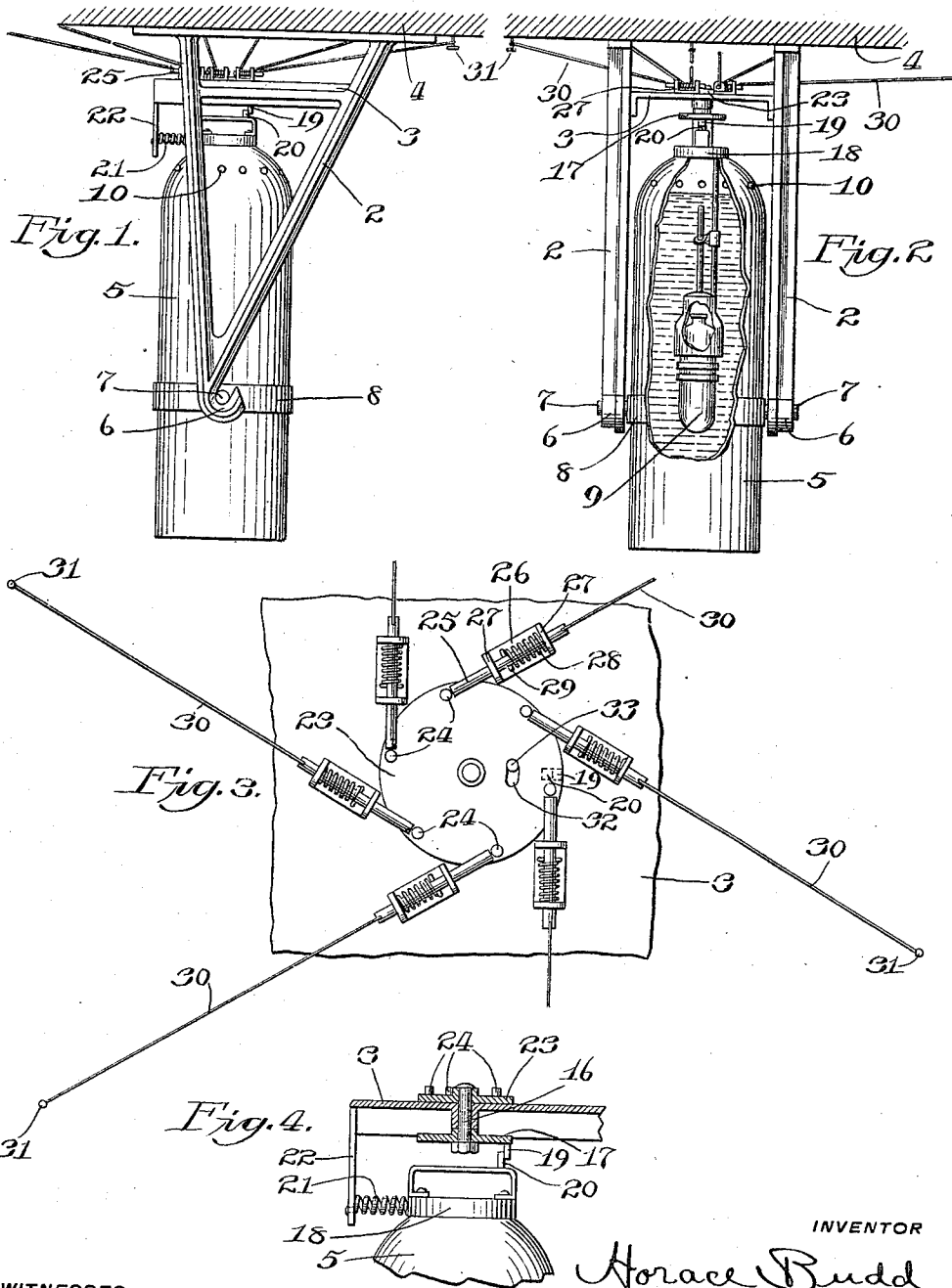


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FIRE EXTINGUISHING APPARATUS.
APPLICATION FILED NOV. 2, 1908.

976,251.

Patented Nov. 22, 1910.



WITNESSES
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HORACE BUDD, OF PHILADELPHIA, PENNSYLVANIA.

