March 8, 1932. G. PETERSEN 1,848,269

SEWER FLUSHER

Filed June 24, 1929

Fig. 1

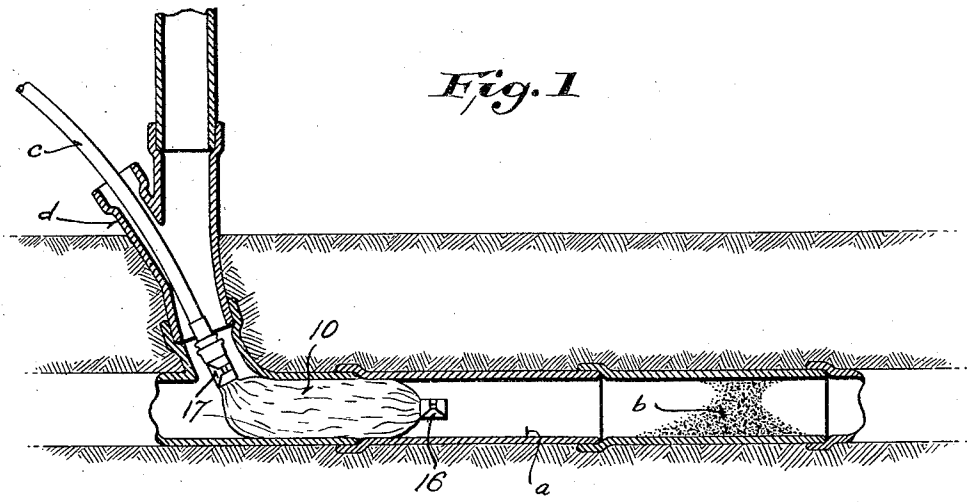


Fig. 2

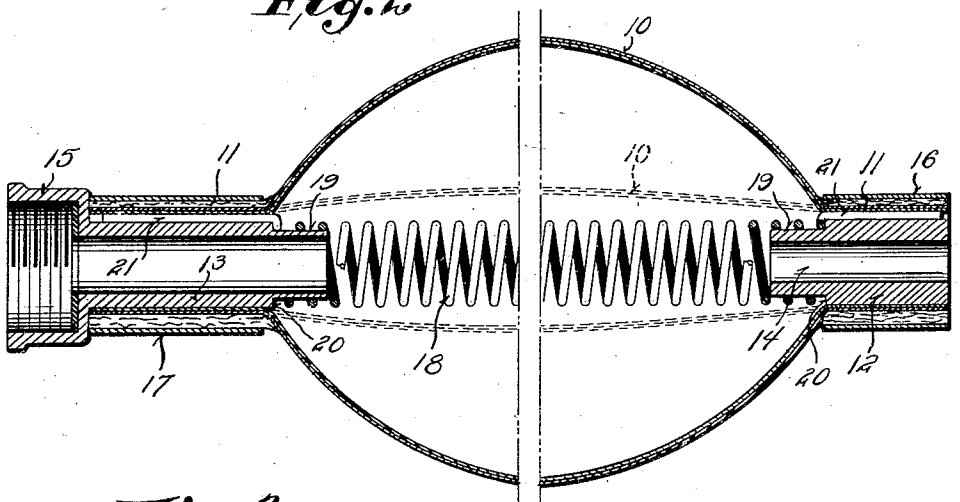
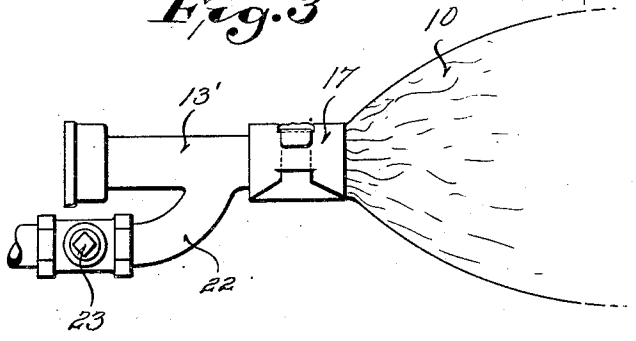


Fig. 3



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UNITED STATES PATENT OFFICE

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SEWER FLUSHER

Application filed June 24, 1929. Serial No. 373,133.

This invention relates to sewer flushers.

A common type of sewer flusher involves a bag which functions as a conductor for the flushing and also as a plug or anchor when expanded by the pressure of the fluid against the walls of the sewer or waste pipe to be flushed. This bag is ordinarily constructed of flexible material and equipped at its forward end with a discharge nozzle and at its rear end with an appropriate fitting for a hose through which the flushing fluid is supplied. In use this bag, attached to the hose, is projected ahead of the hose into the pipe or conduit to be flushed, but the flexible nature of the bag makes it difficult at times to thus project the bag far enough to reach the clogged zone of the pipe. This is particularly true in the case of large bags and in places where sharp turns or bends are encountered.

One object of the present invention is the provision in a flusher of the character mentioned of means for transmitting to the forward end of the bag a thrust sufficient to readily project it into working position within the pipe or conduit irrespective of the turns or bends encountered.

Another object is the provision of a longitudinal stiffener for the bag which will also function to collapse the bag, when the supply of flushing fluid is cut off, to thereby facilitate removal of the bag from the pipe or conduit after completion of the flushing operation.

