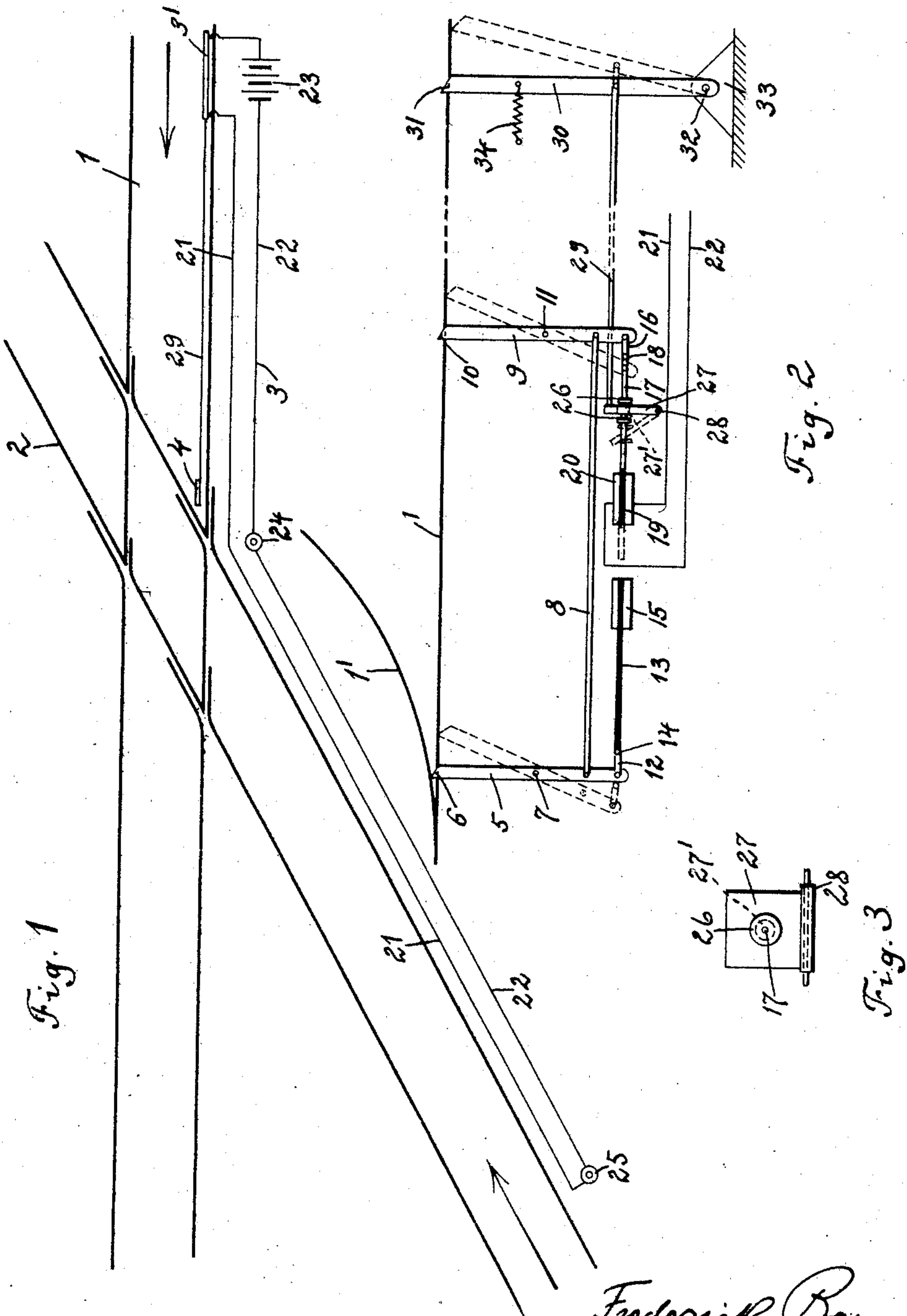


No. 879,138.

PATENTED FEB. 18, 1908.

