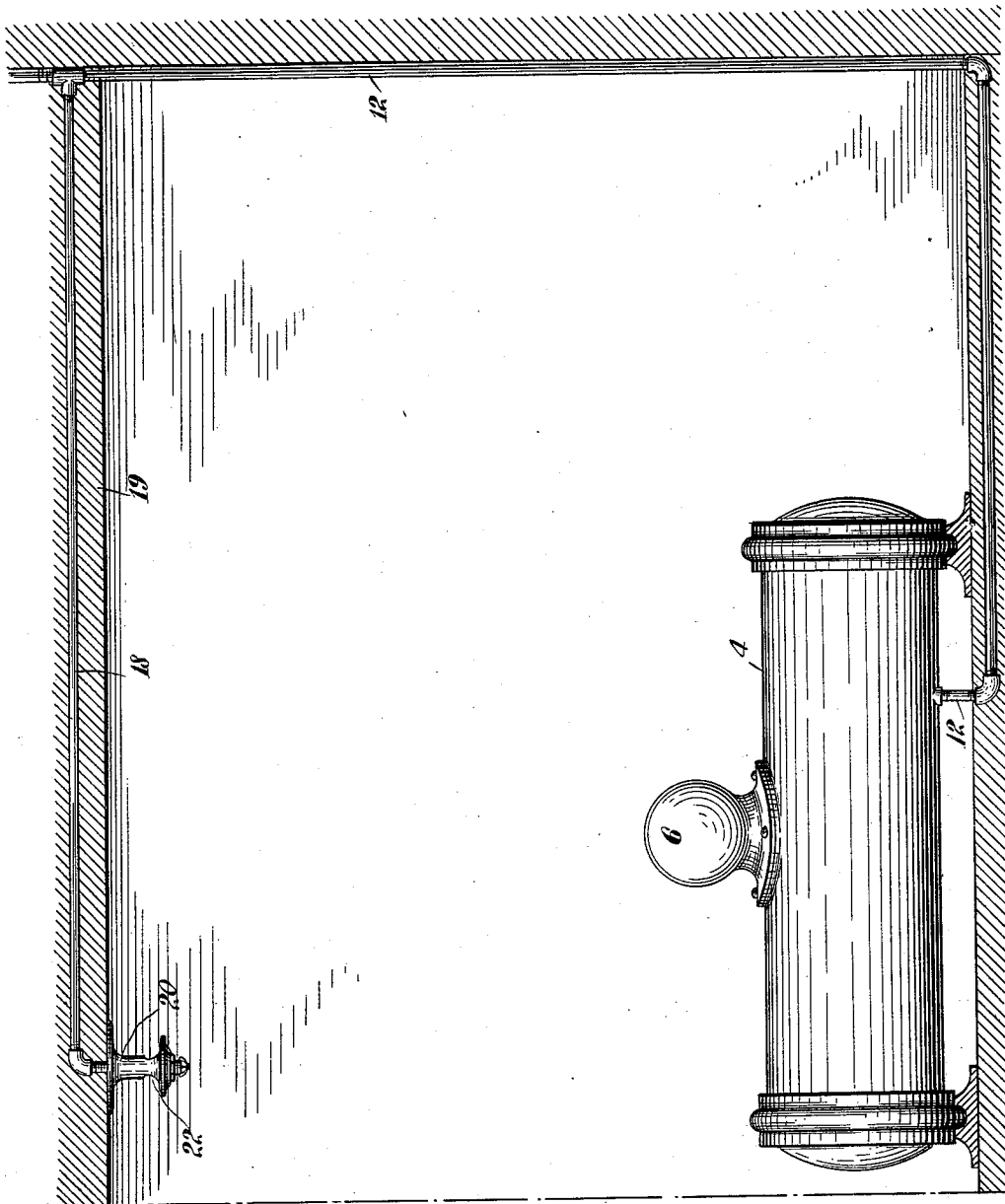


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FIRE ALARM AND EXTINGUISHER.  
APPLICATION FILED JULY 15, 1909.

1,000,978.

Patented Aug. 22, 1911.

