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CLEANING NOZZLE

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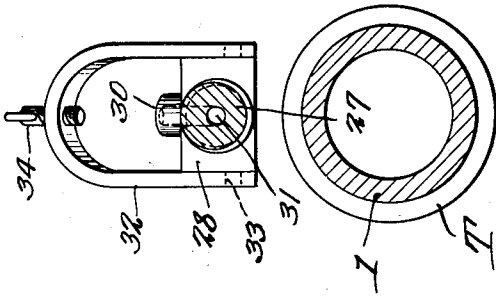


Fig. 2.

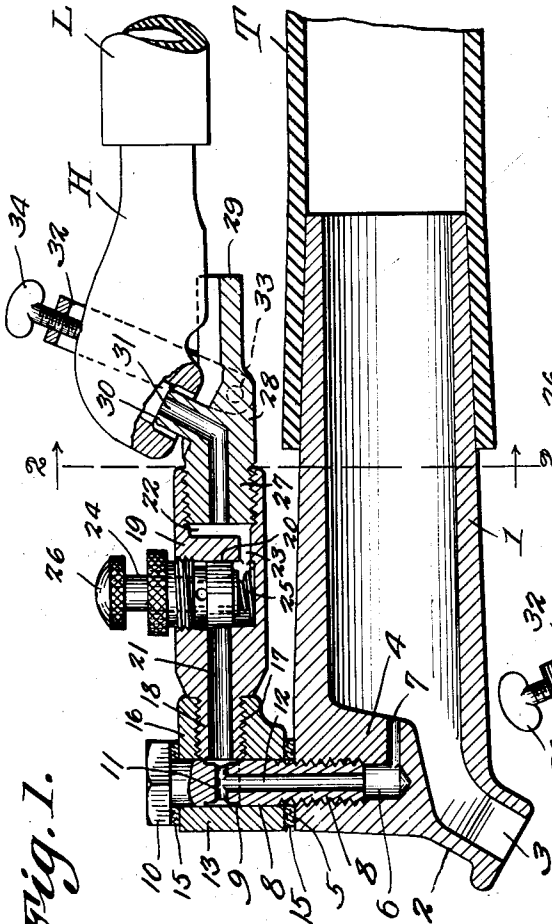


Fig. 1.

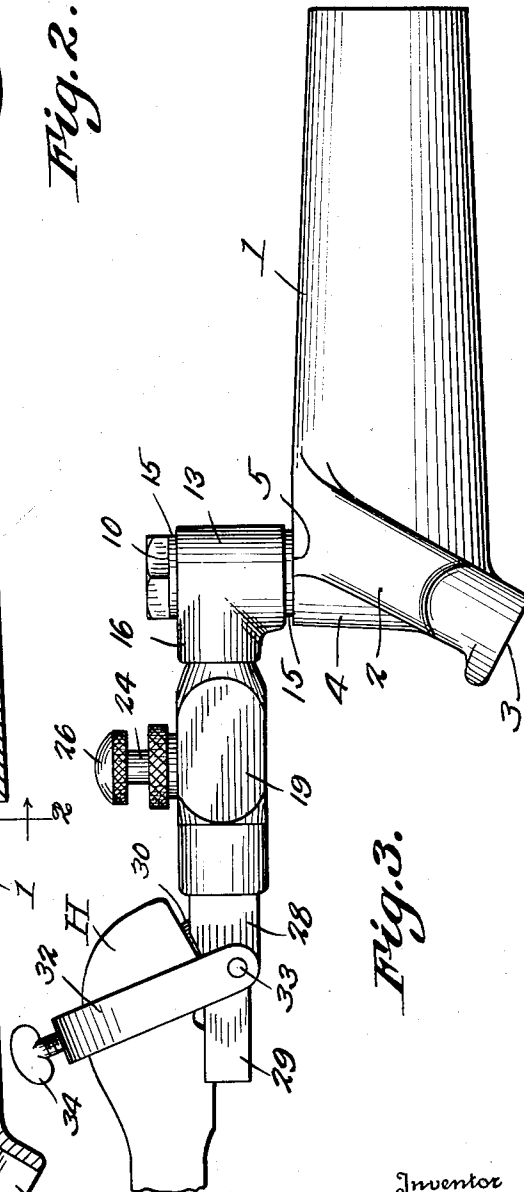


Fig. 3.

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## UNITED STATES PATENT OFFICE

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## CLEANING NOZZLE

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3 Claims. (Cl. 15-15)

This invention relates to a nozzle designed for use in connection with an air pressure hose or the like.

An object of the invention is to provide a nozzle which can be coupled readily to various types of couplings or chucks on air lines such as found in automobile service stations, it being possible to utilize the escaping jet of air for creating either a suction into the nozzle or a blast therefrom, whereby the device can be employed as an efficient cleaner for use in automobiles, etc.

Another object is to so mount the head of the nozzle that it can be adjusted angularly relative to its valved hose connection, whereby the structure can be arranged most advantageously for use either as a suction cleaner or a blower.

A still further object is to provide a quickly adjustable clevis of new and novel construction for securing a hose to the device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing—

Figure 1 is a central longitudinal section through the complete device arranged for use as a suction cleaner, an air line being shown connected thereto.

