Jan. 21, 1958 S. M. MATTICH 2,820,467

ADAPTERS FOR FLUSHING GUNS AND THE LIKE

Filed May 15, 1952

Fig. 1.

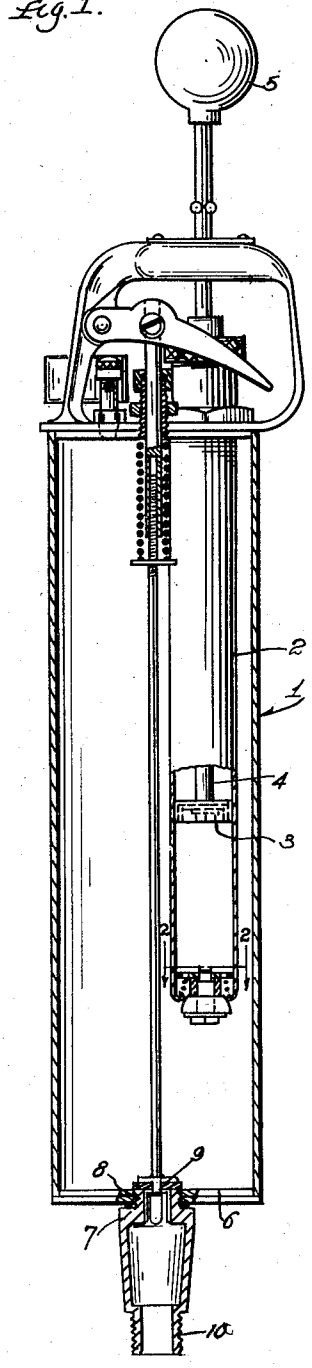


Fig 2.

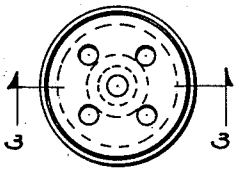
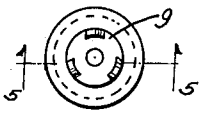


Fig 4



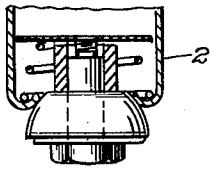
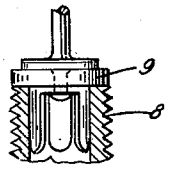


Fig. 3.

Fig. 5.



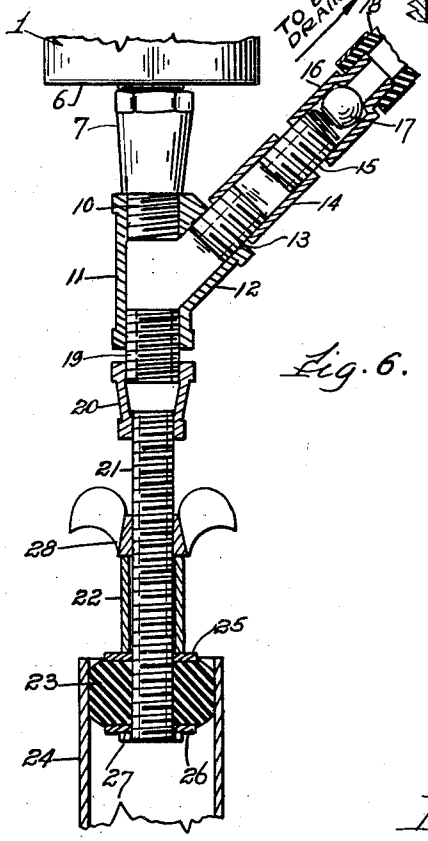


Fig. 6.

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United States Patent Office 2,820,467 Patented Jan. 21, 1958

2,820,467

ADAPTERS FOR FLUSHING GUNS AND THE LIKE

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Application May 15, 1952, Serial No. 287,956

2 Claims. (Cl. 134—168)

This invention relates to drain cleaning devices for use in connection with floor drains, sink drains, tubs, urinals, boilers and the like and more particularly to an attachment or adapter for use with pneumatic flushing mechanism, such as that disclosed in my Patent No. 1,998,902, for Air Pressure Flushing Guns, granted April 23, 1935, although the instant invention is capable of use with other abruptly acting air pressure applying mechanisms for like or similar purposes.

A further object is to provide an adapter for connection to air pressure flushing guns that produces a powerful water hammer action which is effective in dislodging the clogging material cleanly and speedily upon actuation of the flushing gun to which it is attached.

The attachment of the present invention consists of a continuous straight connection from the flushing gun to the drain and a branch connection which extends to the boiler drain which is to be cleaned or unclogged. A check valve is included in the branch connection to prevent reverse flow.

Other objects, novel features and advantages of arrangement, construction and design comprehended by the invention are hereinafter more fully pointed out or made apparent from the following description of a preferred embodiment as illustrated in the accompanying drawing wherein like reference characters denote corresponding parts throughout.

