

(No Model.)

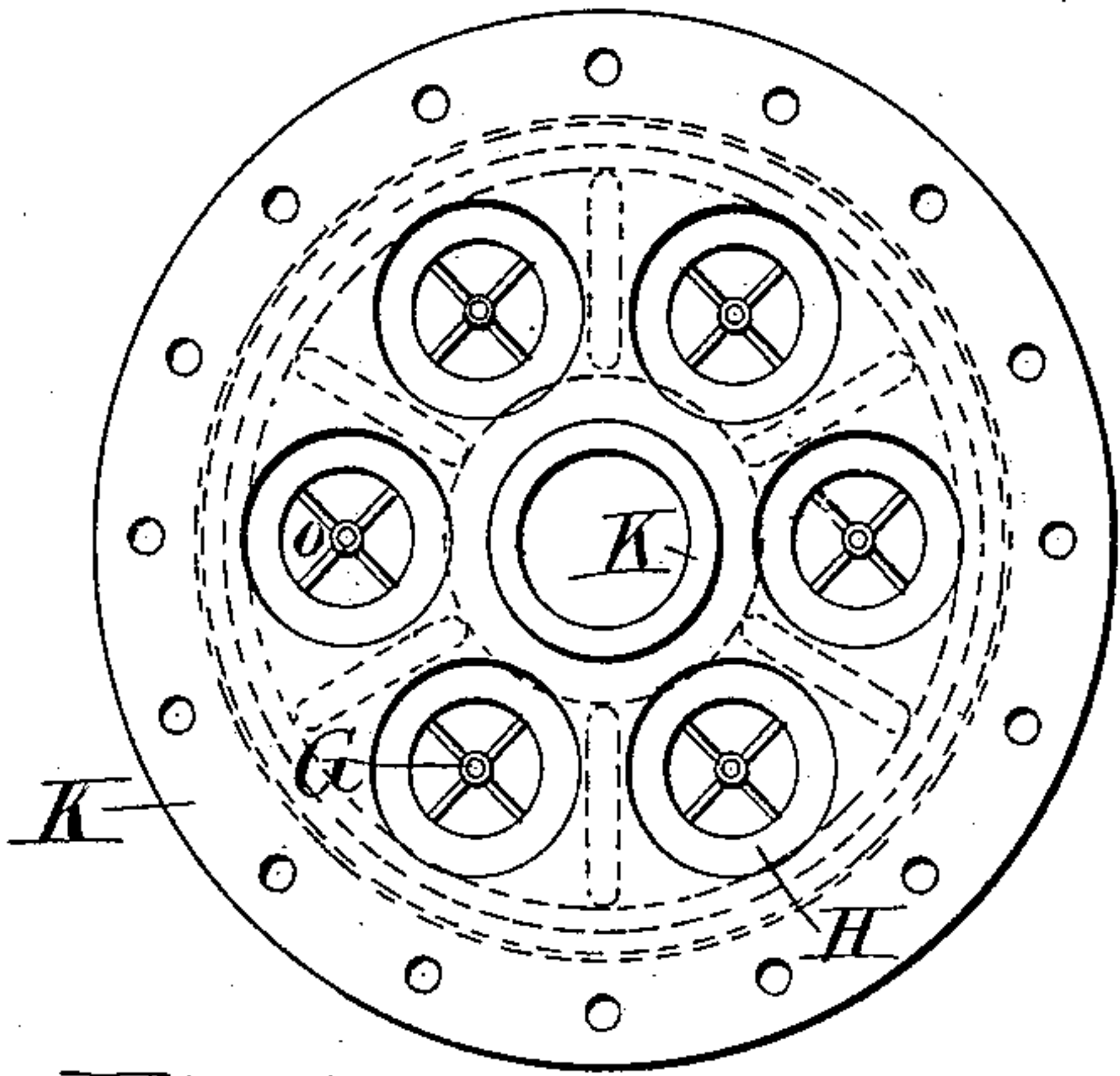
F. J. GUBELMAN.

AUTOMATICALLY OPENING OR CLOSING AIR VALVES.

