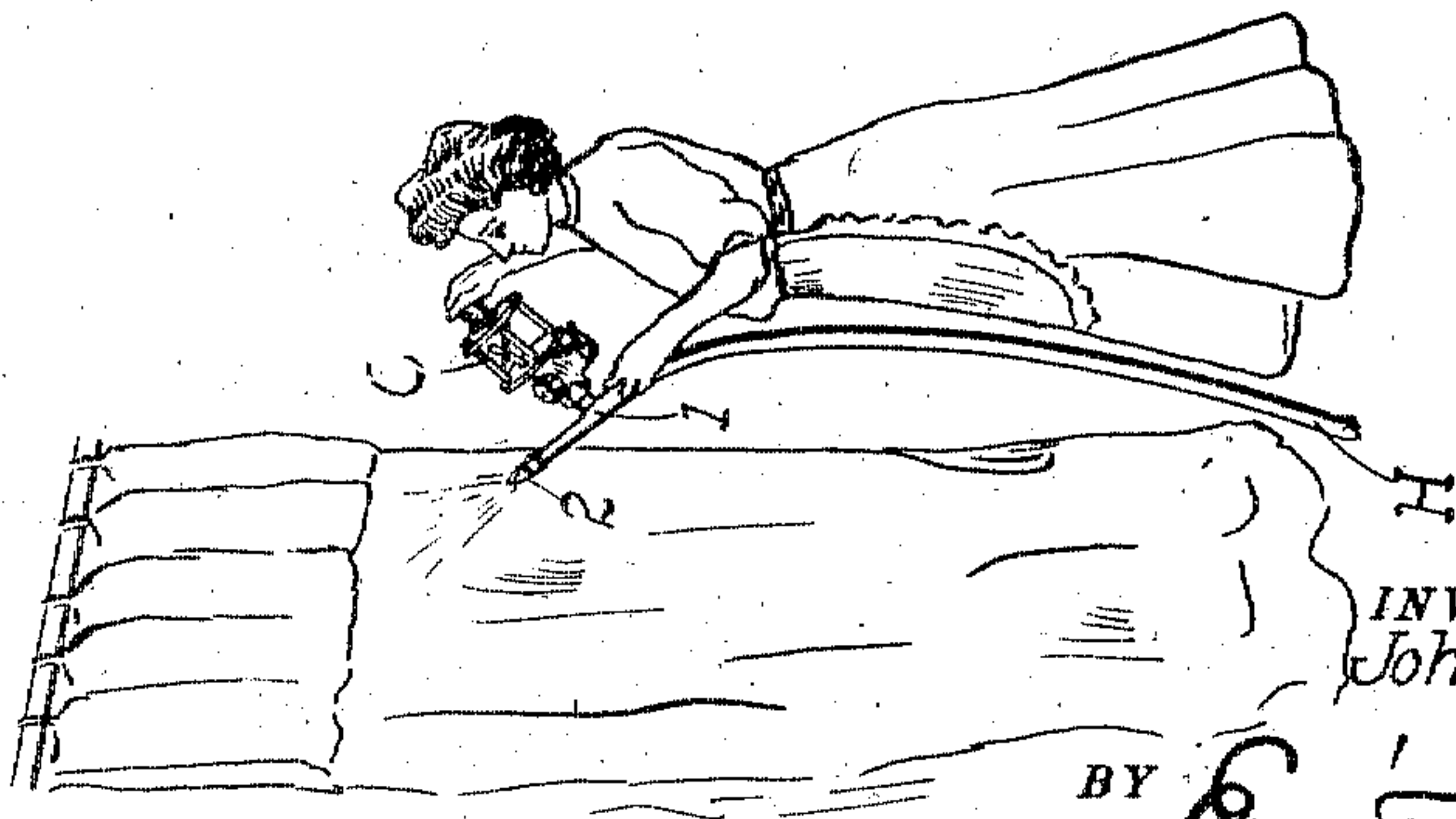
