

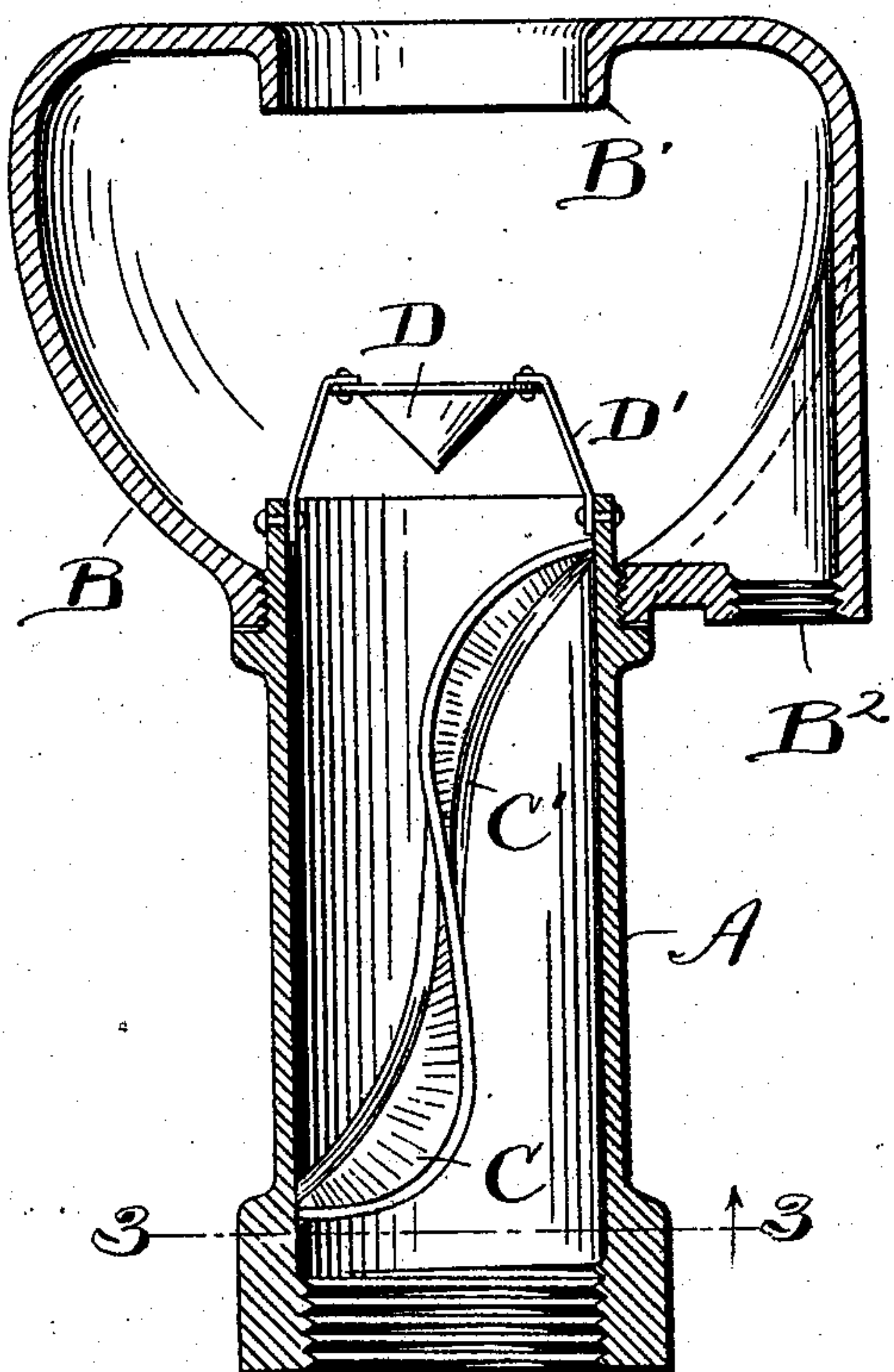
No. 815,656.

PATENTED MAR. 20, 1906.