2 SHEETS—SHEET 1.



WITNESSES

*F. J. Hackenberg*  
*Walton Harrison*



INVENTOR

*Paul B. Barringer*

BY

*Munn & Co.*

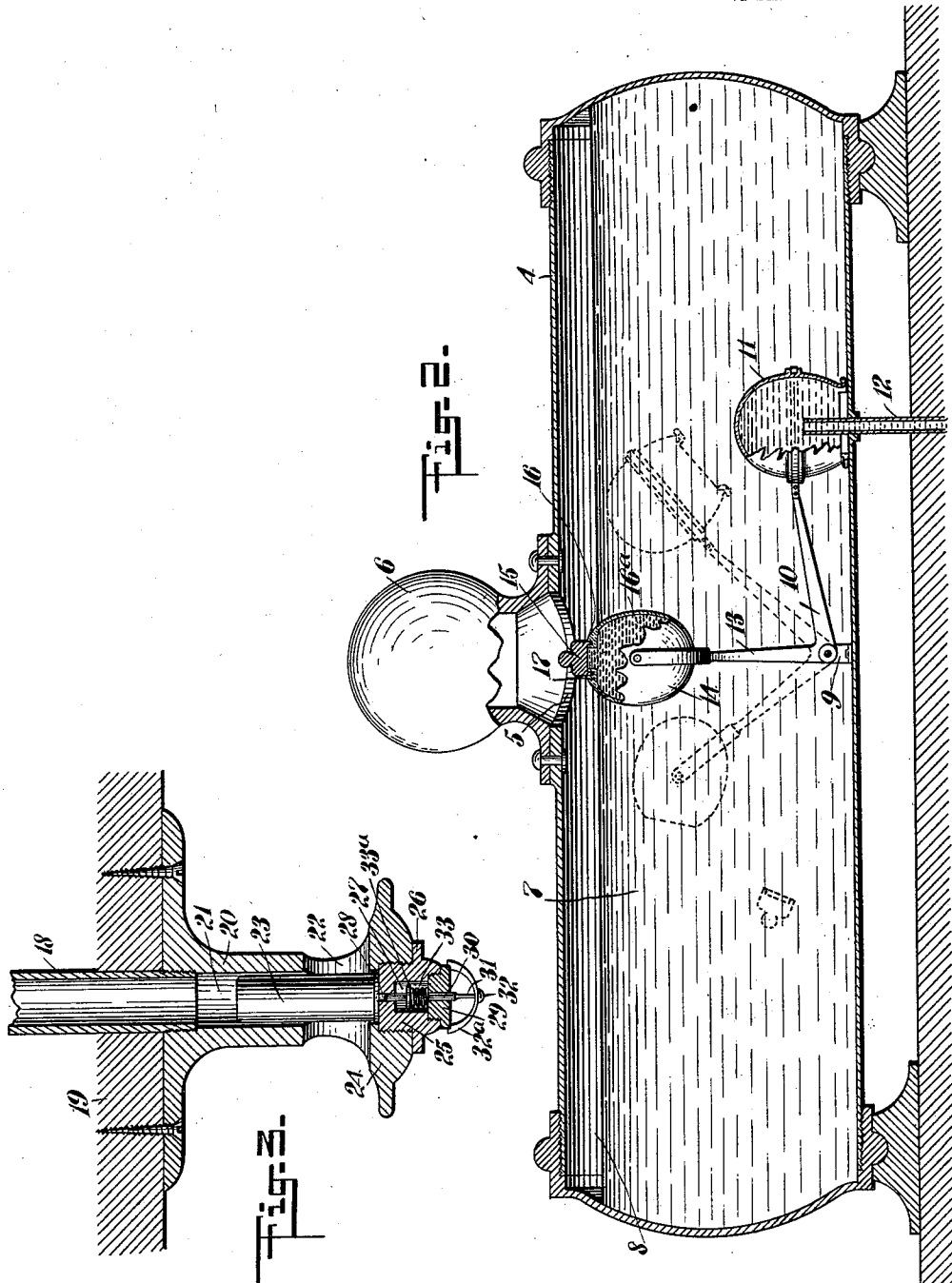
ATTORNEYS

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# UNITED STATES PATENT OFFICE.

