

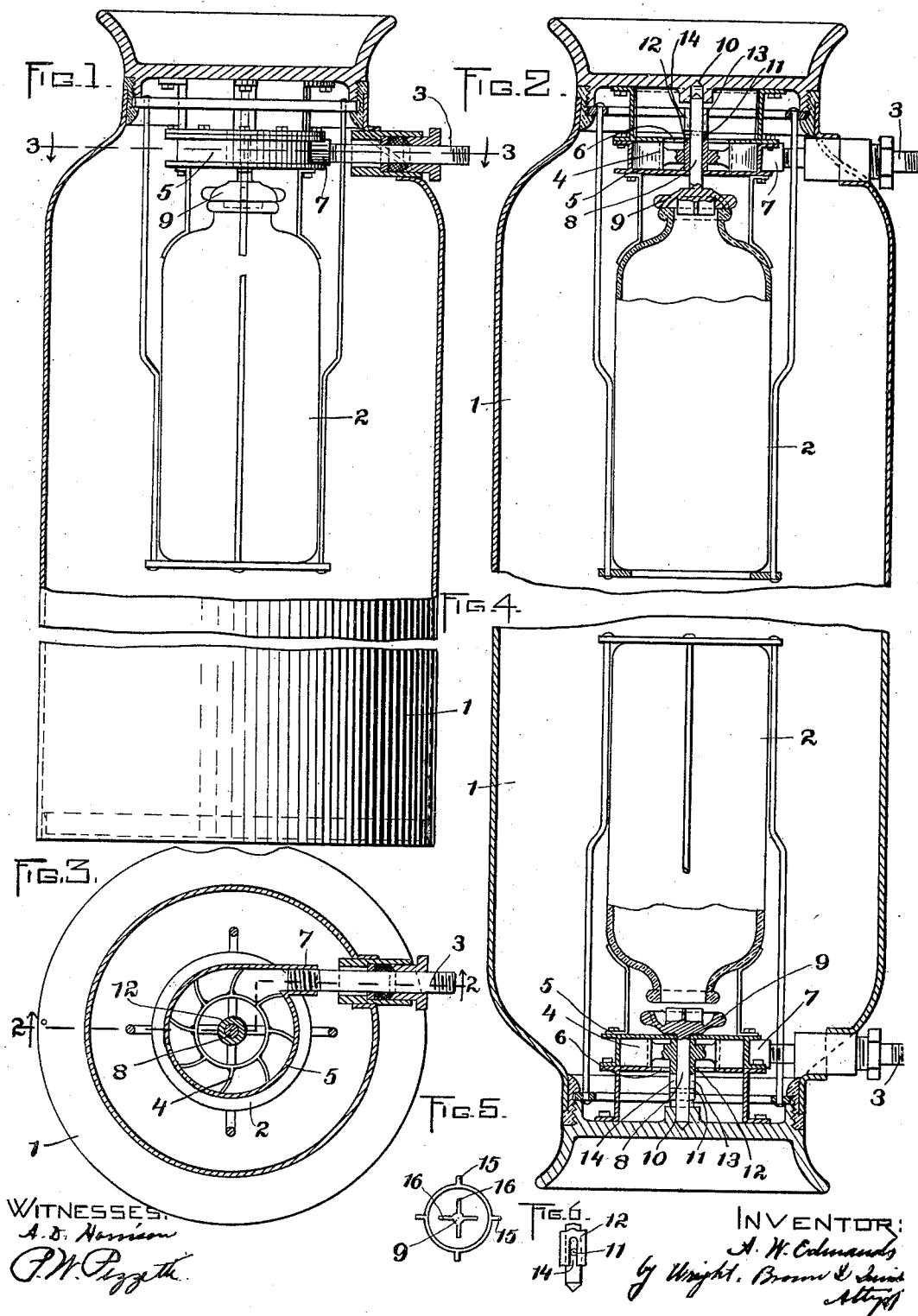
No. 674,827.

Patented May 21, 1901.

A. W. EDMANDS.
FIRE EXTINGUISHER.

(Application filed July 24, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

ALBERT W. EDMANDS, OF LYNN, MASSACHUSETTS, ASSIGNOR OF THREE-FOURTHS TO HENRY S. THRASHER, JAMES F. WILLIAMS, AND JOHN INGRAM, OF SAME PLACE.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 674,827, dated May 21, 1901.

Application filed July 24, 1900. Serial No. 24,645. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. EDMANDS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Fire - Extinguishers, of which the following is a specification.

This invention relates to portable fire-extinguishers, and has for its object to provide a simple and efficient automatic device for agitating the materials in the fire - extinguisher while the apparatus is in use.

The invention consists in a stirring mechanism operated by the flow of the liquid issuing from the extinguisher.

In the drawings, Figure 1 represents an elevation of the apparatus with the outer casing partially cut away. Fig. 2 represents a longitudinal section of the apparatus on line 2 2 of Fig. 3. Fig. 3 represents a cross-section on the line 3 3 of Fig. 1. Fig. 4 represents a sectional view similar to that of Fig. 2, but showing the apparatus inverted. Fig. 5 represents a plan view of the stirring device. Fig. 6 represents a detailed elevation of a portion of the stirring mechanism.

