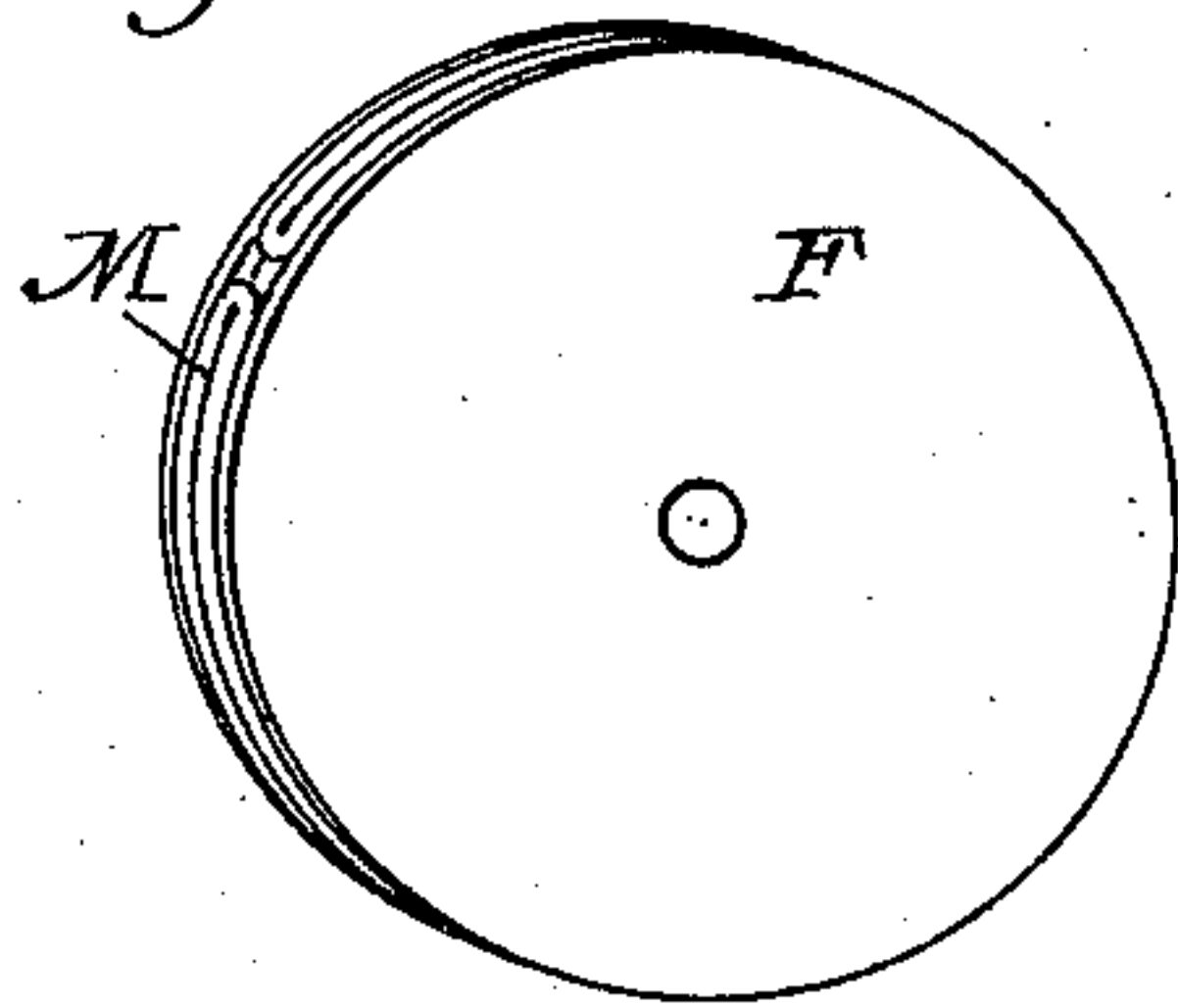


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 413,684, dated October 29, 1889.

Application filed July 25, 1887. Serial No. 245,194. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Rotary Pumps, of which the following is a specification.

My invention relates to rotary pumps; and it consists in the combinations and devices hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of my improved pump. Fig. 2 is a plan view of the buckets and flange removed. Fig. 3 is a side view of the same. Fig. 4 is a side elevation of the pump. Fig. 5 is a vertical section of the pump through the axis of rotation. Fig. 6 is an enlarged sectional view of one of the flanges, showing the wire packing. Fig. 7 is a perspective view of the same.

The pump is inclosed in the cylindrical casing A. Water is admitted through the inlet-pipe B and is forced out through the pipe C.

D is the main shaft, which connects with the interior of the pump through the packing-box *d*. Power is applied by the pulley P, which is rigidly attached to the shaft D and supported by the frame E.

The casing A consists of a shallow cylindrical flanged box *a*, which carries the packing-box *d* and frame E. To this is bolted the plate *a'*, which carries the inlet-pipe B, and completes the casing.

The interior mechanism of the pump consists of circular plates F and G, between which are supported the buckets H H H H, in this case four in number. The plate F has a step *f*, into which fits the end of the shaft D, and the plate G has a central orifice *g*, through which the water is admitted to the space between the plates. The plates F and G and buckets H H H H may be bolted together, or they may be cast in one piece, if so desired.

It is obvious that to prevent leakage in the pump it is only necessary to secure a fit between the edges of the plates F G and the interior of the casing, no fit being required along the faces of the plates. This may be accomplished in two ways. The parts may be ground to fit, as indicated in Fig. 5, or a fit

may be secured as follows: In the edge of each of the disks F and G is turned out a groove K, rectangular in section, as shown in Fig. 6. A continuous piece of spring-wire M, of about twice the circumference of the disk in length, is bent double and is then inserted into the slot K, as shown in Figs. 6 and 7. The ends may be secured in any desired manner; or the wire may be merely bent into shape before it is applied to the disk. The interior of the casing being smooth, this will practically form a metallic packing between the disk and casing. Whether the fit be accomplished by grinding, as above mentioned, or by the use of the metallic packing, it is essential that the flange of box *a* shall overlap both disks F and G, and that it shall be ground or turned out concentrically with the step *f*, upon which the disks and their buckets revolve, in order to produce a running fit which shall be water-tight and avoid undue friction and wear, which would produce leakage. The flange forming the outer part of cup *a* is, therefore, connected to it as one piece and the step *f* first formed in it, and this step is then used as the center or bearing for the shaft of the cutting-tool, which is used to grind the inner surface of the flange to fit the disks F G, or to receive the packing M. I thus insure economy of construction and water-tight joints around the outer edges of the disks F G, when they are properly fitted to run in the outer flange upon the step *f*.

By this means I produce a rotary pump which is easily constructed and which will not leak.

What I claim as new and of my invention is—

1. In a rotary pump, the combination of the separate radial buckets H H, the disks F G, rigidly attached thereto and provided with a central inlet-opening through one of them and a central bearing-step *f* upon the other, and the casing A, formed of the flanged box *a*, provided with a step-bearing and having its flange embracing both of said disks and fitted to the outer edges of the same with water-tight running joints, and the plate *a'*, carrying the inlet-pipe B, substantially as described.

2. The combination of the disks F and G,

having the separate radial buckets H H between them and each having a groove in its outer edge, and wire packing M, the step *f*, placed centrally upon the face of one of said disks, and the casing A, formed of the flanged box *a*, provided with a central step-bearing, and having its flange embracing both of said disks and fitted to the outer edges of the same with water-tight running joints, and the plate *a'*, carrying the induct-pipe B, substantially as described.

FREDERICK G. SARGENT.

Witnesses:

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ARTHUR WRIGHT.