

No. 862,164.

PATENTED AUG. 6, 1907.

E. F. HULBERT.
PNEUMATIC PAINT TOOL,
APPLICATION FILED DEC. 28, 1906.

2 SHEETS—SHEET 1.

Fig 1

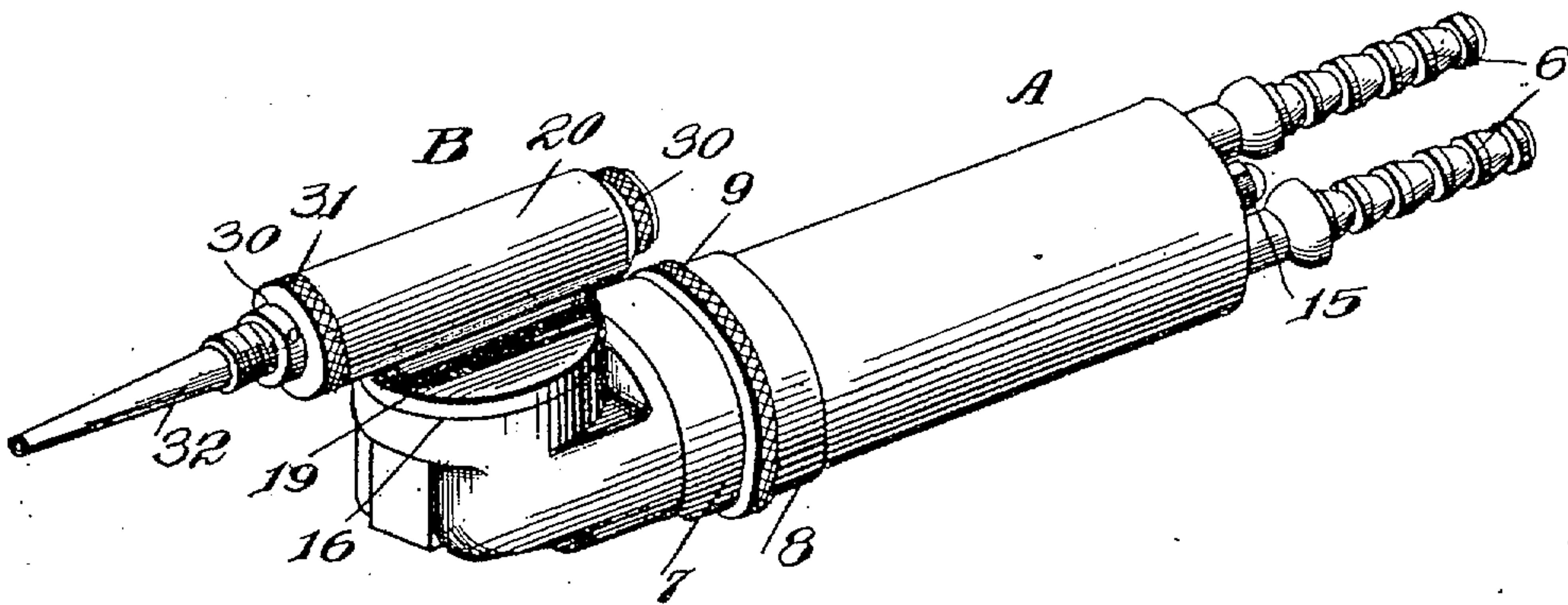
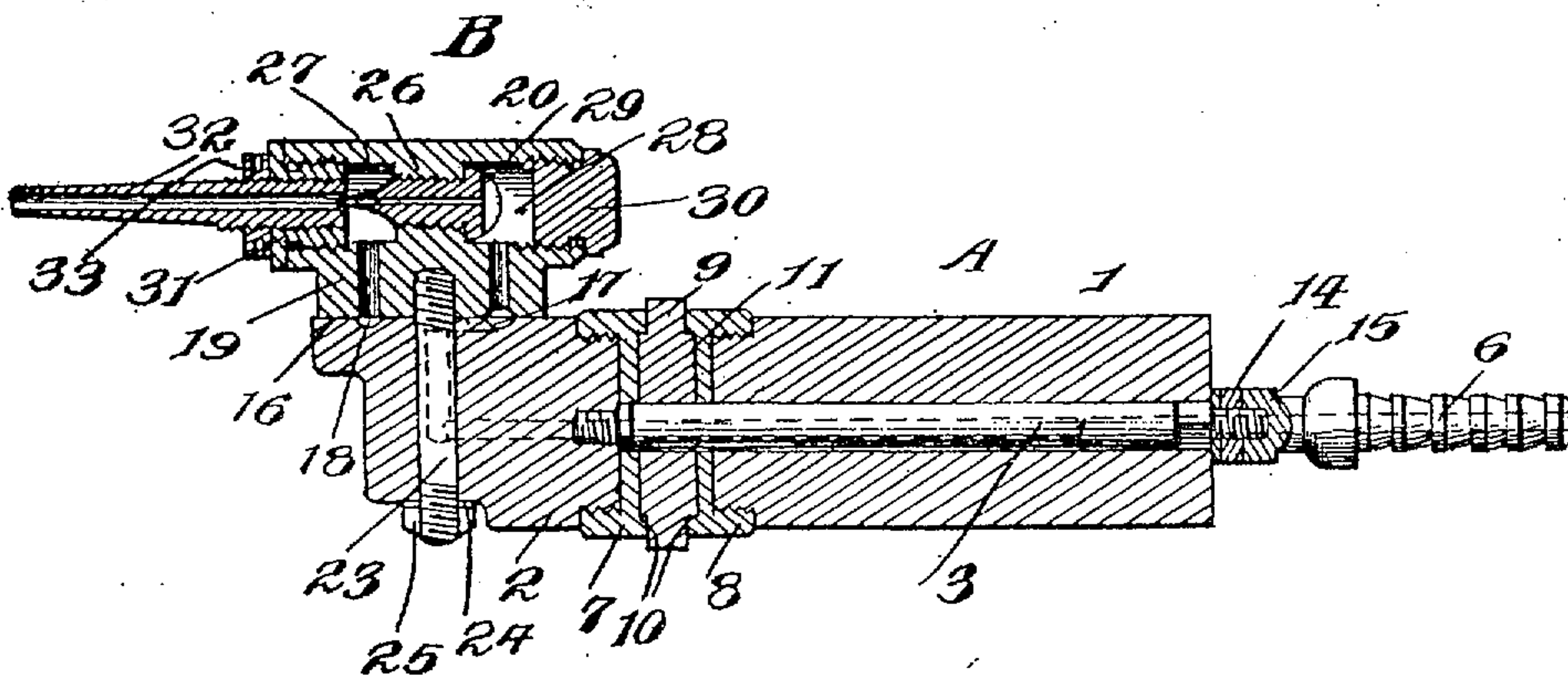


