

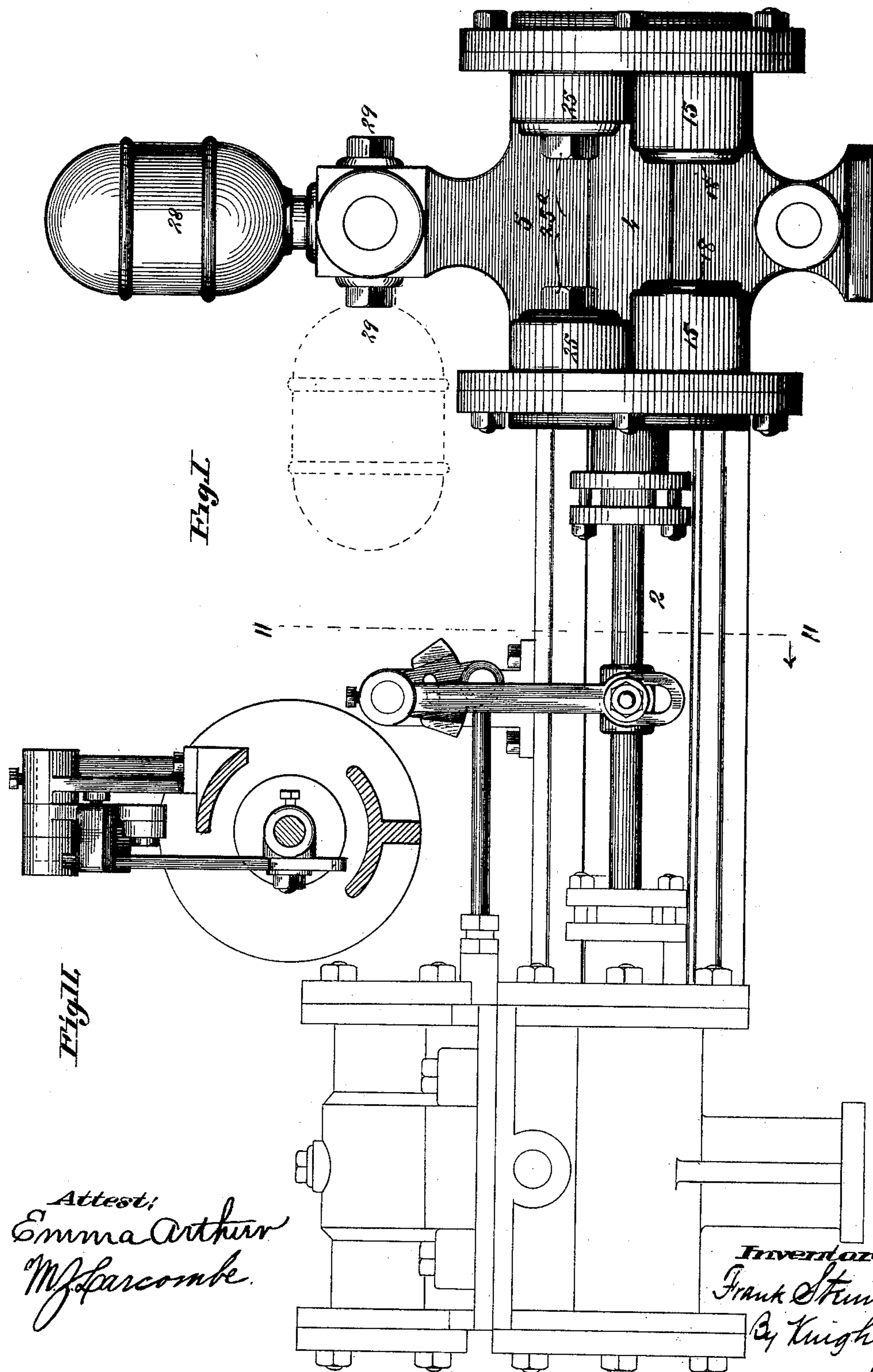
(No Model.)

2 Sheets—Sheet 1.

F. STEINMANN.  
PUMP.

No. 410,462.

Patented Sept. 3, 1889.



