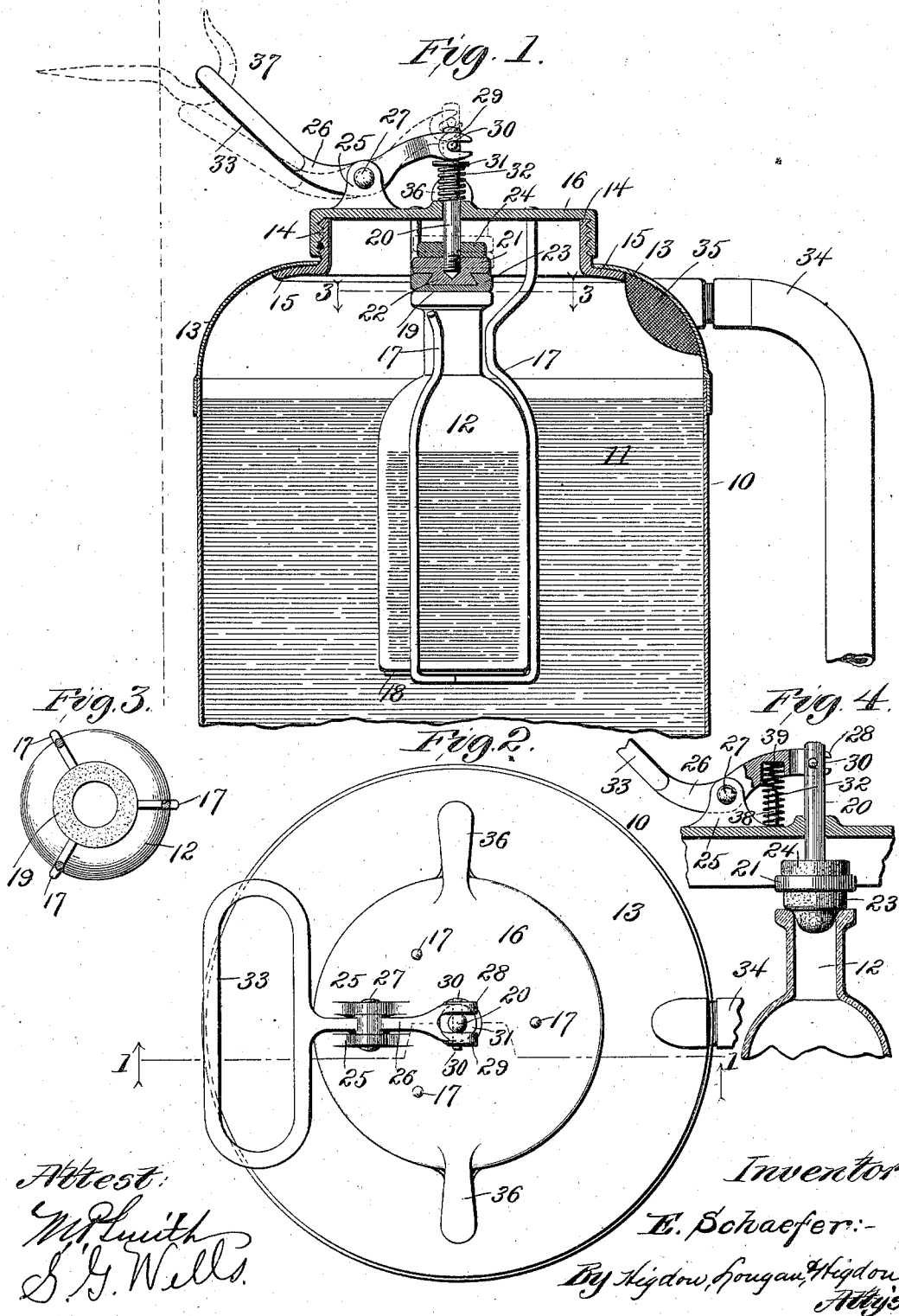


(No Model.)

E. SCHAEFER.
FIRE EXTINGUISHER.

No. 576,415.

Patented Feb. 2, 1897.



