G. T. BUXTON & S. A. ABBEY.

FLUID SYSTEM.

APPLICATION FILED APR. 2, 1915.

1,172,938. Patented Feb. 22, 1916.

Fig. 6.

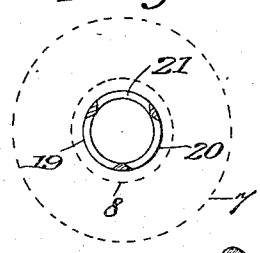


Fig. 2.

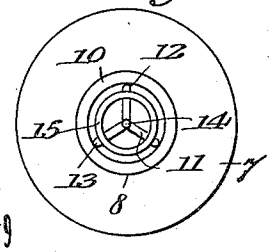


FIG. 4

Fig. 5

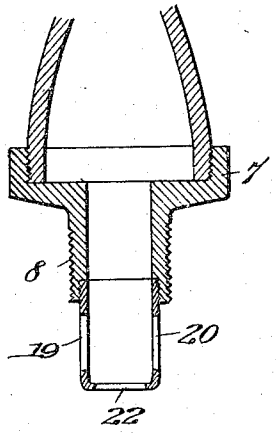
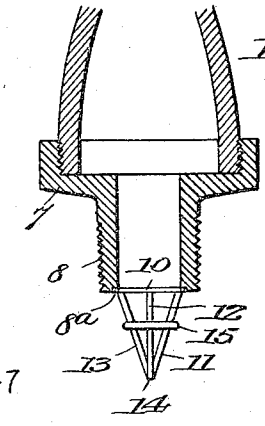
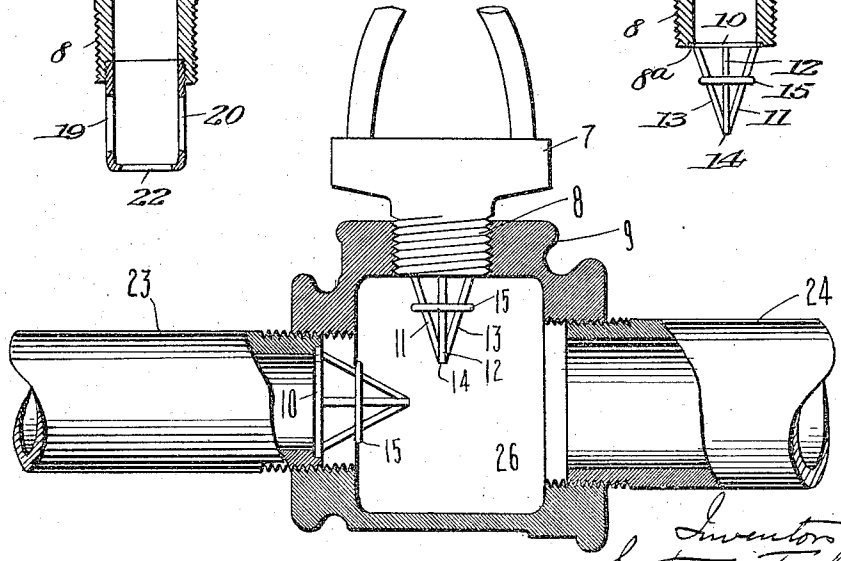


FIG. 3

Fig. 1.





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FLUID SYSTEM.

1,172,938. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed April 2, 1915. Serial No. 18,679.

To all whom it may concern:

Be it known that we, GUSTAVUS T. BUXTON and SIMEON A. ABBEY, citizens of the United States, both residing at Charlotte, in the county of Mecklenburg and the State of North Carolina, have invented certain new and useful Improvements in Fluid Systems, of which the following, taken in connection with the accompanying drawings, is a full, clear, and concise description thereof.

The present invention relates generally to improvements in fluid systems and is more particularly directed to means for maintaining the service pipe or pipe fittings of a fluid system open at all times.

