

No. 649,430.

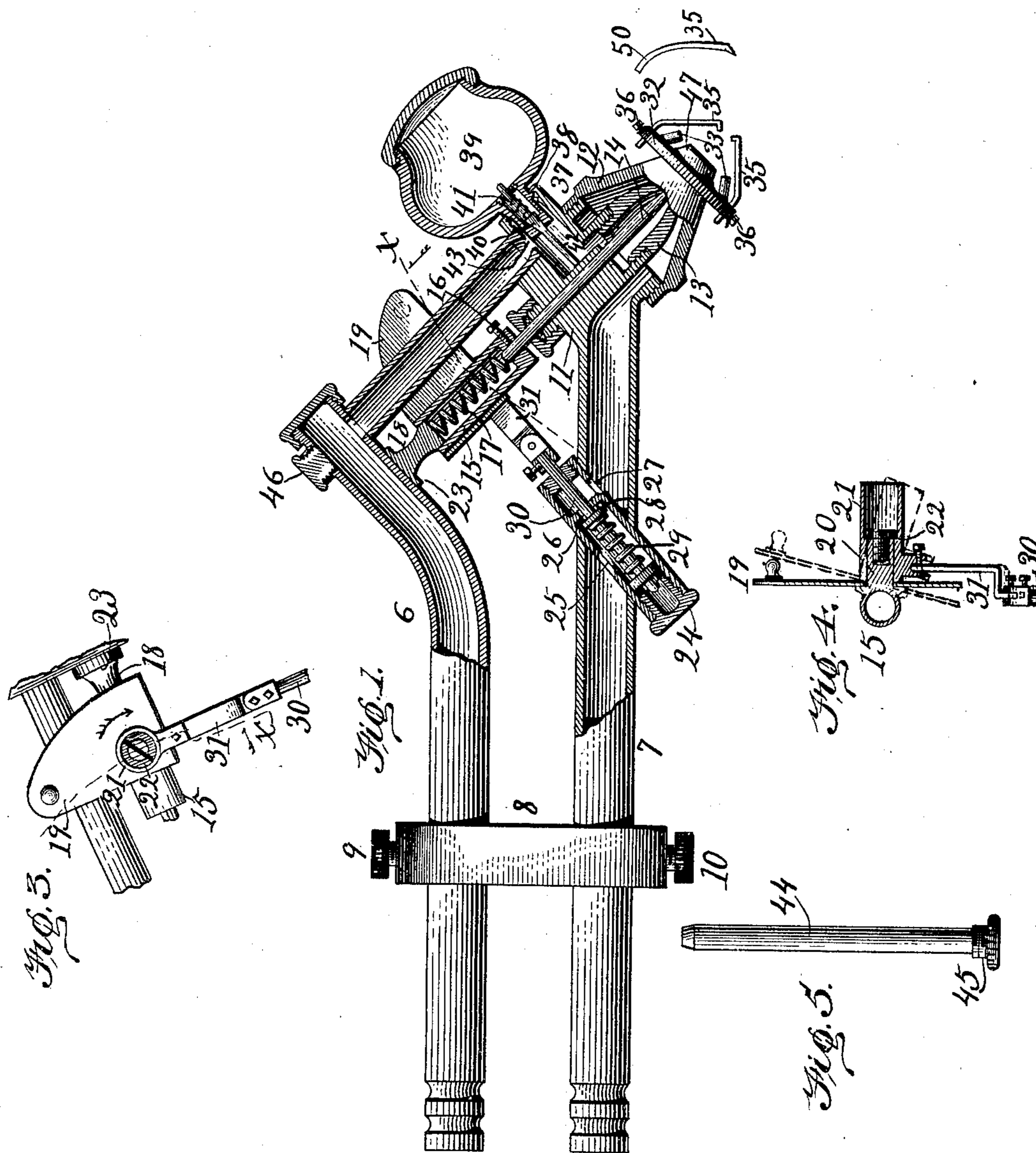
Patented May 15, 1900.

