

No. 692,798.

Patented Feb. 4, 1902.

C. J. SELTZER.

TIP FOR ATOMIZERS AND NEBULIZERS.

(Application filed Oct. 29, 1900.)

(No Model.)

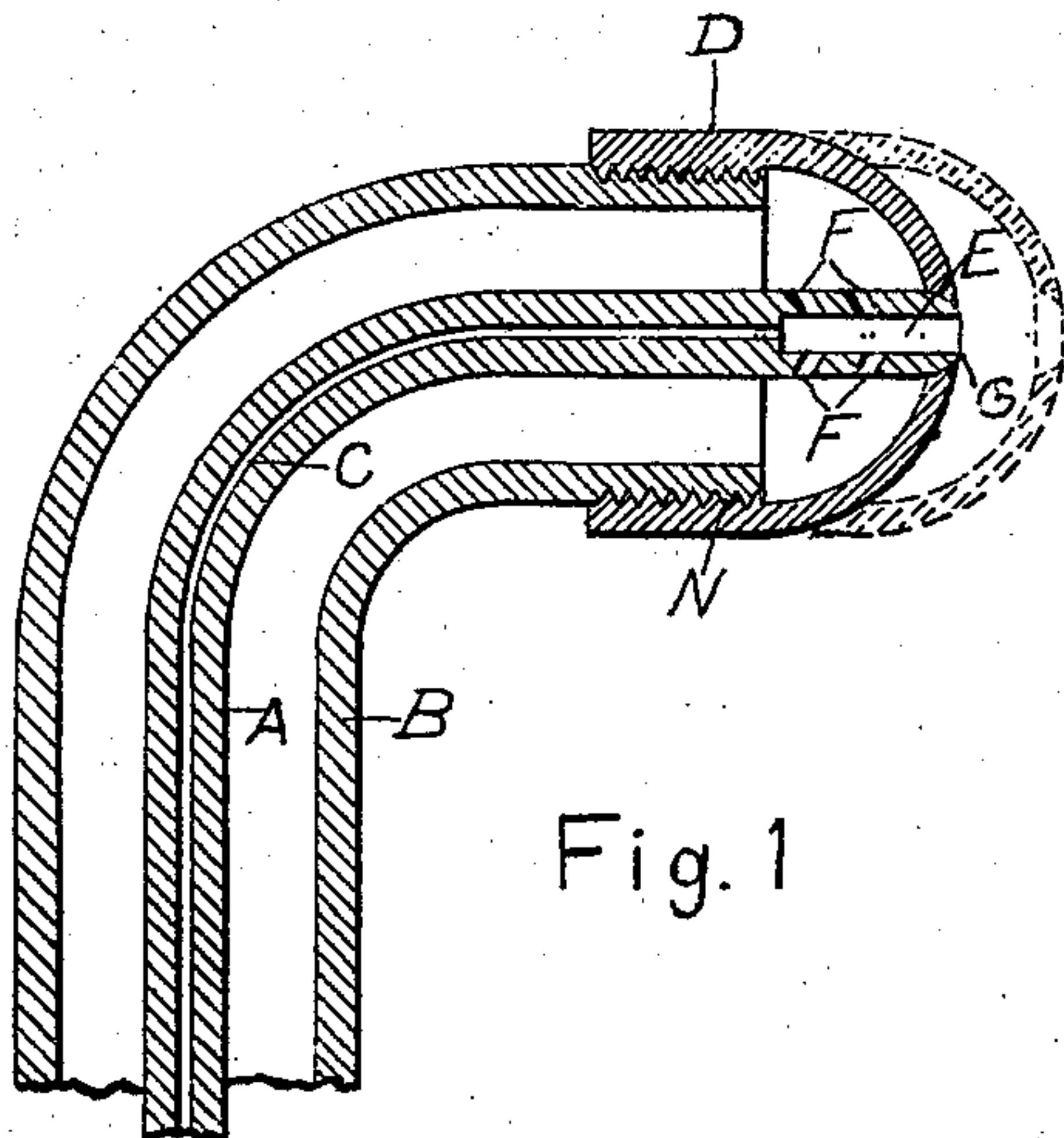


Fig. 1

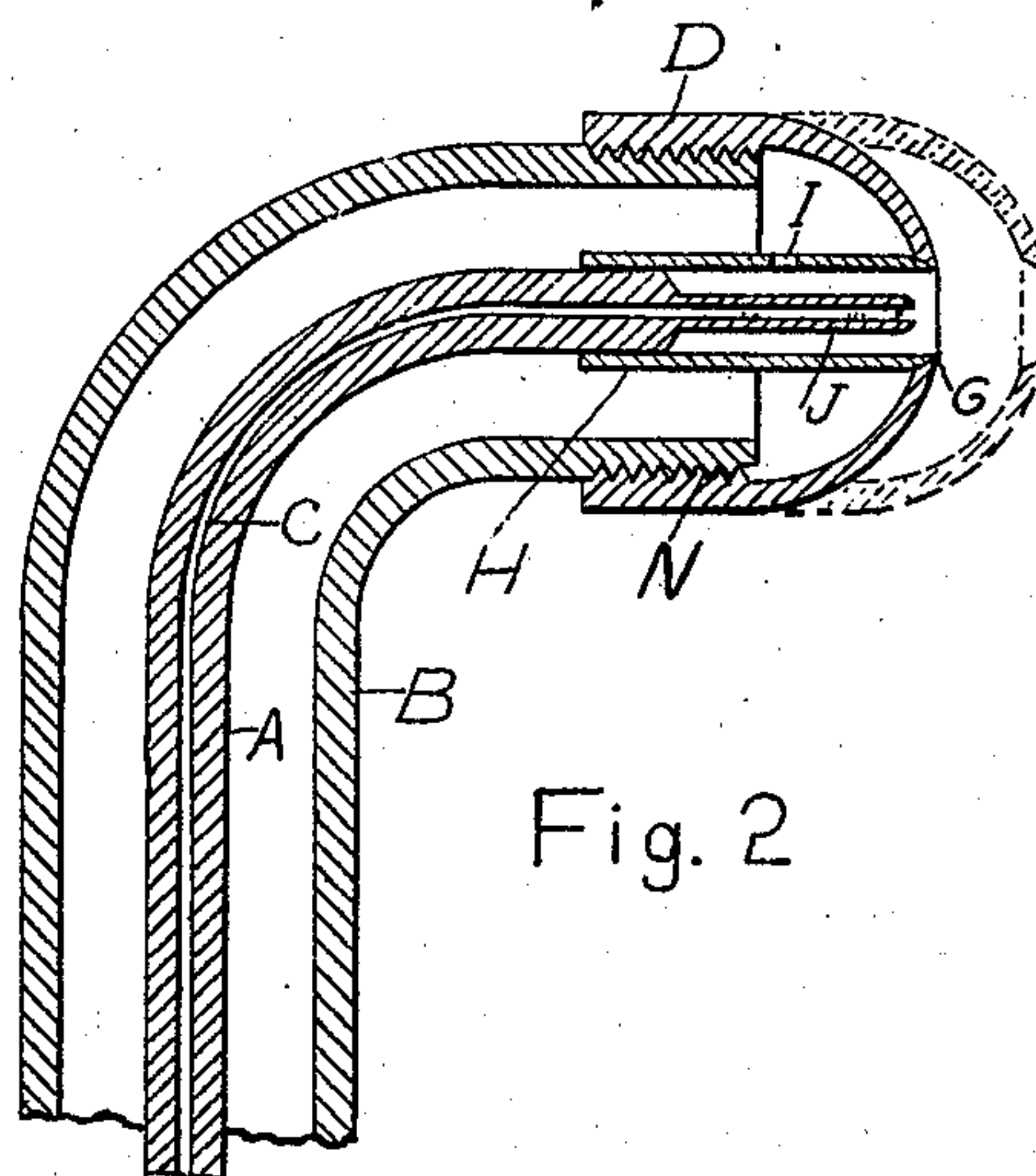


Fig. 2

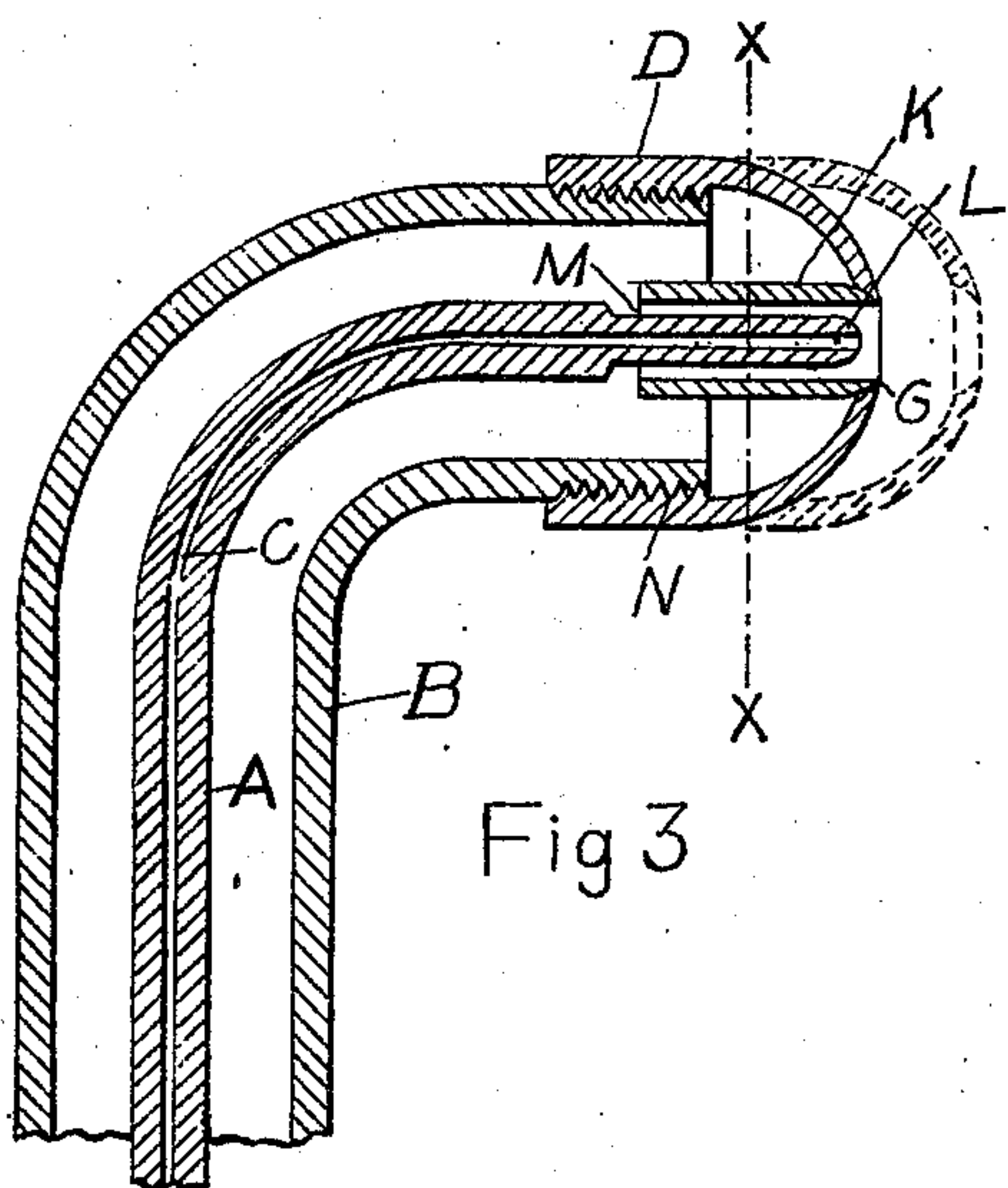


Fig 3

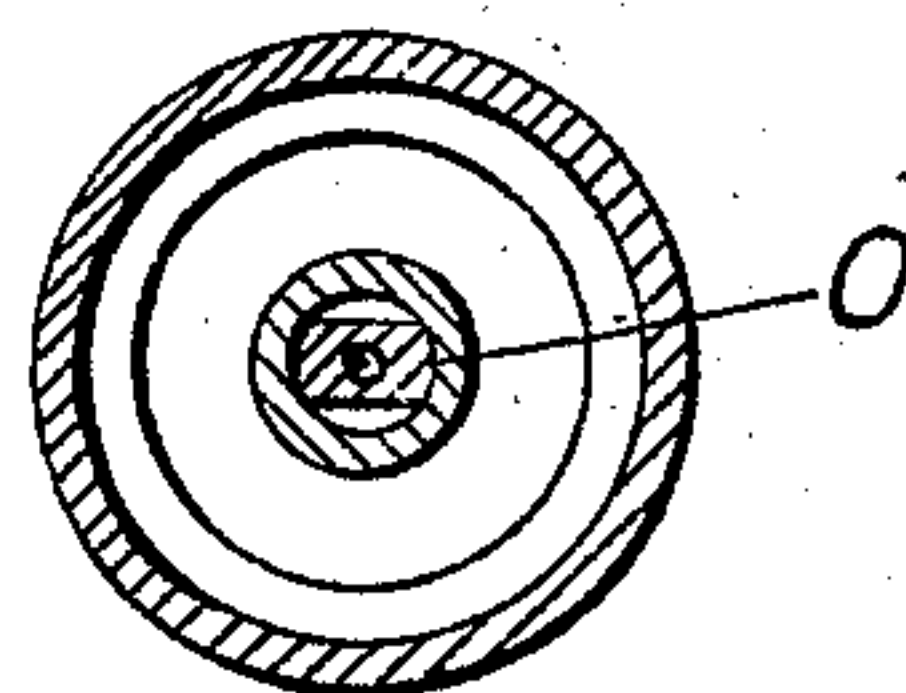


Fig 4

Witnesses

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CYRUS J. SELTZER, OF PHILADELPHIA, PENNSYLVANIA.

TIP FOR ATOMIZERS AND NEBULIZERS.

SPECIFICATION forming part of Letters Patent No. 692,798, dated February 4, 1902.

Application filed October 29, 1900. Serial No. 34,764. (No model.)

To all whom it may concern:

Be it known that I, CYRUS J. SELTZER, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Tips for Atomizers and Nebulizers, of which the following is a specification.