PAUL BRANDON BARRINGER, OF BLACKSBURG, VIRGINIA.

FIRE ALARM AND EXTINGUISHER.

1,000,978.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed July 15, 1909. Serial No. 507,715.

*To all whom it may concern:*

Be it known that I, PAUL B. BARRINGER, a citizen of the United States, and a resident of Blacksburg, in the county of Montgomery and State of Virginia, have invented a new and Improved Fire Alarm and Extinguisher, of which the following is a full, clear, and exact description.

My invention relates to fire alarms and extinguishers, my more particular purpose being to provide a device of this general type in which, in the event of a fire occurring in the building where the device is located, will sound an alarm and will also automatically turn on a supply of water or gas, as the case may be, for the purpose of extinguishing the flames.

More particularly stated, my invention comprehends a tank for holding water or for generating a gas, as the case may be, one or more pipes leading from this tank to some elevated point in a building, and mechanism located at the point last mentioned and controllable directly by the temperature at said point, for the purpose of sounding an alarm and of starting the flow of the water or gas contained in the tank for the purpose of extinguishing the fire.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through a portion of a building equipped with my apparatus; Fig. 2 is an enlarged central vertical section through the tank and parts immediately associated therewith; and Fig. 3 is an enlarged vertical section through the heat-controlled firing mechanism for sounding the alarm and starting the flow of the water or gas.

At 4 is shown a tank made preferably of metal, and provided with an opening 5 covered by a removable dome 6, for facilitating access to the interior of the tank. At 7 is shown a liquid, which may in some instances be water and in others may be a solution of carbonate of soda or other liquid used in making a gas which is fatal to combustion. In the upper part of the tank is shown a space 8 which may be filled with

carbonic acid gas and used under proper conditions to force out the liquid contents of the tank.

Mounted within the tank 4 is a bracket 9 and journaled upon the latter is a bell crank 10 carrying a cup 11. A pipe 12 extends into the tank 4 from the bottom thereof and leads for some distance away from the tank, as will be understood from Fig. 1. The bell crank is provided with a portion 13 having a cup 14 journaled upon it, this cup being provided with a closure plug 15 having an annular rim 16 which sets in an annular groove 17 in the top of the cup 14. The closure plug 15 is loose relatively to the cup 14, but being made of lead or other heavy material, it simply rests in position and is not easily dislodged except by a movement of the bell crank 10. The parts are so arranged, however, that whenever the bell crank 10 tilts, the closure plug 15 is thrown from the cup 14. This cup is normally filled with a quantity of sulfuric acid 16<sup>a</sup>, which, when the bell crank is tilted, is liberated into the solution 7.

Connected with the pipe 12 is another pipe 18, which is sunken or hidden in the ceiling 19 or wall of the building.

At 20 is shown a cartridge holder which is provided at 21 with a cartridge chamber. The cartridge holder has generally a cylindrical form and is provided with openings 22. A cartridge 23, which may be an ordinary blank cartridge of the kind sometimes used in firearms, is fitted into the cartridge chamber. The cartridge holder is provided with a head 24, and detachably fitted into the latter is a screw plug 25. This screw plug is used for holding the cartridge in position and for preventing the escape of gases except as hereinafter described. The screw plug 25 is provided with a flange 26 which engages a portion of the head 24. The screw plug is further provided with a cylindrical chamber 27 and with a pin passage 28. A screw cap 29 detachably engages the screw plug 25 and normally closes the chamber 27.

A firing pin 30 extends through the cap 29 and into the pin passage 28. A short piece of fusible wire 31 is connected directly to the firing pin 30, preferably by solder-

ing. This piece of fusible wire is provided with a head 32 and extends through a bow-shaped bridge 32<sup>a</sup>, the latter being mounted directly upon the cap 29. By turning this cap it may be removed together with the bridge 32<sup>a</sup> and firing pin 30.

At 33<sup>a</sup> is an annular washer which is secured directly upon the firing pin 30 and is engaged by a spiral spring 33, the latter also engaging the cap 29.

