J. L. DRAKE.

FIRE HOSE LIGHTENER AND SIGNALING DEVICE.

APPLICATION FILED APR. 22, 1910.

1,002,972. **Patented Sept. 12, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.

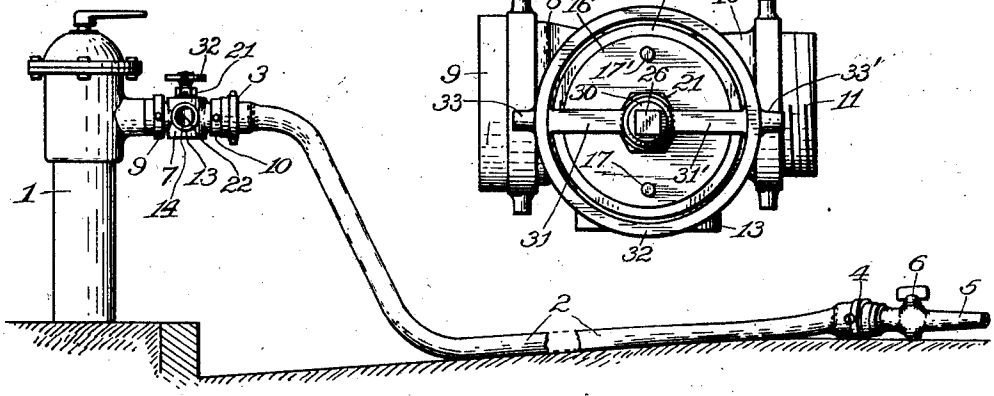


Fig. 2.

Fig. 3.

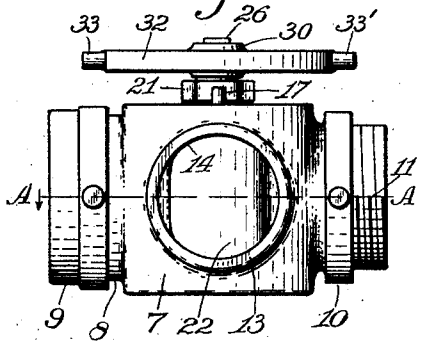


Fig. 4.

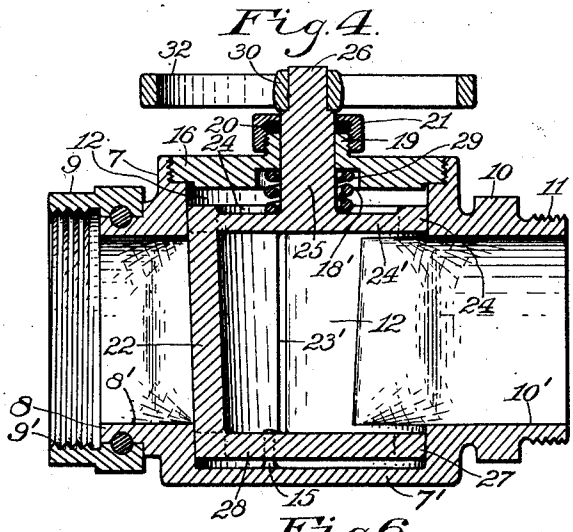


Fig. 5.

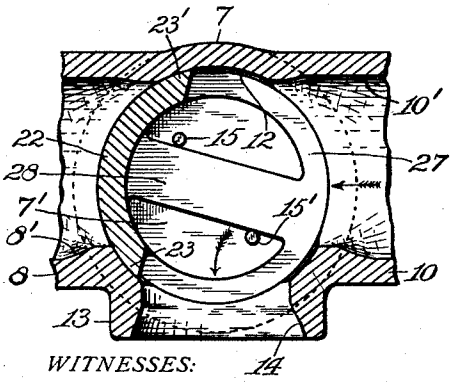
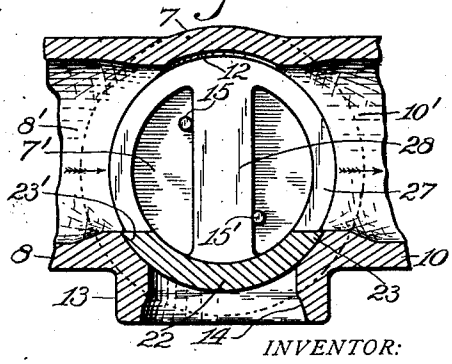


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

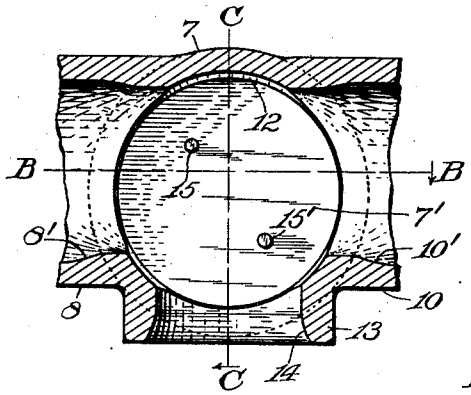


Fig. 8.

