(No Model.)

J. DE S. BROWN.

AUTOMATIC FIRE EXTINGUISHER.

No. 490,821. Patented Jan. 31, 1893.

Fig. 1.

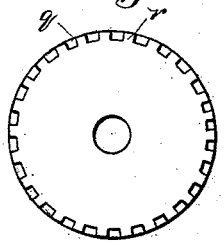


Fig. 2.

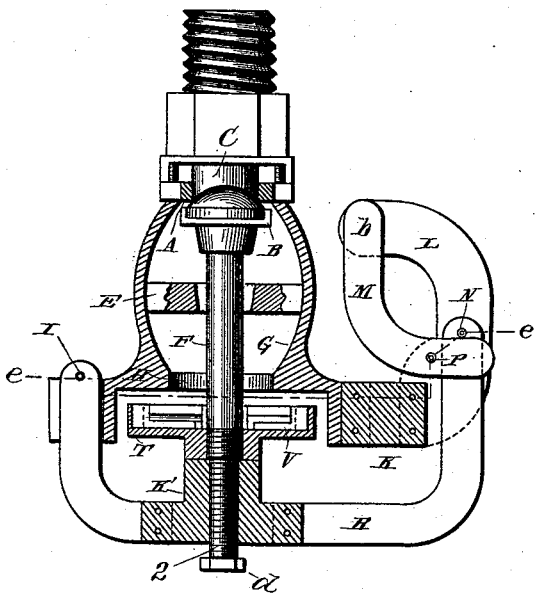


Fig. 4.

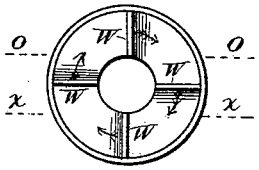


Fig. 3.

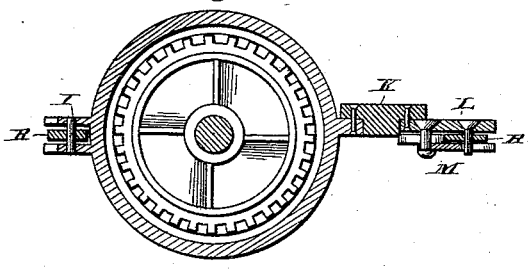


Fig. 6.

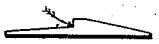
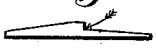


Fig. 5.



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JAMES DE SELDING BROWN, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 490,821, dated January 31, 1893.

Application filed June 12, 1891. Serial No. 396,058. (No model.)

To all whom it may concern:

Be it known that I, JAMES DE SELDING BROWN, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented new and useful Improvements in Automatic Fire-Extinguishers; and I hereby declare that the following is a clear and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

These improvements have reference to that class of automatic fire-extinguishers, in which a valve for controlling the flow of water, or other extinguishing fluid, is held closed until by the effect of the fire upon the device, or the means which confine the valve, all restraint upon its opening be removed, to allow the extinguishing fluid to be discharged upon the fire. It being understood that the class of automatic fire extinguishers referred to, are attached to a system of pipes under pressure placed throughout a building to protect the same from fire occurring within the building.

The objects to be obtained by the said improvements, are to provide the extinguisher with a valve, and a valve seat made from a material that will be non-corrodible and non-adhesive, with sufficient elasticity to make a perfect water and air-tight connection; to provide non-conducting plates made from any material being a poor conductor of heat, so located as to accelerate its action in case of fire; to provide a releasing device so located as to be out of the reach of any leakage of the extinguishing fluid from the valve of the extinguisher, and will prevent the same from leaving its seat until the solder securing the said releasing device be fully fused; to provide deflectors or distributers, that will make a distribution of water, which will rapidly extinguish a fire; to provide a holding lever, so located and constructed that it will be thrown off from the extinguisher, when released by the action of abnormal heat; to cover the completed extinguisher with a composition of resin, beeswax and paraffine, to prevent the oxidation and corrosion of the solder, and all its movable parts from the action of the fumes from acids and alkalies and other corrodible agents. These objects are obtained by the materials and mechanism hereinafter described.

Referring to the drawings accompanying this specification. Figure 2 is a longitudinal section of the extinguisher. Fig. 1, a plan of the stationary deflector. T. Fig. 3 a horizontal section of Fig. 2 on the line *e*—*e*. Fig. 4 a plan of the rotary distributer V. Fig. 5 a section of Fig. 4 on the line *x*—*x*. Fig. 6 a section of Fig. 4 on the line *o*—*o*.

Similar letters and numerals refer to similar parts on the several views.

