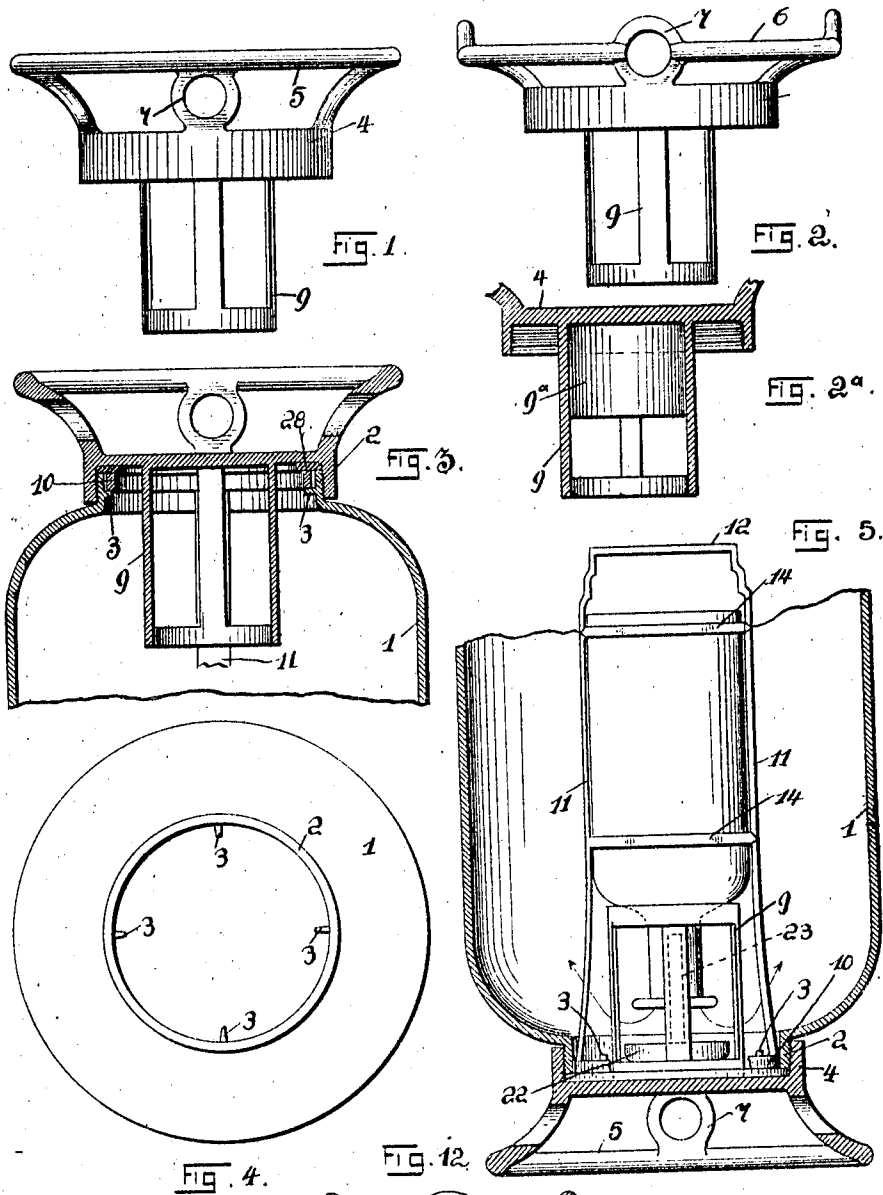


T. F. HANDLY.
FIRE EXTINGUISHER.
APPLICATION FILED NOV. 21, 1906.

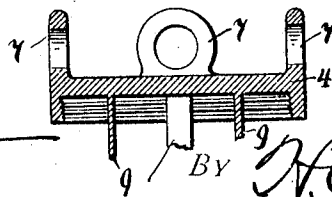
954,184.

Patented Apr. 5, 1910.
2 SHEETS—SHEET 1.



