

No. 636,042.

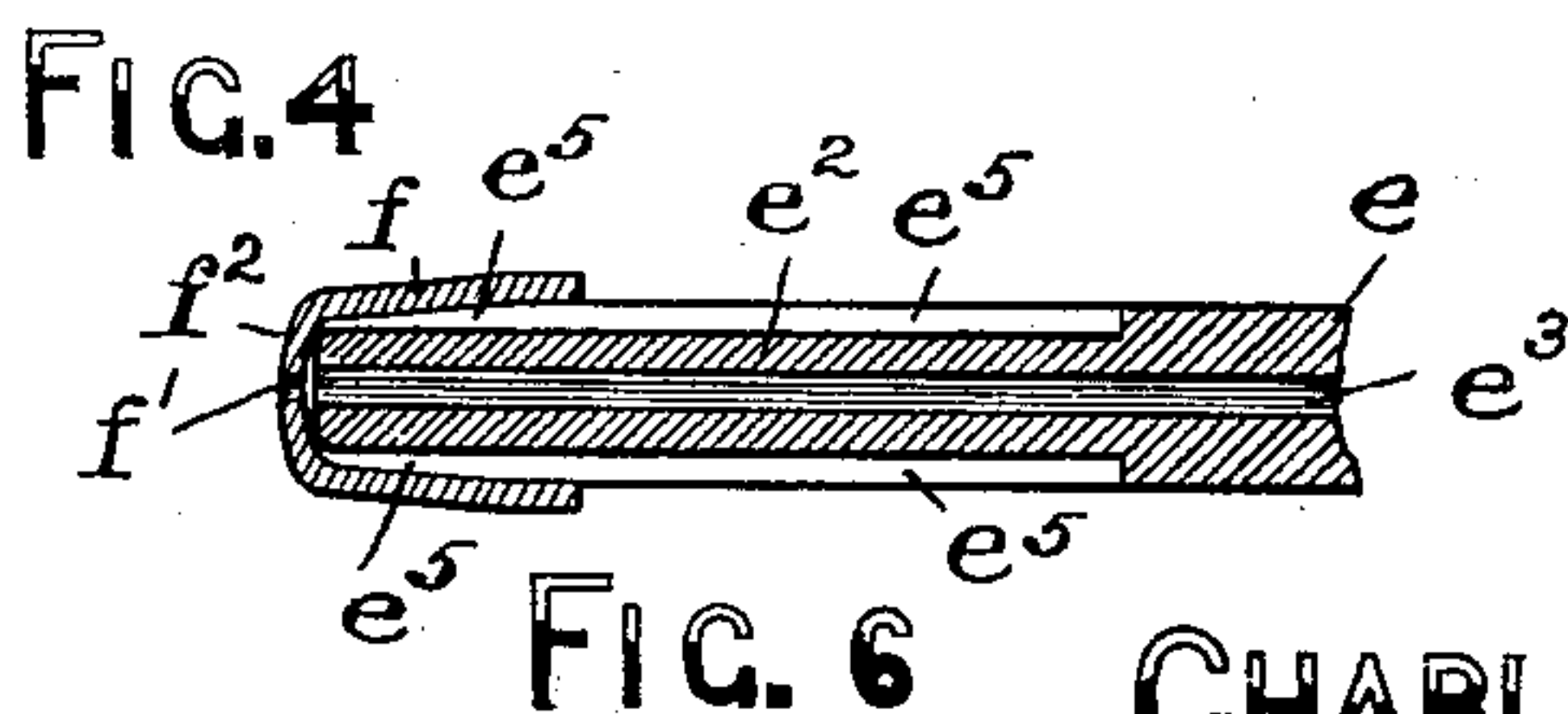
