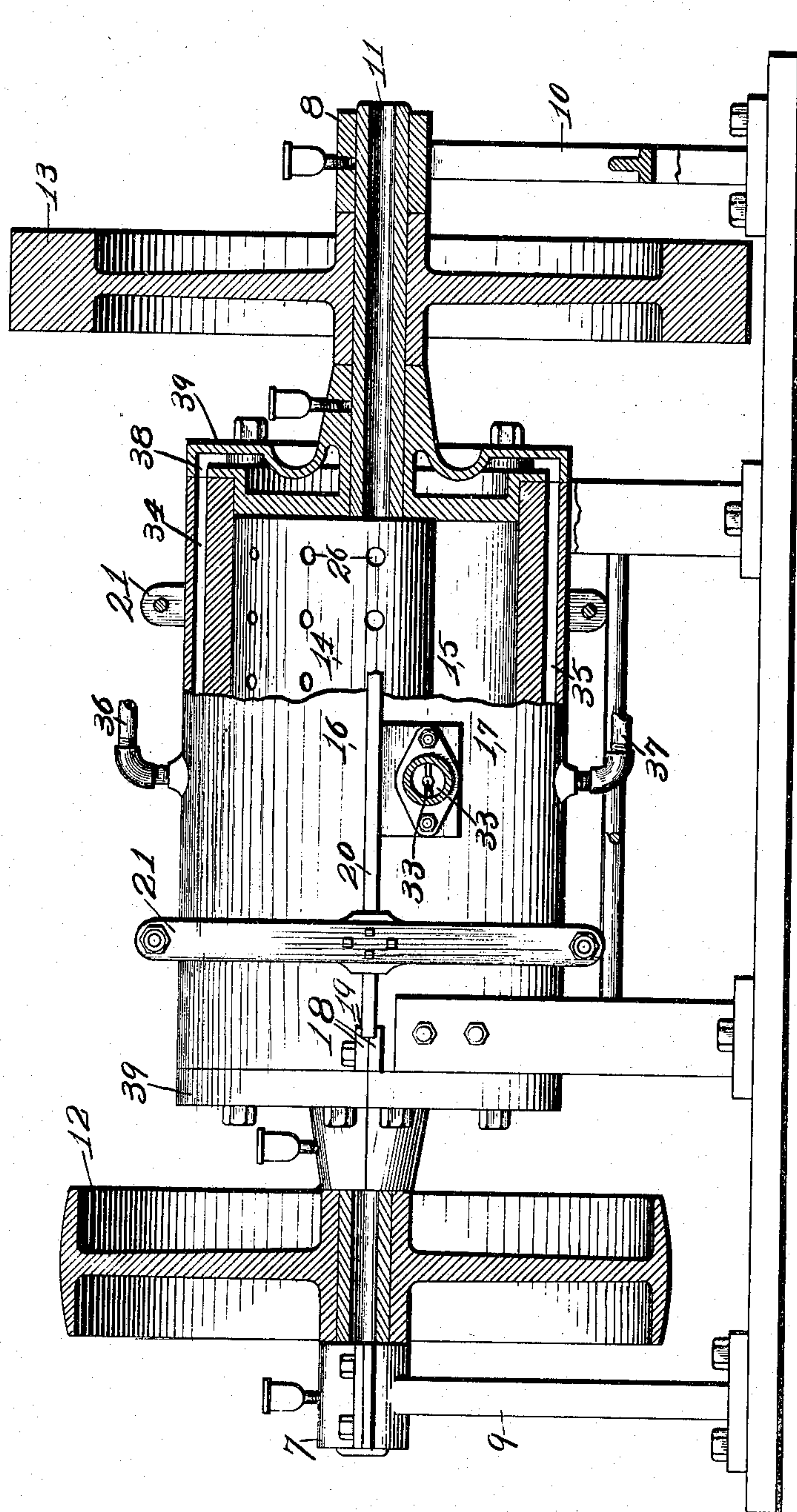


936,932.

A. NEUMANN.  
AIR COMPRESSOR.  
APPLICATION FILED APR. 28, 1908.

Patented Oct. 12, 1909.  
3 SHEETS—SHEET 1.

FIG. 1



Witnesses  
W. C. Stein  
L. A. L. McIntyre

Inventor  
Arthur Neumann  
by Hopkins & Eicks Attys.

