

J. H. BODY & F. T. LEFTWICH.
RAILWAY SIGNAL.
APPLICATION FILED MAR. 26, 1909.

1,060,311.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

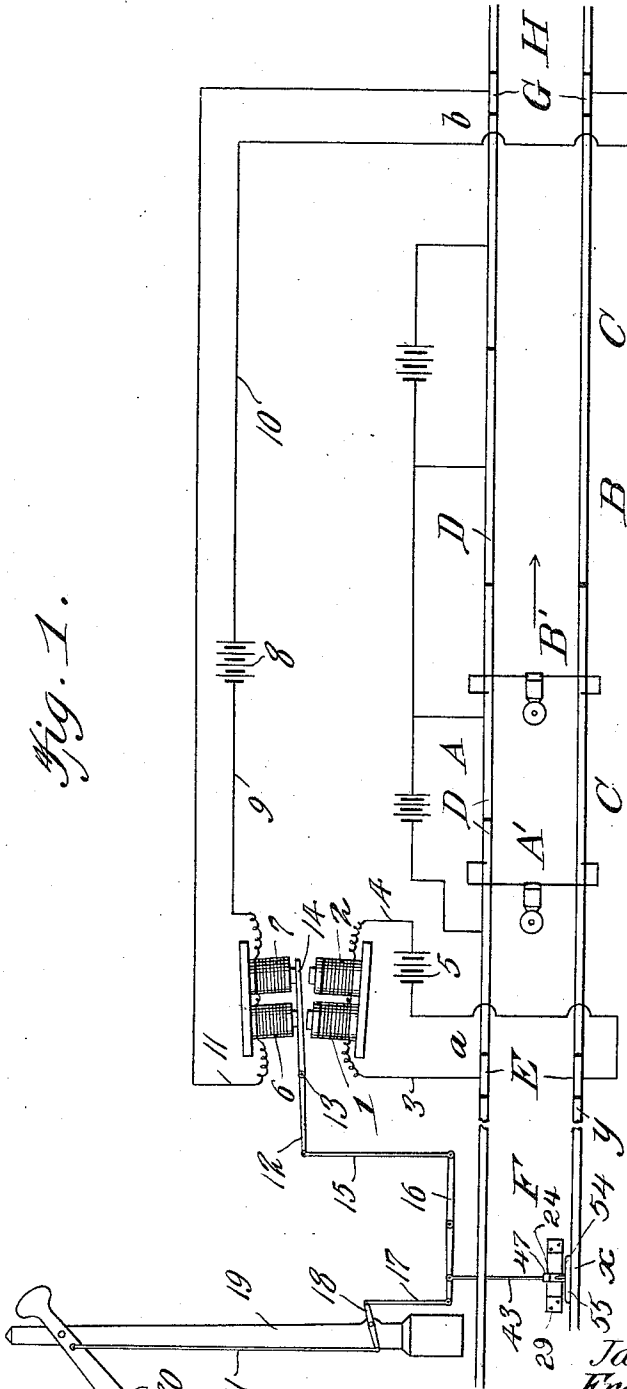


Fig. 5.

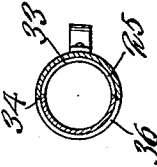
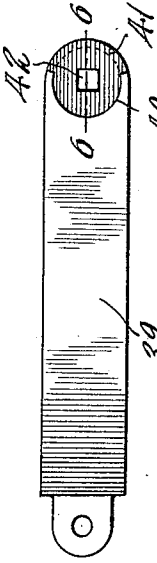


Fig. 6.



Fig. 4.