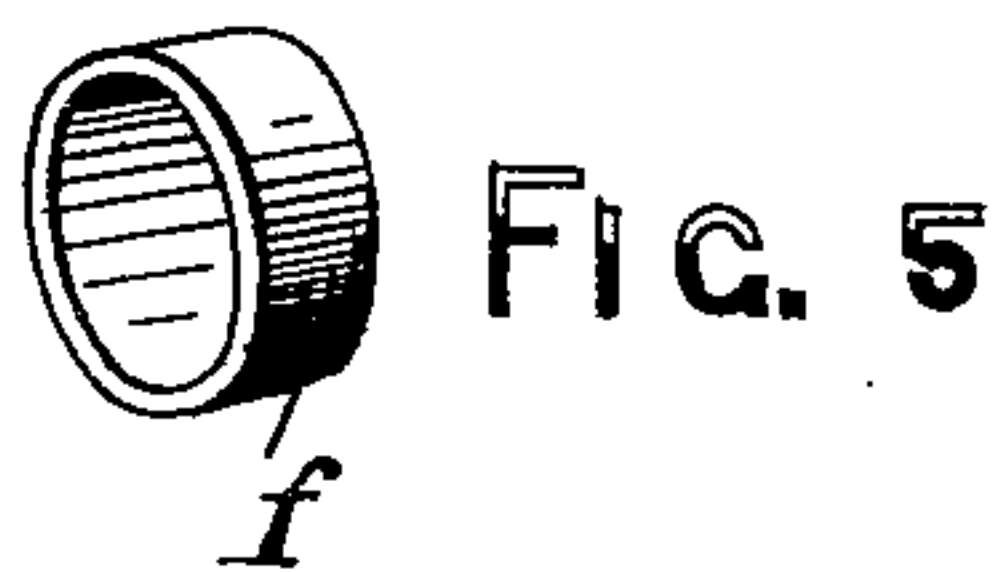
