

W. B. WATKINS.

AUTOMATIC ELECTRIC FIRE-ALARM AND EXTINGUISHER.

No. 172,218.

Patented Jan. 11, 1876.

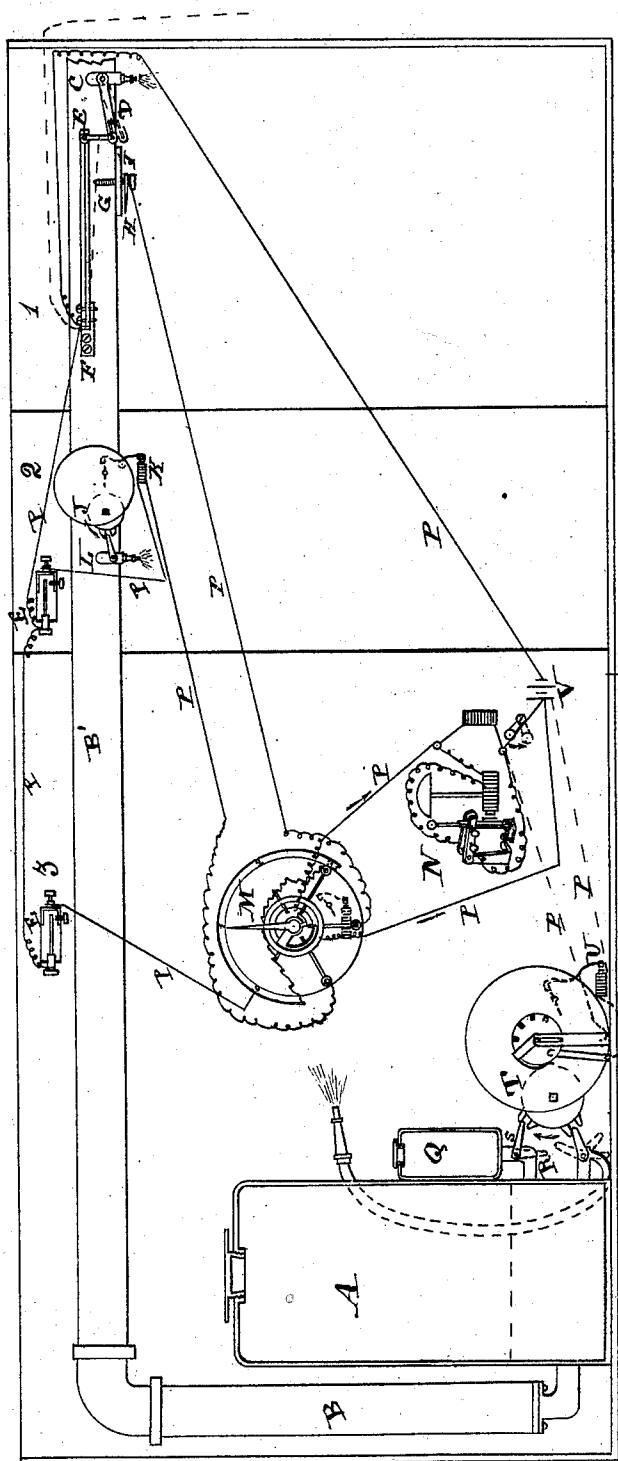


Fig. 1.

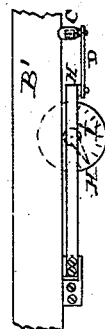


Fig. 2.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN AUTOMATIC ELECTRIC FIRE ALARMS AND EXTINGUISHERS.

Specification forming part of Letters Patent No. **172,218**, dated January 11, 1876; application filed December 28, 1872.

To all whom it may concern:

Be it known that I, WILLIAM B. WATKINS, of Jersey City, State of New Jersey, have invented certain new and useful Improvements in Automatic Fire Extinguishers and Alarms; and I do hereby declare the following to be a full description of the same.

The nature of my invention consists, first, in combining, with a heat-detector and gas-reservoir discharge-pipes, a galvanic current of electricity and train of clock-wheels, to automatically open valves or cocks in the reservoir, or reservoir discharge-pipes, at any given distant point from the heat-detector, to allow the gas to escape to put out the fire; second, in combining, with the fire-extinguisher, gas-reservoir, and heat-detector, an alarm and indicator instruments, operated by a current of galvanic electricity, whereby an alarm will be given by the heat-detector of the breaking out of the fire at any place where the instruments may be placed simultaneously with the opening of the valves or cocks in the gas-pipes to extinguish the fire; third, in combining, with the gas-generating reservoir, an auxiliary charging-reservoir, so arranged in connection with the gas-generating reservoir that a charge of generating-fluid or other ingredient may be automatically discharged into the said generating-reservoir instantly by the heat-detector, acting through electro-magnetic power, and a train of clock-wheels or levers, to open a cock in the connecting-pipe of the gas generating and charging reservoirs.

