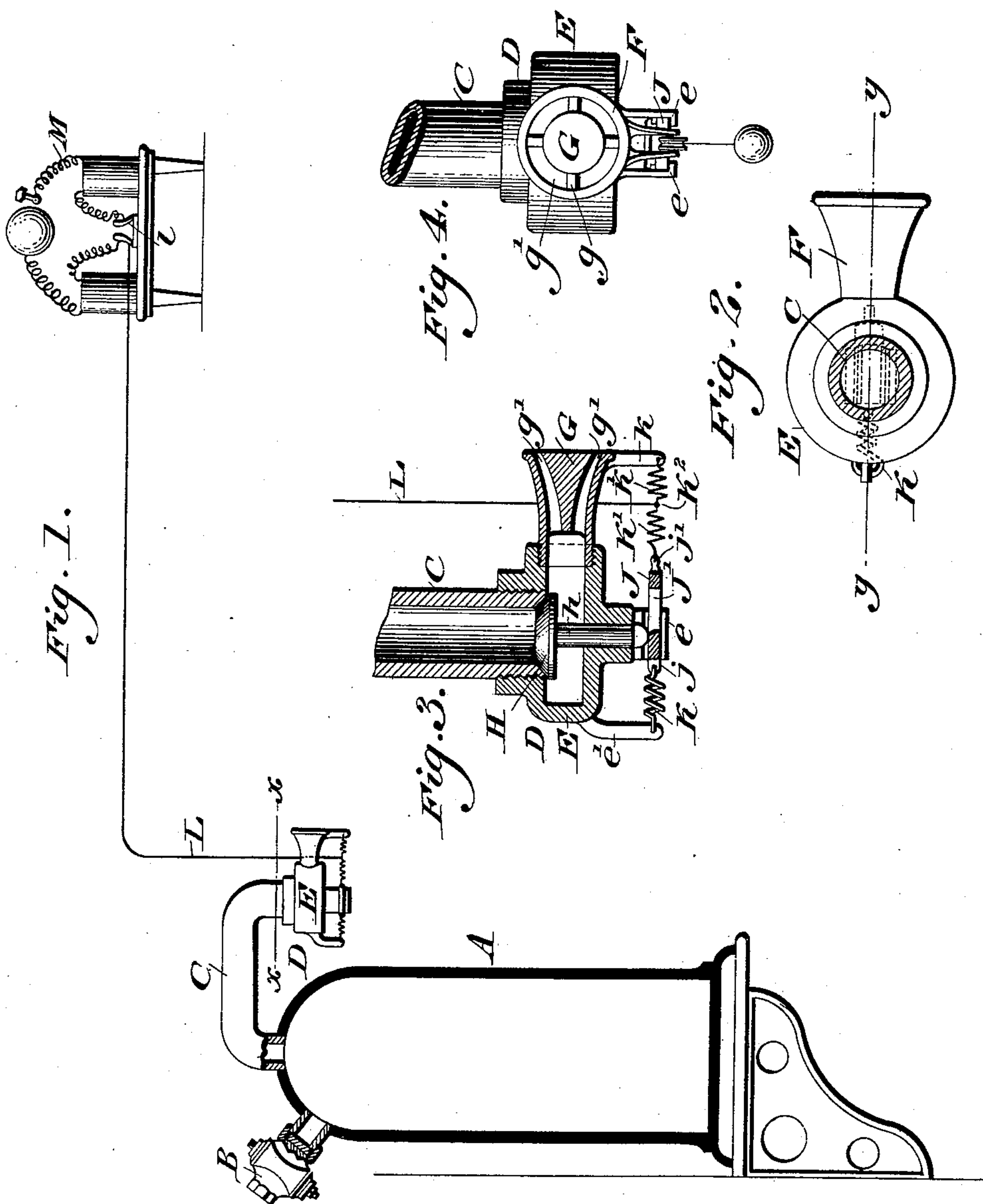


(No Model.)

E. R. & J. R. MOORE.
FIRE EXTINGUISHING APPARATUS.

No. 435,316.

Patented Aug. 26, 1890.



WITNESSES:

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EMMA R. MOORE AND JOHN R. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 435,316, dated August 26, 1890.

Application filed November 11, 1889. Serial No. 329,964. (No model.)

To all whom it may concern:

Be it known that we, EMMA R. MOORE and JOHN R. MOORE, citizens of the United States, both residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Fire-Extinguishing Apparatus, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention relates to improvements in automatic fire-extinguishers and alarms; and it consists of the combination of parts, as herein set forth and claimed.

