

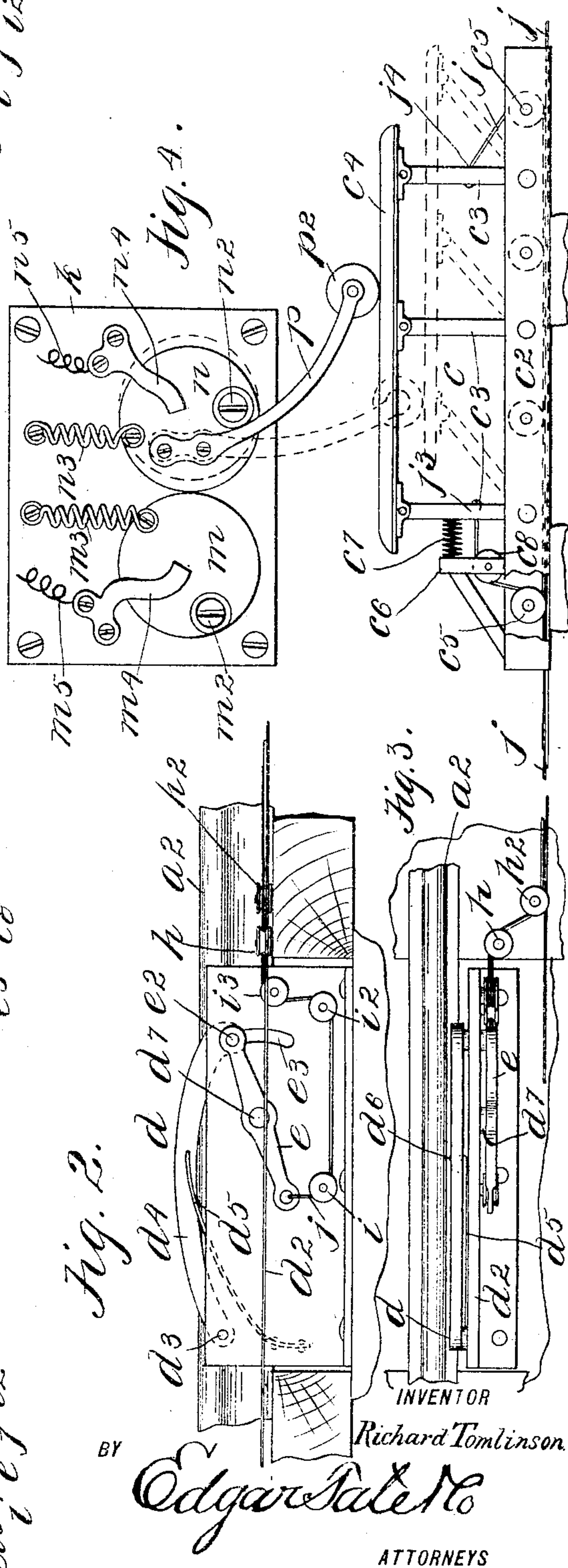
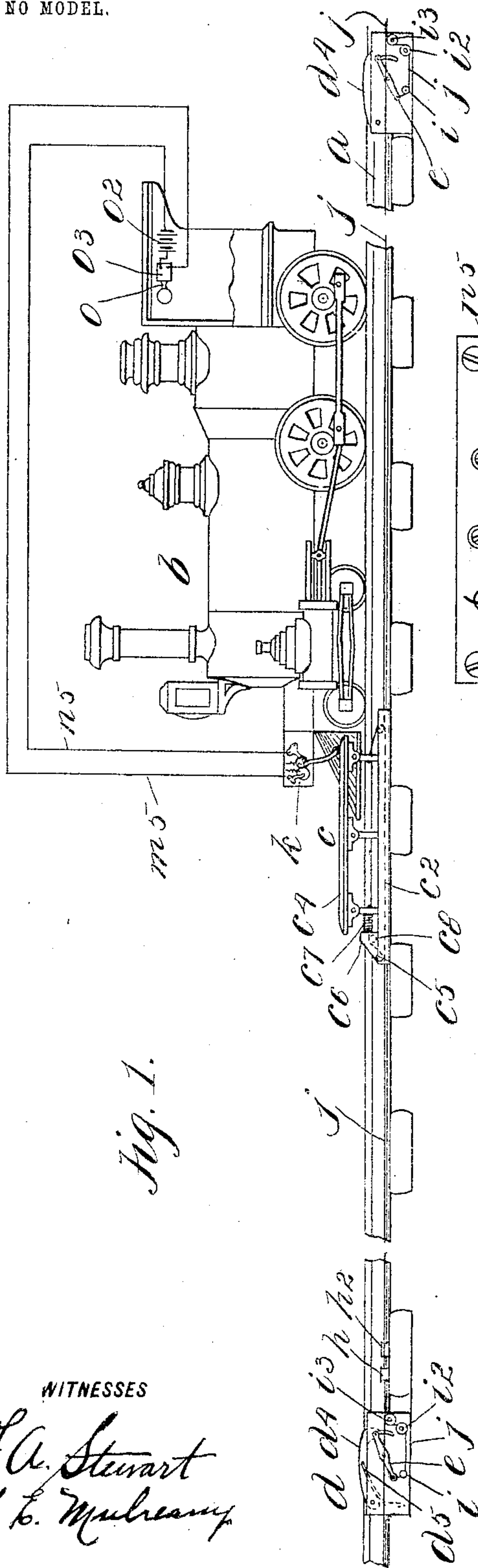
R. TOMLINSON.