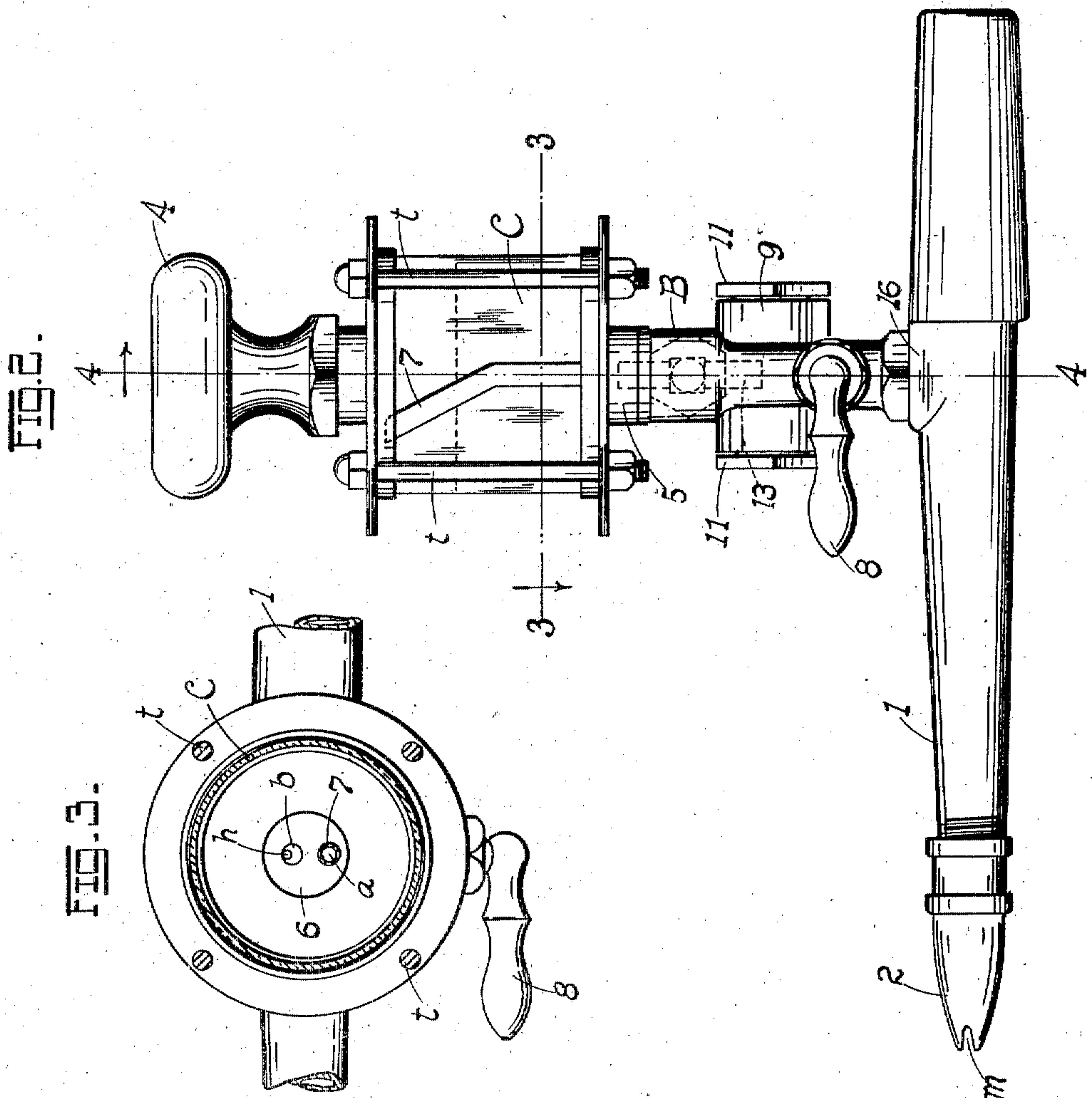


