

No. 841,855.

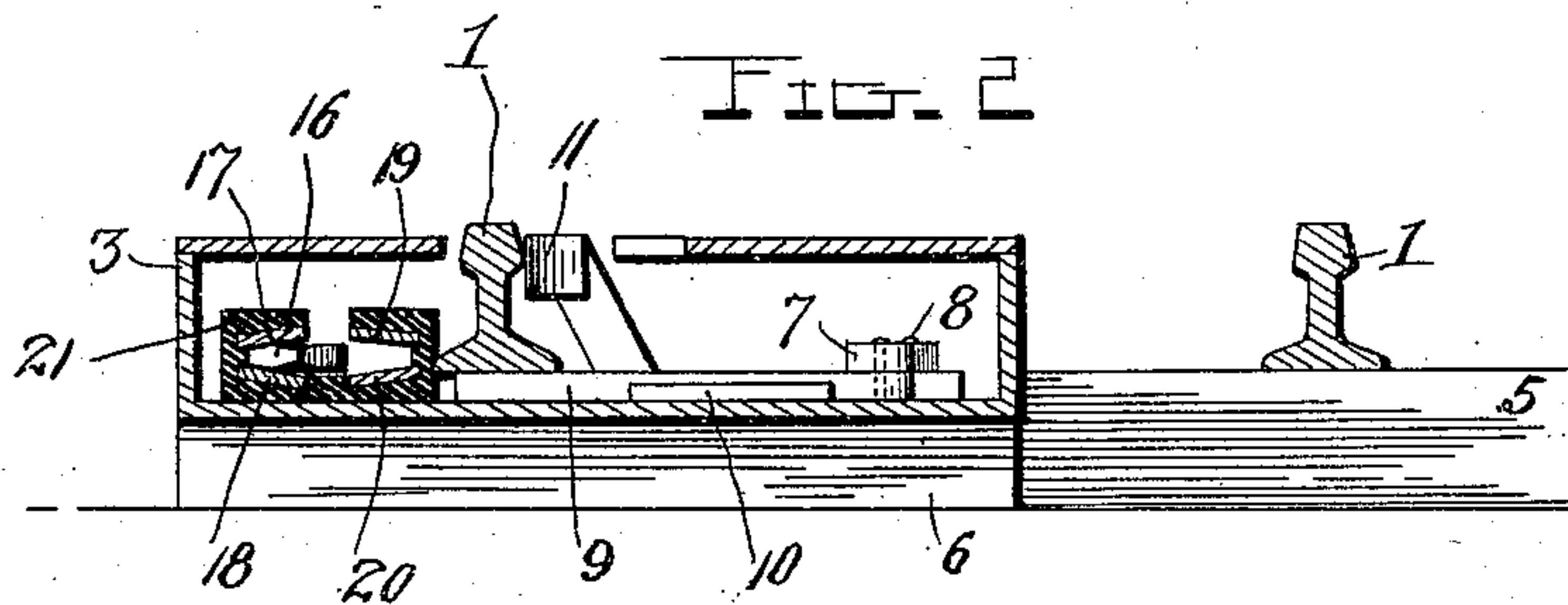