In the drawing:

Fig. 1 is a vertical sectional view through an air pressure flushing gun to which my adapter may be applied.

Fig. 2 is a horizontal cross-sectional view, enlarged, through Fig. 1 on the line 2—2.

Fig. 3 is a vertical cross-sectional view through Fig. 2 on the line 3—3.

Fig. 4 is a plan view of a valve employed.

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4, and,

Fig. 6 is a vertical sectional view through the adapter illustrating its application.

The adapter in the present application is shown as applied to an air pressure flushing gun of the type shown in my above mentioned patent wherein an outer cylindrical shell 1 is provided with a pump cylinder 2 wherein a piston 3 is mounted for reciprocation by a plunger rod 4, the rod 4 being operated manually by handle 5, this pump supplying air under pressure which is confined within the outer shell 1. After a sufficient amount of pressure has been built up in the air reservoir formed by the shell 1 of the gun, the gun is discharged by pulling upwardly on a trigger which causes upward movement of a valve control rod to actuate a discharge valve located in the bottom of the reservoir cylinder 1. When the discharge valve is actuated, the pressure within the reservoir cylinder 1 is abruptly applied. This abrupt pressure increase is followed up by the entire volume of the air within the cylinder 1 to produce forward movement of the liquid. The close proximity of the reservoir cylinder 1 to the gun outlet 7 provides a high momentary air discharge rate from

the gun. Further description of the details of this flushing gun is not deemed necessary as it forms no part of the instant invention.

The bottom portion 6 of the gun is provided with an outlet plug 7 which comprises an upwardly extending exteriorly threaded shank 8 communicating with the discharge valve 9 of the gun. The attachment of the present invention comprises a Y-fitting 11 defining a vertical main passage of which the upper end is threadedly connected at 10 to the connecting plug 7 of the gun. A branch passage is defined in part by the arm 12 of the Y-fitting which extends upwardly and to the right from the main passage, and this branch passage communicates downwardly and convergently with the vertical main passage.

The branch passage further comprises threaded fittings 13, 14, 15 and 16. The threaded fittings 15 and 16 are parts of a check valve which includes a spring pressed ball 17. A pressure hose 18 is connected to the outer end of the fitting 16 which houses the check ball 17.

At the bottom of the Y-fitting 11, the vertical main passage of the attachment communicates through a nipple 19 and reducer 20 with a discharge tube 21 which forms a part of a pressure-tight coupling device. The tube 21 is provided with a vertically slidable sleeve 22 and an expansible rubber plug 23 for effecting pressure-tight connection with the free upper end of drain pipe 24. The plug 23 may be expanded at will be compression between washers 25 and 26 slidable on tube 21, washer 26 being held by a flange 27 formed on the lower end of tube 21. Downward pressure is applied to or removed from washer 25 by means of a wing nut 28 threaded on the tube 21.

In operation, water or other liquid under pressure is supplied to the Y-fitting 11 through the pressure hose 18 which may extend, for instance, to the drainage outlet of a boiler (not shown). The vacuum created in the pipe 24 causes dislodgement of the obstruction in the boiler drain and permits it to be flushed clear.

In operation the adapter is secured to the drain plug 7 and the hose 18 to the boiler drain (not shown), to permit the escape of water, sediment and the like from the boiler through the hose into and through the adapter into the drain pipe 24. Air from the flushing gun is discharged in explosive manner from the shell 1 through valve 9 and drain plug 7 through the adapter directly into the drain pipe 24, the check valve 17 preventing escape of air through the adapter to the boiler. The explosive force caused by the air passing from the gun creates a powerful suction or vacuum in the wake of the gun discharge which force opens the check valve and the suction force, together with the pressure of the boiler water, unblocks the boiler discharge passageway.

Manifestly, the invention, as described, is capable of a variety of other applications than those described, and is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications and applications as fall within the scope of the appended claims.

What is claimed is:

1. In combination with a pneumatic flushing gun comprising an outlet and an air reservoir in close proximity to said outlet to provide a high momentary discharge rate of air from said outlet, valve means included in said gun intermediate said reservoir and said outlet for discharging said gun and thereby causing an abrupt pressure increase at said outlet, coupling means for effecting a pressure tight connection from said outlet to an obstructed boiler drain in which an obstruction is located above said pressure tight connection, said coupling means including a straight continuous main passage between the gun outlet and a discharge outlet, and a branch passage communicating convergently with said main pasage and gun which passage is connected to said boiler drain to create a vacuum and

clear said obstructed drain, and valve means in said branch passage to prevent backflow from said main passage.

2. The combination as claimed in claim 1 where said last-named valve means in said branch passage is a check valve.

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