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E. A. GREWE

2,469,642

BLOWGUN

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Fig. 1.

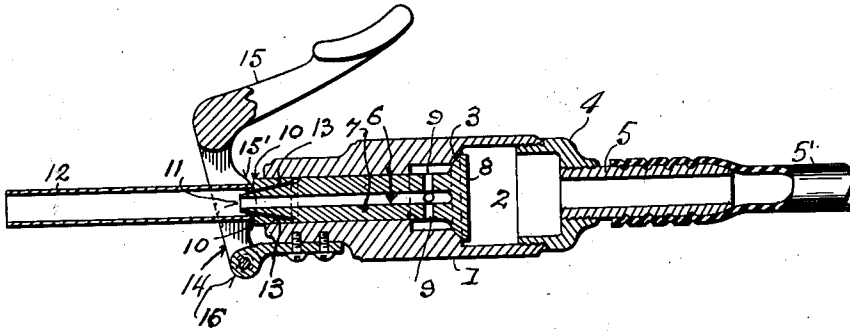


Fig. 2.

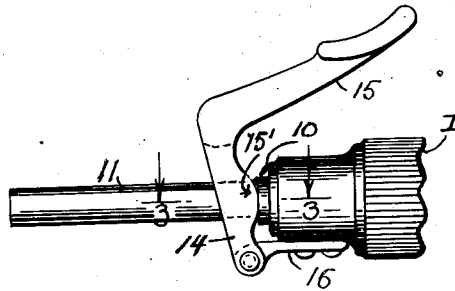
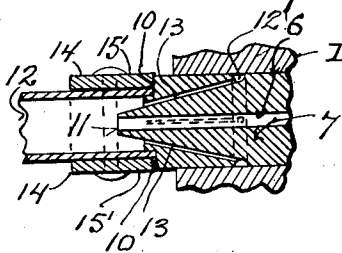


Fig. 3.



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BLOWGUN

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2 Claims. (Cl. 299-150)

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My invention has for its primary object to provide a simple, effective and durable blow gun, for cleaning all types of metal parts or castings.

Standard compressed air nozzles, now in use, usually embody a barrel having fitted therein a transverse valve, and under such conditions the valve is subjected to leakage.

In view of the above facts, specific objects of my invention are:

To provide a valve for controlling compressed air in the nozzle or gun, wherein leakage from the valve is eliminated without the aid of a packing gland.

To provide an abnormally long valve stem reciprocative in a correspondingly long journal formed in the bore of a barrel at the discharge end thereof, whereby the bearing surfaces, due to their length, are proportionately less liable to wear.

To provide an annular groove near the end of the valve stem, the same being in communication with a series of inwardly inclined bleeds, which bleeds discharge about the nipped end of the stem, whereby leakage of air between the stem and its bearing surface in the bore is trapped, aided by a partial vacuum developed through the blast of air discharged through the nipple, creating a suction to positively draw any air leakage into the main flow of the gun, whereby it is recovered to thus avoid waste of air and dispense with a packing gland at the mouth of the gun barrel. It is understood that this by-passed air from the main flow to the bearing surfaces will also clear the same from grit in the event it should accumulate between the bearing surfaces, resulting in slowing up of the reciprocative movement of the valve stem.

With the above and other minor objects in view, my invention consists in certain peculiarities of construction and combination of parts as will be hereinafter fully set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings:

Figure 1 represents a sectional elevation of a blow gun embodying the features of my invention.

Figure 2 is a fragmentary exterior view of the discharged end of the gun showing the valve actuating means. And

Figure 3 an enlarged, detailed, sectional elevation of the discharged end of the gun.

Referring by characters to the drawings, 1 indicates a barrel having a receiving chamber 2, which chamber, intermediate of its ends, is provided with a valve seat 3. The outer end of the

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chamber is closed by a cap 4, which cap carries the sleeve portion 5 of a hose 5'.

The inner end of the chamber 2 is reduced in diameter and from said inner end the barrel has extending through its length a bore 6. Mounted in which bore is the long hollow stem 7 of a valve 8, which is associated with the chamber valve seat 3.

