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ALARM AND RELEASING MECHANISM FOR FIRE ENGINE HOUSES.

(Application filed Mar. 13, 1900.

(No Model.)

2 Sheets—Sheet 1.

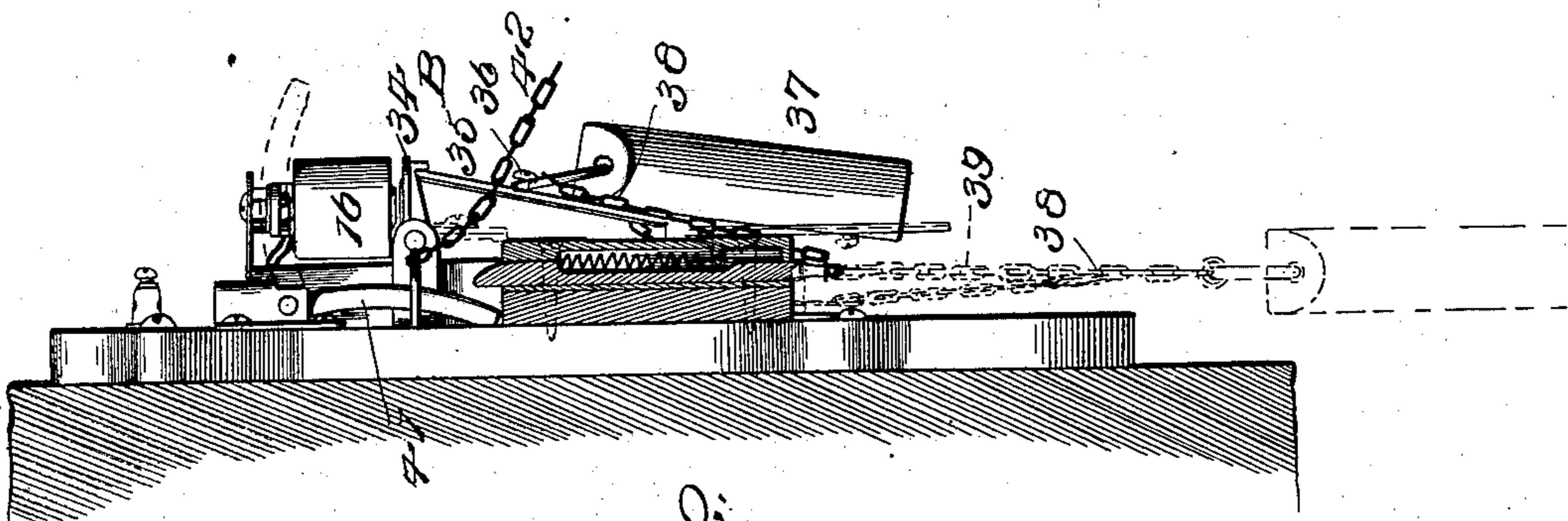
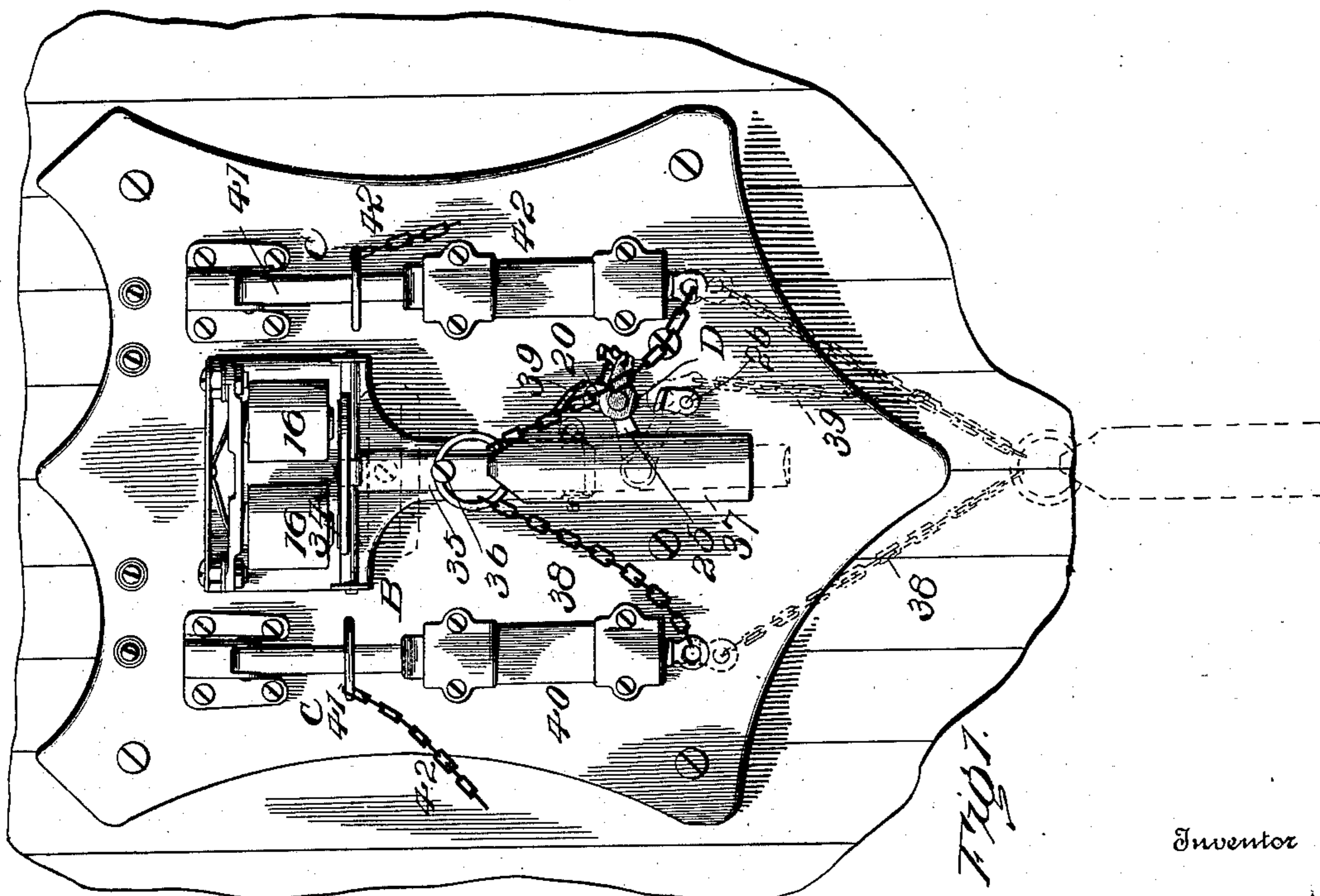