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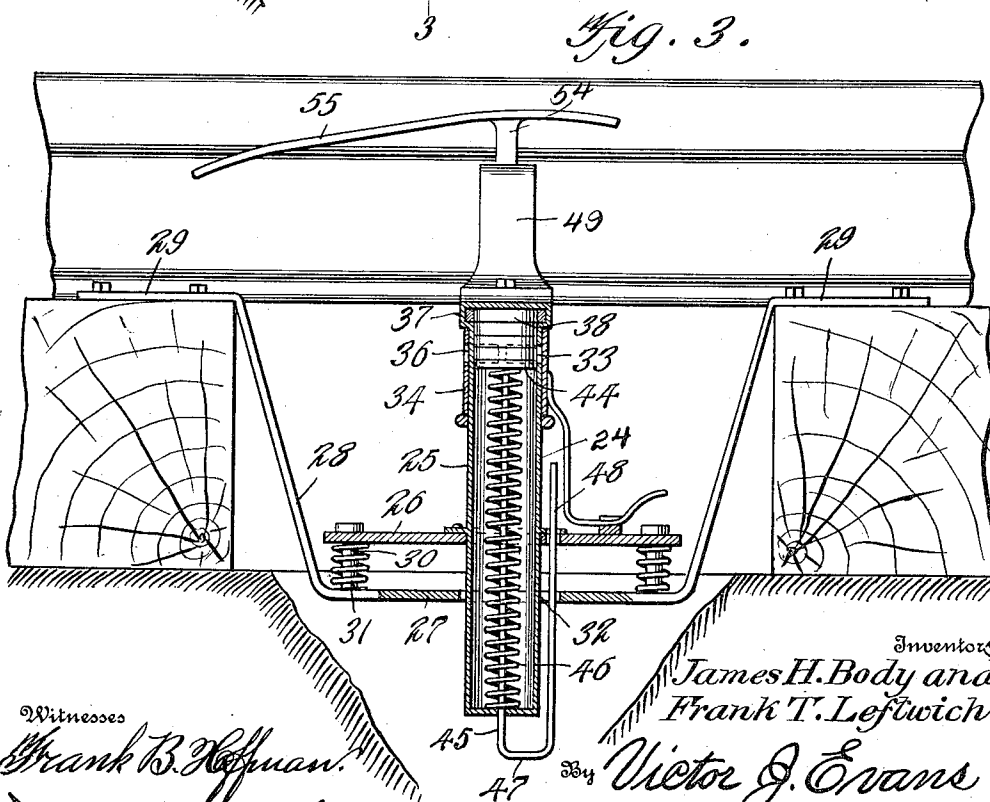
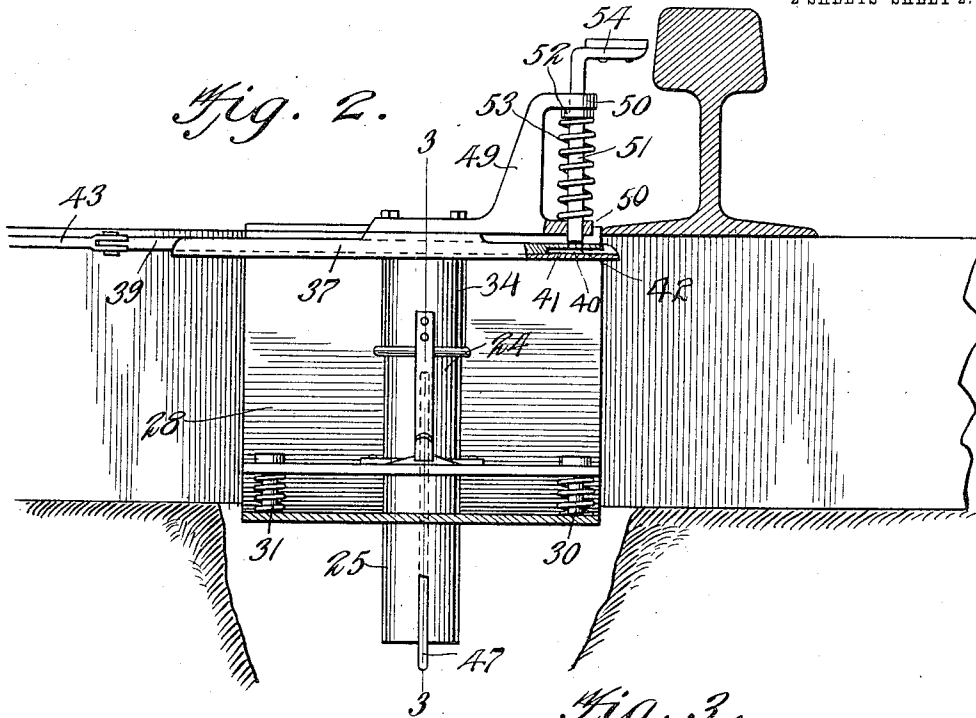
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL.