UNITED STATES PATENT OFFICE.

EDWARD SCHAEFER, OF ST. LOUIS, MISSOURI.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 576,415, dated February 2, 1897.

Application filed October 12, 1896. Serial No. 608,641. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SCHAEFER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to chemical fire-extinguishers; and it consists in the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a vertical sectional view illustrating the construction of my improved chemical fire-extinguisher, parts being broken away. Fig. 2 is a top plan view of the parts shown in Fig. 1. Fig. 3 is a horizontal sectional view taken approximately on the line 3 3 of Fig. 1 and looking in the direction indicated by the arrows. Fig. 4 is a vertical sectional view of a modified form of the construction shown in Fig. 1, parts being broken away to economize space.

My improved fire-extinguisher relates particularly to that class of chemical fire-extinguishers in which a bottle of sulfuric acid is suspended inside of the main tank, which main tank contains suitable chemicals, which chemicals when mixed with the sulfuric acid form gases for extinguishing fire. The chemicals or liquid within the main tank are expelled by means of the gas generated by the inversion of the device and the consequent commingling of the contents of the bottle or inner receptacle with the contents of the main tank or outer receptacle.

Referring to the drawings by numerals, 10 indicates the main tank, 11 the chemicals which are to be mixed with the sulfuric acid, and 12 the bottle containing sulfuric acid, which bottle is suspended in the tank in accordance with the principles of my invention. The upper end of the main tank 10 is partially closed by the top piece 13, which has a circular opening in its center, in which is positioned the screw-threaded nipple 14. A flange 15 projects outwardly from the lower end of the nipple 14, and the nipple is inserted into the opening in the top piece 13 from the bottom, with the flange 15 engaging the under side of the upper edge of the top

piece 13, and said flange is securely attached to said top piece.

The cap 16 is interiorly screw-threaded and is screw-seated upon the nipple 14. A wire frame 17 supports the acid-bottle 12 and consists of three wires depending downwardly from the cap 16, the upper ends of said wires being attached to said cap 16 at points radial relative to the center of said cap. The three wires composing the frame are attached together at their lower ends, and a disk 18 is positioned horizontally between the lower ends of the wires and attached to said lower ends, forming a base for supporting the bottle. The bottle is inserted in position into the frame by springing two of the wires outwardly and forcing the bottle between them. The portions of the wires adjacent the neck of the bottle are contracted to conform to the contour of the bottle, as required, to prevent the bottle from sliding up and down in the rack. The mouth 19 of the bottle is ground, as shown in Fig. 3.

In the center of the cap 16 is a bearing in which the bolt 20 is slidingly mounted in a vertical position, and the lower end of said bolt 20 is screw-threaded and inserted in a screw-threaded aperture in the center and upon the upper side of the metallic disk 21. Projecting downwardly from the center of the metallic disk 21 is a circular dovetailed portion 22, and the facing 23 is formed of soft lead and may either be cast into position or pressed in position, forming a rigid connection with said dovetailed portion 22, as shown in Fig. 1. The lower face of the facing 23 rests directly upon the ground-surface 19 of the bottle, and said facing 23, being soft, will form a close joint with said ground-surface. A rubber gasket 24 is placed upon the bolt 20 above the circular disk 21. The gasket 24 is a flat ring and is mounted upon the bolt.

Extending upwardly from the upper surface of the cap 16 and near one edge of said cap is a pair of ears 25. A lever 26 is mounted between the ears 25 by means of a pin 27, passing horizontally through said ears and through said lever. The inner end of the lever 26 is bifurcated by a vertical slot, thus forming the arms 28 and 29, which pass upon opposite sides of the upper end of the bolt 20. Each of the arms 28 and 29 is bifurcated by a

horizontal slot, in which is positioned the pin 30, which pin is fixed horizontally through the upper end of said bolt 20, thus forming a sliding pivotal connection between the lever 26 and the bolt 20. A washer 31 is placed upon the bolt 20 below the lever 26, and a coil-spring 32 is placed upon said bolt 20 above the cap 16 and below said washer 31, the tension of said coil-spring being normally exerted to hold the bolt 20 elevated. Both ends of the lever 26 are slightly curved upwardly from the pivot 27, and attached to the outer end of the lever is a loop 33, designed to be used as a handle for operating the machine. The loop 33 normally stands at an angle of about forty-five degrees relative to the tank 10, as shown in Fig. 1.