FIRE-EXTINGUISHING APPARATUS.

976,251.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HORACE BUDD, a citizen of the United States, and resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Fire-Extinguishing Apparatus, of which the following is a full, clear, and exact description.

This invention relates to fire extinguishing apparatus.

The object of the invention is to provide a simple and efficient means for automatically generating carbonic acid gas within a building upon the occurrence of a fire therein, for the purpose of extinguishing the fire.

The invention, as generally stated, comprises a tank, a fusible member, and automatic means under the control of the fusing of the member for causing the generation of the gas.

The invention consists in the novel construction and combinations of parts which will be hereinafter fully described and particularly claimed.

In the drawings:—Figure 1 is a side elevation of my improved fire extinguishing apparatus. Fig. 2 is a front elevation thereof, showing the tank partly broken away. Fig. 3 is a plan view of a portion of the automatic controlling mechanism. Fig. 4 is a detail showing the upper end of the tank in elevation, and a part of the releasing mechanism therefor in section.

The frame or support of the device comprises a pair of brackets 2 which are connected together near their upper ends by a frame or platform 3. The brackets 2 are adapted to be secured to the ceiling 4 of a room in a building.

Located between the brackets 2 is a vertically arranged tank 5, and the lower ends of the brackets 2 are provided with hooks 6 for the reception of pins 7 which project from a band 8 surrounding the tank 5 and secured thereto. The engagement of the pins 7 with the hooks 6 forms a pivotal support for the tank 5 by the brackets 2. The center of gravity of the tank 5 is above the pivot pins 7 when the tank 5 is in the upright or normal position shown in the drawings, whereby, when the upper, heavier end of the tank is released, it will fall in a manner to turn or invert the tank on its pivot pins 7 for a purpose presently explained.

Within the tank 5 is located the usual bottle 9 containing the sulfuric acid, and the tank 5 is supplied with the usual solution of bicarbonate of soda and water. The upper end of the tank 5 is also provided with a series of openings 10, whereby, when the tank is inverted, the acid will be discharged from the bottle 9, thus causing the chemicals within the tank to generate the carbonic acid gas, which, with the chemicals, is discharged from the tank through the openings 10 into the room in which the operation takes place.

The platform 3 carries a holding and releasing device for the upper end of the tank, whereby the upper end of the tank may be held in the vertical position shown, and whereby the tank may be automatically released to permit it to turn upon its pivot pin 7, and I shall now describe the automatic means for this purpose.

Arranged centrally over the tank 5 is a short shaft 16 which extends through the platform 3 and is fitted to turn in a bearing therein. The lower end of the shaft 16 is provided with a head 17 which is directly above the top or cap 18 of the tank 5 when the tank is in the position shown in the drawings. The head 17 is provided with a downwardly extending projection 19, and the cap 18 is provided with an upwardly extending projection 20 which engages the projection 19 to hold or retain the tank 5 in the upright position shown. A spring 21 is provided one end of which is secured to an arm 22 extending downwardly from the platform 3 and the other end of which bears against the cap 18 of the tank 5. The action of the spring 21 against the tank 5 forces the projection 20 into engagement with the projection 19, and when the shaft 16 is turned to move the head 17 and therewith the projection 19 from engagement with the projection 20, the spring 21 will project forwardly the upper end of the tank 5 and cause it to be quickly turned or inverted on its pivot pins 7, as hereinbefore explained.

Fixed to the upper end of the shaft 16 is a head 23 which is provided with a slot 32 therein in which is arranged a pin 33 projecting upwardly from the platform 3. The pin 33 is adapted to engage the end walls of the slot 32 and limit the rotary movement of the head 23 in either direction. When the pin 33 is in engagement with the end of the

slot 32 shown in the drawings the projection 19 is in engagement with the projection 20, to hold the tank 5 in the upright position; and when the head 23 is turned to bring the other end of the slot 33 into engagement with the pin 33, the projection 19 will be moved from engagement with the projection 20 to release the tank 5.

