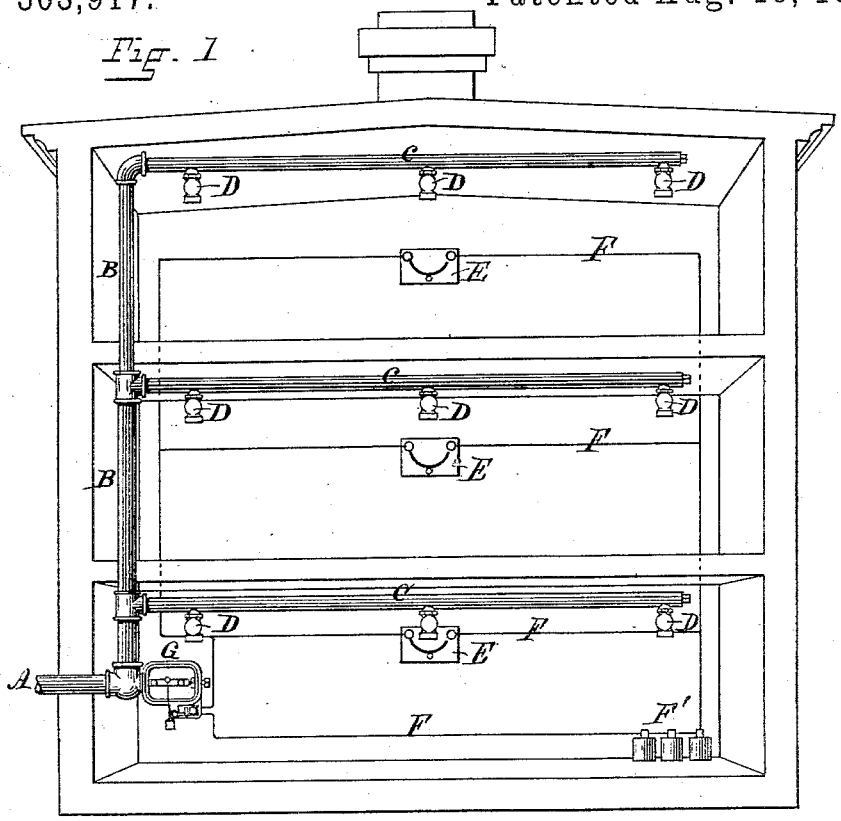
(No Model.)

J. R. BROWN.

AUTOMATIC FIRE EXTINGUISHER.

No. 303,917. Patented Aug. 19, 1884.

Fig. 1



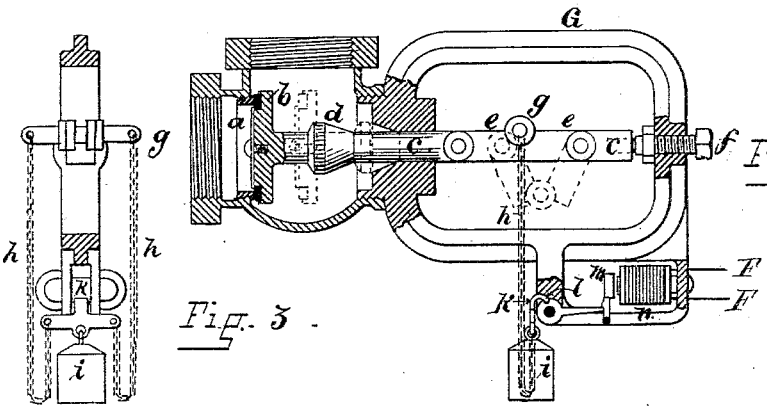


Fig. 2.

Fig. 3.

WITNESSES:

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AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 303,917, dated August 19, 1884.

Application filed April 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. BROWN, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Automatic Fire-Extinguishers; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the systems now in use for protecting buildings against accidental fires; and it consists in the peculiar and novel construction of a valve by which the water is shut off from the system of pipes and opened automatically on the breaking out of a fire, as will be more fully set forth hereinafter. In most buildings protected by automatic fire-extinguishers it is desirable to exclude the water from the pipes, so as to prevent leakage, the freezing of the water, and other accidents. In such construction it is important that the water should be turned onto the system of pipes automatically as soon as a fire breaks out. All buildings in which valuable goods are stored should be provided with one of the forms of electric fire-alarms, so as to give notice of the breaking out of a fire, and when such electric fire-alarm is used I utilize the same to open the valve, when by the action of heat the circuit is closed.

