J. O. FOWLER, Jr.

ELECTRIC CIRCUIT-CLOSER FOR FIRE-ALARMS.

No. 182,997. Patented Oct. 10, 1876.

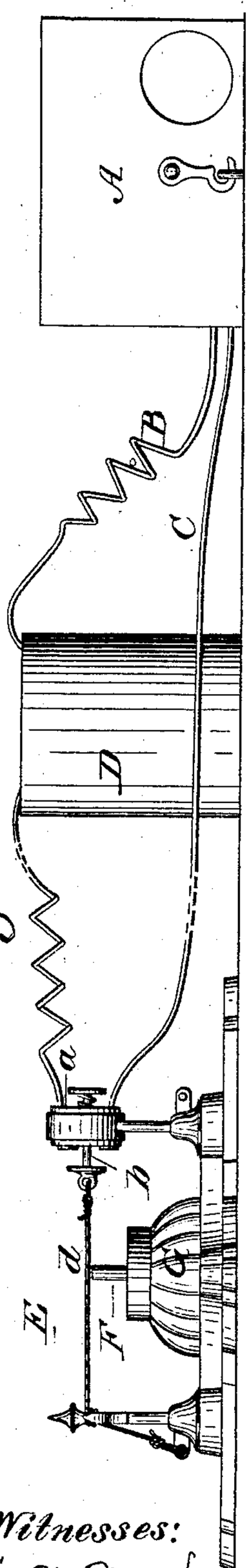

Fig. 1.

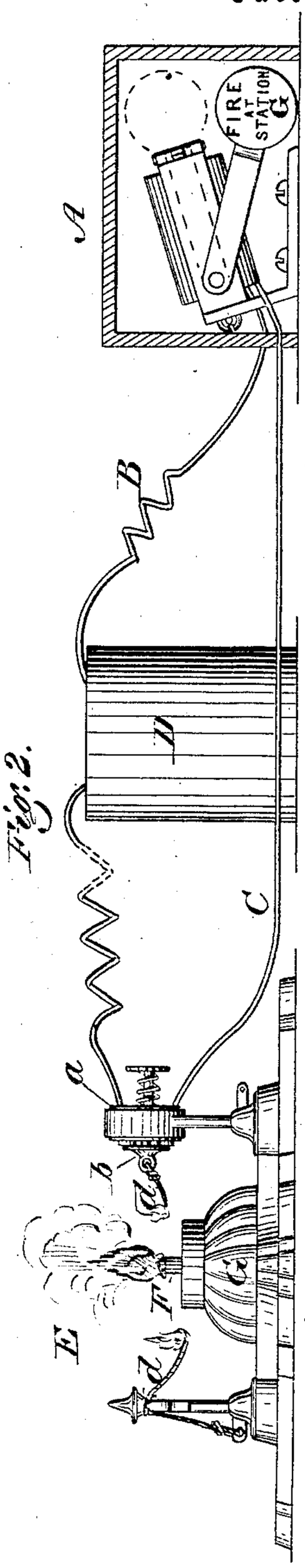

Fig. 2.

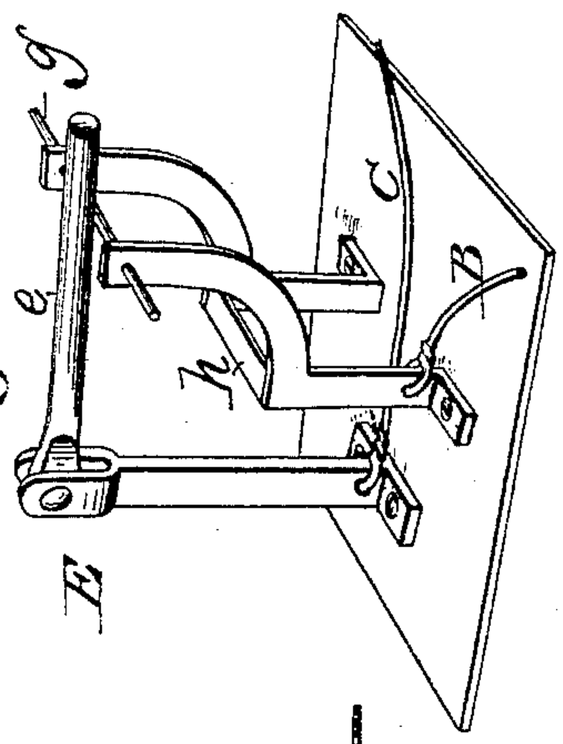

Fig. 4.

