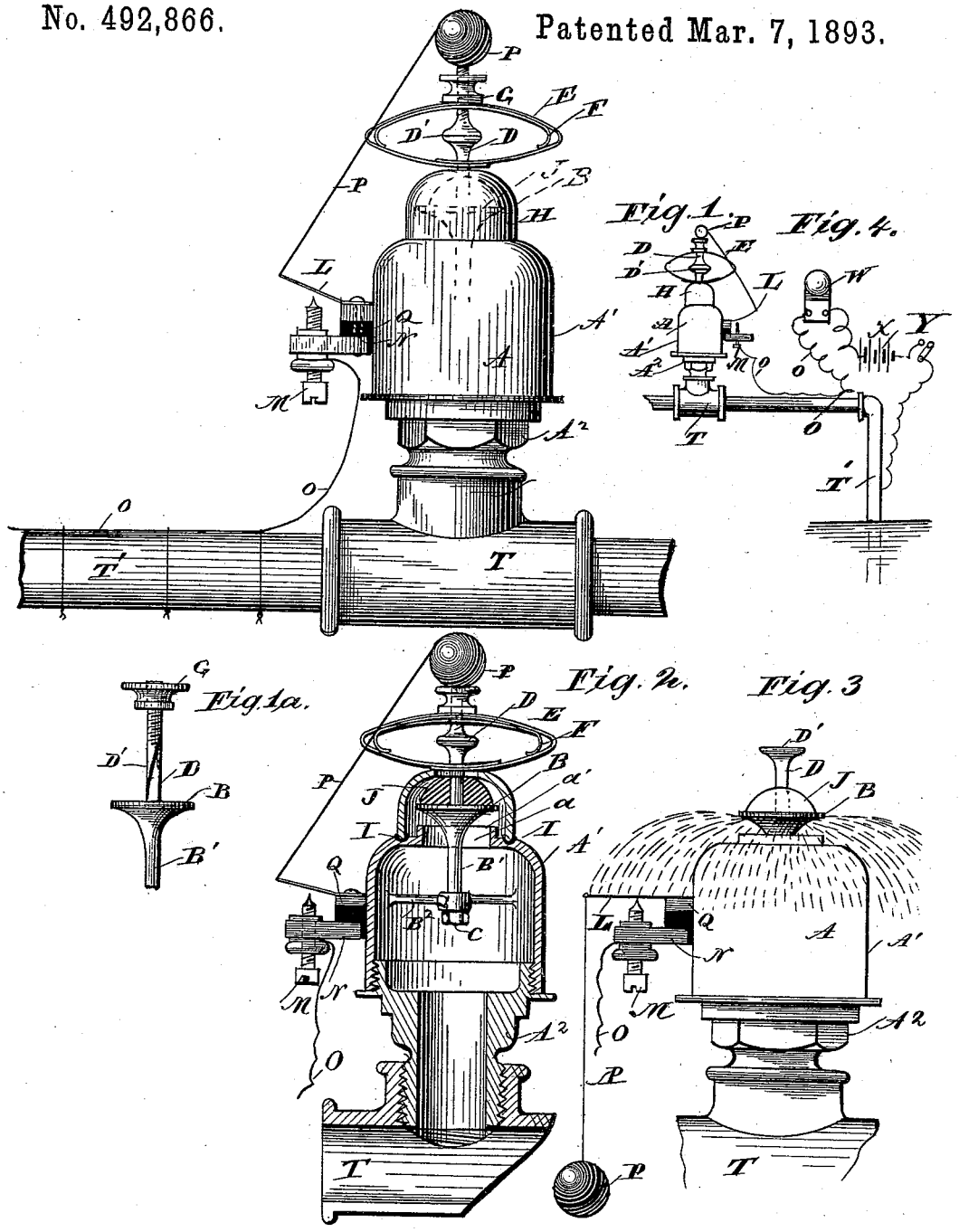
(No Model.)

# C. S. HURD.

## AUTOMATIC ELECTRIC SPRINKLER AND ALARM.

No. 492,866. Patented Mar. 7, 1893.

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# UNITED STATES PATENT OFFICE.

CHARLES S. HURD, OF CLEVELAND, OHIO.

## AUTOMATIC ELECTRIC SPRINKLER AND ALARM.

SPECIFICATION forming part of Letters Patent No. 492,866, dated March 7, 1893.

