

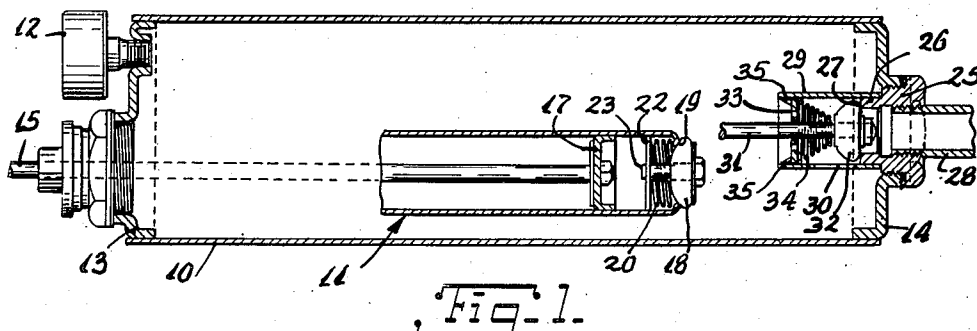
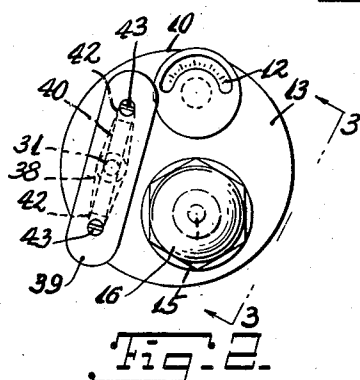
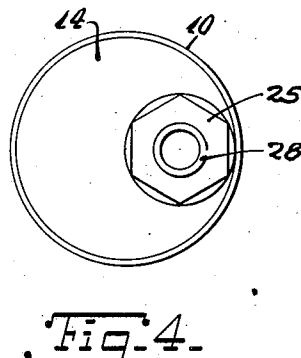
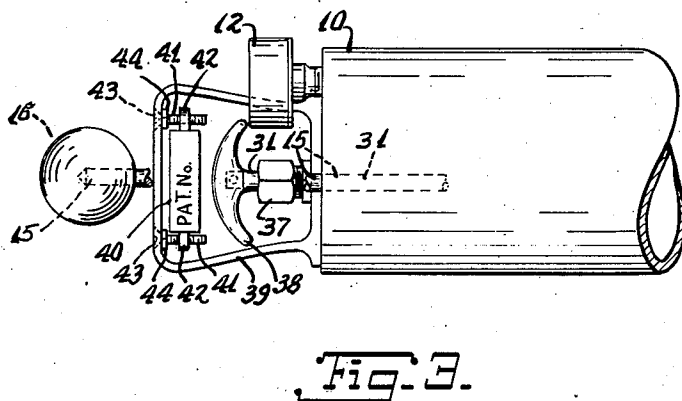
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2,386,870

DRAIN PIPE CLEANING GUN

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DRAIN PIPE CLEANING GUN

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2 Claims. (Cl. 4—255)

This invention relates to new and useful improvements in a drain cleaning gun.

More particularly, the invention relates to a drain pipe cleaning gun having a closed cylinder provided with an air pump and an air pressure gauge for building up within said cylinder a preselected air pressure. Guns of this type are old and generally known. However, this invention departs from the prior construction in the provision of a new self-aligning non-fouling release valve for controlling the discharge of air from the cylinder.

Heretofore the release valves in prior designs of guns were highly unreliable. This would result in a poor operation of the gun, and also in leakage of air.

The new self-aligning non-fouling release valve is characterized by a tubular plug mounted through the bottom end of the cylinder of the gun and having a reduced inner end formed with a valve seat. The usual discharge pipe connects with the outer end of said plug.

The invention proposes the provision of a tube mounted on the reduced inner end of the plug called for in the previous paragraph and encasing said valve seat. It is proposed that a valve rod extend coaxially of said tube and through the top end of the cylinder of the gun. It is proposed that a valve head be mounted on the inner end of the rod and engage said valve seat. It is contemplated that a novel arrangement of spring be mounted within said tube and be cooperative with said valve head for urging the valve head upon its seat. The dominating feature of this invention resides in the arrangement of the spring just mentioned.

The invention further contemplates the provision of a handle fixed on the top end of the valve rod and associated with a bracket mounted on the top end of the cylinder and extending over the handle and carrying an abutment member for controlling the amount said handle may be drawn for opening the release valve a desired amount.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure—

Fig. 1 is a fragmentary vertical sectional view of a drain pipe cleaning gun constructed according to this invention.

Fig. 2 is a plan view of the gun shown in Fig. 1.

Fig. 3 is a fragmentary side elevational view looking in the direction of the line 3—3 of Fig. 2.

Fig. 4 is a bottom view of Fig. 1.

The drain pipe cleaning gun, according to this invention, includes a closed end cylinder 10 provided with the usual air pump 11 and with an air pressure gauge 12 for building up within the cylinder 10 a preselected air pressure. The cylinder 10 is in the nature of a steel tube having its top end closed with a disclike member 13 and its bottom end closed with a similar disclike member 14. The air pressure gauge 12 is of standard design and is mounted on and through the top member 13. The pump 11 is also mounted on and through the top member 13.