Figure 1 is a perspective view showing the interior of a building provided with a system of automatic fire-extinguishers and a system of electric wires. Fig. 2 is a view, partly in section, of an automatic valve operated by electricity. Fig. 3 is a transverse view showing the weight suspended from the toggle-jointed valve-stem.

In the drawings, A is the water-supply inlet, which may be connected with the street-main, with a tank located at the highest part of the building, or any other water-supply.

B is the vertical main from which the horizontal branch pipes C C are supplied.

D D are automatic fire-extinguishers or distributers, constructed to open automatically on the breaking out of a fire.

E E are thermostats constructed to close the electric circuit when the temperature of the room or apartment is raised by the occurrence of a fire.

F F are electric wires extending over the whole of the building, or the part of the building to be protected, connecting with the thermostats and with a battery. These electric wires may form a system of automatic fire or burglar alarms, so that on the breaking out of a fire notice will be given at any desired place, and an alarm sounded when not so connected with an electric-alarm system. The battery F′ will be located in any convenient part of the building, and the system of electric wires will be connected with the battery, as is shown in Fig. 1.

G is the valve controlling the water-supply. (Shown enlarged in Figs. 2 and 3.) This valve is connected with the electric wires F F, so that when the circuit is closed by any one of the thermostats the current will magnetize an iron bar and release the valve, thereby allowing the water to enter the system of pipes.

Referring now to the peculiar construction of the valve G, *a* is the valve-seat; *b*, the valve-stem cover; *c*, the valve-stem; *d*, a conical projection on the valve-stem, constructed so that the valve-stem forms a loose fit when the valve is closed, and when opened the conical projection enters a recess formed in the stem-guide, so as to close the same and prevent leakage. The end of the valve-stem is secured to the adjusting-screw *f*, and the central portion of the valve-stem is formed by the two hinged levers *e e*. The central hinge connecting the two levers *e e* projects outward laterally, and has the chain *h h* secured to the same. This chain is secured to the weight *i*, and this weight is supported by the hook *k* on the trip-lever *l*, the end of which is held by the latch *m*.

n is a magnet formed of a bar of soft iron surrounded by a spool of insulated wire, the ends of which are connected with the circuit-wires F F.

The operation of the valve is as follows: When the valve is to be closed, the levers *e e* are placed on a line with the axis of the stem *c*, and the valve is forced tightly on the seat *a* by the screw *f*, and as the strain is in the line of the axis of the valve-stem it is resist-

ed by the stem and the screw *f*. The end of the stem being firmly held by the screw *f*, the weight *i* is supported by the hook *k*, and the trip-lever *l* held by the latch *m*. When, now, a fire breaks out, the heat will cause one of the thermostats to close the circuit. The electric energy, passing around the iron bar *n*, will transform the same into a magnet, which will attract the upper end of the latch *m*, and will release the trip-lever *l*, releasing the weight *i*, which in falling draws the levers *e e* down and opens the valve, as is shown in broken lines in Fig. 2. The heat will have also released the automatic fire-extinguisher nearest the fire, and the water will be discharged from the extinguisher or extinguishers thus opened on the fire and extinguish the same.

It is obvious that the same electric energy may be used to give notice of the fire at any desired place, and may be made to sound an alarm in the same manner as is now done by fire-alarms operated by thermostats.

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

1. The combination, with a system of water service-pipes and one or more automatic extinguishers secured thereto, and a system of electric conductors and one or more thermostats connected therewith, of an inlet-valve for the water system, having a jointed stem, a weight secured by a flexible connection to the joint of said stem, a movable support for said weight, an electro-magnet, and an armature arranged to move the support and allow the weight to fall upon the closing of the circuit, the said parts being constructed and arranged as described.

2. The combination, with the valve *b*, provided with the stem *c*, and the hinged levers *e e*, forming part of such stem, of the screw *f*, by which the end of the stem is held, and a weight connected with the stem, constructed to open the valve when the weight is released, as described.

3. In an automatic valve, the combination, with the seat *a*, cover *b*, stem *c*, and levers *e e*, of the weight *i*, trip-lever *l*, latch *m*, and electro-magnet *n*, connected with an electric circuit, as described.

In witness whereof I have hereunto set my hand.

JOSEPH R. BROWN.

Witnesses:
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M. F. BLIGH.