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

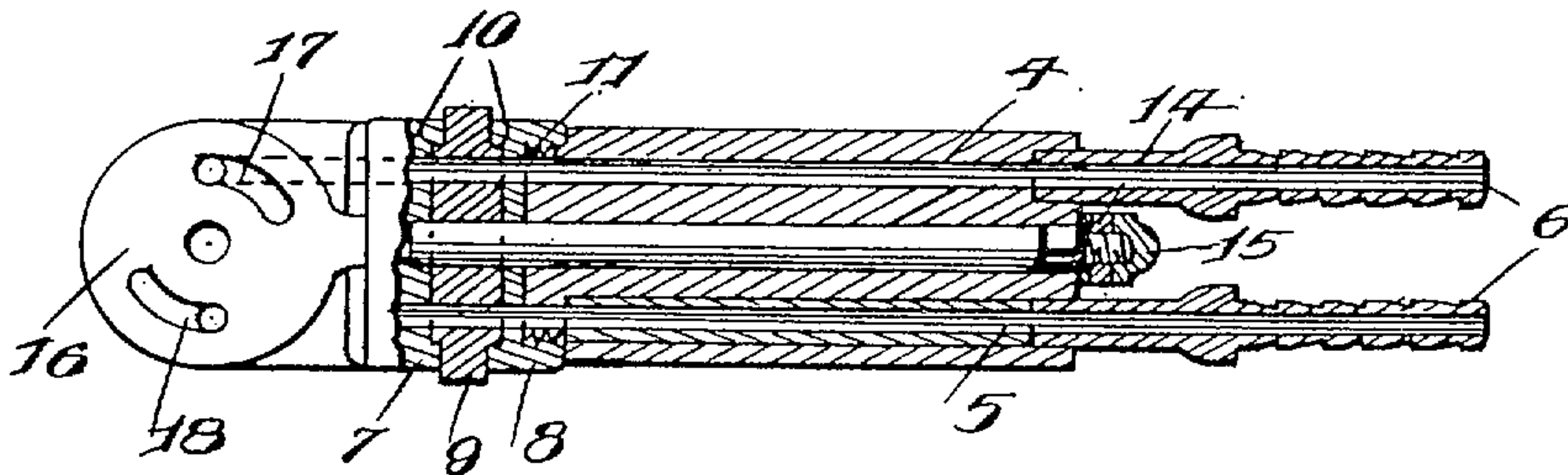


Fig. 4.

