

No. 807,829.

PATENTED DEC. 19, 1905.

I. KITSEE.

RAILROAD SIGNALING.

APPLICATION FILED OCT. 14, 1905.

2 SHEETS-SHEET 1.

Fig. 1.

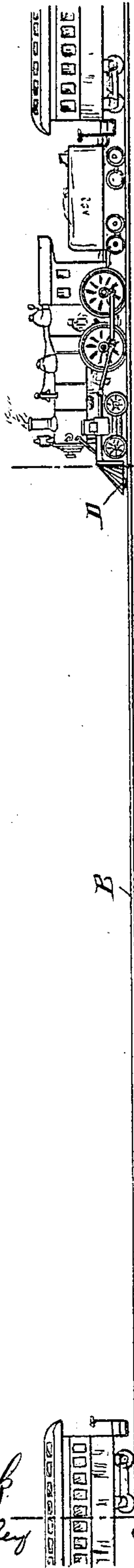


Fig. 2.

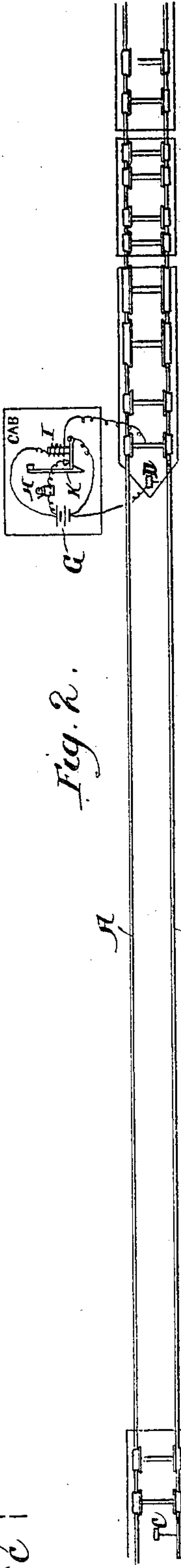
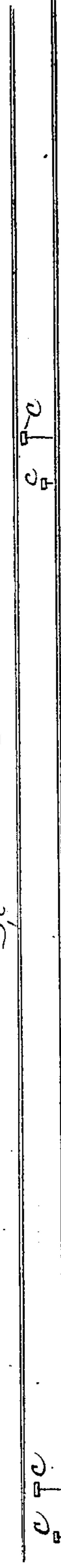


Fig. 3.