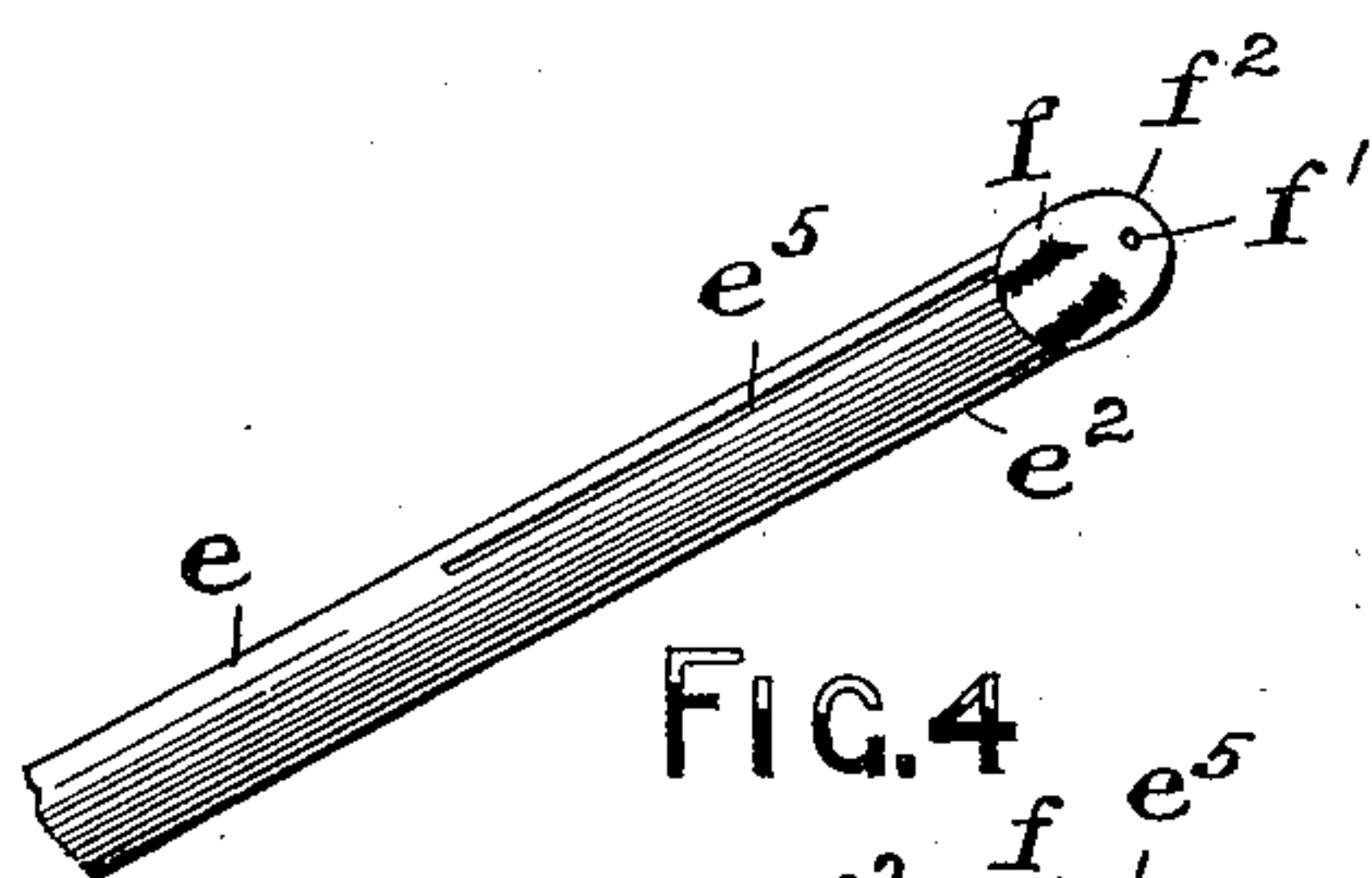
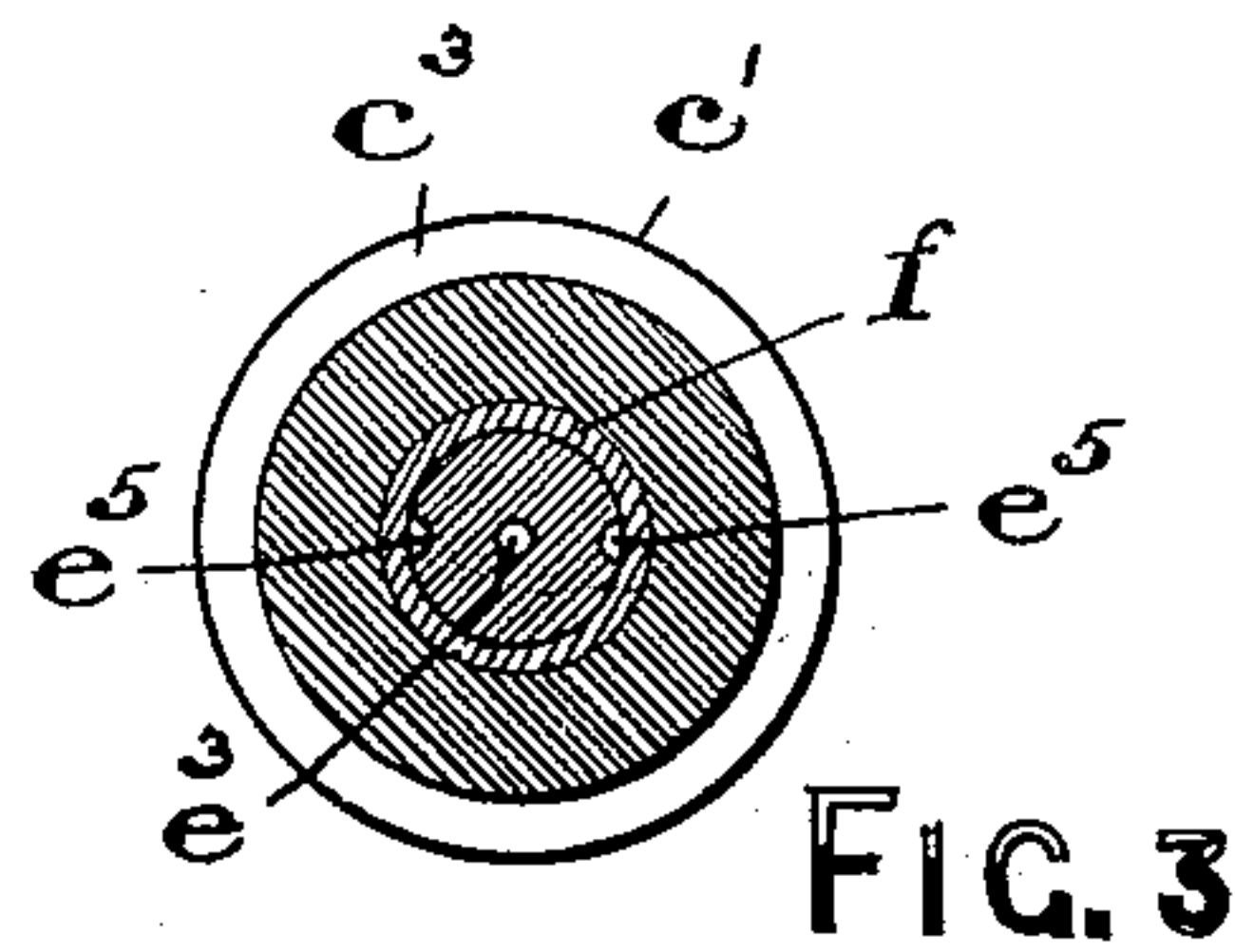
