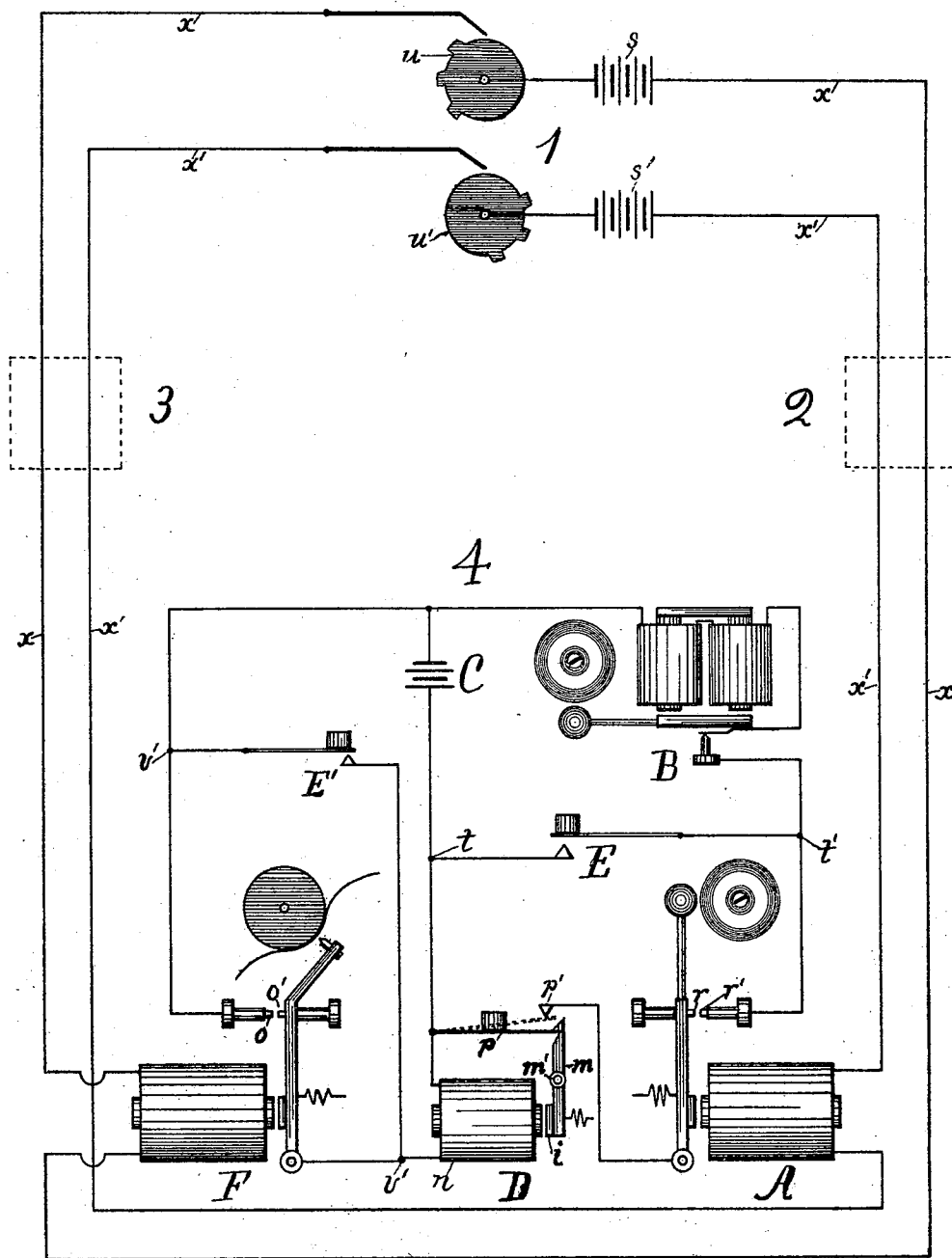


(No Model.)

J. F. MEHREN.
FIRE ALARM TELEGRAPH SYSTEM.

No. 554,889.

Patented Feb. 18, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

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OF SAME PLACE.

FIRE-ALARM-TELEGRAPH SYSTEM.

SPECIFICATION forming part of Letters Patent No. 554,889, dated February 18, 1896.

Application filed April 4, 1894. Serial No. 506,334. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. MEHREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Fire-Alarm-Telegraph Systems, of which the following is a specification.