Fig. 2.



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UNITED STATES PATENT OFFICE.

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ALARM AND RELEASING MECHANISM FOR FIRE-ENGINE HOUSES.

SPECIFICATION forming part of Letters Patent No. 661,616, dated November 13, 1900.

Application filed March 13, 1900. Serial No. 8,543. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. MATTER, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Alarm and Releasing Mechanism for Fire-Engine Houses; 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.

This invention has relation to fire-alarm and engine-house appliances whereby when an alarm of fire is sent in from a box or other point the horses are released, the electric releasing mechanism cut out of circuit, and a local alarm brought into circuit to indicate the point from which the alarm has been sent.

The object of the invention is the provision of electric appliances for the purposes aforesaid which can be installed at a comparatively low cost, maintained at a slight expense, comprise a minimum number of working parts, and which will be thoroughly reliable and effective.

The invention also consists of the novel features, details of construction, and combination of the parts, which hereinafter will be more fully disclosed and finally claimed, and for this purpose and also to acquire a knowledge of the merits of the invention and the structural details of the means whereby the results are attained reference is to be had to the appended description and the drawings hereto attached.

While the essential and characteristic features of the invention are necessarily susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the means for effecting a release of the horses and cutting the local alarm into circuit, the dotted lines showing the relation of the parts when actuated by means of the counterbalance. Fig. 2 is a side elevation of the means shown in Fig. 1, the spring-actuated bolt being in section and the dotted lines illustrating the position of the parts after being operated to bring the local alarm into circuit and the catch mechanism released. Fig. 3 is a dia-

grammatical view indicating the direction of the circuits.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Each engine-house is to be equipped with the means forming the basis of the present application, the same consisting of an electric circuit-closer A, an electric releasing mechanism B, a catch mechanism C, a switch D, and a local alarm E.