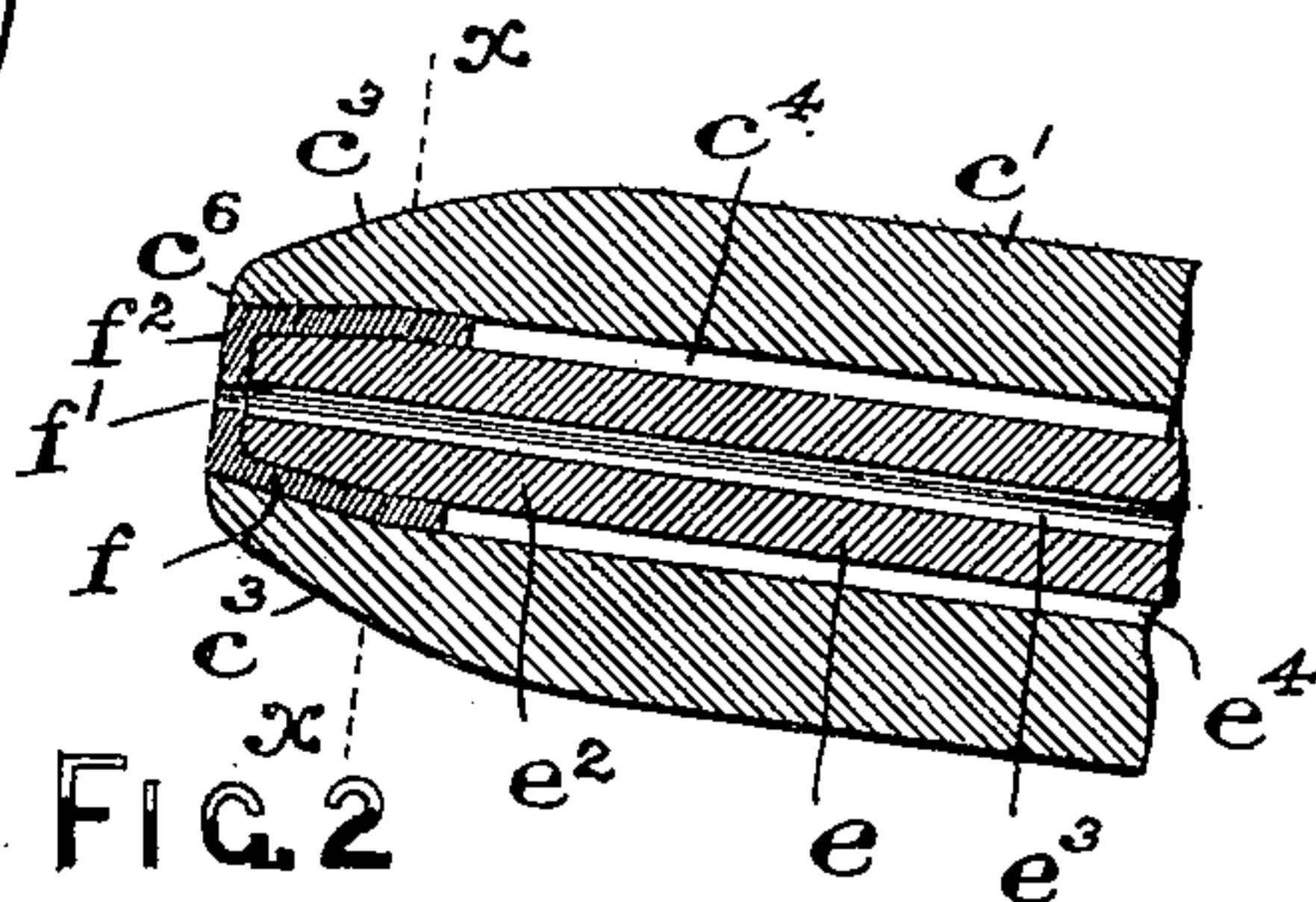
