

May 8, 1934.

S. T. WILLIAMS

1,957,567

BLOW GUN

Filed Sept. 13, 1932

Fig. 1.

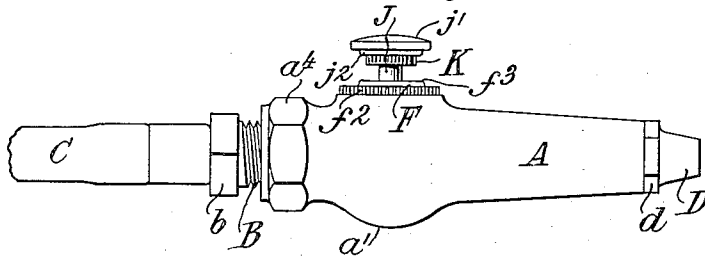
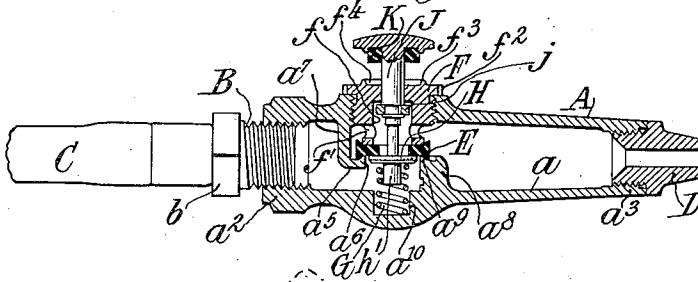


Fig. 2.



J Fig. 3

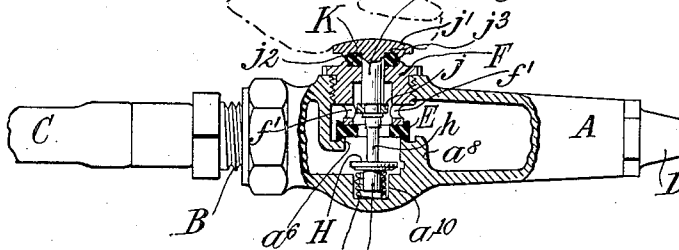


Fig. 4.

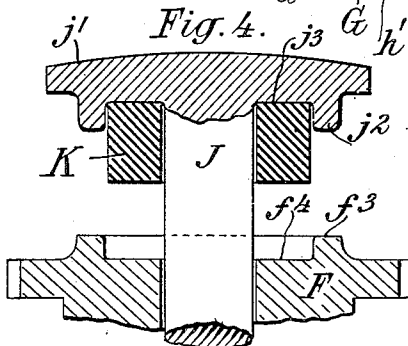
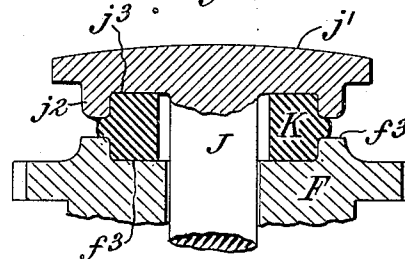


Fig. 5.



INVENTOR

Selden T. Williams,

BY

Fraser, Myers & Mauley.
ATTORNEYS.

ATTORNEYS.

UNITED STATES PATENT OFFICE

1,957,567

BLOW GUN

Selden T. Williams, Bellerose, N. Y., assignor to
A. Schrader's Son, Incorporated, Brooklyn,
N. Y., a corporation of New York

Application September 13, 1932, Serial No. 632,960

2 Claims. (Cl. 251—137)

My present invention relates to blow guns and aims to provide certain improvements therein.

An object of my invention is to provide a device of the character described having few parts which can be easily assembled therein through a single opening in the body of the blow gun, and wherein the plunger or valve unseating control element is provided with a packing which will insure against loss of air around the plunger while the blow gun is in use with its valve unseated.

A further object of my invention is to provide a blow gun which is sturdy in construction and has no delicate mechanism to get out of order and wherein parts worn out in service can be quickly and easily replaced.

The foregoing and other objects I accomplish with the blow gun of my invention, the construction and operation of which will be understood from the detailed description which follows, when considered in conjunction with the accompanying drawing, wherein—

Figure 1 is a side elevation of a blow gun embodying my invention.

Fig. 2 is a longitudinal section through the blow gun shown in Fig. 1.

Fig. 3 is a longitudinal section partly in elevation showing the control valve in unseated position.

Figs. 4 and 5 are enlarged sectional details of the packing disk sealing means.

A blow gun is a valve controlled device adapted for attachment to the end of an air line and intended for use for blowing away dust, dirt and other refuse, and for clearing out fuel lines, blowing out carbon from cylinders, chips off of work while being machined, and for other miscellaneous purposes.

The preferred embodiment of my invention consists of an elongate body portion or member A which may be cast or otherwise formed of suitable material, having a passage *a* therethrough and an enlarged or bulbous portion *a'* intermediate its ends. The ends of said member A are preferably internally screwthreaded, and through the inlet end *a²* thereof is screwthreadedly connected a coupling member B which carries a hose C adapted for connection with a suitable source of air supply. To the outlet end *a³* is screwthreadedly connected a nozzle D, which may be of any desired configuration, depending upon the character and use to which the air blast delivered by said air gun is to be put. To facilitate the securing of the coupling B and the nozzle D to the member A, the latter is provided with

wrench-engaging surfaces *a⁴* at its inlet end, and the former elements are formed with wrench-engaging surfaces *b* and *d*, respectively.