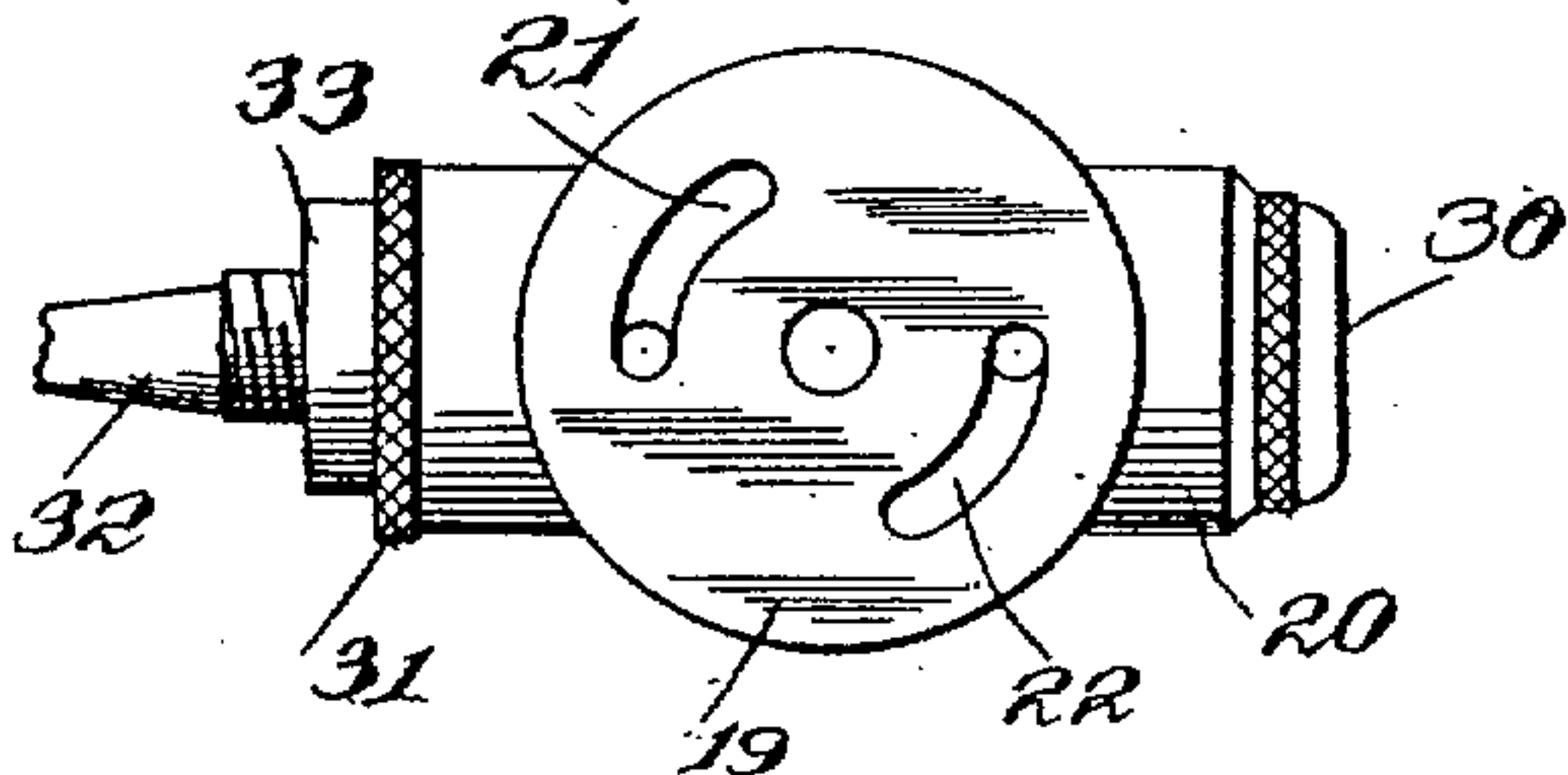


Fig. 5.

