

[54] **BLOWOUT NOZZLE** 2,604,361 7/1952 Yates 239/291
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 3,811,620 5/1974 Gebhardt 239/499

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 239/590.5

[56] **References Cited**

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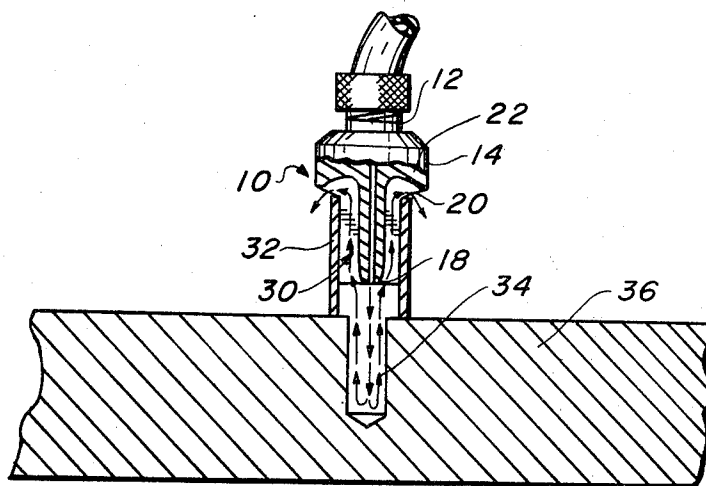
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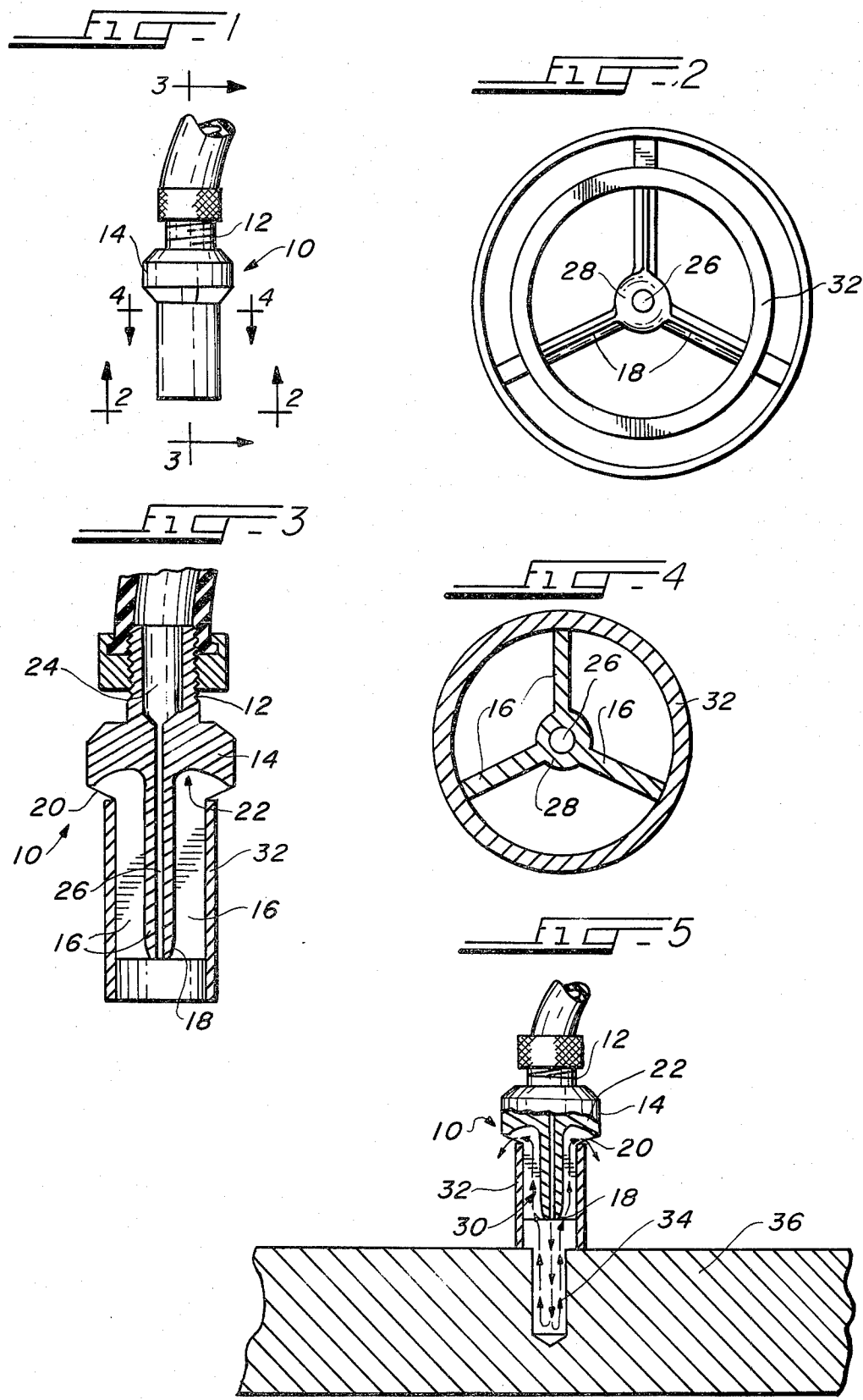
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[57] **ABSTRACT**

An attachment to a means having compressed air for blowing out chips, metal fuzz and the like from the interior of a small bore, and doing so in a manner as to be injury-free to the user.

