

G. P. O. ALVERGNAT.  
AIR COMPRESSOR.  
APPLICATION FILED FEB. 1, 1910.

973,739.

Patented Oct. 25, 1910

3 SHEETS-SHEET 1.

Fig. 1.

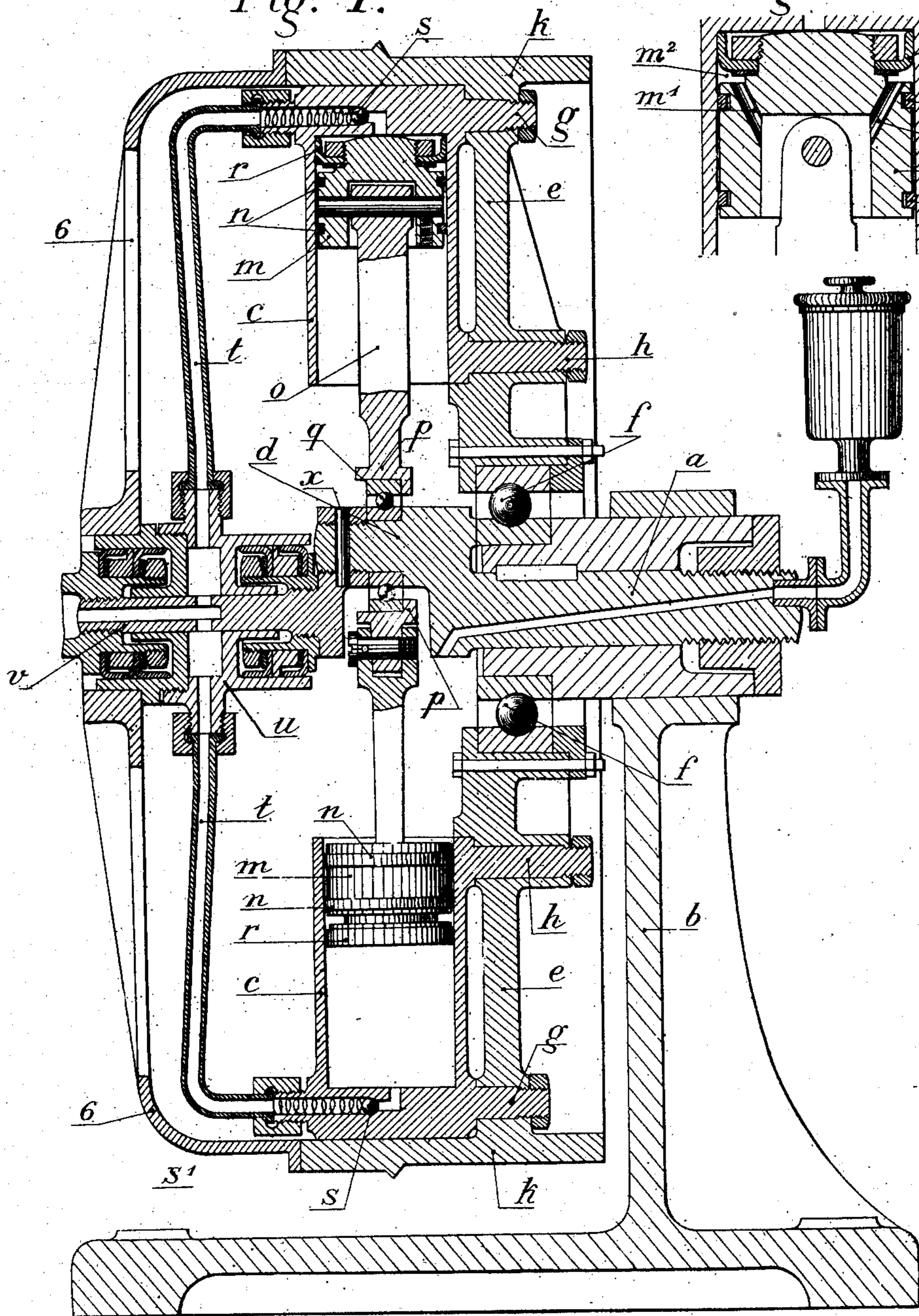
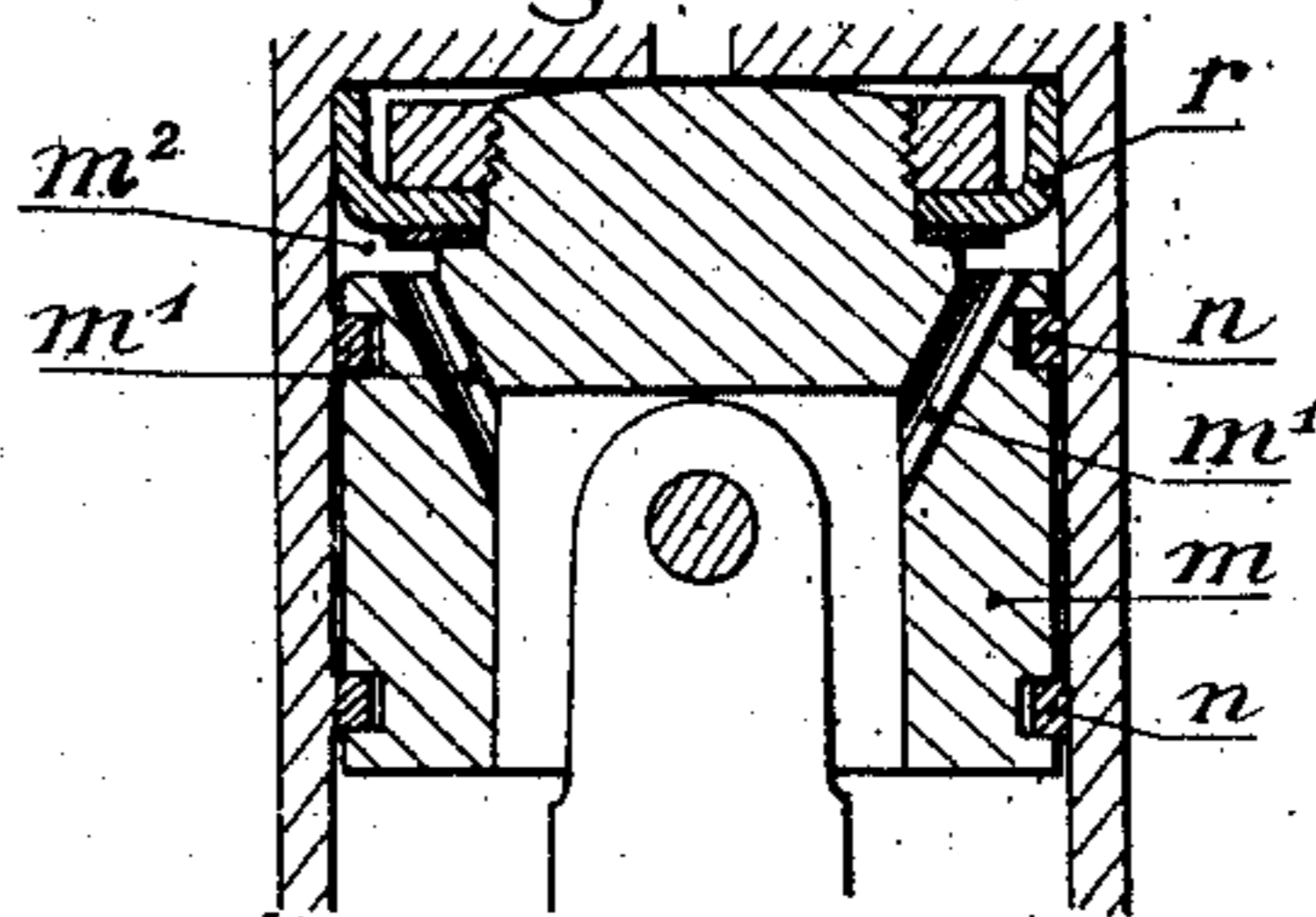


