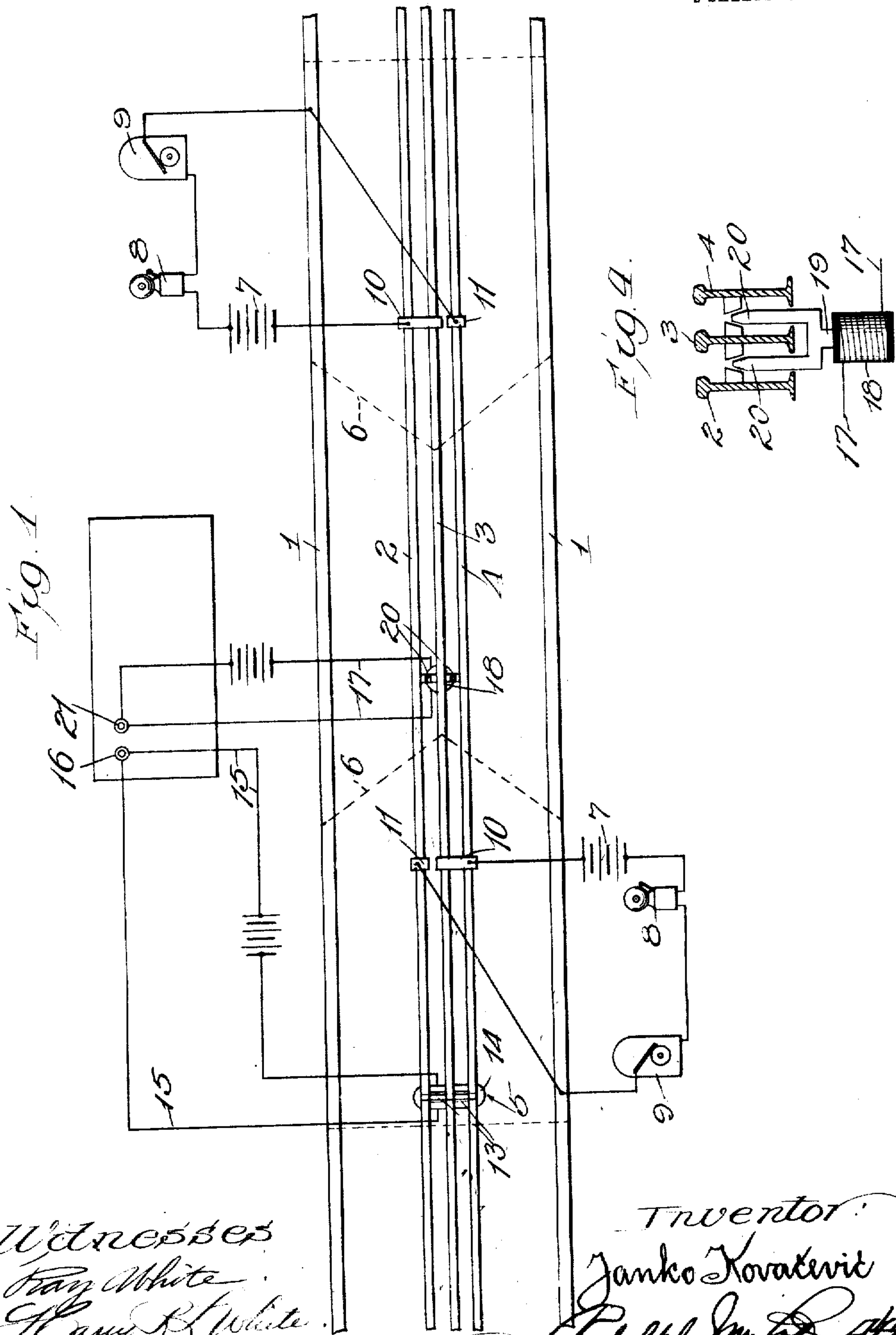


J. KOVAČEVIĆ.
RAILWAY SAFETY SYSTEM.
APPLICATION FILED OCT. 14, 1907

906,636.

Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.



Witnesses
Ray White
Harry R. White.