Another object is the provision of means for destroying the pressure in the bag for purposes of facilitating removal of the bag. This becomes necessary particularly in those instances where the bag is used solely as a plug, with the discharge nozzle closed.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the accompanying drawings:—

Figure 1 is a view in elevation illustrating the use of a sewer flusher embodying the present invention.

Fig. 2 is a sectional view on a larger scale, the major intermediate portion of the bag being shown broken away to permit fore shortening and conserving space.

Fig. 3 is a fragmentary view in side elevation illustrating one end of the bag equipped with an outlet connection.

The sewer flusher shown comprises a bag 10 comprising a tube of multiple ply fabric with its ends 11 gathered or bunched tightly about appropriate end fittings 12 and 13. The fitting 12 at the forward end of the bag consists of a metal cylinder having a discharge passage 14 therethrough to form a nozzle. The fitting 13 at the rear end of the bag consists of a short length of pipe, having a greater internal diameter than the diameter of passage 14, and provided with a cup 15 at one end internally threaded to receive an appropriate hose coupling or the like. Suitable clamps 16 and 17 serve to securely bind the gathered ends of the bag upon the end fittings 12 and 13. The fabric of which the bag is made is ordinarily heavy canvas, the inner ply being rubberized to render the same waterproof.

As hereinabove pointed out provision is made for stiffening the bag so as to facilitate projecting the same into the pipe or conduit to be flushed. In the flusher shown this is accomplished by the use of a compression spring 18 within the bag and extending from end to end thereof. Each of the fittings 12 and 13 is provided with an inwardly directed end 19 reduced to receive an end of the spring and to form an external shoulder 20 against which the spring seats. The opposite ends of the spring are fixed in position by extensions 21 thereof which lie against the end fittings 12 and 13 beneath the ends 11 of the bag and securely retained by the pressure of the clamps 16 and 17. The compression in the spring 18 tends to extend the bag lengthwise and thus serves to retain the sides of the bag in the collapsed condition indicated in dotted lines in Fig. 2, when the bag is not exposed to internal pressure.

Figure 1 illustrates one of the many uses to which this sewer flusher may be applied. A sewer pipe, shown at *a*, may be clogged by material *b*. To flush out this material the end fitting 13 of the bag 10 is coupled to an appropriate water supply hose *c* and projected by the hose through the upright pipe *d* into the pipe *a*. When so advancing the bag,

the spring 18 transmits the mechanical thrust of the hose to the nozzle 12, independently of the sides of the bag so that the bag does not collapse lengthwise under this thrust. The spring is of course sufficiently flexible to permit bending as the bag advances through a sharp turn between the pipes *d* and *a*. After the bag has thus been advanced into working position water under pressure is delivered thereto through the hose *c*. The water admitted to the bag expands it into firm gripping contact with the wall of the pipe to thus anchor it therein and then escapes under pressure through the reduced passage 14 in the nozzle 12 and flushes out the material *b*. Upon completion of the flushing operation the water supply is cut off so that the pressure in the bag is destroyed, and the walls of the bag collapse under the action of the spring 18 permitting free withdrawal of the bag from the pipes.

For some uses the fitting 13 may be replaced by a fitting 13′ having a branch pipe 22 formed integral therewith. This branch pipe 22 is equipped with a cut-off valve 23. By opening this valve the pressure in the bag 10 may be reduced to permit the same to collapse in the manner above described. This branch pipe 22 and valve 23 are required in those instances where the bag is used solely as a plug with the nozzle 12 closed. It is of course understood that the passage 14 in the nozzle may be closed by a suitable plug or reduced by any appropriate means such as sleeves inserted therein.

Various changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the appended claims.

I claim:—

1. In a sewer flusher the combination of an elongated expansible bag of flexible material, a discharge nozzle at the forward end of said bag, a fitting at the rear end of said bag for admitting a flushing fluid thereto, and thrust transmitting means applied to the forward end of said bag by which said bag may be readily projected lengthwise into operative position within a conduit to be flushed, said thrust transmitting means and bag being transversely flexible to permit passage thereof through bends in the conduit.

2. In a sewer flusher the combination of an elongated expansible bag of flexible material, a discharge nozzle at the forward end of said bag, a fitting at the rear end of said bag for admitting a flushing fluid thereto, and thrust transmitting means within said bag and applied to the forward end thereof to facilitate projection of said bag into a conduit to be flushed, said thrust transmitting means and bag being transversely flexible to permit passage thereof through bends in the conduit.

3. In a sewer flusher the combination of an elongated bag of flexible material, a discharge nozzle at one end thereof, a fitting at the other end thereof through which a flushing fluid is admitted thereto, and a coil spring extending longitudinally within said bag, said spring and bag forming the sole connection between said nozzle and fitting so as to permit lateral flexing of said bag, said nozzle and fitting having inwardly directed reduced ends extending respectively into the opposite ends of said spring.

4. In a sewer flusher the combination of a tubular fabric, a discharge nozzle, an intake fitting, the opposite ends of said fabric being gathered about said nozzle and fitting respectively, clamps for securing the gathered ends of said fabric to said nozzle and fitting to form a bag, said nozzle and fitting having inwardly directed reduced ends, and a coil spring extending lengthwise within said bag with ends thereof seated on said reduced ends, the ends of said spring having extended portions secured by an beneath the gathered ends of said fabric.

In witness whereof, I hereunto subscribe my name this 22nd day of June, 1929.

GEORGE PETERSEN.