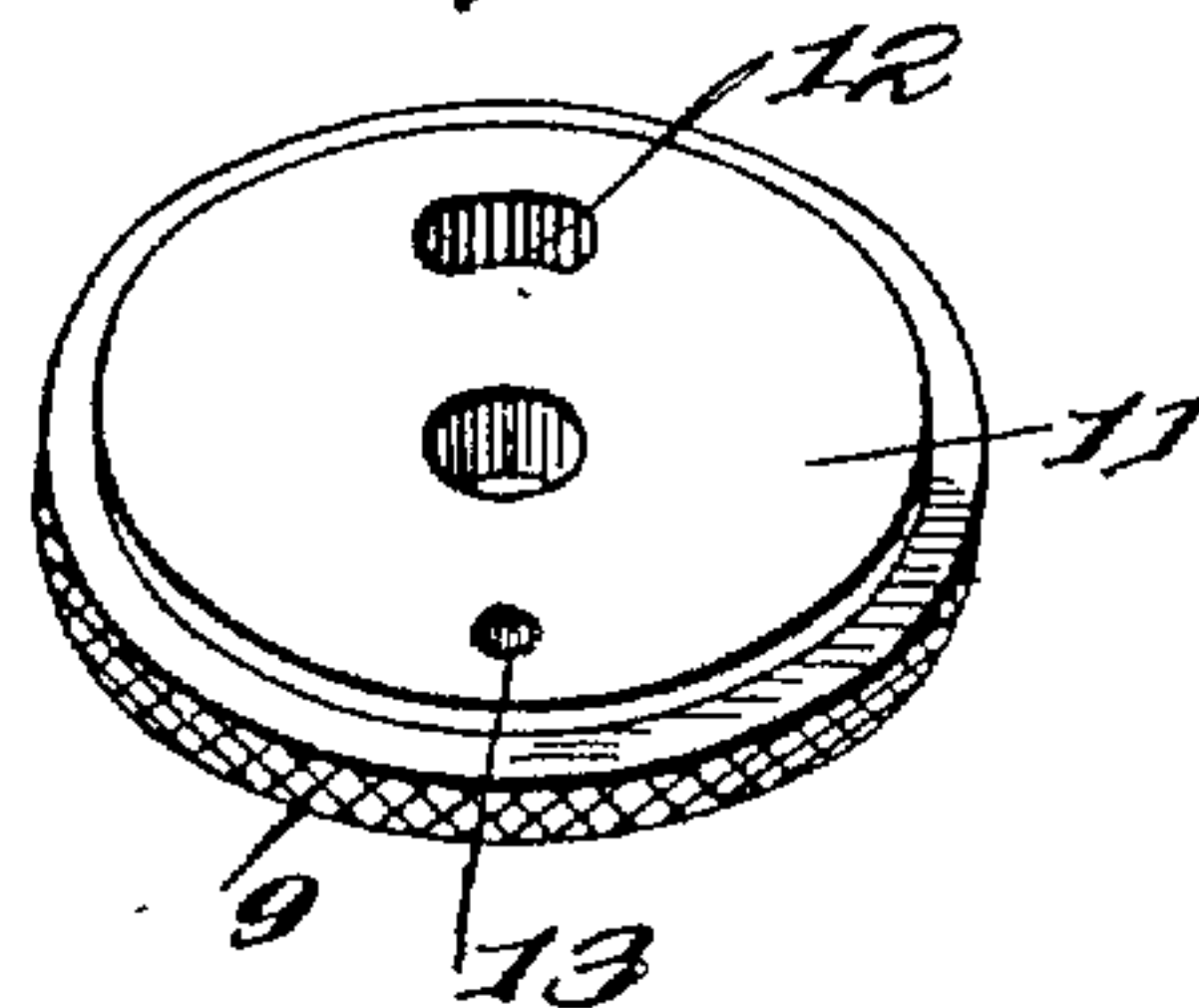