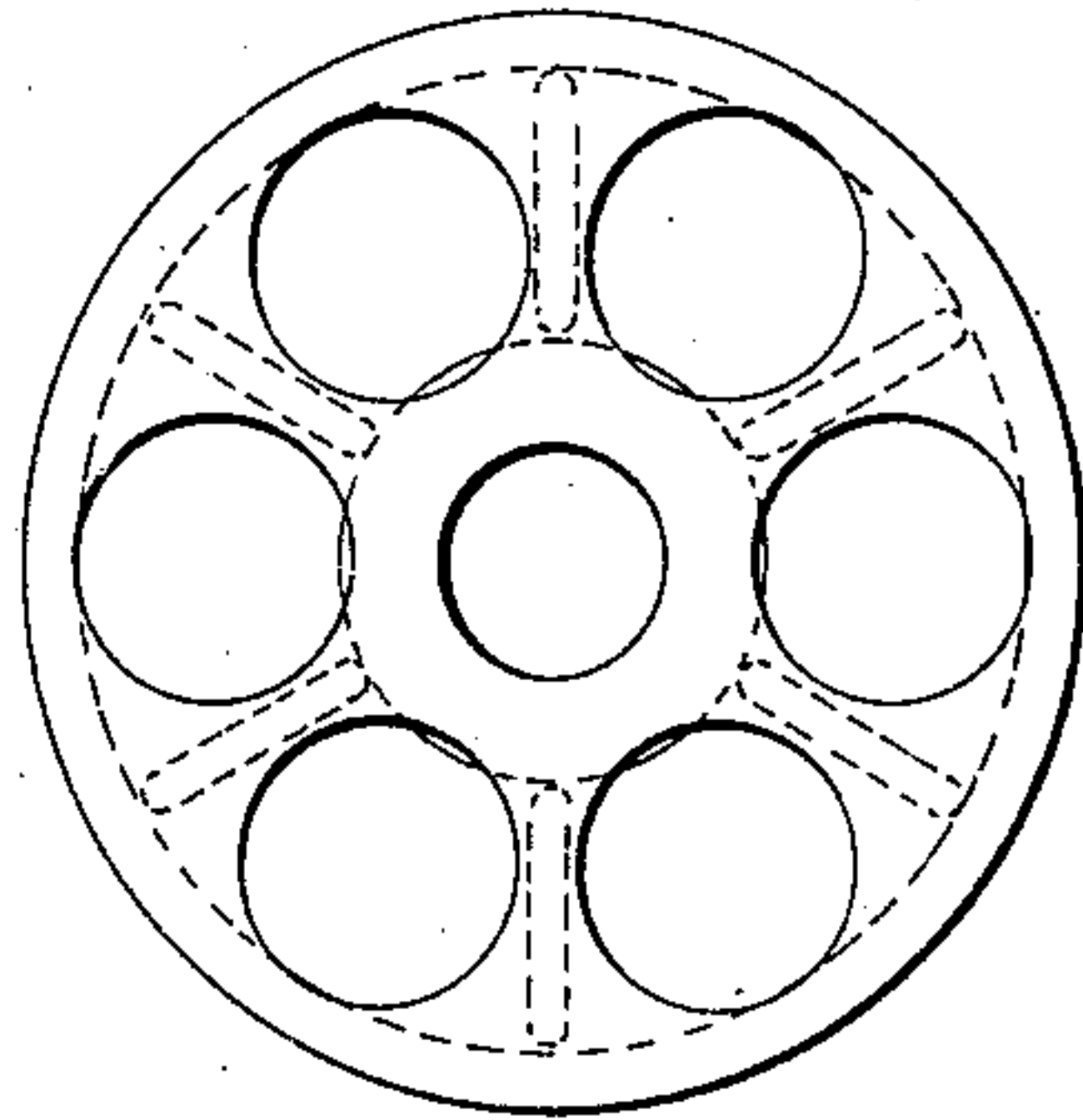
No. 567,093.

Patented Sept. 1, 1896.