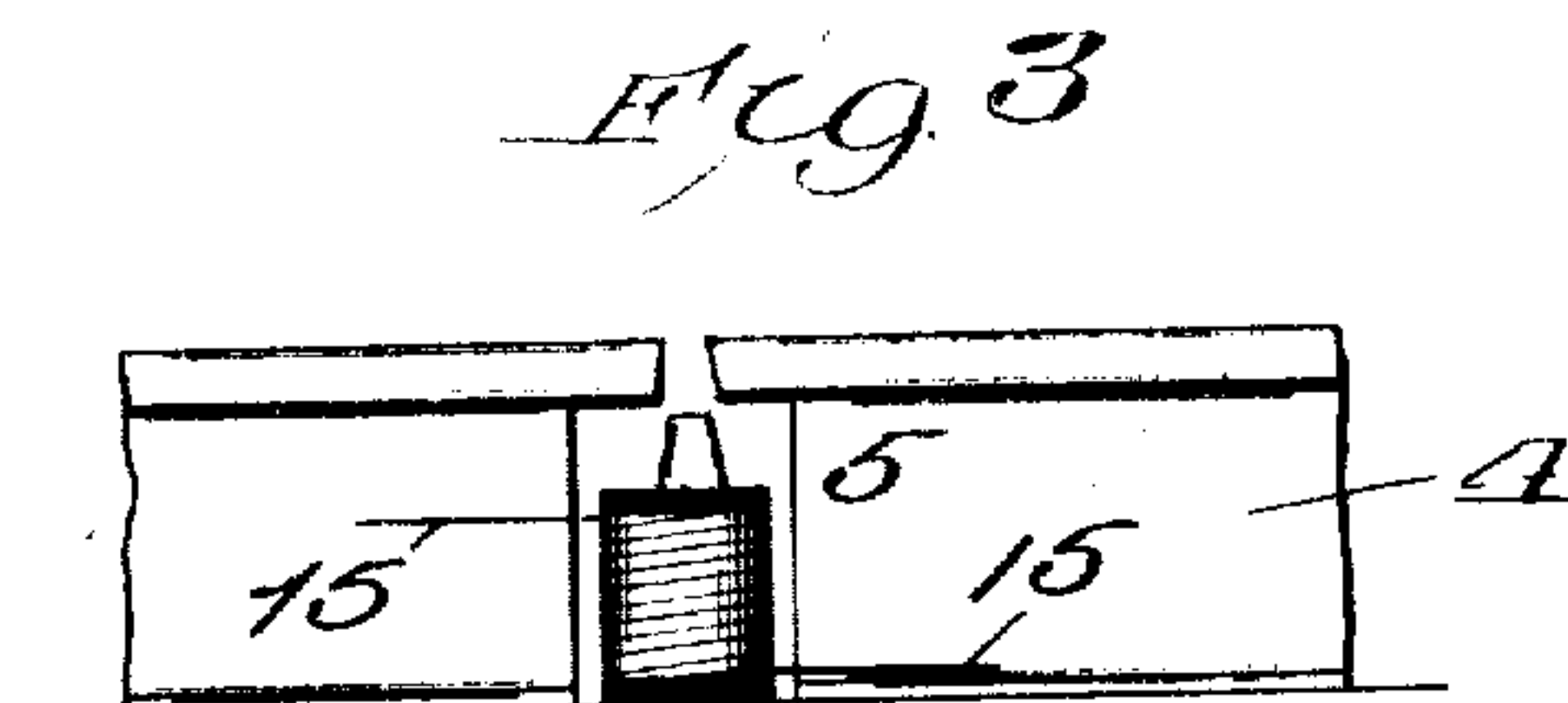
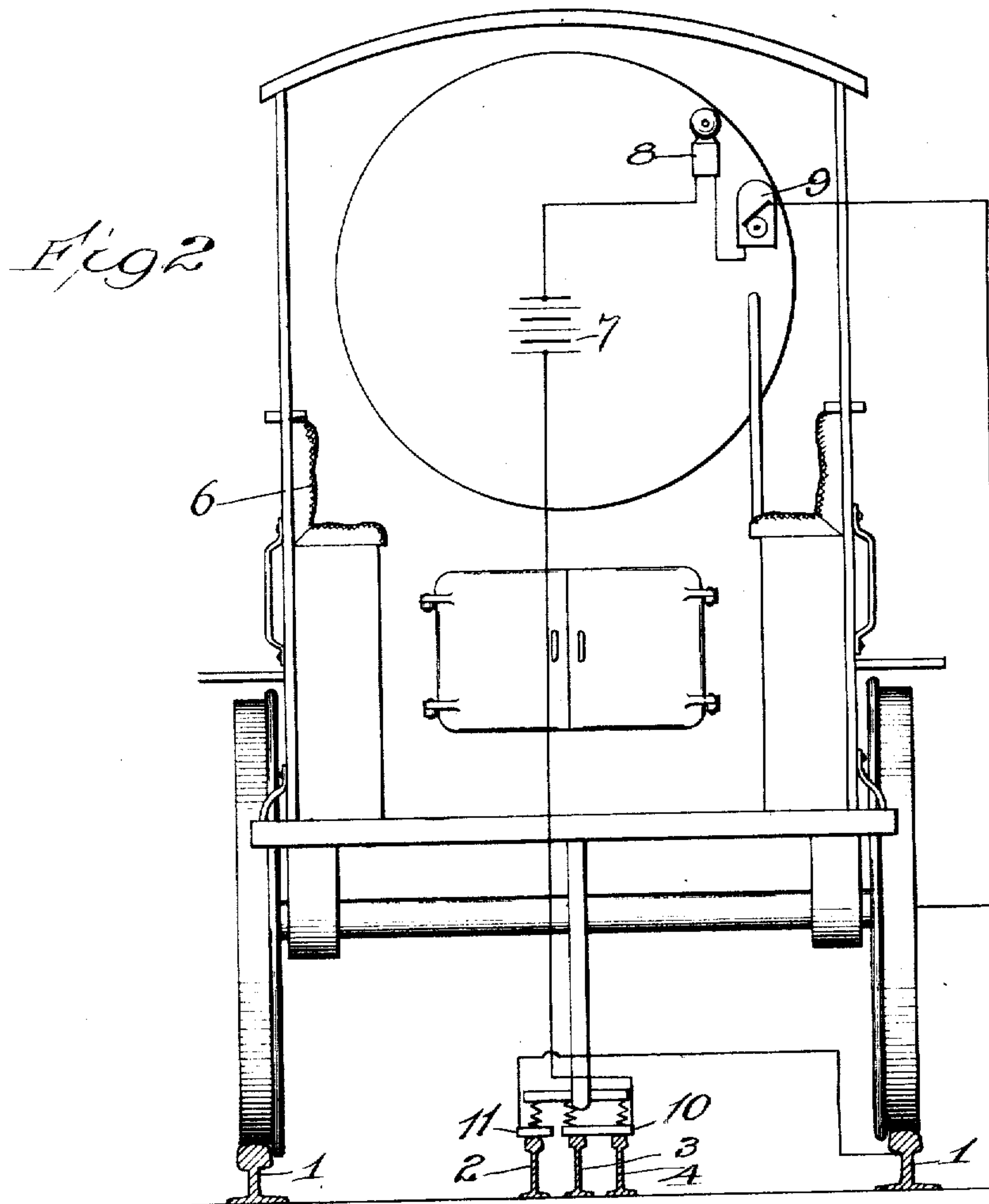
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By *Charles J. M. P. A. Co.*