The hollow valve stem, adjacent the reduced pocket of the air chamber, is provided with transverse openings 9 communicating with the hollow interior of said stem.

As best indicated in Figures 1 and 3 of the drawings, the valve stem normally projects beyond the end of the barrel mouth and forms a shoulder 10, it being noted that the discharge end of the valve stem terminates with a conical nipple 11, which nipple is encased in a tube 12, the tube being secured in any suitable manner to the shouldered end of the valve stem.

Particular attention is directed to the fact that the periphery of the valve stem 7, near its shouldered end, is formed with an annular groove 12', which groove communicates with angular bleeds 13 that converge inwardly and communicates with the base of the tube 12 about the conical stem nipple 11.

An ear 14, is secured to the discharged end of the barrel 1, and terminates with a hinge shank for the reception of spanner arms 14, forming part of a valve actuating thumb lever 15, it being noted that the spanner arms are formed with heels 15', which heels engage the end shoulder 10 of the valve stem.

From the foregoing description it would be noted that should the surfaces between the barrel bore and valve stem become worn through long usage, a small volume of the main air current from the chamber 2 will pass between the bearing surfaces of said parts and be trapped and recovered at the annular groove 12, from which groove it will travel through the bleeds 13 due to the suction action of the main blast of air which passes through the valve stem nipple.

Thus it will be noted when the valve is manually opened and there is slight loose play between the valve bore and stem, air, under pressure, will not be wasted and discharged into the atmosphere through the end of the nozzle. The thin volume of air passing between the loose parts will be trapped at the collecting groove 12 and discharged about the main volume of air as it leaves the nozzle stem end.

The blast of air under pressure will thus trap leakage and be freely discharged upon the sur-

faces of the articles to be cleaned or scoured. In performing this function, all that is required of the operator is to depress the thumb lever while the gun is directed and held in the operator's hand.

The depression of the lever will cause the valve stem 2 to be pushed backwardly in opposition to the compressed air force, whereby the air under pressure will enter the air openings 9 of the stem and be discharged in a solid blast upon the surface of the metal part to be cleaned, and as soon as the thumb lever is released, the air pressure in the chamber 2 will close the valve.

It will also be noted that in utilizing air pressure to close the reciprocative valve, springs for seating the valve are dispensed with.

While I have shown one exemplification of my invention minutely as to detail, it is understood that such details may be varied within the scope of the claims.

I claim:

1. A blow gun comprising a barrel having a bore therein, an enlarged chamber communicating with the bore, a valve seat in the chamber, a hollow conical nozzle ended stem loosely slidable in the barrel bore, an annular groove in the stem adjacent to the nozzle head, transverse openings in said stem communicating with the chamber, inclined bleeds extending from the annular groove of the hollow stem and discharged about the conical nozzle, a valve extending from the hollow stem engageable with the chamber valve seat, a thumb lever pivoted to the discharge end of the barrel engaging the end of said hollow stem, and a tube extending from the aforesaid hollow stem encasing its conical nozzle end and

bleeds thereof, whereby air leakage between the gun bore and stem is collected and discharged into the tube to co-mingle about the nozzle with the main air jet through said hollow stem by the developed ejector action of the main air volume.

2. A blow gun comprising a barrel having a bore therein, an enlarged chamber communicating with the bore, a valve seat in the chamber, a hollow nozzle ended stem loosely slidable in the barrel bore, an annular groove in the stem rearward of the nozzle, transverse openings in the stem communicating with the chamber, inclined bleeds extending from the annular groove of the hollow stem about the nozzle, a valve extending from the hollow stem engageable with the chamber valve seat, a thumb lever pivoted to the discharge end of the barrel engaging the end of said hollow stem, and a tube extending from the aforesaid hollow stem encasing its nipped end and bleeds thereof, whereby air leakage between the gun bore and stem is collected and discharged into the tube to co-mingle with the main air jet through said hollow stem.

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