UNITED STATES PATENT OFFICE.

THOMAS A. COLE, OF INDIANAPOLIS, INDIANA.

FIRE EXTINGUISHER AND ALARM.


To all whom it may concern:

Be it known that I, THOMAS A. COLE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Fire Extinguishers and Alarms, of which the following is a specification.

The invention relates to fire extinguishers, and more particularly to the class of automatic fire extinguishers and alarms.

The primary object of the invention is the provision of an apparatus of this character wherein the construction of the gun and extinguisher are novel in form to assure the positive sounding of the alarm and the successful operation of the extinguisher, which is of the chemical type.

A still further object of the invention is the provision of an apparatus of this character which is extremely simple in construction, thoroughly reliable and efficient in operation, strong, durable, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings:—

Fig. 6 is a longitudinal sectional view thereof.
Fig. 7 is a perspective view of a further modification.
Fig. 8 is a vertical longitudinal sectional view thereof.
Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawing in detail, A designates a portion of the vertical wall of an inclosure, and on which is mounted the apparatus, which comprises a bracket B including a base plate 10 which is fastened to the wall in any suitable manner and has mounted thereon near its upper end a clip 11 in which is held a cylindrical barrel 12 of a detonating gun having a movable breech plug 13 therein which is held stationary when the barrel is being loaded through the medium of a set screw 14 tapped in the barrel 12, the barrel 12 being held in the clip through the medium of a set screw 15 which is tapped into the clip so that the barrel can be either adjusted therein or detached therefrom should the occasion require. Formed on the breech plug 13 is a tripping stem 16, and within the barrel 12 of the gun is adapted to be received wadding 17 and powder 18, which latter is exploded through the medium of a fuse 19 removably held within a fuse plug 20 mounted in one side of the barrel 12 of the gun, and this fuse when lighted will discharge the gun for actuating the breech plug 13 therein for a purpose presently described. The barrel 12 is open at its upper end to permit the loading thereof with a charge. In the loading of the barrel 12 the set screw 14 is worked inwardly to engage the stem 16 of the breech plug 13 so as to hold the same stationary until the said barrel 12 has been filled with powder and wadding for the charging thereof, the said wadding being tamped in the upper open end of the barrel and there after the said set screw 14 is worked outwardly to release the breech plug to permit free movement thereof when the charge is exploded.

Mounted on the plate 10 near the opposite end thereof or below the barrel 12 of the gun is a fork 21 for swingingly supporting a fire extinguisher comprising a chemical tank 22 which is formed with trunnions 23 journaled in the arms of the fork 21, the trunnions being located adjacent to the bot-
tom of the tank 22, while the opposite end is formed with a nozzle 24 for the discharge of the chemicals from the said tank on inverting the same. Arranged interiorly of the tank 22 near the nozzle 34 thereof is a bottle 29 in which is removably held a bottle 26 containing acid, and the contents of this bottle is delivered to the tank on the inverting or upsetting thereof so that the chemicals will become active for the discharge thereof from the tank to be effective for extinguishing the flame.

On the nozzle end 24 of the tank 22 is a keeper 27 with which engages a trip latch 28 pivotally mounted within a bearing 29 which is fixed to the plate 10, and this latch 28 has its heel end disposed into the path of movement of the stem 16 of the breech plug 13 so that on the explosion of the charge within the barrel 12 of the gun the breech plug will be moved and its stem 16 becomes active upon the latch 28 for releasing the chemical tank 22, which is in normal upright position, so that the latter will become tilted for the discharge of its contents therefrom.

Mounted on the bearing 29 is a leaf spring 30 which acts upon the latch 28 to positively lock the same with the keeper 27 on the top or head of the tank to hold it in upright position until released by the latch 28 which is actuated on the exploding of the detonating gun, which also acts as an audible signal indicating the existence of fire within the inclosure.

Mounted on the plate 10 and engaging with the body of the chemical tank 32 is a pressure spring 31 which serves to act thereon for automatically tilting the tank when released from normal upright position, while below the fork 21 and supported on the plate 10 is a stop or resistance spring 32 which is adapted to serve as a buffer to engage the bottom of the tank 22 when tilted.

Also connected with the bottom of the tank 22 is a chain 33 which is connected with the plate 10 and serves to hold the tank 22 in tilted position, as shown.