Within the bulbous portion *a'* there is formed a partition wall *a⁵* having an opening *a⁶* there- through extending transversely to the longitudinal passage *a*, the partition wall being supported by and integral with the inwardly projecting portions *a⁷* and *a⁸*. Surrounding the passage *a⁶* through the partition wall *a⁵* on the upper face thereof is an annular rib *a⁹*, upon which is supported a packing disk E, which latter is held onto said seat through the medium of a plug F which screwthreadedly engages in an opening in the bulbous portion of the member A which is in axial alignment with the opening *a⁶* in the partition wall. Also in axial alignment with the aforementioned openings, the bulbous portion *a'* is formed on its inner wall below the partition wall *a⁵* with a socket *a¹⁰*, within which is seated a coil spring G which presses upon the under side of the disk portion of a check valve H to hold said valve seated against the under side of the packing disk E and thus maintain the longitudinal passage *a* through the member A normally closed intermediate its inlet and outlet ends. The check valve H on the opposite sides of its disk is provided with axial projections *h* and *h'*, the former constituting a deflating pin and the latter seating within the uppermost convolutions of the spring G and serving as a support therefor.

The plug F has a bore extending axially there- through which is enlarged below its top, as indicated by the reference character *f*, and has lateral openings *f'* for establishing communication between said enlarged bore and the longitudinal passage *a*. At its outer end the plug F is formed with an enlarged flange *f²*, which is knurled at its peripheral surface to facilitate the tightening of the plug against the packing disk H. At its top the plug has an annular rib *f³* which provides a shallow circular recess *f⁴*, the purpose of which will presently be made apparent.

Slidably extending through the reduced portion of the bore in the plug is a plunger J which at its inner end is provided with an enlargement *j* to prevent its withdrawal from the plug, and at its outer end is formed with an enlarged head *j'* which on its under face is formed with an annular rib *j²*, whereby there is provided a shallow recess *j³* in said under side corresponding to the recess *f⁴* in the top of the plug. Encircling the plunger J between its enlarged head and the top of the plug F, is a packing disk K having a diam-

eter to loosely fit within either or both of the recesses f^4 and j^3 , as best shown in Fig. 4. When the plunger is depressed to unseat the valve H, the packing disk K is slightly compressed between
 5 the head of the plunger and the top of the plug and confined within the recesses f^4 and j^3 , and compressed air coming up through the plug around the plunger stem will function to expand the disk K outwardly radially against the en-
 10 circling ribs of the shallow recesses, making an airtight seal with said ribs, thus checking any leakage through the plug around the stem.

In operation the valve of the blow gun is normally seated against its packing disk by the joint
 15 action of the spring and the air pressure from the tank, and the parts thus assume the position shown in Fig. 2 of the drawing. When it is desired to play or shoot a blast of air upon any desired object the plunger is depressed by pressing
 20 upon the enlarged head thereof, whereupon the inner end of the plunger, which is normally in contact with the deflating pin h of the valve, will unseat said valve to permit the passage of air from the inlet to the outlet end of the device
 25 through the openings in the packing H, the enlarged bore F and the lateral opening f' in the plug, the packing disk K serving to check any leakage of air around the plunger. Upon releasing the finger pressure from the plunger, the
 30 spring G will close the valve and simultaneously therewith move the plunger to its outermost or normal position. Should any of the parts of the blow gun wear out or require replacement, it will be apparent that such replacement can be readily
 35 made by merely unscrewing the plug F, which will carry with it the plunger J, whereupon the packing disk E, the valve H, and the spring G can be removed by merely turning the gun over so that these parts will drop out. Should the
 40 packing disk E stick to its seat, thus preventing the parts from dropping out, the deflating pin h of the check valve may be grasped with the fingers and be withdrawn from the device and carry with it the packing disk E. It will be ap-
 45 parent that in assembling the valve parts of the device the spring G will first be inserted in the socket a^{10} , the check valve H will then be mounted

on the spring with the projection h' engaging within the top convolutions of the spring; the packing disk E will then be positioned upon its seat, and the plug F carrying the plunger J will then be tightly screwed into the device to hold the
 80 packing upon the partition wall a^5 .

From the foregoing detailed description it will be apparent that I have provided a blow gun which admirably fulfills the various objects of the invention set forth in the opening statement, and
 85 one which can be manufactured and sold at a low price, and while I have shown a preferred embodiment of my invention, it is to be understood that I do not wish to be limited to the details of construction disclosed, since the same may be varied without departing from the spirit of the in-
 90 vention.

What I claim is:

1. A blow gun for air or the like, comprising a casing having a valve seat therein, a valve nor-
 95 mally engaging said seat, a plunger for unseating said valve freely slidably through said casing and terminating in an enlarged finger-engageable head, a packing disk loosely encircling the plunger between said enlarged head and the casing and adapted to be compressed as the plunger is de-
 100 pressed to unseat the valve and to be expanded radially outwardly under air pressure acting upon its inner periphery, and means on said finger-engageable head and on the outer face of the casing for confining the packing disk to provide a
 105 seal with said parts when said packing disk is compressed as the plunger is depressed to unseat the valve and permit air under pressure to pass up around the plunger to act on said packing disk.

2. A blow gun according to claim 1, wherein the means for confining the packing disk under compression comprises a shallow circular recess on the under face of the enlarged head on the plunger and a corresponding recess on the part of the casing through which the plunger extends and the packing disk having an outer diameter to provide a leak-tight joint with the walls of said recesses when under both axial compression and radial expansion.

SELDEN T. WILLIAMS. 120

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