

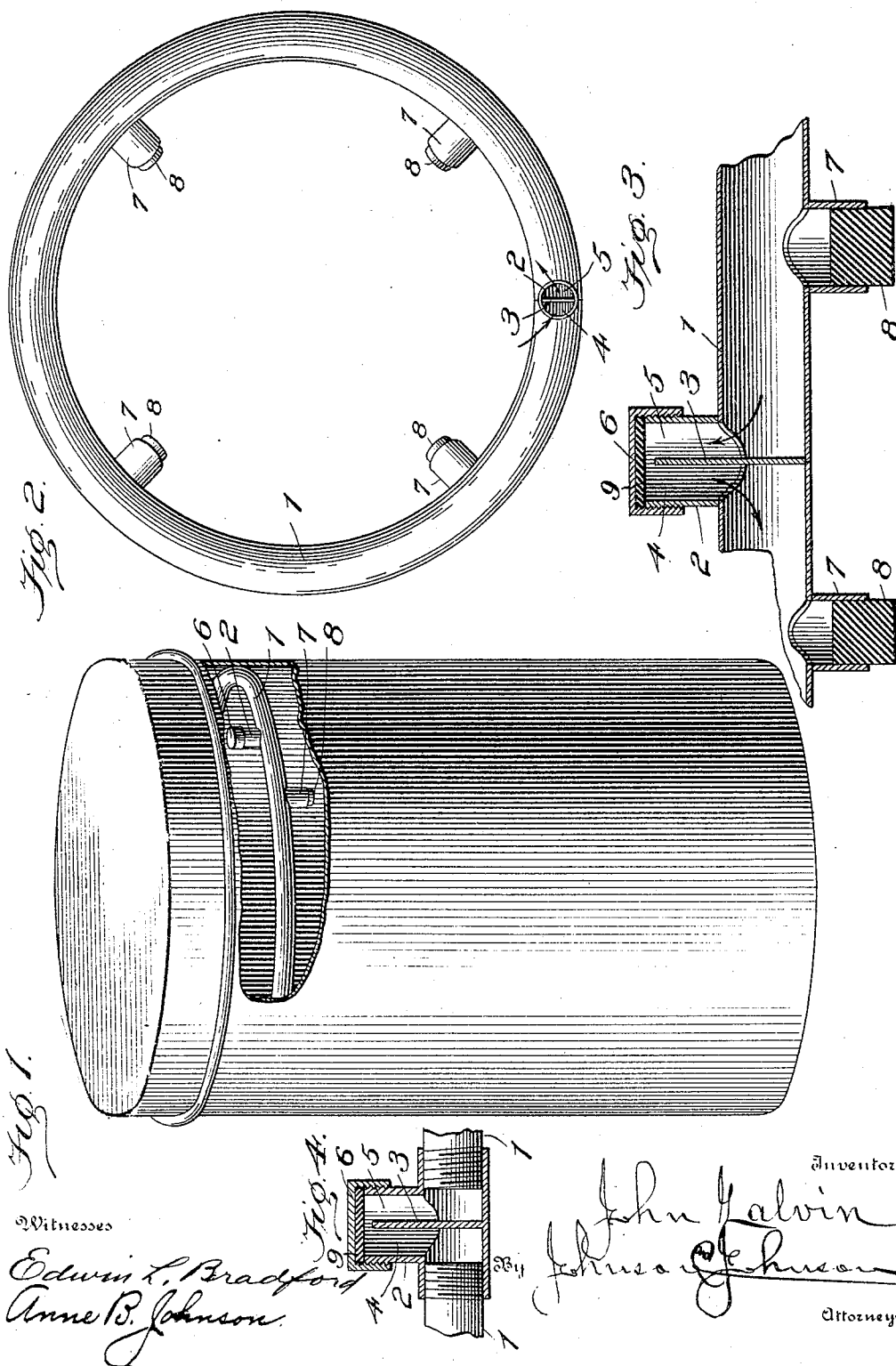
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J. GALVIN.
AUTOMATIC FIRE EXTINGUISHING DEVICE.