But to describe my invention more particularly, I will refer to the accompanying drawings forming a part of this specification, the same letters of reference wherever they occur referring to like parts.

Figure 1 is a side elevation of the invention. Fig. 2 is a detached view of the index or pointer, as combined with the heat-detector or thermometer.

Letter A represents a gas-generating reservoir, made of metal or any other suitable material; and B and B', vertical and branch pipes connected therewith, and extending up and away from the reservoir to the upper part of the room or place where the reservoir is placed, or up into other different rooms or floors of the building, when the generating-

reservoir is placed in the basement. When placed in the basement, branch pipes may be connected with vertical pipe, so as to admit of discharging the gas into any of the floors of the building where the fire originates, or from all the branch pipes, into the several floors at the same time, and all at the same time from the single reservoir. For the purpose of causing the gas to escape from the branch pipes automatically a valve or cock, C, is inserted in their discharging ends, and connected by a lever, D, with the end of a heat-detector, E, composed of two bars or strips of brass and steel, joined together by soldering, to form what is called a compound strip. The length and size of it will be governed by the size of the valve to be opened and power required to effect that object. This is effected by the bending of the compound strip (when held at one end only, as shown at F) by any unusual degree of heat, and thus will open the cock to let the gas escape into the room to extinguish the fire. For the purpose of limiting the discharge of the gas from the pipe to a given degree of heat, a set-screw, G, is arranged in suitable bearings below the compound strip, to which is attached a pointer, H, so that, as the set-screw is set to gage the time of opening the cock, the pointer will indicate on a dial-plate, I, the degree of heat at which the gas will be discharged.

In cases where a large and powerful compound strip would be inconvenient of use to act directly on the cock, it is purposed to use a smaller one to close a circuit of galvanic electricity, and thus set a train of clock-wheels, J, in motion by means of the attractive force of an electro-magnet, K, actuated by the said electrical current through the compound strip to open a cock, L, to allow the gas to escape. In connection with the automatic devices, in combination with the pipes for allowing the gas to escape, an indicator instrument, M, and alarm-bell apparatus N, are included within the galvanic circuit of wires P through the compound strip.

As such instruments are fully described in other inventions made by me, and now on file in the Patent Office, a reference to such instruments is all that is deemed necessary, as any indicator and alarm instruments may be

used for the purposes set forth, to make my combination of an indicator and alarm automatic fire-extinguisher apparatus.

The location of the indicator and alarm-bell instruments may be placed in any particular office in the building, or other place out of the building, where the fire occurs, so that, whether the building is occupied or unoccupied, a notice will be given of the outbreak of fire simultaneously with the discharge of the carbonic-acid gas to extinguish the fire, or hold it in check till the arrival of more efficient means.

For the purpose of generating the carbonic-acid gas simultaneously with the outbreak of the fire, an auxiliary charging-vessel, Q, is arranged alongside of the gas-generating reservoir, with a connecting-pipe, R, leading from its lower side into the gas-generating reservoir. In this charger is placed a liquid solution of either one of the ingredients for generating the extinguishing-gas, and, by means of a cock, S, in it, (operated by a train of clock-wheels, T, and magnet U, in galvanic connection with the heat detector E through the circuit of wires P and battery V,) will be opened simultaneously with the opening of the discharge-cock C by the heat-detector on the maximum degree of heat being attained by the outbreak of the fire.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. A heat-detector, E, stationary gas-discharging pipes B and B', and gas-generating reservoir A, in combination with the cock or valve L, train of wheels J, electro-magnet K, and galvanic circuit of wires P, all arranged and operating substantially as hereinbefore described.

2. A heat-detector, E, gas-discharging pipes B and B', and gas-generating reservoir A, in combination with a galvanic circuit of wires, P, an indicator instrument, M, and an alarm-bell apparatus, N, all arranged and operating substantially as hereinbefore described.

3. The stationary gas-generating reservoir A, in combination with the charging-vessel Q, train of wheels T, magnet U, galvanic circuit of wires P, and heat-detector E, all arranged and operating substantially as hereinbefore described.

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Witnesses:

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