A. NEUMANN.  
AIR COMPRESSOR.  
APPLICATION FILED APR. 28, 1908.

936,932.

Patented Oct. 12, 1909.  
3 SHEETS—SHEET 2.

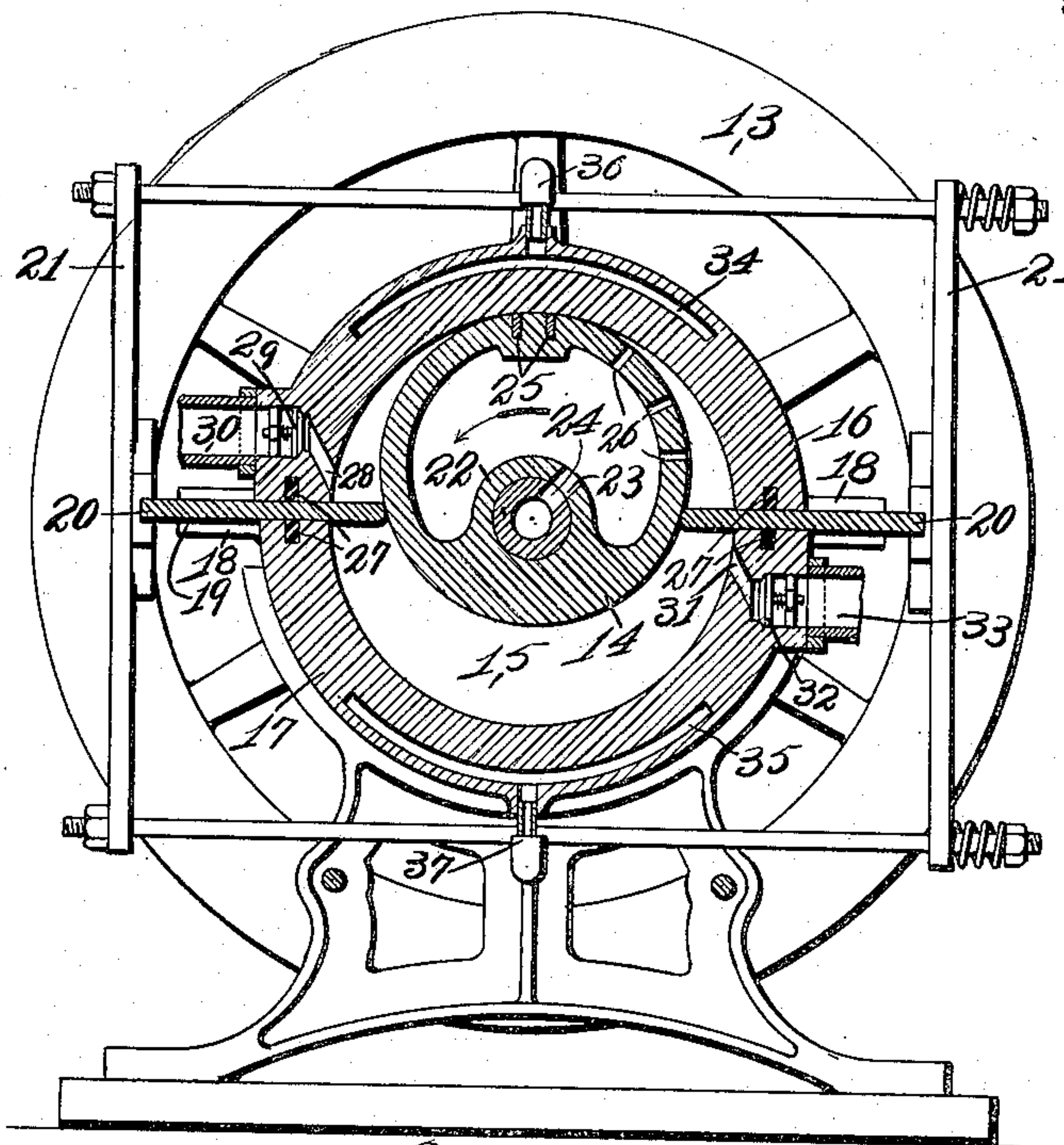


FIG. 2

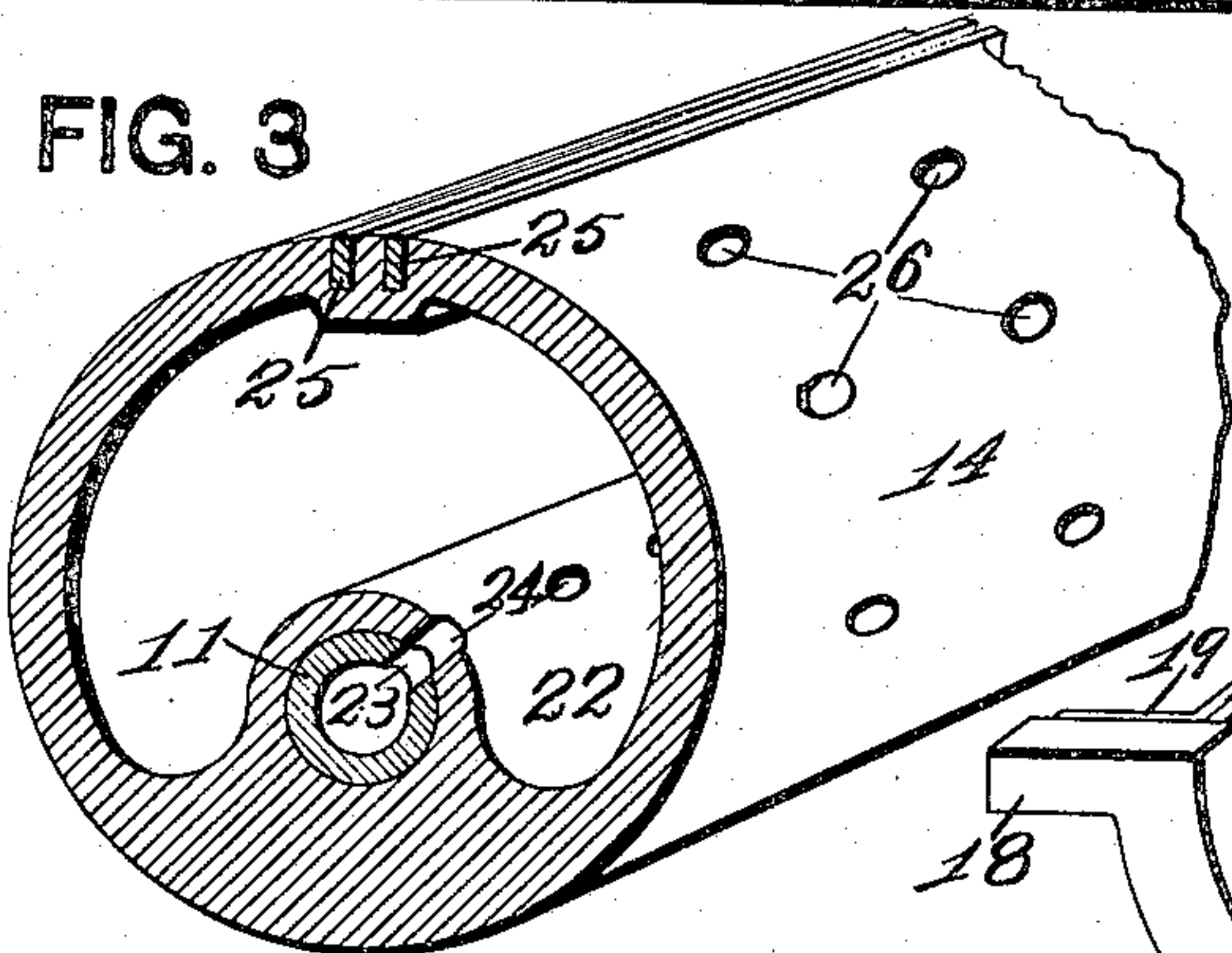