APPLICATION FILED JUNE 7, 1904.

NO MODEL.



Witnesses

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AUTOMATIC FIRE-EXTINGUISHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 774,352, dated November 8, 1904.

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To all whom it may concern:

Be it known that I, JOHN GALVIN, a citizen of the United States, residing at Brattleboro, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Automatic Fire-Extinguishing Devices; 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 is directed to the production of an automatic fire-extinguisher consisting of a metal tubular coil charged with a fire-extinguishing fluid or chemicals which under the action of heat upon the coil is converted into gas, the pressure from which within the coil is caused to expel one or more stoppers and eject in forced streams the fire-extinguishing gas and fluid to extinguish the fire. The coil is endless, and its chamber is divided transversely, having a fluid-charging orifice and an air-vent orifice, and is provided with one or more discharge-openings closed by stoppers to render the coil air-tight when charged and forming thereby an article of manufacture which may be placed for use in any closure where fire is liable to develop—such, for instance, as a can used for the storage of matches—and in elevator-shafts, rooms, halls, and places where fire would be likely to occur, and heating the tube or coil cause it thereby to form an automatic fire-extinguisher, delivering under a strong ejecting force the extinguishing element, thereby extinguishing the fire.

The following description, read in connection with the accompanying drawings, will enable any person skilled in the art to which my invention relates to understand and to practice it in the form in which I prefer to employ it; but it will be understood that my invention is not limited to the precise form and details of construction illustrated and described, as various modifications and changes may be made without exceeding the scope of the claims in which my invention is set out.

Referring to the drawings, Figure 1 represents my automatic fire-extinguisher in the form of a tubular ring or coil charged with a

fire-extinguishing fluid or chemicals and applied to a can which is supposed to contain matches in storage and which in the event of fire originating from the matches will heat the charged coil, thereby converting the fluid therein into a fire-extinguishing gas which is ejected by the pressure thereof expelling the stoppers. Fig. 2 shows the ring or coil when charged and ready for use. Fig. 3 is a partial sectional view of the ring or coil, showing a partition of its chamber, the fluid-filling orifice, the air-vent, and the discharge-opening closed by the stoppers. Fig. 4 shows in section a screw-coupling having a dividing-partition and connecting the ends of the coil.

The fluid-filling orifice and the air-vent are side by side, so that in filling the coil-chamber the fluid will displace the air from the coil, the fluid entering one orifice and the air forced out of the other orifice, and a single stopper will close both the filling-orifice and the air-vent, as in Fig. 3.

The tubular coil 1 is made of any suitable metallic substance, copper being preferable, because it is a quick conductor of heat. It may be made of any endless form that will allow the displacement of the air in charging the chamber of the coil and of any size to provide a capacity for the purpose intended. Any suitable fire-extinguishing chemical or fluid may be used, such as aqua-ammonia, which will under the action of heat upon the coil be converted into gas, the pressure from which will expel a stopper or stoppers, and thereby automatically eject under force the gas and fluid. The ends of the coil may be soldered or brazed together, and at such joining an opening is made over which a short tube 2 is soldered or brazed to the joined ends or to a coupling. A partition 3 divides the coil-chamber at this opening and extending into the short tube forms a charging-orifice 4 for the fluid and a vent 5 for the air expelled in filling the coil. The short tube, therefore, incloses the filling-orifice and the air-vent and is itself closed by a single screw-cap 6 and rubber gasket 9. One or more openings may be made in the coil at one or at each side of the partition and provided with a short tube 7, closed by a stopper 8. I prefer to make the

stoppers of soft rubber, because an air-tight joint is thereby the better provided and because they are more certain to be expelled under a certain degree of pressure from the gas produced within the coil. The charged and sealed metallic coil, with its filling and discharging tubes and stoppers, is, so far as I know and can find, a new conception in its function of converting under the action of heat a fire-extinguishing fluid into a gas and automatically expelling it and injecting it under a strong pressure from the coil to extinguish the fire.

