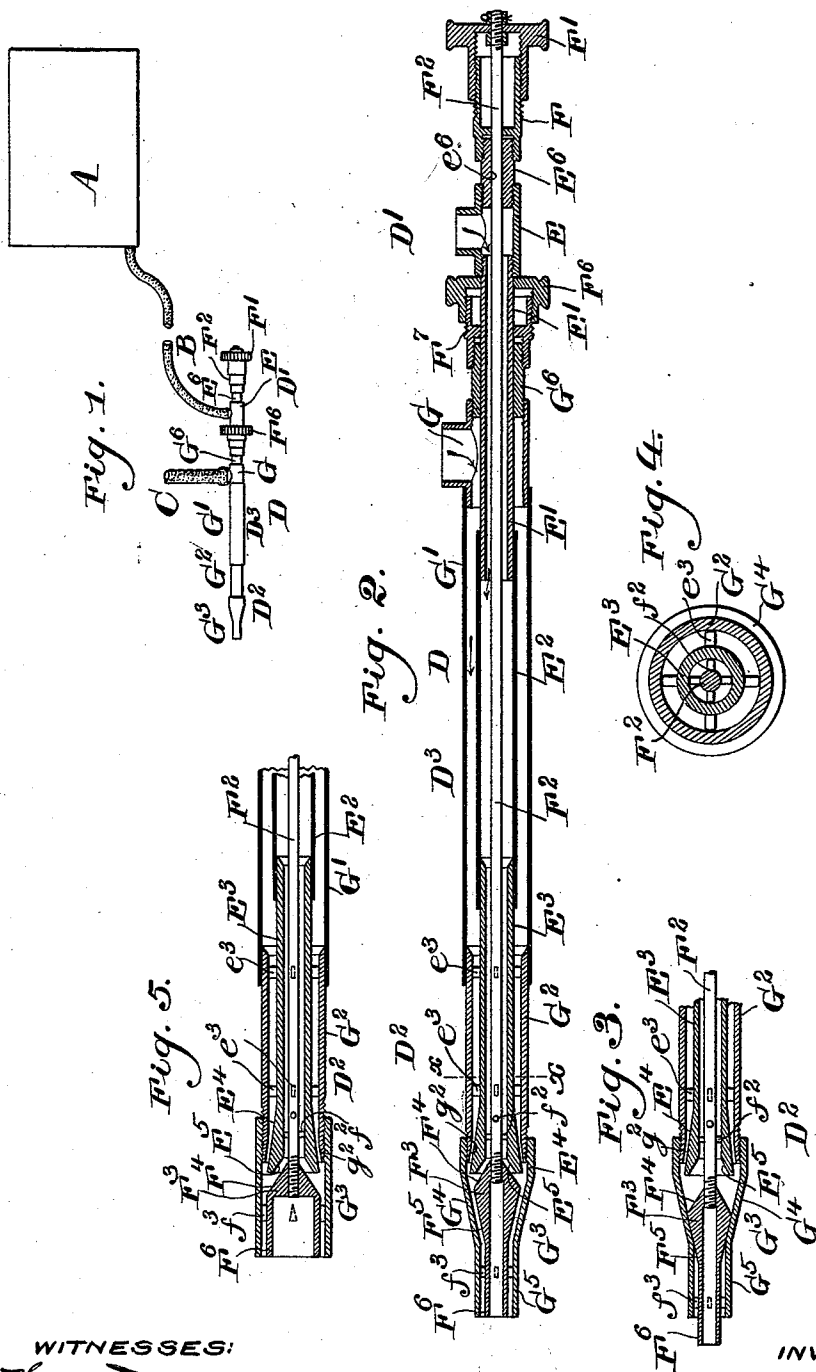


(No Model.)

A. FISHER.
PNEUMATIC PAINTING NOZZLE.

No. 554,921.

Patented Feb. 18, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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PNEUMATIC PAINTING-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 554,921, dated February 18, 1896.

Application filed April 23, 1895. Serial No. 546,813. (No model.)

To all whom it may concern:

Be it known that I, ABEL FISHER, a citizen of the United States, residing in Wellsville, county of Columbiana, State of Ohio, have
5 invented a certain new and useful Improvement in Pneumatic Painting-Nozzles, of which the following specification is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

10 My invention relates to the class of devices in which paint, whitewash, or like substance is thrown onto the surface to be coated by the action of compressed air; and the object of my invention is to provide a nozzle so constructed that while its operative parts can be
15 of standard dimensions the effective length of the nozzle can be made greater or less, as may be desired, and without materially affecting its weight; also, to provide simple
20 and efficient means for regulating the flow of fluids from the nozzle, such means being controlled from the butt-end thereof; also, to provide means for cleaning the nozzle, stirring the fluids used as a paint, and, if desired,
25 communicating pressure from the reservoir containing such fluid to assist in forcing it into the nozzle.