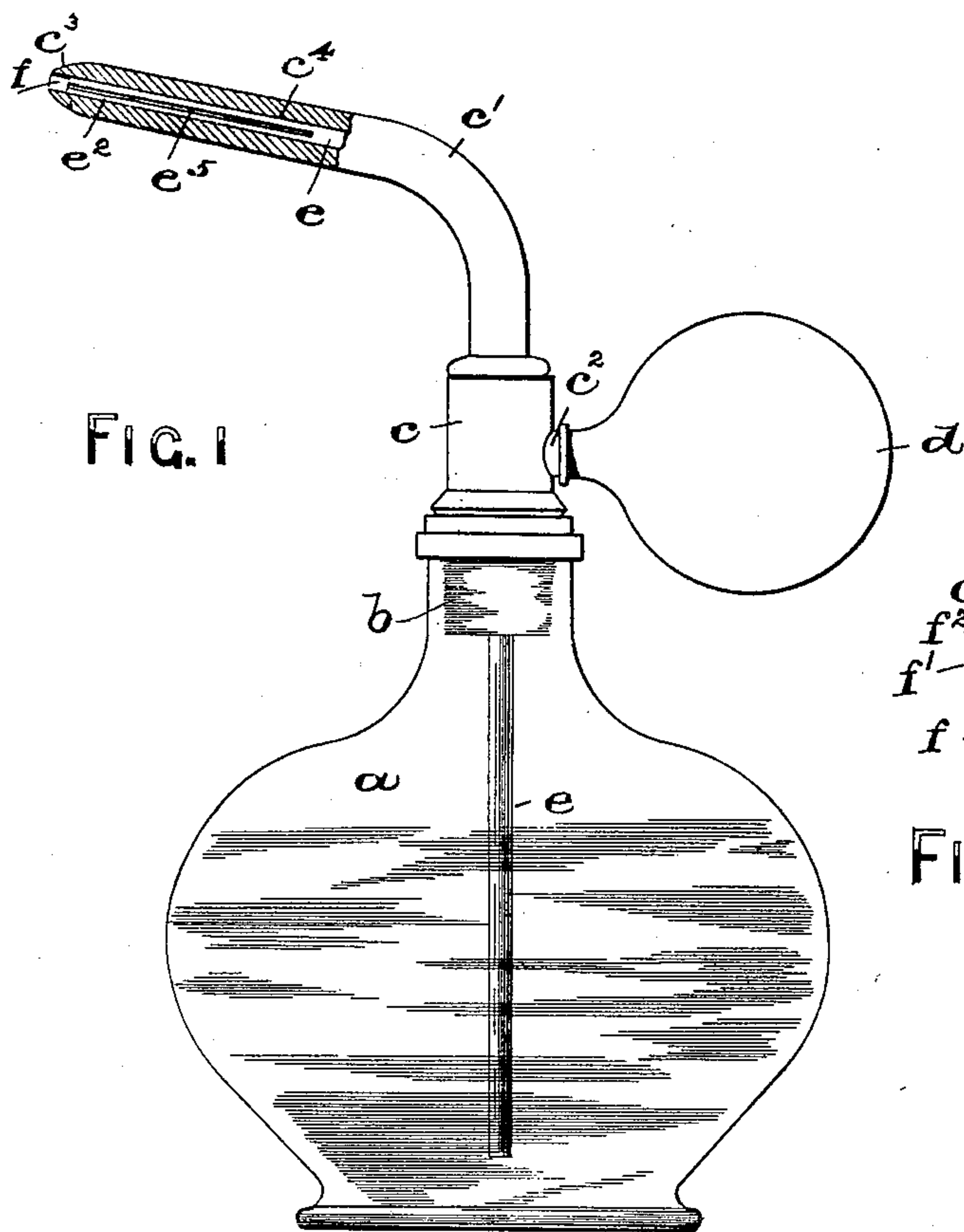
Patented Oct. 31, 1899.

