

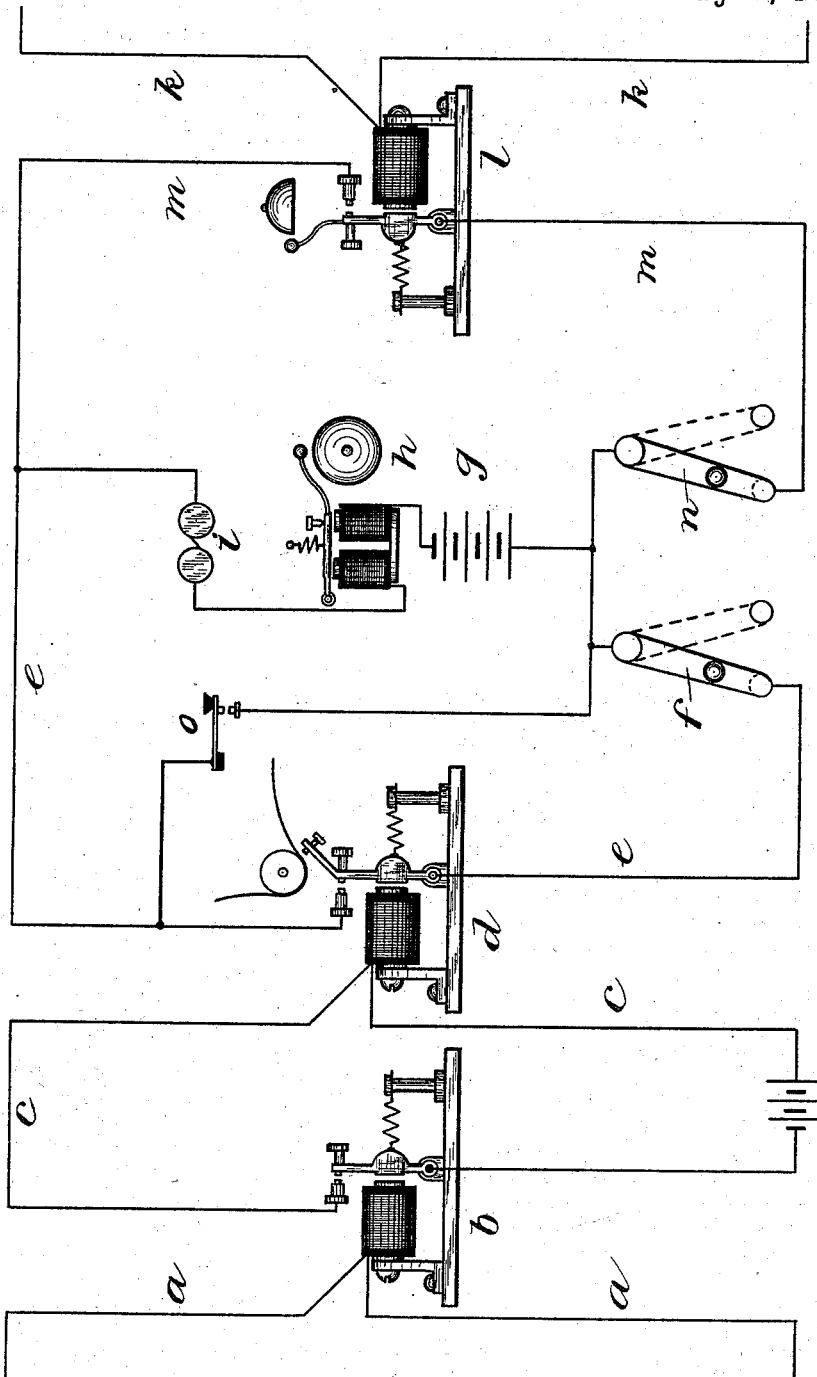
(No Model.)

W. CARROLL.

FIRE ALARM SIGNAL CIRCUIT.

No. 382,253.

Patented May 1, 1888.



Witnesses:

Chas. G. Hawley,  
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# UNITED STATES PATENT OFFICE.

WILLIAM CARROLL, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHN P. BARRETT,  
OF SAME PLACE.

## FIRE-ALARM-SIGNAL CIRCUIT.

SPECIFICATION forming part of Letters Patent No. 382,253, dated May 1, 1888.

Application filed February 6, 1888. Serial No. 263,097. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CARROLL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fire-Alarm-Signal Circuits, (Case 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to electric fire-alarm-signal systems, in which signals are transmitted from the central fire-alarm office to various engine-houses distributed throughout the city. In such systems two independent circuits are usually employed, which extend respectively through each of the engine-houses. As is well understood, when a box of a given number is turned in to the central office, this signal or number is first repeated over one of the lines extending through the engine-houses and then on the other of said lines. These signals being received at the various engine-houses indicate the number of the box turned in, and thus the location of the fire where the services of the department are required.

In order that the whole force in the city may not be called out at once upon every alarm of fire, the companies at the different engine-houses are assigned to different districts and instructed to respond to certain calls, respectively. In the day-time, in order that no time may be lost, all of the companies upon the first call get in position, ready to start as soon as the complete signal is received.

The companies not within the district of the box from which the call was sent do not start out, however, but unhitch their horses. Such hitching up and unhitching in the day-time is not objectionable, and is of advantage, in that the men are thereby drilled and the horses kept in training. In the night, however, such work should be avoided. In the system of John P. Barrett, described in Letters Patent No. 376,132, the circuits are so arranged that the large gong and the door-opener or chain-dropper at any engine-house may be cut out of the circuit, except in case of calls which are from the district of that particular engine-house. In the Barrett system, however, it is

necessary to depend upon the watchman to turn a switch at the proper time to bring the large gong and door-opener into circuit.