Fig. 5.



Witness  
J. H. Gill  
Rasquie

Inventor.  
Georges Prosper Alvergnat  
by J. H. Gill  
attorney

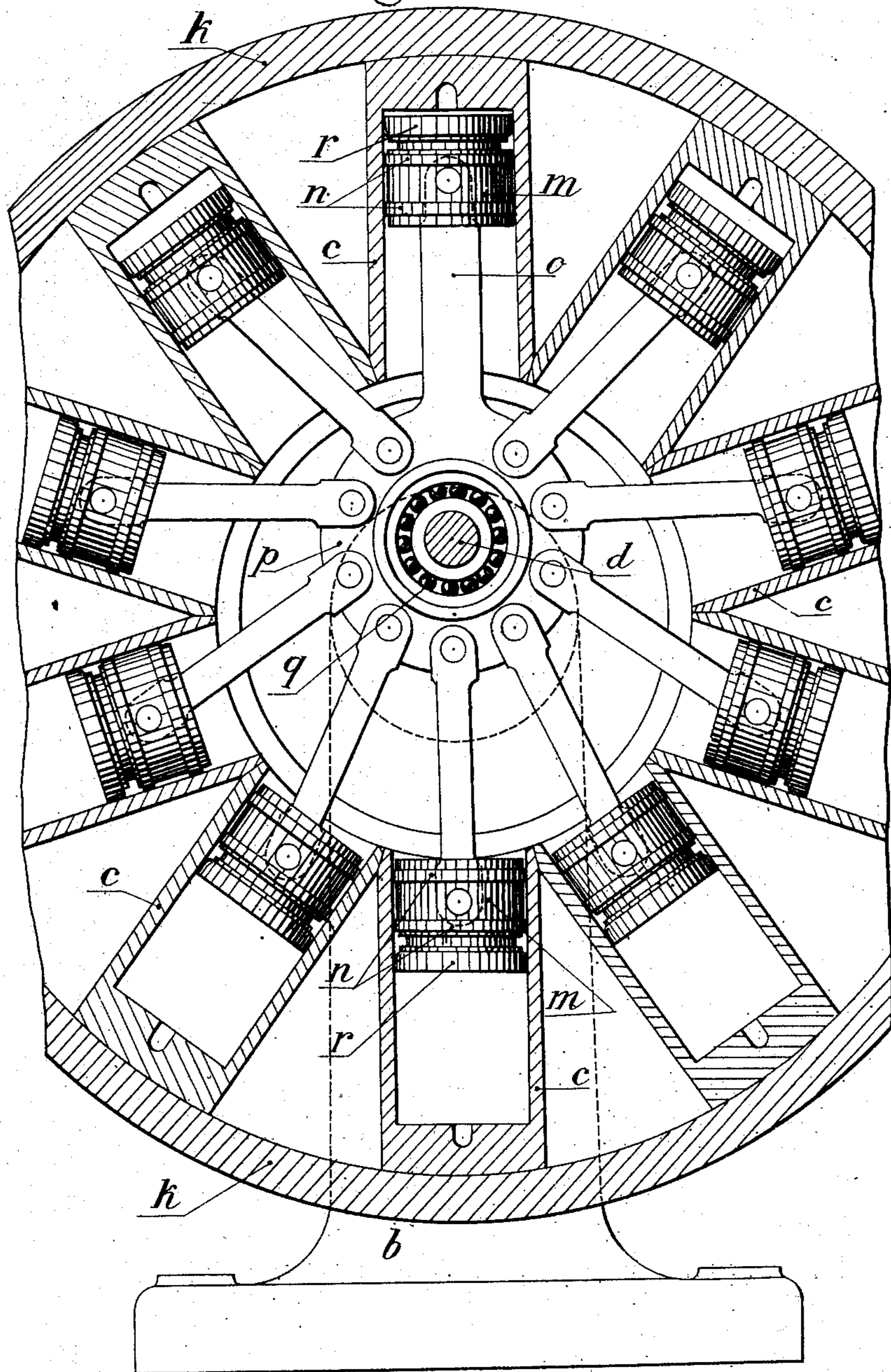
G. P. O. ALVERGNAT.  
AIR COMPRESSOR.  
APPLICATION FILED FEB. 1, 1910.

Patented Oct. 25, 1910.

3 SHEETS-SHEET 2.

973,739.

Fig. 2.



*H. Thomas*  
*J. G. Gill*  
*Attorneys*

*Inventors*  
*George Joseph Octave*  
*Alvergnat*  
*by Fred H. Hark*  
*Attorney*

G. P. O. ALVERGNAT.

AIR COMPRESSOR.

APPLICATION FILED FEB. 1, 1910.

Patented Oct. 25, 1910.

3 SHEETS-SHEET 3.

973,739.

Fig. 3.

