

No. 750,223.

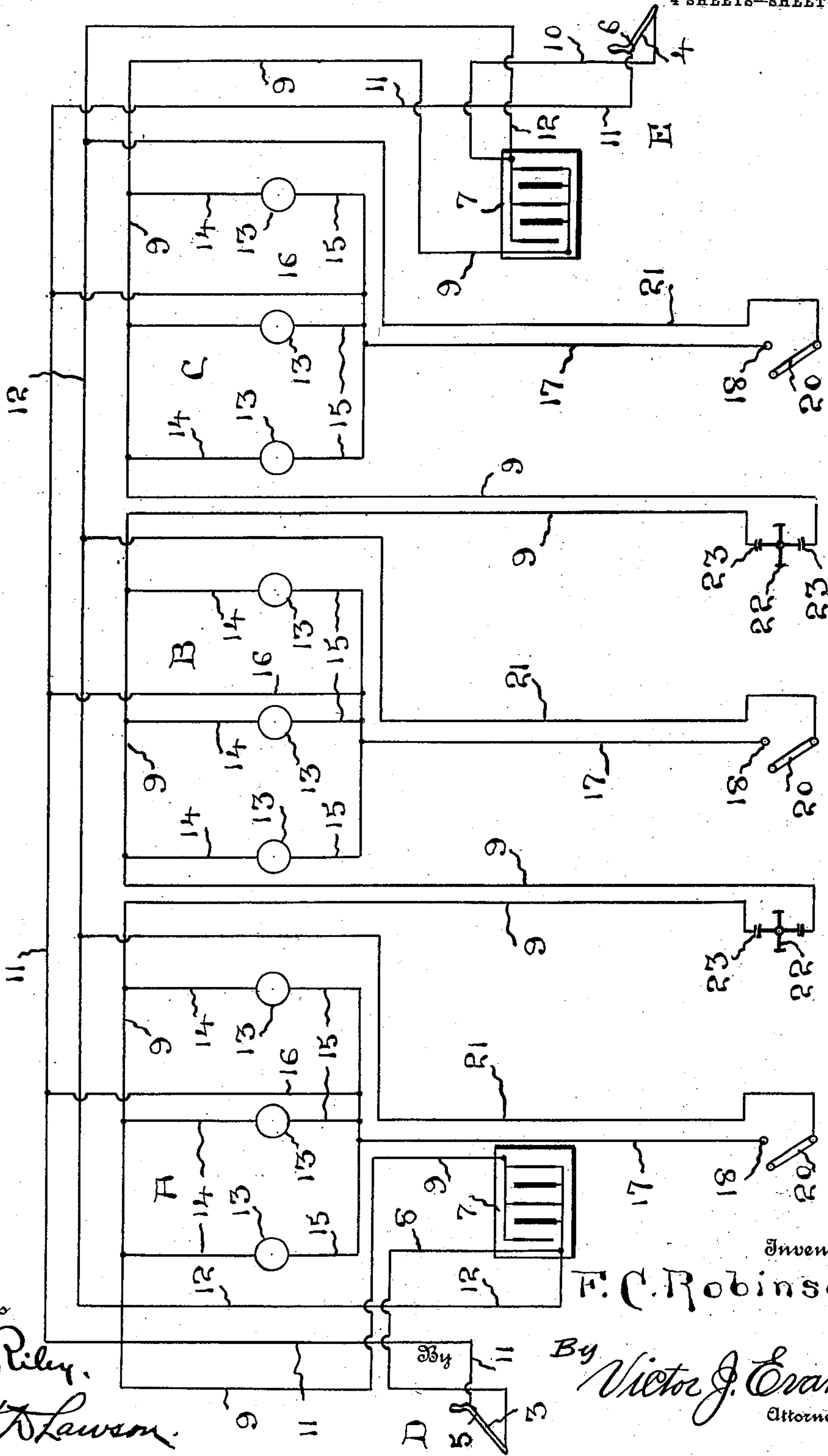
PATENTED JAN. 19, 1904.

