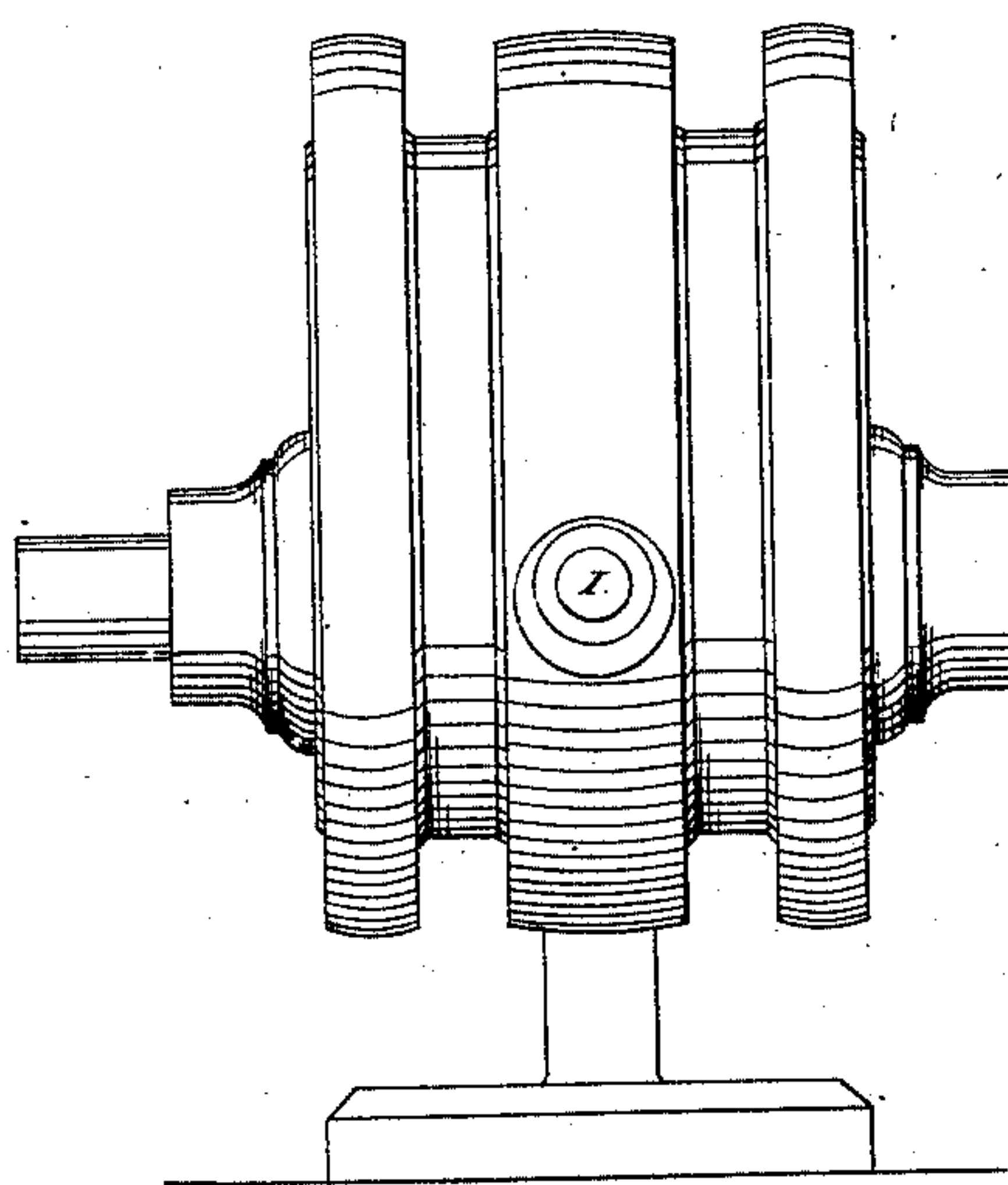


*J. Gatlifley,*  
*Rotary Pump,*

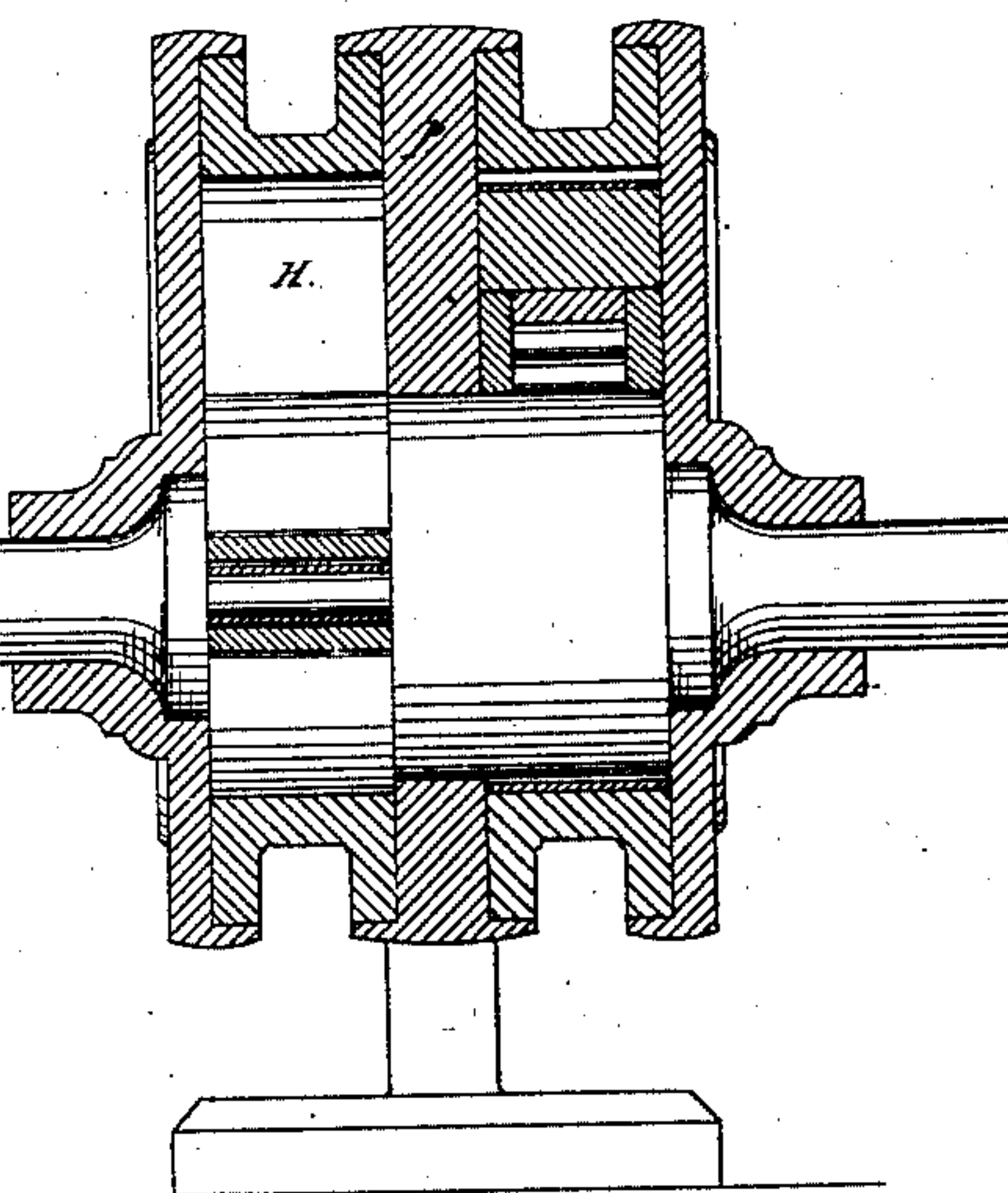