Figure 1 represents a sectional elevation of a fire-extinguishing apparatus in diagrammatic arrangement embodying our invention. Fig. 2 represents a horizontal section on the line *xx*, Fig. 1, on an enlarged scale. Fig. 3 represents a vertical section on the line *yy* of Fig. 2. Fig. 4 represents a front elevation of the automatic valve device.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a portable tank adapted to have liquid gas forced thereinto under pressure through a liquid and gas tight inlet B. To the top of said tank A is connected an outlet-pipe C, which is attached at its opposite end to an automatic valve D, consisting of a casing or shell E, provided with an opening with a flaring nozzle F, having a central conical spreader G attached to the sides of the said nozzle F by webs *g*, thereby forming eduction-ports *g'*. The lower part of the casing E has a tubular extension *E'*, in which is located the stem *h* of a valve H, the latter being conical and normally held against the end of the pipe C, the bottom of the stem being rounded, for a purpose hereinafter stated. The lower end of the said extension *E'* is formed with recessed guideways *e*, in which is mounted a slide J, having an opening *J'* with a rounded wall and the ends thereof constructed with eyes *j* and *j'*. To the eye *j* is attached one end of a spring K, whose other end is secured to a depending lug *e'* from the casing E, and the eye *j'* has a portion of a spring *K'* connected thereto, the other portion of said spring *K'* being fixed to a lug *k*, depending from the nozzle F. Said portions *K'* and *K'* of the sectional spring are united by a cord *K²*, to which

is attached a fuse L, secured at its opposite end to one of two contact-plates *l* of a battery and signal or alarm M.

In lieu of the sectional spring a cord and weight may be employed to control the automatic opening of the slide J and valve H.

In case of fire the fuse L is ignited and the cord *K²*, connecting the springs *K'* and *K'*, is severed by burning, and at the same time the pressure is relieved from the contact-plate *l*, to which the fuse L is attached, whereby said plate contracts, thus closing the circuit and ringing the bell or signal. The tension on the slide J being relaxed causes the spring K to draw the said slide through the guideway of the extension *E'* of the casing E, and thereby bring the opening *J'* under the lower rounded end of the stem *h* of valve H. The pressure on said valve H forces the same down, and the gas escapes through the eduction-ports *g'* of nozzle F, and therefrom is disseminated within the burning apartment. Owing to the rounded end of the opening J and the lower end of stem *h*, there is no liability of a failure of the valve H to be depressed, as the said stem *h* will readily ride off the slide J, which has sustained it elevated, into and through said opening *J'*. The valve H cannot be closed until the force or pressure of the confined gas is spent, when said valve may be closed and the tank A be refilled with liquid gas and the other parts reset.

While not limiting ourselves to the use of any fire-extinguishing gas, we prefer to employ carbonic-acid gas, which is very effective as a fire-extinguisher and is harmless when brought into contact with or envelops articles of clothing, furniture, or food, thereby allowing the same to be used in stores, factories, holds of boats, and private dwellings.

In addition to or in lieu of the electric signal M, an annunciator may be employed which will indicate the place or position of the fire.

In case of incendiarism an attempt to sever the fuse L would actuate the alarm M, as the pressure would be relieved from the contact-plates *l* and they would close the circuit.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a fire-extinguisher, a tank, a valve therefor having guideways in the casing

thereof, the valve proper having a depending stem, a slide formed with an opening and connected to springs for supporting said valve closed, a fuse attached to a portion of said
5 springs, and a signal, substantially as described.

2. In a fire-extinguisher, a tank, a valve therefor having a discharge-nozzle, a movable plate for primarily supporting said valve, and
10 springs connected with opposite sides of said plate, one of said springs being divided and connected by a cord which when burned releases said plate and allows the valve to open, substantially as described.

15 3. In an automatic fire-extinguisher, a tank with outlet-pipe having at its outer end a valve-chamber with flaring nozzle, a rising and falling valve with stem, and a slide with opening springs connected to the opposite
20 ends of the said slide, one of said springs hav-

ing its parts connected by a fusible cord, said parts being combined substantially as described.

4. An automatic fire-extinguisher having the tank A, with the inlet-pipe B, and an out- 25 let-pipe having at one end the chamber E, with the flaring nozzle F, the latter having therein the spreader G, the rising and falling valve H, with stem h, the latter in the extension E, the slide J, with opening J', the lugs e 30 and k, secured to the walls of said valve-chamber, and the springs K and K', the parts of the spring K being connected by the fusible cord K², said parts being combined substantially as described.

EMMA R. MOORE.
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Witnesses:

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