FIG. 3

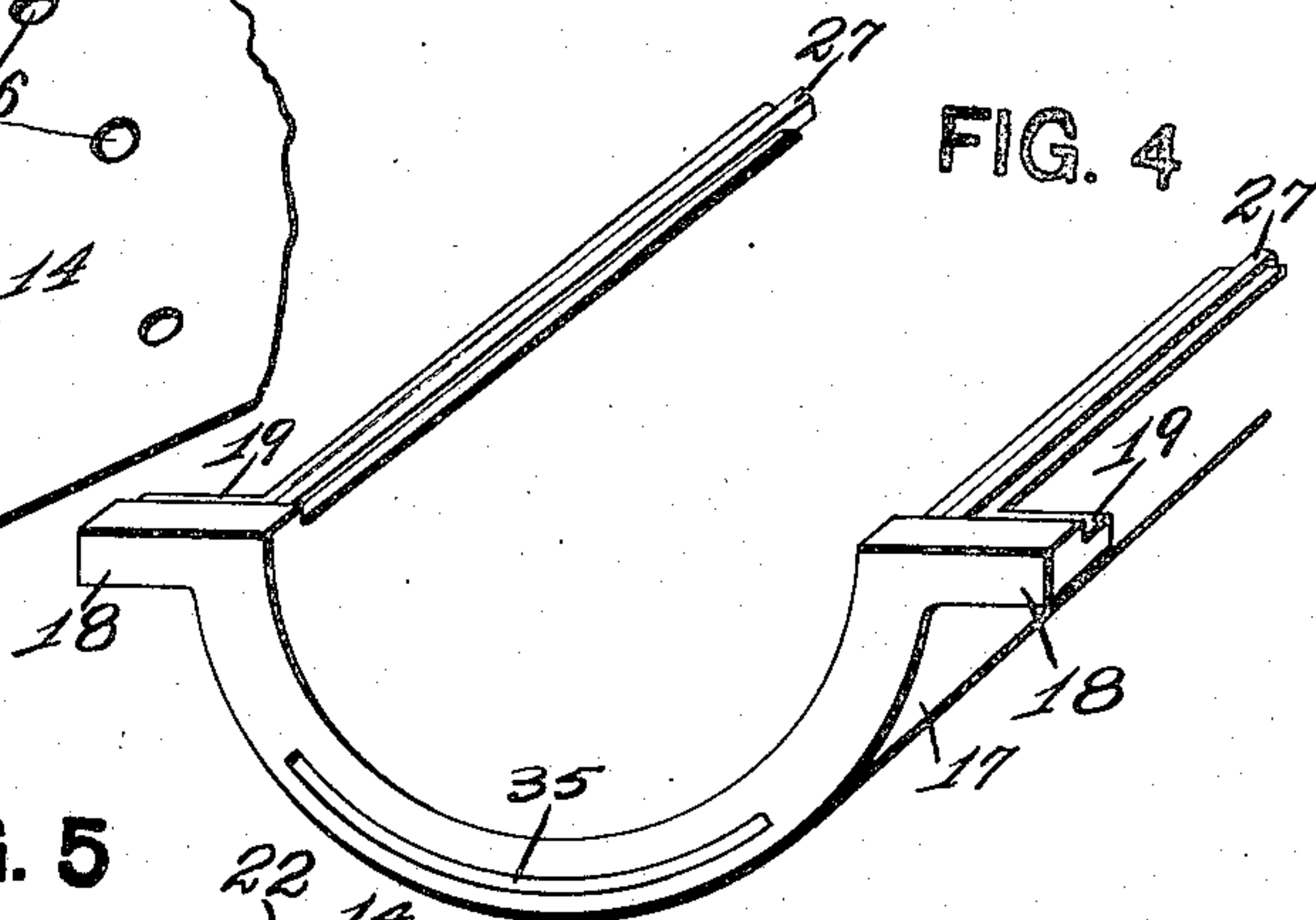


FIG. 4

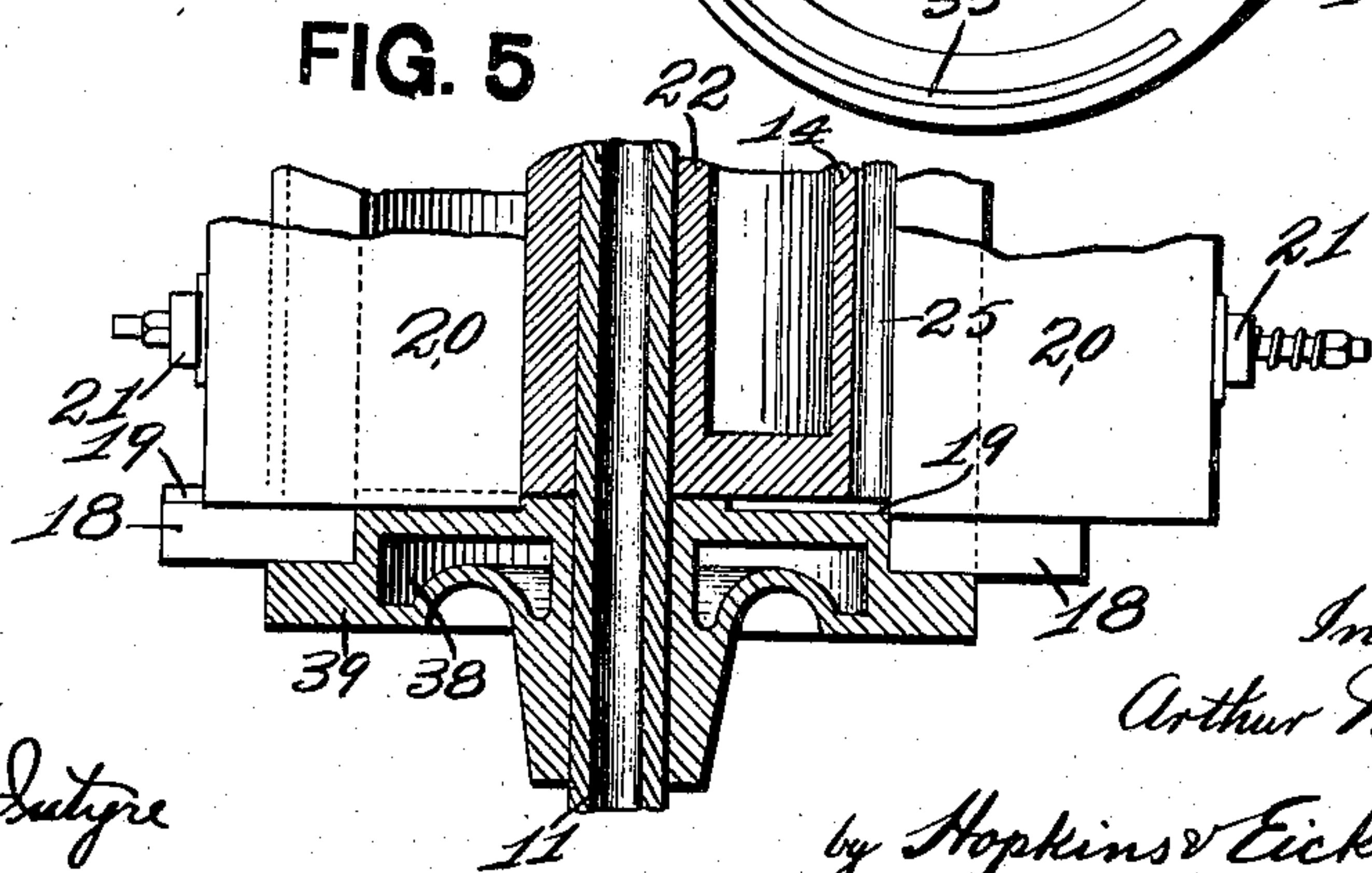


FIG. 5

Witnesses  
W. C. Stein  
L. A. C. McIntyre

Inventor  
Arthur Neumann  
by Hopkins & Eicks Attys.