The head 23 is provided with a series of upwardly extending projections 24, and arranged adjacent each projection 24 is the inner end of a horizontal pin 25 which is slidably fitted to a bracket 26 on the platform 3. The pins 25 are tangentially arranged with respect to the head 23, and the axis of each pin 25 extends through the path of movement of its adjacent projection 24 when the head 23 is given a slight turn, whereby inward movement of the pin 25 will cause it to engage its adjacent projection 24 and impart a slight rotary movement to the head 23. Each pin 25 extends through two ears 27 on its bracket 26, and encircling each pin 25 between the two ears 27 is a spring 28 one end of which bears against the outer ear 27 and the other end of which bears against a small, transverse pin 29 extending through the pin 25, the tendency of the spring being to force the pin 25 inwardly into engagement with its adjacent projection 24. The outer end of each pin 25 is connected to one end of a wire 30, which extends across the room in which the device is located, to a pin 31, which may be any suitable distance from the device. Each wire 30 is made of any suitable fusible material which may be made to fuse at any predetermined temperature above normal. Each wire 30 constitutes, therefore, a fusible member holding its pin 25 against the action of its spring 28 with the inner end of the pin adjacent its projection 24. Thus it will be seen that should any one of the pins 25 be released by the fusing of its wire 30, the released pin will be projected inwardly by its spring 28, and the inward movement of the pin will engage its adjacent projection 24 and rotate the head 23 sufficiently to turn the shaft 16 and therewith the head 17 to cause the projection 19 to move from engagement with the projection 20 and release the tank 5.

The operation of the device is as follows:—The device is adapted to be located in the room of a building, the hold of a ship, or in any desirable place where a fire is liable to occur, the brackets 2 of the device being secured to the top or ceiling of the room in which it is placed. The wires or fusible members 30 are then stretched across the room in which the device is located and are secured to the pins 31 in a manner to hold the pins 25 outwardly against the action of their springs 28; the chemicals are supplied to the tank 5, and

the tank is raised to the upright position shown in the drawings, and the head 23 and therewith the shaft 16 and head 17 are turned to bring the projection 19 into engagement with the projection 20 to hold the tank in the upright position, and to bring the projections 24 adjacent the inner ends of the pins 25. When the tank 5 is moved to the upright position, it compresses the spring 21, which forces the projection 20 into engagement with the projection 19 as previously explained. The device is now ready to be automatically operated to discharge the carbonic acid gas.

It will be observed that the wires or fusible members radiate from the device in many different directions. Therefore, the occurrence of a fire near any one of the wires 30 will raise the temperature of the room in the vicinity of the wire, and the moment the temperature reaches the predetermined degree at which the members 30 fuse the member or wire 30 nearest to the fire will be fused thereby, thus releasing its pin 25, which, actuated by its spring 26, will be projected inwardly in a manner to engage the adjacent projection 24 and release the upper end of the tank 5 as hereinbefore described. The upper end of the tank, being released, will be projected forwardly by the action of the spring 21, thus causing it to turn on its pivot pins 7 by the action of the spring and by gravity, due to the fact that the pivot pins 7 are below the center of gravity of the tank; thus causing the quick turning of the tank 5 on the pivot pins 7 and the inversion thereof. The turning or inversion of the tank causes the chemicals therein contained to generate the carbonic acid gas and be discharged through the openings 10 of the tank.

The manner of generating the carbonic acid gas and the action of the gas and the chemicals in extinguishing the fire, are common and well known, and no detailed description thereof is deemed necessary herein.

I claim:—

1. In a fire extinguishing apparatus, the combination of a support, a tank pivoted to the support below the center of gravity of the tank, means within the tank for automatically generating carbonic acid gas upon the turning of the tank, a releasing device including a movable member holding the heavy portion of the tank above its pivot, a plurality of independently movable spring actuated devices positioned to engage and move said member, and fusible members extending in different directions and holding said devices against the action of their springs.

2. In a fire extinguishing apparatus, the combination of a support, a tank pivoted to the support below the center of gravity of the tank, means within the tank for auto-

5 matically generating carbonic acid gas upon the turning of the tank, a releasing device including a partially rotatable head holding the heavy portion of the tank above its pivot, a plurality of independently movable spring actuated pins arranged tangentially and positioned to engage and move said head, and fusible members extending in dif-

ferent directions and holding said pins against the actions of their springs.

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In testimony whereof, I have hereunto affixed my signature.

HORACE BUDD.

Witnesses:

WM. H. SMITH,
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