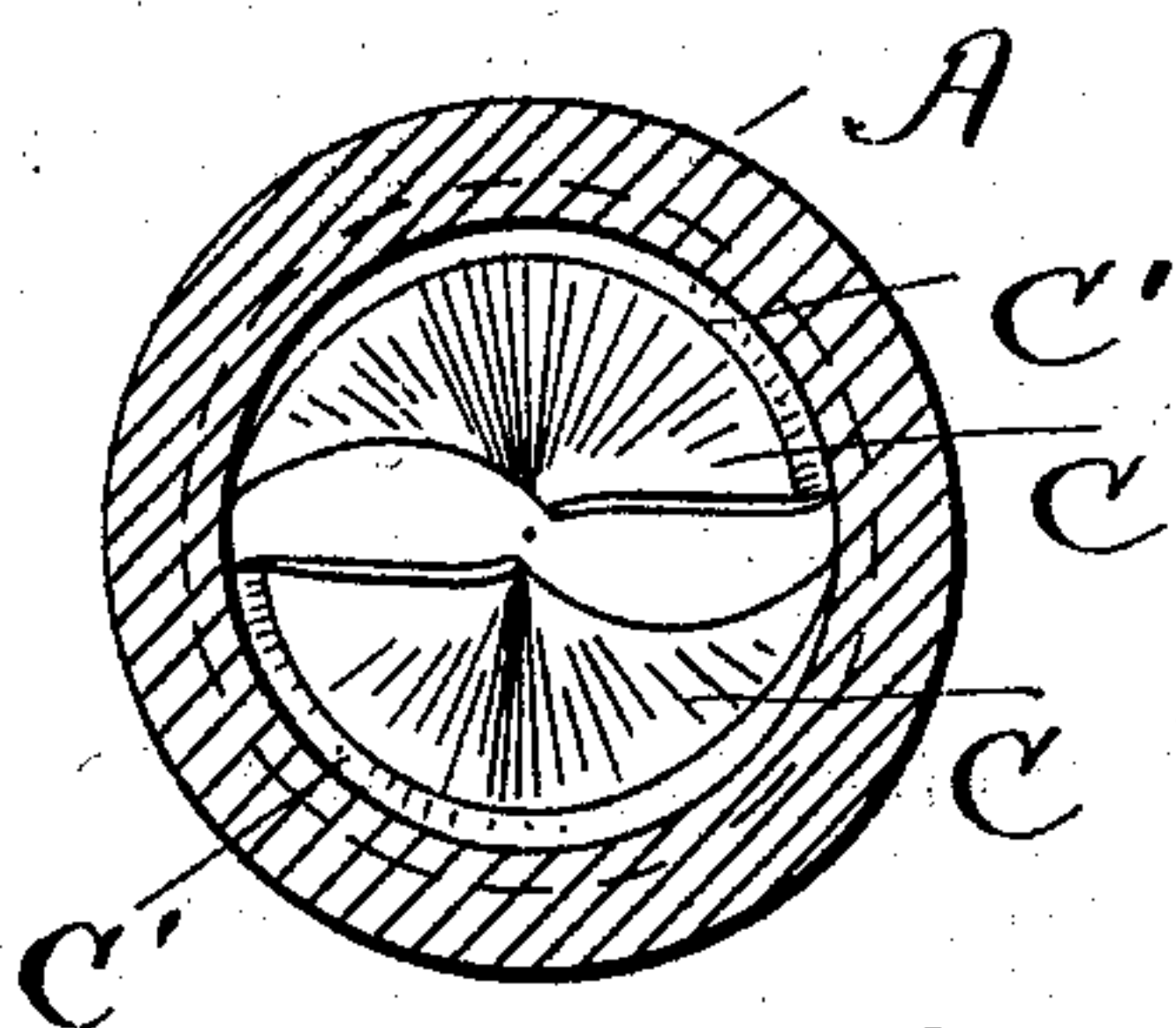
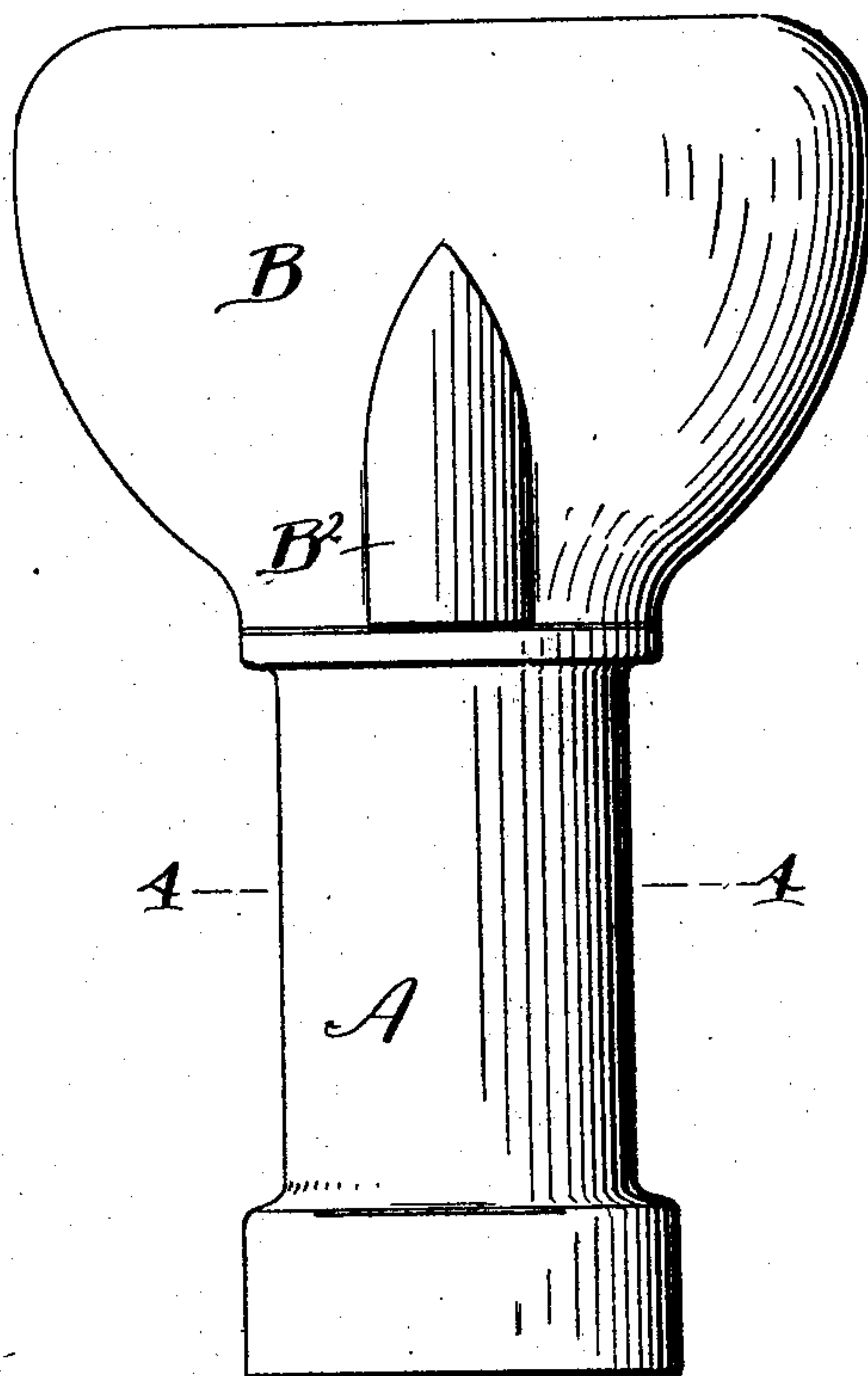
D. K. SWARTWOUT.  
SEPARATING DEVICE.