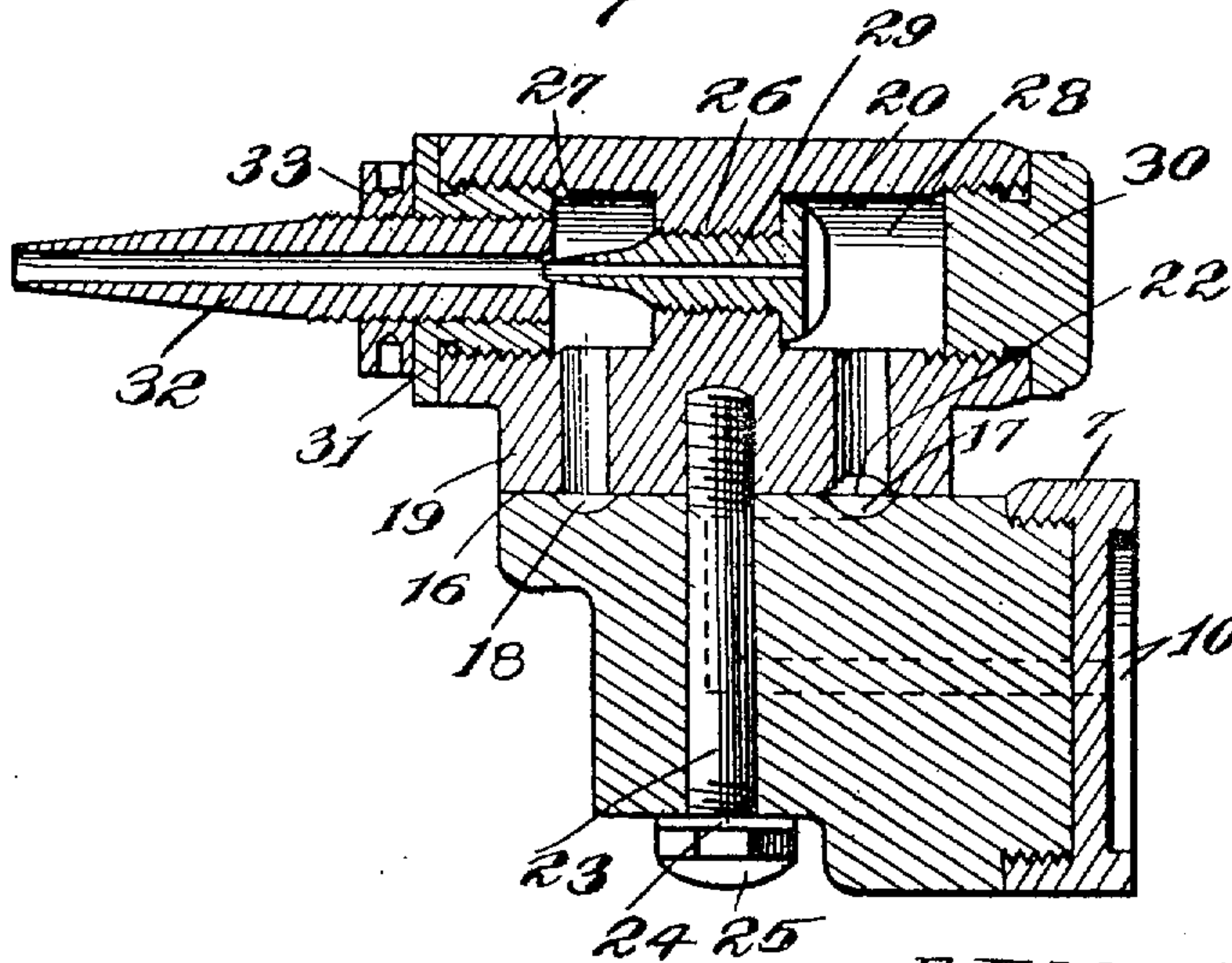