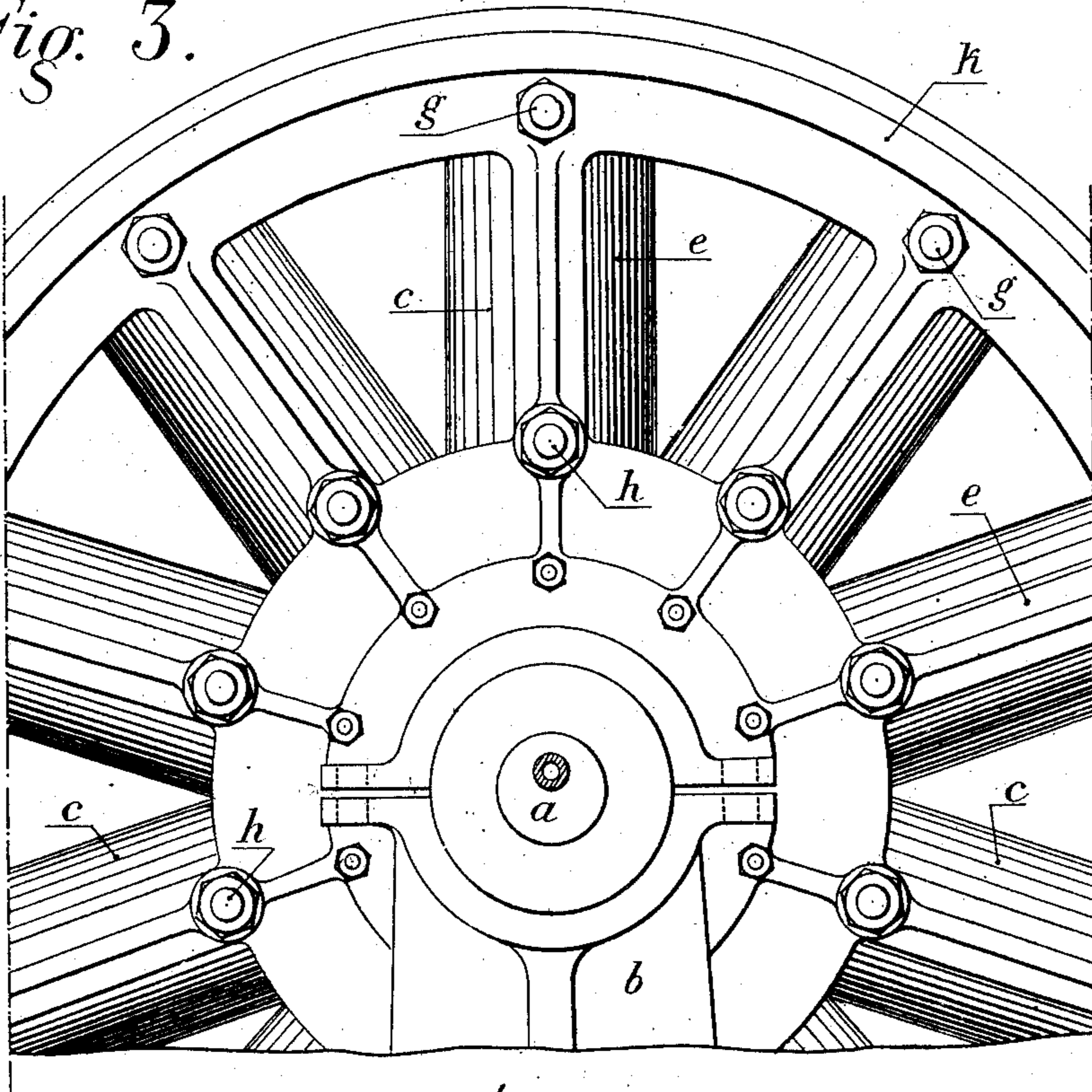