APPLICATION FILED APR. 4, 1905.

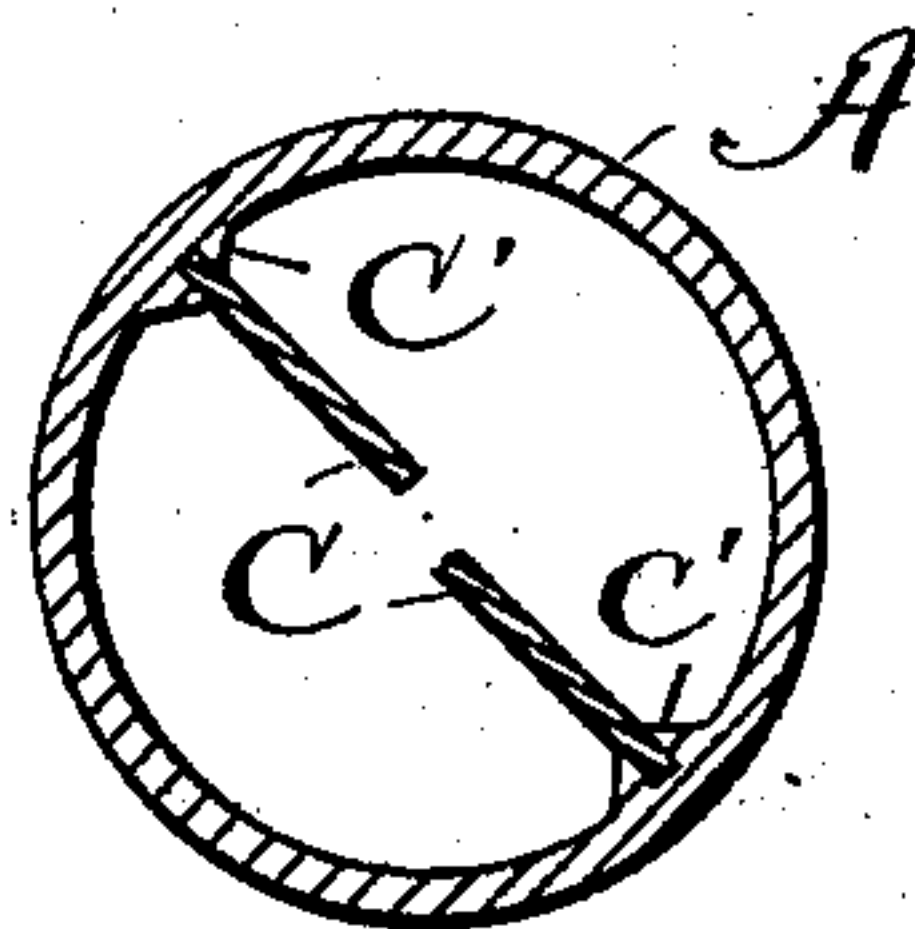
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

Witnesses.