The same reference-numerals refer to the same parts in all the figures.

Referring to the drawings, the outer casing 1 of the fire-extinguisher holds a quantity of water containing a suitable alkaline salt in solution, and a smaller receptacle 2, supported in the upper part of the extinguisher, is filled with acidulated water. When the apparatus is to be used, it is first inverted, when the receptacle 2 opens and allows the acidulated water to run out and mix with the alkali water outside. By the reaction of the acid with the alkali a gas is formed which raises the pressure within the extinguisher to a point somewhat higher than the atmospheric pressure, so that when a suitable outlet 3 is opened the water issues from the apparatus with more or less force. Within the extinguisher is a motor, preferably a small turbine 4, in a casing 5, securely fastened near the mouth of the extinguisher, said casing having an inlet 6 in the center and an outlet 7, which is connected with the outlet 3 of the extinguisher in such manner

that no liquid or gas can leave the fire-extinguisher through the outlet 3 without passing through the turbine-casing 5 and operating the turbine 4. To the shaft 8 of the turbine is attached a stirring device 9. (Shown in plan in Fig. 5 and in elevation in Fig. 1.) As here shown, the stirring device is somewhat cup-shaped, having a number of vanes 16 in its interior, radially arranged about its center.

Owing to the fact that the stirring device is located opposite and near to the outlet or mouth of the inner receptacle instead of extending to act on the main or entire body of liquid in the outer casing, said stirrer acts primarily and almost solely on the contents of the inner and smaller receptacle, so as to diffuse it and cause it to quickly mingle with the larger quantity of liquid in the casing 1. Moreover, the two liquids are mixed only as they emerge or are about to emerge from their respective receptacles instead of being agitated throughout the entire or main body thereof. This enables a small motor and small stirrer to be made effective, as the work to be performed by them is slight.

As it is desirable to have the acid-receptacle 2 covered when the apparatus is not in use to prevent deterioration I construct the device in such a way that when the extinguisher is held upright the stirrer 9 rests upon and covers the open mouth of the receptacle 2, and when the apparatus is inverted the stirrer falls into its working position, leaving the mouth of the receptacle 2 uncovered. To accomplish this result, I make the stirrer 9 fast to the shaft 8, which is loose in the hub 12 of the turbine 4 and has a bearing in a socket 10 in the end wall of the extinguisher-tank 1. The shaft 8 is connected to the turbine 4, so that both will rotate together, but that the shaft may move endwise in the hub of the turbine by a pin 11 in the shaft, the ends of which protrude into slots 13 14 in the hub 12.

I do not limit myself to stirring mechanism of the size and shape here shown, as I wish to use any other form of stirrer or motor that may seem more desirable.

The main advantages of this form of apparatus over all others are that it provides a

simple and efficient means of thoroughly mixing the ingredients, and thus obtaining the greatest possible amount of chemical action, and therefore mechanical work, from the apparatus, and that the mixing device is automatic, being in operation during the whole time.

I claim—

1. The combination with the main tank or receptacle of a fire-extinguisher, of an inner receptacle in its upper portion containing a chemical substance adapted to combine with a second chemical substance in the extinguisher-tank, and a stirrer located opposite and near the outlet of the inner receptacle to act primarily on the contents of said inner receptacle to diffuse it as it emerges therefrom, and operated by pressure generated by the chemical combination.

2. The combination with the main tank or receptacle of a fire-extinguisher, of an inner receptacle in its upper portion containing a chemical substance adapted to combine with a second chemical substance in the extinguisher-tank, a stirring device located opposite and near the outlet of the inner receptacle to act primarily on the contents of said inner receptacle to diffuse it as it emerges therefrom, and means for operating said stirring device, consisting of a motor actuated by the flow of fluid from the extinguisher resulting from pressure generated in the extinguisher by the chemical combination.

3. The combination with a fire-extinguisher containing a chemical mixture, of a device for

stirring said mixture, said device being located opposite and near the outlet of the inner receptacle of said fire-extinguisher to act primarily on the contents of said inner receptacle to diffuse it as it emerges therefrom, and a motor for operating said stirring device, consisting of a turbine, and a casing inclosing the turbine, having an inlet open to the fluid in the extinguisher-tank, and an outlet communicating with the outlet of the extinguisher.

4. In a fire-extinguisher having in its upper portion an inner receptacle containing a chemical substance, a stirring device located near the mouth of said receptacle and adapted to act as a gravity-stopper, covering the receptacle when the apparatus is upright, and being removed from the same by gravity when the apparatus is inverted.

5. In a fire-extinguisher having an inner receptacle and a stirring device located near the mouth of said receptacle and adapted to cover the same, said stirring device being driven by a motor, means for so connecting said stirring device to said motor that the distance between them may be varied, said means consisting of projections on the spindle of the stirring device and slots in the hub of the motor.

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

ALBERT W. EDMANDS.

Witnesses:

CARROLL A. DWINELL,
HERMAN EMERSON.