*Nº 11,666,*

*Patented Sept. 12, 1854.*

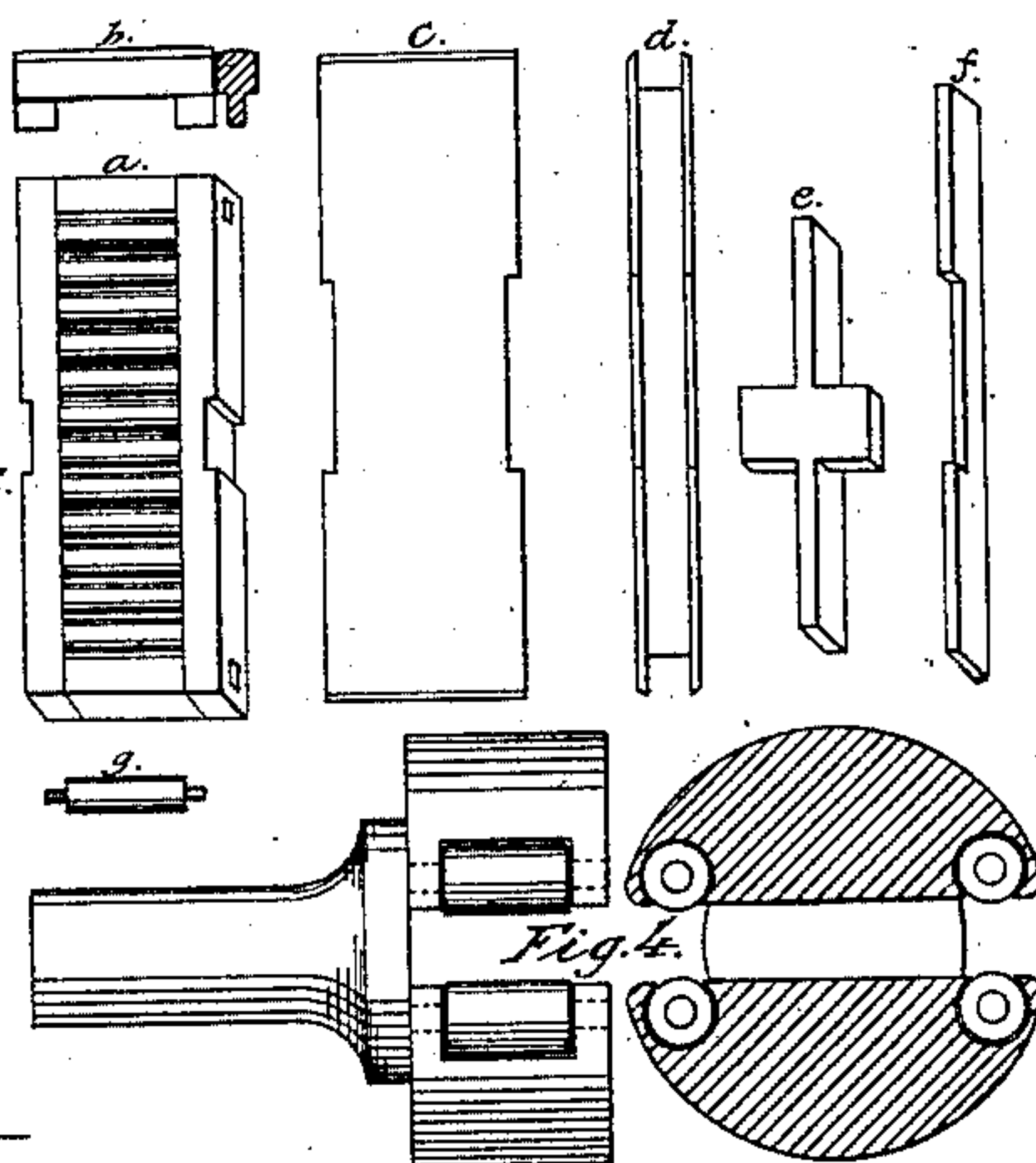
