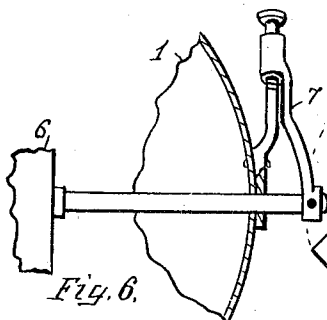
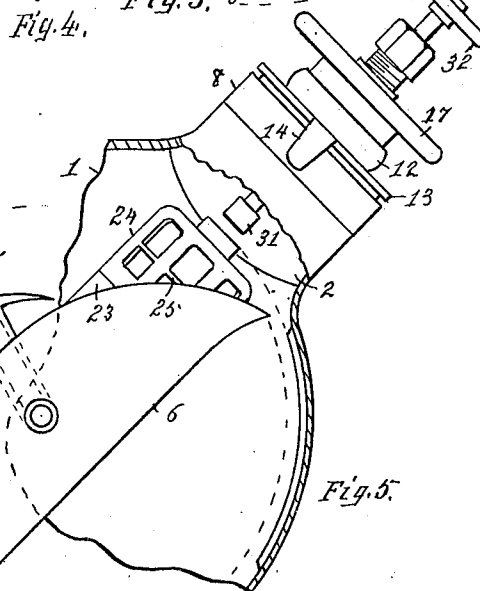
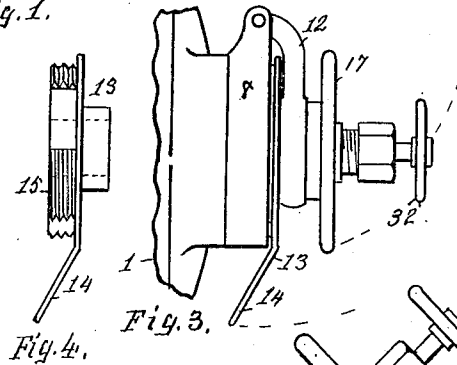
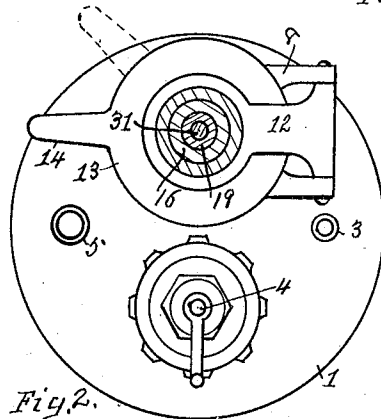
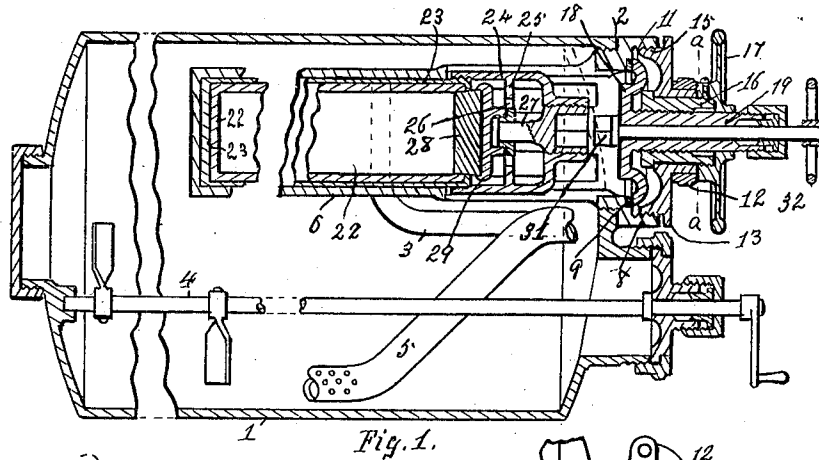


No. 871,147

PATENTED NOV. 19, 1907.

W. H. SHAFER.
CHEMICAL FIRE EXTINGUISHER.
APPLICATION FILED MAY 16, 1906.



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM H. SHAFER, OF CINCINNATI, OHIO.