Referring again to Fig. 2, G represents the case of the extinguisher, C the inlet, H. the outlet to and from the said case. The extinguisher being attached to the pipes of an automatic equipment by the thread immediately above the inlet C. A. the valve seat fitted into the case at the inlet C. B the valve fitted into one end of the stem, F, the other end, being firmly fastened to the deflector T. E, the guide, having in its center a tapering hole, which corresponds with the tapering cylinder, forming a part of the stem F. R the holding lever in two parts riveted to the non-conducting plate K′ bearing against the deflector T. The short end of this lever rests upon two projections I on one side of the case through the pin I′ as shown by Fig. 3, the long end resting upon the lever M through the pin N. L, a post attached to the case G through the non-conducting plate K. M, the releasing lever its fulcrum pin P passing loosely through the post L, its short end supporting the holding lever R. through the pin N. This lever is soldered to the post L through its fulcrum pin P by a solder fusing at a low temperature; it may also be soldered to this post at *b*. This is desirable when the pressure of water on the valve B be greater than one hundred pounds per square inch. The lever R being in the position shown by Fig. 2 the lever M. having its fulcrum at P through the post L, hooks under the pin N on the lever R, being drawn to the left it forces the lever R against the deflector T; the same being as described connected to the valve B by the stem F, and the valve is forced against its

seat A; while in this position, the lever M is soldered through its fulcrum P to the post L, and the valve B is further forced to its seat by the tap-bolt 2 which passes through the non-conducting plate K'.

The action of the extinguisher under a fire is as follows: The solder at P and *b* being fused, the lever M is thrown forward by the pressure upon it of the lever R, through the pressure of water upon the valve B, thereby releasing the lever R which is thrown off from the case G that it may not interfere with the distribution of water from the deflector T, and distributer V, which by the releasing of the valve B, have taken a position three quarters of an inch below the outlet H, and the force of the water from the outlet causes the distributer V to revolve breaking up the same into small particles, which are, by the deflector T thrown on the ceiling and from thence to the floor of the building extinguishing the fire that caused the operation of the extinguisher.

The valve B and its seat A are made from a material composed of the following composition; seventy-five parts asphaltum; three parts gum camphor; ten parts oxide of lead; fifty parts asbestus in fiber; fifty parts ground graphite; ten parts sulphur; and prepared as follows:—the asphaltum is first melted, the camphor added and thoroughly incorporated, the other ingredients are then added in rotation named, and stirred until the mass becomes homogeneous. It is then allowed to cool and while plastic placed in a mold fitted with a piston and placed under a hydraulic press, and subjected to a pressure of fifteen tons; the piston is then removed from the mold and the space occupied by it filled with carbonate of lime or sand, and placed in an ordinary kiln and subjected to a temperature of 400° Fahrenheit for several hours. When completed, this material may be formed into the required shape by tools such as used for the working of metals. This material forms a valve and valve seat that are non-corrodible and non-adhesive. The said valve and valve seat may be made from a material consisting of the same materials and with the same manipulations adding in place of the asphaltum the like amount of caoutchouc or gutta percha either of which produces the same results. The non-conducting plates K' K'' as before located and described are to prevent that portion of heat absorbed by the post L the lever M and the long end of the lever R from being conducted to the case G, thereby accelerating the action of the extinguisher, more especially under a slow application of heat, which is the usual application extinguishers are subjected to, in actual fires occuring under their protection. The releasing lever M being soldered at its fulcrum P prevents the valve B from making any movement toward leaving at its seat until the solder at P has been completely fused, thereby preventing any leakage of water upon the lever R, which would tend to retard the action of the extinguisher, also the solder in fusion forms a perfect lubricator for the fulcrum pin P and for those parts of the lever M, and post L in contact.

The stationary deflector T is a flat circular disk with alternate projections and spaces extending about one-eighth of an inch from its circumference and projecting from its surface about the same distance as shown by Figs. 1 and 2. The rotary distributer is also a flat circular disk with four planes projecting from its surface the top of each plane sloping toward the base of the next plane following, and is mounted upon the top of the stationary deflecter and revolving around the stem F. By this the water is broken into small particles and by the deflecter T projected on the ceiling of the room in which it may be located. This combination is to make a distribution of water that will instantaneously extinguish a fire, thereby preventing damage to merchandise from excessive heat and smoke.

Having described my improvements that I claim as new and useful, what I desire to secure by Letters Patent is

1. In an automatic fire extinguisher the combination of a case, a valve seat and a valve made from the non-corrodible and non-adhesible materials as described, the valve seat being cemented or screwed into the said case, and forming a part of the same, and the valve being cemented or screwed into a valve stem a rotary distributer on, and a stationary distributer firmly attached to the said valve stem, a guide to hold the said distributer, through the valve stem parallel with and equi-distant from the outlet of the said case, a non-conducting plate, made from a material being a poor conductor of heat, attached to the said case, a post attached to the said non-conducting plate and two levers, one, the holding lever having near its center a non-conducting plate, with a set screw fitted into it, which bears directly on the said valve stem and the fulcrum pin of this lever bearing on the projections from the said case; the other lever being at right angles with and supporting the said holding lever by a pin firmly fastened to it, soldered to the said post at, and through, its fulcrum pin by a metal fusing at a low temperature, for the purposes substantially as described.

2. In an automatic fire extinguisher the valve stem F having the stationary deflector T with alternate projections and spaces as described, firmly fastened to it, with the rotary distributer V having four straight vertical planes, the summit of each sloping to the base of the next plane following, and placed above the said stationary distributer with the stem F for its axis.

3. In an automatic fire extinguisher the

combination of the case G with the post L fastened to the same through the non-conducting plate K the holding lever R having a non-conducting plate K′ inserted near its center, with the set screw *d* fitted into the said plate, one end of this lever bearing through the pin I on the projections from the case G with the releasing lever M soldered to the post L at, and through its fulcrum pin with a metal fusing at a low temperature.

JAMES DE SELDING BROWN.

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