Fig. 6.



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UNITED STATES PATENT OFFICE

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PNEUMATIC PAINT-TOOL.

No. 862,164.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed December 26, 1906. Serial No. 349,457.

To all whom it may concern:

Be it known that EDWIN F. HULBERT, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, has invented certain new and useful Improvements in Pneumatic Paint-Tools, of which the following is a specification.

This invention relates to tools which apply liquid to a surface in the form of spray, being of special advantage in painting and stenciling railway cars and painting and lettering all kinds of boxes and packages, bulletin boards, signs and the like.

The present invention provides a tool of the type aforesaid which will involve a novel construction and arrangement of parts, a valve mechanism and a swivel head capable of adjustment to any angle with reference to the handle to within about 90 degrees.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of a pneumatic paint tool embodying the invention. Fig. 2 is a central longitudinal section thereof. Fig. 3 is a horizontal section of the handle portion of the tool showing the bolster thereof in full so as to indicate the channels formed therein constituting passages for the air and liquid. Fig. 4 is a detail view of the swivel head showing the face thereof inclined so as to indicate the relation of the channels formed therein for cooperation with the companion channels provided in the bolster. Fig. 5 is a detail view of the valve. Fig. 6 is a longitudinal section of the swivel head and the bolster, showing the parts on a larger scale.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The tool comprises, essentially, a handle A and a swivel head B. The parts A and B may be of any construction dependent upon the design of the tool and may be formed of any material, metal being preferred. For the sake of lightness aluminium has been found best adapted for the purpose.

The handle portion of the tool consists of a grip 1 and a bolster 2, said parts being spaced apart and preferably connected by means of a rod or tie 3. Passages 4 and 5 are formed in the handle in any convenient way and provides ducts through which air and liquid are free to course in the operation of the tool. Coupling-ends 6

are fitted to or form a part of the handle and communicate with the respective passages and are adapted to have fixed tubing attached thereto for connecting the tool with the source of supply of air and liquid.

The inner or opposing ends of the grip and bolster are reinforced by plates 7 and 8 which are preferably of brass so as to resist wear and maintain a close joint with the rotary valve 9 interposed between the parts 1 and 2 and mounted upon the rod or tie 3. The plates 7 and 8 form reinforcements and each is recessed upon its outer side, as shown at 10, to form a seat to which is snugly fitted a raised portion 11 of the rotary valve 9. Each face or side of the rotary valve has a raised part 11 to snugly fit within the recess or seat 10 of the respective plate or reinforcement 7 or 8. The rotary valve is preferably of steel or iron and is of a diameter to come about flush with the outer circumference of the handle, its projecting edge portion being milled or roughened, a firm grip being had thereon when it is required to manipulate the valve either to regulate the supply of air or liquid or to shut off the same. Openings 12 and 13 are formed in the valve 9 and are so positioned as to register with the passages 4 and 5 of the handle in one position of the valve. The opening 12 is elongated, whereas the opening 13 is round or of a size to register with the passage 5. The openings 12 and 13 are arranged at diametrically opposite points and when the opening 9 is in register with the passage 5, the opening 12 occupies a position with reference to the passage 4 so as to have its end portions projecting an equal distance upon opposite sides thereof.