Figure 2 is a section on line 2-2, Figure 1.

Figure 3 is a side elevation showing the nozzle adjusted for use as a blower.

Referring to the figures by characters of reference, 1 designates the tubular body of the nozzle preferably tapered toward one end as shown while its other end has a head 2 inclined relative to the body and having air inlet 3 which can be of any desired proportions but preferably is in the nature of a narrow transversely extending slot such as commonly employed in the suction heads of vacuum cleaners.

The center of the head is thickened as at 4 and has a flat top 5. A bore 6 extends from the top 5 down into the thickened portion 4 and has an outlet 7 at its lower end which is in line with the axial center of body 1 and opens thereinto. The upper portion of the bore is engaged by a threaded pivot bolt 8. An annular groove 9 is formed in the bolt between top 5 and the head

10 of the bolt and opening into this groove is a diametrical passage 11 which opens into the upper end of a longitudinal passage 12 in the bolt. This passage communicates with the space beneath the bolt.

A sleeve 13 is rotatably mounted on the bolt 8 between top 5 and head and gaskets 15 are interposed between the ends of this sleeve and the top and head to insure tight connections. A radial extension 16 is formed on the sleeve and has an opening 17 in communication with the groove 9. In this opening 17 is seated a screw-threaded nipple 18 projecting from one end of a valve casing 19. A valve chamber 20 is formed in the casing and a passage 21 extends therefrom through nipple 18.

A threaded socket 22 is formed in the other end of the valve casing and communicates at 23 with the bottom portion of chamber 20 at a point out of line with passage 21.

A slide or plunger valve 24 is mounted in chamber 20 and is yieldingly supported by a spring 25. This valve has an exposed head 26 to be depressed by hand and the valve normally closes communication between socket 22 and passage 21. When it is depressed, however, it establishes this communication.

Seated in socket 22 is a nipple 27 at one end of a coupling member 28 having a trough-like extension 29 at its other end. An upwardly inclined stud 30 is formed in the inner end portion of the extension 29 and opening there-through is the inclined end of a passage 31 which extends through the nipple 27 to the socket 22.

The member 28 is straddled by a yoke 32 pivotally connected thereto at 33 and carrying a set screw 34.

When it is desired to use this device the coupling head H of an air line or hose L is placed in the extension 29 and on the stud 30 and the yoke 32 is swung into position therearound. By then tightening screw 34 the head H will be clamped tightly in place.

If the nozzle is to be used for suction purposes the parts are arranged as shown in Figure 1 and a tube T is fitted on the tapered body 1 and extended to a bag or to any point where the removed dust and dirt are to be discharged. Valve 24 is depressed to establish communication between passages 31 and 21 and air under pressure is immediately delivered to passage 12 from which it will escape in a strong jet through outlet 7 and axially within body 1. The force of this jet will cause a suction into the body through inlet 3 so that dust and dirt adjacent to the

inlet will be drawn into the head 2 and propelled along body 1 into tube T.

By removing the tube and swinging the body 1 about bolt 8 substantially to the position shown in Figure 3, the device can be used as a blower, as will be apparent. Whether the device is used for sucking air into the nozzle or for blowing air therefrom, the valve casing 10 and coupling member 28 constitute a handle whereby the device can be held properly.

The present device has been found very useful in cleaning the interior of a vehicle body, the engine of an automobile, and for other cleaning purposes. It is advantageous because of its simple and inexpensive construction and the ease with which it can be handled. The coupling means employed allows the nozzle to be coupled to the heads of various types of air lines.

What is claimed is:

20 1. A cleaning nozzle including a handle, means at one end thereof for attaching it to an air line, there being a passage extending through the handle, a valve in the handle for controlling the flow of air through the passage, a tubular body  
25 having a suction head at one end and a discharge outlet at its other end, there being an air outlet duct in the body adjacent to the suction head and coaxial with and directed toward the discharge outlet, and a pivotal connection between the other end portion of the handle and  
30 one end portion of the tubular body, said connection establishing and maintaining communication between the passage in the handle and the

air outlet, said body and connection being rotatable relative to the handle.

2. A cleaning nozzle including a tubular body having a suction head, a discharge outlet, and an air outlet duct in the head coaxial with the body and discharge outlet and directed toward said outlet, a handle having a passage therein, means for pivotally connecting the handle to the body for angular adjustment relative thereto, said means maintaining communication between the passage and the air outlet duct at all times during the adjustment of the handle and body, and a valve in the handle for controlling the flow of air through the passage to the connection and air outlet.

3. A cleaning nozzle including a tubular member, means at one end thereof for attaching it to an air line, there being a passage extending through the tubular member, a valve in the tubular member for controlling the flow of air through the passage, a tubular body having a suction head at one end and a discharge outlet at its other end, there being an air outlet duct in the body adjacent to the suction head and coaxial with and directed toward the discharge outlet, and a pivotal connection between the other end portion of the tubular member and one end portion of the tubular body, said connection establishing and maintaining communication between the passage in the tubular member and the air outlet, said body and connection being rotatable relative to the tubular member.

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