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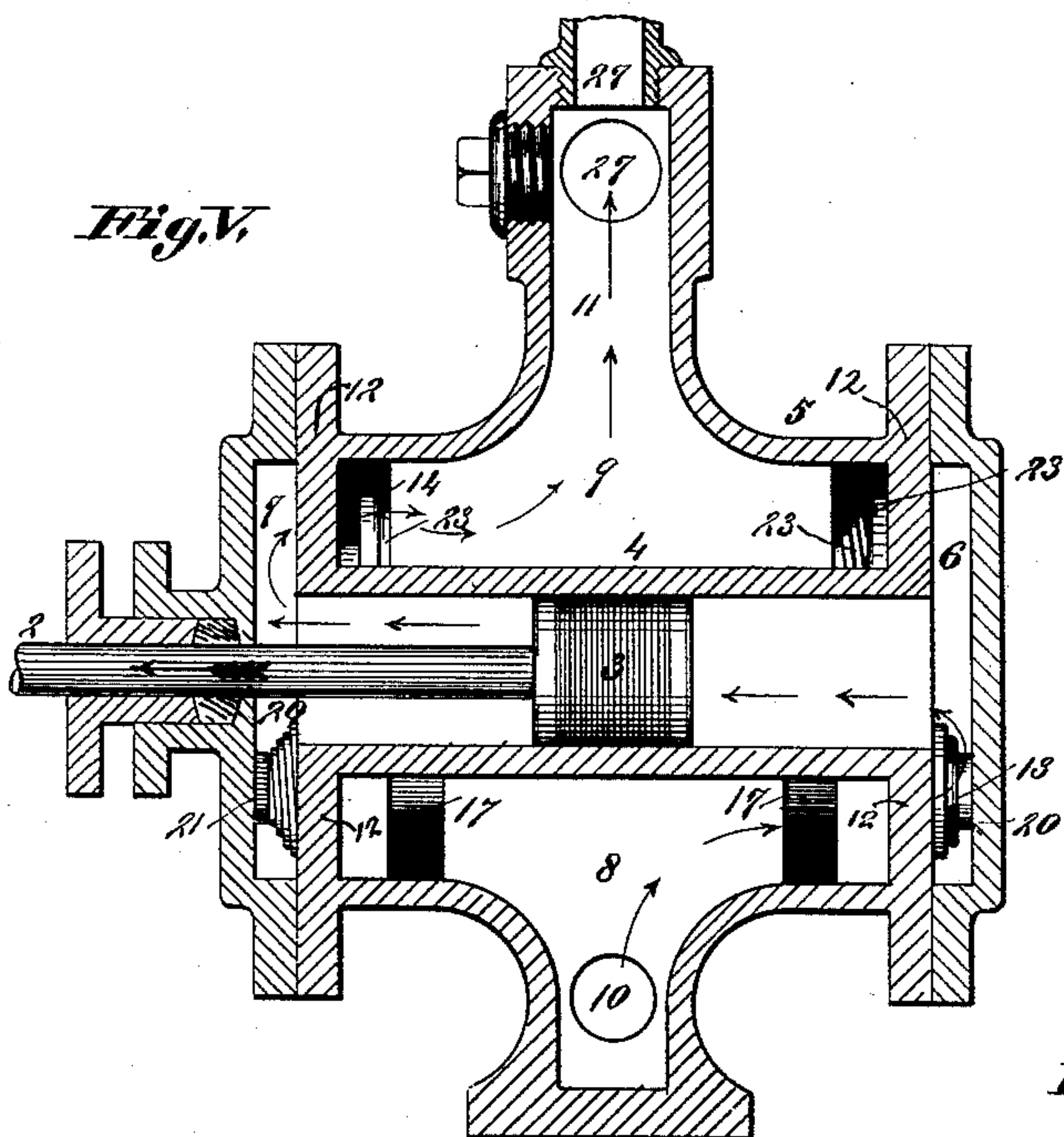