E. B. Gilchrist  
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Inventor:

Denton K. Swartwout,  
By his Attorneys  
Thurston & Bates.



# UNITED STATES PATENT OFFICE.

DENTON K. SWARTWOUT, OF CLEVELAND, OHIO.

## SEPARATING DEVICE.

No. 815,656.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed April 4, 1905. Serial No. 253,908.

*To all whom it may concern:*

Be it known that I, DENTON K. SWARTWOUT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Separating Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide an improved form of separating devices for use in separating the heavy particles from a gaseous or vaporous draft and is an improvement upon a device having similar objects patented by me August 16, 1904, No. 767,721.

The device which I have constructed may serve as a spark-arrester, as a dust-collector for removing dust from air-currents, or as a steam-separator for removing the condensed moisture from steam, and for other similar and analogous uses.

One of the most important features to be considered in the design of devices of this character is the practicability of their construction, and this feature, in addition to the one of increased efficiency, is particularly claimed for the embodiment of my invention herein disclosed and described.

In the drawings, Figure 1 is a vertical cross-section through a preferred form of my separator. Fig. 2 is a side elevation of the same. Fig. 3 is a cross-section taken on the line 3 3 of Fig. 1 looking upward. Fig. 4 is a cross-section on the line 4 4 of Fig. 2, showing the parts merely at the plane of the section.

In the figures, A represents a cylinder, to one end of which is secured the bowl-shaped cap-piece B. Upon the interior of the tube A are a suitable number—in the present instance two—of sigmoidal webs C C. At the exit end of the tube is a cone-shaped deflector D, spaced somewhat from said tube by supports D'. The bowl B is provided with an outlet-orifice, preferably in alignment with the exit of the tube A and the deflecting-cone D, and surrounded by an in-turned flange B'. At one side of the bowl is a suitable opening B<sup>2</sup>, through which heavier particles separated from the vapor may be taken off.

The bowl B may be secured to the tube A by screw-threads or any other suitable means.

The cone-shaped deflector D is preferably riveted to its supporting means, which are in turn riveted or bolted to the tube A.

The sigmoidal webs C C, I prefer to form separately and to subsequently cast the tube A thereabout. In such casting I have found it desirable to form fillets C' in the tube adjacent to the webs. This particular construction is adopted as the result of practice, which has demonstrated it to be very efficient.

It will be seen that as the vapors laden with the heavy particles pass through the tube they will be given a gyratory motion by the webs C, but will not be retarded materially by them. Upon striking the cone D the current will be divided and deflected against the side walls of the bowl B and guided thereby upward and backward toward the central outlet-orifice. As they approach the outlet-orifice they will again be deflected downward by the flange B'.

The complex currents produced by this structure will have many eddies which will allow the particles to settle therefrom, and by the continuous and irregular alteration of their direction the vapors will flow against a number of deflecting-surfaces, and the heavier particles impinging against the same will be arrested thereby and be separated out from the vapors.

Having described my invention, I claim—

1. A separating device comprising a conducting-tube having securely attached therein sigmoidal webs so placed that their edges approximate each other toward the center of the tube in such manner as to leave a narrow open slit therebetween.

2. A separating device comprising a conducting-tube having securely attached to the inner walls thereof webs so placed that their edges approximate each other toward the center of the tube in such manner as to leave a narrow slit therebetween, and a deflector secured above to the outlet of the tube.

3. A separating device consisting of a tube having webs secured in grooves therein, said webs being curved in reverse directions and so arranged as to produce a gyratory motion in the vapors passing therethrough, a deflector at the end of the tube adapted to give the vapors a horizontal direction of movement, a bowl-shaped cap surrounding the



end of the tube and the deflector and provided with an opening in practical alinement with the deflector and the outlet for the tube.

4. A separating device comprising a tube  
5 provided with webs secured to the side thereof and approaching each other at the center, a conical deflector secured above the end of the tube, and a cap also secured to the end of  
10 provided with side walls which curve up-

wardly and outwardly to an end wall which returns inwardly and is provided at its central portion with an outlet-orifice surrounded by an internally-directed flange.

In testimony whereof I hereunto affix my 15  
signature in the presence of two witnesses.

DENTON K. SWARTWOUT.

Witnesses:

ALBERT H. BATES,  
N. L. BRESNAN.