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C. A. WARD.

RAILWAY SAFETY APPLIANCE.

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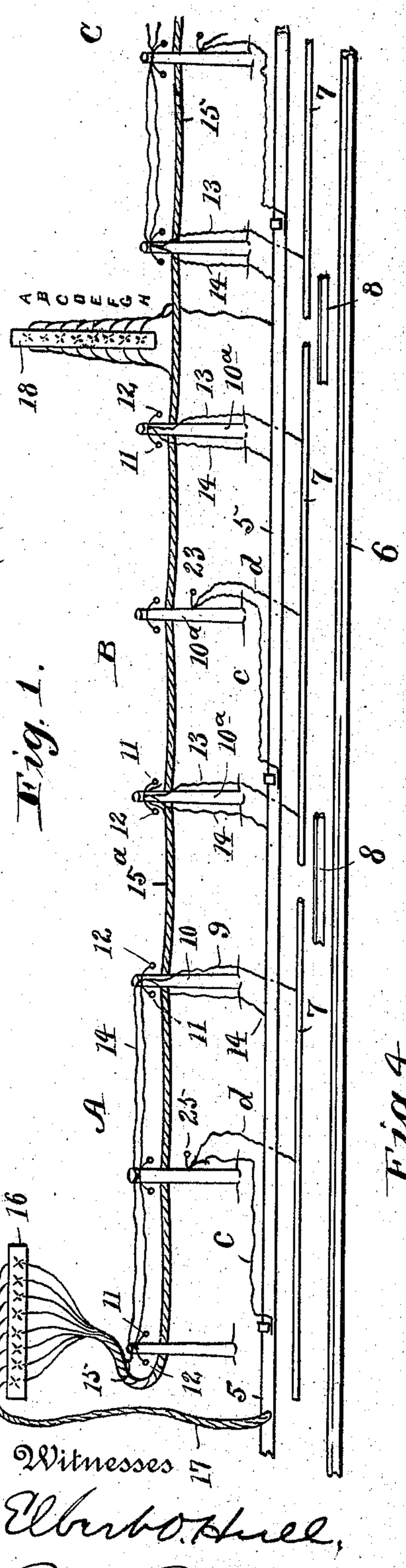

Fig. 1.

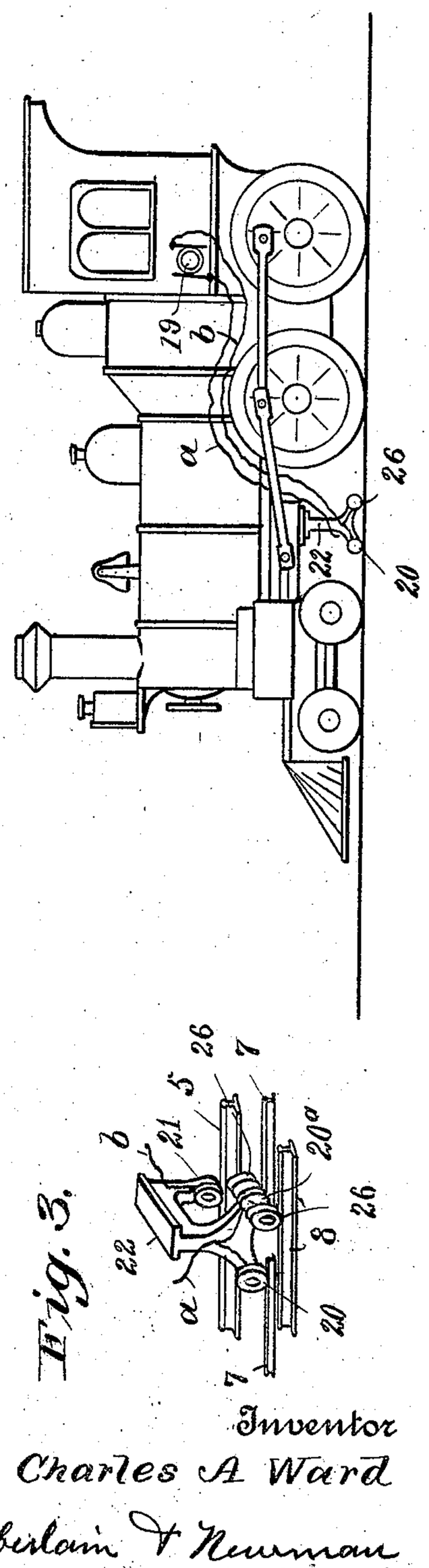

Fig. 2.

Fig. 4.

Fig. 3.

Witnesses

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RAILWAY SAFETY APPLIANCE.

No. 894,476. Specification of Letters Patent. Patented July 28, 1908.

Application filed May 29, 1907. Serial No. 376,264.

To all whom it may concern:

Be it known that I, CHARLES A. WARD, a citizen of the United States, and resident of Forestville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Railway Safety Appliances, of which the following is a specification.

My invention relates to safety appliances for steam or electric railway equipment, and refers especially to signaling devices whereby the several blocks will be automatically lighted in advance, along side and in the rear of a moving train, or car in a way to signal ahead, light along side and in the rear of such train.

It is the purpose of my invention to provide a series of lights along a track, both for the purpose of signaling the coming of a train and likewise for the purpose of illuminating the roadbed to better detect obstructions upon the track and to provide light for the cars and for passengers when getting on or off at stations; to divide such lights into sections or blocks, each of which comprises a complete and independent system; further to provide upon a locomotive of any preferred type, means for generating an electric current sufficient for such illuminating purposes, and finally to provide means for successively transmitting the current so generated to the lights in the several blocks along side the roadway both in advance and in the rear of a train.