J. S. THURMAN.  
 ATOMIZER.  
 APPLICATION FILED SEPT. 7, 1909.

982,903.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

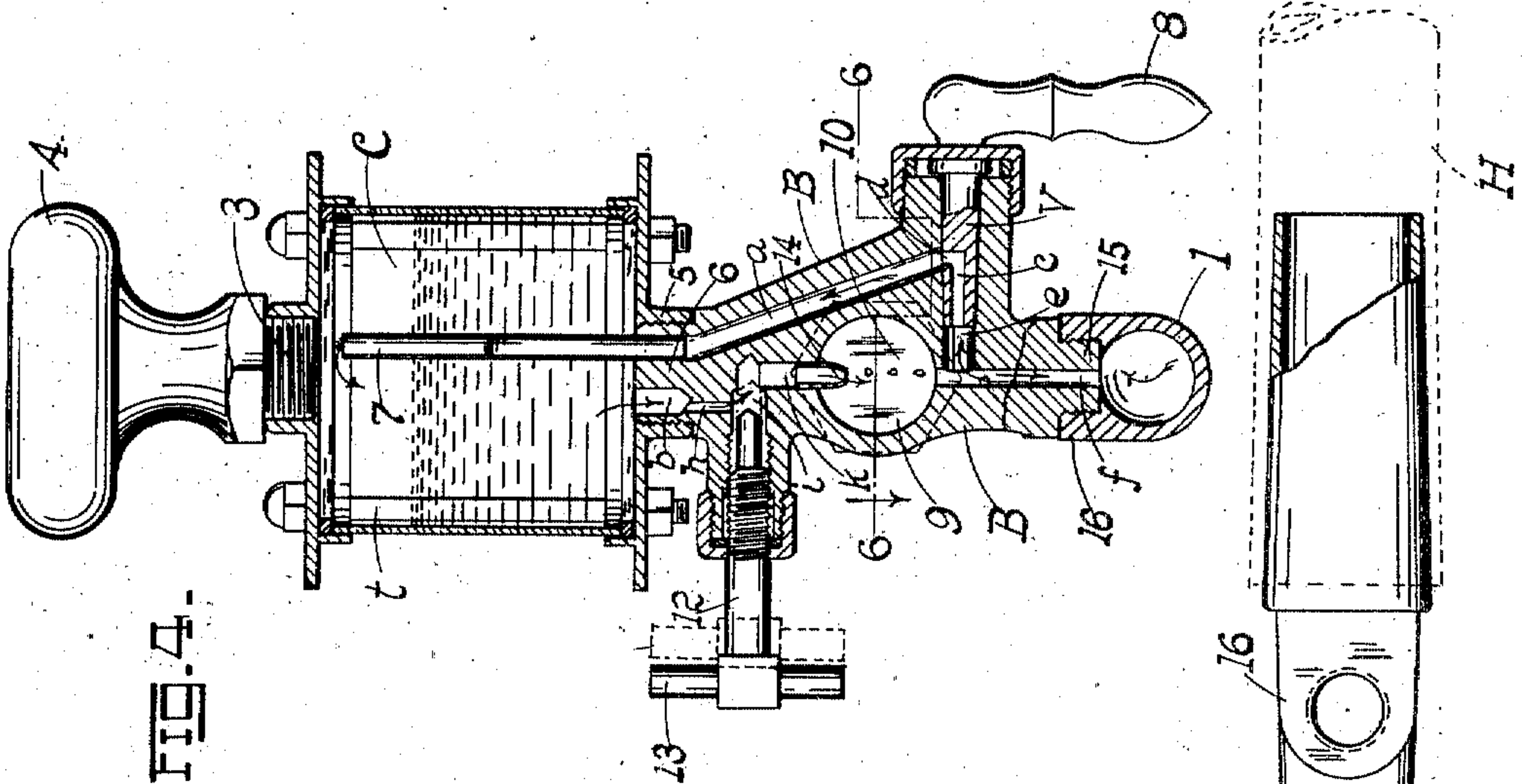


FIG. 4.

