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J. C. BECK & J. A. BOWYER.

AIR PUMP.

APPLICATION FILED AUG. 11, 1906.

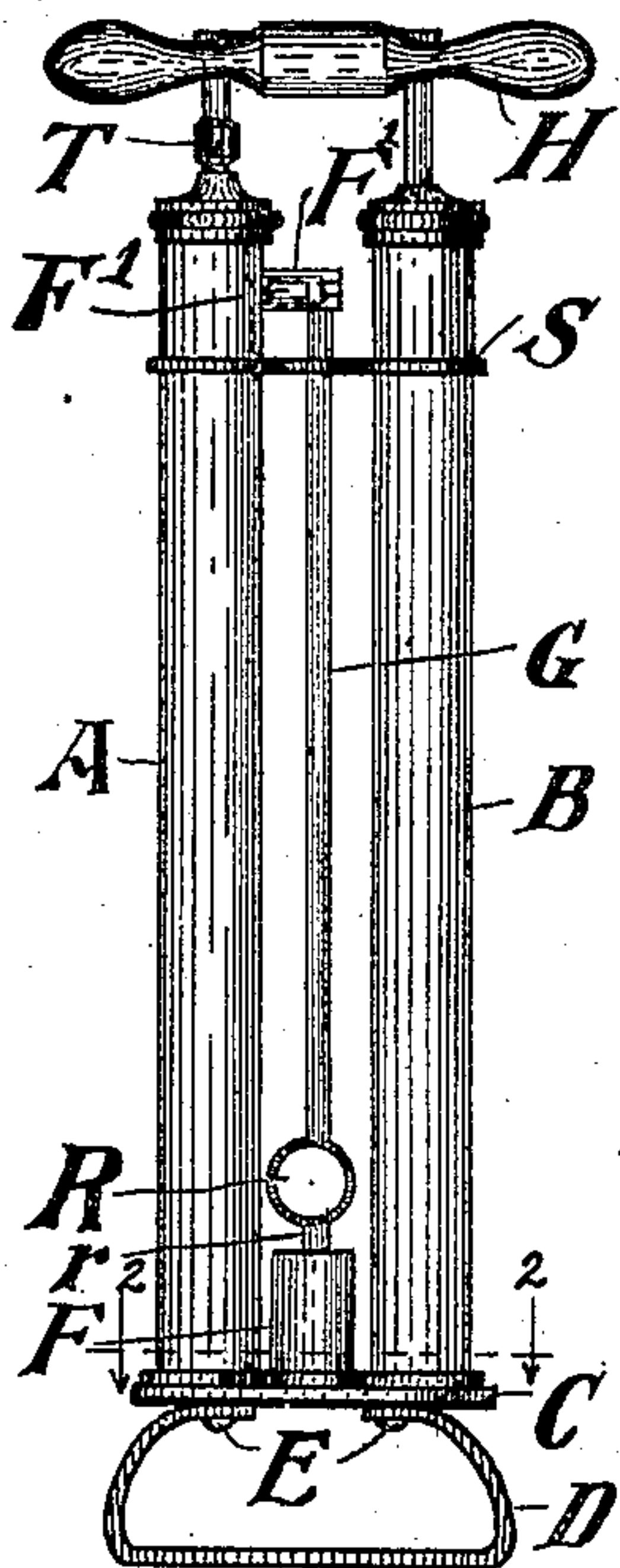


Fig. 1

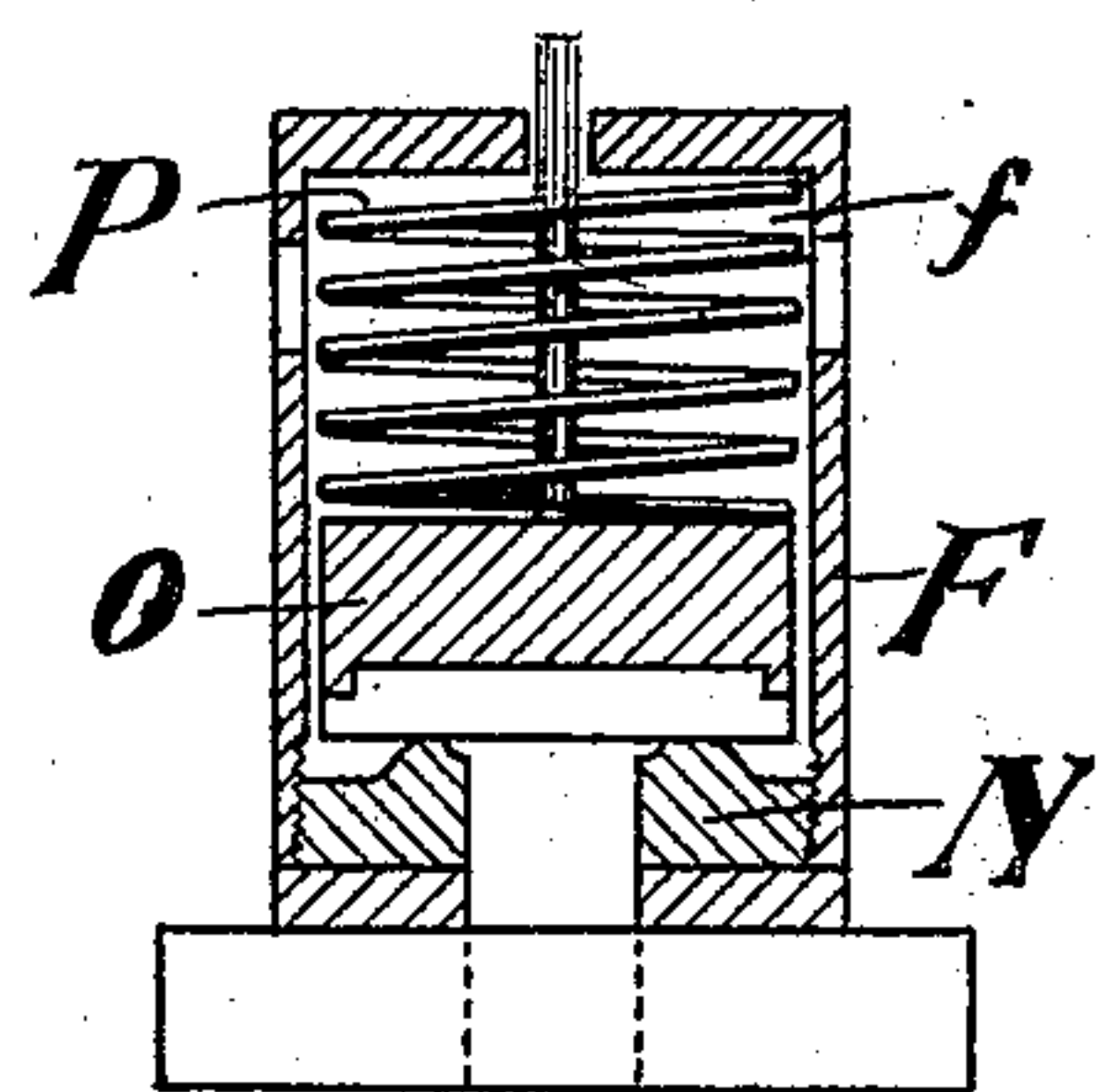


Fig. 4

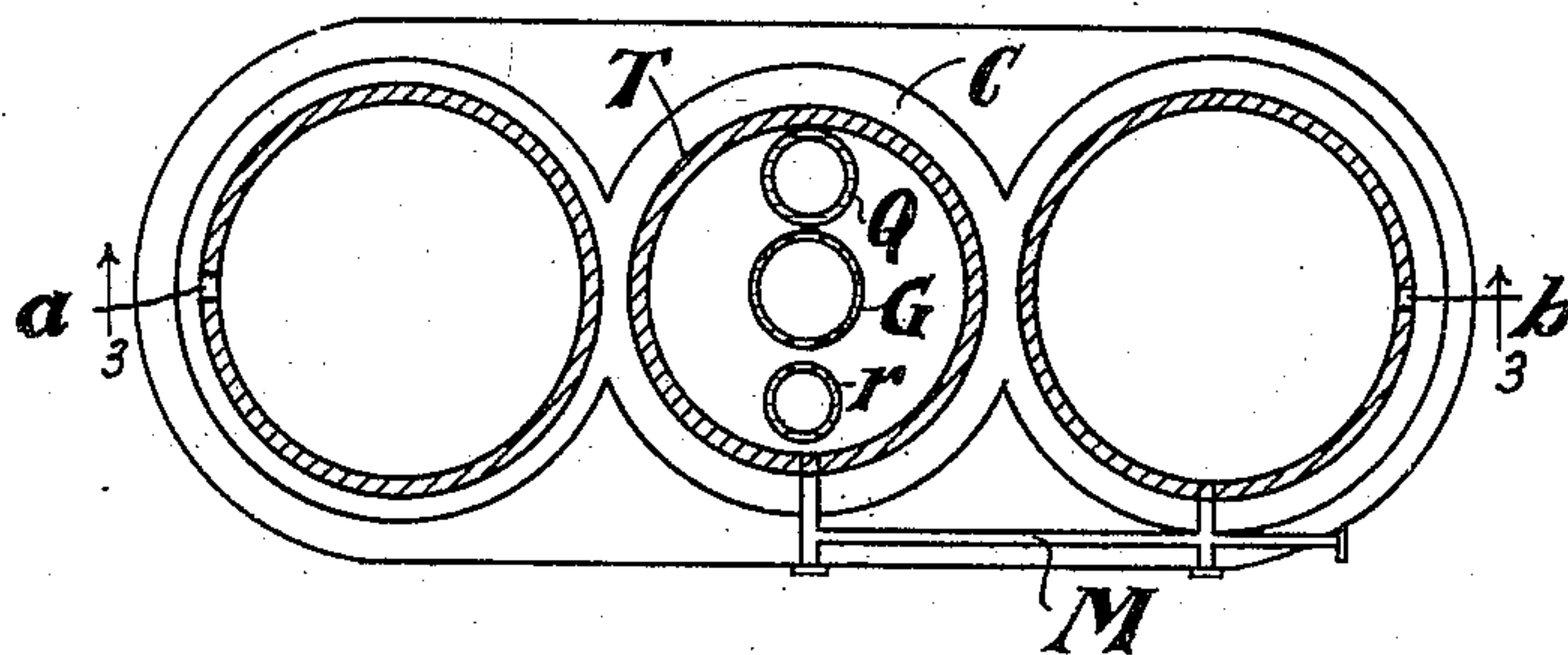


Fig. 2

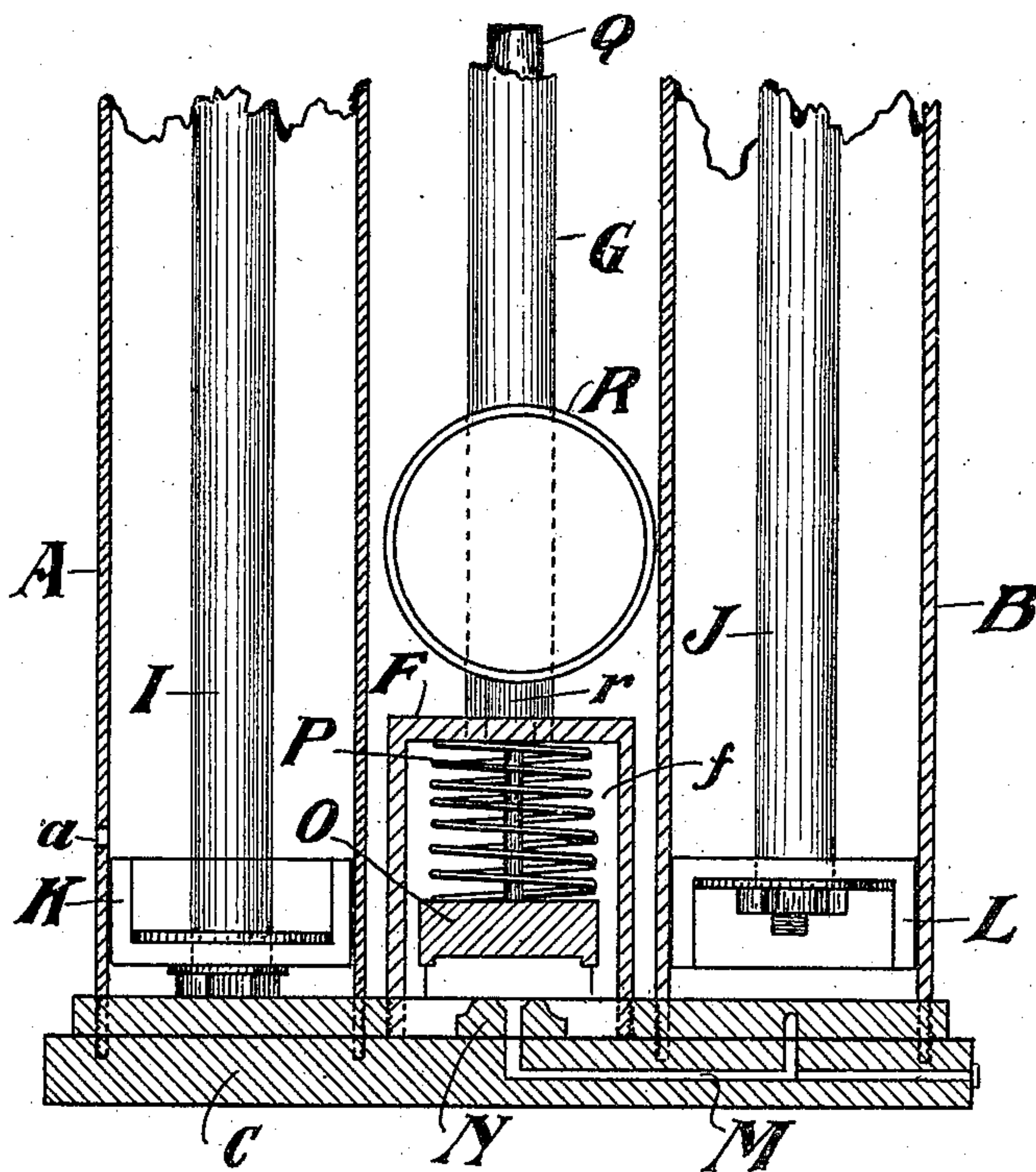


Fig. 3

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## AIR-PUMP.

No. 847,394.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed August 11, 1906. Serial No. 330,117.

*To all whom it may concern:*

Be it known that we, JOHN C. BECK and JOHN A. BOWYER, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Air-Pumps, of which the