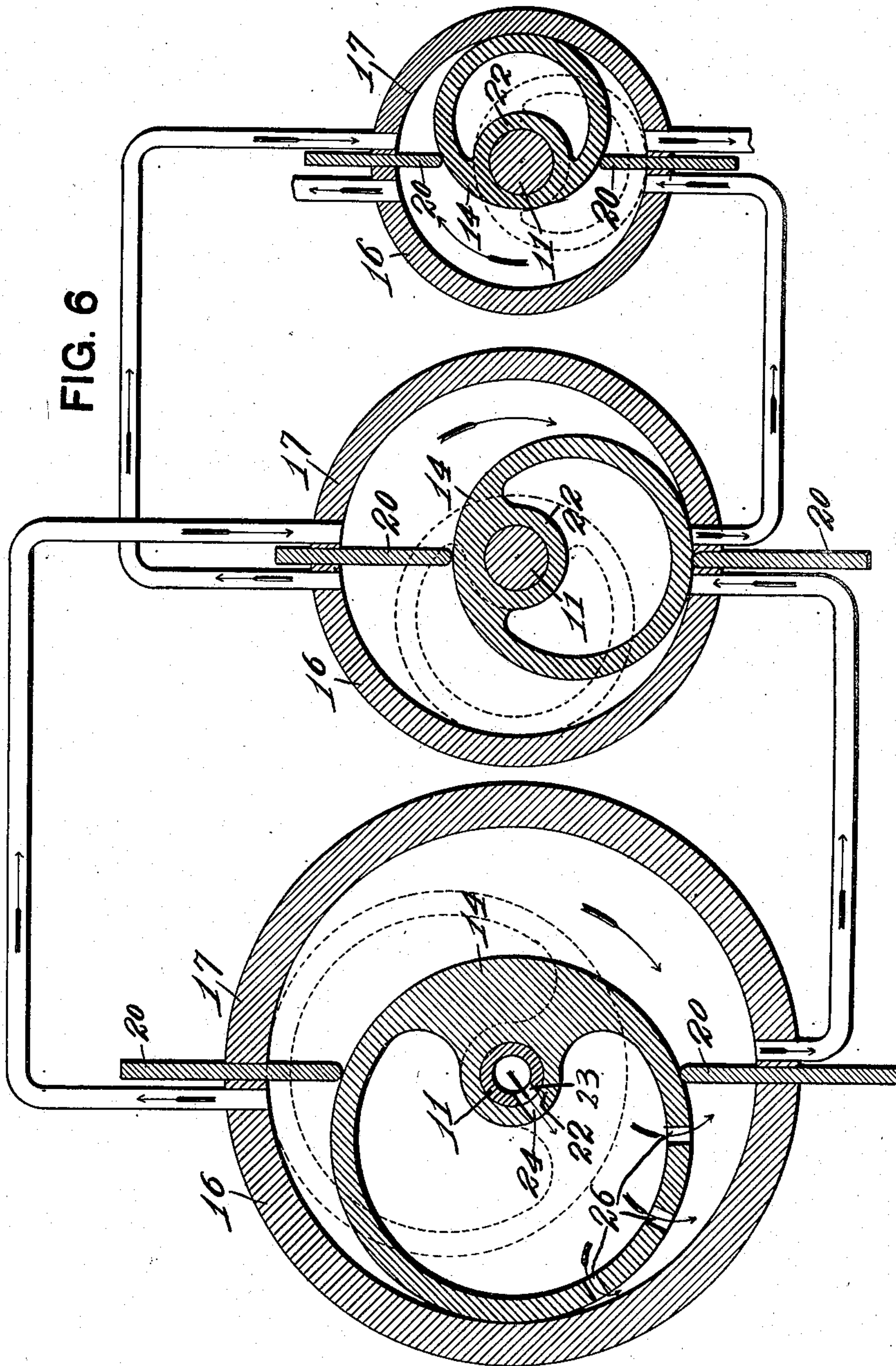
A. NEUMANN.  
AIR COMPRESSOR.

APPLICATION FILED APR. 28, 1908.

936,932.

Patented Oct. 12, 1909.

3 SHEETS—SHEET 3.



Witnesses  
W. B. Stein  
L. A. L. McIntyre

Inventor  
Arthur Neumann  
by Hopkins & Eicks Attys.



# UNITED STATES PATENT OFFICE.

ARTHUR NEUMANN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO DANIEL F. BEHRENS, OF CLAYTON, MISSOURI.

## AIR-COMPRESSOR.

936,932.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed April 28, 1908. Serial No. 429,781.

*To all whom it may concern:*

Be it known that I, ARTHUR NEUMANN, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Air-Compressors, of which the following is a specification.

My invention relates to improvements in air compressors and has for its object to provide a simple and efficient air compressor, capable of being used in series with the result of multiplying its efficiency when desired.

In the drawings—Figure 1 is a front elevation of a compressor embodying my invention, showing the fly-wheel, drive-wheel, a portion of the tubular shaft, and a portion of the cylinder in section. Fig. 2 is a vertical sectional view of the same. Fig. 3 is an enlarged perspective view of a section of the revolving piston. Fig. 4 is an enlarged perspective view of one end of the lower half of the cylinder-member. Fig. 5 is a horizontal sectional view of one end of the compressor. Fig. 6 is a diagrammatic view illustrating the construction and operation of the compressor of my invention when arranged in a series of three for the purpose of multiplying its compression.

