

Dec. 29, 1959

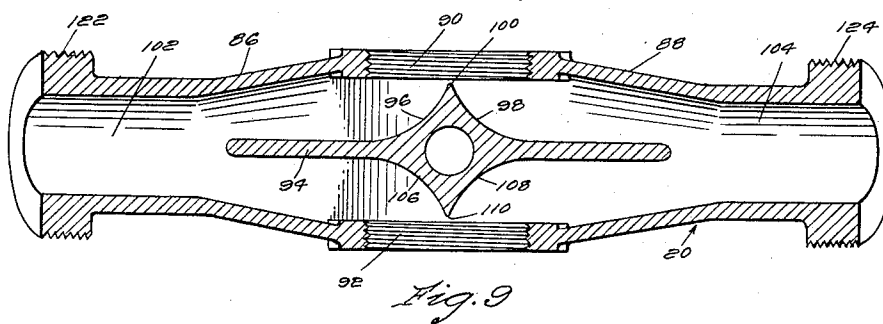
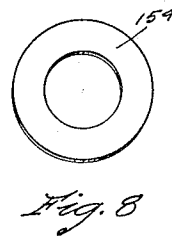
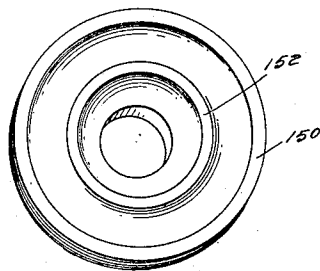
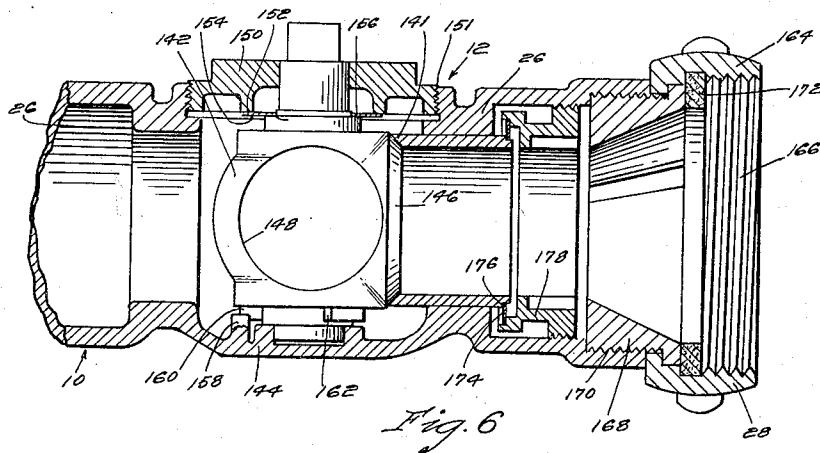
J. T. CORLEY, JR

2,919,072

CELLAR PIPE

Filed June 24, 1957

2 Sheets-Sheet 2



INVENTOR.

John T. Corley Jr.

BY

Elbert A. Satter

Attorney

1

2

2,919,072

CELLAR PIPE

John T. Corley, Jr., Providence, R.I.

Application June 24, 1957, Serial No. 667,526

2 Claims. (Cl. 239—280)

The present invention relates to improvements in fire fighting apparatus and more particularly to an improved so-called cellar pipe employed for directing fire extinguishing fluid into various inaccessible places.

The present invention encompasses improvements over my prior patents, Patent No. 2,099,799, patented November 23, 1937, for Cellar Pipe, and Patent No. 2,285,111, patented June 2, 1942, for Shut Off Valve. Patent No. 2,099,799 discloses the general arrangement of cellar pipes as including fire extinguishing fluid, a depending nozzle carrier rotatably carried by a base and one or more nozzles pivotally carried by the nozzle carrier with means for effecting rotation of the nozzle carrier with respect to the base so as to direct fire extinguishing fluid in selected directions.

In cellar pipes of the prior art, such as is exemplified by my prior patent, the degree and range of fire fighting coverage by the apparatus has been limited as a result of the construction and arrangement of the component parts of the cellar pipes.

