No. 676,221. Patented June 11, 1901.

J. G. J. DAVIS.

COMBINED FIRE EXTINGUISHER AND ALARM.

(No Model.) (Application filed Mar. 23, 1900.) 2 Sheets—Sheet 1.

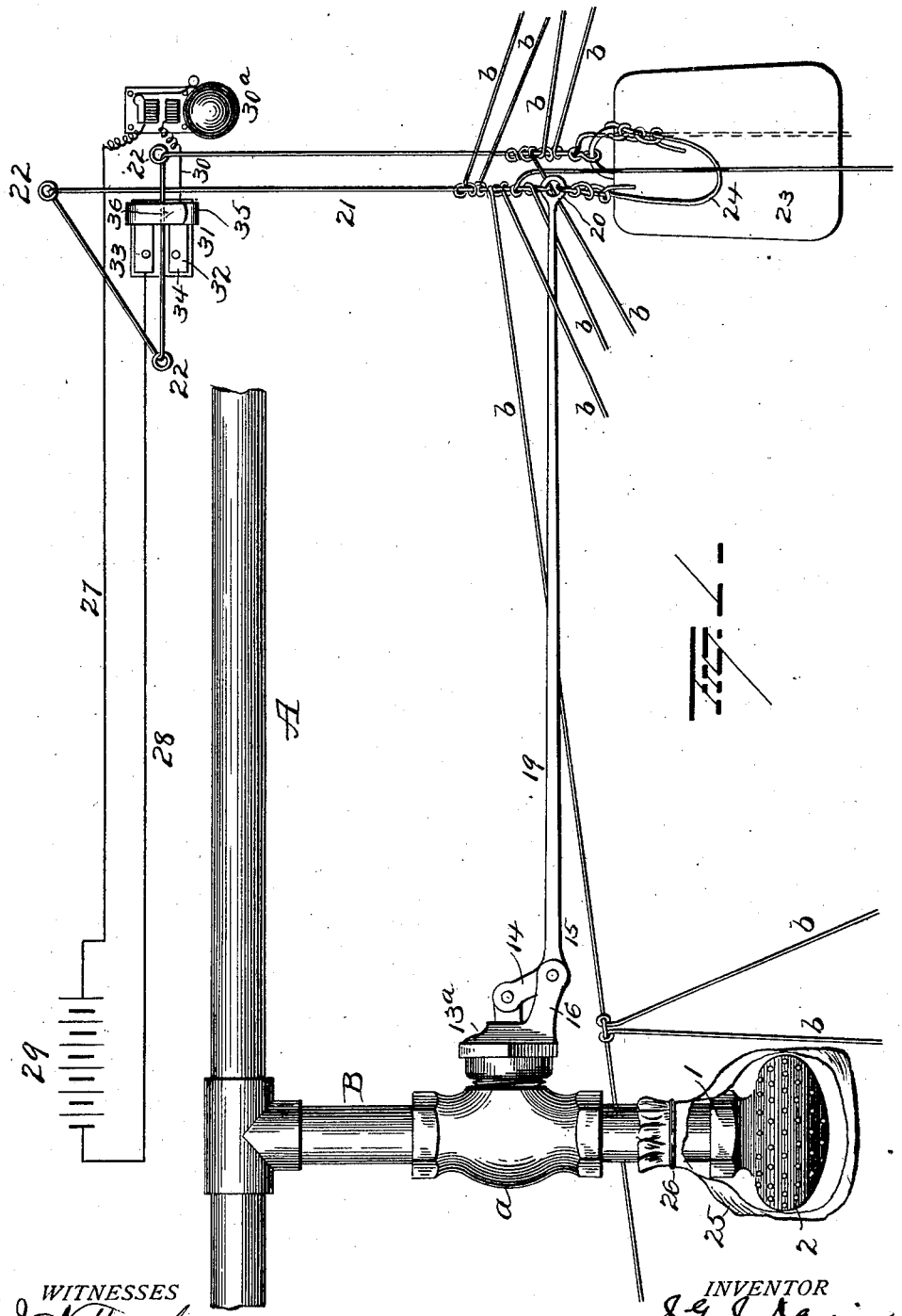


FIG. 1.

WITNESSES
E. J. Nottingham
G. F. Downing

INVENTOR
J. G. J. Davis
By H. A. Seymour
Attorney

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(No Model.) (Application filed Mar. 23, 1900.) 2 Sheets—Sheet 2.

Fig. 2.