CHEMICAL FIRE-EXTINGUISHER.

No. 871,147.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed May 16, 1906. Serial No. 317,104.

To all whom it may concern:

Be it known that I, WILLIAM H. SHAFER, a citizen of the United States, residing at Cincinnati, Ohio, have invented a new and useful Improvement in Chemical Fire-Extinguishers, of which the following is a specification.

My invention relates to chemical fire extinguishers of the class adapted to use on chemical fire engines or in combination with hose wagons, hose reels, ladder trucks or in other fixed positions, and the objects of my improvement are to provide a horizontal pressure tank with a charging opening in one of its ends which is accessible to an operator when standing on the ground; to provide a closure or cap for said opening with segmental threads whereby it may be removably secured therein by a partial turn; to provide a hinged arm adapted to carry said cap into or out of registration with said opening; to provide a guard to protect the hand of the operator from the acid in removing the acid jar from the tank; to provide a jar holder which may be adjusted in different vertical angles to facilitate the discharge of the acid from the jar therein, and to combine simplicity and durability of construction with facility of operation and efficiency of action. These objects are obtained in the following described manner as illustrated in the accompanying drawings, in which:—

Figure 1 is a longitudinal diametrical section of a chemical fire extinguisher embodying my improvements; Fig. 2 an end elevation with parts in section on the line *a—**a* of Fig. 1; Fig. 3, a side elevation with parts broken away; Fig. 4 a side elevation of the closure provided with segmental threads; Fig. 5, a side elevation with parts broken away and parts in section showing the trunnioned cage for the acid jar, and Fig. 6, a detail showing the detent lever for actuating the trunnioned cage.

In the drawings, 1 represents a cylindrical pressure tank mounted horizontally in a fixed position and provided with a charging opening 2 in its front end and with the usual overflow pipe 3, agitator 4, and the filling and discharge pipe 5. A jar holder 6 is secured within the tank with its open end in

registration with opening 2, and it may be secured in a horizontal position therein as shown in Fig. 1, or trunnioned and movable in vertical angles by detent lever 7 as shown in Figs. 5 and 6.

Ring 8 projects beyond opening 2 in the tank and is provided with a soft metal valve seat 9 and with internal segmental threads 11 of coarse pitch. Swinging arm 12 is hinged on said ring and closure or cap 13 is swiveled thereon. Said cap is provided with handle 14 and with external segmental threads 15 adapted to detachably engage with corresponding threads 11 and close opening 2 by a partial turn of the cap.

Sleeve 16 provided with hand wheel 17 is rotatively secured within an axial opening in the cap and valve 18 provided with a hollow stem 19 is thereby threaded within the sleeve. By means of hand wheel 17 said valve may be forced in contact with seat 9 within ring 8 after the opening 2 is closed by means of the cap.

The acid jar 22 is incased within a metal jacket 23 which is provided with a removable perforated cage 24 on its front end. Said jar and cage may be inserted through opening 2 and seated in non-rotative position within the jar holder 6. Cage 24 is formed with a transverse guard or partition 25 which contains an axial opening 26. Stopper stem 27 formed with a socket in its front end is adjustably threaded in the front wall of cage 24 and jar stopper 28 is swiveled on its rear end and in registration with the mouth of the acid jar by means of cupped flange 29. Key 31 adapted to detachably engage with the socket in the stopper stem and provided with hand wheel 32 is rotatively and longitudinally adjustable through the hollow valve stem 19. By means of said key the stopper stem may be turned to effect the removal of the stopper from the jar when the cap is closed and thereafter to close the opening 26 in partition 25 to protect the hand of the operator from the acid in removing the jar from the tank. The key and the agitator shaft are each provided with the usual stuffing box.

