No. 721,520. PATENTED FEB. 24, 1903.

B. P. KETCHAM.

FIRE ALARM SYSTEM.

APPLICATION FILED MAR. 13, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

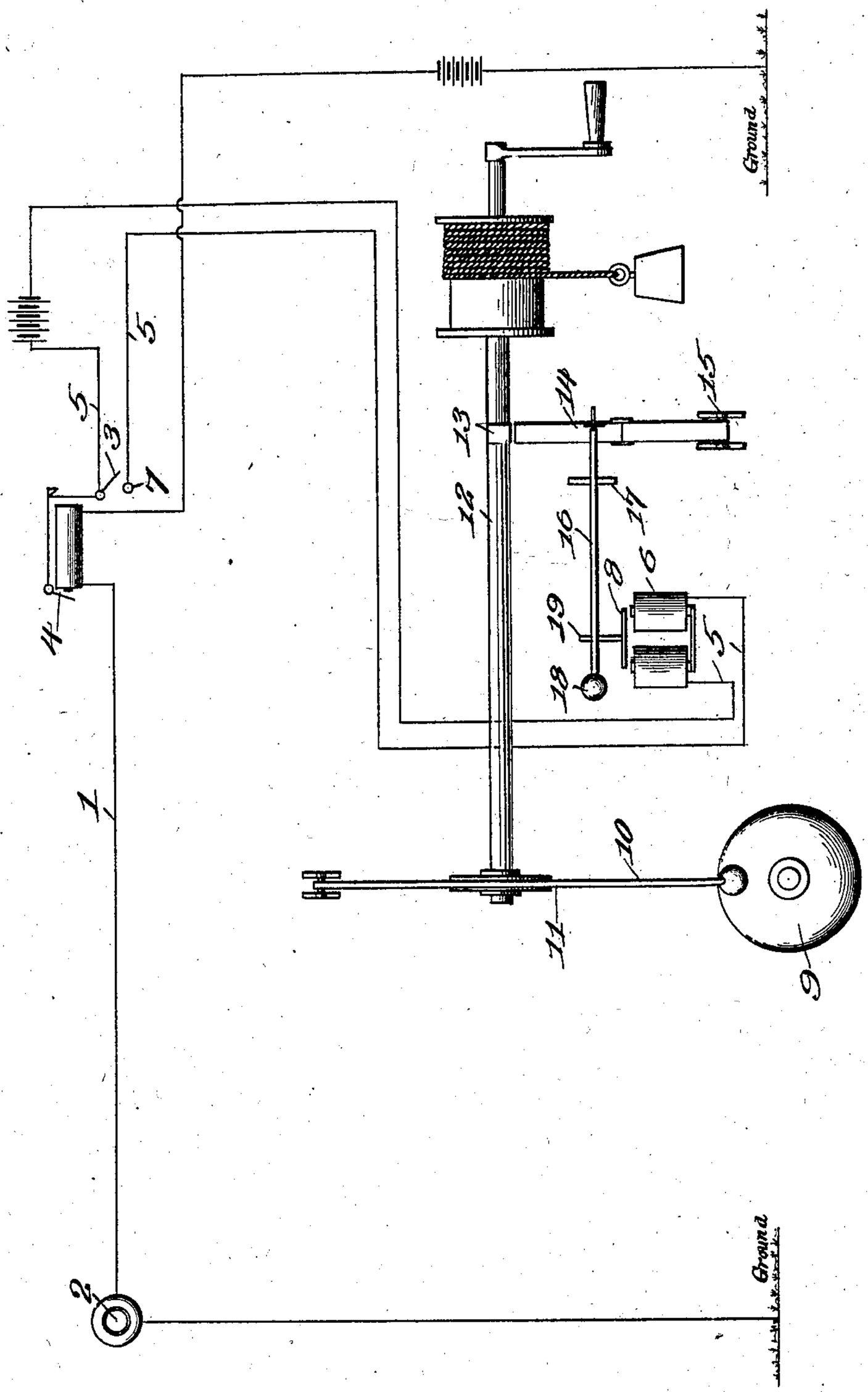

FIG 1

Inventor
B. P. Ketcham,

Witnesses
G. H. Walmsley.
J. Allison

By A. Bellinson & Co
Attorneys

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NO MODEL. 2 SHEETS—SHEET 2.