F. BAUER.
RAILWAY SIGNALING DEVICE.
APPLICATION FILED OCT. 18, 1907.



WITNESSES
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RAILWAY SIGNALING DEVICE.

No. 879,138.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed October 18, 1907. Serial No. 398,063.

To all whom it may concern:

Be it known that I, FREDERICK BAUER, a subject of the Emperor of Germany, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Railway Signaling Devices, of which the following is a specification.

The present invention relates to automatic railway signaling devices, adapted to indicate the presence of a train between two predetermined points of the railway track.

It is the object of the present invention to prevent the possibility of a collision between two trains, and more particularly to prevent the collision at a crossing, that is at points where two railroads cross on the same level.

Signaling devices for railroads of this general character comprise usually an electric circuit, including a track or a rail of the track divided into insulated sections and visual or other signals, and it is obvious that dividing the track into such insulated sections is rather expensive.

It is now the object of the present invention to provide a railway signaling device, which allows of employing the ordinary railway track and comprises an electric circuit independent of the rails between two predetermined points. This circuit contains an electric switch, visual or other signaling devices and suitable sources of electric energy for operating these signals. The switch contained in the circuit is set automatically, when a car or train passes over the same, and, in closing the circuit, operates the signals and indicates at distant points that a train is traveling on the section of the track, to which the electric circuit, operating the signal, leads. The invention differs from other systems, which show or throw a signal at two or more points to indicate that a certain section of a track is occupied by a train, in that the change of signals is produced automatically without necessitating the operator's leaving the car. The train, having passed over a certain portion of the track, automatically opens the circuit and restores the signal to its normal position.

The invention is illustrated in the accompanying drawings, in which

Figure 1 shows the arrangement of a railroad-crossing and a signaling system, constructed according to the present invention, Fig. 2 shows an elevation of the electric switch, and Fig. 3 is a detail of construction.

In Fig. 1 of the drawings, 1 indicates a railroad track of the usual construction, and 2 designates a track crossing said first track on the same level, which crossing does not differ in any essential way from any other crossing. The automatic signaling device is indicated at 3 and comprises, broadly speaking, an electric circuit containing visual or other signaling devices, a source of an electric energy, an electric switch 3' and a lever 4, connected to said switch and adapted to open said switch from a distant point.

The construction of the switch 3' and the opening device 4 is shown in detail in Fig. 2. The electric switch is located near to one of the rails of the track, so as to be operated by the wheels of the train, without necessitating the operator's leaving of the car. This switch comprises a lever 5, having a finger 6, projecting into the path of the wheel 1'. The lever is fulcrumed at 7, and connected by means of a connecting rod 8 to a similar lever 9, which latter comprises a finger 10, similar to the finger 6 of the lever 5, and serves for the same purpose. The lever 9 is fulcrumed at 11, and it is obvious that when the wheel 1' of the car forces the lever 5 into the position shown in the dotted lines in Fig. 2, the lever 9 will also be forced into a similar position, since these levers are positively connected by means of the connecting rod 8, hereinbefore referred to. The lower end of the lever 5 is operatively connected to a pitman 12, the latter being connected to a rod 13 by means of a pivot 14, and sliding between guide rails 15. The rod 13 is made preferably of insulating material.

A pitman 16, similar to the pitman 12 is connected to the lower end of the lever 9, and secured to this pitman is a rod 17 by means of a pivot 18. The inner end of this rod 17 carries an insulating portion 19, moving between parallel contact plates 20 to which are connected wires 21 and 22, forming an electric circuit hereinafter to be referred to.

It will be observed that the parallel contact plates 20 and the rod 17 form a knife switch, which is opened or closed by the motion of the knife 17 which reciprocates between the contact plates. These contact plates serve at the same time as guide rails for the knife 17, that is, when the knife is moved in one or the other direction, the insulating part 19 is guided by the rails.