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2 SHEETS—SHEET 2.



Witnessed
Ray White.
Harry R. White

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UNITED STATES PATENT OFFICE.

JANKO KOVAČEVIĆ, OF YOUNGSTOWN, OHIO.

RAILWAY SAFETY SYSTEM.

No. 908,838.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed October 14, 1907. Serial No. 397,364.

To all whom it may concern:

Be it known that I, JANKO KOVAČEVIĆ, citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Railway Safety Systems; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel automatic electric safety system for railways, the object being to provide simple and efficient means for the prevention of collisions, and consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating this invention: Figure —1— is a plan view of a part of a railway including diagrammatic views showing the electric circuits controlling safety appliances on the train, and electrically controlled appliances controlling circuit closing means on the railway. Fig. —2— is a diagrammatic rear elevation of a locomotive equipped with safety appliances and showing the circuit closing means on the railway controlling the circuit through the said safety appliance. Fig. —3— is a fragmentary detail view of an electro-magnetic coupling device employed. Fig. —4— is a similar view of a circuit closer employed.

The object of my invention is to provide on a railway, means whereby trains are prevented from colliding by automatically electrically controlled means and are also placed partly within the control of station agents to warn trains, not within reach of visible signals, of impending danger.

In the accompanying drawings I have illustrated diagrammatically a suitable embodiment of my invention without particular attention to details.

On the railway either between the rails 1 or in any other convenient location, I provide three rails 2, 3 and 4 respectively parallel with each other and said rails 1, said rails 2, 3 and 4 extending the entire length of the system except that they are cut through at intervals as at 5, each length constituting what I will term a "block." Said rails or contact strips 2, 3 and 4, which may be of any suitable construction, serve merely as

circuit closing means for the electric circuits on the locomotives which I will now describe.

Each locomotive 6 is equipped with a source of supply 7 of electric current connected at one pole with the electric alarm bell 8, and electric magnetic means 9 controlling the throttle and car brake valves and thence with the brush 10 traveling on the rails 3 and 4, the other pole being connected with the brush 11 traveling on the rail 2, the circuit being thus maintained normally open. The said brushes 10 and 11 are always disposed respectively to the right and left. Two locomotives entering the same block and traveling in opposite directions on the same track would immediately be warned of impending danger and automatically stopped by reason of the fact that the brushes 10 of the locomotives so traveling would span the rails 2—3 and 3—4 respectively, and thus close the circuits through the alarm bells 8 and electro-magnetic valve controlling means 9 of both locomotives. It will be understood, of course, that either or both the latter devices may be used or any suitable means of signaling the train crews or automatically stopping the trains may be employed without departing from my invention. The "blocks" may be of any desired length, as for example, ten miles, so that trains may travel toward each other on the same track on adjacent blocks without interference but should a station agent or tower man believe that two trains on adjacent blocks may meet adjacent the ends of said blocks, he may connect two blocks by means of wedges 13 of a solenoid 14 disposed in a circuit 15 controlled by a switch 16 in a station or tower whereby trains traveling in opposite directions on two adjacent blocks are signaled and stopped.

Should two trains traveling in the same direction approach each other so closely as in the estimation of the station agent or tower man render a rear end collision possible, both trains on the same block may be stopped by closing the circuit 17 through the solenoid 18, the armature 19 of which carries circuit closing means 20 adapted to connect the rails 2, 3 and 4 with each other, said circuit being controlled by a switch 21 in the station or tower.

In the event of a washout or other accident in any block which may constitute a source of danger to trains, the station or tower man may by closing the circuit 17

stop any train on that block and by closing the circuit 15 stop trains on adjacent blocks in an obvious manner.

5 In place of the rails 2, 3 and 4, overhead wires or any equivalent suitably disposed devices may be used, and the current may be supplied either from batteries or dynamos.

I claim as my invention:

10 In a safety system for railways, the railway equipped with three parallel contact strips, a signal device on the locomotive, an electric circuit controlling the same and terminating in two brushes one of which spans two of said strips and the other of which en-
15 gages the third contact strip, said circuit being normally open and adapted to be closed by connecting said last named strip with either of the first two, said contact strips being severed at intervals covering sections of
20 railway track constituting blocks within

which oppositely running trains on the same track close the signal circuits of each other respectively, a station or tower adjacent the railway electrically controlled means disposed between adjacent signal blocks for 25 coupling the same, electrically controlled means for electrically connecting the said three contact strips with each other to close the signal circuit of any train in said block, electric circuits controlling both said elec- 30 trically controlled means, and circuit closing means controlling said circuits disposed in said station or tower.

In testimony whereof I have signed my name in the presence of two subscribing wit- 35 nesses.

JANKO KOVAČEVIĆ.

Witnesses:

RUNDOLPH WM. LOTZ,
THEODORE WALLISER.