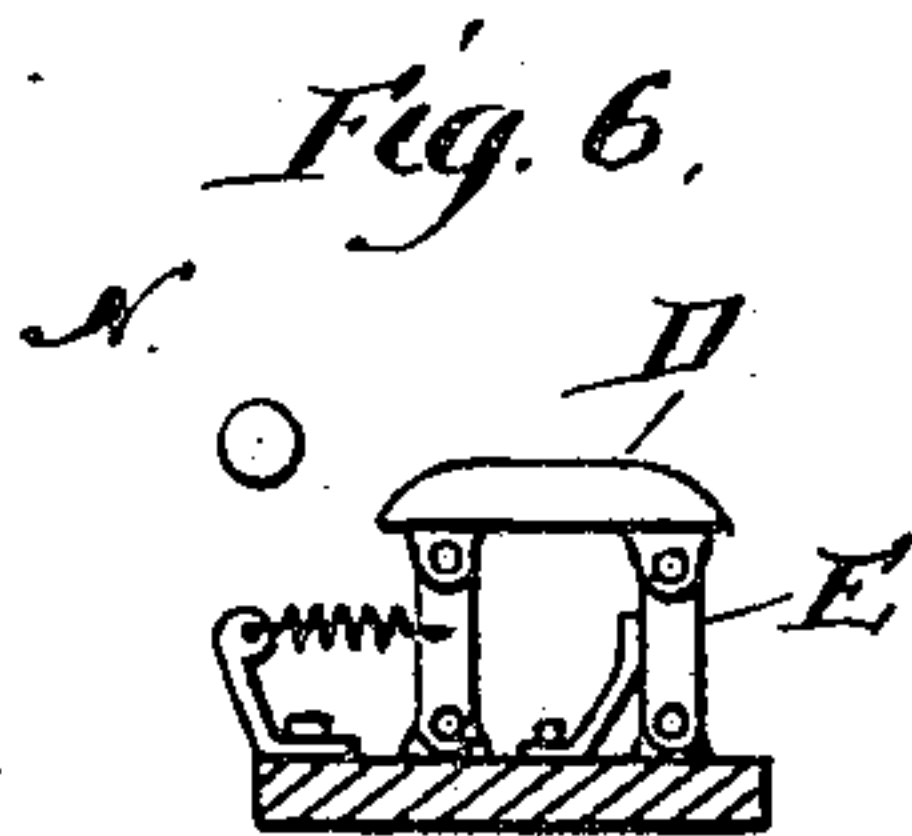
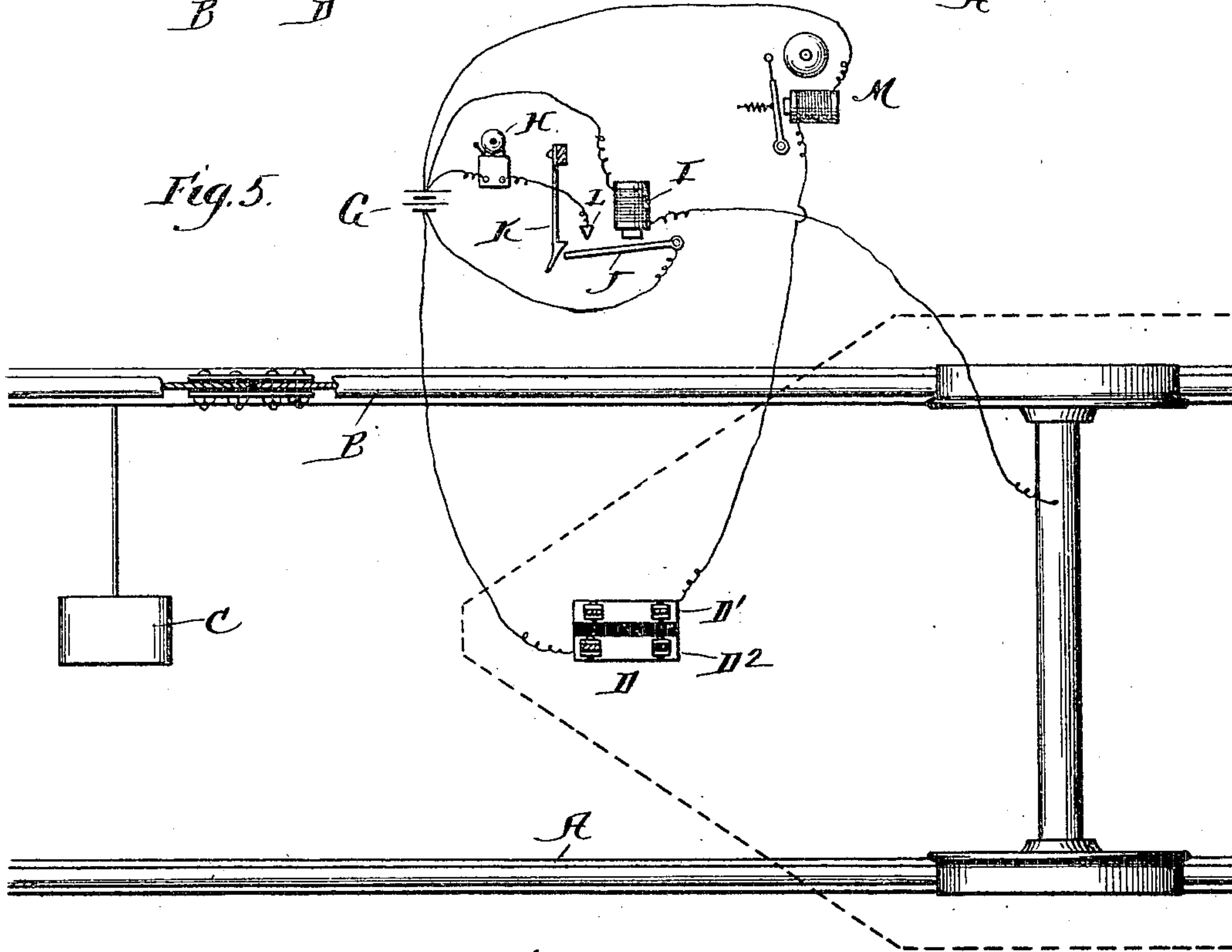