C. L. BURDICK.

AIR BRUSH.

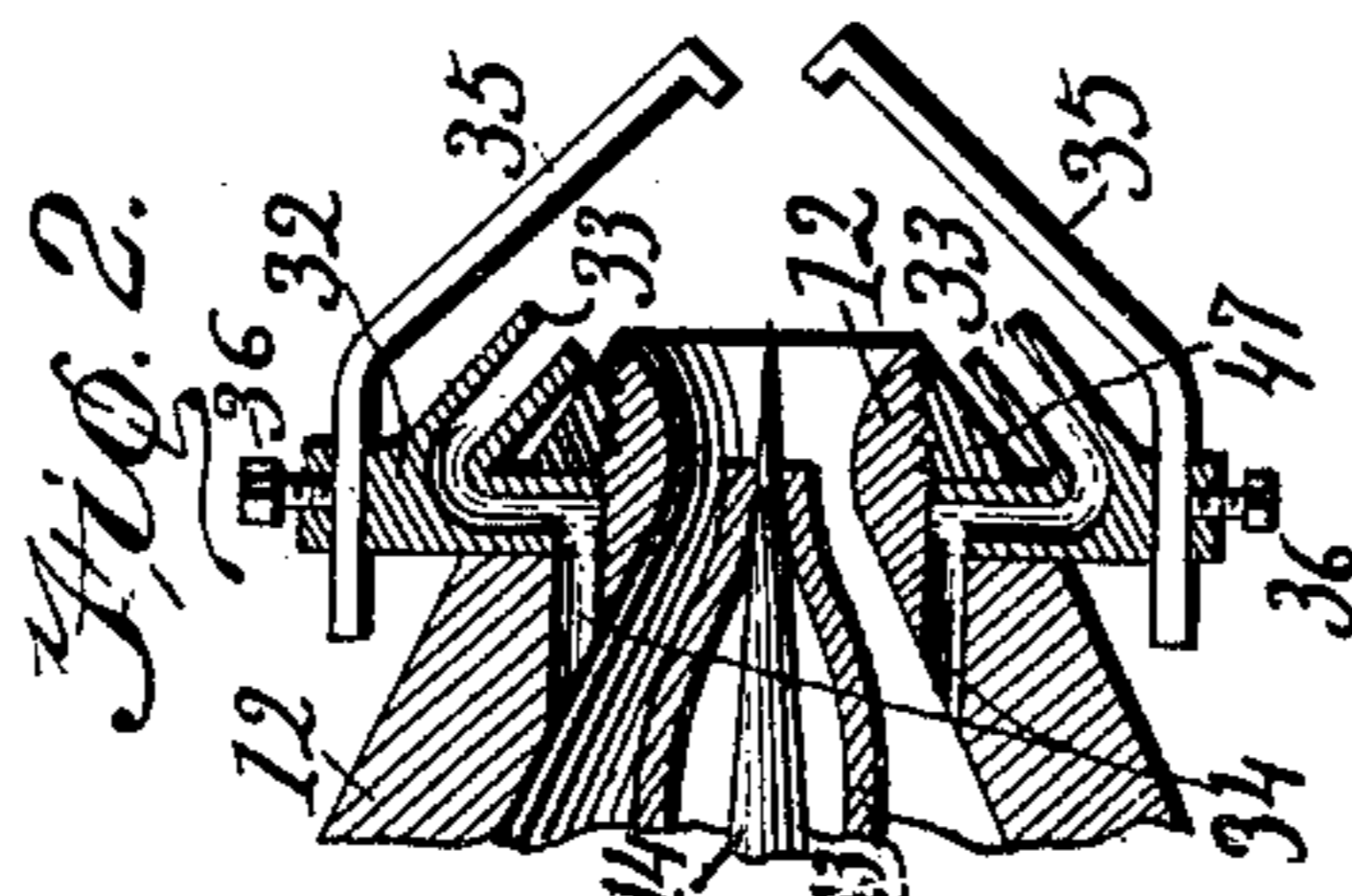
(Application filed Sept. 1, 1899.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## AIR-BRUSH.

