No. 777,888. PATENTED DEC. 20, 1904.

J. FIDDES.

AUTOMATIC FIRE EXTINGUISHING APPARATUS.

APPLICATION FILED FEB. 1, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

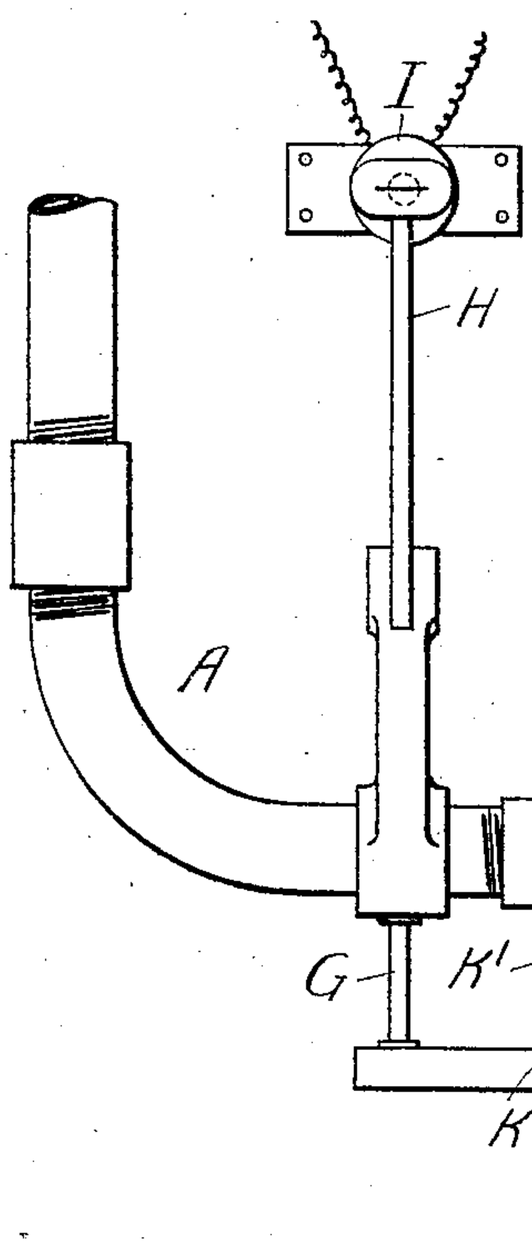

Fig. 1.

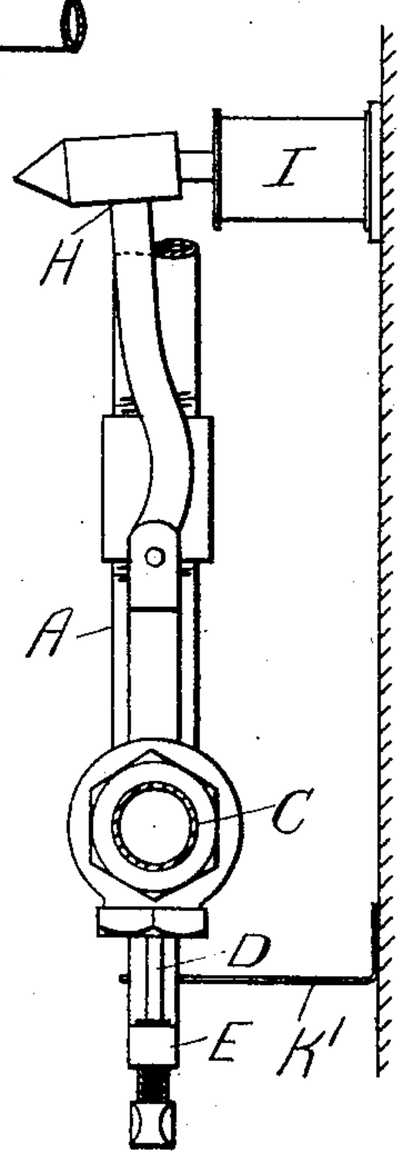

Fig. 2.

