

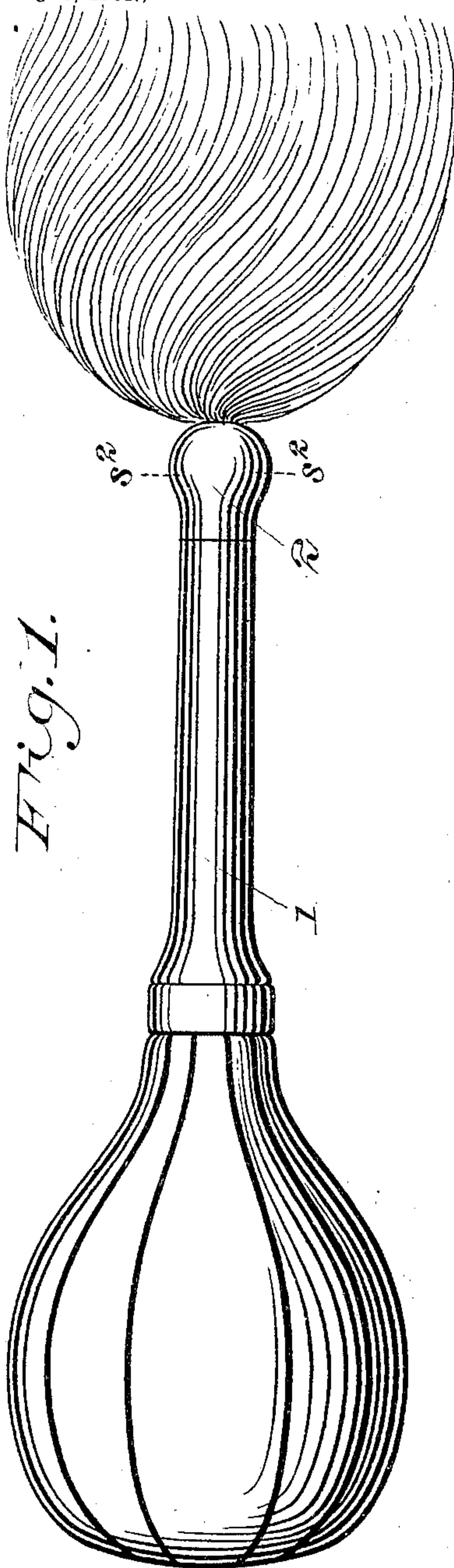
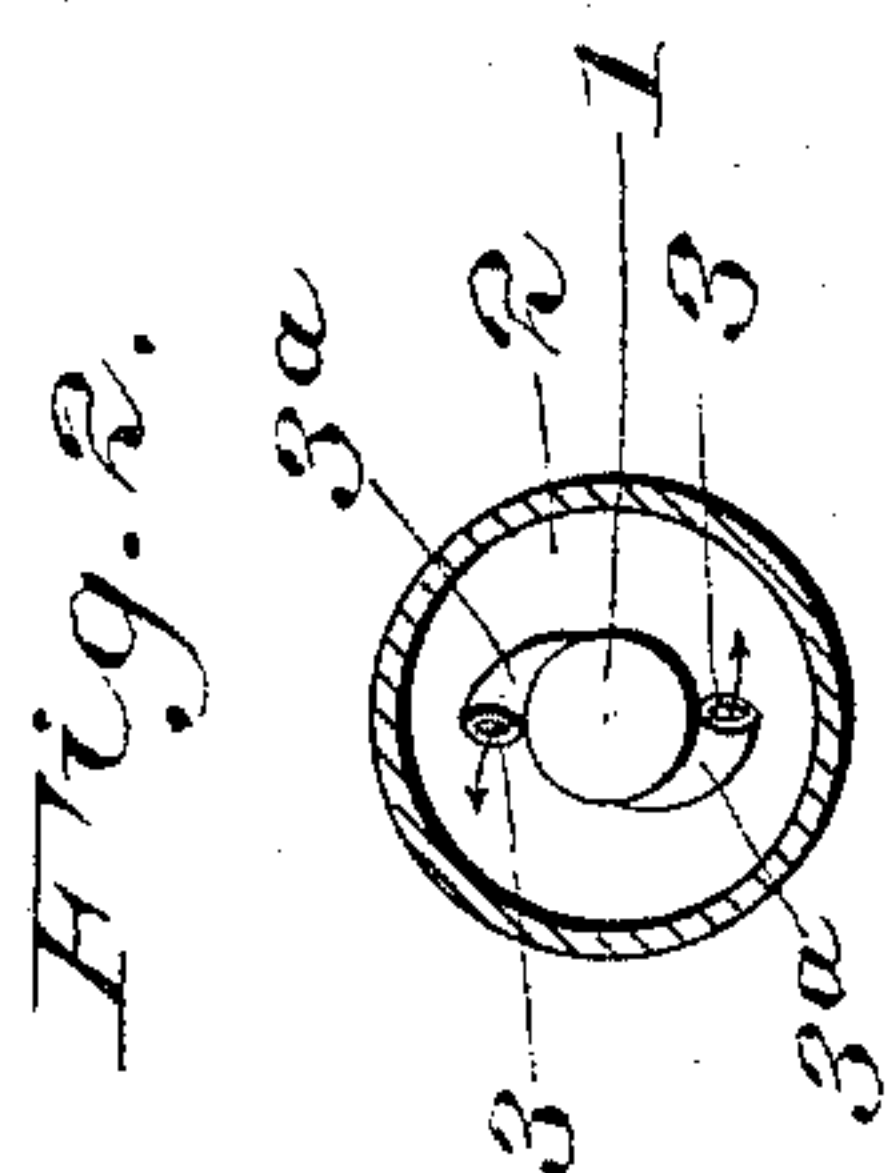