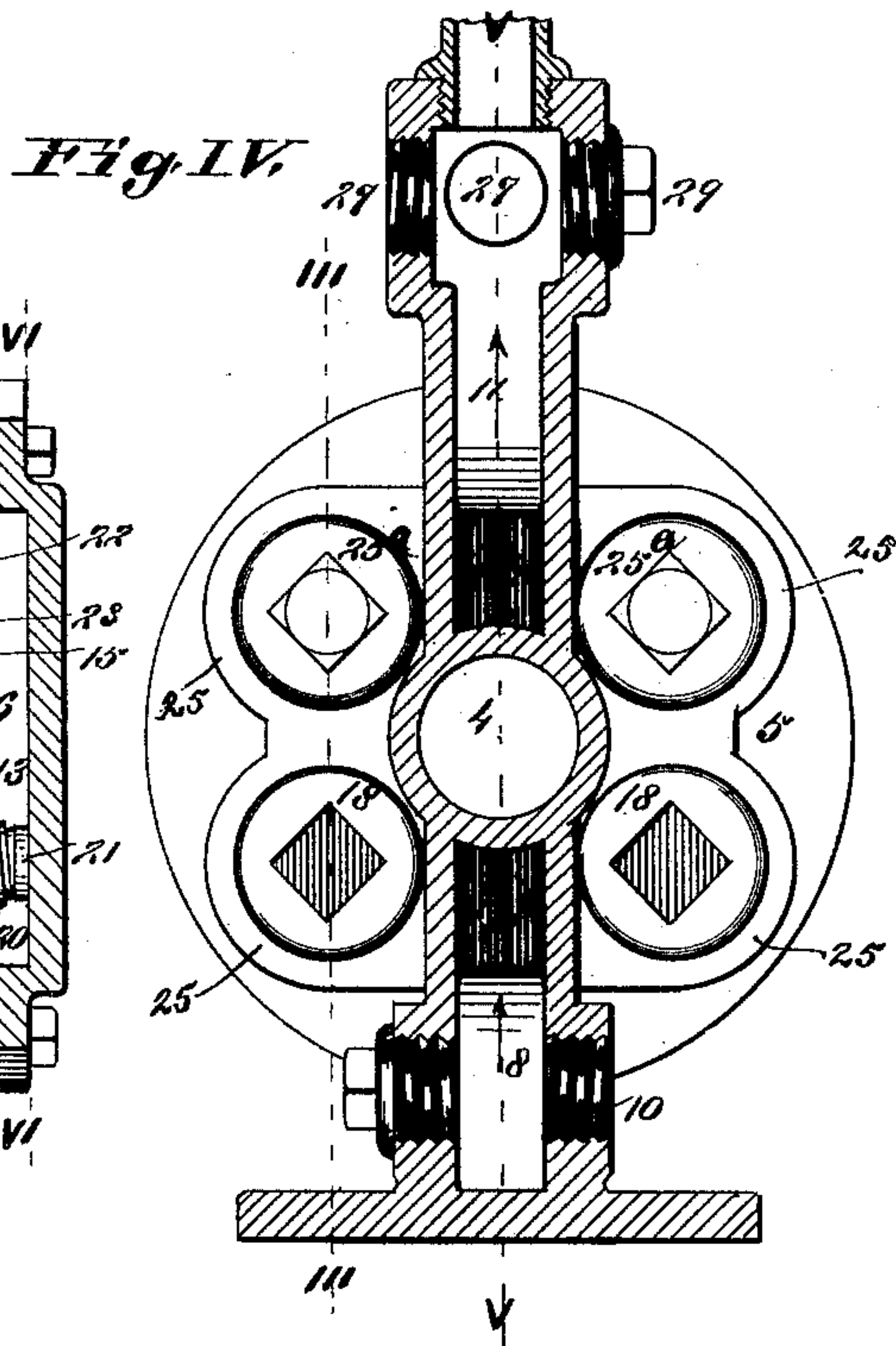
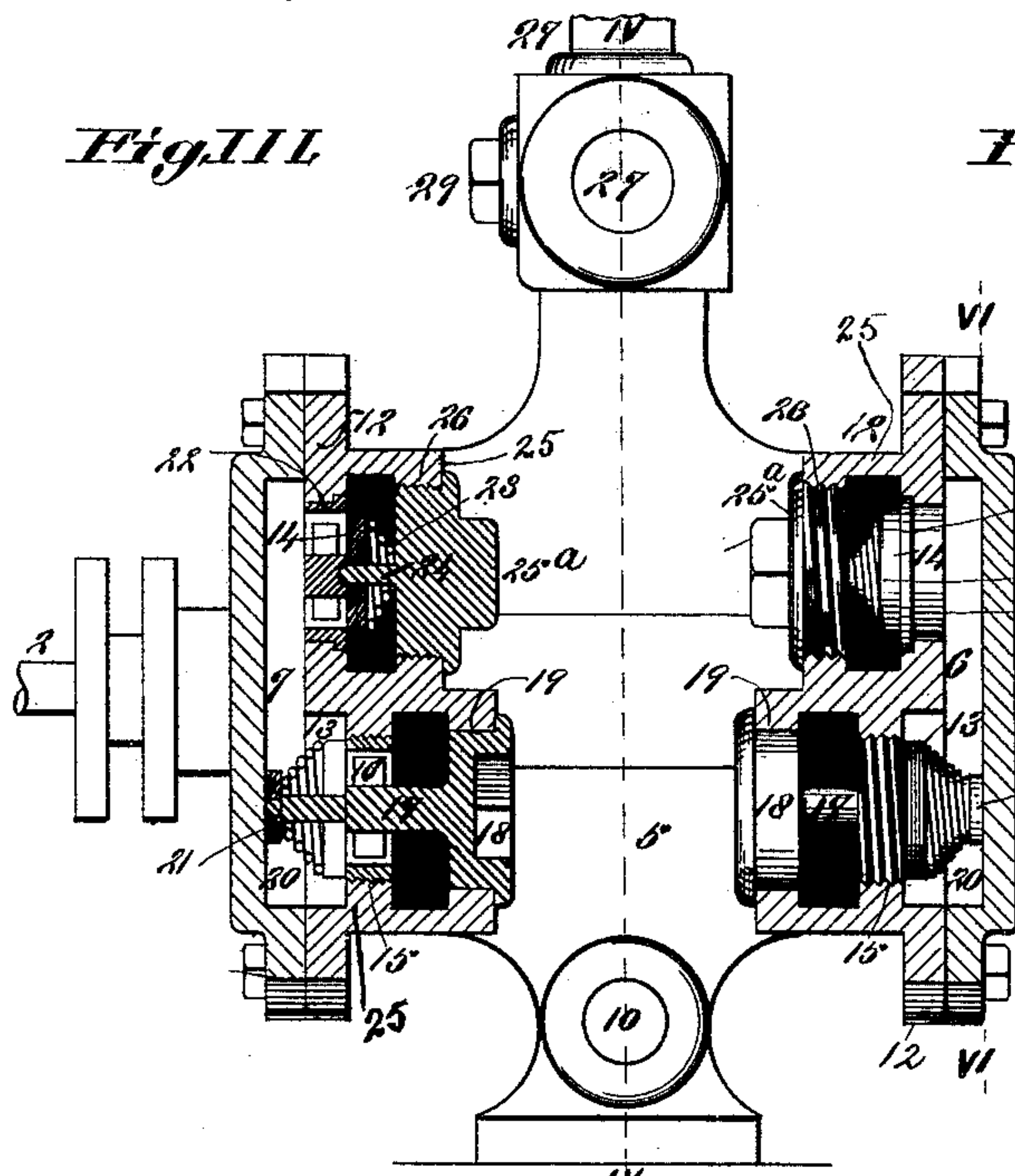