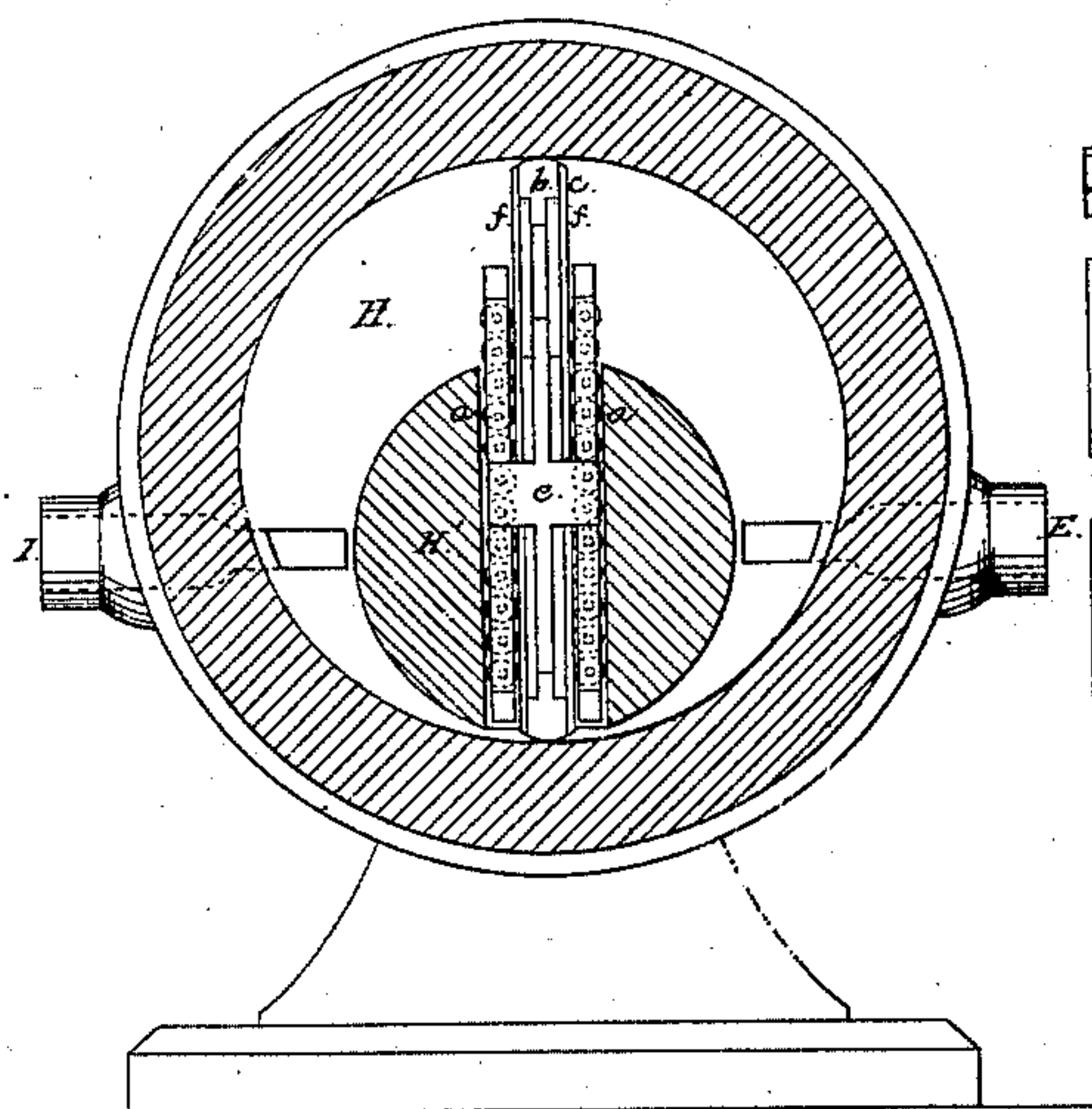
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Inventor,*  
*Joseph Gatlifley*



# UNITED STATES PATENT OFFICE.

JOSEPH GATLEY, OF ROME, NEW YORK.