Fig 2

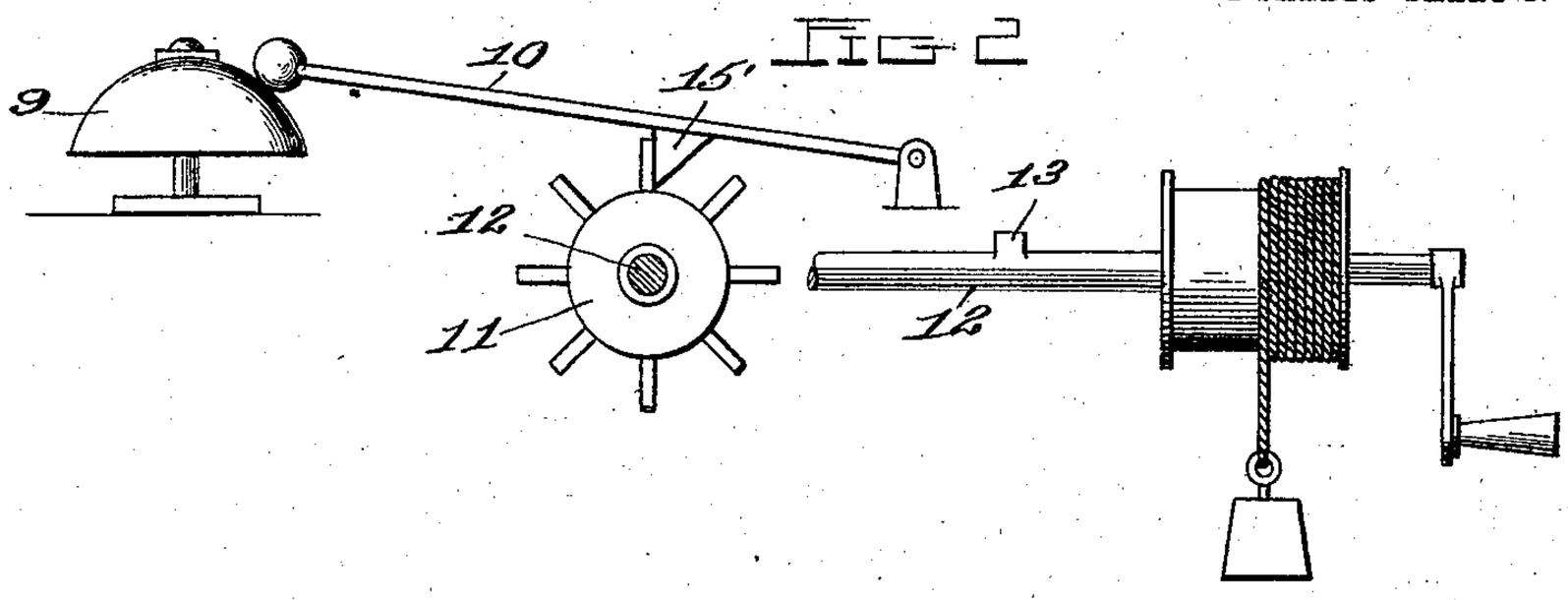


Fig 3

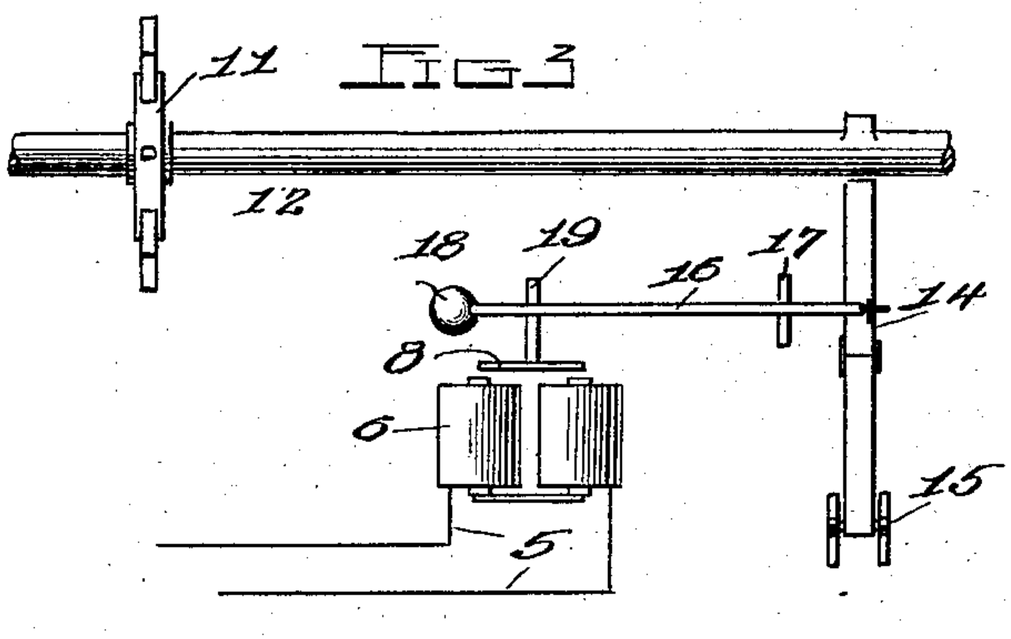