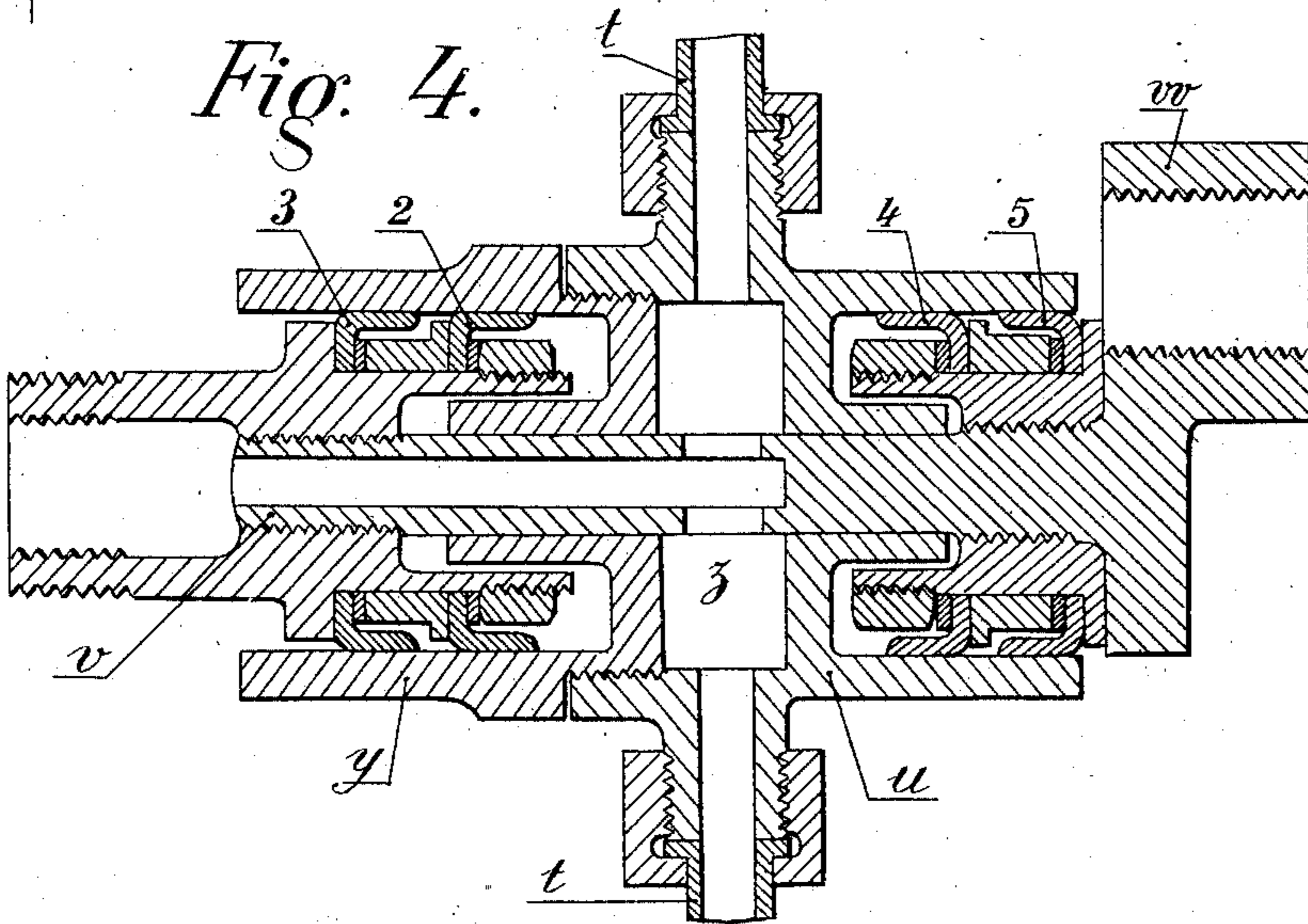


