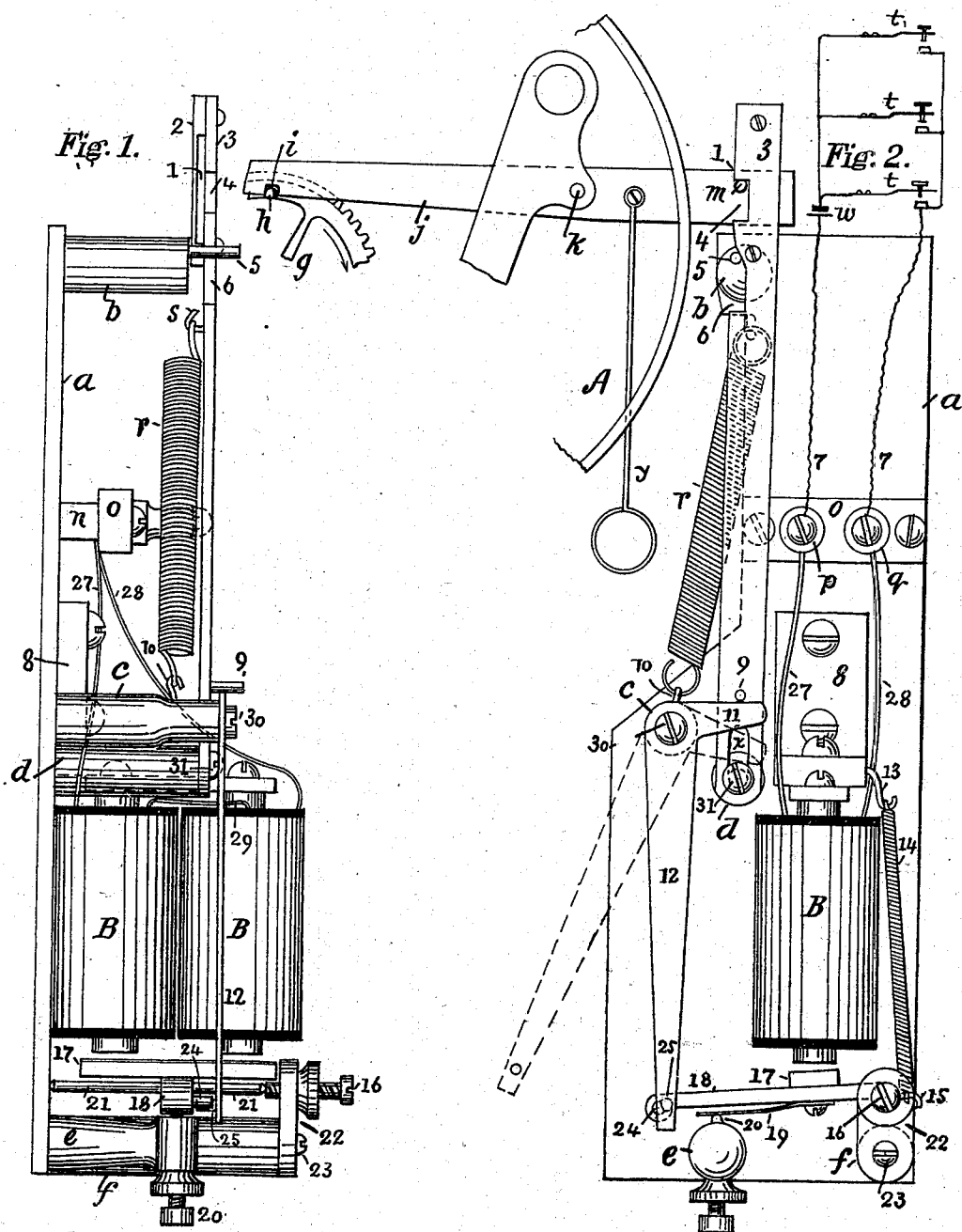


(No Model.)

C. A. STEARNS.
ELECTRICAL RELEASING DEVICE.

No. 562,431.

Patented June 23, 1896.