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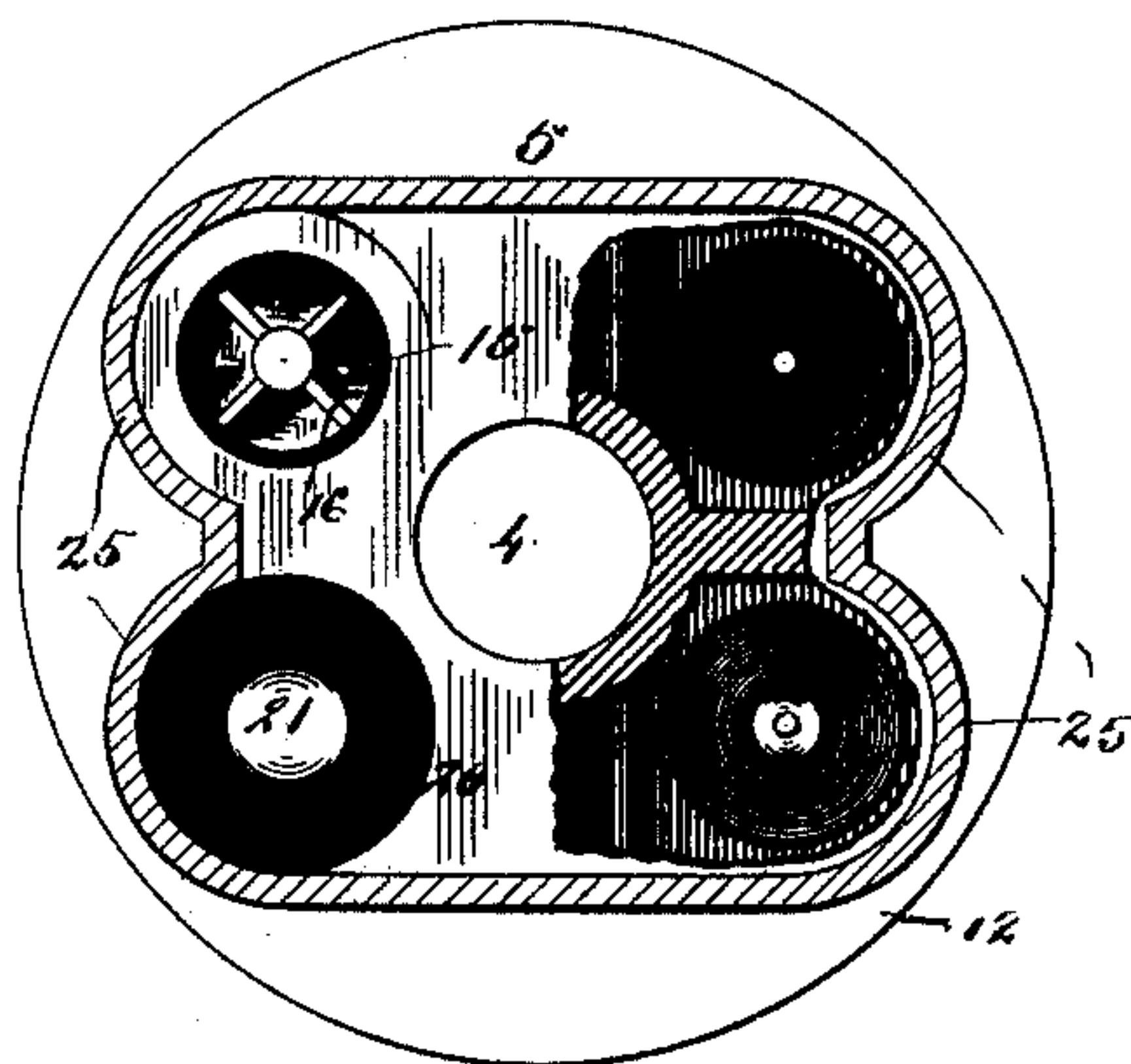
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*Fig. VI*