BLOCK SIGNAL SYSTEM FOR RAILWAYS.

APPLICATION FILED NOV. 30, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

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No. 765,329.

PATENTED JULY 19, 1904.

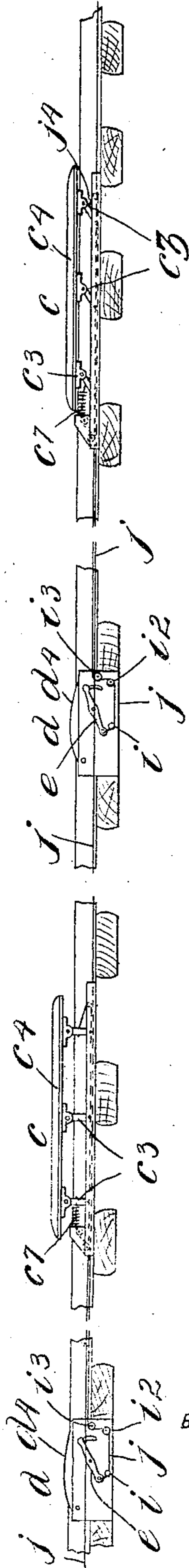
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2 SHEETS—SHEET 2.

Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

RICHARD TOMLINSON, OF BROOKLYN, NEW YORK.

BLOCK-SIGNAL SYSTEM FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 765,329, dated July 19, 1904.

Application filed November 30, 1903. Serial No. 183,088. (No model.)

To all whom it may concern:

Be it known that I, RICHARD TOMLINSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Block-Signal Systems for Railways, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to block-signal systems for railways, and is an improvement on the signal apparatus for railways described and claimed in an application for Letters Patent of the United States filed by me March 27, 1903, Serial No. 149,860; and the object of this invention is to provide an improved block-signal system for railways whereby rear-end collisions between moving trains will be rendered impossible; and with this and other objects in view the invention consists in a signal system for railways constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a side view of a portion of a railway-track provided with my improvement and showing also a locomotive mounted thereon; Fig. 2, a side view of a part of the signal apparatus connected with the railroad-track; Fig. 3, a plan view thereof; Fig. 4, a side view of a part of the apparatus connected with the locomotive and showing also a part of the apparatus connected with the track, the last three views being on an enlarged scale; and Fig. 5, a view similar to Fig. 1, but showing only a section of the track involving two blocks.

In the drawings forming part of this specification I have shown at *a* a part of a railway-track, and at *b* a railway engine or locomotive mounted thereon, and in the practice of my invention I place adjacent to one side of the track at regular intervals a shoe-contact device *c*, comprising a box, frame, or other

support *c*², in or on which is pivoted links or similar devices *c*³, three of which are shown and with the upper ends of which is pivotally connected a long shoe contact *c*⁴, and at each end of the box, frame, or other support is placed a pulley *c*⁵. The shoe-contact device *c* is also provided at one end with an upright device *c*⁶, with which is connected a spiral spring *c*⁷, which is also connected with the adjacent link member *c*³, and in the upright *c*⁶ is placed a supplemental pulley *c*⁸.

It will be understood, of course, that the railway-track is divided into blocks and a portion of said track equaling two blocks is shown in Fig. 5, and each block is provided with one of the shoe-contact devices *c* and also with an operating-lever device *d*, the shoe-contact devices *c* and the operating-lever device *d* being separated by a distance approximately equal to the length of the blocks into which the track or rod is divided.

The operating-lever devices *d* comprise an upright plate or similar support *d*², secured adjacent to one of the rails of the track, as clearly shown in Figs. 2 and 3, and to the inner side of which is pivoted, as shown at *d*³, a lever *d*⁴, which extends parallel with and adjacent to the top bearing-surface of the adjacent rail of the track, one of which is shown at *a*² in Figs. 2 and 3. The plate *d*² is also provided with a spring *d*⁵, the free end of which operates to force the lever *d*⁴ upwardly, as clearly shown at *d*⁶, and pivoted to the plate *d*² at *d*⁷ is a supplemental lever *e*, one end of which is connected with the free end of the lever *d*⁴ by a pin *e*², movable in a segmental slot *e*³, formed in the plate or support *d*².

Adjacent to one end of the operating-lever device *d*—the right-hand end, as shown in the drawings—are two pulleys *h* and *h*², and connected with the plate or support *d*² of each of said devices are three pulleys *i*, *i*², and *i*³, and connected with the end of the supplemental lever *e*², opposite that which is connected with the operating-lever *d*⁴, are two cords or wires *j*, each of which is passed downwardly around the pulley *i* and then around the pulley *i*² and then up and around the pulley *i*³ and then around the pulleys *h* and *h*², from which point

one of said cords or wires is passed to the the right and to the corresponding shoe-contact device c and around the pulleys c^5 and c^8 , as shown in Fig. 4, and connected with the adjacent link c^3 , as shown at j^3 in Fig. 4, and the other of said cords or wires is passed onto the next shoe-contact device in the next block to the right, as shown in Fig. 5, where it is connected with the right-hand-end link member c^3 of said shoe-contact device, as shown at j^4 .

