

(No Model.)

2 Sheets—Sheet 1.

F. W. HERBKESMANN.
NOZZLE.

No. 528,431.

Patented Oct. 30, 1894.

Fig. 1.

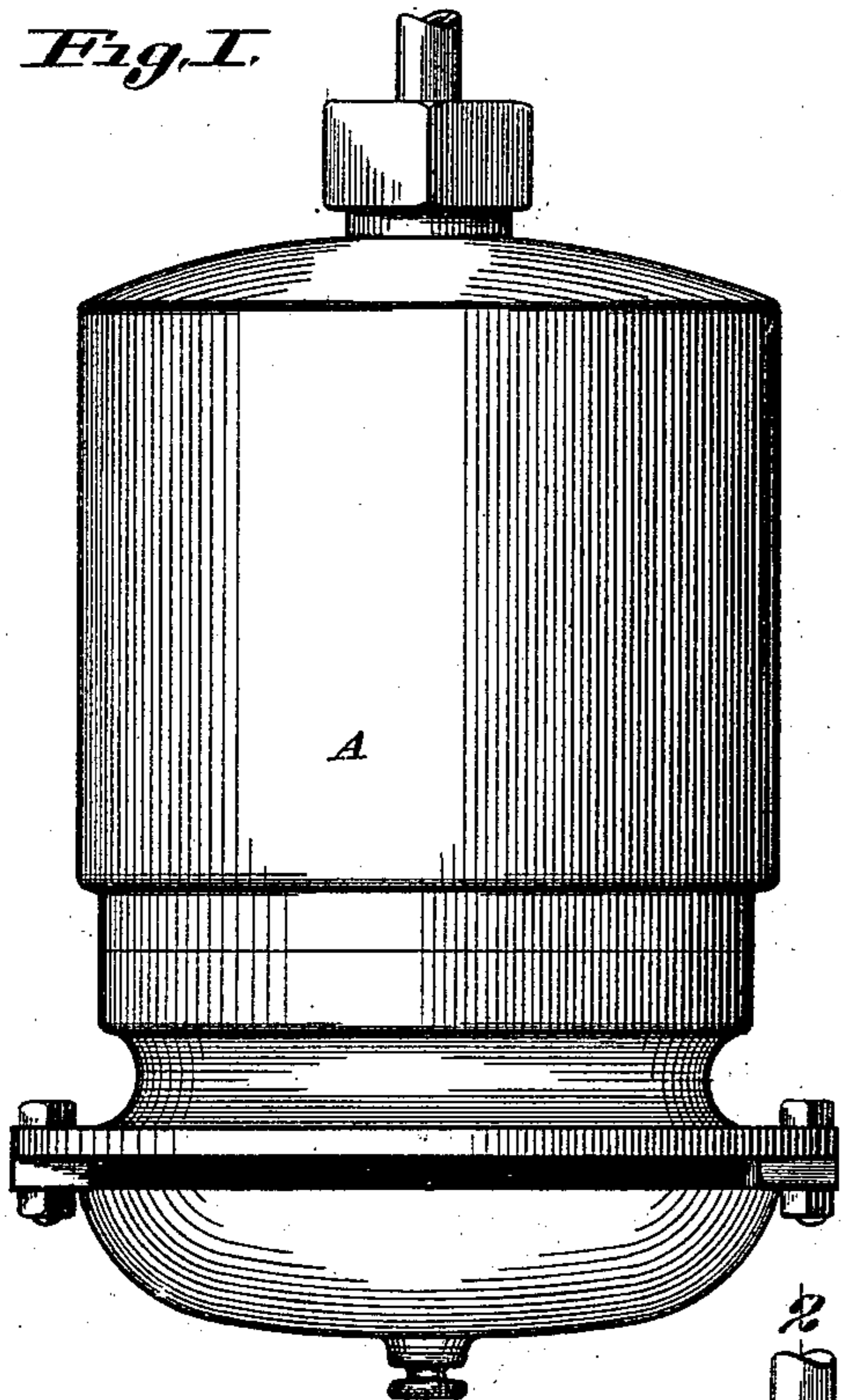


Fig. 2.