An outlet-pipe 34 penetrates the top piece 13 and is fixed in position, and a screen 35 is placed inside of the tank and over the opening into said pipe 34.

Upon opposite sides of the cap 16 are handles 36 for operating said cap.

When the fire-extinguisher thus constructed is loaded with the proper chemicals, it is hung upon the hook 37, and the weight of the machine operating upon the pivot 27 will depress the bolt 20 and hold the facing 23 against the ground portion 19 of the bottle. When an emergency arises and it is desired to use the fire-extinguisher, it is lifted from the hook 37 and the tension of the coil-spring 32 raises the bolt 20, thus raising the facing 23 from the mouth of the bottle and allowing the sulfuric acid within the bottle to mix with the chemicals without the bottle when the device is inverted. The commingling of the contents of the bottle with the contents of the tank generates gas, which expels the liquid from said tank.

In the form of construction shown in Fig. 4 the facing 23 is composed of rubber instead of lead. A pin 38 is fixed in the cap 16 between the ears 25 and the bolt 20 and in line therewith, and a coil-spring 32 is placed upon said pin and operates in the circular recess 39, formed in the under side of the lever 26 and approximately half-way between the pivot 27 and the pin 30. The washer 31 is omitted from the bolt, and in other particulars the construction and operation is the same as that described in connection with Fig. 1. The bottle 12 and the rack 17 being carried by the cap 16, when the cap 16 is removed from the tank the rack and bottle are also removed. When the coil-spring 32 elevates the bolt 20, the rubber gasket 24 will be pressed against the under surface of the cap 16 and around the bolt 20, thus forming a tight joint and preventing the chemicals and gas from escaping through the bearing in the cap 16.

When the fire-extinguisher is taken from the hook 27 and the bolt 20 is elevated, thus opening the bottle, the sulfuric acid within the bottle will not mix with the chemicals without the bottle until the device has been

inverted sufficiently to allow of said acid running out of the bottle, thus making it possible to carry the tank any desired distance without mixing the chemicals by keeping the tank in an upright position.

A fire-extinguisher constructed in accordance with the principles of my invention is automatic and sure in its operation and will prove very satisfactory for the uses specified.

I claim—

1. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidably connected with the upper end of said bolt, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.

2. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, handles upon said cap for operating the same, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidably connected with the upper end of said bolt, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.

3. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidably connected with the upper end of said bolt, a handle upon the free end of said lever for depressing said stopper, and a spring operating to pull said stopper away from the mouth of said bottle, substantially as specified.

4. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated

upon said nipple and closing said tank, a rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, a spring operating to pull said stopper away from the mouth of said bottle, and a gasket upon said sliding bolt and in position to close the joint between said bolt and the bearing through which said bolt operates when the stopper is in its elevated position, substantially as specified.

5. In a fire-extinguisher, a suitable tank, an exteriorly-screw-threaded nipple forming an opening into the upper end of said tank, an interiorly-screw-threaded cap screw-seated upon said nipple and closing said tank, handles upon said cap for operating the same, a

rack depending downwardly from said cap into said tank, an acid-bottle removably positioned in said rack and supported thereby, a sliding bolt operating vertically through said cap, a stopper carried by the lower end of said bolt and operating in the mouth of said bottle to open and close the same, a lever pivotally connected to said cap and slidingly connected with the upper end of said bolt, a handle upon the free end of said lever for depressing said stopper, a spring operating to pull said stopper away from the mouth of said bottle, and a gasket upon said sliding bolt and in position to close the joint between said bolt and the bearing through which said bolt operates when the stopper is in its elevated position, substantially as specified.

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

EDWARD SCHAEFER.

Witnesses:

EDWARD E. LONGAN,
MAUD GRIFFIN.