With the above objects in view my invention resides and consists in the novel construction and special arrangements of parts illustrated upon the accompanying drawing forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures and of which,

Figure 1, shows a perspective elevation, illustrating a portion of roadbed divided into blocks so called, and fitted with my improved appliances. Fig. 2, is a side view of a locomotive carrying an electric generator, with means for electrically connecting the same with one of the rails, and likewise a third rail, and a supplementary third rail, which latter carries the current when the train is passing from one block to the other. Fig. 3, is a detail perspective view of a device applied to the locomotive shown in Fig. 2, for engaging both the track rail and third rails. Fig. 4, is a detail cross sectional view of a rail and appliance attached thereto for making an electric contact by an approaching train and for lighting the safety signaling lights.

Referring in detail to the characters of reference marked upon the drawings 5 and 6 represent rails which constitute the track over which a locomotive and attached cars may operate in their usual way.

7 represents a third rail laid in sections equal in length to the length of the blocks, and may be arranged between the track rails or outside thereof at any desired distance therefrom. These rails may be in the form of regular track rail as indicated, or if preferred a heavy wire may be employed instead.

8 represents the supplementary third rail to be used in extending the closed circuit to the rear block for the purpose of lighting the passenger cars and the rear block until the train has moved out. The wire 9 connected with the third rail may be carried up the end posts 10 at one end of the block and connected with lights 11 and 12 thereon and extended as at 14 to include the intermediate lights on all the posts of a section, and then be returned and connected with the live rail 5, as indicated in block A. The lights 11 and 12 upon the posts 10^a in section B and C are separately connected by a wire 13 which is taken from the third rail and by a return wire 14 attached to live rail 5. The lights of each block are connected by a wire 15 that is carried into the cable 15^a which may be supported upon the posts and carried into a despatcher's office as at 16 where the several wires of the cable are connected with a special lighting board provided with a series of lights each representing a block in the system and according to the particular block with which it is connected. The return wires from these lights in the despatcher's office may again be formed into a cable as at 17 and connected with the live rail 5 as shown. The cable may be further carried into a station as at 18 and a series of lights there again arranged in the same way, and similarly lettered with respect to the different blocks in the division, so as to indicate at that point also the particular block in the division occupied by the train.

As before stated the electricity for illuminating may be generated upon the steam locomotive as indicated in Fig. 2, or in case of an electric equipment, may be taken from the source of electric supply. The dynamo which is indicated by 19 in the drawing as

provided in steam road equipment is provided with wires *a* and *b*, one of which is connected to the wheels 20 and 20[a] and the other with the wheel 21. These wheels may be supported upon a bracket 22 connected to the locomotive in any suitable way and obviously the said wheels would be suitably insulated to prevent any direct electrical connection of one with the other, as through the bracket 22. The wheel 21 serves to engage the live rail 5, while the wheels 20 and 20[a] engage the sectional third rail 7.

In order to guard against collisions in a case where two trains coming from opposite directions or one over taking another and entering the opposite ends of a block simultáneously lighting the block, I provide an additional safety or signal light 25 upon intervening posts and connect the same as by means of a wire *c* with a contacting device 24 secured to the live rail 5 and by a second wire *d* with the third rail 7, as indicated in Fig. 4, which is designed to be engaged by the wheels of the train and forced down to make a contact of the rail 5 with the said wire *c* which serves to light the intervening lights 25 during the travel of the train over said contact. Said intervening lights like the end lights 14 are preferably covered by a red globe to indicate a danger signal.

In practice a bracket such as shown in Fig. 3, is also attached to each car and when provided with the electrically connected and extended wheels 26 to engage the supplementary rails 8 and insure a constant electrical contact whereby the cars can be individually lighted.

In the drawing I have made no effort to show the immaterial details of construction that would be included in the installation of an equipment of this sort, but it will be obvious that such features as that of properly insulating the wires, and inclosing and protecting the same, as well as others of like character, would be included in practical operation.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In a device of the class described, the combination with a pair of outer rails, of a series of third rails, a supplementary third rail, danger lights displayed along side the track having a connection with said third rail, a contacting device attached to one of the pair of rails and having an attached wire to connect with said danger light, a locomotive bearing means for engaging said outer rail and third rails, an electric generator carried on the locomotive, and a wheel for engaging the rails and connected with the generator.

2. In a device of the class described the combination with a pair of rails, of a series of third rails, an auxiliary rail beside the spaces formed between the ends of third rail, a connected series of electric lamps arranged along side the said rails and connected with both the third and track rail, a wire connecting the series of lights with a light in a despatcher's office and from there to one of the before mentioned rails, and a locomotive bearing means for generating electricity and having connections for feeding same to both the before mentioned track rail and third rails.

3. In a device of the class described the combination with a pair of track rails, of a series of third rails arranged between the track rails, a series of electric lamps arranged along side the track and connected on one side to the track rail and at the other side to the third rail, a locomotive bearing a bracket having a wheel to engage said track rail and a pair of wheels to engage the third rails and an additional wheel to engage the supplementary third rail, and a dynamo carried by the locomotive one side of which is connected with the rail wheel and the other with the third rail wheel.

4. In a device of the class described, the combination with a pair of track rails, of a series of third rails, danger lights displayed along said track having a connection with said third rail, a contacting device attached to one of the pair of rails and having an attached wire to connect with said danger lights, a connected series of electric lamps along side the said rails and connected with both the third rail and track rail, a locomotive bearing means for engaging said track rail and third rail and an electric generator carried on the locomotive and a wheel electrically connected with the generator, for engaging the rails.

Signed at Forestville, in the county of Hartford, and State of Connecticut this 21st day of May, A. D., 1907.

CHARLES A. WARD.

Witnesses:
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