My invention relates to an improvement in tips for atomizers and nebulizers; and it consists in the parts and combinations herein described and claimed.

Referring now to the drawings forming a part of this application, and in which similar reference-letters designate corresponding parts in the several views, Figure 1 represents one form of my invention. Fig. 2 illustrates a modification thereof. Fig. 3 shows a further modification of my invention. Fig. 4 is a section taken on the line $x x$ of Fig. 3.

My invention is intended for use with combined atomizers and nebulizers, such as shown in my Patent No. 638,481, dated December 5, 1899.

Since my invention relates solely to an improvement in the tip and the cooperating ends of the inner and outer atomizer-tubes, I will confine my description and drawings to such tip and its cooperating parts, referring to my above patent, No. 638,481, for a full disclosure of the type of apparatus for which my improvement is adapted.

Heretofore in the use of combined atomizers and nebulizers it has been necessary to remove the atomizer-tip when employing the apparatus as a nebulizer. The liability of misplacing or losing the tip when removed and the failure to always properly adjust the tip when replacing it in position have rendered such construction undesirable.

The object of my invention is to overcome such defects and to obtain a simpler structure which will be less apt to become deranged.

Referring now especially to Fig. 1, A is the inner atomizer-tube, provided with a bore C. B is the outer atomizer-tube. D is a tip having an aperture G, which is shaped to fit snugly against or around the outer surface of inner tube A. E is an enlargement of the bore C, and F F are perforations through the

walls of the inner tube C. The tube C may be provided with only one perforation F, if desired. While I have shown the bore C provided with an enlargement E, satisfactory results can be obtained by properly proportioning said bore C and maintaining it of uniform size throughout the tube A. The tip D is adjustably secured to the tube B in any desired manner, screw-threads N being shown for this purpose in the drawings. The aperture G in the tip D is of such size that when said tip is adjusted in its outward position (shown by broken lines in the drawings) the air can escape therethrough from the outer tube B with sufficient freedom to prevent the atomizer action of the apparatus, the result being similar to that obtained by entirely removing the atomizer-tip in the apparatus of my above patent, No. 638,481. As shown in Fig. 1, the tube A is so proportioned that it completely closes the aperture G when the tip D is adjusted in its inward position.