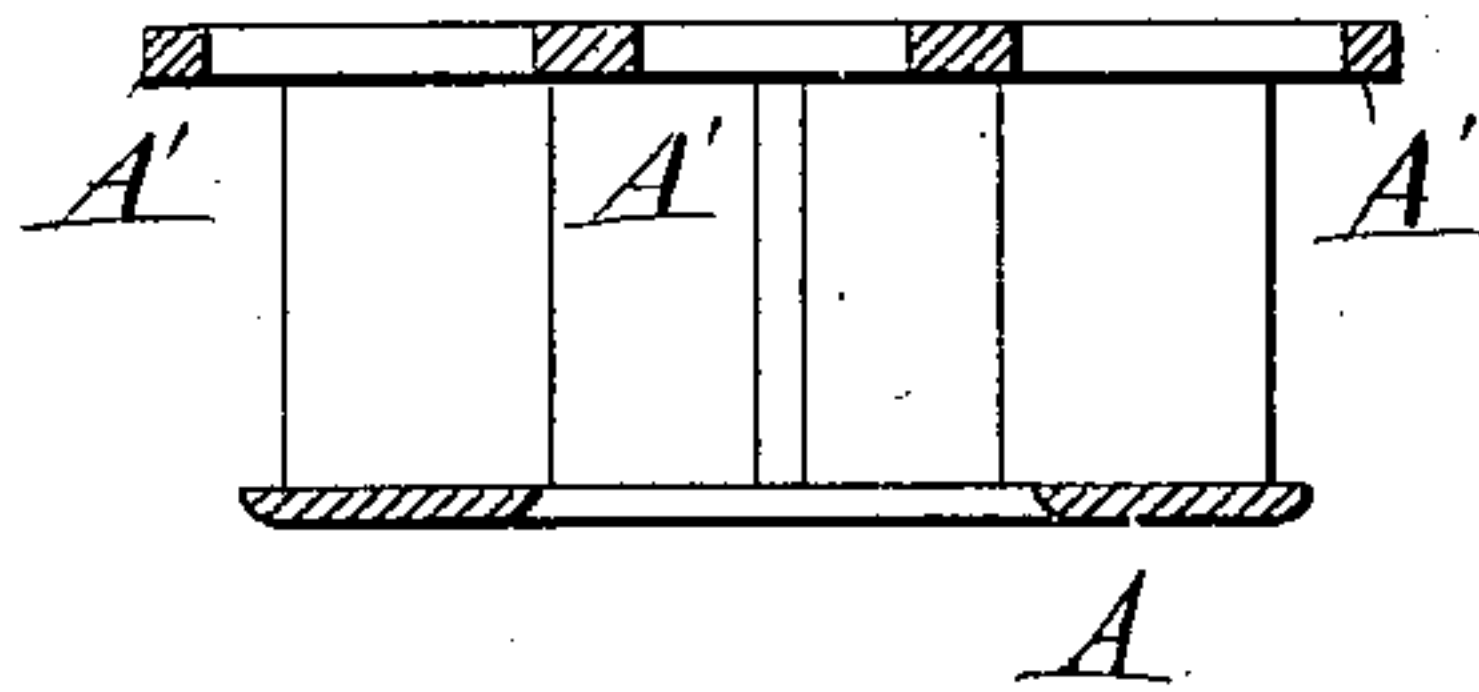
*Fig. 2.*



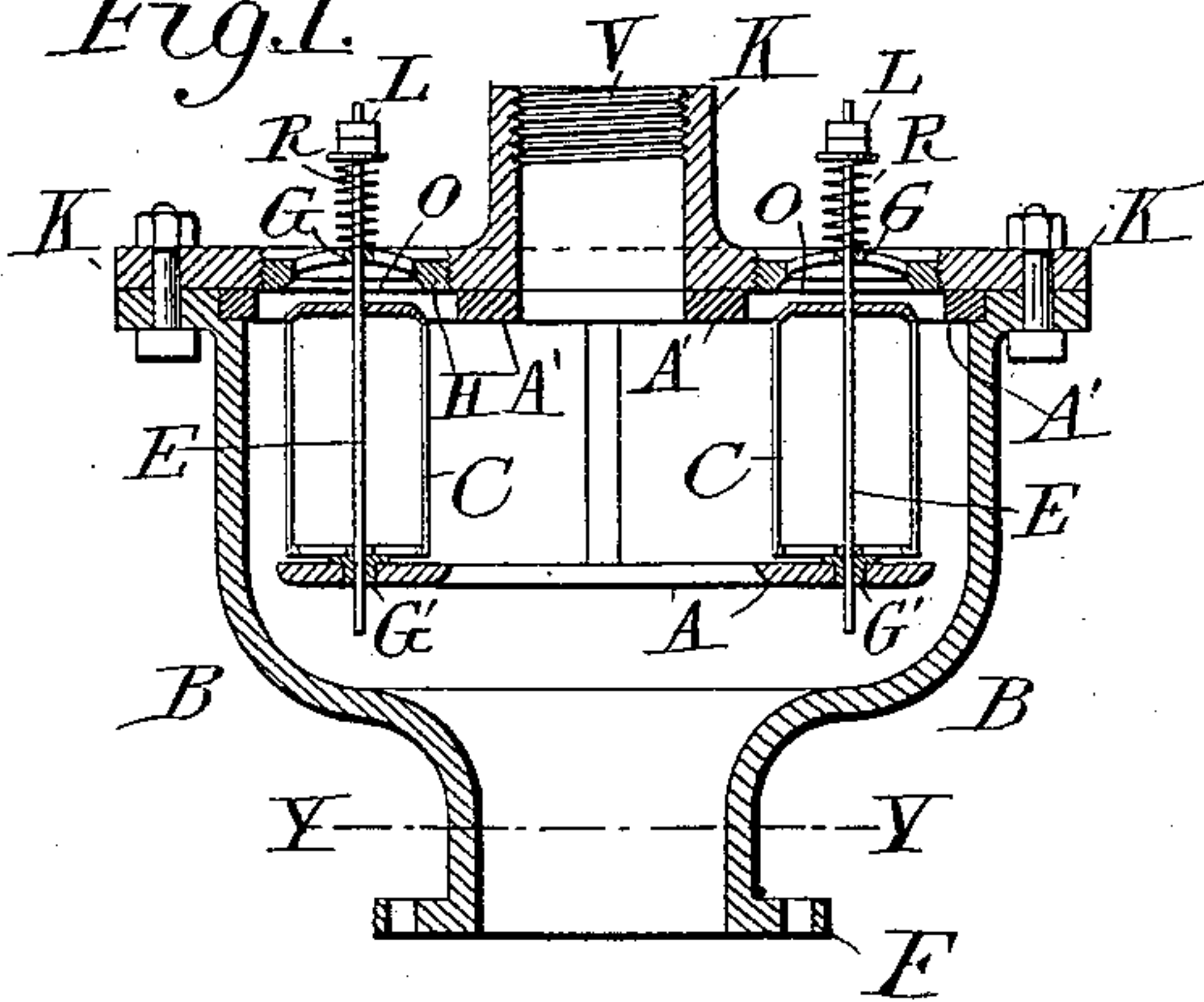
*Fig. 5.*



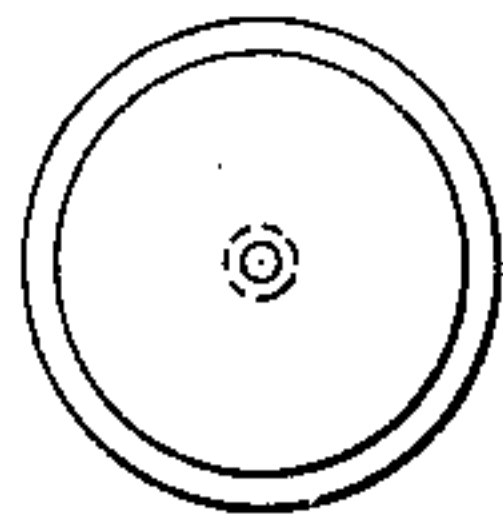
*Fig. 4.*



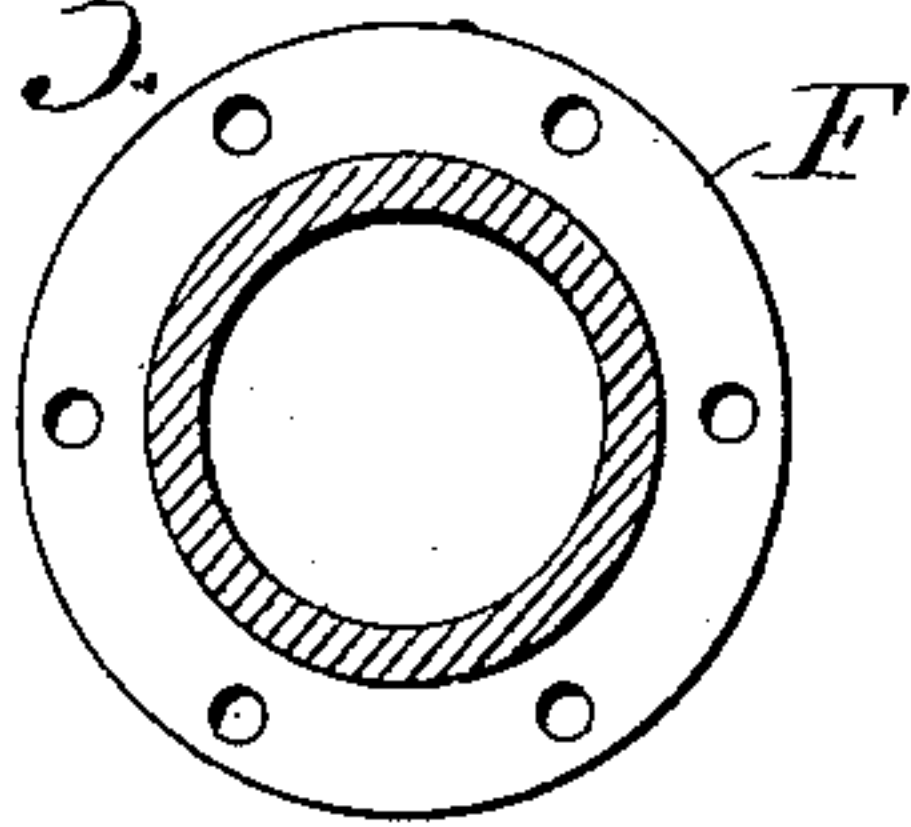
*Fig. 1.*



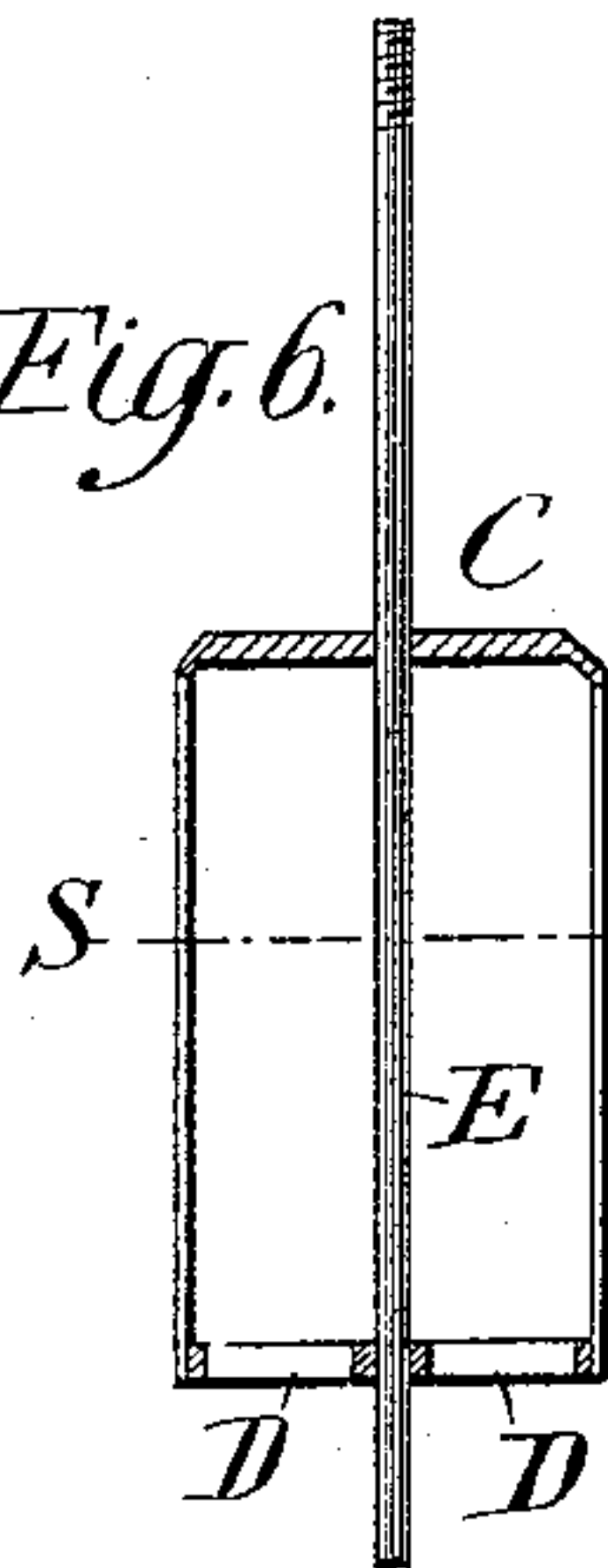
*Fig. 7.*



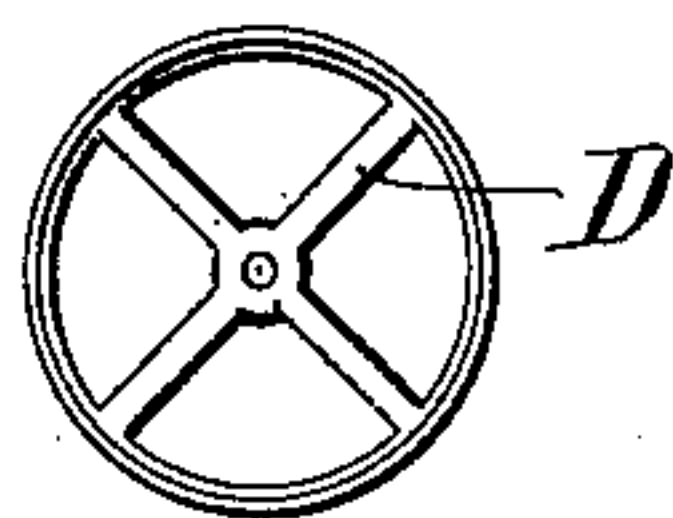
*Fig. 3.*



*Fig. 6.*



*Fig. 8.*



Witnesses:

G. F. Downing  
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By H. A. Seymour  
Attorney



# UNITED STATES PATENT OFFICE.

FREDERICK J. GUBELMAN, OF JERSEY CITY, NEW JERSEY.

## AUTOMATICALLY OPENING OR CLOSING AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 567,093, dated September 1, 1896.

Application filed April 13, 1895. Serial No. 545,590. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK J. GUBELMAN, a citizen of the United States of America, and a resident of the city of Jersey City, county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Automatically Opening or Closing Air-Valves, of which the following is a specification.

The nature of my invention consists of an improved automatic valve attached at the summits or high points of any water-pipe, conduit, or water-tank, or any other vessel containing a fluid, in order to allow the air, but no water or any of the said fluid, to escape when the pipe, conduit, or tank is being filled, and also to admit air when the water or other fluid is being withdrawn, and thus allowing the conduit, pipe, or tank to be entirely emptied without danger of collapse from the partial vacuum which otherwise would be created.