Attest.
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UNITED STATES PATENT OFFICE.

CHARLES A. STEARNS, OF WATERTOWN, MASSACHUSETTS.

ELECTRICAL RELEASING DEVICE.

SPECIFICATION forming part of Letters Patent No. 562,431, dated June 23, 1896.

Application filed April 15, 1896. Serial No. 587,725. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. STEARNS, residing at Watertown, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Electrical Releasing Devices and Circuits, of which the following is a specification.

This invention relates to electrical releasing devices and circuits; and it consists, essentially, of a plurality of circuits, each provided with circuit openers and closers, extending from an out-station to a central station and apparatus at the latter station adapted to be operated from any one of the out-stations.

The invention is specially adapted to auxiliary fire-alarm systems in which a plurality of circuits extend from out-stations, located in offices, buildings, &c., to a fire-alarm box which can be operated to sound an alarm from each out-station. I provide means located in the fire-alarm box whereby when the circuit is opened or closed, as the case may be, at an out-station, the releasing-lever in the fire-alarm box is tripped, and the wheel-train is set in motion, causing the break-wheel to rotate and send an alarm to headquarters, all of which I will now proceed to describe and point out in the claims.

Figures 1 and 2 are respectively a side and a front view of the invention which is applied to the fire-alarm box, the latter view showing such parts of the regular box apparatus as is necessary to illustrate the operation.

a is a metal back plate to which the several parts are attached.

B B are the helices of an electromagnet, which is secured to the plate *a* by the angle-piece 8. The armature 17 is secured to the lever 18, which is pivoted by its arms 21 to the plate *a* and to the adjusting-screw 16. The screw 16 is supported by the arm 22, which is secured by the screw 23 to the stud *f*. In its normal condition the lever 18 rests by means of the spring 19 upon the back contact-screw 20 in the stud *e*.

3 is a long narrow sliding bar provided with a slot 1 at its upper end, which engages with the end of the releasing-lever *j* of the fire-alarm apparatus, which is pivoted at *k*. The lever *j* is provided with a pin *m*, normally located in the notch 4 in the bar 3 and in contact with its upper abutment. There is a

notch *i* in the upper end of the lever *j*, in which is locked the pin *h*, carried by the wheel *g* of the wheel-train to prevent the rotation thereof.

b is a stud secured to the plate *a*, having on its outer end a pin 5, which rests upon the cam edge of the bar 3 at the upper end of notch 6. The lower end of bar 3 is secured to the stud *d* by the screw 31, which passes through the slot *x*. The pin 9 in the bar 3 presses upon the edge of the short arm 11 of the disengaging-lever 12 and is held thereto by pressure from the spiral spring *r*, which is secured at one end to hook 10 in the stud *c* and at its other end to hook *x* in the sliding bar 3. The lever 12 is pivoted at 30 to the stud *c* and has at its lower end a pin 25, which engages or locks with pin 24 on the end of lever 18. The lever 18 is held away from the electromagnet by the spring 14, which is secured by hook 15 to one end thereof, and at its other end to hook 13 in the angle-piece 8.

The electromagnet is connected by wires 27 and 28 to the screw-posts *p* and *q*, respectively, in the insulating-bar *o*, which is connected to the plate *a* by the piece *n*. Wires 7 connect the screw-posts with the keys *t t t* on one side and with the key-anvils on the other side, and *w* is a battery located at any suitable point. *t t t* represent the circuit-closing keys at the out-stations, which may be of any desired number.

The operation of the invention is as follows: When an alarm is to be sounded from any out-station, the key *t* there is pressed, thus closing the circuit through the battery *w* and the electromagnet *B* in the fire-alarm box, the armature 17 is attracted, and the pin 24 moves away from the pin 25, the spring *r* pulls the bar 3 down, pressing the pin 9 against the arm 11 of the lever 12 and forcing it into the position of the dotted line. The bar 3 falls, being guided by its slot *x* and screw 31, until the arm 11 strikes the head of screw 31. While the bar 3 is falling, the upper abutment of the notch 4 presses upon the pin *m* and pulls the releasing-lever *j* down at one end and up at the other end and releases the pin *h*, and the wheel *g* commences to revolve and send an alarm. As the bar 3 falls the cam on its edge at the upper part of notch 6 presses upon the pin 5, and the upper end of