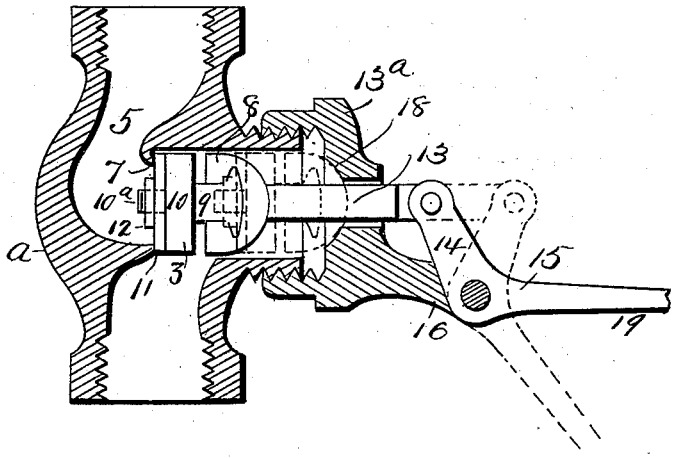
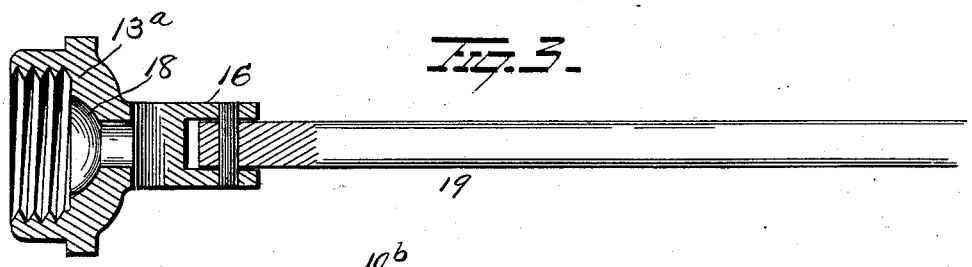



Fig. 3.



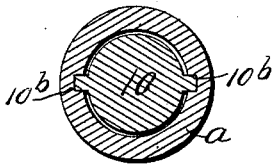




Fig. 4.

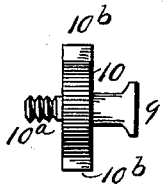



Fig. 5.

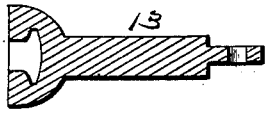



Fig. 6.

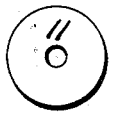



Fig. 7.

Fig. 8.

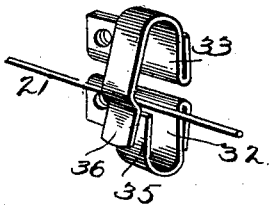
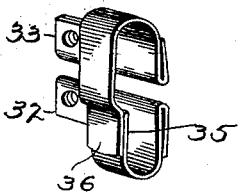



Fig. 9.




WITNESSES

E. S. Nottingham.

G. F. Downing.

INVENTOR

J. G. J. Davis

By H. A. Seymour

Attorney

# UNITED STATES PATENT OFFICE.

JOHN G. J. DAVIS, OF AUGUSTA, GEORGIA.

## COMBINED FIRE EXTINGUISHER AND ALARM.

SPECIFICATION forming part of Letters Patent No. 676,221, dated June 11, 1901.

Application filed March 23, 1900. Serial No. 9,832. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN G. J. DAVIS, a resident of Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in a Combined Fire Extinguisher and Alarm; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved combined fire extinguisher and alarm, the object of the invention being to provide an apparatus of the above-mentioned character which will be automatically operated through the combustion of some of its parts to release a spray of water or other fluid when a fire is started and at the same time sound an alarm.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view illustrating my improvements. Fig. 2 is a view in section of the valve and valve connection. Figs. 3, 4, 5, 6, and 7 are views of details of construction of the valve and valve mechanism, and Figs. 8 and 9 are detail views of my improved circuit-breaker.

A represents a water main or supply pipe, and B a branch pipe connected therewith and externally screw-threaded at its free end to mesh with internal threads in the shank 1 of a sprinkler 2, preferably cast into rounded or bulbous form and perforated on all faces to scatter the spray over the greatest possible area.