In the accompanying drawings, Figure 1 is a vertical section of the valve and case complete. Fig. 2 is a top view of the same with the cups or valves proper and the springs removed. Fig. 3 is a horizontal section of the valve-case on the line X Y. Fig. 4 is a vertical section of the basket A A'. Fig. 5 is a top plan view of the basket A A'. Fig. 6 is a vertical section of one of the cups or valves proper, C. Fig. 7 is a top plan view of the cup C. Fig. 8 is a horizontal section of one of the cups C on line S T.

In Fig. 1, B B is the case or body, in which is set the basket A A' A' A' A', having baffle-plates A A. This basket is fitted with brass guides G' G' for the rod or stem E E of the brass cup or valve proper C C. H H is a brass valve-seat screwed into the cover-plate K. These brass valve-seats H H have openings O O with a guide G G for the stem E E of the cup or valve.

R R are delicate springs about the valve-stems E E, which are compressed by the double nuts L, so as to nearly but not quite balance the weight of the valve-cup C with its stem E. The cover-plate K has an opening V for attaching an ordinary stop-valve, which is to be opened by hand in case of emergency.

Figs. 6, 7, and 8 show the valve or cup open

at the bottom, with the arms D D to support the sides, and the stem E, to which both the cup C and the arms D D are secured. Said cup or valve is a brass cylinder closed air-tight on the top and sides. Figs. 4 and 5 show the basket A' A' with the baffle-plate A A.

To enable others skilled in the art to make use of my invention, I will proceed to describe its construction and operation. The mechanism is attached to the summits or high points of any water-pipe, conduit, water tank or vessel by the flange F.

The operation is as follows: The water or other fluid in filling the pipe, conduit, or tank drives out the air through the openings O until the level of the water or fluid reaches the bottom of the cup C. Then the water or fluid by its buoyancy or floating effect lifts the cup C, thereby closing the openings O O, and thus preventing the escape of the water or other fluid. When the water or other fluid is drawn off, it recedes, and the cups C drop by gravity, allowing the air to enter. The cups C are open at the bottom, and the baffle-plates A prevent the velocity or rush of air from lifting the cups and thus close the openings O before all the air is expelled. These cups or valves proper have been in use, but never with a spring or other means of counterbalancing their weight. For this reason (lack of counterbalancing) their action has been unreliable, and very often they give trouble by either not closing at all or closing after more or less water has escaped. These cups or valves proper heretofore have never been protected underneath by a baffle-plate, as shown in the drawings at A, Fig. 1. This (the absence of such a plate) gives a great deal of difficulty by reason of the said cups being lifted by the velocity of the outrushing air, and thereby preventing the filling of the pipe, conduit, or vessel.

In the construction of the baffle-plate I do not limit myself to the basket form, as herein shown and described; but the same can be made in any form, provided it answers the purpose of the plate—viz., the prevention of the cups being lifted by the rush of air, and thus closing the openings O O before all the air is expelled.

In the construction of the air-valve or cups



C, I do not confine myself to having it made of brass, but it may be made of any metal or material that may be found convenient.

What I claim as new and as my invention, and desire to secure by Letters Patent, is—

1. The combination with a valve-casing having inlet and outlet openings, and valve-seat in the outlet-opening, of an inverted-cup-shaped valve the closed end of which operates to open and close said outlet, a baffle-plate extending across the open end of the valve, a rod connected with the valve and extending loosely through the seat and baffle-plate whereby to guide the valve in its movements, and means for partially sustaining the weight of the rod and valve, substantially as set forth.

2. The combination with a valve-casing, removable cover-plate secured thereto, said plate having a series of outlet-openings there-

in, valve-seats in said openings, and a cage held between the cover-plate and adjacent edge of the casing, said cage having an annular baffle-plate at its lower end, of inverted-cup-shaped valves constructed and adapted at their closed ends to engage the valve-seats, a rod extending centrally through each valve and guided at one end in the valve-seat and at the other in the baffle-plate, and a spiral spring on each rod for partially sustaining the weight of the valve and rod, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 27th day of March, 1895.

FREDERICK J. GUBELMAN.

Witnesses:

H. G. FERRY,

M. P. MEILBU.