Accordingly, it is a primary object of the present invention to provide an improved arrangement wherein the degree and range of fire fighting coverage is substantially increased over prior constructions.

Another object of the present invention is to provide an improved cellar pipe construction wherein the nozzle carrier which supports the one or more nozzles can be rotated throughout a complete revolution with respect to the supporting base therefor.

Another object of the present invention is to provide an improved arrangement of operating means for the nozzle or nozzles whereby pivoting of the latter can be accomplished without restricting the rotational position of the nozzle carrier with respect to the supporting base therefor.

Still another object of the present invention is to provide an improved cellar pipe construction which embodies nozzle means having a pair of nozzles generally oppositely directed with the angle included between the nozzles being less than 180° so that the streams issuing therefrom can be selectively directed simultaneously to one side of a fixed plane through the carrier, to opposite sides of the plane, or to one side of the plane and into the plane.

Another object of the present invention is to provide an improved cellar pipe construction wherein the carrier yoke for the nozzles includes an endless passageway providing for improved fluid flow through the device and out through the nozzles carried by the yoke.

Still another object of the present invention is to provide an improved cellar pipe construction wherein the nozzles can have various tips associated therewith so as to vary the type of streams issuing therefrom.

Various other objects and advantages will become apparent from the detailed description to follow.

In the drawings:

Fig. 1 is a front elevational view of my improved cellar pipe;

Fig. 2 is a detail view showing the manner in which the nozzle carrier is rotatably mounted in the base, a portion being shown in section;

Fig. 3 is an end elevational view of a portion of the device showing details of the supporting legs when in their open position;

Fig. 4 is an enlarged horizontal sectional view taken substantially along the plane of line 4—4 of Fig. 2;

Fig. 5 is a vertical sectional view, on an enlarged scale, taken substantially along the plane of line 5—5 of Fig. 1;

Fig. 6 is an enlarged detail sectional view showing the shut-off valve which is connected to the base of the cellar pipe;

Fig. 7 is a perspective view of an end ring which is a component of the valve of Fig. 6;

Fig. 8 is a perspective view of the packing ring of the valve in Fig. 6; and

Fig. 9 is an enlarged sectional view taken substantially along the plane of the line 9—9 in Fig. 1.

Referring more particularly to the drawings, wherein like numerals apply to like parts throughout, it will be seen that my improved cellar pipe includes a base 10 having valve means 12 connected therewith and adapted to control the supply of fire extinguishing fluid to the base, nozzle carrier means 14 including a cap 16 rotatably supporting the same in the base 10 and further including a yoke 18 for swivelly mounting the nozzle means 20 at the lower end of the nozzle carrier means 14. Operating means 22 are provided for controlling rotation of the nozzle carrier 14 with respect to the base 10 and for controlling pivoting of the nozzle means 20 with respect to the nozzle carrier 14.

The base 10 is best shown in Figs. 1 and 2 as being of hollow construction shaped similarly to a T-fitting. The base 10 has a vertical bore 24 and a lateral bore 26 communicating therewith. The valve 12, to be described in detail hereinafter, controls flow through the lateral passageway 26, and the end portion 28 thereof is adapted to receive a hose or the like so as to enable a supply of fire extinguishing fluid to be fed to the base 10. The base 10 is also formed with a pair of laterally extending blocks as at 30 and 32 on which the two support legs 34 and 36 are pivotally mounted, as shown best in Fig. 3.

As will be seen most clearly in Fig. 2, the cap 16 of the nozzle carrier means 14 is of hollow construction and has a flange 38 seated in the recess 40 of the base 10 with a gasket 42 interposed to provide a seal. The cap 16 has an upper end 44 extending out of the base 10 and externally threaded at 46. The upper and lower ends 44 and 38 of the cap are joined in spaced relation by the spiders or posts 47 and the hollow guide 56 so as not to obstruct communication from the passageway 26 into the vertical bore 24. A ring member 48 is vertically engaged on the external threading 46 of the cap 16 and is screwed downwardly into contact with a gasket 50 so as to hold the cap 16 within the base 10 and sealed at both ends thereof. The upper end of the cap at 44 is formed with an arm 52 which rotates with the cap 16 and provides a fulcrum at 54 as shown in Fig. 1. The hollow guide tube 56 of the cap 16 is within the base 10 so as to be rotatable with the cap 16 and with respect to the base 10. The fulcrum 54 and guide tube 56 are provided for a purpose to be described in detail hereinafter.