In Figs. 5 and 6 there is shown a modification of the invention wherein the chemical tank 34 has attached thereto a barrel 35 at one end of the stem and in which is arranged a movable breech plug 36, the same having a stem 37 which extends interiorly of the tank 34 for operation upon a bottle 38 containing acid and held within a tray-like receiver 39 which is suspended interiorly of the medium of the suspension rods 40 which are suitably fixed within the tank at the top thereof, and on the breaking of the bottle 38, which contains acid, the chemicals within the tank will become active for the discharge of the same therefrom, the discharge being effected through a discharge tube 41 which is mounted interiorly of the tank 34 parallel with the side wall thereof, and it has its inner end terminating spaced from the bottom of the tank, while its upper end is protruded through the body of the tank 34 and terminates in a nozzle 42 so that the chemicals will be discharged therethrough in an upward direction. At a point on the body of the tank 34 diametrically opposite the point of location of the nozzle 42 is a loop handle 49 so that the tank 34 can be hung upon the floor of the inclosure and the discharge of the chemicals will be upward toward the ceiling thereof.

Surrounding the stem 37 within the barrel 35 is a coiled expansion spring 44 which has one end working against a disk 45 closing communication between the tank and the said barrel, while the opposite end of the spring works against a collar 46 fixed on the stem 37, and this spring is designed to normally hold the said stem out of contact with the bottle 38 containing the acid. As heretofore stated, the barrel 35 is filled with wadding and powder, and the explosion of said powder takes place on the lighting of a fuse 47 which is mounted in a fuse plug 48 tapped in the side of the barrel 35. Upon the exploding of the powder it serves as a detonating alarm, the fuse being burned by the flame originating within the inclosure.

In Figs. 7 and 8 there is shown a further modification of the invention, wherein the chemical tank 49 has formed in its bottom a discharge nozzle 50 which is normally closed through the medium of a plug 51, and this plug is actuated upon by a push pin 52 mounted interiorly of the tank 49 and guided in its movement through a bridge 53 which is also mounted interiorly of the said tank, the pin being actuated in a manner presently described.

At the opposite end of the tank 49 is the detonating gun C, the construction of which has been hereinbefore set forth, and the stem 54 of its breech plug 55 extends downwardly centrally through the tank 49 and is slidable through a tray-like receiver 56 which is adapted to contain a bottle of acid, the said receiver being suspended within the tank in a like manner with respect to the receiver 39, and this stem 54 carries a cross arm 37 which serves to break the bottle of acid when in the receiver on the exploding of the gun, while the free end of the stem 54 acts upon the pin 52 to move the same for forcing the plug 51 out of the nozzle 50 so that the chemicals within the tank 49 when rendered active by the mixing of the acid therewith will discharge through the nozzle 50 in a downward direction, the tank 34 without being provided with a handle 58, and the tank is designed to be hung upon the wall through the medium of the handle 58 at a point near the ceiling of the inclosure so.
that the contents when discharged will be delivered downwardly through the bottom of the tank toward the floor of the inclosure for the extinguishing of flames should a fire exist within the inclosure. In the operation of the apparatus it will be assumed that the tank 22 is normally in upright position and the latch 28 is engaged with the keeper 27 and also that the cylinder or barrel 12 of the gun is loaded. When fire breaks out within the inclosure the fuse 19 will become lighted and on the burning thereof the fuse plug 20 will be exploded, forcing the plunger or stem 16 outwardly of the barrel or cylinder 12, thus tripping the latch 28, whereupon the tank 22 is free and will swing outwardly and downwardly to tilting position under the action of the spring 31 and when the tank 22 is in tilted position the bottle 26 containing acid will become automatically opened by the dropping of the stopper from the mouth thereof so that the contents of the bottle will be discharged into the tank for action upon the chemicals therein which are delivered from the said tank for extinguishing a flame.

What is claimed is:

1. In combination, a chemical tank having a neck, a disk on the neck, a bottle holder in the tank and connected to and supported by the disk, a barrel secured to the neck and extending above the disk, a bottle in the bottle holder, a breech plug in the barrel and having a stem projecting through the disk into the tank and bottle holder and arranged to engage the bottle, a spring normally holding the breech plug and stem in inactive position, an explosive substance in the barrel and a fuse for the explosive substance.

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

THOMAS A. COLE.

Witnesses:

LEE R. GARBER,
CHARLES D. MORRISON.