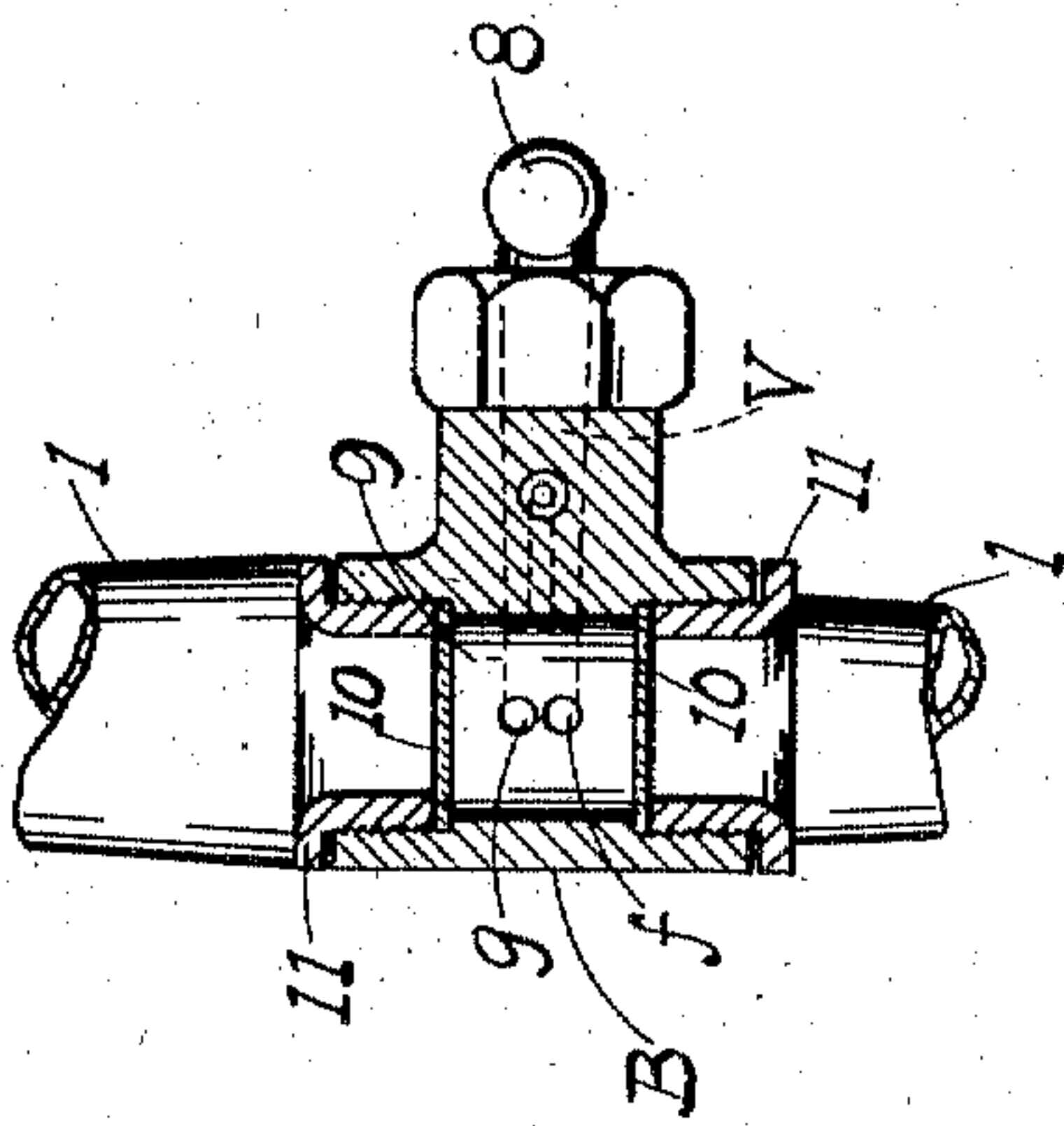


FIG. 6.