The pipe 1 is provided between its ends with a T-coupling *a*, forming a valve-chamber for a valve 3, the valve-chamber being provided with a seat 7 at the end of the passage 5, against which the valve rests when the latter is in its closed position. The valve comprises a semispherical portion 8, made with a dovetailed recess in its inner face for the reception of the head of a lug 9 on one side of a disk 10, forming the base of the valve, and the other side of the disk is provided with a threaded lug $10^a$, on which an elastic washer 11 is mounted, and a nut 12 is screwed onto said lug $10^a$ to secure all of said parts together. The disk 10 is provided on its sides with lugs $10^b$, disposed in parallel grooves in the valve-chamber to serve as guides for the valve and prevent its rotation, which might result in displacement of some of the parts. The semispherical portion 8 is provided with an outwardly-projecting valve-stem 13, pivotally connected with the short member 14 of a bell-crank lever 15, fulcrumed in a bifurcated lug 16 on a cap $13^a$, screwed onto the protruding central portion of the T-coupling. The cap $13^a$ is provided internally with a semispherical seat 18 for the semispherical portion 8 of the valve when the latter is in its open position, as shown in dotted lines. The long member or lever 19 of said bell-crank lever 15 is made, preferably, of spring metal and is provided in its outer end with a loop or eye 20, to which is securely tied one end of a combustible cord 21, which latter is passed through a series of eyebolts 22, screwed into the wall above the lever, and then extends downward and supports a weight 23 at its lower end, said weight also connected with the looped portion 20 of the lever 19 by a flexible wire 24 to give the weight a fall independent of the lever to give the latter and pipes a severe shaking and release any sediment which may have collected therein. A series of leaders of combustible cord *b* extend around the walls of the room and are connected to the cord 21 or to other leaders which are connected to cord 21, so as to quickly convey any flame to the cord 21 to sever the same and permit the weight 23 to drop, and thus pull the lever down with considerable force. This descent of the lever opens the valve 3, and, owing to the spring tendency of the lever and the flexible wire connection between the free end of the same and the weight, the pipes will receive a severe shaking up and release any sediment which may have collected therein.

A bag 25, preferably of paper, normally incloses the sprinkler 2 to prevent the entrance of dust and dirt to clog the same, and said bag is held on the pipe by a light rubber band or frail thread 26, wound around the same, and which will permit the bag to be forced off the sprinkler by the pressure of water issuing therefrom.

My improved automatic alarm is operated

when the lever 19 falls, as will now be explained. A wire 27 connects an electric battery 29 with a bell 30ª. Another wire 28 is connected with the battery and another wire 30 is connected with the bell, the circuit through said wires 28 and 30 being made and broken by my improved circuit-breakers 31, which comprise metal plates 32 and 33, bent upon themselves, so as to inclose the ends of the wires 28 30 and constitute binding devices for the latter for said plates. The circuit-closer is supported on a sheet of asbestos 34 or other insulating material. The plate 32 is provided with a curved lug or contact-point 35 and the plate 33 with a long spring-arm or contact-point 36, whose spring tension will normally tend to press the same against the lug 35 to close the bell-circuit; but the said contacts are normally held apart by the combustible cord 21, which latter, being held taut by the weight, holds the spring-arm 36 away from contact-point 35 and will not permit the contact to be made until the cord is severed, when the bell-circuit is closed to cause the bell to be sounded.

The operation of my improvements is as follows: When a fire starts in any part of the room, it is immediately communicated to one or more of the highly-combustible leaders *b* and is carried thereby to the cord 21, which will be severed by the flame and permit the weight and lever to fall. The falling of the weight opens the valve and starts the flow of water through the sprinkler, the paper bag being forced from the sprinkler by the pressure of water. It will be seen that when the cord 21 is severed the spring-arm 36 will be released and engage the lug 35 to close the electric circuit and sound the alarm.

Various slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. The combination with a supply-pipe, a nozzle on said pipe and a valve in said pipe, of a bell-crank lever having a short arm pivoted to the stem of said valve and a long horizontally-disposed spring-arm, a combustible cord attached to the free end of said spring-arm and passing upwardly therefrom and over a support, a weight attached to the free end of said combustible cord, and a normally slack flexible connection between the lever and weight.

2. The combination with a supply-pipe, a nozzle thereon, a valve in said pipe, an electric bell, a circuit-closer, and an electric circuit including said bell and circuit-closer, of a bell-crank lever having one arm connected to the stem of said valve, a combustible cord attached at one end to the free end of said lever and having an intermediate portion engaging one part of the circuit-closer and normally holding it out of contact with the other part to maintain the bell-circuit normally open and a weight attached to the free depending end of said combustible cord.

3. The combination with a fluid-supply, a nozzle thereon, a valve in said pipe, a pivoted lever having one arm connected with the valve-stem, an electric bell, a circuit-closer and an electric circuit including said bell and circuit-closer, of a weighted combustible cord connected with said lever and circuit-closer and acting to maintain the latter open and the valve closed, and a number of combustible leaders connected with said combustible cord for conducting fire thereto to effect its severance and the consequent release of the weight to positively open the valve and simultaneously close the circuit-closer.

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

JOHN G. J. DAVIS.

Witnesses:
W. P. REYNOLDS,
A. T. GRAY.