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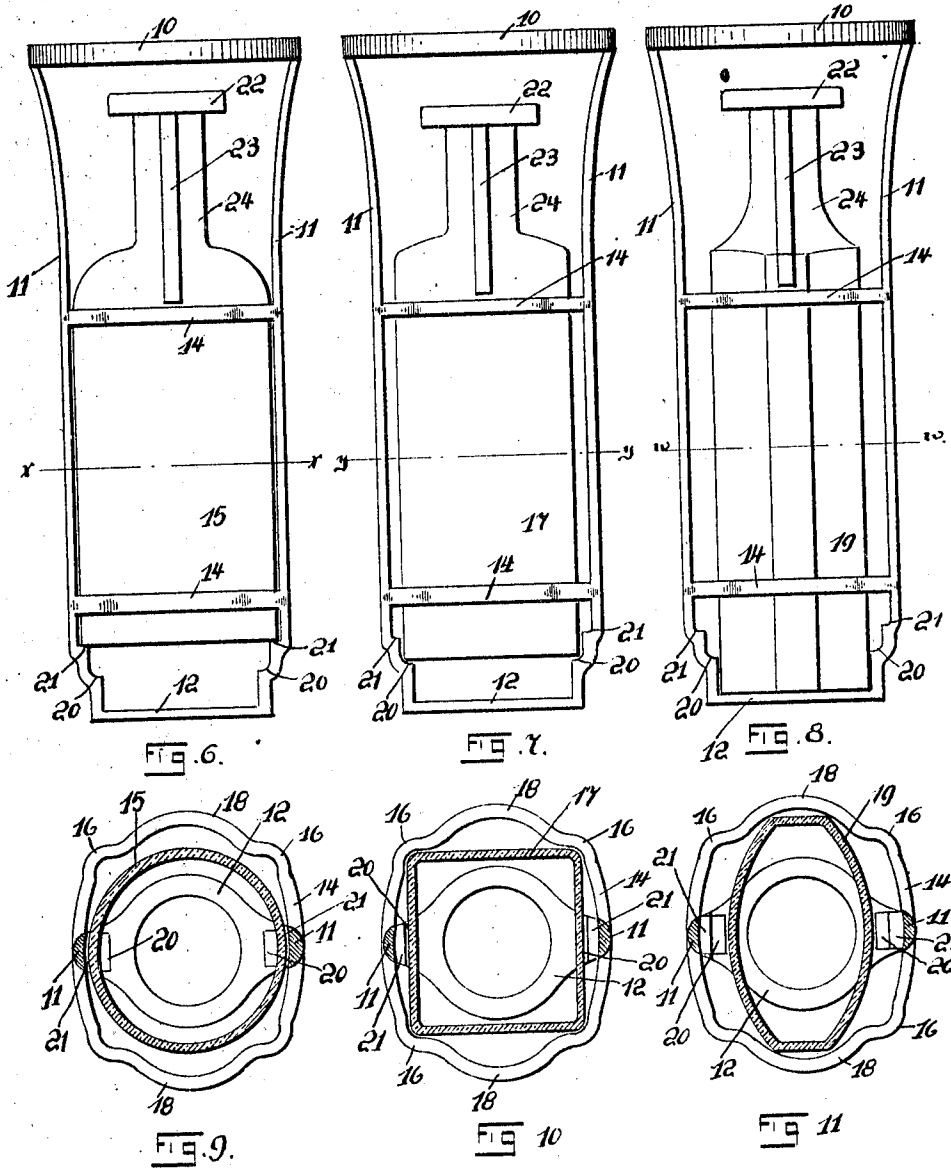
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2 SHEETS—SHEET 2.

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THOMAS F. HANDLY, OF ALLEGHENY, PENNSYLVANIA.

FIRE-EXTINGUISHER.

954,184.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed November 21, 1906. Serial No. 344,370.

To all whom it may concern:

Be it known that I, THOMAS F. HANDLY, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to fire extinguishers of that type commonly known as chemical fire extinguishers and one of the objects thereof is to provide as in a manner hereinafter set forth means whereby the cap of the extinguisher can be easily started and rotated when it is desired to remove the cap from the extinguisher body.

Further objects of the invention is to provide the acid receptacle receiving cage in a manner as hereinafter set forth so as to accommodate bottles of different lengths and cross sectional contours having, however, the same capacity area.