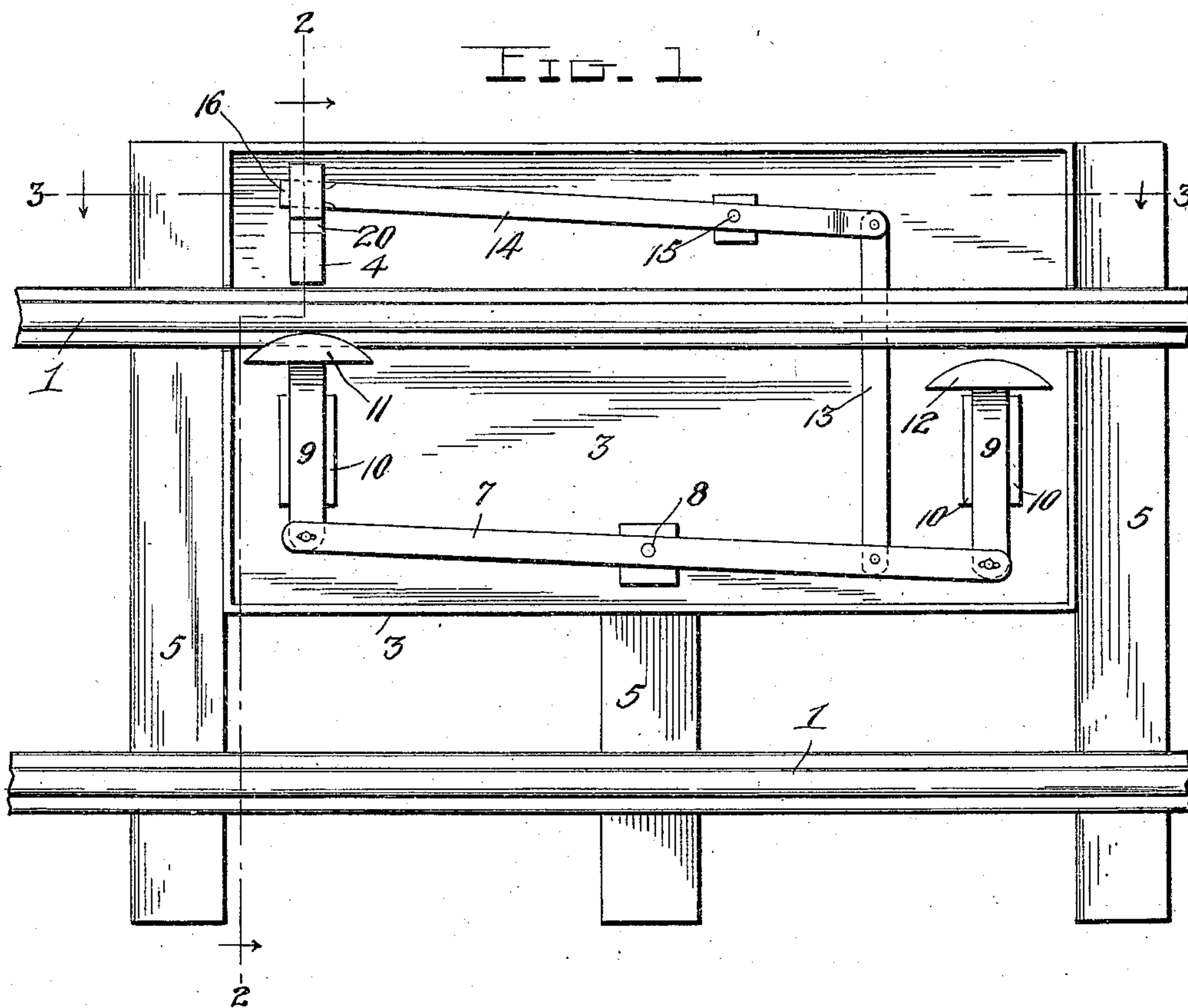
PATENTED JAN. 22, 1907.