The operation of my device is as follows: A blank cartridge 23, properly loaded, is inserted in the cartridge chamber 21, as indicated in Fig. 3. For this purpose the screw plug 25 is removed, the cartridge inserted and the screw plug replaced. When the parts are in normal position, the spring 33 is compressed because the pin 30 is held by the fuse wire 31, the latter being too short to allow the spring to extend. The firing pin 30 is therefore drawn out of engagement with the cartridge 23, but is adapted to strike this cartridge whenever the firing pin is released. The tank 4 being filled with the solution 7 of carbonate of soda and the cup 14 being filled with sulfuric acid, as above described, the bell crank 10 is turned into the position indicated in full lines in Fig. 2. The cup 11 now covers the adjacent end of the pipe 12. Suppose now, that a fire takes place in the room where the cartridge holder is located. The gradually increasing heat of the flames ultimately melts the fuse wire 31. The spring 33 being previously under restraint and now liberated, releases the firing pin 30, which strikes the cartridge 23, causing the latter to explode. In doing this, however, some gases are forced through the pipes 18, 12, and into the cup 11. The latter is therefore thrown upward and at the same time serves for the moment as a float. The result is that the bell crank is turned a little, as indicated by dotted lines in Fig. 2, so that the cup 14 containing the sulfuric acid is moved to the left according to this figure, and the plug 15, being displaced, falls within the tank, as indicated by dotted lines at the left in Fig. 2. The acid 16<sup>a</sup> now mingles with the solution 7 so as to form carbonic acid gas under gradually increasing pressure. The cups 14, 11 are so adjusted as to weight that when the bell crank is actuated as just described, the lever can not turn automatically into its original or normal position. Under pressure of the carbonic acid gas the liquid 7 is forced through the pipes and out through the holes 22 into the room where the fire is in progress. During all this time the solution is generating carbonic acid gas and continues to do this even when discharged into the room. The result is that the fire is soon extinguished.

If desired, the liquid 7 may be water and may be forced through the pipes by pressure

of gas or compressed air within the upper portion of the tank 4, or by any other suitable agency. Again, if desired, the carbonate of soda solution may be employed and its quantity reduced so that the top of the pipe 12 is clear, and in this event carbonic acid gas alone will be discharged through the pipe 12.

While the accompanying drawings of the foregoing description embody my preferred form of the invention, I do not limit myself to this particular construction, for the reason that variations may be made in the device without departing from the spirit of my invention. Neither do I limit myself to the use of water and carbonic acid gas, for the reason that any other fluent medium suitable for the purpose may be used instead.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a receptacle for holding a liquid, a movable member for spilling another liquid into said receptacle, mechanism connected with said movable member for actuating the same, said mechanism including a cup disposed within said receptacle, said cup being normally inverted, mechanism controllable by the explosion of a cartridge for discharging the gases of combustion due to said explosion into said cup in order to actuate said mechanism, and means connected with said receptacle for discharging therefrom the gaseous medium generated by aid of said liquid spilled into said receptacle.

2. The combination of a tank for holding a liquid, mechanism for bringing into contact with said liquid a substance capable of producing a medium suitable for extinguishing a fire, means for producing an explosion and thereby generating a gas, and a movable member controllable by said gas for actuating said mechanism.

3. The combination of a receptacle for holding a liquid, a movable member for introducing into said liquid a substance contacting therewith to produce a gas for extinguishing fire, mechanism connected with said movable member for actuating the same, said mechanism including a cup disposed within said receptacle, and submerged within said liquid, said cup being normally inverted, and mechanism controllable by the explosion of a cartridge for discharging into said cup the gases generated by said explosion in order to float said cup and thus actuate said movable member.

4. The combination of a tank for holding a liquid suitable for extinguishing combustion, a receptacle mounted within said tank and adapted to be upset for the purpose of affecting the condition of said liquid, means including a cup and connected

with said receptacle for upsetting the latter, mechanism for producing an explosion and thereby causing the generation of a gas, and a pipe for directing said gas into said vessel and into said cup in order to actuate said cup.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

PAUL BRANDON BARRINGER.

Witnesses:

NANNIE H. BARRINGER,

C. J. CRAWFORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."