The pump 11 is of customary design and is provided with the usual reciprocal operator rod 15 having a handle 16 on its top end by which the pump may be actuated. The rod 15 connects with a piston 17 of a design which allows the passage of air from the top to the bottom when the rod is drawn upwards, but prevents this passage when the rod 15 is moved downwards. A one way valve is mounted on the bottom of the cylinder of the pump and includes a valve head 18 urged upwards against the valve seat 19 by a spring 20 acting between the body of the pump and a perforated washer 22 mounted on a stud 23 which is connected with the valve head 18.

From the above description it is believed that the construction and operation of the pump 11 will be readily comprehended. For this reason further details will not be given. The construction is such that when the handle 16 is moved upwards and downwards to operate the pump rod 15 a desirable air pressure may be built up within the cylinder 10.

The new self-aligning, non-fouling release valve for controlling the discharge of air from the cylinder 10 includes a tubular plug 25 mounted through the bottom member 14 of the pump and having a reduced inner end 26 formed with a valve seat 27. A discharge pipe 28 connects with the outer end of the plug 26 and is for the purpose of connecting with a drain pipe or other pipe to be blown out. A tube 29 is mounted on the reduced inner end 26 of the plug 25 and encases the valve seat 27. This tube 29 has a side opening 30 through which the air may freely pass.

A valve rod 31 extends coaxially of the tube 29 and extends through the top member 13 of the cylinder 10. A valve head 32 is mounted upon the inner end of the rod 31 and engages the

valve seat 27. A perforated washer 33 is mounted across the tube 29. An expansion spring 34 is coaxially mounted about the rod 31 and is located within the tube 29 and acts between the washer 33 and the valve head 32 for urging the valve head 32 on the valve seat 27.

The tube 29 has several prongs 35 stamped from its top portion and forming an abutment for the washer 33 to restrain the washer 33 from moving upwards. The spring 34 rests against the washer 33 and forces the washer 33 against the prongs 35. This gives a purchase to the spring 34 which then is capable of engaging and forcing the valve head 32 upon its seat 27. At the point where the rod 31 passes through the member 13 there is a packing gland 37 for preventing leakage of air from within the cylinder 10. A handle 38 is fixed on the outer end of the rod 31.

A bracket 39 is mounted on the end member 13 of the cylinder 10 and extends over the handle 38. An abutment member 40 is adjustably mounted on the bracket 39 and extends across the handle 38 for limiting the distance through which the handle 38 may be manually moved. The abutment member 40 is supported by several screws 41. These screws 41 are rotatively mounted upon the bracket 39 and threadedly engage lugs 42 on the sides of the abutment member 40. The screws 41 have slotted top head 43 by which they may be readily turned. Washers 44 are fixed on the screws and engage against the bracket 39 and rotatively, but non-slidably support the screws. The screws 43 may be adjusted to move the abutment member 40 closer to or further from the handle 38.

The operation of the device is as follows:

The pump 11 is operated to build up a suitable pressure within the cylinder 10. The pipe 28 is connected with the drain or other pipe to be blown. The handle 38 is then quickly moved upwards against the abutment member 40. This indirectly lifts the rod 31 which in turn lifts the valve head 32. The air discharges past the valve head 32 and into pipe 28. When the handle 38 is released the spring 34 returns the valve head 32 on the seat 27.

An important feature of the invention resides in the mounting and location of the spring 34 and in the arrangement of the abutment member 40. With this construction the valve 32 will always be self-aligning and there will be no opportunity for it to foul.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the pre-

cise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a drain pipe cleaning gun having a closed cylinder provided with an internal air pump and an external pressure gauge for building up a preselected air pressure within said cylinder and a release valve for controlling the discharge of the air under pressure from said cylinder, a valve rod extending from said discharge valve and having an end projected from said closed cylinder, a handle on the outer end of said valve rod by which the valve rod may be manually pulled outwards to open said discharge valve, and an adjustable abutment adapted to be engaged by said handle to limit outward movement of said valve rod, comprising a bracket mounted on said cylinder and extended about said handle, an abutment member disposed to be engaged by said handle when said valve rod is pulled outwards and means adjustably supporting said abutment member on said bracket to be adjustable relative to said handle to limit outward movement of said handle in its various adjusted positions.

2. In a drain pipe cleaning gun having a closed cylinder provided with an internal air pump and an external pressure gauge for building up a preselected air pressure within said cylinder and a release valve for controlling the discharge of the air under pressure from said cylinder, a valve rod extending from said discharge valve and having an end projected from said closed cylinder, a handle on the outer end of said valve rod by which the valve rod may be manually pulled outwards to open said discharge valve, and an adjustable abutment adapted to be engaged by said handle to limit outward movement of said valve rod, comprising a bracket mounted on said cylinder and extended about said handle, an abutment member disposed to be engaged by said handle when said valve rod is pulled outwards and means adjustably supporting said abutment member on said bracket to be adjustable relative to said handle to limit outward movement of said handle in its various adjusted positions, comprising lugs formed on opposite sides of said abutment member, and screws rotatively supported on said bracket and threadedly engaging said lugs.

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