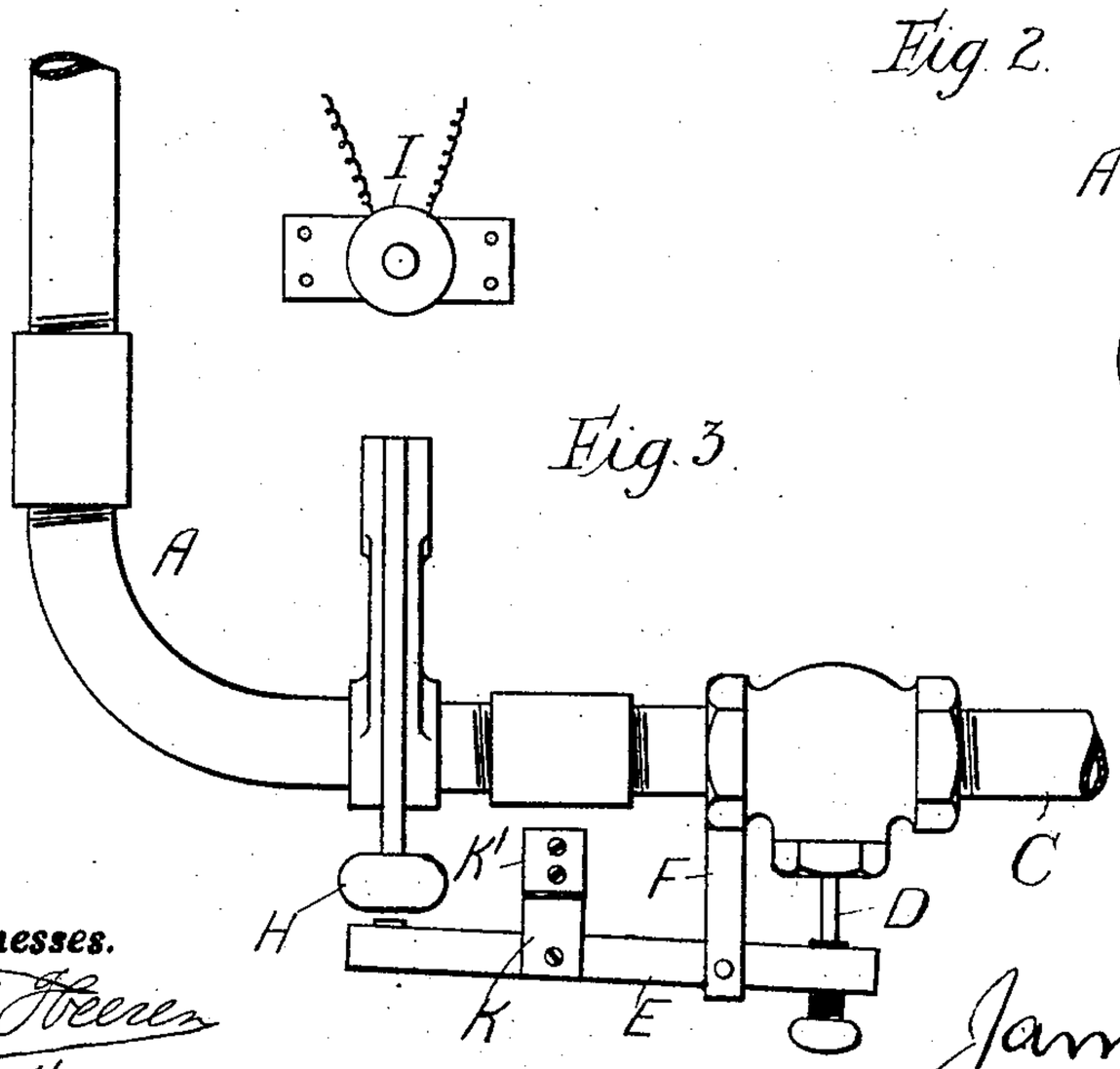

Fig. 3.

Witnesses.
L. Peters
C. Heymann.

Inventor
James Fiddes
by B. Singer atty.