The nozzle carrier means 14 includes a tube 58 of substantially elongated form including a passageway 60 therethrough. The upper end of the tube 58 is secured in the lower end of the cap 16, as at 62, by suitable means. Thus, the tube passageway 60 has communication with the interior bore of the base 10 and the source of fluid supply. Intermediate the ends of the tube 58,

a guide flange 64 is provided which has an opening there-through adapted to be aligned with the guide tube 56. The lower end of the tube 58 has the nozzle carrier yoke 18 secured thereto as at 66, see Fig. 5.

As shown best in Fig. 5, the nozzle carrier yoke 18 includes an endless passageway 68 therein communicating with the passageway of the tube 58. The yoke 18 includes spaced parallel portions 70 and 72 which are provided with threaded openings at 74 and 76, respectively, to provide access to the interior of the yoke, and a pair of closure discs 78 and 80 are provided for threaded engagement in the openings 74 and 76. The yoke portions 70 and 72 are formed with aligned openings at 82 and 84 for swivelly mounting the nozzle means 20 presently to be described.

Looking now at Figs. 1, 5 and 9, the nozzle means 20 will be described. The nozzle means 20 includes a pair of nozzles 86 and 88 integrally joined together so as to have a preferred included angle of about 135°. The central portion of the nozzle means body is formed with a pair of lateral openings which are threaded as at 90 and 92. A baffle 94 is integrally formed within the nozzle body. The baffle 94 has a pair of surfaces at 96 and 98 which merge at an edge 100 dividing the stream received through the opening at 90 so as to deflect it to the discharge ends 102 and 104 of the nozzles. The baffle 94 is at its other side similarly formed with surfaces at 106 and 108 merging at an edge 110 so as to divide the stream from the opening 92 and direct the same to the discharge ends 102 and 104 of the nozzles. A pair of sleeves 112 and 114 are threadably received in the openings 90 and 92 and have flanges at 116 and 118, respectively, which engage the mouths of the openings 82 and 84, respectively, whereby the nozzle means is swivelly mounted in the lateral openings. Set screws are provided at 120 for locking the sleeves 112 and 114 with respect to the openings 90 and 92.

The outer ends of the nozzles 86 and 88 are externally threaded, as at 122 and 124, so as to receive thereon tips 126 and 128 which control the type of discharge from the nozzles. For example, the tips 126 and 128 can be similar, discharging a solid stream of fluid from each, or a fog stream from each, or the adapter tips can be dissimilar, one tip discharging one type of stream and the other tip discharging another type of stream. Moreover, tips discharging multiple streams can be mounted on either end of the nozzle. In selecting the adapter tips for the nozzle, it is desirable to have the tips produce a balanced arrangement so that the whole cellar pipe need not be restrained from movement. As an example, one fog nozzle or tip $1\frac{1}{16}$ inch in diameter may be mounted at one end with a $\frac{3}{4}$ inch adapter tip issuing a solid stream on the other nozzle while maintaining a state of balance in the cellar pipe.

The operating means 22 includes an operating lever 132 which is connected with either end of the lever 134, the latter being pivotally mounted on the fulcrum 54. The lever 134 has a connecting bar 136 pivotally connected thereto at 138. The connector bar 136 passes through the guide tube 56, the guide ring 64 and has its lower end connected to the link 139 by the pin at 140. The link 139 in turn is pivotally connected to the nozzle means 20 at the ear 130 on the nozzle 88. Thus, by manipulation of the lever handle 132, the nozzle means may be pivoted within the yoke 18 thereby directing the streams issuing from the nozzles in various directions. For example, the nozzle means 20 can be positioned as shown in Figure 1, in which case both nozzles 86, 126 and 88, 128 are directed upwardly or to one side of a horizontal plane through the intersection of the center lines of the nozzles. In another angularly displaced position, one nozzle can be directed upwardly from that plane while the other nozzle is directing its stream into the plane. In still another angularly displaced position, one nozzle can be directed upwardly and the other nozzle directed downwardly with respect to the above referred