Fig. 4.



Witness:  
J. G. Galt  
H. A. Galt

Inventor:  
Georges Prosper Octave  
Alvergnat  
by Fred M. H. H. H.  
Attorney

# UNITED STATES PATENT OFFICE.

GEORGES PROSPER OCTAVE ALVERGNAT, OF PARIS, FRANCE, ASSIGNOR TO SOCIETE DE LA POMPE VADAM, OF NEUILLY-SUR-SEINE, FRANCE.

## AIR-COMPRESSOR.

973,739.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed February 1, 1910. Serial No. 541,382.

*To all whom it may concern:*

Be it known that I, GEORGES PROSPER OCTAVE ALVERGNAT, a citizen of the French Republic, and resident of Paris, France, have  
5 invented certain new and useful Improvements in Air-Compressors, of which the following is a specification.

This invention relates to improvements in air compressors.

10 The improved air compressor is shown in the accompanying drawings.

Figure 1 represents the improved air compressor in vertical section through the axis of revolution. Fig. 2 is a vertical section taken  
15 at right angles to Fig. 1 through the compressor cylinders. Fig. 3 is a side elevation. Figs. 4 and 5 represent, on a larger scale, two parts of Fig. 1.

According to the present invention the  
20 shaft *a* is supported by one standard *b* only. Said shaft has its inner end bent upward and carries on this part *d* a ball bearing *g* the other cup of which forms part of a crown *p* to which the rods *o* of the pistons *m* are articulated. The pistons *m* are  
25 located in the cylinders *c* in which they are guided by means of segments *n*. Said pistons *m* are perforated by channels *m'* (Fig. 5) serving as passages for the air and at the  
30 end of each piston a leather packing collar *r* is provided the pistons presenting under said leather collars *r* a circular air chamber *m*<sup>2</sup>. One of the piston rods *o* is not articulated but rigidly connected with the crown *p*.

35 The cylinders *c* are fixed to an annular disk *e* revolubly mounted by means of a ball bearing *f* on said main shaft *a*. The cylinders are fixed in said annular disk by means of lateral arms *g*, *h* which traverse the annular disk *e* and are fixed in their position  
40 by means of nuts screwed upon their outer threaded ends. The flanged rim *k* of said annular disk *e* serves as pulley for the belt which drives the apparatus.

45 The leather packing collars *r* of the pistons *m* serve as suction flaps and the non return valves are formed by balls *s* located in appropriate conduits parallel with the shaft *a* so that at the beginning of the compression  
50 said balls can be maintained pressed against their seats by means of spiral springs *s* which are sufficiently strong to balance the centrifugal force. Thus it is possible to arrange the non return valves *s* at a sufficient  
55 distance from the center of rotation and

consequently as close as possible to the bottom of the cylinders *c* in order to reduce the noxious spaces to the minimum. This is an essential condition if the air is to be compressed at a high pressure.

60 The cylinders *c* are each connected by a tube *t* with the collector *z* which communicates by means of a hollow axle *v* with the conduit for the air under pressure. Said hollow axle *v* has at its inner end an eccentric arm *w* which is perforated and threaded so that it can be screwed upon the end *d*  
65 of the main shaft *a*, a cotter *x* serving for fixing said part *w* upon the end *d* of said shaft *a*. The central part of the axle *v* 70 serves as pivot for the revolving collector, no ball bearings being interposed between said two parts. The two parts *u* and *y* of which the envelop of the collecting chamber *z* is formed serve directly as bearing for  
75 the axle *v*. The airtight packing of said collecting chamber is obtained, on the one hand, by the great length of the bearing surface and, on the other hand, by means of two leather packing collars on each side, 80 the packing collars 2, 3 and 4, 5 being arranged in steps. In order to further increase the airtight joint grooves could be provided in the parts of the axle *v* and the bearing *u—y* which are in contact, whereby  
85 a series of expansion chambers would be formed. In order to cool the parts which surround said collector *z* for the air under pressure, the various revolving parts could have blades or wings.

90 A hood 6 could be used for covering the tubes *t* and their accessory parts, said hood being fixed upon the flanged rim of the annular disk *k* in any convenient manner.

What I claim is:

95 An improved air compressor comprising in combination a main shaft having at its inner end an eccentric part, a ball bearing mounted on said eccentric part, piston rods articulated on said ball bearing, one of said  
100 piston rods being rigidly fixed to the same, the pistons fixed to the outer ends of said rods and having each an annular air-channel, and air inlet channels, segments in said  
105 pistons for guiding the same and a leather packing collar at the free end of each piston, the cylinders in which said pistons are guided, an annular disk revolubly mounted on said main shaft and having horizontal perforations, a lateral flanged rim of said  
110

annular disk serving as pulley for the driving belt, lateral arms of said cylinders projecting through said perforations of the annular disk, means for fixing said arms in  
5 said disk, a non return valve in each of the outlet channels for the air from the cylinders, a spiral spring for maintaining the said non return valve upon its seat, tubes connected with said air outlet channels, a  
10 hollow axle arranged in alinement with said main shaft, an eccentric part at the inner end of said hollow axle fixed to the eccentric end of said main shaft, two cups revolvably mounted on said axle and having in-

ner borings which form the collecting chamber to which said outlet tubes are connected and which communicates with the inner boring of said hollow axle, and stepwise arranged series of leather packing collars at the right and left of said air chamber, substantially as described and shown and for  
15 20 the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEORGES PROSPER OCTAVE ALVERGNAT.

Witnesses:

ALFRED REY,  
H. C. COXE.