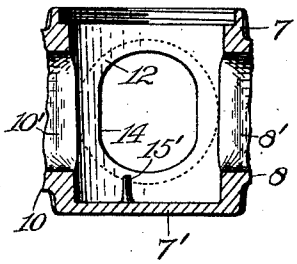


Fig. 9.

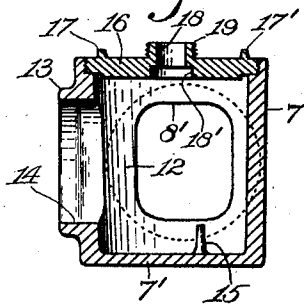
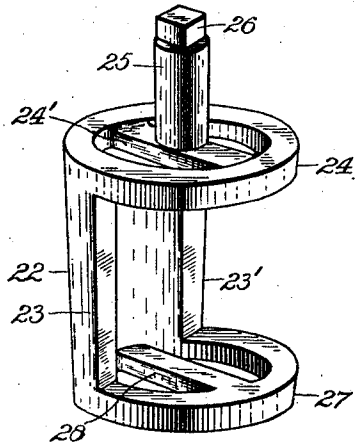


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN L. DRAKE, OF MONTICELLO, INDIANA.

FIRE-HOSE LIGHTENER AND SIGNALING DEVICE.

1,002,972. Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed April 22, 1910. Serial No. 556,977.

To all whom it may concern:

Be it known that I, JOHN L. DRAKE, a citizen of the United States, residing at Monticello, in the county of White and State of Indiana, have invented certain new and useful Improvements in Fire-Hose Lightener and Signaling Devices; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to the class of hose that is designed to be used by fire departments in cities or elsewhere for extinguishing fires, as is customary; the hose being adapted to be connected either to street plugs or to fire-engines for conducting water under pressure to the fires; the invention having reference more particularly to a device that is adapted to be connected in a line of hose to enable the fireman to lighten the weighted hose when filled with water, in case the discharging end of the hose must be carried up ladders or stairways in order to be within convenient reach of the fires, the device being adapted to enable firemen on the ground to give code signals to the pipe men at the nozzle.

The object of the invention is to provide improved means whereby water-filled fire hose may be quickly lightened throughout those portions that may have to be carried up to a height to reach conflagrations, the aim being to lessen the danger to the firemen at the nozzle that is inseparable from the necessity of pulling the hose up ladders or otherwise on either the exterior or interior of buildings.

A further object is to provide means whereby code-signals may be conveyed to the fireman at the nozzle expeditiously by utilization of the water in the hose.

The invention comprises a gate, including its casing, of novel construction, adapted to be connected with fire-hose whereby the hose while connected and filled for use may be either partially or entirely emptied quickly in order to lighten the hose without disconnecting the nozzle, the device being adapted to be operated rapidly for causing fluctuations in the pressure of the water in the hose or to momentarily stop the flow of the water and repeatedly permit it to flow in order to give prearranged signals to the men at the nozzle.

The invention consists also specifically in the construction, combination and arrangements of parts as hereinafter particularly described and claimed.

Referring to the drawings Figure 1 is a side elevation of a fire plug with which the invention is connected, a fire hose being connected with the invention, all illustrating the purpose of the improvement; Fig. 2, a top plan of the complete gate or hose lightener; Fig. 3, a side elevation of Fig. 2; Fig. 4, a longitudinal vertical section approximately central, with the gate adjusted, so as to stop the flow of water from the engine or fire-plug and discharge the water in the hose beyond; Fig. 5, a fragmentary horizontal section on the line A A in Fig. 3 with the gate adjusted as in Fig. 4; Fig. 6, a fragmentary horizontal section also on the line A A in Fig. 3, with the gate adjusted to normal position to permit the flow of water through the hose; Fig. 7, a fragmentary horizontal section of the casing of the gate; Fig. 8, a section of the casing on the line B B in Fig. 7; Fig. 9, a section of the casing on the line C C in Fig. 7; and Fig. 10, a perspective view of the gate.

Similar reference characters in the different figures of the drawings indicate corresponding elements or features of construction therein referred to.

In the drawings the numeral 1 indicates a street hydrant of the class commonly known as fire plugs; 2, a section of the fire hose adapted to be connected either to other sections or to the fire plug or to the fire engine, one end of the fire hose being provided with a union nut 3 and the opposite end with a companion part of the union 4 to which a nozzle 5 provided with a stop cock 6 is connected.