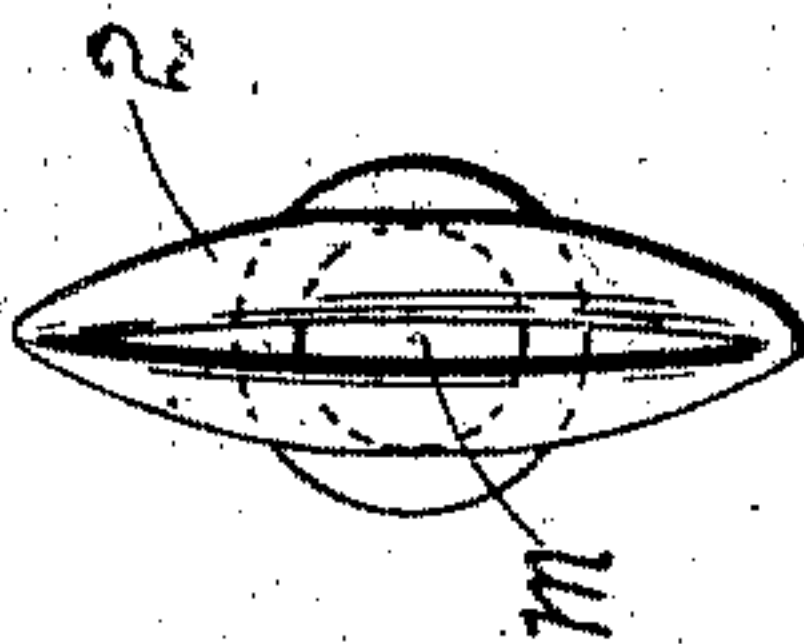


FIG. 7.

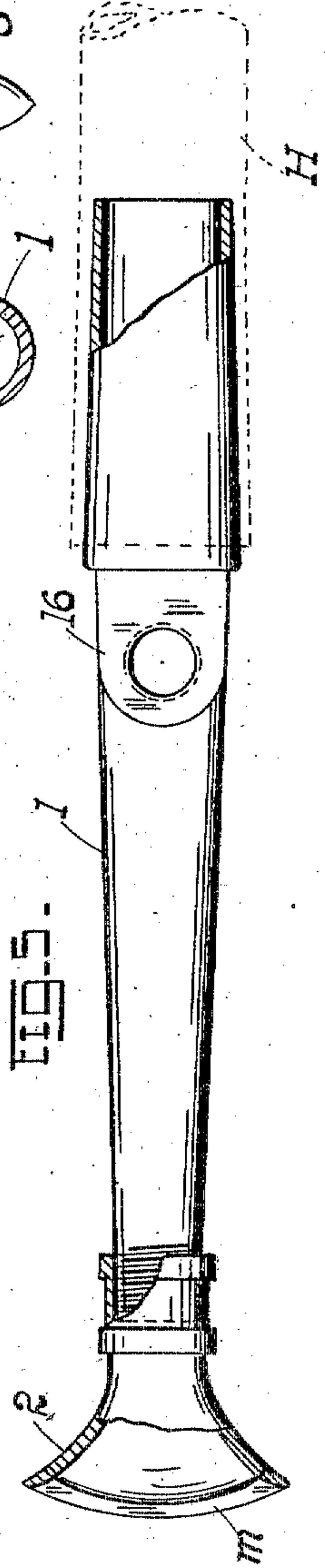


FIG. 5.

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# UNITED STATES PATENT OFFICE.

JOHN S. THURMAN, OF ST. LOUIS, MISSOURI.

ATOMIZER.

982,903.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed September 7, 1909. Serial No. 516,402.

*To all whom it may concern:*

Be it known that I, JOHN S. THURMAN, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Atomizers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in pneumatic atomizers; and it consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a perspective showing my invention as actually applied; Fig. 2 is a side elevation of the atomizer fully assembled; Fig. 3 is a cross-section on the line 3—3 of Fig. 2 taken through the container or holder; Fig. 4 is a vertical middle cross-section on the line 4—4 of Fig. 2, with the air valve however rocked to open position; Fig. 5 is a plan of the blowing or blast nozzle, parts broken away; Fig. 6 is a section on the line 6—6 of Fig. 4; and Fig. 7 is an end view of the spray head.