1,060,311.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JAMES H. BODY and FRANK T. LEFTWICH, citizens of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to railway signals, and has for an object to provide a magazine located adjacent to one of the rails of a track and adapted to contain explosive cartridges arranged to be independently moved into an operative position upon passing of a train from one block into another block so as to caution a second train that may enter the same block.

A still further object of our invention is to provide a pivoted signal arm arranged to be simultaneously moved into an operative or inoperative position with corresponding movements of the ejecting finger for the cartridge magazine.

Other objects and advantages will be apparent as the nature of the invention is better set forth, and it will be understood that changes within the scope of the claim may be resorted to without departing from the spirit of the invention.

In the drawings, forming a portion of this specification and in which like characters of reference indicate similar parts in the several views:—Figure 1 is a diagrammatic view of our improved signal. Fig. 2 is a detail transverse section through a rail showing adjacent thereto the cartridge magazine with the means adjacent to the rail adapted to be operated upon movement of a train. Fig. 3 is a section taken on the line 3—3 of Fig. 2. Fig. 4 is a bottom plan view of the ejecting finger. Fig. 5 is a detail horizontal section taken through the magazine. Fig. 6 is a detail section on the line 6—6 of Fig. 4.

Referring now more particularly to the drawings, and with particular reference to Fig. 1 thereof, there is shown rails A and B, the latter being composed of insulated sections C and the former of similar but shorter insulated sections D. The rail A and B for the purpose of clearness we will assume indicate from a point *a* to the point *b* a single block, and at the point *a* the sections C and D are connected by means of insulated rail sections E to a block F constructed in a

manner identical with that formed by the sections C and D. At the point *b*, the sections C and D are provided with short insulated sections G which are connected to the rails or sections of a block H.

Electro-magnets 1 and 2 are provided, and as shown the magnet 1 is electrically connected by means of a wire 3 with one of the sections E, and the magnet 2 is connected by means of a wire 4 to the other section E. The wires 3 and 4 are in circuit with a battery or electric source 5. Electro-magnets 6 and 7 are positioned adjacent to the magnets 1 and 2 with their cores directly opposite but in spaced relation to the cores of the magnets 1 and 2 for a purpose to be hereinafter more fully described. A battery or electric source is illustrated at 8 and is connected to the magnet 7 by means of a wire 9. From the battery a wire 10 is connected with one of the sections G at the point *b*, and a wire 11 is connected to the other section and is also connected with the electro-magnet 6.

An armature 12 is pivoted as shown at 13 adjacent to the magnets and the portion 14 extends directly between the cores of the said magnets as clearly illustrated in Fig. 1. The armature has connected thereto the upper end of a rod 15, the lower end of the said rod being connected to a rock arm 16. The rock arm 16 is connected by means of a rod 17 to a rock arm 18 pivoted to a post 19 which carries at its upper end a swinging arm 20 which may be of any suitable construction and which may be colored 90 if desired as is customary. The arm 20 is connected to the rock arm 18 by means of a rod 21 or similar connection.