The device made of endless ring form affords a convenient and simple way of uniting the ends together, of making an opening in the walls at the meeting ends, of fixing a tube over said opening, and of fixing a partition within the ring at the opening so as to divide the chamber of the ring and of the tube and making it both a charging-orifice and an air-vent in charging the chamber, and, so far as I know and can find, the charged and sealed metallic coil, with its filling and discharging tubes and stoppers, is a new conception in its function of converting under the action of heat a fire-extinguishing fluid into a gas and automatically expelling it and injecting it under a strong pressure from the coil to extinguish the fire.

An important feature of my invention is the generation of a fire-extinguishing gas by heat upon the walls of a tubular closure containing a fire-extinguishing fluid and the automatic ejection of forced streams therefrom, thereby extinguishing the fire it being understood that the ejecting force is an active element in the efficiency of the device in projecting the gas into the fire.

The ends of the ring may be right and left screw-threaded and united by a coupling which is formed with the partition, as seen in Fig. 4.

In Fig. 2 I have shown a number of ejecting-tubes, so that the expelling of the stoppers in some of them will be rendered certain, as the pressure of the gas within the tube may be greater at some points, and they may be variously arranged.

In a concurrent application filed by me June 21, 1904, for automatic fire-extinguishing device, under Serial No. 213,484, I have shown, described, and claimed a similar invention of which the following is the subject-matter of claim: "As a new article of manufacture the herein-described automatic fire-extinguishing device consisting of a metallic tube having a charging-opening at or near one end, an air-vent at or near its other end, a sealing-gasket for each, screw-caps reinforcing said gaskets,

one or more discharge-openings, a sealing stopper or stoppers therefor, and a charge of fire-extinguishing fluid," and this cross-reference is intended to be notice that the claim in the said application, Serial No. 213,484, is subordinate to the claim of this patent.

I claim—

1. An automatic fire-extinguisher, consisting of a tubular metallic coil having its ends united and having a charging and a discharging opening, an air-vent and stoppers therefor whereby, under the action of heat upon the metallic walls, gas is generated under pressure from the contained fire-extinguishing fluid expelling thereby a stopper or stoppers, and ejecting from the coil the gas and the fluid in forced streams thereby extinguishing the fire.

2. As a new article of manufacture, an automatic fire-extinguisher, consisting of a tubular coil or ring having its ends united and having an opening at the meeting ends, a tube fixed over said opening, a partition dividing the chamber of the coil and the tube whereby to form a charging-orifice for the fire-extinguishing fluid, and an air-vent, both opening into said tube, a gasket and a screw-cap closing said tube, a tube or tubes for ejecting the fire-extinguishing element, and a stopper or stoppers therefor, whereby under the action of heat upon the metal walls of the coil the stopper is expelled and the gas and fluid ejected from the coil in forced streams.

3. An automatic fire-extinguisher consisting of a tubular metallic coil or ring having its ends united, and having an opening at its meeting ends, a charging-tube for the fire-extinguishing fluid fixed over said opening, means whereby the chamber of the coil and said tube are divided to form a charging-orifice and an air-vent, a gasket and screw-cap for said tube, and a discharging-orifice having a stopper, for the purpose stated.

4. An automatic fire-extinguisher consisting of a sealed tube of thin metallic walls charged with a fire-extinguishing fluid and including a filling and a discharging opening and stoppers therefor, said tube caused by heat penetrating the thin walls to eject by internal pressure, a stopper or stoppers to effect thereby the automatic ejection from the tube the gas and fluid in forced streams to extinguish the fire.

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

JOHN GALVIN.

Witnesses:

E. W. GIBSON,
J. L. MARTIN.