The present invention comprises specifically a casing 7 which is substantially cylindrical and has an imperforate bottom 7′ at the lower end thereof, one portion of the side of the casing having a neck 8 thereon in which is an inlet opening 8′, a union-nut 9 being suitably mounted on the neck and adapted to be screwed onto the fire-plug or to the terminal end of a hose section, the nut having screw threads 9′ therein, and the opposite portion of the side of the casing has a neck 10 thereon in which is an outlet

opening 10′, the neck having external screw-threads 11 thereon to which a union-nut may be connected for coupling a section of fire-hose to the casing. The interior of the casing is bored out so as to be true to provide a true and smooth bearing face 12 for the gate and its guides. Another side portion of the casing has a boss 13 thereon in which is an outflow opening 14, approximately as large as the outlet opening extending through the wall of the casing, so that a short spout of ample diameter is thus provided through which water may flow rapidly from the hose. The bottom 7′ of the casing has a projection 15 on the inner side thereof and preferably also a similar projection 15′ constituting stops for the gate. The casing comprises also a removable head or top 16, provided with lugs 17 and 17′ or similar means whereby an implement may be connected to the head for screwing it into or out of the body portion of the casing, at the opposite end thereof from the bottom. The head has a central guide-opening 18 therein which extends through a boss 19 on the exterior of the head, there being a counter bore 18′ at the inner end of the guide opening. Suitable packing 20 is placed on the end of the boss and held in position by a packing-nut 21 screwed onto the boss. It will be understood that the bore in the casing is slightly tapering, being less in diameter at the bottom 7′ than at the head 16, so that the gate proper shall be self-fitting and may operate against the bearing face freely and permit of removal from the casing without liability to stick fast.

The gate 22 is concavo-convex in section and is seated movably against the bearing face 12 and is adapted to extend either across the inlet opening 8′ or across the opening 14, the ends 23 and 23′ extending slightly beyond the opening, and the gate extends also downward nearly to the bottom 7′ and upward toward the head 16, so that it may close either the inlet opening 8′ or the hose emptying opening 14 of the spout. The gate is guided and maintained on its seat by means of a curved guide 24 that extends from the end portions 23 and 23′ of the gate against the opposite portion of the wall of the casing, the upper end of the gate and the guide together being circular in plan, the guide preferably being cored out so as to avoid waste of material, leaving a center-bar 24′ integral with the gate and on which an operating stem 25 is cast integrally and having a squared end 26 whereby to operate the gate. The other or lower end of the gate has also a curved guide 27 thereon that extends from the ends 23 and 23′ against the portion of the casing opposite the gate, this guide having also a center-bar 28 connected thereto and to the gate to operate between the projections 15 and 15′ and limit the movement of the gate to insure accuracy in bringing the gate to proper positions, the relative positions being clearly indicated in Figs. 5 and 6. It will be understood, however, that the gate may be stopped in proper positions by other suitable means if preferred. A coil-spring 29 is seated on the center bar 24′ and against the head 16 in the counter-bore therein, the spring extending about the stem 25 for holding the gate against its seat.

The gate may be operated by any suitable wrench or equivalent device, but preferably a hand wheel is provided comprising a hub 30 placed removably on the squared end 26, there being two arms 30 and 30′ on the hub and to which a rim 32 is connected for conveniently turning the gate, the rim preferably having projections 33 and 33′ thereon to which a spanner wrench may be connected if found desirable. The arms 31 and 31′ or either one, of course, may be used alone on the hub if preferred and they may at sight indicate the position of the gate, as will be understood.

In practical use the casing of the gate is coupled into the line of fire-hose at any suitable or desired place or may be connected to the fire plug and with the hose as indicated, the gate being adjusted so as to close the opening 14 and permit the water to flow through the hose under pressure as usual, and if it be desired to communicate pre-arranged signals to the firemen controlling the nozzle at the end of the fire-hose, the gate may be quickly turned so as to partially uncover the opening 14 and cause a reduction of pressure in the hose, which will be instantly observed by the firemen who, with a continuance of the manipulation to cause repeated fluctuations or stoppage of the flow, may be made to understand what they are required to do in the matter of directing the stream of water. In case it becomes necessary to carry the nozzle end of the hose to a height when filled with water which would be burdensome, the gate is turned so as to close the inlet opening 8′ and open the outflow opening 14 which permits all the water above the level of the hose lightener to flow out rapidly and thus enable the firemen to more easily ascend with only the empty hose to carry. After the men with the nozzle have reached the desired position the gate is readjusted so as to close the opening 14 and clear the passage through the casing with the gate and permit the water to flow through the hose as usual.

Having thus described the invention, what is claimed as new, is—

1. A fire-hose lightener including a casing comprising a substantially cylindrical side wall with an inlet-opening and an outlet-opening therein, and an imperforate bot-

tom on one end of said wall, the said wall having an outflow-opening therein between said openings substantially equal in diameter to the outlet-opening, a gate guided by said side wall clear of said bottom and movable either across said outflow-opening or across said inlet-opening, an annular head secured to said side wall and having a central recess in the inner side thereof, a stem on said gate extending through said top, and a spring seated on said gate and in said recess.

2. In a fire-hose lightener, the combination with a casing comprising a substantially cylindrical side wall in which is an inlet-opening and an outlet-opening and also an outflow-opening, there being a bottom on one end and an annular head on the opposite end of the wall, of a curved gate movable in contact with the side wall and normally extending across said outflow-opening, a curved guide on said gate adjacent to said bottom extending to the said wall, a curved guide on said gate adjacent to said head extending to the said wall, a center-bar extending from said gate to said last-mentioned guide, and a stem on said center-bar extending through said head.

In testimony whereof, I affix my signature in presence of two witnesses.

JOHN L. DRAKE.

Witnesses:
E. T. SILVIUS,
K. R. WODDELL.