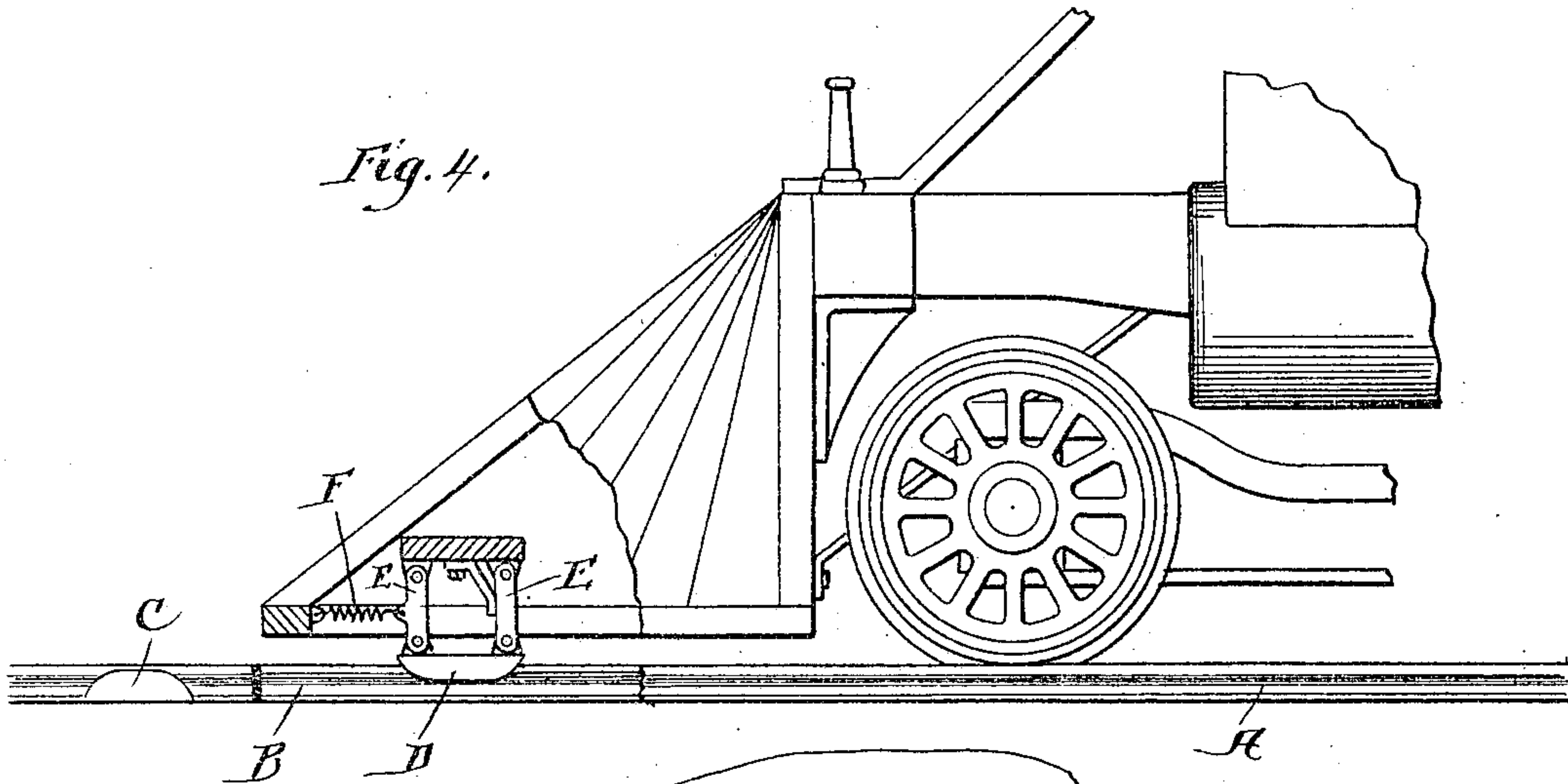