Adjacent to one of the rails of the track is shown a cartridge magazine 24 which consists preferably of a receptacle 25 having secured thereto a plate 26 yieldingly mounted upon the base portion 27 of a bracket 28 having tie engaging portions 29. The base portion 27 of the bracket is preferably provided with a series of vertically extending headed studs 30 around which coil springs or similar elastic cushioning elements are disposed and confined between the bottom of the plate 26 and the upper surface of the portion 27. The portion 27 of the bracket is provided with a centrally located perforation 32 in which the lower end of the receptacle 25 is

disposed. The receptacle 25 has formed therein at its upper end a slot 33 which is normally closed by a revoluble collar or the like 34 engaged with the receptacle 25 and provided with a passage 36 which conforms in shape to the passage 33 so that it can register therewith when it is desired to insert cartridges or similar explosives in the magazine. The receptacle 25 carries at its upper end a horizontally disposed guide member 37 which is open as shown at 38 so as to communicate with the receptacle 25 to permit the discharge of a cartridge from the receptacle into the said guide. An ejecting finger 39 is slidably engaged with the guide 37 and has a forked outer extremity 40 for a purpose to be hereinafter more fully explained. The ejecting finger 39 is provided with a lip 41 in which is formed a hammer receiving passage 42. The ejecting finger 39 is connected by means of a link 43 to the rock arm 16 and the said finger is thus adapted to be actuated upon movement of said arm. The receptacle 25 is provided therein with a follower head 44 at the upper end of a vertical stem 45 around which is coiled a spring 46 which is thus confined between the bottom of the receptacle 25 and the under side of the follower head 44. The stem 45 is preferably slidably mounted at its lower end in a passage formed in the bottom of the receptacle and beneath the bottom the stem is offset as at 47 and is extended upwardly at 48 in spaced relation to the stem 45 within the receptacle and the said portion 48 is guided in its movement in passages formed in the base plate 26 and in the portion 27 of the bracket 28. The provision of the following head 44 is such that the cartridges will always be held in position so that they can all be ejected from the receptacle 25.

Mounted upon the guide 37 is a bracket 49 having spaced ears 50 in which a stem 51 is slidably mounted and to which is secured a stop collar 52. A spring 53 is coiled about the stem 51 and is confined between the stop 52 and the lowermost ear 50 upon the bracket 49. The said stem 51 will be hereinafter termed a hammer in view of its function and as shown the said stem or hammer is provided with a right angularly extending portion 54 at its upper end arranged to lie when the ejecting finger 39 is actuated in a position directly above the passage 42 formed in the lip 41. The portion 54 of the stem is preferably provided with a cam element 55 arranged to be depressed or en-

gaged by the flange of a wheel upon one of the cars of a train.

In operation, assuming the space between the points x and y to be of a length that will more than equal the length of the longest train it is obvious that when the wheels of the cars pass over the sections E the magnets 1 and 2 will be energized so as to actuate the armature 14 which through its connections with the arm 20 will move it into its operative position and in view of the connections between the armature and the lever 43 the ejecting finger 39 will be operated to the extent that a cartridge will be moved outwardly adjacent to one of the rails of the track with the cam element 55 extending longitudinally of the rails in position to be depressed by the first wheel of the following train. Should a train pass the entire length of a block without another train entering the same block the engagement of the wheels with the sections G will close the electric circuit and energize the electro-magnets 6 and 7 to move the armature into the position shown in Fig. 1, simultaneously restoring the ejecting finger to its normal position. It will be seen that when the engineer of a succeeding train fails to recognize the arm 20 as a danger signal movement of the train into the block will cause the first wheel of the train to depress the element 55 to the extent that the hammer or stem 51 will be pushed downwardly and explode the cap or cartridge directly beneath the hammer or stem.

We claim:

In an apparatus of the class described, an electric circuit, a signal comprising a yieldable base, a cartridge receptacle supported by said base, an elongated guide member supported by and inclosing the upper end of said casing, a bracket supported centrally of said guide and having a portion disposed above one end thereof, a hammer mounted in said bracket, a spring actuated follower within said casing for automatically moving the cartridges into said guide, an ejector finger movable in the guide in the direction of said hammer, and means for actuating said ejector finger.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES H. BODY.
FRANK T. LEFTWICH.

Witnesses:

C. G. BUSH,
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