With the foregoing and other objects in view the invention consists in the novel construction and combination of parts to be hereinafter more fully described and particularly pointed out in the claims hereunto appended.

In the drawings wherein like reference numerals designate corresponding parts throughout the several views:

Figure 1 is a side elevation of a lid or cap in accordance with this invention, also showing a frame for the stopper of the acid receptacle. Fig. 2 is a like view of a modified form. Fig. 2^a is a sectional view of another modified form. Fig. 3 is a vertical sectional view of the cap of the form shown in Fig. 1 as mounted upon the casing of the extinguisher, the latter being broken away, and also showing the stopper frame and a portion of the acid receptacle or bottle cage. Fig. 4 is a plan of an extinguisher casing. Fig. 5 is a fragmentary vertical sectional view of an extinguisher in an inverted position, illustrating an acid receptacle or bottle in connection therewith. Figs. 6, 7, and 8 are elevations of the receptacle or bottle cage, illustrating bottles of different heights and cross sectional contours supported therein. Figs. 9, 10, and 11 are respectively sections on the line $x-x$ of Fig. 6, $y-y$ of Fig. 7, and $w-w$ of Fig.

8. Fig. 12 is a cross sectional view of a modified form of cap.

Referring to the drawings, 1 denotes a casing or tank having an exteriorly threaded contracted neck portion 2 provided with inwardly extending lugs 3. Upon the neck portion 2 of the extinguisher casing or tank 1 is detachably mounted a cap or cover 4 having supported thereby an annulus 5 constituting a handle. Interposed between the handle 5 and the lid 4 is a plurality of annular ribs 7 forming eyes to receive a broom handle, a rod or bar whereby the cap or cover 4 can be loosened or rotated upon the extinguisher casing or tank and removed therefrom when occasion so requires. One of the advantages obtained by employing the annular ribs 7 for connecting the handle 5 to the cap or cover 4 a larger bearing is provided for the broom handle, rod or bar, than would be the case if the ordinary straight ribs were employed and by such an arrangement the rods 7 are prevented from being broken when the cap or cover 4 is loosened or removed.

In Fig. 2 of the drawings a modified arrangement is shown in connection with the ribs and the handle. The annulus which constitutes the handle in Fig. 2 is indicated by the reference character 6 and is arranged in a plane with the center of the annular rib 7. By such an arrangement when a rod or bar is inserted through the eyes formed by the ribs 7 and the cap or cover rotated, the stresses and strains upon the ribs 7 will be in alinement with the handle 6, this construction insuring greater strength and preventing the ribs 7 from being broken. Further advantage resides in the fact that the diametrically opposed ribs which constitute the eyes also form the feet for the extinguisher casing when the latter is inverted, and further enables a better grip to be obtained upon the handle 6 when rotating the cap or cover 4.

In Fig. 12 another modification of the construction of the upper part of the cap or cover is shown and in which the handle 6 is dispensed with, the circular ribs 7 which constitute the eyes rising from the cap 4 to receive a suitable rod for loosening the ribs, these ribs also acting as a support for the extinguisher when inverted. The cap or cover 4 is provided with a centrally dis-

posed depending frame 9 of skeleton form as shown in Figs. 1 and 2. A modification of the frame 9 is shown in Fig. 2^a and in this construction the frame is partially closed as at 9^a.

The acid receptacle or bottle cage in the form as shown in Figs. 5 to 11 comprises a circular top or ring or band 10 having depending diametrically opposed arms 11 connected at their lower ends by a base 12 and intermediate their ends by bottle embracing rings or bands 14. The bottle embracing ring or bands 14 are substantially rectangular, but are irregular in contour, that is, they have a plurality of offsets or shoulders arranged diametrically opposite each other whereby bottles of different cross section contours, but of a common or equal interior capacity or chamber area, may each be engaged by some part of the ring or band 14 and steadily supported in the cage, for instance, circular bottles, bottles square in cross section, and bottles rectangular in cross section, this will be evident from reference to Figs. 9, 10, and 11 of the drawings, wherein, in Fig. 9 a circular bottle 15 is shown in the cage, in Fig. 10 a bottle 17 substantially square in cross section is shown in the cage, and in Fig. 11 a bottle substantially oval in cross section is shown in the cage. A circular bottle 15 in Fig. 9 is engaged on opposite sides by the ring or band, the bottle 17 shown in Fig. 10 has its corners engaging in the recesses formed by the offsets 16, and the bottle 19 shown in Fig. 11 has its corners engaging in the recesses formed by the bends or offsets 18 in the bands. Thus, the three bottles shown, although of equal capacity, yet of different cross sectional contour are each firmly held and steadily supported in the cage.