PISTON OR VALVE FOR ROTARY PUMPS, &c.

Specification of Letters Patent No. 11,666, dated September 12, 1854.

*To all whom it may concern:*

Be it known that I, JOSEPH GATLEY, of the town of Rome, in the county of Oneida and State of New York, have invented a new and Improved Method of Arranging the Packing in the Vanes of Elliptical Rotary Engines or Rotary Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon—that is to say:

Figure 1 represents the exterior of a double engine being that form which I adopt when arranged to be used as a steam engine. Fig. 2 is a longitudinal section through the center and on a line with the shaft. Fig. 3 is a transverse section exhibiting one of the steam chambers with the sliding vane or piston and its packing inserted. Fig. 4 is a portion of the shaft with end view, to exhibit the modification I make in order to economize the construction without destroying the efficiency of the machine, when applied to any purpose where it is desirable to diminish or increase the relative length of the two buckets or arms during the period of rotation.

To enable others skilled in the art to make and use my invention I will proceed to describe more particularly the construction.

In Fig. 2 may be seen two chambers H H elliptical or oval in form, separated only by a partition *p*.

I, E are the passages for the ingress and egress of the steam either becoming the induction passage, according to the direction of the motion it is desired to give, the rotation being performed equally well in either way. These passages are placed on a line passing through the center of the shaft, in other words, where the pressure on the piston is in equilibrium as regards the two arms thereof, they being here of precisely equal length. With this form of chamber the center of the latter and the center of the main shaft cannot be coincident as will readily be perceived.

In the center of the portion of the shaft belonging to each chamber I cut or cast a mortise for the insertion of the sliding piston, bucket or vane, the latter in every position, by reason of the relative eccentricity of the chamber and shaft corresponding in length to the diameter of the steam chamber.

In the sliding piston, bucket or valve are recesses for the insertion of the metallic or other packing throughout its entire edge. The packing is forced out by the usual device of springs. It is evident that this packing thus arranged will prevent the passage of steam from behind to the front of the piston.

*a b c d e f* represent the several pieces of this packing which when in position interlap with each other as illustrated in the drawing. In conjunction with this packing and made in the present case to form one combination are two frames as *a* fitted with friction rollers, one of the latter being seen marked *g*. These frames and rollers just fill the space between the mortise and the sliding piston. On the longer edge of the latter it will be observed that the packing is composed of two narrow pieces interlapping with the end pieces. Between the two mentioned is a third, the form of which is separately exhibited. The narrow part of this last fits in between the two slips whilst the broad part projects latterly so as to drop into a recess made for it in the edge of the roller frame. Both frames are therefore compelled to maintain the same relative movement. There are also recesses or cuts both in the packing and the edge of the sliding piston to allow of this movement.

Fig. 4 represents the modification when used for purposes other than for steam power. In this case I omit the roller frames and place a roller at each of the four angles made by the intersection of the side of the mortise with the outer surface of the shaft. Fig. 4 embraces both an end and side view of the portion of the shaft which comes within the chamber showing the exact position of the friction rollers. The vane or slider is omitted in the illustration.

In the double cylinder the two pistons or sliders are placed at right angles to each other thus to secure a uniform power. Herefore this has been aimed at by putting in two sliders at right angles in the same chamber.

Having therefore sufficiently described my machine what I claim as my invention and desire to secure by Letters Patent is—

1. The use of a frame filled with friction rollers to move with the sliding piston, embracing also the method of interlocking as described, or substantially the same.

2. Also, the modification described, to adapt my arrangement, meanwhile maintaining the requisite efficiency, to any purpose where motion is to be communicated through the revolution of the arms, wings or vanes, the two opposite extremities varied in their relative length by means of an eccentric cylinder or ring.

JOSEPH GATLEY.

Witnesses:

B. K. WRIGHT,  
R. DUNNING.