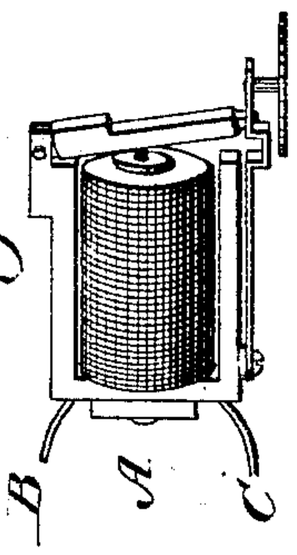

Fig. 3.

Witnesses:

Hill A. Dodge

Donn F. Purtchell.

Inventor:

J. O. Fowler, Jr.

by Dodges & Son

Attys.

JAMES R. OSGOOD & CO. BOSTON.

UNITED STATES PATENT OFFICE.

JONATHAN O. FOWLER, JR., OF HUDSON, WISCONSIN.

IMPROVEMENT IN ELECTRIC CIRCUIT-CLOSERS FOR FIRE-ALARMS.

Specification forming part of Letters Patent No. **182,997**, dated October 10, 1876; application filed April 21, 1876.

To all whom it may concern:

Be it known that I, JONATHAN O. FOWLER, Jr., of Hudson, in the county of St. Croix and State of Wisconsin, have invented certain Improvements in Fire-Alarms, of which the following is a specification:

The object of my invention is to produce an automatic electrical alarm which will act with certainty whenever the temperature of the surrounding air reaches a fixed limit, and which shall at the same time be cheap and simple in its construction, and free from liability to derangement; and to this end the invention consists in the combination of a self-acting circuit-closing device, with a hot-air match so applied that its ignition causes the release of the device, so that it may close the circuit.

I am aware that numerous automatic electrical alarms to be actuated by hot air have been hitherto invented—such, for example, as expansion-bars, compound flexion bars, and mercurial columns; but all such devices are expensive, delicate in construction, and, owing to the delicacy of adjustment required, unreliable in their action, and unfit for use by unskilled persons.

It is to overcome these difficulties, and produce a circuit-closing device which shall be cheap, durable, and reliable in its action, and which can be properly attended by unskilled persons, that my invention is intended; and these results I find I can attain by the application of a hot-air match or fuse in such manner as to cause the positive release of a self-acting circuit-closer.

The form of the devices and their arrangement may be varied without changing their principle of operation; but it is preferred to use one of the two arrangements represented in the accompanying drawings.

Figure 1 represents a side elevation of one form of my alarm, adjusted for action; Fig. 2, the same, in action; Fig. 3, a view of the indicator or alarm proper; Fig. 4, a view of a modified form of the circuit-closing device.

A represents an electro-magnetic alarm or indicator, located at any desired point; B C, wires leading from the alarm to a battery, D, and E a circuit-closing device, introduced into the circuit at the point which is to be guarded against fire.

In Figs. 1 and 2 the circuit-closer consists of a non-conducting plate, *a*, through which the ends of the severed wires are passed separately, and of a sliding rod, *b*, mounted in the plate *a*, and provided on one end with a head or enlargement, and on the other with a spiral spring, which serves to draw the head up against the two ends of the wire, so as to complete the circuit and cause the action of the alarm.

The sliding rod is held back, so as to keep the circuit open, by means of a cord, *d*, as shown in Fig. 1.

Below the cord *d* there is mounted a hot-air match, F, adapted to ignite when the air attains the temperature fixed upon as that at which the alarm is to be sounded.

When the match or fuse ignites it destroys the cord *d*, and thereby releases the circuit-closer, which instantly completes the circuit, and causes the action of the alarm.

The match or fuse is sustained in a metal plate, G, provided at its ends with two standards, one supporting the circuit-closing device and the other the end of the cord *d*, as shown.

In the device represented in Fig. 4 a hinged falling arm, *e*, connected with one of the wires, has its free end sustained by a thin combustible pin, *g*. A metal plate or bar, *h*, connected with the other wire, is arranged in such position that the arm, falling against it, will complete the circuit. The match or fuse is arranged below the pin *g*, so that when ignited it destroys the pin, and permits the arm *e* to fall.

It will be observed that although the device shown in Fig. 4 differs from that represented in Figs. 1 and 2, in closing by gravity instead of by a spring, the match answers the same purpose in both cases.

It is obvious that in both instances the match or fuse can be applied directly, and without the interposition of the cord or strip

to hold the circuit open; but it is considered better to have the match operate indirectly to release the circuit-closer, as shown.

Having described my invention, what I claim is—

In an electrical fire-alarm, the combination of a self-acting circuit-closing device, held open, substantially as shown, and a hot-air match, arranged to release the device and permit it to close the circuit, as shown and described.

JONATHAN O. FOWLER, JR.

Witnesses:
P. T. DODGE,
WILL W. DODGE.