Fig 4

Fig 5

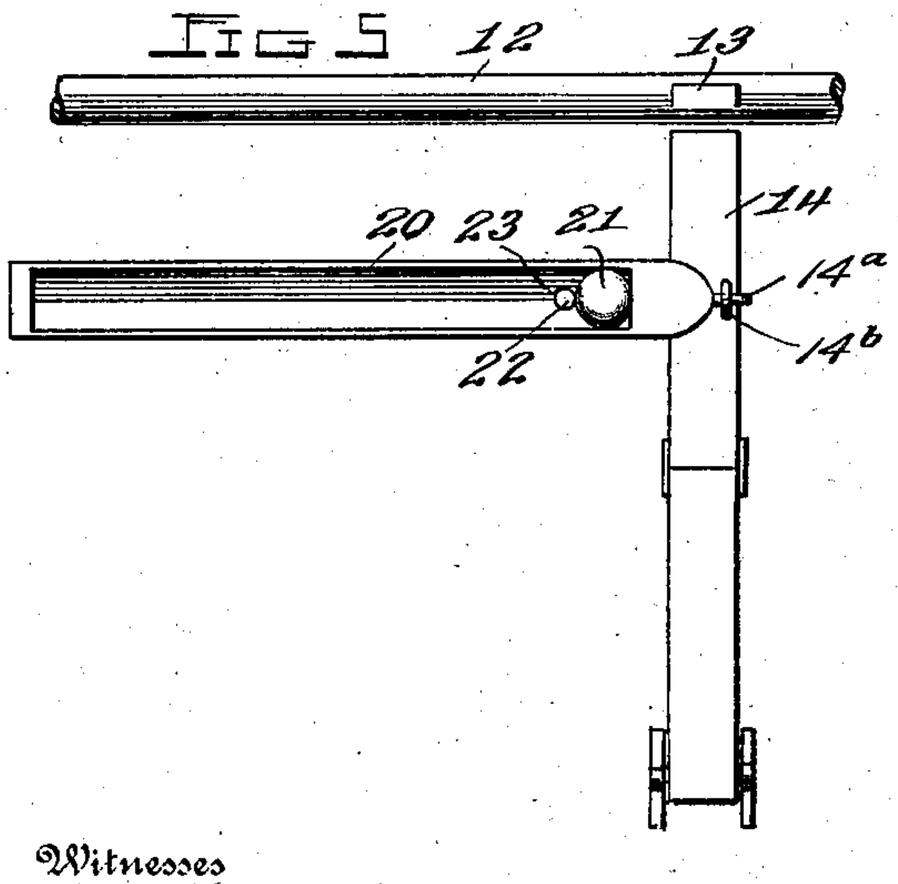
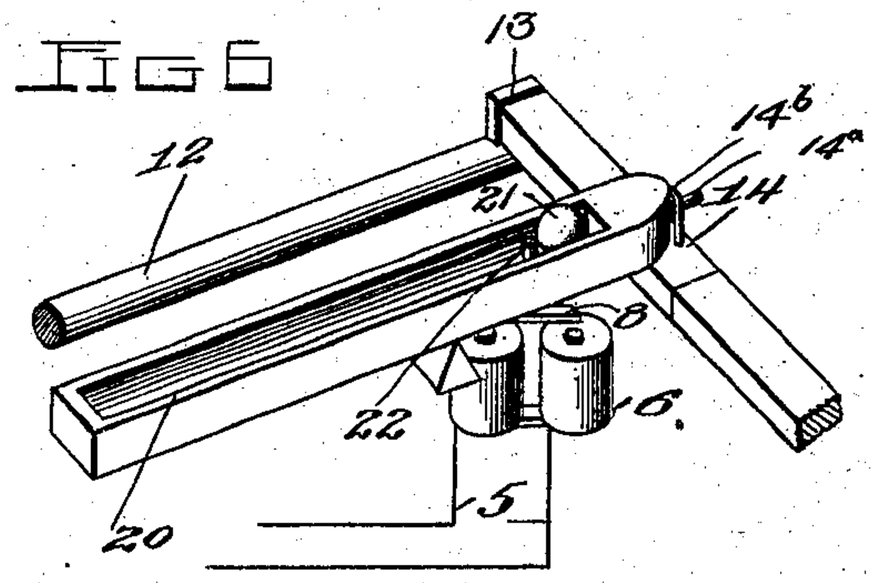