The construction of the opening 12 in the manner stated admits of the opening 13 being thrown out of register with the passage 4 without entirely shutting off communication between the passage 4 and opening 12. This result takes place upon movement of the valve in either direction and admits of clearing the tool of liquid or paint after the latter has been shut off by operation of the valve. The construction also admits of creating a suction through the tool preliminary to admitting the liquid thereto by means of the valve 9, thereby insuring proper operation of the tool at the outset. It is noted that the valve is interposed between the parts 1 and 2 of the handle and that said parts may be relatively adjusted to secure and maintain a close joint between opposite faces of the valve and the adjacent faces of the parts or sections of the handle. To effect this adjustment, the rod or tie 3 has an end portion extended beyond the outer end of the grip 1 and threaded to receive a set nut 14 and a jam nut 15. Said rod or tie 3 is secured to the bolster 2 in any manner and has a part made angular and fitted into the grip 1 so as to insure perfect registry of the passages 4 and 5 when the parts 1 and 2 are assembled.

The bolster 2 is provided with a face 16 at one side,

the same forming a seat for reception of the head B which is connected thereto by a swivel joint. The passages 4 and 5 extend through the face 16 and are located at diametrically opposite points. A channel 17 formed in the face 16, communicates with the passage 4 and a corresponding channel 18 likewise formed in the face 16 leads from the passage 5. Both channels are formed on arcs of a circle having its center coinciding with the axis of the swivel head B. As shown, the channels extend in opposite directions from the respective passages.

The swivel head B comprises a base 19 and a cylinder 20. The base 19 is preferably of circular formation and is adapted to obtain a close fit upon the face or seat 16 of the bolster. The passages 4 and 5 extend through the base 19 and communicate with the cylinder 20 and are located at diametrically opposite points so as to register with the passages in the face of the bolster in one position of the head with reference thereto. Channels 21 and 22 are formed in the face or seat of the base 19 and communicate at one end with the respective passages 4 and 5 and extend in opposite directions upon curved lines forming arcs of a circle whose center co-incides with the axis of the head. The channels 21 and 22 cooperate with the respective channels 17 and 18 and admit of turning the head B to any angular position with reference to the handle to within about 90 degrees. The construction is such as to admit of shutting off the supply of material by turning the head B so as to throw the cooperating or mating channels out of register. Any suitable means may be employed for connecting the head B to the bolster to admit of its free rotation to allow of ready removal of the head for any desired purpose. As shown, a pin 23 is let into the head B and passes through an opening of the bolster, the projecting ends being threaded to receive a washer 24 and set nut 25. By tightening the set nut 25, the head may be secured in any desired position.

The cylinder 20 is subdivided by a partition 26 into compartments 27 and 28, the compartment 27 being in communication with the air passage 4 and the compartment 28 connecting with the liquid passage 5. An injector nozzle 29 is fitted into the partition 26 and is preferably threaded therein to admit of relative adjustment, said nozzle being placed in position through the open end of the cylinder which is subsequently closed by means of a plug 30. A washer 31 is threaded into the opposite end of the cylinder 20 and receives the distributing nozzle 32 which is threaded therein and secured in the located position by means of a jam nut 33. The distance between the opposing ends of the injector and the distributing nozzle may be regulated either by moving one or the other of said parts or by turning both. The construction is such that access may be readily had to the interior of the cylinder for cleaning and the nozzle may be readily removed either to be subdivided by others of different size or to be replaced when worn or for any desired purpose.

In the practical operation of the tool, it is connected by rubber tubing, not shown, to a source of supply of compressed air and the liquid or paint to be distributed, said connection being made in the usual manner. Upon turning the valve 9, the air passage is first opened,

thereby permitting air under pressure to pass through the tool and out through the distributing nozzle, thereby establishing a suction in the compartment 28 which upon opening of the liquid passage by a further turning of the valve enables the liquid or paint to be drawn through the tool and atomized. The head B may be turned with reference to the handle A to admit of the jet or spray being directed in any position to suit the comfort of the workman and as the nature of the work may require so as to obtain the best results. When it is required to shut off the supply, the valve 9 is turned with the result that the liquid or paint is first shut off and subsequently the air cut off. This operation admits of the air passing through the tool blowing off the liquid or paint remaining in the bolster and head after the same has been shut off by means of the valve, thereby preventing dripping and the clogging of the tool by the material hardening therein.