One of the objects of the present invention is to provide a simple and inexpensive guard, which may be positioned within a service pipe or a pipe fitting of a water or other fluid system and which is particularly adapted to use in connection with automatic sprinklers of fire extinguishing systems to prevent the clogging up of the pipes or other parts of the systems by solids or foreign substances entering the same.

A further object of our invention is to provide a guard, which may be formed integral with the fittings, sprinkler head, piping or the like, or may be made independently thereof and suitably connected thereto and formed in such a manner that the volume of fluid passing through the fittings or pipings will not be diminished in cases where foreign matter impinges against the guard.

It is well known that various means have been provided to keep fluid systems clear, but all of them have been more or less unsuccessful by reason of the fact that they do not provide means for permitting the fluid to continue to flow through the system in its normal volume when an obstructing element is held thereby.

Our invention has been devised to overcome the objectionable features of the known forms of guards and in accomplishing the objects, as heretofore set forth, we have provided a most durable and efficient guard, which may be readily employed in many ways.

Various avenues of use and advantages of our structure will be apparent as the description proceeds, and we would have it understood that we do not limit ourselves to the specific uses or objects set forth, nor to the particular construction or embodiments shown, since, it is obvious that various details of our invention may be changed and that we are entitled to the usual range of equivalents, all of which are within the spirit and scope of our invention.

We shall now proceed to describe our invention with reference to the accompanying drawings, and then point out with more particularity, the essential elements of novelty therein, in the appended claims.

In the drawings, Figure 1 is a sectional elevation of a part of a sprinkler head, showing our invention applied thereto. Fig. 2 is a top plan view of the structure shown in Fig. 1. Fig. 3 is a diagrammatic view, partly in section, showing our invention applied to a sprinkler head and to a supply pipe of a fluid system, and Figs. 4, 5 and 6 illustrate modifications of our invention.

Referring now to the drawings in detail, in which like characters of reference are employed to designate similar parts throughout the several views, 7 indicates a sprinkler head of the usual type having an extension 8 adapted to be threaded into the fittings 9, as shown in Fig. 3. The sprinkler 7 is of the ordinary and well known type, commonly used in fire extinguishing systems and as its construction forms no specific part of our invention, the same will not be described.

It will be observed that the threaded extension 8 is machined out at its end to form an annular seat 8^a for the ring 10, forming the base of our improved guard, the base being of a diameter to fit tightly within the seat 8^a and being frictionally held thereby. Of course, it is obvious that the base 10 may be soldered on the seat 8^a or that, if desired, the seat may be of a slightly greater depth than that shown and suitably threaded, so as to engage the corresponding threads, which may be provided on the periphery of the ring 10.

The guard is preferably of a conical configuration and is formed by the extensions, or ribs, 11, 12 and 13 connected to the ring or base 10 and converging toward each other and forming the apex of the cone, as shown at 14. Intermediate of the apex and the base of the guard, we have found it desirable to mount a retaining ring 15, which may be connected to the other members of the guard in any suitable manner and whereby these members are prevented from separating or bending under pressure applied thereto. This ring also prevents the influx of small particles of material, which

might otherwise pass between the upright members of the guard were this ring omitted.

In the modified form of our invention shown in Fig. 4, we employ a guard of tubular formation, as shown at 16, which is in threaded engagement with the extension 8 of the sprinkler head or the like. The wall of this guard is preferably provided with three circular orifices 17, each having a rib 18 extending thereover to prevent the entrance of solids through the orifice.

In the modification shown in Figs. 5 and 6, the guard is in threaded connection with the extension 8 of the sprinkler head and has cutout portions 19, 20, 21 and 22 formed in the walls and end thereof.