The present invention is intended to be used as an accessory in pneumatic cleaning systems, subserving the purpose of disinfecting fabrics, curtains, carpets, upholstered furniture and the like, and of removing grease spots, the material employed being either liquid or powder, (though preferably liquid), which is sprayed against the object treated by means of a current of air derived from the exhaust of a vacuum pump, or produced directly by an air compressor or pump, a jet, or equivalent means. The device may be readily attached to, or detached from the hose traversed by the impelling current referred to.

The object of the invention is to provide an apparatus which will spray the disinfectant, or grease remover over an extended surface, and with sufficient force to penetrate (if necessary) the article treated, so that the operation may be as thorough as possible.

A further object is to provide an atomizer which can be easily handled and requires a minimum amount of attention, and one possessing further and other advantages better

apparent from a detailed description of the invention which is as follows:

Referring to the drawings, H, represents a hose or air-line through which flows a current of air under pressure derived from any of the sources usually employed in vacuum and compressed-air cleaning systems, the free end of the hose having coupled thereto a blowing or blast-nozzle 1 terminating at one end in a spray-head 2 having a curved discharge mouth *m* widest at the middle and gradually tapering toward the ends. This form of mouth insures a diffusion of the sprayed material over a maximum surface.

C, represents a cylindrical reservoir or container having glass walls, and provided with metal heads tied by means of tie-bolts *t* as well understood in the art, the upper head having a central opening normally closed by a screw-plug 3, carrying a hand-disk 4, upon removal of which plug the vessel may be filled with the desired liquid (or powder) to be sprayed. The bottom head of the container is provided with a central hollow boss 5 which screws over the upper threaded stud 6 of the body portion or main casting B of the atomizer. In the boss 5 are formed two openings or passages *a* and *b* respectively, the former having inserted therein an equalizing tube 7, bent so as to be out of the range of the liquid poured into the reservoir when the latter is being filled, the upper open end of the tube reaching above the surface of the liquid in the reservoir. The passage-way *a* continues downward at an incline, the lower end thereof being controlled by a cock or rock-valve V terminating in an operating handle 8; the valve being provided with a longitudinal passage *c* terminating at its forward end in a leg or port *d*, which, for a given turn of the valve V in proper direction may be brought into communication with the passage *a* (Fig. 4). The rear or inner end of the passage *c* opens into the chamber *e* forming a continuation of the bore in which the valve V is mounted, said chamber *e* being intersected by the vertical discharge passages *f* and *g* leading from the bottom of the horizontal cylindrical drip-chamber 9 formed in the body B above



the valve V. The ends of the chamber 9 are closed by transparent observation windows 10, 10, which are held in place by screw-rings 11, 11.

5 Leading from the bottom of the opening *b* is a vertical port or passage-way *h* which communicates with the rear of the horizontal passage *i* in which is mounted a screw feed-valve 12, the latter being provided with  
10 a handle 13 for purposes of manipulation. The valve 12 controls the communication between the passage *i* and the vertical drip-passage *h* leading from the inner end of said passage *i* through the roof or top of the  
15 drip-chamber 9. From the passage *h* depends a drip nozzle 14 so as to drop the liquid directly over the upper open ends of the passages *f*, *g*. The passages *f*, *g* open at the bottom at the base of a screw-stud 15  
20 which screws into a hollow boss 16 formed on the blowing nozzle 1.