My invention relates to an improvement in electric fire-alarm-telegraph systems, whereby signals are successively transmitted, by way of repetition to insure their receipt, from a central station over two independent signaling-lines to each of the fire-department stations. The purpose of following the primary transmission of a signal by another transmission of the same over an independent line is to avoid the possibility of failure to receive the signal at the fire-department stations to the extent rendered possible by the improbability of both lines being out of order at the same time.

In systems of the class to which my improvement relates each signal-receiving station is commonly provided with a recording-instrument, such as the well-known Morse register, connected in the circuit of one of the signaling-lines, designated the "register-line," and with an ordinary electric bell-relay connected in the circuit of the other signaling-line, designated the "gong-line." Each such station is further provided with an electrical alarming device, by means of which the firemen are aroused and the horses are "started" or startled. This alarming device is connected in a local circuit operated either by the register or the bell-relay, or by both, when a signal is being received. All signals transmitted from the central station are received at the fire-department station over both the register and gong lines (when both are in operative condition) by their respective instruments, and these, in turn, operate the alarming device in the local circuits, and as a result the entire department is aroused at each signal given, although only a few of the companies (or those within the district to which the signal relates) may be required to respond to any one signal. Thus alarming the entire fire-department by each signal is objectionable because of its general uselessness, and particularly so during the night, be-

cause of the unnecessary disturbance which ensues of the firemen in their much-needed rest.

The object of my invention is to provide means whereby alarming a company may be prevented by an attendant in case of signals to which that company is not liable to respond; and it is my further object to provide, in case of neglect on the part of the attendant, against failure to alarm the company by any signals to which it may be liable to respond.

My improvement is illustrated in the accompanying drawing by a view showing diagrammatically the circuits and instruments as connected at a fire-department station in accordance with my invention.

At 1 are shown the central-station devices, consisting of the main batteries s s' and the signaling-wheels u and u' , connected in the circuits of the two independent signaling-lines x x and x' x' , respectively.

At 2 and 3 are indicated fire-department or signal-receiving stations, each having connection with the two signaling-lines, as hereinafter described.

At 4 are shown the devices at one of the signal-receiving stations connected in accordance with my invention.

A is a bell-relay connected in the circuit of the main or gong line $x' x'$. A local circuit is connected with the contact-points r r' of the bell-relay A and includes a vibratory bell B, a battery C, a contact-spring p , and contact-point p' of a circuit-controlling device D. A branch circuit, including a push-key E, is connected between the points t and t' . A register F is connected in the circuit of the main or register line x x , and to its contact-points o o' is connected a local circuit, which includes the battery C and the magnet n of the circuit-controlling device D, and a branch circuit, including a push-key E', is connected between the points v and v' . The circuit-controlling device D has a spring-controlled lever m pivoted at m' and provided at one end with an armature l and at its opposite end with a hook k , adapted to engage one end of the contact-spring p , as indicated by the full-line representation.

The operation of the instruments and circuits thus described is as follows: A fire-alarm

signal is transmitted successively first over the register-line xx and then over the gong-line $x'x'$ by means of the signaling-wheels u and u' , respectively, the latter being set in
 5 rotative operation by suitable mechanism, (not shown;) but such signal may be transmitted by any other form of signaling device—such, for example, as an ordinary telegraphic
 10 key. The signal sent over the register-line is recorded by the register F , and the contact-points oo' close the circuit of the battery C through the magnet n , causing the latter to attract its armature l and thereby releasing the contact-spring p , (if the latter has not been
 15 previously disengaged,) which will assume the position (indicated by the dotted representation) of contacting with the point p' . If now the signal be repeated over the gong-line $x'x'$, it will be received by the bell-relay
 20 A , and its contact-points rr' will close the circuit of the battery C through the vibratory bell B , which latter is sufficiently powerful to arouse the company, while the bell-relay signaling device A is only slightly audible.
 25 When an attendant, whose duty it is to note each signal as it is recorded by the register, finds one to which the company is liable to respond, he immediately presses the push-key E , and thereby sets the vibratory bell B
 30 in operation to arouse the firemen. When, however, a signal recorded by the register is one not relating to the company, the attendant depresses the spring p to cause it to engage the hook k , thereby breaking its contact with the point p' and opening the local circuit of the bell-relay A . This latter operation
 35 is performed after the signal has been recorded by the register, but before it can be repeated over the gong-line to prevent operation of the vibratory bell of the bell-relay B , and consequent unnecessary disturbance of
 40 the company. After the termination of the signal over the gong-line the spring p may be restored to contact with the point p' by pressing the push-key E' , which closes the battery C through the magnet n , and by the consequent attraction of the armature l the spring
 45 p will be disengaged from the hook k and make contact with the point p' .
 50 From the foregoing description it will be apparent that with each signal received by the registering device F the circuit-controlling device D restores the local circuit of the bell-relay A , if it has not already been restored by
 55 the attendant, and that if he neglects his duty by failing to restore the circuit-controller after the receipt of the signal by the register the bell-relay, by repetition of the signal over the gong-line, will operate the
 60 alarming device B , and the firemen will be aroused and apprised of the signal. It will likewise be seen that by the restoration of the circuit-controller D to its normal condition (indicated by the dotted representation
 65 of the spring p) provision is made against failure to apprise the company of any signal