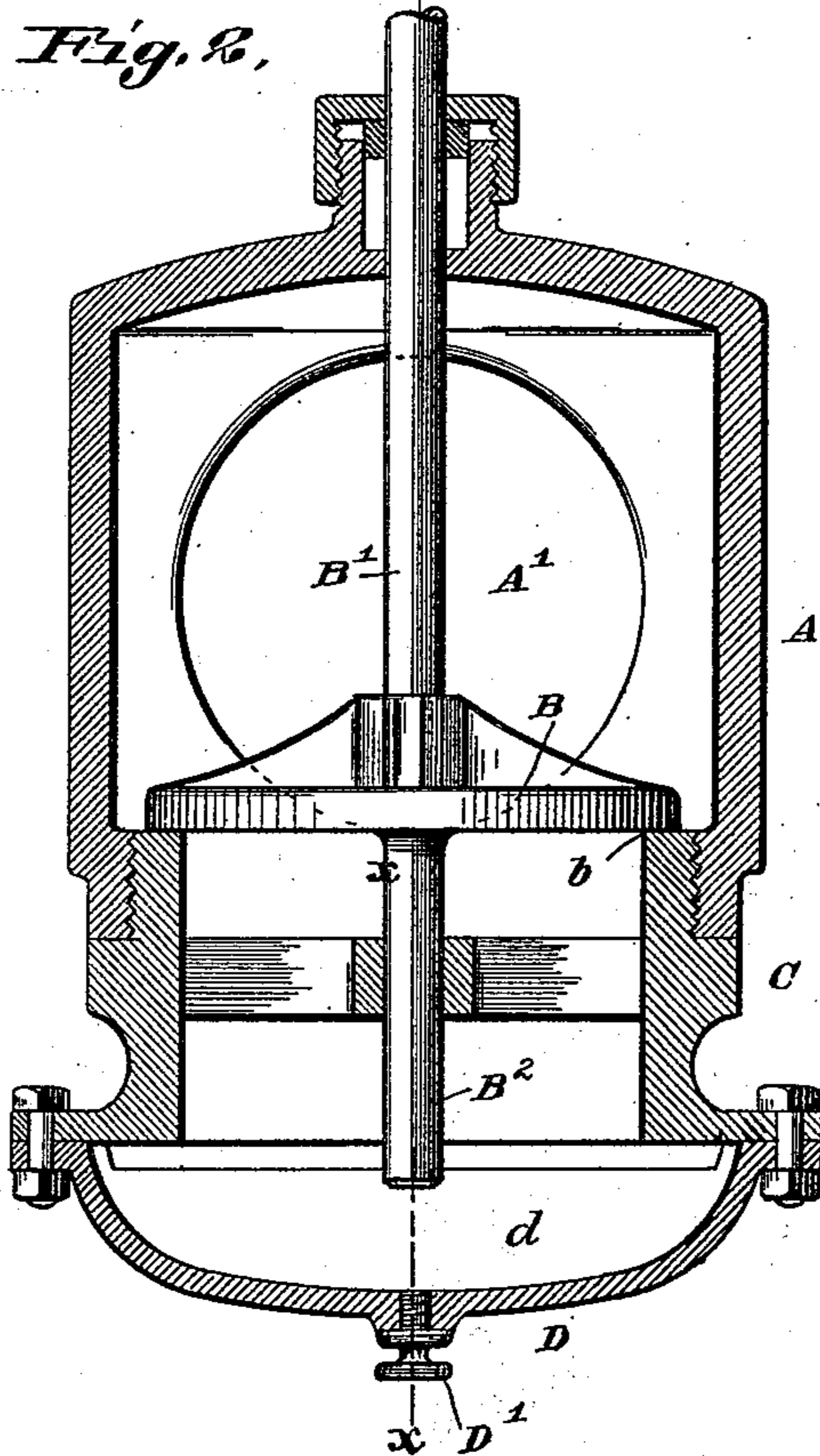
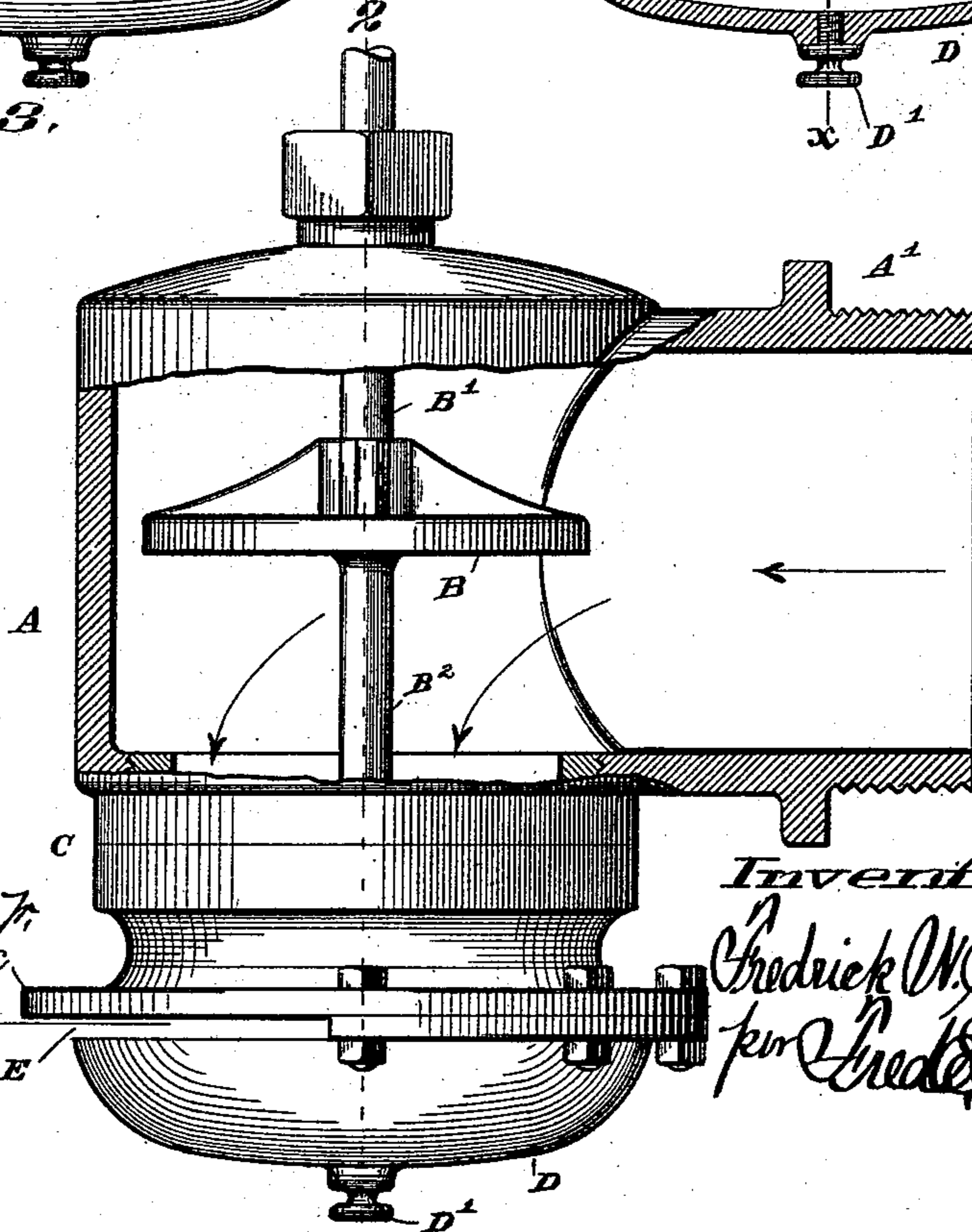