The nature of my improvements will be best understood as described in connection
30 with the drawings, in which they are illustrated, and in which—

Figure 1 is a view of my improved nozzle, showing also the reservoir of paint material from which it is supplied. Fig. 2 is a longitudinal central section through the nozzle.
35 Fig. 3 is a similar view of the delivery end of the nozzle, showing a different adjustment of the valves therein. Fig. 4 is a cross-section of the nozzle on the line *xx* of Fig. 2, and Fig.
40 5 is a sectional view of the delivery end of a somewhat modified nozzle.

A indicates the reservoir of paint, B a flexible tube extending from the bottom of this reservoir to the nozzle, and C a similar flexible
45 tube extending from the nozzle to a reservoir of compressed air. (Not shown.)

D indicates my improved nozzle, which in its best and most perfect form is made up of three parts—namely, a butt-end D', containing the attachments by which the supply of
50 paint and of compressed air is delivered to

the nozzle and valve-actuating devices by which the flow of fluids in and from the nozzle is controlled; second, a delivery end D², containing the valves by which the flow of
55 fluid is regulated, and, third, an intermediate section D³, made up of light metal tubing secured to the tubes which make up the butt and delivery ends of the nozzle. It will readily be seen that by this method of construction I can make my nozzle as long as
60 may be desired by simply increasing the length of the light metal tubes making up the section D³, and without in any way interfering with the standard construction of the
65 ends of the nozzle or materially increasing its weight as a whole.

Essentially the nozzle consists of two concentric tubes, through one of which passes the paint, while the air is delivered to the other,
70 and for the purpose of conveniently attaching the intermediate section D³ to the butt and delivery sections I make the inner tube of the butt-sections extend farther forward than the outer tube and the inner tube of the
75 delivery end extend farther backward than the outer tube, though this is not at all essential to the proper putting together of the device.

The butt-end section D' of the nozzle in the
80 construction shown is made up of a T-section E, through the lateral opening of which the flexible connection with the paint-reservoir is made, and to the front opening of which is attached the inner pipe-section E', while to the
85 rear opening is attached a plug E⁶ having in it a perforation *e*⁶ through which passes a valve-rod F², said rod also passing through an end piece F, which is screwed onto the plug E⁶ and is provided at its outer end with a
90 thread on which screws a handle F' attached to the valve-rod F². In front of the T-section E, I secure a handle F⁶ to the inner tube E', this handle screwing into an extension F⁷ of a perforated plug G⁶, which fits on the inner
95 tube E' and into the rear end of a tubular T-section G, through the lateral opening of which connection is made with the compressed-air reservoir. It will readily be seen that by turning the handle F⁶, the plug G⁶ and
100 tube-section G being held stationary, the inner tube E' will be caused to advance or re-

cede longitudinally with respect to the said outer tube.

Referring now to the delivery end of the nozzle, G^2 is the outer tube, corresponding with the section G of the butt-end, and E^3 is the inner tube, corresponding with the section E of the butt.

e^3 e^3 indicate spiders by which the tubes are maintained in concentric position while free to move longitudinally, and similar spiders f^2 f^2 are provided to guide the valve-spindle F^2 through the inner tube E^3 . The flow of fluid from the outer tube is, in the construction shown, regulated by means of the flared end E^4 of the tube E^3 , in connection with the extreme end g^2 of the outer tube G^2 . It will readily be seen that the relative longitudinal motion of the tubes G^2 and E^3 can be made to close the opening in the tube G^2 or to regulate it at will.

F^3 indicates the valve secured on the outer end of the rod F^2 . As shown in Figs. 2 and 3, it is really made up of two valves F^4 and F^5 , while in Fig. 5 only the one valve, F^4 , is shown. In each case, however, the extreme outer end of the part F^3 , on which the valves are formed, and which is indicated at F^6 , extends into the mouth of the end piece of the nozzle, so as to insure the proper spreading of the paint. The valve portion F^4 operates, in connection with a preferably cone-shaped terminal, as E^5 , to the pipe-section E, to regulate the flow of fluid through its inner tube.