F. C. ROBINSON.
ELECTRIC BLOCK SYSTEM.
APPLICATION FILED AUG. 22, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

J. W. Riley,
Herbert Lawson.

Inventor

F. C. Robinson

By

Victor J. Evans
Attorney

No. 750,223.

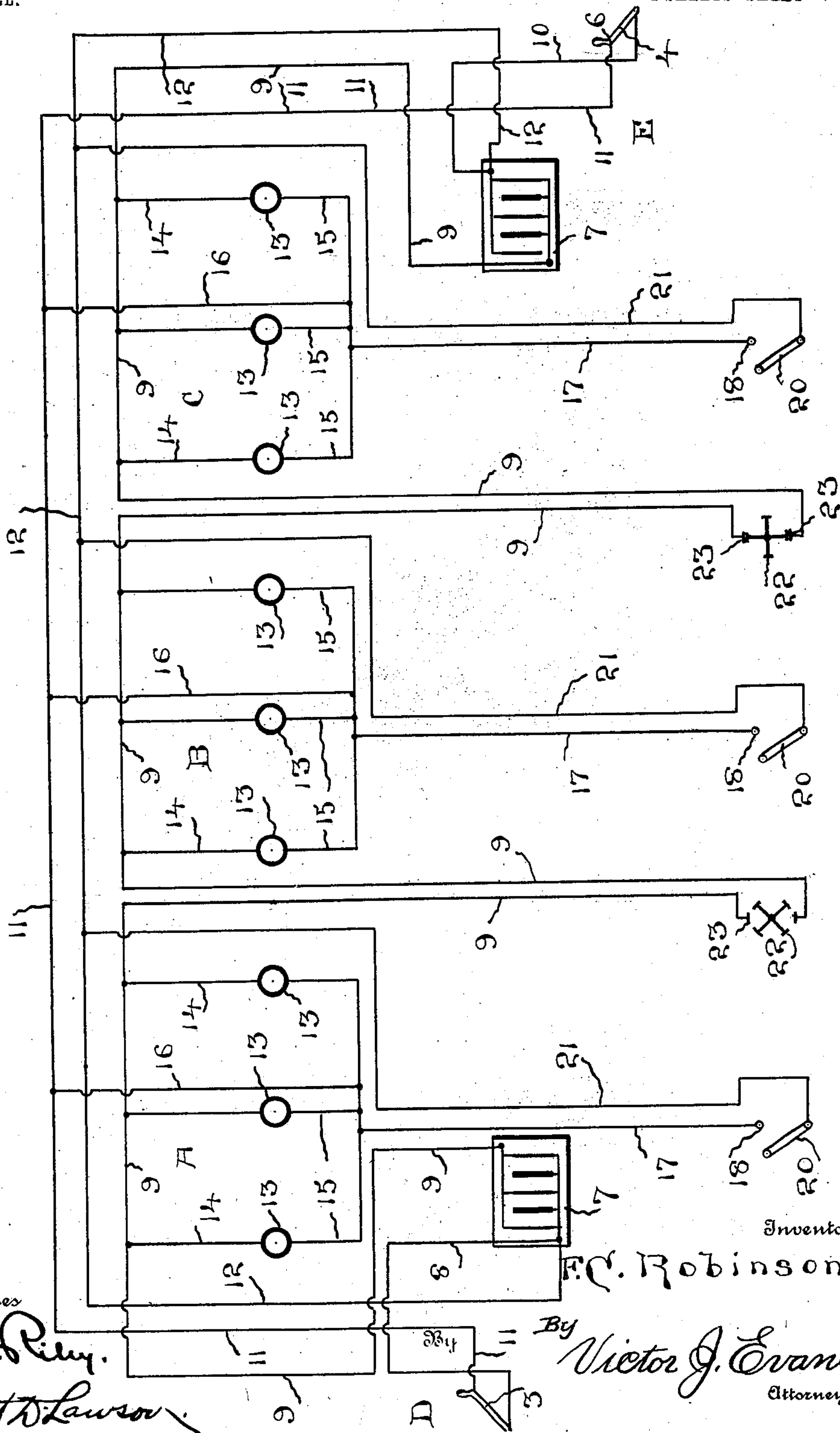
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses

J. W. Remy.

Hubert D. Lawson.