As shown in the drawings, journal boxes 7—8 are carried by vertical uprights 9—10, and a hollow shaft 11 is journaled in said journal boxes 7 and 8, said shaft 11 being driven by the drive-wheel 12 and carrying the fly-wheel 13, and cylindrical piston 14. The piston 14 is adapted to revolve in the cylinder 15 which is composed of the semi-cylindrical shells of which the upper is numbered 16 and the lower 17; said shells being provided with shoulders 18 by reason of which they are so united as to leave horizontal slots 19—19 for the reception of the slide valve-members 20, the outer edges of which valve-members 20 are held by the sliding rack 21, as illustrated in Fig. 2, and the inner edges of said valve-members 20 are at all times in contact with the outer face of the piston 14. The piston 14 is constructed, as illustrated in the drawings, in the form of a cylindrical shell having within it the longitudinal cylinder 22 within which the shaft 11 is mounted; the shaft 11 and the cylinder 22 being provided with radial perforations 23—24 registering with each other. The outer face of the piston 14 is provided

with longitudinal packing strips 25, and the side of the piston member 14 which is opposite to the direction of the rotating drive of the piston is provided with perforations 26. The shells 16 and 17 are provided longitudinally with packing strips 27 which contact with the upper and lower faces of the slide valve-member 20 to render the same airtight. The shell 16 is provided with the outlet opening 28 and valve 29 connecting with the airtight outlet tube 30; and the shell 17 is provided with a corresponding air outlet opening 31 and outlet valve 32 connecting with the outlet pipe 33. The shell 16 is provided with a longitudinal duct or passage 34 and the shell 17 is provided with a like duct or passage 35, these ducts or passages 34 and 35 having the water tube connections 36 and 37, respectively, forming a water-jacket, the ducts or passages 34 and 35 communicating with the water-jacket compartments 38 with which each of the cylinder heads 39 is provided.

The mode of operation of the compressor hereinbefore described is as follows: The direction of the drive of the piston is as indicated by the arrow in Fig. 2; the compression being effected by the forward movement of the imperforate half of the cylindrical piston, the slide valves 20—20 operating in unison to prevent the rearward escape of the air compressed, and the valves 29—32 operating successively to permit the escape of the compressed air through the outlet pipes 30—33, respectively. The air supply is accomplished through the interior of the shaft 11 and the perforations 23, 24 and 26.

For the purpose of multiplying the power of my compressor, the units hereinbefore described are arranged in series upon the same shaft, and I have illustrated a group of three diagrammatically in Fig. 6; but all of the units after the first are mounted upon an imperforate section of the shaft and all of the revolving pistons after the first are imperforate, as the first unit only is desired to be provided with an air inlet.

In the diagrammatical illustration embodied in Fig. 6, the movement of the air from its original admission to the first unit to its final expulsion from the third cylinder is illustrated by arrows.

Having fully described my invention, what I claim as new and desire to have secured to me by the grant of Letters Patent, is:

110



1. In an air compressor, a stationary cylinder; a revoluble hollow shaft mounted concentrically with said cylinder; a cylindrical piston of smaller diameter than said  
5 cylinder and fixedly mounted upon said shaft eccentrically with reference to said cylinder, said piston and shaft being perforated to admit air to the cylinder through the interior of said shaft; and slide valves contacting with the outer face of said piston,  
10 substantially as described.

2. In an air compressor, a stationary cylinder; a revoluble hollow shaft mounted concentrically with said cylinder; a cylindrical  
15 piston of smaller diameter than said cylinder and fixedly mounted upon said shaft eccentrically with reference to said cylinder,

centrically with reference to said cylinder, said piston and shaft being perforated to admit air to the cylinder through the interior of said shaft; and slide valves contacting with the outer face of said piston, said  
20 slide valves being mounted in apertures in said cylinder and connected by a reciprocating rack, substantially as described.

In testimony whereof, I have signed my  
25 name to this specification, in presence of two subscribing witnesses.

ARTHUR NEUMANN.

Witnesses:

ALFRED A. EICKS,  
WALTER C. STEIN.