6 Claims, 5 Drawing Figures





BLOWOUT NOZZLE

BACKGROUND OF THE INVENTION

Normally an air hose is used with a restricted nozzle for blowing away chips, etc. around a machine lathe or a drill press. Current safety practice dictates a pressure limit at the outlet end of the nozzle. This is generally achieved in one of two ways — (1) by regulating the inlet pressure and limiting it to the prescribed level, or (2) by supplying high pressure air to a venturi within the nozzle, which aspirates secondary air and converts a small amount of high pressure air to a larger volume of low pressure air. Both methods provide desirable volumes of air for blowing away chips, dirt, etc. in manufacturing operations or open areas. However, it is frequently necessary to clean out blind holes, crevices and other confined spaces. Here the above types are less effective because their air stream is generally larger and more diffuse. It was to overcome this shortcoming that the present invention was conceived.

SUMMARY OF THE INVENTION

A blowout nozzle for attachment to a compressed air pressure exhaust tube, hose or hand valve for placement over a bore to forcibly eject metal filings, metal fuzz, chips or the like from the bore, and directing the same upwardly through said nozzle and downwardly away from the bore and preventing the same from striking the person using the nozzle.

BRIEF DESCRIPTION OF THE INVENTION

FIG. 1 is a side elevational view of the device of the present invention;

FIG. 2 is an enlarged bottom plan view taken on the lines 2—2 of FIG. 1;

FIG. 3 is an enlarged vertical cross-sectional view taken on the lines 3—3 of FIG. 1;

FIG. 4 is an enlarged cross-sectional view taken on the lines 4—4 of FIG. 1; and

FIG. 5 is a vertical cross-sectional view similar to FIG. 3 of the device of the present invention in position over a bore with the upper portion shown in full lines.

DETAILED DESCRIPTION OF THE DRAWINGS

The blowout nozzle 10 of the present invention would preferably be cast out of aluminum or the like and contains an upper exteriorly-threaded shank 12, a cylindrical housing portion 14 and three vanes 16 extending downwardly from the housing 14. Each of the vanes is spaced equi-distantly apart about 120° with the lower edges thereof tapered as at 18. The lower inner wall 20 of the housing portion is formed to provide a dome-like area 22 between each of the vanes 16. The shank and housing are drilled axially to form an opening 24 to communicate with an axial opening 26 of slightly smaller diameter than the opening 24 extending through the axial core 28 from which the vanes 16 emanate. As shown, the vanes 16 extend outwardly from the core 28 and each vane has a width less than the diameter of the housing 14.

The upper portion of each vane 16 tapers upwardly

and outwardly to the periphery of the lower edge of the housing 14 to form a shoulder 30.

The vanes 16 are covered with a cylindrical sleeve 32 which is affixed to the vanes. As seen in the drawings, the upper edge of the sleeve abuts against the tapered shoulders 30 to form an opening.

When the compressed air supply is delivered to the nozzle, the air will flow downwardly in the opening 24 where it will flow through the restrictive opening 26 to form a jet stream of air flowing thereout.

High pressure air is used and the concentric bores 24 and 26, which are streamlined, produce a highly collimated jet of air. This is very effective in "reaching into" closed end holes, yet when the nozzle is blocked off completely, the large venting area at 22 precludes the possibility of exceeding safe practice limits.

In use, the sleeve is placed over a drilled bore 34 in the manner shown in FIG. 5. Thus the lower edge of the sleeve surrounds the bore 34. As shown by the arrows in FIG. 5, the air forcibly ejected in the bore 34 will move to the lower end thereof and will move upwardly in the area between the vanes to the dome 22 and be ejected downwardly, carrying anything left in the bore by the drilling operation in the stream of air.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. A blowout nozzle comprising a cylindrical housing having upper and lower walls, an upwardly extending, axially positioned shank integrally formed on the upper wall of said housing, an axial core extending downwardly from said housing, equi-distantly spaced vanes extending outwardly from said core and downwardly from the lower wall of said housing and inwardly of the periphery of said housing, the lower wall of said housing between each of said vanes having a cutout to form a dome-like shape, the diameter of the housing being greater than the width of the vanes, an axial aperture extending through said shank, housing and core, and a cylindrical sleeve covering said vanes and extending below the lower ends of said vanes.

2. The device according to claim 1 wherein the aperture in said housing shank is larger than the communicating aperture in said core.

3. The device according to claim 2 wherein the shank is exteriorly threaded.

4. The device of claim 1 wherein the lower ends of said vanes are tapered to a thin edge.

5. The device according to claim 1 wherein the upper periphery of said sleeve is positioned below the lower wall of said housing.

6. The device according to claim 5 wherein the upper portions of said vanes is tapered upwardly to the periphery of the lower wall of said housing and the upper wall of said sleeve abuts thereagainst.

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