Inventor
F. C. Robinson.

By

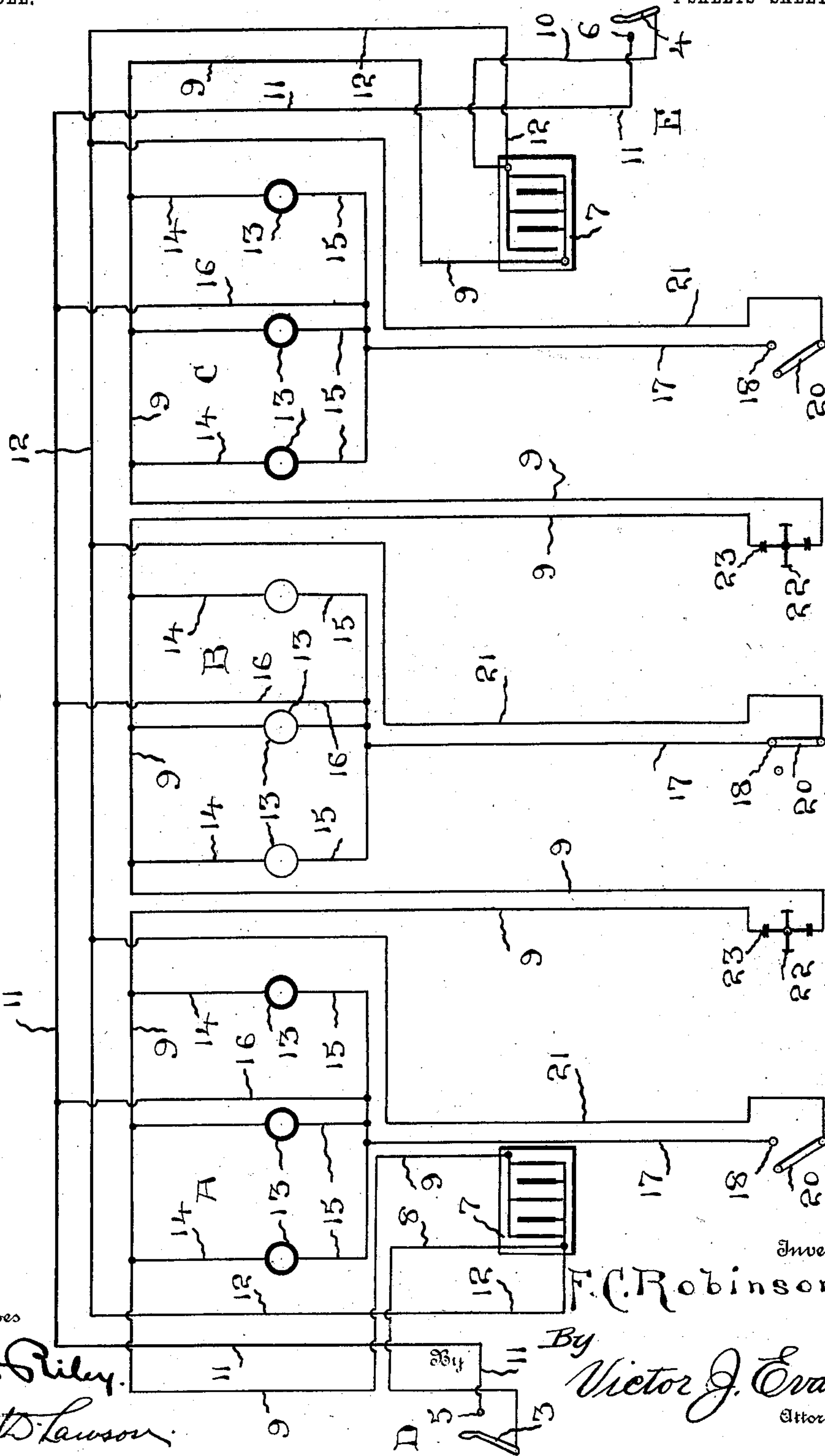
Victor J. Evans
Attorney

F. C. ROBINSON.
ELECTRIC BLOCK SYSTEM.
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

J. W. Riley.