Having thus described the invention, what is claimed as new is:

1. In a tool of the character described, the combination of a handle portion provided with air and liquid passages and having a face in which are formed channels in communication with the respective passages, and a head provided with a distributing nozzle connected to said handle portion by means of a swivel joint and having a face obtaining a close fit against the face of said handle portion and in which are formed channels in communication with air and liquid passages of said head, the respective channels establishing communication between the handle and head portions of the tool in the several angular adjustments of the said head.

2. In a tool of the character described, the combination of handle and head portions connected by means of a swivel joint, each being provided with air and liquid passages, the head having a distributing nozzle and the leading faces of said parts having complementary channels formed therein in communication with the respective air and liquid passages to admit of communication being maintained between the respective passages in the relative angular adjustment of the head within certain limits, said channels and passages being adapted to be thrown out of register when the head is turned to a point beyond a predetermined position.

3. In a tool of the character described, the combination of handle and head portions, each provided with an air and a liquid passage and with a face forming a seat through which the respective passages extend, means for connecting the head to the handle portion to admit of relative angular adjustment thereof, and other means for drawing the parts together either to secure them in a located position or to take up wear.

4. In a tool of the character described, a cylinder open at each end and subdivided into compartments by means of a partition, an injector nozzle mounted in said partition and insertible through an open end of the cylinder, a closer removably fitted to one end of the cylinder, and a distributing nozzle fitted into and closing the opposite end of the cylinder.

5. In a tool of the character described, an open ended cylinder subdivided into compartments by means of a partition, an injector nozzle mounted in said partition and adjustable with reference thereto, means removably fitted to one end of the cylinder for closing the same, a washer fitted to the opposite end of the cylinder, a distributor nozzle adjustably mounted in said washer, and means for securing the distributor nozzle in an adjusted position.

6. In a pneumatic tool of the character described, the combination of sections, each having an air and a liquid passage, and a valve interposed between said sections and provided with openings to register with the passages opposite said sections.

7. In a pneumatic tool, of the character described, the

combination of sections, each having an air and a liquid passage, and a valve interposed between said sections and provided with openings to register with the passages opposite said sections, one of the openings of said valve
5 being larger than the other to admit of closing or opening the liquid passage without interrupting communication through the air passage of said section.

8. In a pneumatic tool of the character set forth, the combination of corresponding sections, each formed with
10 an air and a liquid passage, reinforcements fitted to the opposing ends of said sections, and a valve interposed between the said sections and obtaining a seat against each of said reinforcements and provided with openings to register with the passages formed therein.

15 9. In a tool of the character set forth, the combination of sections, each provided with corresponding passages and having their opposing ends recessed to form seats, and a rotary valve interposed between said sections and having raised portions upon opposite faces to enter the
20 recess of said section and fitting the same closely, said valve having openings to register with the respective passages of said sections.

10. In a tool of the character described, the combination

of sections, each having passages, means for connecting the sections and admitting of their relative adjustment, 25 and a valve fitted between the sections.

11. A tool of the character described, the combination of sections provided with corresponding air and liquid passages, a tie for connecting the sections and serving
30 to hold them in a fixed relative position, means for co-operating with said tie to admit of relative adjustment of the sections, and a valve mounted upon said tie and arranged between the sections.

12. A pneumatic tool of the type described comprising a handle portion made in sections, a head connected to one
35 of said sections by means of a swivel joint to admit of its relative angular adjustment, the head and sections having corresponding air and liquid passages, and a valve arranged between the sections comprising said handle.

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

EDWIN F. HULBERT. [L. S.]

Witnesses:

L. HULBERT,
L. C. BROOKS.