C. HOLLWEG.

ATOMIZER.

(Application filed Feb. 21, 1899.)

(No Model.)



WITNESSES:

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ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 636,042, dated October 31, 1899.

Application filed February 21, 1899. Serial No. 706,322. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOLLWEG, a citizen of the United States, residing at Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Atomizers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in atomizers, and more especially to a novel construction of spraying-tube for atomizers or the like.

My invention therefore has for its primary object to provide a novel construction of spraying-tube for atomizers or the like which shall be of a simple construction and can be cheaply made, the perforated end of which will not become easily clogged or obstructed by sediments or other foreign matter.

Another object of this invention is to provide an atomizer having a spraying-tube in which there is a perforated cap, the perforation in said cap being smaller in cross area than the cross area of the duct in the body of the spraying-tube, whereby the tube is more easily manufactured and can be more readily cleaned when clogged up, and, furthermore, another object of the invention is to provide a spraying-tube in which the ordinary screw-tip or screw-cap now in use is dispensed with.

The invention therefore consists in the novel construction of atomizer and spraying-tube therefor, as hereinafter described, and also in such novel arrangements and combinations of parts, all of which will be more fully set forth in the accompanying specification and finally embodied in the clauses of the claim.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of an atomizer and spraying-tube embodying the principles of my present invention. Fig. 2 is a longitudinal vertical section of a portion of the spraying-tube on an enlarged scale; and Fig. 3 is a cross-section of the same, taken on line x

in Fig. 2. Fig. 4 is a perspective view of the front end portion of said spraying-tube, and Fig. 5 is a similar view of a perforated cap to be arranged on the end of said spraying-tube. Fig. 6 is a vertical section of a portion of the spraying-tube and its cap to illustrate the arrangement of a pair of ducts or passage-ways for conducting air to the discharge-opening in the cap connected with said tube.

Similar letters of reference are employed in all of the said above-described views to indicate corresponding parts.

In said drawings, a indicates the atomizer, which may be of any suitable shape and may be of glass, metal, or any other desirable material.

In the neck of the bottle or receptacle a is secured, by means of a suitable stopper b , a cap c , with which are connected in the well-known manner the outer conveying-tube c' and a nipple c^2 for the reception of the usual form of air bulb or ball d . Said tube is usually bent, as indicated in Fig. 1, and has its end c^3 rounded off, substantially as illustrated. Within the said tube c' I have arranged the spraying-tube e . Said tube e is of a smaller diameter in cross-section than the diameter of the duct c^4 in the tube c' , and the lower portion e' extends beyond the stopper b into the liquid in the receptacle a , as clearly indicated in said Fig. 1. I have arranged upon the upper end e^2 of said tube e in any suitable manner a cap f , which is provided with a centrally-arranged hole f' of a smaller diameter than the diameter of the duct e^3 of said tube e , as clearly illustrated in Fig. 2. When the tube e and its cap f have been arranged in the outer tube c' , the surface f^2 of said cap is flush with the end of said tube c' , as clearly shown in Figs. 1 and 2.

To permit of the air to be forced from the opening f' in the cap f when the bulb or ball d is compressed, and whereby the liquid will be caused to pass through said opening f' in a very fine spray, I have provided the upper part of the spraying-tube e with one or more ducts or passage-ways e^5 , which extend longitudinally to near the end of said tube e and beneath the cap f on said tube, which convey the compressed air through said duct or

ducts directly into a space from between the inner portion of the cap f and the end of the tube e . Thus it will be evident that this air commingles with the liquid coming from the duct e^3 , and said combined liquid and air will be forced from the opening in the cap f in a very fine spray. Of course it will be understood that other forms of air-conveying passages may be used in this portion of the tube e to cause the liquid to pass therefrom in a fine spray.