SPECIFICATION forming part of Letters Patent No. 649,430, dated May 15, 1900.

Application filed September 1, 1899. Serial No. 729,234. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES LAURENCE BURDICK, a citizen of the United States, residing at London, England, have invented a new and useful Improvement in Air-Brushes; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to that class of implements called "air-brushes," by means of which artists apply india-ink and colored paints in the form of spray by the aid of an air-blast; and its objects are, first, to provide means to open a paint-receptacle when it is attached to the air-brush; second, to provide simple means for operating the paint-admitting valve and the air-admitting valve both by a thumb or single finger of the artist; third, to provide means for flattening the delivery-stream of paint; fourth, to provide means for intercepting stray drops of paint spray before they land on the work, and other objects, as will appear in the following description.

To this end my invention consists in the construction and combination of parts forming an air-brush, more fully hereinafter described and particularly set forth in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents an air-brush according to this invention, partly in longitudinal section and partly in side elevation. Fig. 2 is an enlarged fragmental view in longitudinal section at the delivery end of the air-brush. Fig. 3 is a side view of the operating-key; and Fig. 4 is a sectional view of the same key transverse to the line of the implement at line *x*, Figs. 1 and 3. Fig. 5 is a side view in detail of a valve or plug.

The handle of the air-brush comprises the paint-conducting tube 6, the air-conducting tube 7, and a cross-bar 8, which is bound to the tubes 6 and 7 by means of screws 9 and 10 to make the implement rigid. These tubes are rigidly secured to the body 11, upon which the nozzle 12 is screw-threaded and into which the valve-tube 13 is screw-threaded, so that the nozzle and valve-tube may be exchanged for others.

14 is a needle-valve fitting the seat in the valve-tube 13 and provided with a sleeve 15, secured to it by a screw 16.

17 is a spring acting between a post 18, over which the sleeve 15 slides, and the needle, impelling the latter toward its seat in tube 13. The post 18 is a rigid fixture upon the handle. 19 is a cam mounted to swing parallel with the line of the needle 14 upon a stud 20, that is fixed to project laterally from the sleeve 15.

21 is a sleeve upon stud 20, secured thereby by means of a screw 22 to bear with frictional contact against the key 19, so as to require a slight edgewise pressure to rotate it in either direction about the stud 20. The sleeve 21 is the handle of the operating-key. The cam 19 is shaped at its rear edge to strike against the shoulder 23 of the post 18 to limit the rearward or opening movement of the valve 14, more or less, according to the rotary position of the cam, upon its stud 20.

24 is a valve located obliquely across the air-conducting tube 7 in order that an inlet 25, located above the valve-seat 26, and the outlet 27, located below the said valve-seat, may both be within the tube 7 and permit plenty of room for longitudinal action of the valve proper, 28. This valve is normally impelled to closure by a spring 29, and its stem 30 is connected with the key 21 by a pitman 31. A finger placed upon this key may draw directly backward to open the paint-delivery valve 14, and it may at the same time press down upon the key, whereby the key will be rotated a little about the center line of the valve 14 as an axis and act as a lever upon the pitman 31 to push open the valve 28, whereby air is permitted to flow through tube 7 to be discharged through the nozzle 12. This air-blast through the nozzle draws paint through the valve-tube 13 and discharges it in spray.

32 is a washer-shaped nozzle having one or more outlet-jets 33, directed obliquely across the line of delivery of the nozzle 12. Passages 34 communicate between the jets 33 and the air-passage within the nozzle 12.

The word "nozzle" is used throughout this specification in its commonly-accepted sense as the delivery end of the tube from which the passing contents of the tube is finally discharged.

The two currents of air directed by the side

jets 33 against the air discharged from the central delivery of the nozzle flatten the delivery of air and of paint carried thereby into a thin sheet, whose front edge is a line. To prevent stray bits of paint from landing on the work out of the line desired, I provide side strippers 35, which may be set as desired and secured to the nozzle 32 by binding-screws 36.