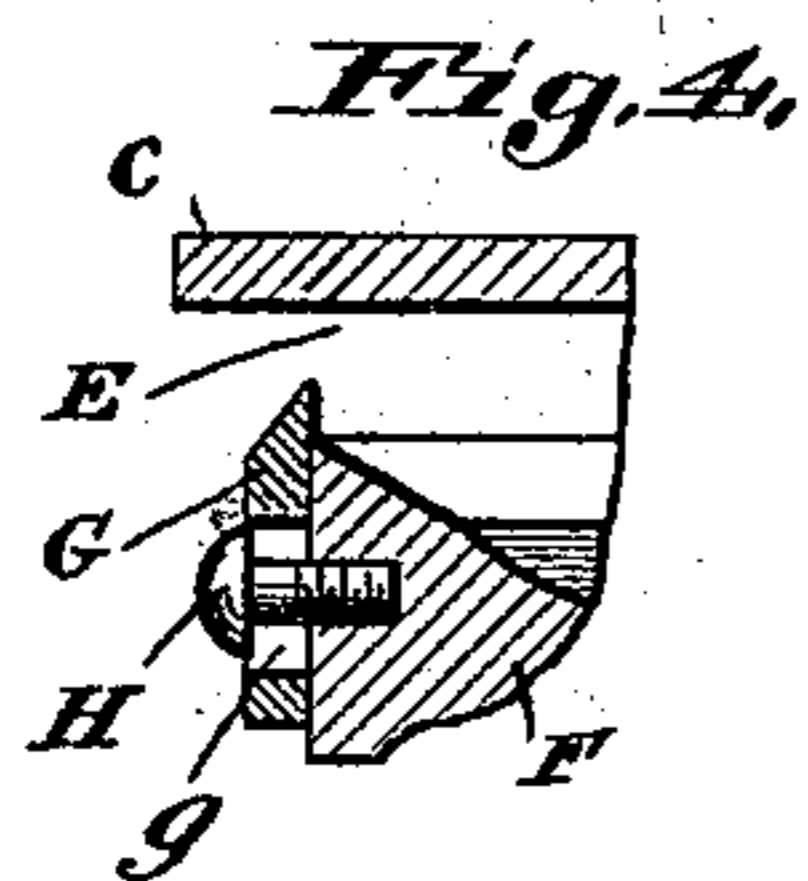