following, when taken in connection with the drawing accompanying and forming a part hereof, is a full and complete specification, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

The object of our invention is to obtain a twin-cylinder air-pump of which the action will be practically continuous and which will be particularly adapted to inflate rubber tires, including automobile and bicycle tires.

A further object of our invention is to obtain a twin-cylinder pump of the kind named which will be slightly in appearance, compact in form, and easily operated.

A further object of the invention is to obtain a pump of the kind named which will be simple in construction, durable, and not liable to get out of order.

In the drawing referred to, Figure 1 is an elevation of an air-pump embodying our invention. Fig. 2 is a horizontal section on line 2 2 of Fig. 1 viewed in the direction indicated by the arrows. Fig. 3 is a vertical section on line 3 3 of Fig. 2 viewed in the direction indicated by the arrows, and Fig. 4 is a vertical section of an air-check or pop valve forming an element in the pump embodying our invention.

A reference-letter used to indicate a given part is applied to designate such part throughout the several figures of the drawing wherever the same appears.

A and B, respectively, are the compression-cylinders of the pump.

*a* and *b* are apertures in the walls of cylinders A and B, respectively, serving as inlets thereto.

C is the base of the pump.

D is an ordinary foot-piece, which may or may not be used, and when used it is attached to the base C, as by bolts E E, Fig. 1, in the ordinary manner.

F F', respectively, are air-check or pop valves, and G is a tube communicating at one end with chamber *f* of valve F and at the other end with chamber *f'* of valve F'. Tube G forms a compression-chamber into which air forced from the cylinders A B is dis-

charged, as well as forming a communicating passage-way between valves F F'.