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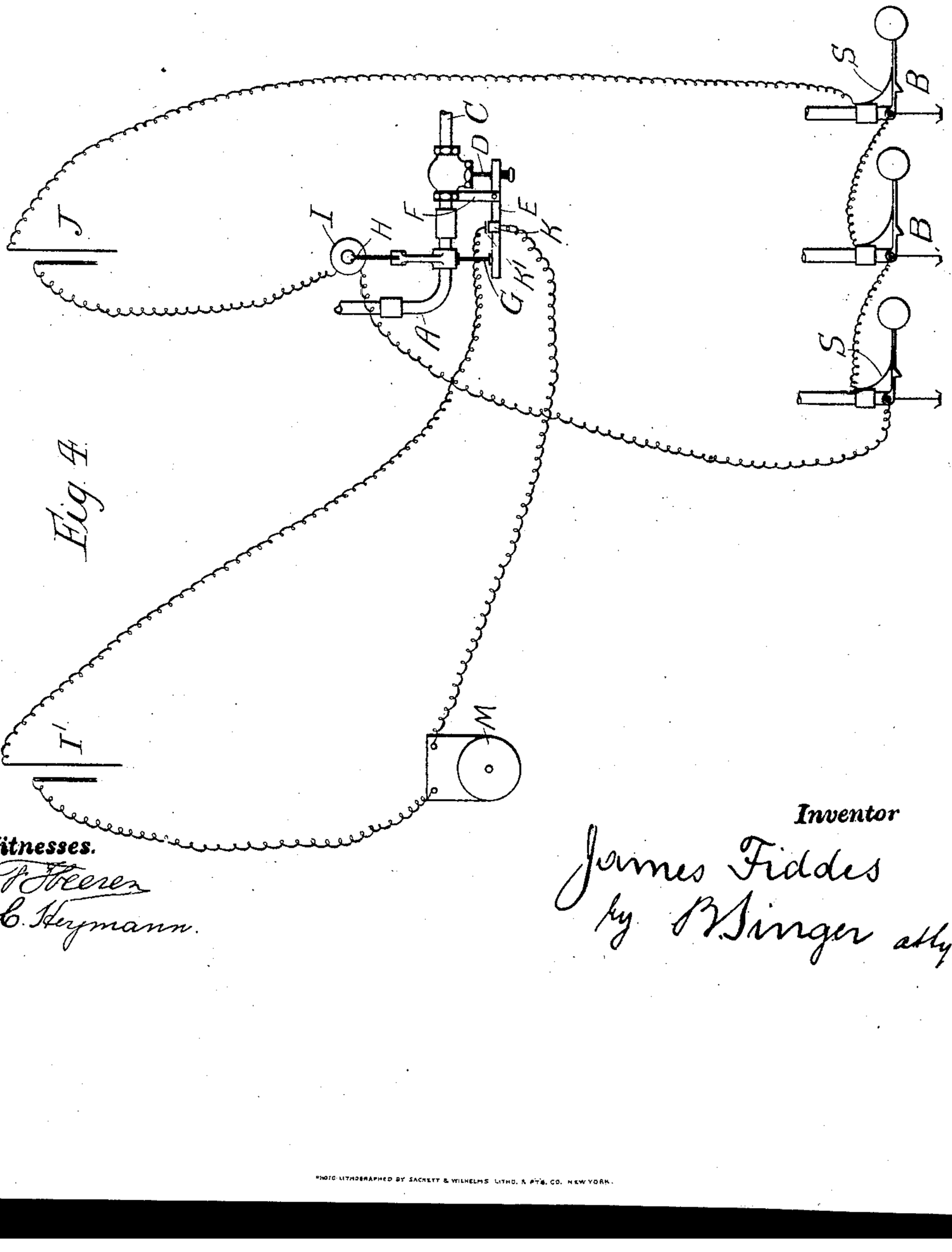

Fig 4.

Witnesses.
P. Peters
C. Heymann.

Inventor
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UNITED STATES PATENT OFFICE.

JAMES FIDDES, OF ABERDEEN, SCOTLAND.

AUTOMATIC FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 777,888, dated December 20, 1904.

Application filed February 1, 1904. Serial No. 191,599.

To all whom it may concern:

Be it known that I, JAMES FIDDES, of Torry Sawmills, Crombie Road, Aberdeen, Scotland, have invented certain new and useful Improvements in and Connected with Automatic Fire-Extinguishing Appliances, of which the following is a specification.

This invention relates to fire-extinguishing appliances of the kind in which water-sprinklers or like devices connected to a water or other fluid supply pipe are brought into action to discharge the water upon a sudden rise of temperature due to fire occurring within the building in which the appliances are fitted; and it has for its object to provide means whereby while the water-piping is kept dry or empty without the aid of compressed air the main valve is opened and water allowed to flow through the piping to which the sprinklers are attached when any sprinkler is opened or otherwise actuated or when the devices for actuating it are brought into operation on rise of temperature. For that purpose a closed electric circuit is arranged to hold normally out of action a lever-hammer or other device which when freed acts to break or dislodge a strut engaging a lever which holds the valve of the main water-pipe shut, the circuit being broken when a sprinkler opens, and thus releasing the lever of the main valve to allow water to flow into the branch pipes to which the sprinklers are attached. The movement of the valve-lever when admitting water from the main may be utilized to close a second electric circuit and sound an alarm inside or outside of the building or at a fire-brigade station.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 an end elevation, showing part of a water-pipe connecting a water-main to a system of branch piping to which a sprinkler or series of sprinklers is or are attached, this pipe being fitted with the improved appliances which are actuated to flood the piping and supply the water to the sprinklers. Fig. 3 is a view of the pipe and appliances represented at Fig. 1, but with the acting parts in different position; and Fig. 4 is an elevation similar to Fig. 1, but to a smaller scale and showing in diagrammatic form the electrical connection to the sprinklers and to an alarm.