The parts being assembled (Fig. 2) the operation is as follows:—Assuming that the container C has been filled with liquid to a  
25 level below the upper end of the tube 7, and the nozzle 1 has been attached to the air hose H. Thereupon the valve V is rocked through the required angle to bring the passage *a* into communication with port *d* (Fig.  
30 4). This allows free communication between the space above the liquid in the container C and the passage of the nozzle 1, through the passages *f*, *g*, chamber *e*, passages *c*, *d*, *a*, and tube 7, and whatever be  
35 the pressure at which the air is passing through the hose H and nozzle 1 in its flow toward the mouth *m* of the spray-head 2, such pressure will be communicated to the space above the liquid in the container C,  
40 so that we have approximately the same pressure in the container C above the liquid as we have in the blast-nozzle 1. The pneumatic pressure in the nozzle 1 is however, likewise communicated to the drip-chamber  
45 9 through the passages *f* and *g*, which same pressure is in turn communicated to the bottom of the liquid in the container, the moment free communication is established between the chamber 9 and passage *b* lead-  
50 ing from the bottom of the container. This free communication of course, is effected by unscrewing the valve 12 sufficiently to make a continuous open passage-way between the parts *b*, *h*, *i* and *k* (Fig. 4). This done, the  
55 pressures below and above the liquid are equalized and the liquid (released by the feed-valve 12) flows by gravity into the drip-chamber 9 and thence through the passages *f* and *g* directly into the passage of the  
60 blast nozzle 1. The air in the blast nozzle 1 while free to communicate with the space above the liquid through the equalizing tube 7, and passages *f*, *g*, *e*, *c*, *d* and *a* as described, the presence of the air in the pas-

sages *f*, *g* does not interfere with the down- 65 ward flow of the liquid through them into the nozzle 1. By having two independent passages *f*, *g*, the air would probably be confined to one of the passages in its flow to the tube 7, thus leaving the liquid free to 70 avail itself of the other passage. By thus having two passage-ways *f*, *g*, leading from the drip-chamber 9, the danger of imperfect delivery of the liquid is entirely eliminated, and a certain flow is invariably the result. 75 As the liquid falls into the passage-way of the nozzle 1, the rushing current carries it along into the spray-head 2 from the mouth *m* of which it then projects and blows it out in a fan-shaped sheet, the fan-shape of 80 the spray resulting from the general flare of the head 2, and from the outwardly bowed formation or convexity of the bounding walls of the mouth, said convexity being in a plane at right angles to the general plane 85 of disposition of the head.

In lieu of liquid, the container may contain any form of free-flowing powder which may be sprayed against the article to be disinfected or cleansed. 90

Of course, the liquid (or powder) enters or drops into the passage of the blast nozzle in comparatively limited quantities, so that a spraying of the same is possible when projected through the mouth *m* by the current 95 traversing the nozzle.

Having described my invention, what I claim is:—

1. An atomizer comprising a body portion, a liquid reservoir at one end thereof 100 provided with an upper central filling opening, a blast nozzle at the opposite end, the body portion being provided with a valve-controlled passage opening into the bottom of the reservoir near the center thereof, an 105 equalizing tube extending from said passage through and above the liquid in the reservoir and bent out of range of the filling opening, a drip-chamber formed in the body portion contiguous to said passage, suitable 110 passages leading from the chamber to the passage of the blast nozzle and being adapted to be brought into communication with the valve-controlled passage aforesaid, an independent valve-controlled passage being 115 formed in the body portion between the drip-chamber and the bottom of the reservoir, the parts operating substantially as and for the purpose set forth.

2. An atomizer comprising a body por- 120 tion, a liquid reservoir on one side, and a blast nozzle on the opposite side, a valve-controlled passage in the body portion establishing intercommunication between the passage of the nozzle and the space above 125 the liquid, a drip-chamber in the body portion, a valve-controlled liquid-feed passage between the drip-chamber and reservoir, the

blast-nozzle and drip-chamber being connected by passages formed in the body portion and disposed in pairs, and serving to communicate the pressure in the blast nozzle  
5 to the drip-chamber and likewise conduct the liquid from the drip-chamber to the passage of the blast-nozzle.

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

JNO. S. THURMAN.

Witnesses:

EMIL STAREK,  
JOS. A. MICHEL.