By my novel arrangement of the cap f , with a very small hole in it, upon the spraying end of the tube e I can make the duct e^3 of a much greater area in cross-section than heretofore, whereby I secure a free flow of the liquid through said tube, and in consequence prevent any clogging up of the duct due to sediments or other causes, and should the opening f' in the cap f become obstructed such obstruction can easily be removed by the insertion of a fine needle or wire or by an application of hot water. Furthermore, by my novel arrangement of the cap f upon the end of the tube e I dispense with the use of the ordinary screw-cap and screw end to the outer tube e' as now made, whereby I greatly simplify the construction and cheapen the cost of manufacture, at the same time overcoming the possibility of losing the screw-cap when removed from the spraying-tube.

By my invention I therefore derive many advantages over the constructions as heretofore made, these advantages being obvious from the above description and from an inspection of the accompanying drawings.

I am fully aware that slight changes may be made in the construction as well as in the details of the arrangements and combinations of the several parts without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the parts, nor do I limit myself to the exact details of the construction thereof.

Having thus described my invention, what I claim is—

1. As a new article of manufacture, a spraying-tube for atomizers, or the like, consisting, essentially, of a tubular nozzle having a liquid-duct, and a perforated end portion entirely within said nozzle, forming a cap over the discharge end of the liquid-duct of said nozzle, the perforation in said end portion being smaller in cross-area than the cross-area of the liquid-duct in said tube, and means for conducting air to said perforation in said end portion, substantially as and for the purposes set forth.

2. As a new article of manufacture, a spraying-tube for atomizers, or the like, consisting, essentially, of a tubular nozzle having a liquid-duct, and a perforated cap arranged directly within said nozzle and over the end of said liquid-duct, the perforation in said cap

being smaller in cross-area than the cross-area of the liquid-duct in said tube, and the perforated end portion of said cap being flush with the outer end surface of the discharge end of said nozzle, and means for conducting air to said perforation in said cap, substantially as and for the purposes set forth.

3. As a new article of manufacture, a spraying-tube for atomizers, or the like, consisting, essentially, of an outer tube e' having a duct e^4 , an inner tube e having a duct e^3 , and a perforated cap f on said inner tube, the perforation in said cap being smaller than the cross-area of the duct in said tube e , and the end of said cap being flush with the end of said tube e' , and means for conducting air to said perforation in said cap, substantially as and for the purposes set forth.

4. As a new article of manufacture, a spraying-tube for atomizers, or the like, consisting, essentially, of an outer tube e' having a duct e^4 , an inner tube e having a duct e^3 , and a perforated cap f on said inner tube, the perforation in said cap being smaller than the cross-area of the duct in said tube e , and the end of said cap being flush with the end of said tube e' , and an air passage or passages e^5 in the side of said tube e extending beneath said cap f , substantially as and for the purposes set forth.

5. In an atomizer, the combination, with a receptacle a , a stopper b , a cap c , its nipple c^2 , and a compressible bulb or ball on said nipple, of a spraying-tube, consisting, essentially, of an outer tube e' having a duct e^4 , an inner tube e having a duct e^3 , and a perforated cap f on said inner tube, the perforation in said cap being smaller than the cross-area of the duct in said tube e , and the end of said cap being flush with the end of said tube e' , and means for conducting air to said perforation in said cap, substantially as and for the purposes set forth.

6. In an atomizer, the combination, with a receptacle a , a stopper b , a cap c , its nipple c^2 , and a compressible bulb or ball on said nipple, of a spraying-tube, consisting, essentially, of an outer tube e' having a duct e^4 , an inner tube e having a duct e^3 , and a perforated cap f on said inner tube, the perforation in said cap being smaller than the cross-area of the duct in said tube e , and the end of said cap being flush with the end of said tube e' , and an air passage or passages e^5 in the side of said tube e extending beneath said cap f , substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 15th day of February, 1899.

CHARLES HOLLWEG.

Witnesses:

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J. HARDMAN, Jr.