As shown by the drawings at Figs. 1 to 4, the pipe A, connecting to the sprinklers B, forms a continuation of or branches from the water-main C, but is normally kept dry without the use of compressed air by the interposition of a stop-valve whose spindle D is engaged by one end of a lever E, centered on a support F, conveniently carried on the piping, while the other end of the lever is held down by a glass rod, tube, or other strut or support G, extending between it and the pipe, so as to keep the valve closed. Upon the pipe A is mounted a bracket-arm on which is pivoted a lever-hammer H, which is normally held up in the position indicated at Fig. 1, but which when released swings upon its pivot, so that its hammer-head falls into contact with the strut G, which it breaks or displaces, as indicated at Fig. 3, whereupon the pressure of the holding-lever E being relieved the valve D is opened by the water-pressure and water passes from the main C into the sprinkler-supply pipe A. The hammer-head H is normally held up in the position indicated at Figs. 1 and 2 by means of an electromagnet I, in circuit with a battery J or other source of energy, and the sprinkler or sprinklers B, connected to the pipe A, the levers of the sprinklers making contact with terminal springs S of the circuit. When the sprinkler or any one of the sprinklers is opened or otherwise brought into operation by rise of temperature, the electric circuit is broken and the electromagnet frees the hammer H, which thereupon falls, as above described.

As indicated at Fig. 4, terminals K K′ may be provided on the lever E and on a support in proximity to it which are normally out of contact, but which on release of the lever E make contact and close a circuit through a battery I′ and alarm-bell M, which latter may be within or without the building or at a fire-brigade station and may serve to indicate the occurrence of fire within the building in which the appliances are situated.

Having now described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a fire-extinguisher, the combination with the main water system, and a sprinkler, of a branch supply-pipe connecting said system and said sprinkler, a stop-valve interposed in said supply-pipe and keeping said pipe dry without compressing air in said pipe, frangible means normally maintaining said stop-valve closed, a hammer pivoted to said supply-pipe and adapted when released to destroy said frangible valve-closing means, an electromagnet normally supporting said hammer, an electrical circuit exciting said electromagnet and adapted to be automatically interrupted on actuation of the sprinkler, substantially as described.

2. In a fire-extinguisher, the combination with the main water system, and a sprinkler, of a branch supply-pipe connecting said system and said sprinkler, a stop-valve interposed in said supply-pipe, and keeping said pipe dry without use of compressed air, a pivoted lever one end of which engages the spindle of said stop-valve, a strut of frangible material bearing on the other end of said lever to close said valve, a hammer pivoted to said supply-pipe, an electromagnet normally supporting said hammer, a battery and connections adapted to form a circuit capable of automatic interruption and including the said magnet and the sprinkler, substantially as described.

3. In a fire-extinguisher, in combination, the main water system C, the sprinklers B, the branch pipe A connecting said system C and said sprinklers B, the stop-valve having the spindle D interposed in said pipe A, the support F mounted on said pipe A, the lever E pivoted on said support F, one end of which lever engages said spindle D, the strut G interposed between said pipe A and the other end of said lever E, the lever-hammer H pivoted to said pipe A, and adapted when released to fracture said strut G, the electromagnet I normally supporting said hammer, the battery J, terminals *s* on said sprinklers B adapted to break contact when said sprinkler is actuated, and electrical conductors leading current from said battery J through said terminals *s* to said magnet I, as shown and described.

4. In a fire-extinguisher, in combination, the main water system C, the sprinklers B, the branch pipe A connecting said system C and said sprinklers B, the stop-valve having the spindle D interposed in said pipe A, support F mounted on said pipe A, the lever E pivoted on said support F, one end of which lever engages said spindle D, the strut G interposed between said pipe A and the other end of said lever E, the lever-hammer H pivoted to said pipe A, and adapted when released to fracture said strut G, the electromagnet I normally supporting said hammer, the battery J, terminals *s* on said sprinklers B adapted to break contact when said sprinkler is actuated, electrical conductors leading current from said battery J through said terminals *s* to said magnet I, a second battery I′, a support adjacent said lever E, a terminal K′ on said support, a terminal K on said lever, said terminals being normally out of contact, but brought together when said strut is fractured, an alarm-bell M, and electrical conductors passing from said battery through said terminals and said bell to ring said bell on automatic actuation of the sprinklers, as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES FIDDES.

Witnesses:
WALLACE FAIRWEATHER,
JNO. ARMSTRONG, Junr.