Fig 6



Witnesses
G. H. Walmsley.
E. Wilson

Inventor
B. P. Ketcham,

By A. B. Wilson & Co
Attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN P. KETCHAM, OF CARTHAGE, NEW YORK.

FIRE-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 721,520, dated February 24, 1903.

Application filed March 13, 1902. Serial No. 98,066. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN P. KETCHAM, a citizen of the United States, residing at Carthage, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Fire-Alarm Systems; and I do 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.

The invention relates to a fire-alarm system, and is designed for use in small towns and villages which are equipped with volunteer fire companies.

The object of the invention is to provide a simple, inexpensive, and accurate system of this character whereby the alarm may be sent in from different parts of the town or village and the exact location of the fire indicated at the engine-house, as well as a bell sounded to notify the inhabitants of the town or village of the fire, and particularly the volunteer firemen.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a diagrammatic view of the complete system. Fig. 2 is a side elevation of the bell-striking mechanism. Fig. 3 is a top plan view of the mechanism for releasing the bell-striking mechanism. Fig. 4 is a vertical longitudinal sectional view through the jointed bar. Fig. 5 is a top plan view of a modified form of mechanism for releasing the bell-operating mechanism, and Fig. 6 is a perspective view of the same.

Referring to the drawings, 1 denotes the wire of an open circuit, in which is installed a push-button 2 and a drop-annunciator 3, released by the pivoted armature 4. For convenience of reference I will call this the "annunciator-circuit."

5 denotes the wires of an open circuit in which is installed an electromagnet 6. This circuit I shall term the "alarm-circuit." One of the wires 5 is connected to an armature contact-point 7 within the path of movement of the annunciator-drop 3, and the other is connected to the annunciator-drop, so that when the annunciator-circuit is closed the armature of the annunciator attracted by its magnet and the annunciator drops, said annunciator will close the alarm-circuit.

8 denotes the armature for the electromagnet.

The alarm mechanism comprises a bell 9 and pivoted hammer 10 and a striker-wheel 11, fixed to a shaft 12, which is the power-shaft, the power being transmitted to said shaft by means of the spring or, as shown in the drawings, a weighted rope wound to the said shaft. This shaft is provided with a lug 13, into the path of movement of which projects a jointed bar 14, fulcrumed at 15. When the parts of this jointed bar are straight, it engages the lug and holds the shaft against rotation. When the jointed bar is "broken" or the parts thereof deflected, its outer end is removed from the path of movement of the lug and the shaft permitted to rotate its striker-wheel in contact with the pellet 15′ and vibrate the hammer 10 and sound the alarm, thus attracting to the engine-house the volunteer company, who upon observing the drop-annunciator at once ascertain the location of the fire.