The electric circuit-closer consists of an electromagnet 1, armature 2, and contacts 3 and 4. This mechanism is included in a closed circuit. Hence the armature 2 is attracted and the contacts 3 and 4 are held separated and the local circuit open. The electromagnet 1 is included in the circuit from which an alarm of fire is to be sent in and which for the sake of clearness is designated as an "alarm-box" 5 of ordinary construction. The leads 6 and 7 from the alarm-box connect with the binding-posts 8 and 9, to which the terminal conductors 10 and 11 of the wire of the electromagnet connect. Binding-posts 12 and 13 are electrically connected by means of conductors 14 and 15 with the respective contacts 3 and 4.

The electromagnet 16 of the releasing mechanism has one end of its wire, as 17, in connection with a binding-post 18 and the opposite end portion 19 connected with a contact 20. A wire or conductor 21 connects the binding-post 13 with the binding-post 18 and a companion conductor 22 connects the binding-post 12 with a binding-post 23, adjacent to the binding-post 18. A wire or conductor 24 connects the binding-post 23 with a switch-lever 25. A second contact-plate 26 is located adjacent to the contact 20, and a conductor 27 connects it with a binding-post 28. A binding-post 29, adjacent to the binding-post 28, is connected by means of a wire 30 with the binding-post 18. The local alarm consists of an electric bell 31 of any approved type and of the single-stroke variety, and lead-wires 32 and 33 connect it with the binding-posts 28 and 29.

The armature 34 is extended and constructed to form a catch, being notched for this

purpose, and normally engages with a pivoted arm 35, provided with a projecting stud or pin 36. This arm 35 normally inclines from the perpendicular at its upper free end, so that when released from the armature-catch 34 it will swing forwardly and downwardly. A counterbalance or weight 37 is connected by means of a short chain 38 or like means with the stud or projection 36 and normally is held restrained thereby. This counterbalance or weight 37 has connection with the switch-lever 25 by means of a chain or equivalent means 39, whereby said lever is moved from the contact 20 to the contact 26, when the weight or counterbalance is released, so as to cut the electromagnet 16 out of circuit and the alarm mechanism E into circuit. A spring-actuated latch-bolt 40 is likewise connected with the counterbalance or weight 37 by means of a chain or equivalent means 41.

The catch mechanism, two being employed, consists of a pivoted arm 41 and a spring-actuated bolt 40, which is adapted to engage with the free end of the arm 41 and hold it against the tension of the connection 42, extending to the catch or locking mechanism of the stalls or other parts to be released in the usual manner, the same not being shown, as it is of ordinary arrangement and well understood. The connection 42 is under tension and is provided with a ring to engage with the arm 41. The instant the bolt 40 is actuated by means of the weight or counterbalance 37, so as to release the arm 41, the latter swings outward under the tension of the connection 42 and permits the part or parts operatively connected therewith to move, so as to release the horses or any other mechanism desired.

In the installation of the appliances the parts are electrically connected, substantially as herein set forth and illustrated, and when the alarm is sent from a box or other point the electromagnet 1 is initially demagnetized, and its armature 2 being released moves so as to bring the contacts 3 and 4 into engagement and close the circuit through the electromagnet 16, whose armature 34 being attracted releases the pivoted arm 35, which turns outward and downward under the action of the weight or counterbalance 37, which latter shifts the switch-lever 25 and actuates the bolt 40, so as to release the pivoted arm 41, whereby the connection 42 is liberated for the purpose stated. Starting at the contact 4, the circuit is as follows: through conductor 15, binding-post 13, conductor 21, binding-post 18, conductor 17, electromagnet 16, conductor 19, contact 20, switch-lever 25, conductor 24, binding-post 23, conductor 22, binding-post 12, conductor 14, armature 2, and contact 3 back to contact 4. Almost instantaneous with the energizing of the electromagnet 16 the same is thrown out of circuit by the shifting of the switch through the intervention of the counterbalance or weight 37, which causes the switch-lever 25 to shift