In order that bottles of varying height may be accommodated within the cage and a uniform discharge from the bottle at a predetermined point insured, the cage arms adjacent to the base 12 are contracted and formed with step shoulders 20 and 21. A bottle of considerable length, such as the oval bottle 19, will be permitted, by reason of its cross sectional contour, to rest upon the base 12 of the cage; a shorter bottle as the square bottle 17 rests upon the shoulders 20 of the bars 11 while a still shorter bottle, as the round bottle 15 is supported upon the shoulders 21 of the arms 11.

In connection with each bottle used in the extinguisher, I employ a suitable stopper embodying a head 22 and a stem 23, the stem of said stopper fitting within the neck portion 24 of the bottle and the head 22 resting upon the top of the bottle and closing the same when in an operative position. The construction of the stopper is that as shown in my co-pending application 292,757 filed Dec. 21, 1905, and no claim is made herein

to the stopper *per se*. The stopper is housed within the frame 9, and when the extinguisher is inverted, as shown in Fig. 5 of the drawings, to discharge the contents of the bottle, the downward movement of the stopper is limited by the cap or cover, the stopper extending in the frame 9. The downward movement of the bottle is limited by the stopper frame owing to the diameter of such frame being less than the diameter of the cage. The diameter or thickness of the stem of the stopper governs the flow and discharge of liquid from the bottle or receptacle.

In my co-pending application Serial No. 292,757, filed Dec. 21, 1905, a means is shown for steadily supporting bottles of various cross sectional contours having the same interior capacity or chamber area and a means is furthermore disclosed for supporting bottles of varying length. The construction to perform the foregoing function in this application is specifically different from that shown in my co-pending application owing to the fact that the bottle support is not adjustable and therefore no claim is made herein to an adjustable support for the bottle.

The manner in which the extinguisher is used is as follows: The acid containing bottle is first placed in the cage, the stopper mounted upon the bottle, the cage placed in the casing and sustained upon the lugs 3, a gasket 28 is then positioned upon the contracted neck portion 2 of the extinguisher and then the cap or lid is mounted thereon. The dependent part of the cap or lid forming the frame 9 supports the breast of the bottle when the extinguisher is inverted irrespective of the length of the bottle and the stopper maintains a uniform discharge when the extinguisher is inverted. This is accomplished by the stem 23 of the stopper being of sufficient length and equal diameter throughout to maintain a uniform flow of acid from the bottle whether the stopper be used in connection with a bottle having a short neck or a long neck. While the point of discharge may vary, the flow of the contents will always be regulated by the stem of the stopper used in connection with the bottle.

What I claim is:

1. A cage for acid receptacles for fire extinguishers comprising arms connected together, said arms provided with shoulders for supporting the bottom of acid receptacles of varying heights.

2. In an extinguisher the combination with a casing having a threaded contracted end, of inwardly extending lugs carried by the contracted end of said casing, a depending rigid bottle cage supported by said lugs, said cage comprising diametrically opposed cage arms, bottle embracing bands connecting said arms and shaped to engage bottles.

of different cross sectional contour, a base connecting the lower ends of said arms, said arms having shoulders adjacent to said base, a cap fitting upon said casing and having a depending frame, a handle carried by said cap and circular supporting ribs for said handle, said circular ribs constituting eyes for the purpose set forth.

3. In an extinguisher, the combination with a casing, of inwardly extending lugs carried by said casing, a cage suspended from said lugs, said cage consisting of rigid cage arms connected by bottle embracing bands and a base, said cage arms having shoulders adjacent to said base, a cap fitting upon said casing and having a depending frame, and circular ribs carried by said cap and constituting eyes.