W. F. DREER.

ELECTRIC SIGNAL.

APPLICATION FILED OCT.27, 1906.

2 SHEETS—SHEET 1.



Witnesses
J. A. Grubauer, Jr.
A. M. Pawlings.

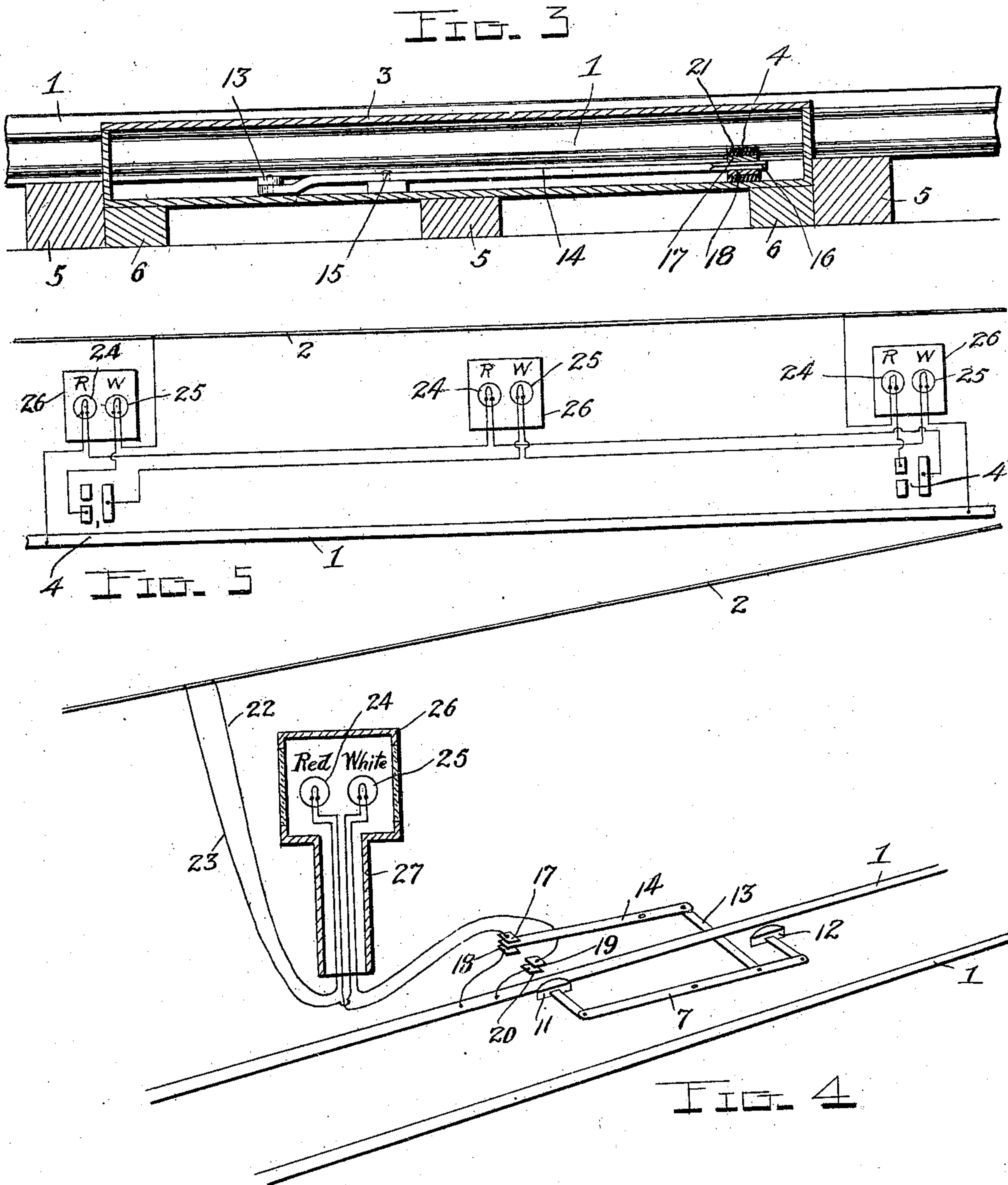
Inventor
William F. Greer
by Watson E. Coleman
Attorney

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2 SHEETS—SHEET 2.



Witnesses
J. A. Griesbauer, Jr.
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UNITED STATES PATENT OFFICE.

WILLIAM F. DREER, OF COULTERS, PENNSYLVANIA.

ELECTRIC SIGNAL.

No. 841,855.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed October 27, 1906. Serial No. 340,803.

To all whom it may concern:

Be it known that I, WILLIAM F. DREER, a citizen of the United States, residing at Coulters, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Electric Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in electric signals for trolley and other railways.

One object of the invention is to provide a simple and practical electric system which is particularly adapted for use in electric trolley-lines.

Another object of the invention is to provide an improved circuit-closing track instrument adapted to be actuated by the wheels of the cars or trains.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a portion of an electric trolley or railway track and my improved circuit-closing device, the top or cover of the casing of the circuit-closer being removed. Fig. 2 is a vertical transverse section taken on the plane indicated by the line 2 2 in Fig. 1. Fig. 3 is a vertical longitudinal section taken on the plane indicated by the line 3 3 in Fig. 1. Fig. 4 is a diagrammatic view showing the circuits of my improved system, and Fig. 5 is a diagrammatic view showing another arrangement of signal-circuits embodying my invention.