transmitted only over the gong-line in case the register-line should be disabled.

What I claim as new, and desire to secure by Letters Patent, is—

70 1. In a signaling system having two independent main lines, over each of which every signal is transmitted successively, first over the one and then over the other line, the combination with two signal-receiving instru-
 75 ments, each connected in one of said main lines and respectively responsive to the said successively-transmitted signal, of an alarming device normally operative by one of the
 80 said receiving-instruments and controllably connected, for its operation, with the other said receiving-instrument, substantially as
 and for the purpose set forth.

85 2. In a signaling system having two independent main lines over each of which every signal is transmitted successively, first over the one and then over the other line, the combination with the two signal-receiving instru-
 90 ments, each connected with one of said main lines and respectively responsive to said successively-transmitted signals, of an alarming device normally operative by one of said receiving-instruments, and a controlling device
 95 operative by the other of said receiving-instruments, said controlling device operating to control the sounding of the alarming device by the said receiving-instrument, substantially as
 and for the purpose set forth.

100 3. In a signaling system having two independent main lines over which every signal is transmitted successively, first over the one and then over the other line, the combination with two signal-receiving instruments, each
 105 connected with one of said main lines and respectively responsive to said successively-transmitted signals, of a local circuit containing an alarming device connected with and normally operative by one of the said receiving-instruments, and a local circuit contain-
 110 ing a circuit-controller connected with and operative by the other of said receiving-instruments, said circuit-controller being operative to control the operation of the local circuit containing the alarming device by the
 115 said other receiving-instrument, substantially as and for the purpose set forth.

120 4. In a signaling system having two independent main lines over each of which every signal is transmitted successively, first over one and then over the other line, the combination with the two signal-receiving instru-
 125 ments, each connected in one of said main lines and respectively responsive to said successively-transmitted signals, of an alarming device normally operative by one of said receiving-instruments, and a controlling device
 130 operative by the other of said receiving-instruments to render the said alarming device responsive to the operation of said one receiving-instrument and also operative by an attendant to render said alarming device non-
 responsive to the operation of said one re-

ceiving-instrument, substantially as and for the purpose set forth.

5 5. A signaling system comprising, in combination, two independent main lines each extending from a central transmitting-station, a signaling-instrument and a main battery in each line at the transmitting-station, a signal-receiving instrument in each line at each receiving-station, and an alarming device at each receiving-station normally operative by one of the receiving-instruments and controllably connected, for its operation, with the other receiving-instrument, substantially as and for the purpose set forth.

15 6. A signaling system comprising, in combination, two independent main lines each extending from a central transmitting-station to one or more receiving-stations, a signaling-instrument and a main battery in each

line at the transmitting-station, a signal-receiving instrument in each line at each of the receiving-stations, an alarming device connected with one of the receiving-instruments and a controlling device connected with the other receiving-instrument, at each receiving-station, said alarming device being normally operative by the operation of the one receiving-instrument, and said controlling device being operative both by the other receiving-instrument and by an attendant, thereby operating to control the sounding of the alarming device by the operation of said one receiving-instrument, substantially as and for the purpose set forth.

JACOB F. MEHREN.

In presence of—

M. J. FROST,

W. V. WILLIAMS.