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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RAILROAD SIGNALING.

No. 807,829.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Railroad Signaling, of which the following is a specification.

My invention relates to an improvement in railroad signaling. Its object is to provide a simple and efficient means whereby the person in charge of a train or vehicle is made aware if his section of the rails of travel is clear or occupied by a second train or vehicle or if the rails are otherwise connected together either purposely or accidentally.

Referring to the drawings, Figure 1 is a side elevation of a stretch of road-bed, showing one complete block or section and the beginning and ending of two others, showing a train entering one section before another train has left the same. Fig. 2 is a plan view of Fig. 1, showing the train and apparatus in the cab of the locomotive in diagram. Fig. 3 is a plan view of a stretch of road-bed including one complete block or section and a portion of two more sections, showing the contacts arranged as they would be on a single-track railway. Fig. 4 is a side elevation of the front portion of a locomotive, a portion of the cow-catcher being broken away to show the spring-contact carried by the same. Fig. 5 is a plan view of Fig. 4, the parts of the locomotive being all removed, except the wheels and contacts, the electrical apparatus carried in the cab of the locomotive being illustrated in diagram. Fig. 6 is a plan view of the spring-contact carried by the cow-catcher of a locomotive extending outward from the inside of same to make contact with vertical posts.

A and B represent the two tracks of a railroad, the track B being divided into blocks or sections, each block or section being electrically insulated one from the other. The track A is continuous and not divided into blocks or sections, so that said track is an electrical conductor from one end to the other.

C represents contacts arranged at the beginning of each section or block and in electrical connection with said section and are arranged, preferably in the center, between the two rails—that is, where the system is used on a double-track railway where the trains always pass in the same direction on one track; but in a single-track railway these contacts C are arranged at each end of the

block or section, and at one end the contacts will be to one side of the center near the rail A, and at the other end they will be to the other side of the center near the rail B, both of said contacts in electrical connection with the same block or section of the rail B. These contacts C are made of metal suitable for conducting electricity.

Arranged upon each locomotive in advance of the front wheels of the same and preferably attached to the cow-catcher, as shown in Fig. 4, is the spring contact-shoe D, adapted to make electrical connection with the contact C when in the proper position. In the drawings I have shown the shoe D as to be connected by means of the parallel links E, which are held vertically by the spring F for the purpose of holding the shoe D normally downward in its extreme lowest position. Should through the moving of the locomotive the shoe D come opposite the stationary contact C, it will strike this contact, and the links E will allow the shoe D to swing in a manner so as to slide over this stationary contact C; but it is obvious that any other mechanical arrangement may be substituted for that shown in the drawings, the essential feature only being that the contacting should be positive and the shoe shall always remain in electrical connection with its circuit. In the drawings the shoe D is illustrated as to be divided into two parts D' and D², insulated from each other. Located in the cab of the locomotive is a battery or other source of electricity G, an electric bell H, a magnet I, an armature J, a spring-catch K, a contact L, and a one-stroke bell M.

The portion D² of the shoe D is in electrical connection with one terminal of the battery G, the other terminal of the battery G being connected to the magnet I, and said magnet I is also connected to the body of the locomotive, so that when the shoe D passes upon one of the contacts C and there is a train upon the same block to which the contact C is connected a circuit will be formed from the battery to the shoe, to the contact C, through the section of the rail B to which the contact is connected, through the truck of the train ahead to the rail A, from the rail A through the truck of the locomotive, to which the shoe is connected, through the magnet I, back to the other terminal of the battery G, thus attracting the armature J, and when said armature J is attracted by the magnet it will be engaged by the spring-latch K, which will hold

it in its attracted position until released, and when in this position it will make contact with the contact-point L, and as the armature is in electrical connection with one terminal of the battery G and an electrical connection extends from the other terminal of the battery G through the electrical bell H to the contact L said bell H will continue to ring until the armature J is released by retracting the spring-latch K, and thus although the contact between the shoe D and the contact-point C will be very short still the engineer will have a continuous alarm and cannot avoid heeding the same. Of course instead of an audible alarm an electric light or other visible alarm could be used, if desired.