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# UNITED STATES PATENT OFFICE.

FRANK STEINMANN, OF ST. LOUIS, MISSOURI.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 410,462, dated September 3, 1889.

Application filed December 15, 1888. Serial No. 293,698. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK STEINMANN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a side elevation of my pump. Fig. II is a vertical transverse section taken on line II II, Fig. I. Fig. III is a vertical longitudinal section taken on line III III, Fig. IV. Fig. IV is a vertical transverse section taken on line IV IV, Fig. III. Fig. V is a vertical longitudinal section taken on line V V, Fig. IV. Fig. VI is a vertical transverse section taken on line VI VI, Fig. III.

My invention relates to certain improvements in power-pumps; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents a steam-engine in outline. The piston-rod 2 of the engine is secured to the piston 3 of the pump. The piston works in a cylinder 4, located within a housing 5 and communicating at its respective ends with water-chambers 6 and 7.

8 and 9 represent water-chambers between the cylinder and housing, with which communicate an inlet-port 10 and an outlet-port 11. (See Fig. V.)

Surrounding the cylinder 4 at each end is a flange 12, through which are formed ports or openings, each surrounded by a head or chamber 25, projecting inwardly toward the mid-length of the cylinder 4. The lower of these ports or openings communicate with the inlet-chamber 8 *via* the lower chambers or heads 25, and they are guarded by outwardly-opening valves 13, adapted to admit water from the chamber 8 to the chambers 6 7, arranged one at each end of the cylinder 4 outside of the valves and communicating with said cylinder through the open ends of the latter, and the upper of these ports or openings in the flanges 12 are guarded by inwardly-opening valves 14, adapted to permit the escape of water from the chambers 6 7 into the outlet-chamber 9. The valves 13

(see Fig. III) each seat against a ring 15, screwed in the ports or openings in the flanges 12 and connected by arms 16 to a central stem 17, which is provided with a plug 18, that fits in an opening 19 in the head 25. Each of the lower plugs 18 is provided with a socket to receive a wrench, and by turning it the ring 15 is unscrewed, and the valve can be thus easily removed for repairs. Each valve is held upon its seat (except when forced open) by means of a spring 20, surrounding the stem 17 outside of the valve and located between the valve and a disk 21 on the stem. The valves 14 are held against their seats 22 by means of springs 23, surrounding short stems or projections 24 of plugs 25<sup>a</sup>, one screwed into an opening 26, made in each of the heads 25.

The operation of the pump is as follows: When the piston moves in the direction indicated by the arrows in Fig. V, the water passes from the chamber 8 into the chamber 6 and cylinder 4 behind the piston, and the water that is in advance of the piston at the same time passes from the chamber 7 through the valve 14 into the chamber 9 and escapes through the port 11. Then, as the piston moves back or in the other direction, the water in the chamber 8 passes through the other valve 13 into the chamber 7 and into the cylinder behind the piston, and the water in front of the piston passes from the chamber 6 through the valve 14 into the chamber 9.

The upper end of the port 11 is provided with openings 27 and an air-chamber 28. There may be more than one of the openings 27, and, if so, all but one will be closed by the plugs 29. The discharge-pipe is connected to any one of these openings 27, as desired, and if it is desired to use the machine in a vertical position the air-chamber may be screwed into one of the openings 27 and the water discharged through the opening which the air-chamber occupies in Fig. I.

I claim as my invention—

1. In a pump, the combination, with the cylinder 4 and piston 3, of the flange 12, having ports therethrough, chambers 6 7 at the ends of said cylinder communicating there- with and with said ports, the inlet and outlet chambers 8 9, the chambers or heads 25, con-

necting said chambers 8 9 at both ends with the chambers 6 7, removable plugs having valve-stems secured in the rear of said heads or chambers 25, and the valves 13 14, situated  
5 on said stems and guarding the ports in said flanges 12, substantially as set forth.

2. In a pump, the combination, with the cylinder 4 and piston 3, of the chambers 6 7 at the ends of said cylinder, the inwardly-  
10 projecting heads or chambers 25, the flanges 12, dividing said chambers 25 from the chambers 6 7 and having ports forming communication between said chambers 6 and 25 and 7 and 25, the inlet and outlet chambers 8 9, ex-

tending between the heads or chambers 25 5 and each communicating with said heads at its opposite ends, removable screw-plugs in the inner ends of said heads 25, the stems 17 and 24, projecting from said plugs, the rings 15, secured in the flanges 12 and having arms 20 16, connected to stems 17, and spring-actuated valves on said stems 17 24, adapted to close the ports between said chambers 6 25 and 7 25, substantially as set forth.

FRANK STEINMANN.

In presence of—

GEO. H. KNIGHT,  
EDW. S. KNIGHT.