The end piece G^3 is attached to the outer tube-section G^2 and is preferably made with a portion of its length conical, as indicated at G^4 , Figs. 2 and 3, its extreme outer end being preferably cylindrical, as indicated at G^5 . It is in connection with the conical portion G^4 of the end piece that the valve F^5 operates, and it will be readily seen that by moving the valve-rod F^2 , I regulate not only the opening from the inner tube but the opening in the end piece G^3 through which the mixed air and paint mixture must pass. It is also evident that by moving the valve F^5 forward it can be brought into contact with the conical portion G^4 of the end piece, entirely closing the delivery end of the nozzle, as indicated in Fig. 3.

G' and E^3 indicate respectively the light metal pipe-sections connecting the inner and outer tubes of the butt and delivery ends of the nozzle.

It will be readily seen that in the construction I have described the flow of paint mixture and compressed air is entirely within the control of the operator holding the butt-end of the nozzle, irrespective of the length to which the nozzle may be extended. It will also be understood that in operation the paint is delivered from the end piece of the nozzle in the form of a fine spray and with considerable force. When it is desired to clean the nozzle, or to effect a more thorough mixture of the paint in the reservoir, the valve F^5 is

moved forward to the position shown in Fig. 3, in which case the compressed air, being unable to escape from the nozzle at the end, will pass into the interior or paint tube of the nozzle, forcing the paint out of that and out of the flexible tube back into the receptacle A. In this way the nozzle and its connections can be cleaned at any time, and, by permitting the air to continue its flow into the tank A, the paint mixture contained therein can be thoroughly mixed. Also if the paint-receptacle is an air-tight tank the compressed air will accumulate there and assist in forcing the paint out of the tank and into the nozzle when the apparatus is again brought to an operative condition. In the construction shown in Fig. 5 this adaptability for cleaning the nozzle by means of the air and for stirring the tank is of course lost, but for many purposes such a nozzle will be found efficient and useful.

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

1. In a painting-nozzle the combination of two concentric tubes relatively movable in a longitudinal direction, coacting valve parts as E^4 g^2 for regulating the flow of fluid through the outer tube situated near the delivery end of the nozzle and actuated by the relative movement of the tubes, means as handle F^6 for moving one tube on the other, a valve as F^4 arranged at the delivery end of the nozzle to control the flow of fluid from the inner tube, a valve-rod F^2 secured to said valve and running through the inner tube, means as handle F' situated in the butt-end of the nozzle for actuating said rod and valve, and means, as T-sections E and G for delivering air and paint to the tubes at the butt-end of the nozzle.

2. In a painting-nozzle the combination with concentric tubes having means for connecting them to reservoirs of air and paint at their butt-ends of a contracted delivery end G^4 secured on the exterior tube and extending beyond the delivery end of the inner tube, a valve F^3 adapted to close and regulate the opening in the delivery end G^4 and in the delivery end of the inner tube, and means for actuating said valve from the butt-end of the nozzle.

3. In a painting-nozzle the combination with concentric tubes having means for connecting them to reservoirs of air and paint at their butt-ends and means for moving them longitudinally with relation to each other, of a contracted delivery end G^4 secured on the exterior tube and extending beyond the delivery end of the inner tube, a valve F^5 lying in the contracted delivery end G^4 and in front of the delivery end of the inner tube and adapted to regulate and close the opening in the delivery end G^4 , means for actuating said valve from the butt-end of the nozzle, coacting valve-surfaces actuated by the relative

movement of the tubes for regulating the flow of fluid through the outer tube and means for moving the tubes relatively to each other and thus actuating said valve said means being
5 situated at the butt-end of the nozzle.

4. In a painting-nozzle the combination with concentric tubes having means for connecting them to reservoirs of air and paint at
10 their butt-ends and means for moving them longitudinally with relation to each other, of a contracted delivery end G^4 secured on the exterior tube and extending beyond the delivery end of the inner tube, a valve F^3
15 adapted to close and regulate the opening in the delivery end G^4 and in the delivery end of the inner tube, means for actuating said valve from the butt-end of the nozzle, coacting valve-surfaces actuated by the relative movement
20 of the tubes for regulating the flow of fluid through the outer tube and means for actu-

ating said valve situated at the butt-end of the nozzle.

5. In a painting-nozzle the combination with concentric tubes having means for connecting them to reservoirs of air and paint at
25 their butt-ends, and means for moving them longitudinally with reference to each other situated near the butt-end of the nozzle of co-acting valve-surfaces situated near the de-
30 livery ends of the tubes and actuated by their relative movement to control the flow of fluid through the outer tube, a valve arranged at the delivery end of the inner tube to control the flow of fluid through it, and means situ-
35 ated at the butt-end of the nozzle for actuating said valve.

ABEL FISHER.

Witnesses:

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CHAS. BOYD.