It will be understood, of course, that each of the lever-operating devices d is connected with each of the shoe-contact devices c in the same manner as hereinbefore described, and when one of the contact-levers d^4 is depressed, as hereinafter described, the adjacent contact-shoe c^4 to right is raised, while the corresponding contact-shoe c^4 in the next block to the right is depressed, the position of these parts being shown in Fig. 5.

Secured to the front of the engine and at one side thereof in any desired manner or to any preferred part of said engine is a plate k , to which is pivoted two disks m and n , the pivotal connections of these disks being made eccentrically thereof, as clearly shown in the drawings, and near the edges thereof and by means of pins, bolts, or screws m^2 and n^2 . The pivotal point of the disk m is on the left thereof and below the center thereof, while the pivotal point of the disk n is at or near the bottom thereof and slightly to the right, and secured to the upper portion of the plate g are two springs m^3 and n^3 , which are also connected with the disks m and n , respectively, near their upper inner corners, as shown in Fig. 4, and these springs serve to hold said disks m and n normally in the position shown in dotted lines in Fig. 2.

Secured to the plate g , near the opposite sides or ends thereof, are brushes or contact devices m^4 and n^4 , which operate in connection with said disks, respectively, and connected with these brushes or contact-wires m^5 and n^5 and placed in the cab of the locomotive is a signal device preferably consisting of a bell or similar alarm device o and a battery o^2 , which is in electrical connection with said signal device, as shown at o^3 , and a wire n^5 is connected with the battery o^2 , while the wire m^5 is connected with the signal device o .

Secured to the disk n is an arm p , which is curved downwardly and backwardly and the lower end of which is preferably provided with an antifriction-roller p^2 , and this arm is adapted to operate in connection with the shoe or shoes c^4 of the shoe-contact devices c , which are arranged in each block of the track, as hereinbefore described.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof: If a locomotive or train be moving over the track

in the direction indicated in Fig. 1, the wheel or wheels thereof as it passes over one of the operating-lever devices will depress the operating-lever d^4 thereof. This operation will throw up the contact-shoe c^4 at the beginning of the block, and if another locomotive or train enters said block the arm p will strike the shoe c^4 and the engineer in the cab of the last-named locomotive or train will be notified that another train is in the block ahead of him. It will be apparent that at the same time that one of the contact-shoes c^4 is raised the corresponding contact-shoe in the preceding block is depressed, and this operation is the same throughout the entire track or system, and a train preceding at any point on the track will be notified at any time of the fact that another train is in the block ahead or is just leaving the block ahead, as the case may be.

By means of my improved signal system it will be practically impossible for two trains moving on the same track and in the same direction to come into a collision; and my improvement constitutes a block-signal system which is simple in construction and operation and comparatively inexpensive.

That part of the apparatus herein shown and described as connected with the locomotive or engine is the same in construction and operation as in the application hereinbefore referred to, and it is only the track part of the apparatus that is claimed in this case, and changes therein and modifications thereof may be made without departing from the spirit of my invention or sacrificing its advantages.

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

1. In a block-signal system for railways, a plurality of shoe-contact devices located at intervals along the track and adapted to be operated by the wheels of a locomotive or car; said shoe-contact devices consisting of a suitable support, a shoe connected therewith and adapted to be raised and lowered; said operating-lever devices consisting of a support arranged adjacent to one of the rails of the track, a spring-operated lever pivoted thereto and adapted to be operated by the wheel or wheels of a locomotive or car, and another lever pivoted to said support and in operative connection with the free end of the first-named lever; and cords or wires connected with the free end of the last-named lever and in operative connection with the shoe of the shoe-contact device of the same block and adapted to raise the same, and in operative connection with the shoe of the shoe-contact device of the preceding block and adapted to depress the same, substantially as shown and described.

2. In a block-signal system for railways, a plurality of shoe-contact devices located at intervals along the track and adapted to be operated by the wheels of a locomotive or car;

said shoe-contact devices consisting of a suitable support, a shoe connected therewith and adapted to be raised and lowered; said operating-lever devices consisting of a support arranged adjacent to one of the rails of the track, a spring-operated lever pivoted thereto and adapted to be operated by the wheel or wheels of a locomotive or car, and another lever pivoted to said support and in operative connection with the free end of the first-named lever; and cords or wires connected with the free end of the last-named lever and in operative connection with the shoe of the shoe-contact device of the same block and adapted to raise the same, and in operative connection

with the shoe of the shoe-contact device of the preceding block and adapted to depress the same, a signal-arm connected with the locomotive or car and adapted to operate in connection with one of said shoes when the latter is in a raised position, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 28th day of November, 1903.

RICHARD TOMLINSON.

Witnesses:

F. A. STEWART,
C. J. KLEIN.