Fig. 3.



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Inventor:
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per Fred. Vasker
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(No Model.)

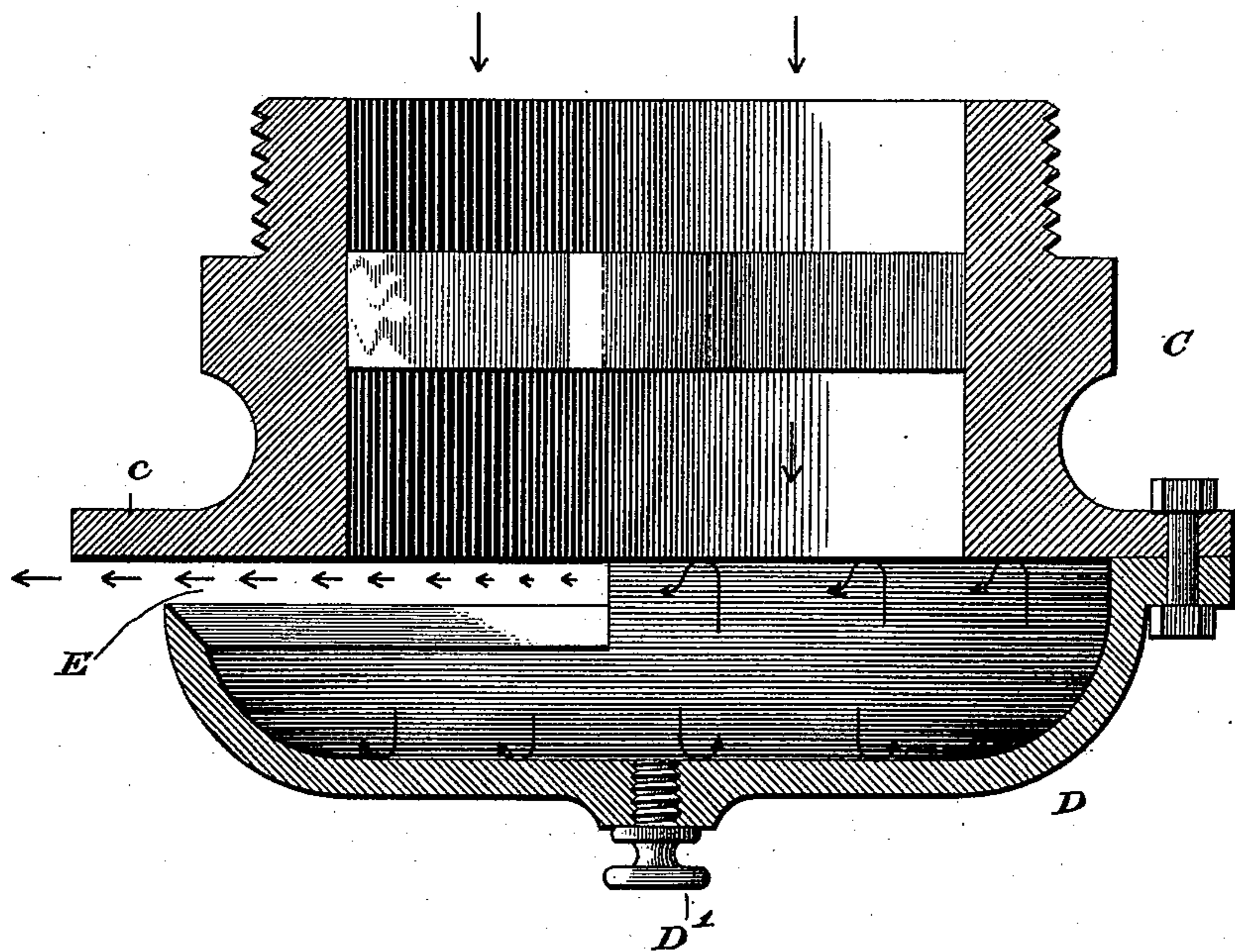
2 Sheets—Sheet 2.