Arthur D. Lawson.

By

Victor J. Evans
Attorney

Inventor

F. C. Robinson.

No. 750,223.

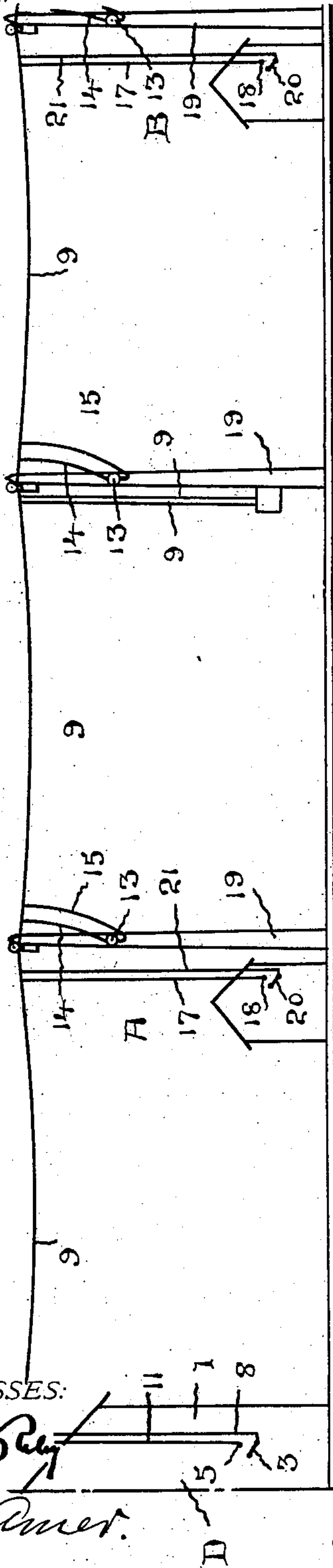
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4 SHEETS—SHEET 4.

Fig. 4.