4. A cage for fire extinguishers consisting of a plurality of arms connected together at their top and bottom, said arms at their lower ends being contracted and formed with a plurality of shoulders for supporting bottles of varying height.

5. A cage for fire extinguishers consisting of a plurality of arms connected together at their top and bottom, said arms at their lower ends being contracted and formed with a plurality of shoulders for supporting bottles of varying height, said cage further embodying a bottle embracing band shaped to engage bottles of different cross sectional contours.

6. A fire extinguisher embodying a cap, a cage depending therefrom, a stopper receiving means depending within the cage and suspended from the cap, said cage at its lower end provided with a plurality of shoulders for supporting bottles of various heights.

7. A fire extinguisher embodying a cap, a cage depending therefrom, a stopper receiving means depending within the cage and suspended from the cap, said cage at its lower end provided with a plurality of shoulders for supporting bottles of various heights and bottle embracing bands forming a part of the cage and of a contour as to engage bottles of different cross sectional contours.

8. A cage for the acid receiving bottles of fire extinguishers embodying a pair of arms, means for connecting the arms together at the top thereof, bands connecting the arms intermediate their ends and shaped to embrace bottles of different cross sectional contours, means for connecting the arms at their lower ends, said arms at their lower portions provided with a plurality of shoulders for supporting bottles of various heights.

9. An extinguisher comprising a cap, means depending from the cap for limiting the movement in one direction of an acid receiving bottle, a cage depending from said

cap and having the lower end thereof formed with a plurality of shoulders for supporting bottles of various heights, and means carried by the cage and constituting bottle embracing means for engaging bottles of different cross sectional contours.

10. The combination with a casing of a fire extinguisher, of a rigid bottle cage suspended in the tank and embodying a plurality of arms having their lower ends provided with shoulders for supporting bottles of varying heights, said lower ends of said arms being connected together, bottle embracing bands connecting said arms and shaped to embrace bottles of different cross sectional contours, and a cap fitted upon said casing and having a dependent frame adapted to receive the stopper of the bottle and to limit the movement of the bottle in one direction.

11. A cage for the acid receiving bottle of a fire extinguisher consisting of a plurality of arms having the lower ends thereof connected together, said arms further having the lower portions provided with a plurality of shoulders to support bottles of various heights.

12. A cage for the acid receiving bottle of a fire extinguisher consisting of a plurality of arms having the lower ends thereof connected together, said arms further having the lower portions provided with a plurality of shoulders to support bottles of various heights, said cage further embodying means for connecting the arms together at various points of their length.

13. A cage for the acid receiving bottle of a fire extinguisher consisting of a plurality of arms having the lower ends thereof connected together, said arms further having the lower portions provided with a plurality of shoulders to support bottles of various heights, said cage further embodying means for connecting the arms together at various points of their length, said means of such shape as to embrace bottles of different cross sectional contours.

14. In an extinguisher, the combination with a casing having a threaded contracted end, of lugs carried by the contracted end of said casing, a depending rigid bottle cage supported by said lugs, said cage comprising a plurality of arms, bottle embracing means connecting said arms and shaped to engage bottles of different cross-sectional contour, a base connecting the lower ends of said arms and said arms provided with shoulders adjacent to said base.

15. In an extinguisher, the combination with a casing, of a cage suspended therefrom, said cage consisting of rigid cage arms connected by bottle embracing bands and a base, said cage arms having shoulders adjacent to said base, and a cap fitting upon said casing.

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16. A fire extinguisher embodying a casing, a depending cage arranged therein, stopper-receiving means supported by the casing and depending within the cage, said cage at its lower end provided with a plurality of shoulders for supporting bottles of various heights.

17. In an extinguisher, the combination with a casing, of a cage suspended therefrom, said cage comprising a plurality of arms connected by a plurality of bands, said

cage further comprising a base at the lower end of said arms, said arms further provided with a plurality of shoulders intermediate one of said bands and said base.

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

THOMAS F. HANDLY.

Witnesses:

MAX H. SROLOVITZ,
K. H. BUTLER.