As it is manifest from the drawings, when our invention is employed in connection with a fire extinguishing system, a guard is preferably provided for each sprinkler head and each service pipe 23 so that a pebble, stone or other matter, which would obstruct the passage of the water through the sprinkler head and service pipe, being carried through the supply pipe 24 by the water pressure, will impinge against one of the guards and be prevented from entering the service pipe or sprinkler head. However, the passage of the water through the service pipe 23 or the sprinkler head 7 will not be obstructed by reason of the construction of our improved guard, which is so proportioned that even though one or more of the openings provided therein are closed, the water may still pass therethrough without diminution of the volume. In this connection, it will be observed that each opening provided in the guard is of a slightly smaller area than the discharge orifice of the sprinkler head, so that assuming two or even three of the guard openings were obstructed, sufficient water could still pass through the remaining guard openings to permit the discharge of a full supply from the sprinkler head. Furthermore, the ordinary type of pipe fitting, such as indicated at 9, is of a size relative to the service and supply pipes to provide a chamber or cavity 26, which will be sufficient to contain a comparatively large amount of solid or foreign matter without seriously affecting the flow of the water therethrough.

In employing our device in a fire extinguishing system, as shown, we have found it, as before explained, desirable to make the openings in the guard of an area slightly less than the area of the discharge orifice of the sprinkler head. In addition to the particular advantage of this arrangement heretofore set forth, we have also found that this arrangement will permit the passage and carrying off of any objects, which are of a size to permit of their being carried through the discharge orifice of the sprinkler head. These features are of considerable value, since in all known types of guards, the apertures therein are of such a small area that frequently very small particles serve to clog them and impair the efficiency of the sprinkler head.

It is obvious from the foregoing description of our invention that our improved guard may be formed of wire or any suitable material and may be soldered or otherwise secured to the fitting, sprinkler head or the like, or it may be cast integral with the pipe, fitting, sprinkler head or the like, as desired. Also, in the preferred form of construction shown in Figs. 1, 2 and 3 where the guard is made of a round wire, the ribs and base section may be formed from a continuous strip of material, and we may provide any number of ribs to form as many openings as may be necessary or useful, all of these changes or variations being possible without departing from the scope of our invention.

Having thus described our invention what we claim as new herein and desire to secure by Letters Patent is:

1. A guard for water pipes provided with a plurality of apertures, each being of an area to permit the passage therethrough of any solid of a size which will not obstruct the discharge orifice of said pipe and to permit the water to flow through said guard and said pipe in its undiminished normal volume upon the arresting of any obstructing element by said guard.

2. A guard for sprinkler heads of fire extinguishing systems formed to provide a plurality of apertures to permit the passage of water therethrough, each aperture being of an area slightly less than the area of the discharge orifice of said sprinkler head, whereby any solid of a size which will not obstruct the discharge orifice of said sprinkler head may pass therethrough, the arresting of an obstructing element by said guard permitting the water to pass through said sprinkler head in its normal volume.

3. A guard for water pipes provided with a plurality of apertures, each being of an area to permit the passage therethrough of any solid of a size which will not obstruct the discharge orifice of said pipe and to permit the water to flow through said guard and said pipe in its undiminished normal volume upon the arresting of any obstructing element by said guard, and means for removably connecting said guard to said pipe.

4. A guard for sprinkler heads of fire extinguishing systems arranged and constructed to permit the passage therethrough of any solid of a size which will not obstruct the discharge orifice of said sprinkler head, and will permit the water to issue from said

sprinkler head in its normal volume upon the arresting by said guard of any solid of a size which would obstruct the discharge orifice of said sprinkler head.

5. A guard for water pipes and the like having a plurality of members connected together to form a series of openings, each opening being slightly less in size than the discharge orifice of the pipe, so as to permit the passage through said guard and said pipe of any solid, which will not obstruct the discharge orifice of said pipe, said guard preventing the entrance of any solid to said pipe which would obstruct the discharge orifice thereof, the water flowing through said guard and issuing from the discharge orifice of said pipe in its normal volume during the arrest of such obstructing element by said guard.

In testimony whereof we have hereunto set our hands this 22nd day of March, 1915.

GUSTAVUS T. BUXTON.
SIMEON A. ABBEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."