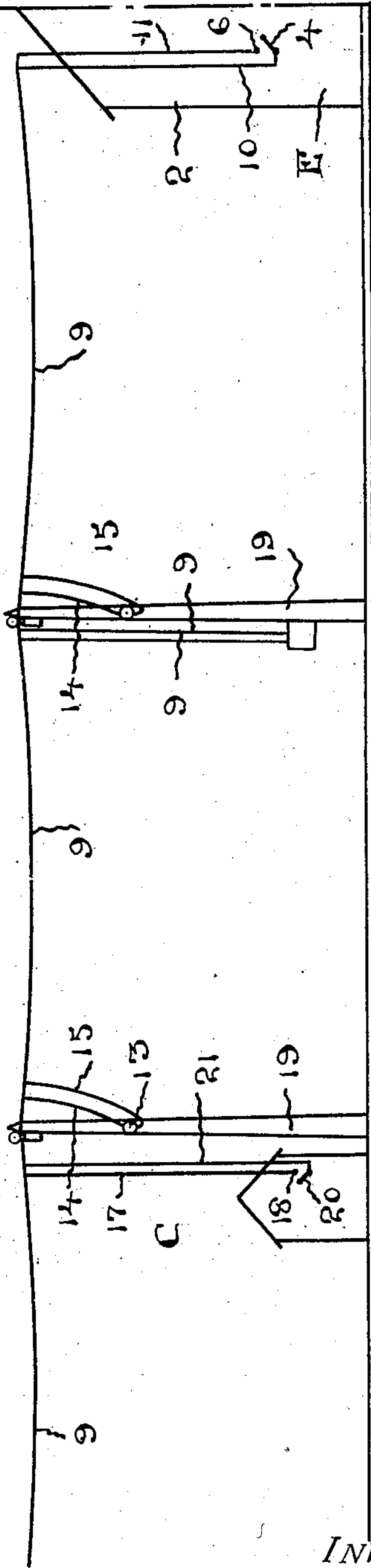


WITNESSES:

J. W. Bay

H. L. Amer.

Fig. 5.



INVENTOR

F. C. Robinson.

BY

Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK C. ROBINSON, OF FARMINGTON, MAINE.

ELECTRIC BLOCK SYSTEM.

SPECIFICATION forming part of Letters Patent No. 750,223, dated January 19, 1904.

Application filed August 22, 1903. Serial No. 170,441. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. ROBINSON, a citizen of the United States, residing at Farmington, in the county of Franklin and State of Maine, have invented new and useful Improvements in Electric Block Systems, of which the following is a specification.

My invention relates to new and useful improvements in electric block systems for railways; and its object is to provide a novel arrangement of danger-signals, preferably in the form of red incandescent lamps, which are adapted to be arranged between the stations forming the terminals of the block and which can be lighted by the station master at either or both ends of the block.

A further object of the invention is to provide switches at suitable points intermediate the ends of the blocks by means of which the conductor of a train may signal both stations by alternately lighting and extinguishing the lamps in the circuit.

A further object is to divide the block into sections, each of which may be under the control of a flagman, who by means of a switch may illuminate or extinguish the lamps in his section.

With the above and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a diagrammatical view of one block of a system and showing the switches at the stations closed and the lamps in the block lighted. Fig. 2 is a similar view showing the lights extinguished by the breaking of the circuits by one of the conductor signal-switches. Fig. 3 is a view similar to Figs. 1 and 2 with the station-switches open and showing one of the sections of the block illuminated by the closing of a flagman's switch; and Figs. 4 and 5 are elevations of the ends of the block and showing the relative positions of the various switches employed.

Referring to the figures by numerals of reference, 1 and 2 are stations located at the ends of the block, and within each station is arranged a switch 3 and 4, respectively, adapt-

ed to be moved into contact with plates 5 and 6. A storage battery 7 is arranged in each station, and these batteries are strong enough to supply a current of sufficient strength to cause the illumination of the lamps within the block to which they are connected. Switch 3 is connected, by means of a wire 8, to storage battery 7, adjacent thereto, and extending from this battery is one of the main wires 9 of the block, which communicates with the other storage battery 7 in the station at the opposite end of the block. This last-mentioned battery is connected, by means of a wire 10, with the switch 4. The contacts 5 and 6 are arranged at opposite ends of the second wire 11 of the block, and a wire 12 extends from one station to the other and is connected at its ends to the storage battery 7, as shown in Figs. 1 to 3. Incandescent lamps 13 are arranged in sections along the block at desired intervals, and I have designated these sections by the reference-letters A, B, and C. These lamps are electrically connected with the wire 9 by means of wires 14, and wires 15 and 16 connect the lamps with the wire 11. A wire 17 extends from the wires 15 of each section to a contact-plate 18, arranged upon one of the poles 19 of the apparatus, and a switch 20 is located adjacent the contact and is connected, by means of a wire 21, with wire 12, which extends from one station to the other. At suitable points between the stations the wire 9 is broken and provided with a rotary switch 22, which is normally in contact with plates 23, formed at the ends of wire 9, adjacent thereto.