the bar 3 is forced away to the right until the pin *m* slips out and away from the notch 4, thus allowing the lever *j* to rise in the slot 1 in the bar at one end and to be depressed at the other end so that the pin *h* on the wheel 5 *g* will enter the notch *i* when the wheel has made one revolution, and resume its normal position. When the firemen reach the box, its door is opened and the releasing device is 10 locked or reset by pressing the lever 12 into the position shown by the full lines, when it is ready to be operated again. The notch 4 is made sufficiently long to permit the lever *j* to be operated by means of the pull *y*, when 15 an alarm is to be sent from the box, without disturbing the auxiliary device.

It will be understood that the out-station circuits may be operated on closed or open circuits and secure the results described 20 herein.

Street fire-alarm boxes are exposed to vibrations due to the passage of heavy teams, and to prevent the vibrations from lifting the armature-lever 18 and producing a false fire- 25 alarm, I have placed between it and its back contact 20 the spring 19, which by reason of its cushioning effect keeps the lever steady.

I do not limit myself to the construction shown to obtain the desired results, as any 30 means which will produce the effect of a cushion or spring is regarded as within the spirit of my invention.

Having now fully described my invention, I claim—

35 1. A releasing device adapted to be operated from a plurality of out-stations, consisting of an electromagnet, an armature therefor normally locked to a disengaging-lever, a spring-impelled sliding bar, supported by the 40 said lever, provided with a cam in contact with an abutting pin and with means for connection with the releasing-lever of a fire-alarm apparatus.

2. A releasing device adapted to be operated from a plurality of out-stations, consisting of an electromagnet, an armature therefor 45 normally locked to a disengaging-lever, a spring-impelled sliding bar supported by the said lever provided with a cam in contact 50 with an abutting pin, and with means for connection with the releasing-lever of a fire-alarm apparatus; whereby upon the closure of the circuit at any one of the out-stations the releasing-lever is operated.

55 3. A releasing device adapted to be operated from a plurality of out-stations, consist-

ing of an electromagnet, an armature therefor normally locked to a disengaging-lever, a spring-impelled sliding bar supported by the said lever, provided with a cam in contact 60 with an abutting pin, and with means for connection with the releasing-lever of a fire-alarm apparatus; whereby upon the closure of the circuit at any one of the out-stations the releasing-lever is operated, and automatically 65 detached from the said sliding bar.

4. An auxiliary fire-alarm releasing device located in a fire-alarm box, adapted to be operated from a plurality of out-stations, consisting of an electromagnet, an armature there- 70 for normally locked to a disengaging-lever, a spring-impelled sliding bar supported by the said lever provided with a cam in contact with an abutting pin, and with means for connection with the releasing-lever of the fire- 75 alarm apparatus; whereby upon the closure of the circuit at any one of the out-stations the said lever is operated and permitted to return to its normal position.

5. An auxiliary fire-alarm releasing device 80 located in a fire-alarm box, adapted to be operated from a plurality of out-stations, consisting of an electromagnet, an armature therefor provided with a cushioning-spring as set 85 forth normally locked to releasing apparatus in connection with the lever of the fire-alarm apparatus, whereby upon the closure of the circuit at any one of the out-stations the said lever is operated and permitted to return to 90 its normal position.

6. The combination with an electromagnet and an armature therefor normally locked with apparatus to be released thereby; of a cushion or spring interposed between the armature and its resting-contact, for the purpose 95 set forth.

7. The combination with an electromagnet and an armature therefor normally locked to releasing apparatus in connection with the lever of a fire-alarm apparatus; of a cushion 100 or spring interposed between the armature and its resting-contact, for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of 105 two subscribing witnesses, this 13th day of April, 1896.

CHARLES A. STEARNS.

Witnesses:

GEO. WILLIS PIERCE,
JOSEPH A. GATELY.