H is the handle of the pump.

I J are the piston-rods, and K L are the pistons thereof.

M is a passage-way in base C, communicating at one end thereof with cylinder B and at the other end with the chamber *f* through the valve-seat N of valve F.

O is a valve arranged to coact with valve-seat N, and P is a spring yieldingly holding the valve O on the seat N. Valve F' is provided with valve-seat N, valve O, and spring P, the several parts coacting in the same way as in valve F.

Q is a flexible tube communicating at one end thereof with chamber *f* of valve F and at the other end attachable to an automobile or bicycle tire stem.

R is a gage which when used is attached by means of connection *r*, so as to be in communication with the chamber *f* of valve F, as illustrated in the drawing.

S is a tie joining cylinders A and B together.

T is an ordinary stuffing-box to prevent the contents of cylinder A being forced therefrom adjacent to the piston-rod I as such piston-rod is raised, and the air in the cylinder is forced therefrom through the valve F'.

The several parts or elements in this pump are assembled so that the cylinder A is in communication with the tube or pipe G through the interposed valve F', such valve being arranged to permit air to flow or be forced therethrough from the cylinder A into the pipe or tube G, but not to permit air to return from the tube or pipe G into the cylinder A, and the air in tube G may flow therefrom into chamber *f* and through flexible connection Q into the tire. When the piston K is raised, the valve F will not permit air to flow or be forced from the chamber *f* into the passage-way M through the valve-seat N into cylinder B.

The cylinder B and valve F are respectively secured in the base C, so that depression of piston L will force air from such cylinder through passage-way M and valve-seat N underneath valve O into chamber *f*, from which it passes into flexible connection Q and to the tire. When piston L is raised, air cannot flow or be forced from chamber *f* back into such cylinder, the valve O seating on valve-seat N to prevent the same in the same



way as such valve and seat coact to prevent air passing from the chamber *f* into passage-way *M* when the piston *K* is raised. Pistons *K* and *L* being raised and depressed together, the action of valve-seat *N* and valve *O* in preventing air from cylinder *A* and chamber *f* entering the passage-way *M* is a single operation.

The pressure in chamber *f* and pipe or tube *G* is at all times sufficient to force air from flexible connection *Q* into the tire to which such flexible connection is attached. The pressure in chamber *f* and pipe or tube *G* is indicated by the hand or needle of pressure-gage *R* when such gage is used. When gage *R* is not used, the connection *r* is closed.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an air-pump, a base, cylinders secured to the base, a valve secured to the base and a valve secured to one of the cylinders, a communicating passage from the chamber of the valve on the cylinder to the chamber of the valve on the base, a communicating way from the chamber of the valve on the base to the remaining cylinder, oppositely-placed pistons in the cylinders, piston-rods on the pistons and a handle, the valve and valve-seat of the several valves coacting to permit air to flow from the cylinders to the chambers of the valves and to not permit air to flow from such chambers to the cylinders: substantially as described.
2. In an air-pump, the combination of a base, cylinders secured to the base, pistons

oppositely placed in the cylinders, piston-rods to the pistons and a handle, a valve the valve-seat whereof communicates with one of the cylinders near the upper end thereof, such valve provided with a chamber, a valve in the chamber coacting with the valve-seat and a spring yieldingly holding the valve on the valve-seat, a passage-way from the valve-chamber to the valve-chamber of an additional valve, such additional valve provided with a valve-seat communicating with the remaining cylinder, with a valve coacting with the valve-seat and with a spring yieldingly holding the valve on its seat, and a flexible connection communicating with the chambers of the valves such flexible connection arranged to be attached to a tire-stem: substantially as described.

3. In an air-pump a plurality of cylinders, oppositely-placed pistons in the cylinders, piston-rods on the pistons and a handle common to both pistons, in combination with a chamber, passage-ways from the respective cylinders to the chamber, check-valves arranged to permit the flow of air from the cylinders respectively to the chamber and to prevent the flow of air from the chamber to the respective cylinders, and a discharge passage-way from such chamber; substantially as described.

JOHN C. BECK.  
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In presence of—

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