from the contact 20 to the contact 26. The initial actuation of the armature 2 throws the releasing mechanism out of circuit and the local alarm into circuit, and the latter is as follows: beginning at the contact 4, thence through conductor 15, binding-post 13, conductor 21, binding-post 18, conductor 30, binding-post 29, electric bell 31, then back through conductor 32, binding-post 28, conductor 27, contact 26, switch-lever 25, conductor 24, binding-post 23, conductor 22, binding-post 12, conductor 14, armature 2, and contact 3 back to contact 4. Each time the alarm-circuit is opened and closed the electromagnet 1 is energized and demagnetized, whereby the circuit, including the alarm or electric bell 31, is opened and closed by the making and breaking of the contacts 3 and 4, and when said circuit is closed the alarm or bell 31 will make a single stroke corresponding with the interruption of the circuit from the alarm-box 5. The electromagnet 1 serves in the capacity of a repeater, and the local alarm will sound as many times as the circuit is interrupted by means of the alarm-box 5. Hence it can be readily ascertained at what point the alarm of fire has been turned in. After being actuated it is necessary that the releasing mechanism be reset by hand. The releasing mechanism has nothing whatever to do with the alarm. It only releases the horses or any part to be liberated.

Having thus described the invention, what is claimed as new is—

1. In a system comprising a general-alarm circuit, a local alarm, and an electric releasing mechanism, an electric circuit-closer included in the general alarm and actuated thereby, a switch for throwing the electric releasing mechanism out of circuit and the local alarm into circuit, and a counterbalance normally held in restraint by a part of the electric releasing mechanism and adapted to throw the electric releasing mechanism out of circuit and the local alarm into circuit upon an initial actuation of the aforesaid circuit-closer, substantially as set forth.

2. In a system comprising a general alarm, a local alarm, and an electric releasing mechanism, an electric circuit-closer controlled by and included in the general-alarm circuit, a catch mechanism, a switch, and a counterbalance normally held in restraint by a part of the releasing mechanism and connected with the said switch and catch mechanism for a simultaneous actuation thereof when the circuit-closer is initially operated, whereby the catch mechanism is released, the releasing mechanism thrown out of circuit, and the local alarm cut into circuit, substantially as set forth.

3. In a fire-alarm system, the combination of a general-alarm circuit normally closed and including an electromagnet as part of a circuit-closer, a local-alarm circuit, and a releasing-circuit including a switch and electric contacts, the latter normally held separated

by the attractive force of the aforementioned electromagnet, and a counterbalance normally held in restraint by a part of the aforesaid releasing mechanism and having connection with the switch and adapted to throw the circuit of the releasing mechanism out of action and the local-alarm circuit into action upon the initial closing of the aforesaid electric contacts by the primary demagnetization of the circuit-closing magnet, substantially as set forth.

4. In combination, a general-alarm circuit, a circuit-closer included in and forming a part of the general-alarm circuit, a local-alarm circuit, a releasing mechanism having an electromagnet included in an independent circuit, a switch, a pivoted arm, an armature-controlled catch for holding the pivoted arm in position, and a counterbalance held in restraint by means of the pivoted arm and having connection with the aforesaid switch, whereby upon the initial closing of the circuit through the releasing mechanism, the latter is thrown out of circuit and the local alarm cut into circuit, substantially as set forth.

5. In combination, a general alarm includ-

ing a circuit-controlling electromagnet, a releasing mechanism having an electromagnet included in a circuit which is normally held open by means of the aforesaid electromagnet; a local alarm, a switch for throwing the circuit of the releasing mechanism out of action and cutting the local-alarm circuit into action, a movable arm, an armature-controlled catch for holding the pivoted arm in position; a pivoted catch for holding a connection in restraint, a bolt for securing the catch against the action of the said connection, and a counterbalance having connection with the said bolt and switch and normally held in restraint by the aforesaid movable arm and adapted upon the initial closing of the circuit to release the catch mechanism and cut the circuit of the releasing mechanism out of action and local-alarm circuit into action, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD P. MATTER. [L. S.]

Witnesses:

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