When using the combined atomizer and nebulizer as an atomizer, the tip D is adjusted in its inner position, as shown by full lines in the drawings. Air under pressure is then admitted to the apparatus in any usual manner, as illustrated in my above patent, No. 638,481. The liquid to be atomized is forced up through the bore C by the pressure of the air, and a portion of the air passing from the outer tube B through perforations F mingles with the liquid issuing from the bore C and atomizes it. The end portion of tube A, having the perforations F, thus constitutes an atomizing-tip. When it is desired to use the combined atomizer and nebulizer as a nebulizer, the tip is adjusted in its outer position, as shown by broken lines in the drawings. Air under pressure is then admitted to the apparatus through the nebulizer-tube in any preferred manner—as illustrated, for example, in my Patent No. 638,481, above referred to. The tip D being in its outer position, the aperture G therein provides such free escape for the air as to prevent the atomizer liquid being forced up through the bore C, and the nebulized fluid passes in a fine cloud through the outer tube B and escapes from aperture G in the same manner that it would issue from the open

end of the outer tube when the atomizer-tip had been removed in the previous types of combined atomizers and nebulizers.

In the modification shown in Fig. 2 the inner atomizer-tube A is provided with a reduced portion J and has secured thereto a relatively small atomizing-tip H, which is provided with a perforation I. The air for atomizing the liquid issuing through the bore C passes from the outer tube B through the perforation I and mingles with the liquid in the tip H, the tip D being, of course, adjusted in its inner position when the apparatus is so operating as an atomizer. When the apparatus is to be used as a nebulizer, the tip D is adjusted in its outer position, (shown by broken lines,) and the action is exactly similar to that described in reference to Fig. 1.

In the construction illustrated in Figs. 3 and 4 the inner tube A is provided with a reduced portion L and has a relatively small atomizing-tip K secured thereto, the tip K extending along only a portion of such reduced portion L and being secured to the inner tube at the surfaces O. (See especially Fig. 4.) The air for atomizing the liquid issuing through the bore C passes from the outer tube B through the openings M, which are formed by the inner end of the tip K and the reduced portion L of tube A, and mingles with the liquid in said small tip K. It is understood that when so using the apparatus as an atomizer the tip D is adjusted in its inner position, as shown by full lines in Fig. 3. When it is desired to use the apparatus as a nebulizer, the tip D is adjusted in its outward position, (shown by broken lines in Fig. 3,) and the operation is similar to that described in reference to Figs. 1 and 2.

It is obvious that many changes could be

made in the proportions and arrangements of the elements without in any way departing from the spirit and scope of my invention.

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

1. In a combined atomizer and nebulizer and in combination with the usual inner and outer atomizer-tubes thereof, an atomizing-tip carried by said inner tube and provided with passages for air and liquid, said passages being arranged to cause the air to impinge upon the issuing liquid and thereby atomize said liquid in the usual manner, and an apertured tip adjustably secured to said outer tube.

2. In a combined atomizer and nebulizer and in combination with the usual inner and outer atomizer-tubes thereof, an atomizing-tip carried by said inner atomizer-tube, and provided with passages for air and liquid, said passages being arranged to cause the air to impinge upon the issuing liquid and thereby atomize said liquid in the usual manner, and an apertured tip adjustably secured to said outer tube and so constructed that when adjusted in one position its aperture will snugly fit against or around the outer surface of said atomizing-tip, while when adjusted in another position its aperture will permit free escape of air therethrough from said outer tube, substantially as described.

In testimony whereof I hereunto set my hand, this 25th day of October, 1900, in the presence of two attesting witnesses.

CYRUS J. SELTZER.

Witnesses:

CHALKLEY N. BOOTH,
HENRY B. McLAUGHLIN.