In order that the engineer may have evidence that the electrical connections are all in order each time he passes upon a new block or section, I provide the one-stroke gong M or a visible alarm, if so desired, within the cab. This alarm M is electrically connected with the part D' of the shoe D and is also connected with one terminal of the battery G, and as the other terminal of the battery G is connected with the other portion D² of the shoe D each time the shoe passes over the contact C and by so doing establishes an electrical connection between the two parts of the shoe D the alarm M will be actuated, thus notifying the engineer that the electrical connections are in order.

Fig. 6 shows a device that could be used where it is desired to employ upright posts N, arranged alongside of the track instead of contacts between the rails. This would operate in exactly the same manner and would probably only be used in cases where considerable ice and snow is formed upon the track.

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

1. In railroading, means to notify the person in charge of the traveling vehicle if a section is clear or occupied, said means embracing means to divide electrically one of the rails of travel, conductors adapted to be used as contacting means connected each to one of the sections of said divided rail, contacting means carried by the train or vehicle in advance of the wheels of said vehicle, said contacting means in electrical connection with a source of current, and electromagnetic means adapted to close a circuit containing annunciating means and adapted to keep said circuit closed, the coil of the electromagnetic means connected electrically to the wheels of said vehicle.

2. In railroading, signaling means and means to automatically operate said signaling means, embracing on the road of travel means to electrically divide one of the rails into sections of predetermined length, contacting means for each of said sections, and embracing on the moving vehicle two contacts substantially in alinement with each other but in-

sulated from each other, said two contacts carried in advance of the wheels of said vehicle, and forming the terminals of an electric circuit embracing annunciating means, such as an alarm, said two contacting means adapted to be connected electrically through the contacting means stationed on the road of travel.

3. In railroading, means to annunciate the condition of a section of the road of travel, said means embracing for said section a stationary contact connected to one rail of said section and embracing a pair of contacts carried by the moving vehicle in advance of the wheels of said vehicle, said two contacts forming the terminals of a current-carrying circuit including annunciating means, one of said contacts serving also as the terminal of a second circuit including an electromagnet, the second terminal of said circuit connected to the wheels of said vehicle, the electromagnet provided with means to close an additional circuit including annunciating means and to keep said circuit closed, the first and second annunciating means differing from each other in their action.

4. In railroading, means to annunciate the condition of a section of the road of travel, said means embracing on said road of travel insulating means to divide electrically one of the two rails of travel into independent sections, and contacting means at or near each end of each of said sections, said contacting means in electrical connection with one of the rails of said sections, and embracing on the traveling vehicle contacting means carried in advance of the wheels of said vehicle, an electric circuit, an annunciating device, electromagnetic means adapted to be actuated through the electrical connection of one rail of said section to the second rail and thereby closing and keeping closed a circuit containing annunciating means.

5. In a system of railroad signaling, rails of travel, one of said rails divided electrically into independent sections, the second of said rails retaining normal conductivity throughout its length, each of said sections of the first-named rail provided with two stationary contacts, contacting means carried by the moving vehicle in advance of any of its wheel pairs, and means dependent on the contacting between the stationary and traveling contacts to annunciate that said vehicle has entered a new section and also to annunciate if said new section is occupied by a second vehicle.

6. In a system of railroad signaling, one rail of travel electrically in its normal state, the other rail of travel electrically divided into sections, means, in part stationed at or near each end of each of said sections, and in part carried by the traveling vehicle in advance of any of its wheel pairs, to annunciate in said vehicle, first, the entering of a new section, and second, the status of said section as to the presence of a second vehicle therein.

7. In railroad signaling, means to annunciate the entrance on a new section of a traveling vehicle and the status of said section as to a second vehicle, said means embracing two
5 stationary contacts connected to one rail of travel in each section and two contacts, in alinement but insulated from each other, carried by a traveling vehicle in advance of any of its wheel pairs, and means in said vehicle,

electromagnetic in their action, to actuate announcing devices placed in said first vehicle.

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

ISIDOR KITSEE.

Witnesses:

EDITH R. SHILLEY,
ALVAH RITTENHOUSE.