

J. G. NOLEN.
 TEST FOR FIRE ALARM APPARATUS.
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939,292.

Patented Nov. 9, 1909.

Fig. 1.

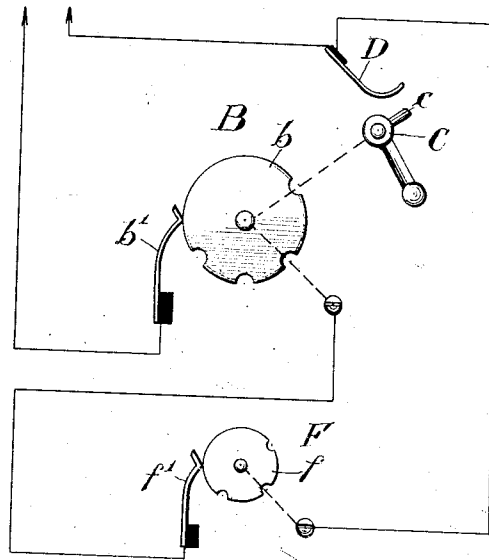
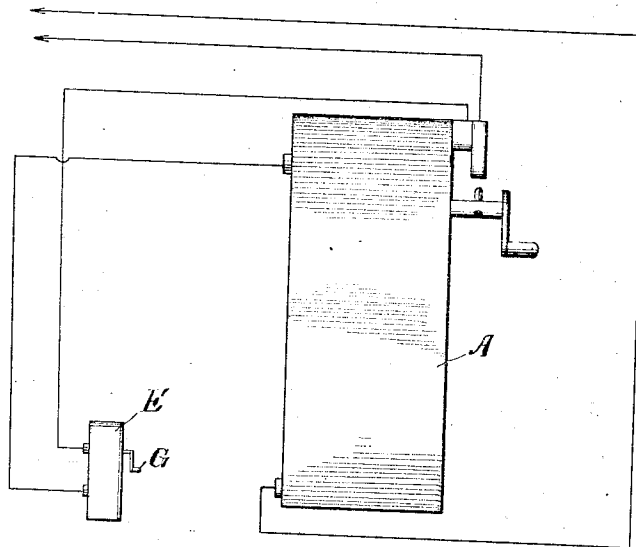


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES G. NOLEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO FRANK B. COOK,
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TEST FOR FIRE-ALARM APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES G. NOLEN, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Tests for Fire-Alarm Apparatus, of which the following is a specification.

My invention contemplates a novel form of test for ascertaining whether or not the signal-transmitting mechanism of an electrical fire-alarm signal is in the proper or desired condition.

In a certain type of fire alarm system, master-boxes are employed for transmitting signals, each master-box being on the plan of the ordinary and well known call-box, with the exception that each master-box is preferably provided with means whereby it may remain normally in a wound-up condition, and whereby it may be automatically released to transmit a fire-alarm signal whenever the building in which are located the thermostats with which the box is connected catches fire. It is important that these master-boxes be retained in their normally wound-up condition, so as to be in readiness to transmit a fire-alarm signal, and it is with a view to enabling an attendant or inspector to readily determine the condition of these master-boxes that I provide what I term a test-box. This test-box may also be constructed on the plan of the ordinary and well known call-box, and is preferably connected in series with the master-box. The master-box is provided with a normally open shunt or short circuit extending around the test box, and also with means for automatically closing this shunt or short-circuit when the clock-work of the master-box has been allowed to run down. With this arrangement, a test-signal can be transmitted by the test-box when the master-box is in its normal wound-up condition; but if the master-box has run down, and the said shunt or short-circuit has thereby been closed, then it will be readily seen that the test-box cannot be employed to transmit a signal over the line circuit, as it is completely short-circuited. The provision of a test of this character enables an attendant or inspector to readily and accurately determine the condition of the master-box without disturbing the mechanism of the latter.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings,—Figure 1 is a diagram illustrating the make-and-break devices of a master-box, and a test-box connected up in accordance with the principles of my invention. Fig. 2 is a side elevation of a master-box and also of a test-box, the two being connected in the manner shown in Fig. 1.