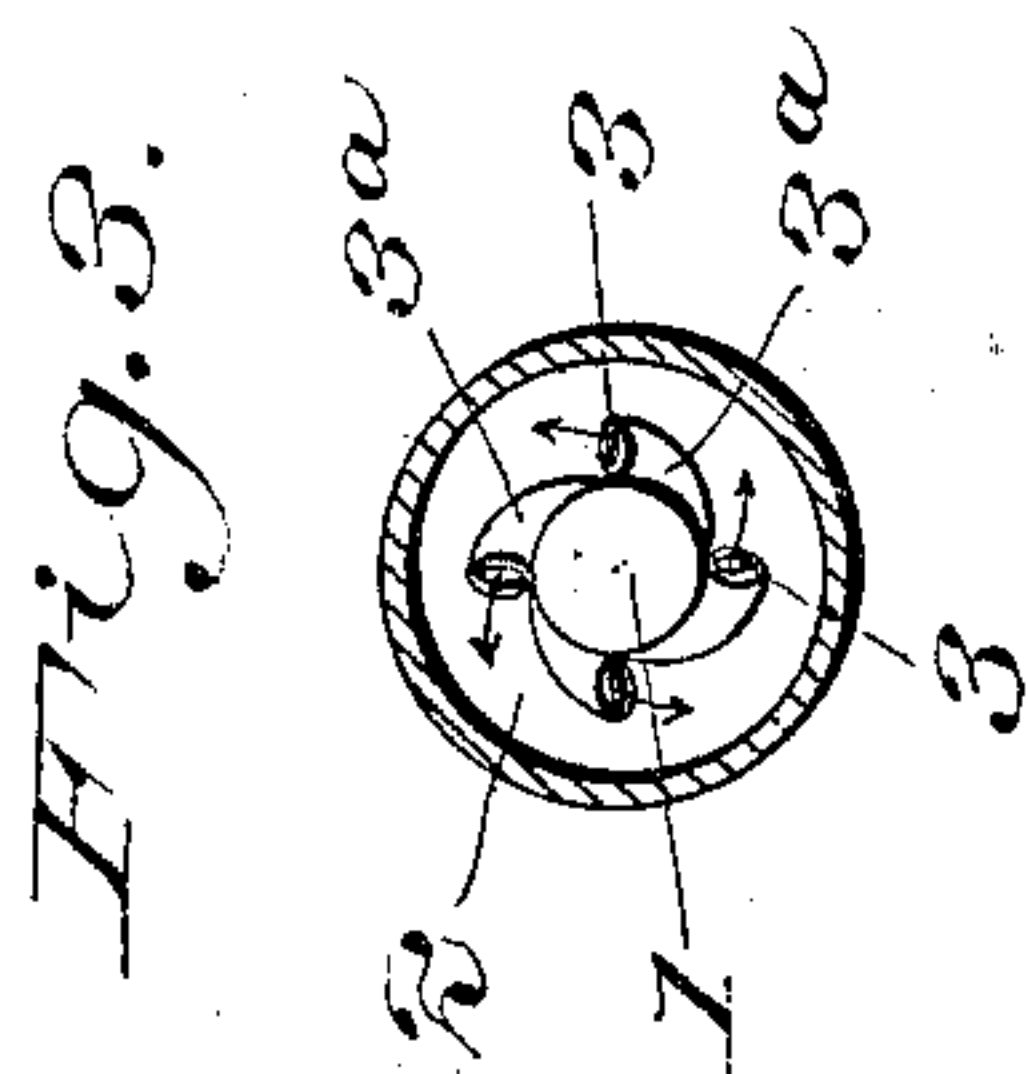
No. 688,688.