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Fig. 5.



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UNITED STATES PATENT OFFICE.

FREDRICK W. HERBKESMANN, OF ST. LOUIS, MISSOURI.

NOZZLE.

SPECIFICATION forming part of Letters Patent No. 528,431, dated October 30, 1894.

Application filed December 30, 1893. Serial No. 495,200. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK W. HERBKESMANN, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Nozzles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention related to an improvement in nozzles of the character generally described as spraying nozzles which are employed for various purposes such as for instance, the attachment to water sprinkling carts. The nozzle is however adapted for use for many other and variable purposes wherever an even or thorough spraying or sprinkling is desired. The object of the invention is primarily to provide a nozzle which can successfully be employed with a stream of water entering it under a considerable pressure. It is a distinct improvement upon the nozzle described and claimed in the Letters Patent of Thomas M. Murphy, No. 366,974, dated July 19, 1887. One difficulty with the use of the nozzle embraced in said patent has been found to be that when it is employed with a supply of water entering it under a considerable pressure, the resulting sheet of spray which proceeds therefrom spreads higher than is desirable and consequently wets carriages and other objects in an objectionable manner. It becomes necessary therefore to avoid this objectionable uplift of the water sheet without at the same time diminishing the extent of throw of said sheet.

My invention therefore consists in the construction, arrangement and combination of parts and in certain details and peculiarities thereof, substantially as will be hereinafter more fully described and then particularly pointed out in the appended claim.

In the accompanying drawings illustrating my invention: Figure 1 is a side elevation of my improved nozzle. Fig. 2 is a vertical section of the same. Fig. 3 is a vertical sectional elevation taken at right angles to the section of Fig. 2. Fig. 4 is a sectional detail view showing a device for adjusting the size of the outlet slot. Fig. 5 is an enlarged vertical section of the lower portion of the nozzle.

Similar letters of reference designate corresponding parts in the several figures.

A denotes the main cylindrical chamber of the nozzle, containing the valve B, whose valve-stem B' works through a suitable bearing at the top of the chamber A, while the lower valve-stem B² likewise has a suitable supporting bearing below the valve. To the main chamber A is connected the supply pipe A', either made integral therewith or firmly attached thereto, through which pipe the supply of water or other liquid is delivered to the nozzle. This supply pipe A' runs from any suitable source of supply, as a water main, a pressure tank or any ordinary storage reservoir. As my nozzle is peculiarly adapted for use with water having a considerable degree of pressure thereon, it will be a common thing for the pipe A' to be connected to a pressure tank wherein the water is under a considerable degree of pneumatic pressure which forces the water out of the pressure tank and through pipe A' and into the nozzle with a pressure at least equal to that which commonly exists in a water main. The valve B rests upon its seat b which is formed at the upper end of the cylindrical section C, which has less diameter than the main chamber A and is firmly screwed into the lower end of said chamber, as is clearly shown in Fig. 2. The valve B may be arranged to be lifted from its seat and replaced thereon by any suitable actuating mechanism. When the valve B is lifted, it is obvious that the water coming from the supply pipe A' will pass downward into the section C and into the delivery end of the nozzle. When the valve rests upon its seat b as is shown in Fig. 2, then the water can have no outlet through the nozzle as the valve will be closed.