As thus illustrated, the master-box or signal-transmitting device A can be of any suitable known or approved construction. It is preferably constructed on the plan of the ordinary and well known call-box, with the exception that it is preferably provided with means for locking it in a normal wound-up condition, and with further means for automatically releasing its normally wound-up clock-work when any of the thermostats with which the box is connected are subjected to the heat of a fire. Such being the case, its construction involves the usual and well understood make-and-break device B, consisting of a rotary notched-disk *b* adapted to be rotated by the clock-work of the box, and a spring-held finger *b'*. The usual crank C is provided for winding up the clock-work of the box. As a means for closing a shunt or short-circuit around the test-box, this master-box is preferably provided with a spring contact D adapted to be engaged by a pin *c* on the shaft of the crank C. The test-box E can also be constructed on the plan of the ordinary and well known call-box. Its mechanism involves the well known form of make-and-break device F, consisting of the rotary notched disk *f* and the spring finger *f'*, the said disk being adapted to be rotated by the clock-work of the box. This test-box is also provided with the usual crank G by means of which its clock-work can be wound up in the well-known manner. It will be seen that both of said make-and-break devices are normally closed. It will also be observed that the make-and-break device of the test-box is connected in series with the make-and-break device of the master-box. Consequently, when the mechanism of the master-box is in its normal condition, the make-and-break device of the test-box can be employed for transmitting a test signal over a line circuit including the disk *b* and the spring finger *b'*

But suppose now that for some reason or other the said master-box has been allowed to run down, thereby causing the pin *c* on the crank shaft to engage the contact D. This, it will be seen, operates to close a low resistance shunt or short-circuit around the test-box, thereby rendering the latter inoperative so far as transmitting a test signal over the line-circuit is concerned. Thus, with the provision of the test-box, the attendant or inspector can readily determine the condition of the master-box. If the rotation of the crank G results in the transmission of a test-signal over the line circuit, it is then obvious that the master-box is in its proper or desired condition; but if, on the contrary, the operation of the test-box results in the transmission of no signal, then it will be understood that the master-box has been allowed to run down to an extent to short-circuit the test-box.

It will be seen that my improved testing arrangement can be employed in conjunction with various kinds of electrical signaling systems.

I claim as my invention:—

1. The combination of a suitable circuit, a normally wound master signaling device in the circuit normally closing the same, a test device comprising a circuit breaker, in said circuit, and means associated with the first said signaling device short circuiting the circuit breaker of the test device when the master signaling device is run down to a predetermined degree.

2. The combination of an electrical circuit including two signal transmitting devices connected in series, and means adapted, upon the operation of one of said devices to short circuit the other device; one signal transmitting device including normally wound up clock work, adapted when released to operate the means for effecting a short circuiting of the other device, and the other signal transmitting device including normally unwound clock work.

3. The combination of two signal transmitting devices, suitable circuit connections, and means adapted upon the operation of one of said devices to short circuit the other device, one signal transmitting device in-

cluding normally wound-up clock work, adapted when released to operate the means for effecting a short circuiting of the other device, and said other signal transmitting device including normally unwound clock work.

4. The combination of a signal transmitting device, a testing device, suitable circuit connections, and a normally open switch adapted automatically to close a short circuit around the testing device upon the operation of the signal transmitting devices, said signal transmitting device including normally wound-up clock work and said testing device including normally unwound clock work.

5. The combination of a signal transmitting device, another signal transmitting device, a line circuit connected with both of said devices, each device being adapted for transmitting a signal over the line circuit, and a normally open switch adapted automatically to close a short circuit around one of said signal transmitting devices upon the operation of the other signal transmitting devices; one signal transmitting device including normally wound-up clock work and the other signal transmitting device including normally unwound clock work.

6. The combination with an alarm signal transmitter providing normally closed circuit-breaking contact parts, of a test transmitter arranged to signal through a circuit including said contact parts of the alarm transmitter, and means controlled by the alarm transmitter for incapacitating the test transmitter to functionally operate, upon the occurrence of predetermined conditions in the alarm transmitter.

7. The combination with a normally wound alarm signal transmitter, of a test-signal transmitter, and means for incapacitating the test-signal transmitter to functionally operate upon the running down of the normally wound transmitter.

Signed by me at Chicago, Cook county, Illinois, this 21st day of Sept. 1903.

JAMES G. NOLEN.

Witnesses:

A. F. DURAND,
WM. A. HARDENS.