Patented Dec. 10, 1901.

W. H. PUMPHREY.  
SYRINGE.

(Application filed Aug. 3, 1901.)

(No Model.)



WITNESSES:

R. Gerbracht, Jr.  
L. E. Pearson

INVENTOR

Walter H. Pumphrey



# UNITED STATES PATENT OFFICE.

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## SYRINGE.

SPECIFICATION forming part of Letters Patent No. 688,688, dated December 10, 1901.

Original application filed January 23, 1901, Serial No. 44,362. Divided and this application filed August 3, 1901. Serial No. 70,826. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER H. PUMPHREY, a citizen of the United States of America, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Syringes, of which the following is a specification.

This invention relates to improvements in syringes, and particularly to the class in which the liquid is discharged in the form of whirling spray, the same being a division of my pending application filed January 23, 1901, and serially numbered 44,362.

A very serious objection to many syringes at present offered for sale is made against the use of metal spraying devices, &c., which ordinarily are arranged in the pipe or nozzle thereof and become quickly corroded by the action of the various liquids, &c., used, thereby rendering the syringe useless or extremely dangerous if further employed. Objection is also made against the use of nozzles, spraying devices, &c., presenting sharp angles or edges, such as may lacerate or otherwise inflict injury when the syringe is in use. Objection is also made to the form and location of the spraying devices in that they are practically inaccessible, and in consequence great difficulty is encountered in properly cleansing and drying the same after use. Objection is also made to the arrangement of spraying devices within the tube or nozzle in that they frequently offer considerable obstruction to the entrance of the liquid when the syringe is being filled and render this step in the operation lengthy.

It is the object of the invention to avoid the objectionable features above set forth in the production of a syringe in which metallic parts are entirely dispensed with; second, in which the spraying device is so relatively arranged with respect to the discharge-orifice that in use contact therewith is rendered impossible; third, in which separable parts are employed and being readily accessible are convenient for cleansing, &c., and, finally, in which the spraying device does not offer the slightest obstruction to the free entrance of the liquid when the syringe is being charged.

The novelty of the invention lies mainly in utilizing the outer end of the ordinary syringe-pipe and adapting it to coact with a bulb-like sleeve in the production of a whirling-spray discharge.

The invention consists, essentially, of a piston, bulb, or other well-known form of syringe combined with a bulb-like sleeve secured upon and projecting beyond the outer end of the tube or pipe thereof, which latter is provided with outlets arranged in a manner to direct the liquid obliquely against the inner wall of the bulb-like sleeve, at an angle to the axis thereof.

The preferred form of the invention is illustrated in the accompanying drawings, wherein like reference-numerals refer to similar parts throughout the several views, in which—

Figure 1 is a view in elevation illustrating a syringe constructed in accordance with my invention. Fig. 2 is a cross-sectional view taken on the line S<sup>2</sup> S<sup>2</sup> of Fig. 1. Fig. 3 is a detail sectional view of the outer end of the syringe nozzle or tube, illustrating a modification.

In the drawings, 1 represents an ordinary syringe of the bulb type, comprising, first, a tube which may be straight or curved, flexible or rigid, and either tapered or of the same diameter throughout its length, and, second, a bulb by means of which the liquid may be forced through the tube.

2 represents a tubular section, hereinafter termed the "sleeve," which may be either formed in part with or removably secured at or near the outer end upon the tube as an extension thereof. The sleeve may be of uniform or varying diameter, its function being to provide a curved surface or wall against which the jet or jets of liquid flatten and spread when discharged from the syringe-tube.

3 3, &c., represent the outlets of the syringe-tube, which are disposed tangentially to the bore thereof and of which there may be any suitable number, the same being formed by one or more tubular branches 3<sup>a</sup> 3<sup>a</sup>, &c. The liquid in passing through these tubular

branches is directed obliquely or at an angle to the bore of the tube and against the inner wall of the sleeve, and by reason of the sudden deflection from a straight-away course the liquid is given a whirl and passes spirally through the bulb-like sleeve-section. In being thus acted upon the liquid is converted into whirling spray, which in its discharge assumes a globular form.

10 Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

In a syringe, the combination of a jet-tube provided adjacent to its outer end with one

or more lateral outlets tangentially disposed to the bore of the tube, a tubular branch leading from each of said outlets as a continuation thereof, and a detachable sleeve inclosing the end of the tube and its branched outlets and providing a curved wall against which the liquid is directed.

Signed at New York this 23d day of July, 1901.

WALTER H. PUMPHREY.

Witnesses:

R. GERBRACHT, Jr.,  
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