The object of my invention is to prevent a failure of signals in case the watchman should fall asleep, or for any other reason fail in the discharge of his duty.

My invention, herein briefly stated, consists in the circuits and switching apparatus at an engine-house, so arranged that the signal from the first line may be received at night without disturbing the men or unhitching the horses, while the signal over the second line will operate the door-opener and sound the alarm, unless the attendant shall between the time of the first signal over the first line and that of signal over the second wire move a switch to open the local circuit of the relay or small bell of the second line, which local circuit includes the gong and door-opener. The line over which the first signal is sent is sometimes called the "joker" line, while the other or second line is usually called the "gong" line.

In the joker-line I place a relay connected with a local circuit containing a register; the register serving also as a relay in a local circuit containing the large gong and door-opener, or one of these instruments. A manual switch is also provided in this latter local circuit. The gong-line is connected through a small gong or bell, which serves as a relay in a local circuit, including also a manual switch and the large gong and door-opener, or one of these instruments. If this local circuit is closed by the switch, the large gong will be sounded when the current is sent through the small bell, which is connected up as a relay to open and close the general-alarm local circuit at each stroke of the small bell.

My invention is illustrated in the accompanying drawing, in which I have shown a diagram of the circuits and apparatus at an engine-house illustrative of my invention.

The joker-line or circuit *a* is connected through the coil of the electro-magnet of the relay *b*, which is placed with contacts in the local register-circuit *c*. The register *d* serves also as a relay with contacts included in the general-alarm local circuit *e*. This circuit includes a switch, *f*, and the battery *g*, the large gong *h*, and an electro-magnet, *i*, which serves

to operate the door-opener or horse-unhitcher in a manner not necessary to describe herein. The gong-line *k* includes a small bell, *l*, which is connected as a relay in the general-alarm local circuit *m*. Local circuit *m* contains a switch, *n*, and also the battery *g*, a large gong, *h*, and electro-magnet *i*. It should be observed that the said battery, gong, and door-opener are common to the local circuit *e* and local circuit *m*. The switches *f* and *n* are mechanically independent, so that either may be operated without disturbing the other.

In the day-time the switches *f* and *n* may remain in the positions indicated by full lines. The signal, being sent in first over line *a*, will be received upon the register and sound at the same time the alarm for the company to get ready; the horses, being at the same time unhitched, trot to their places. The signal is again repeated over circuit *k*, and of course repeats the signal upon the large gong.

By opening switch *f* the signal sent over line *a* is prevented from sounding the general alarm. The watchman, noting this first signal at the register, will at once open switch *n* before the signal begins to come in over gong-line *k*, if the number is that of a box outside his engine-house district. The switch *n* being thus opened, the signal will be received upon the small bell, and no general alarm, or alarm to get ready to start, will be sounded. Thus at night, or at other times, the general alarm may not be given. If, however, the watchman should neglect or fail to open switch *n*, the door-opening electro-magnet will be operated and the large gong sounded on the coming in of the signal over the gong-line *k*. Thus there can be no failure in the sounding of the general alarm, even though the watchman should fall asleep at his post. The push-key *o* is shown connected with the general-alarm circuit containing the battery *g*, gong *h*, and door-opener *i*, in such manner that the watchman may, after noting the first signal upon the register, operate the door-opener and sound the gong before the signal is sent in over the gong-line.

My invention admits of various modifications, which will readily suggest themselves to those skilled in the art, and I therefore do not limit my invention to the precise construction shown.

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

1. A door-opening electro-magnetic device, an electric gong, and a battery in a wire common to two different local circuits, each of said

local circuits containing a different switch, and each being mechanically independent of the other and connected through the circuit-closing points of a different relay, one of said relays being connected to be energized in unison with the signal sent over the joker-line of the system and the other of said relays being connected to be energized in unison with the signal sent over the gong-line of the system, in combination with said joker-line and gong-line, whereby the battery in said common wire may be closed to operate said door-opening electro-magnetic device and electric gong by signals sent over both the joker-line and the gong-line, the gong-line alone, or neither of said lines, according to the positions of the switches.

2. The combination, with two independent signal-circuits over which signals are sent in succession, of a relay or repeater in each of said circuits connected with local circuits, each local circuit including a switch, the switch in one circuit being independent of the switch in the other circuit, and a portion of said local circuits being common, the common portion including a local battery and a signal device, whereby when a signal is sent first over one signal-circuit the local circuit containing the relay of the other signal-circuit may be opened before the signal is sent over said second circuit.

3. The combination, with the two signal-circuits of a fire-alarm system, one of said signal-circuits, the joker-line, containing a relay in a register local circuit, of the register in a local circuit containing a switch and general-alarm-signal device, and the other of said signal-circuits, the gong-line, containing a bell connected up as a relay in a local circuit containing a switch, said switches being mechanically independent of said general-alarm-signal device, whereby the first signal sent over the joker-line may be received upon the register without operating the general-alarm device, while the signal subsequently sent over the gong-line may be allowed to operate the general alarm or not, at the will of the watchman, accordingly as he leaves the switch in the local circuit of the small bell of the gong-line closed, or opens the same after noting the first signal received upon the register.

In witness whereof I hereunto subscribe my name this 3d day of February, A. D. 1888.

WILLIAM CARROLL.

Witnesses:

CHAS. G. HAWLEY,  
GEORGE P. BARTON.