It will be understood that the block herein shown and described comprises but one of a series which are adapted to extend the full length of a railway. When a train passes one of the stations, which for convenience may be designated by the letter D, the station-master throws the switch 3 into position on the contact 5. This does not, however, complete a circuit. Should a train, however, enter the block from the station at the other end thereof, which is designated E, the station-master at that point will throw the switch 4 in position over the contact 6. A circuit will then promptly be established from battery 3, through wire 8

to battery 7, and from said battery through the wire 9 to the other battery 7, and thence through wire 10 to the switch 4. The circuit will be completed by the wire 11, which connects the two contacts 5 and 6. I have shown the parts in the positions above described in Fig. 1, and it will be obvious that all of the lamps in the block will be promptly illuminated and the engineers of the two trains upon the block will be promptly warned of the fact that they are traveling toward each other, and they can thus be brought to a standstill before an accident can occur. If necessary, the conductor of one of the trains can extinguish all of the lights of the block by going to the adjacent switch 22 and breaking the electric connection between the same and the contacts 23. In Fig. 2 I have shown this switch removed from its contacts and the lights extinguished. If desired, a code of signals may be employed by means of which information may be transmitted from one train to the other or from the train to the stations by the successive lighting and extinguishing of the lamps. Should a train pass one of the stations and some obstruction or other danger be presented, the flagman adjacent thereto can promptly illuminate the lights of his section by removing the switch 20 over its contact 18, and thereby form a circuit from the switch 20 through wire 21, wire 12, battery 7, and wires 9 and 17 to contact 18. In Fig. 3 I have shown one of the flagmen's sections illuminated. Any suitable means (not shown) may be employed for holding the switches 22 normally in contact with the plates 23. It will be understood that in lieu of storage battery 7 suitable electric generators may be employed. It will be seen that the system herein designated and shown is extremely simple in construction, and the ordinary telegraph-wires may be utilized for conducting the currents employed. The lamps used are spaced apart, so that one is always visible to the engineer of a train within the block.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

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

1. In an apparatus of the character described, the combination with a source of electricity at each end thereof; of a series of lamps

electrically connected with said sources and arranged in groups, switches adjacent the ends of the series, electrical connections between the switches and the sources of electricity and the lamps, whereby when the switches are closed the lamps are included in an electric circuit, and independent means for throwing each group of lamps into circuit with the sources of electricity.

2. In an apparatus of the character described, the combination with a series of lamps arranged in groups; of a source of electricity at each end of the series, a switch adjacent each end of the series of lamps, electrical connections between the switches, sources of electricity and lamps, whereby when the switches are closed a circuit is established through the lamps, and a switch electrically connected to each group of lamps and adapted to throw its group into circuit with the sources of electricity independently of the positions of the first-mentioned switches.

3. In an apparatus of the character described, the combination with sources of electricity, an electrical connection between said sources, and circuit-breakers within the connection; of a series of lamps arranged in groups, electrical connections between the lamps and the sources of electricity, switches adjacent the ends of the series of lamps and adapted when both are closed to establish a circuit through the lamps, a switch electrically connected to each group of lamps and adapted to throw said group into circuit with the sources of electricity independent of the positions of the first-mentioned switches.

4. In an apparatus of the character described, the combination with contacts; of a line-wire connecting the contacts, switches adapted to be moved into position over the contacts, a line-wire connecting the switches, sources of electricity electrically connected to said second line-wire, a circuit-breaker electrically connected to said second line-wire, groups of lamps electrically connected to both of the line-wires, a third line-wire connecting the sources of electricity, switches, electrical connections between said switches and the last-mentioned line-wire, and contacts for the switches, each contact being electrically connected to one of the groups of lamps.

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

FREDERICK C. ROBINSON.

Witnesses:

JOSEPHINE HOLMAN NORTON,
JOS. C. HOLMAN.