In operation, carbonate of soda is first placed within the tank. The jar containing sulfuric acid is then inserted through the

charging opening in the tank and placed within the jar holder. During the admission of water through pipe 5 said opening may be closed by a partial turn of cap 13 and valve 18 closed on seat 9 by means of hand wheel 17. The proper amount of water in the tank will be indicated by the overflow through pipe 3 when its admission should be discontinued and the overflow pipe closed in the usual manner, and the nozzle hose placed in communication with the discharge pipe. By means of hand wheel 32, key 31 may now be engaged with and caused to turn stem 27 and thereby remove the stopper from the jar to permit the discharge of the acid therefrom which may be facilitated by partially inverting the jar with the trunnioned holder. The agitator serves to facilitate the mingling of the acid with the soda and water which generates a pressure sufficient to cause its discharge with much force through the discharge pipe. After the tank is empty, valve 18 is relieved from its seat and cap 13 is disengaged and carried by means of the hinged arm to one side of the discharge opening. The empty jar may then be removed and the soda and another loaded jar inserted and the recharging of the tank completed as above described and repeated as often as desired.

30 Having fully described my improvement, what I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. The combination of a removable jacket adapted to inclose a jar, a cage removably secured to the jacket, a stem adjustably threaded in the cage, and a stopper swiveled on the stem for closing the jar.

2. The combination of a jar holder secured within a tank, a jacket adapted to be removably emplaced therein and provided with a removable cage a jar within the jacket, a stem adjustably secured within the cage and provided with a stopper, and means for actuating the stem from the exterior of the tank.

3. The combination of a pressure tank provided with a charging opening and with a jar holder, a jacket adapted to be inserted through said opening and emplaced within the holder a jar emplaced within the jacket, a cage removably secured on the jacket, and a stem adjustably secured in the cage and provided with a stopper, for the purpose specified.

4. The combination of a pressure tank provided with a charging opening, an overflow pipe and with a filling and discharge pipe, a jar holder secured within the tank in registration with said opening, an arm hinged on the tank, a closure swiveled thereon and movable thereby into registration with the opening and adapted to close the opening by

a partial turn thereof, and a valve adjustable on said closure and adapted to close said opening at a point thereunder.

5. The combination of a pressure tank provided with a charging opening, a jar holder secured therein in registration with said opening, a cage removably supported within the holder and provided with an adjustable stem, a stopper on said stem, a jar removably emplaced within the cage, an arm hinged at a fixed point, a closure carried thereby and adapted to close said opening, and a key mounted in the closure and arranged to detachably engage with said stem for removing the stopper from the jar.

6. The combination of a cylindrical pressure tank mounted in a horizontal position and provided with a charging opening in one of its ends, a closure for the opening, a jacket provided with a removable cage a jar within the jacket, a stem adjustably secured within the cage and provided with a stopper for the jar, a holder within the tank for the jacket, and a key movable longitudinally through the closure for detachably engaging with and actuating the stem to remove the stopper from the jar.

7. The combination of a cylindrical pressure tank mounted in a horizontal position and provided with an overflow pipe, with a filling and discharge pipe and with a charging opening, the walls of said opening being provided with segmental threads, a closure provided with segmental threads adapted to cooperate with said former threads for closing the opening, and an arm hinged at a fixed point for movably supporting the closure when disengaged from the body.

8. The combination of a cylindrical tank mounted in a horizontal position and provided with an opening in one of its ends, a jar holder trunnioned therein, means for moving and maintaining the holder in registration with the opening, a jacket provided with a stopper and adapted to be inserted through the opening and removably emplaced within the holder, a jar inclosed within the jacket, and means for moving the stopper, in the axial line of the holder, from the outside of the tank.

9. The combination of a cylindrical pressure tank mounted in a horizontal position and provided with a charging opening in one of its ends, with a filling and discharge pipe, with an overflow pipe, with an agitator and with a jar holder, a jacket adapted to be inserted through the opening and removably emplaced within the holder said jacket being provided with a removable cage, a jar within the jacket, a stem adjustably secured within the cage, a stopper swiveled thereon, an arm hinged on the tank, a closure swiveled thereon, and a key movably secured therein and

arranged to detachably engage with and actuate the stem with the stopper in the axial line of the cage.

10. The combination of a pressure tank
5 provided with an opening, an arm hinged at a fixed point, a double closure swiveled thereon for the opening, and a key rotatively

and longitudinally movable therein for the purpose specified.

WILLIAM H. SHAFER.

Witnesses:

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