In Fig. 3 of the drawings I have shown one set of means for releasing the shaft by "breaking" the jointed bar, while in Figs. 5 and 6 I have shown a modified form of means for breaking the bar. The construction shown in Fig. 3 consists of a lever 16, which is pivoted or loosely connected to the outer free end of the jointed bar 14 by a pin and eye 14^a and 14^b, respectively, and holds the parts thereof straight. This lever is pivoted at 17 and is provided on its outer end with a weight 18. The lever is held in a horizontal position by a latch-pin 19, secured to the armature 8 of the magnet 6.

It is evident that when the annunciator-circuit is closed and the annunciator drops and closes the alarm-circuit the armature 8 will be attracted to its electromagnet 6, will draw its latch-pin from under the edge of the lever 16, and will allow the lever to tilt and break or deflect the jointed bar and permit

said bar to release the lug 13, and thus allow the shaft to rotate the wheel 11 and sound the alarm.

In the construction shown in Figs. 5 and 6 I have provided a trough-shaped lever 20, the inner end of which is pivoted to the outer end of the bar 14 by a pin and eye 14^a and 14^b, respectively, and I place within the trough of this lever a weighted sphere 21, which is held on the short leg of said lever by a latch-pin 22, which projects upwardly through a hole 23 in the lever. This latch-pin 22 is similar to that herein described and works in the same manner. In the operation of this form of mechanism the withdrawal of the pin 22 releases the spherical weight, which rolls down the inclined trough-shaped lever and tilts said lever to elevate its inner short leg to deflect or break the jointed bar.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction, mode of operation, and advantages of my improved fire-alarm system will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a fire-alarm system, the combination with an annunciator-circuit and an annunciator installed therein, of an alarm-circuit closed by the closing of the annunciator-circuit and having an electromagnet installed therein, and an alarm mechanism, a power-shaft for actuating the alarm mechanism, and means for holding the power-shaft against rotation and releasing the same, said means comprising a jointed bar adapted when straightened out to hold the power-shaft against rotation, a tilting lever connected to the bar, and a catch connected to the armature of the electromagnet in the alarm-circuit and adapted to normally hold the lever in such a position as to keep the bar straightened out and to be retracted by the movement of said armature when said electromagnet is energized to allow said lever to tilt, whereby the movement of the lever will "break" or deflect the jointed bar, allowing the power-shaft to rotate and actuate the alarm, substantially as described.

2. In a fire-alarm system, the combination with an annunciator-circuit and an annunciator installed therein, of an alarm-circuit closed by the closing of the annunciator-circuit and having an electromagnet installed therein, and an alarm mechanism, a power-shaft for actuating the alarm mechanism, and means for holding the power-shaft against rotation and releasing the same, said means comprising a jointed bar adapted when straightened out to hold the power-shaft against rotation, and means under control of said electromagnet in the alarm-circuit for holding the jointed bar straightened out and for "breaking" or deflecting said jointed bar when the magnet is energized to allow the power-shaft to rotate and actuate the alarm mechanism, substantially as described.

3. In a fire-alarm system, the combination with an annunciator-circuit and an annunciator installed therein, of an alarm-circuit closed by the closing of the annunciator-circuit and having an electromagnet installed therein, and an alarm mechanism, a power-shaft for actuating the alarm mechanism, and means for holding the power-shaft against rotation and releasing the same, said means comprising a jointed bar adapted when straightened out to hold the power-shaft against rotation, a tilting lever connected to the bar, a weight for tilting said lever, and a catch connected to the armature of the electromagnet in the alarm-circuit and adapted to normally hold the lever in such a position as to keep the bar straightened out and to be retracted by the movement of said armature when said electromagnet is energized to allow said weight to tilt said lever, whereby the movement of the lever will "break" or deflect the jointed bar, allowing the power-shaft to rotate and actuate the alarm, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

BENJAMIN P. KETCHAM.

Witnesses:
GEO. H. WILLIAMSON,
EDW. COY.