One of the parallel plates 20 is connected by wire 21 to a visual or other signal 25, lo-

cated near to the track 2 and at a distant point from the crossing. From signal 25 a wire 22 leads the signal 24, located at the crossing and connected by wire 22 to a source
 5 of electric energy 23, wherefrom the wire leads to the other of the parallel contact plates. It is obvious that in closing the knife switch a circuit will be closed from battery 23 to signal 24, to signal 25, by means of
 10 wire 21 to one of the parallel plates 20, through rod 17 to the other of the plates 20 and back to the battery 23. The effect of closing the circuit is to actuate signals 24 and 25, indicating to the engineer of a train,
 15 traveling on track 2 in the direction of the arrow, that a train, traveling on track 1, is approaching the crossing.

On rod 17 are mounted two stops 26, for a purpose hereinafter to be described. A plate
 20 27 is hinged at 28 and having an aperture 27', through which rod 17 leads. The plate 27 is connected by means of a flexible connection 29 to a lever 30, located near the crossing and in the path of the wheels of a train traveling
 25 on track 1. This lever 30 comprises a finger 31, similar to the fingers 6 and 10 of the levers 5 and 9, and projects over the rail, so as to be in the path of the wheels and to be operated by the same. The lever 30 is pivoted at 32
 30 to a bracket 33 and held under the tension of a spring 34, located near to the finger 31. The device, comprising this lever 30 and the spring 34 has been referred to hereinbefore as the cut-out 4. The electric switch 3' is
 35 located about a mile from the crossing, and on the track 1 so as to be operated by the train traveling on the same. The signal 25 is located at a distant point from the crossing and on track 2, while signal 24 is located at
 40 the crossing.

The operation of the device is as follows: Normally the electric switch 3' is open, and therefore the signals 24 and 25 at their normal, that is to say, in their inoperative position.
 45 A train, traveling on track 1 in the direction of the arrow, will by means of its wheels close the switch 3', thus closing the circuit 3, operating thereby signals 24 and 25. The wheel of the first car of the train forces
 50 the lever 5 into the position shown in dotted lines in Fig. 2, since the same is in the path of the wheel, and by means of the connecting rod 8, the lever 9, pitman 16 moves the rod 17, so as to close the circuit 3. Circuit 3 being
 55 closed signal 24 and signal 25, located at

a distant point on track 2, will be operated and the engineer of the train, traveling on this track, seeing the signal actuated in front of his train, knows that there must be a train
 60 traveling on track 1 and approaching the crossing. Should the train traveling on track 2 have passed signal 25, then signal 24 located at the crossing indicates to the engineer of the train, that a train is approaching
 65 the crossing.

The circuit is opened by the wheels of the train traveling on track 1. When rod 17 closes the circuit 1, one of the other stops 26 forces the plate 27 in the position shown in
 70 dotted lines in Fig. 1. When now the first wheel of the train, moving on track 1, touches the finger 31 of the lever 30, located near the crossing, the lever will be forced into the position shown in dotted lines in Fig. 1,
 75 and by means of the flexible connection 29 the plate 27 and one of the stops 26 move the rod 17 so as to break the circuit, whereby the signals are restored to their normal position.

What I claim is:—

1. In a railway signaling device, the combination with a track, of a normally open circuit containing signaling devices, and a single switch inserted into said circuit and adapted to close and open said circuit from
 80 predetermined points of the track.

2. In a railway signaling device, the combination with a track, of a normally open circuit independent of said track and containing signaling devices, and a single switch inserted into said circuit and adapted to close
 85 and open said circuit from predetermined points of the track.

3. In a railway signaling device, comprising a normally open electric circuit containing signaling devices, a single electric switch
 90 in said circuit operated by the train and adapted to close the circuit when the train passes over the same, and mechanical means operatively connected to said switch and adapted to open the same from a distant
 100 point, when the train is passing over said opening means.

Signed at New York, in the county of New York and State of New York, this 24th day of July, A. D. 1907.

FREDERICK BAUER.

Witnesses:

SIGMUND HERZOG,
 S. BIRNBAUM.