to plane. Of course, the horizontal plane described is merely a reference plane given by way of example only. Also, the lever handle 132 can be rotated about the vertical axis through the base 10 so as to carry the whole nozzle carrier assembly through 360° of rotation. It will be noted that, inasmuch as the connecting bar 136 is received through the cap 16 and rotates therewith, no interference to the complete rotation of the nozzle carrier means is present.

As shown in Figs. 6, 7 and 8, the valve means 12 includes a valve seat element 141 received within the lateral passage 26 of the base 10. A valve head 142 is rotatably carried within the valve body portion 144 in the base 10. The valve head 142 includes a seating portion 146 adapted to engage the seat 141 when the valve is in the position shown in Fig. 6. By rotation of the valve head 142, the bore at 148 can be aligned with the seat 141 so as to permit flow from the source into the base 10. The circular bearing ring 150 is threaded into an opening as at 151 in the base 10 and has a bearing shoulder 152 which contacts the outer surface of the metal packing ring 154 which seats on the stem shoulder 156. The base 10 is formed with a stop at 158 which is engaged by shoulders 160 and 162 integrally carried by the valve head 142 for determining the limits of rotary movement of the valve head for closed and open valve positions, respectively.

The sleeve 164 is internally threaded at 166 so as to be adapted to have a hose connected thereto. The sleeve 164 is rotatably carried on the body element 168 which in turn is threaded into the base 10 as at 170. The gasket 172 provides a seal when the hose is coupled thereto.

A metal gasket is provided at 174 and is engaged against a shoulder 176 on the valve seating element. A sleeve 178 threaded into the base 10 engages the outer edge of the metal gasket 174 so as to resiliently press thereagainst whereupon a tight seal is always insured between valve seat 141 and seating portion 146 when the latter is in its closed or shut-off position.

From the foregoing, the operation of my improved cellar pipe will be obvious. Control of the flow of fluid from the source thereof is provided by means of the valve means 12, as best shown in Fig. 6. The fluid flows from the valve means 12 into the cap 16 and downwardly through the tube passageway 60 into the yoke passageway 68 and from there into the nozzle means 20 wherein the streams are diverted by means of the baffle 94 so as to pass to both of the nozzle discharge ends. The endless yoke passageway 68 aids in insuring that an even, steady pressurized flow of fluid will be forced into nozzle means 20 through the openings 90 and 92. The tube 58 can be rotated with respect to the base 10 by manipulation of the lever handle 132, while the angular positionings of the nozzles 86 and 88 can be adjusted by pivoting of the lever handle 132 with respect to the fulcrum 54.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents, are therefore intended to be embraced by these claims.

I claim:

1. In a cellar pipe, a base, a hollow cap rotatably mounted in said base, an elongated tubular nozzle carrier fixedly connected to said cap in communication with the hollow interior thereof, a guide tube extending through said cap in substantially parallel relation with respect to said nozzle carrier and spaced outwardly from the periphery thereof, nozzle means mounted on the free extremity of said carrier and pivotal about an axis which is at an angle to the axis of rotation of said cap and carrier, actu-

5

ating means extending through said guide tube and connected to said nozzle means for imparting pivotal movement thereto, said cap, carrier, nozzle and actuating means all being rotatable as a unit with respect to said base through a complete revolution, and inlet means in said base for introducing fluid to said cap for flow through said carrier to said nozzle means.

2. The cellar pipe of claim 1 further characterized in that said nozzle means comprise a pair of oppositely directed nozzles having an included angle of substantially less than 180°.

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References Cited in the file of this patent

UNITED STATES PATENTS

691,858	Hart	Jan. 28, 1902
2,099,799	Corley	Nov. 23, 1937
2,793,701	Scott et al.	May 28, 1957

FOREIGN PATENTS

147,466	Sweden	Oct. 26, 1954
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