To adapt this air-brush to use paints of different colors and in small quantities, I provide a socket 37, opening into the paint-passage, to which socket I fit the delivery end 38 of each paint-receptacle 39.

40 is a valve in the delivery end of receptacle 39, provided with a closing-spring 41. The stem 42 of this valve is so proportioned relatively to the depth of the receiving-socket 37 that when the receptacle 39 is screwed home in the socket the said stem, meeting the bottom of the socket, is raised so as to hold the valve 40 open as long as the receptacle 39 is in place for service, and when the receptacle is unscrewed the spring 41 closes the valve, as shown in Fig. 1, so that no paint escapes during the change from one color to another even though the receptacles are inverted.

When a receptacle 39 is in service, the passage 43 from tube 6 is to be closed by inserting a screw-plug 44, that is threaded at 45, under its head to engage the thread in which a cap 46 is shown. The nozzle 32 is held in place by a screw-nut 47, threaded upon the end of the nozzle 12, and the jets 33 may be mere holes bored obliquely into the nozzle 32 instead of the individual pipes shown. The strippers 35 may have curved shanks, as shown in detail at 50, or be otherwise so shaped that they may be set either near to or far from the end of the nozzle or near to or far from the axial line of delivery.

The cam 19 may be set at any time by a quick movement of the operating-finger to fix the limit of opening of the paint-valve 14, as the cam is held in its rotary position upon the stud 20 by frictional contact with the sleeve 21, which is forced into contact with it by the screw 22.

The side-acting jet-nozzle 32 may be removed when the common circular delivery is desired. In some cases one jet 33 may be used to advantage, and possibly more than two jets may produce a desired effect in other cases.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. In an air-brush, a body; a nozzle; a needle-valve and means for reciprocating it to open and close the nozzle; a cam mounted to rotate upon the valve-stem in a plane parallel with its line of motion to engage a shoulder at the rear end of its path, and means for frictionally securing the cam as set.

2. In an air-brush, a tube for the passage of air under pressure, and a valve-tube located across and within the air-tube oblique to the line thereof; there being an inlet-opening from the air-tube to the valve-tube above the valve-seat, and an outlet-opening from the valve-tube to the air-tube below the valve-seat.

3. In an air-brush, a reciprocating needle, paint-supply valve having a laterally-projecting stud; an air-supply spring-impelled valve located substantially at right angles with the line of the paint-supply valve; and a pitman connecting the said stud with the air-supply valve, substantially as described, whereby the rocking of the paint-supply valve around its axis will operate the air-supply valve.

4. In an air-brush, a needle, paint-supply valve having a laterally-projecting stud; a stop-cam mounted to rotate against a shoulder upon the said stud; a sleeve upon the said stud, bearing against the cam and serving as the operating-key, and a binding-screw therefor; an air-supply valve located substantially at right angles to the line of the paint-supply valve, and a pitman connecting the air-supply valve with the said key.

5. In an air-brush, a delivery-nozzle having a screw-threaded front end and air-passages leading to the shoulder of the screw; a washer-shaped nozzle fitted upon the said screw and having one or more jet-deliveries communicating with the said air-passages and pointing in a direction obliquely crossing the central line of the main nozzle-delivery, and a screw-nut for holding the washer-nozzle in place.

6. In an air-brush, a delivery-nozzle having an air-passage within, and a pair of oppositely-inclined side jets connected with the said passage and pointed in directions obliquely crossing the central line of delivery of the said nozzle.

7. In an air-brush, a paint-conducting tube or tubes having a delivery-nozzle and a stripper located beyond the delivery end of the nozzle and to one side of the line or plane of delivery; there being free opening at the sides or edges of the stripper.

8. In an air-brush, a delivery-nozzle and strippers located beyond the end thereof, each stripper being adjustable independently of the other, in distance from the end of the nozzle and from the central line of delivery.

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

CHARLES LAURENCE BURDICK.

Witnesses:

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D. CARROLL DIGGES.