Application filed April 13, 1892. Renewed February 8, 1893. Serial No. 461,425. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES S. HURD, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Automatic Electric Sprinklers and Alarms, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in fire extinguishers and is adapted not only to operate a water sprinkler, but also an electric alarm in some central office or station.

My invention consists in the fusible devices, electric contacts and in the combination and arrangement of parts as hereinafter described, shown in the accompanying drawings and more specifically pointed out in the claims.

In the drawings Figure 1 is an exterior view of my complete device attached to a water pipe. Fig. 1ª is a detail. Fig. 2 is a vertical central section of same. Fig. 3 shows the effect of heat upon the same. Fig. 4 illustrates the electric connections with alarm.

In the figures A is an acorn shaped chamber in two portions A′ and A″, the lower portion of which is screwed into a pipe union or elbow T. The upper portion, A′, of the chamber is perforated centrally at top at *a*, vertically flanged at *a′* and provided with the deflector B centrally supported upon the stem B′, within the chamber upon one or more cross pieces B″, and secured by the nut C. From the top of the deflector projects the stud D upon which is placed the double bow shaped spring E reinforced by means of the inner spring F. A nut G serves to keep the spring in tension. In the figures the stud D will be seen to be divided at D′, the surfaces being connected by means of easily fusing metal, melting at a low degree of heat. As shown, the melting surfaces are enlarged for that purpose, but may be cut diagonally as in Fig. 1ª. The opening *a* is closed to prevent overflow of water by means of the bell H upon the stud D. Packing for this is shown at I and J which effectually retains the water although under pressure. A slight groove $a^2$ receives the packing I.

In action in case of fire in the vicinity of the device, it will be seen that when the heat has fused the metal connecting the portions of the stud as at D′, the spring will at once force them apart, and so release the bell and permit the water to flow from under the deflector which is curved underneath to give a free outlet. The flange *a′* serves to direct the flow to the deflector.

In order to give an alarm as soon as the device is heated, the construction employed is as follows:—L is a metallic spring electrically connected with the chamber A and supporting water pipe T′. M is a screw adjustable in relation to the spring L in the insulated material N and connected with the current wire O which may be secured to the pipe T′. The spring L is constantly in tension and is held away from contact with the screw M by means of the light chain and ball P, which are attached normally to the top of the stud D by an easily fusible metal solder. Q is an insulating section. When affected by heat the ball P will become detached and fall thus releasing the spring L which will spring into contact with the screw M, and thus complete an electric circuit through the wire and water pipe to a signal bell or gong at any desired position in the building, the water pipe being finally connected to the same instrument. The weight of the ball and chain assists in securing a permanent contact. In Fig. 4, is shown the complete circuit with bell W, battery *x*, and switch Y. The pipe T′ completes one branch of the circuit. The action of heat in detaching the ball should be quicker than the separation of the parts of the stud D to enable the signal to sound an alarm before the water flows.

I believe myself to be the first to combine an automatic sprinkler with an electric alarm.

What I claim, therefore, as new, and desire to secure by Letters Patent, is—

1. In an automatic sprinkler, a chamber A perforated at *a* and provided with a curved deflector B, centrally located, a stud D projecting from the deflector and divided in two portions connected by a fusible solder, a bell and elastic packing over the deflector and perforation, and spring E and nut G on the stud, substantially as described.

2. In an automatic sprinkler, a chamber A perforated at top at *a* and provided with circular deflector B centrally supported above

the said perforation and directing flange, *a*, a stud D extending vertically above the deflector, and secured thereto, the said stud being separated in two portions connected by fusible solder, a nut G upon the extremity of the stud and bell H covering the deflector and perforation in chamber and seated on packing on said chamber, with packing between said bell and deflector, and a spring E between the nut and bell, substantially as described.

3. In combination with an automatic sprinkler, substantially as described, means for signaling the vicinity of a fire consisting in the ball P secured by fusible metal solder to the stud D and the screw and spring terminals L and M of an electric circuit, the spring L being connected with the ball P by means of a chain or cord, as and for the purpose set forth.

4. In combination with an automatic sprinkler substantially as described means for signaling the vicinity of a fire consisting in the ball P secured by fusible metal solder to the stud D divided at *d*, screw and spring terminals L and M of an electric circuit adapted to co-operate with the signal W and battery *x* on the fall of the ball P, substantially as described.

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