Secured to the under side of the section C is a concave or saucer-shaped bottom D. This bottom D constitutes the bottom of the nozzle and is located directly below the valve B and consequently in such a position as to receive the downward impact of the water which passes through said valve. This saucer-shaped bottom D is fastened in place by means of bolts or any other suitable securing devices, substantially as shown. The upper edge of the concave bottom D is substantially circular to correspond with the general circular

form of the section C and the main casing A. Between the lower edge of the section C and the upper edge of the bottom D is a space E or outlet slot as it may be termed, through which the water can pass out in a thin sheet. This slot E may be of any suitable width and length. Its length is preferably about a third or half of the circumference of the upper edge of the bottom D. The lower edge of the section C is provided with an encircling horizontal flange *c* which forms one edge of the slot E and which projects outward a greater or less distance horizontally beyond the opposite edge of the slot formed by the upper edge of the bottom D as is clearly represented in Fig. 5. The under surface of the flange *c* has a flat horizontal face and the outer edge of said flange *c* is a true curve. It is unnecessary to herein explain the advantages of a slot, as E, over a series of small holes as have heretofore been employed in many kinds of sprinkling nozzles. In the Murphy patent hereinabove alluded to a slot is employed although of a very different kind from that shown and described herein. I do not therefore lay any claim broadly to the slot principle as distinguished from a series of perforations, but the value of my invention resides in the horizontally projecting flange which extends outward beyond the lower edge of the slot so as to cause the water to issue from the nozzle in a sheet which is at first horizontal and then gradually curves downward, but which never curves upward and never spreads above the level of a plane passing through the slot horizontally.

As the water rushes downward with considerable force through the valve B and strikes upon the concave surface of the bottom D, said contact of the water with bottom D will be forcible and violent and the water will pursue the direction shown by the curved arrows in Fig. 5, being immediately dashed upward with a curving motion. As the water dashes upward in this manner it will strike against the flat horizontal surface of the encircling flange at the bottom of the section C and the result of so striking will be to dispose of the water horizontally in such a manner that it will pass out through the horizontal slot E with very great force in a true horizontal

sheet, which will hold it horizontality until it has moved quite a distance from the nozzle before it begins to be acted upon by gravity and caused to gradually curve downward through the air until it strikes the ground or other surface which is being wetted. Thus by means of the flange *c* which presents a flat horizontal surface directly above the concave bottom and which also overlaps or extends beyond the opposite edge of the slot through which the water passes outwardly, I am enabled to effectually prevent any upward spread of water at the point of issue from the nozzle and cause the entire body of water to be directed from the nozzle in an outward horizontal flow which will not be elevated so as to cause any damage or objectionable wetting of vehicles and other objects which may be in close proximity to the watering cart.

The width of the slot E may be graduated if desired by means of an adjustable ring G encircling the bottom D which will be made exteriorly cylindrical as at F in Fig. 4 for the purpose of receiving the vertically adjustable ring G, said ring being provided with slots wherein are set screws H for the purpose of securing the ring at any desired point of adjustment. When this ring is employed it will furnish the lower edge of the slot and will be adjustable to a greater or less distance from the flange *c* consequently varying the width of the slot and graduating the outflow of water.

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

In a nozzle, the combination of a cylindrical body, a concave horizontal bottom below it, and a horizontal flange on said body between which and the edge of the bottom is a water outlet slot, said flange having a horizontal surface on the under side and projecting horizontally beyond the edge of the concave bottom, substantially as described.

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

FREDRICK W. HERBKESMANN.

Witnesses:

C. C. CRONE,

JAMES P. WILTON.