Referring to the drawings by numerals, 1 denotes the track-rails, one of which is preferably used as an electric conductor, and 2 denotes a trolley or other electric conductor. Mounted beneath and upon each side of the track-rail 1, which serves as an electric conductor, is a casing 3, which incloses my improved track instrument or circuit-closing device 4. This casing may be of any desired form and construction; but as illustrated in the drawings it is rectangular in form and mounted upon the cross-ties 5 and transverse beams or supports 6. The circuit-closing device 4 comprises a lever 7, arranged horizontally between the track-rails and ex-

tending longitudinally of the track. This lever is pivoted at its center at 8 and has pivotally connected to its ends transversely-extending bars 9, which are mounted for sliding movement in suitable guides 10, arranged in the casing 3. The free ends of the bars 9 project and slide beneath the track-rail 1, and mounted upon them adjacent the said ends are trip members 11 12, adapted to be engaged by the flanges of the wheels of passing cars or trains. These members 11 12 are in the form of segmental-shaped heads, the curved or cam faces of which are opposed to the inner side of the track-rail 1. The trips 11 12 are so connected to the lever 7 that either one or the other normally engages the inner side of the head of the adjacent rail 1, as shown in Figs. 1 and 2, so that the passage of a car over the portion of the track shown in Fig. 1 must necessarily operate the lever 7. Adjacent to one end of the lever 7 is pivoted a link 13, which extends beneath the rail 1 and is pivoted at its other end to a circuit-closing or switch lever 14. The latter is pivoted intermediate its ends at 15 and has the side edges of its free end 16 oppositely beveled, as shown in Fig. 2. This beveled end 16 of the lever is adapted to be thrown alternately into engagement with pairs of contact-plates 17 18 and 19 20, mounted in a suitable support 21, of non-conducting material, so that they are insulated from each other.

It will be seen that when the trip 11 engages the rail 1 the end 16 of the circuit-closing lever 14 will be engaged with the two contact-plates 17 18, as shown in Figs. 1 and 2, so that it completes an electric circuit through said contact-plates, and that when the trip 12 is in contact with the rail the lever 14 will be shifted so that its end 16 contacts with the plates 19 20 and completes another electric circuit through the latter. These electric circuits 22 23 are shown in Fig. 4. The circuit 22 includes a conductor leading from the trolley 2 to a red light 24, another conductor leading from the latter to the contact 17, and a third conductor leading from the contact 18 to the track-rail 1. The circuit 23 includes a conductor leading from the trolley 2 to a white light 25, another conductor leading from the latter to the contact 19,

and a third conductor leading from the contact 20 to the rail 1. The red and white signal-lights 24 25 are here shown in the form of incandescent electric lights mounted in a
 5 suitable casing 26 upon the top of a tubular post 27, through which said conductors extend; but it will be understood that any other suitable signaling or alarm devices may be substituted for the lights 24 25. It will
 10 also be understood that these lights may be located at any desired point along the track, which may be either a single or double one, and that they may be duplicated at two or more points along the track.

15 The operation of the invention is as follows: The parts of the circuit-closer will be left in the position shown in Fig. 1 by a car or train passing to the right on the portion of the track shown in said figure. In other
 20 words, the last wheel of the car will throw the trip 12 away from the track-rail, and thereby move the trip 11 in contact with said rail and simultaneously shift the lever 14 so that it closes the circuit 23 through the contacts 17
 25 18. The completing of this circuit lights the red light 24. When a train passes in the opposite direction, or to the left, the last wheel of the last car of the train will throw the trip 11 away from the rail 1 and the trip 12 in
 30 contact therewith, thus shifting the position of the lever 12 and actuating the lever 14 so that it completes the electric circuit 22 through the contacts 19 20. The completion of the circuit 22 lights the white light 25.

35 Fig. 5 is a diagrammatic view showing an arrangement of circuits by means of which two lamps are simultaneously lighted when a car or train actuates one of the circuit-closing devices located along the track, one
 40 light being located a suitable distance in advance of the car or train which actuates the circuit-closer. The operation of this form of the invention will be readily understood upon reference to the drawings, and it is
 45 thought that a further explanation is unnecessary. It will be understood that the circuit-closing devices 4 may be used with various other arrangements of signal-circuits.

Having thus described my invention, what
 50 I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An electric signal for railways comprising track-rails, an electric trolley or conductor, electric signaling devices, pairs of con-
 55 tacts, one contact of each pair being electrically connected to one of the track-rails and the other contact of each pair being electrically connected with one of said signaling devices and with said trolley or conductor,
 60 a circuit-closing lever mounted to alternately engage said pairs of contacts, a lever extending longitudinally of the track and carrying trips to be engaged by the wheels of passing

cars, and a connection between said longitudinal lever and said circuit-closing lever. 65

2. An electric signal for railways comprising track-rails, an electric trolley or conductor, different-colored electric lights, pairs of contacts arranged adjacent to one of the track-rails, one contact of each pair being
 70 electrically connected with said track-rail, the other contact of each pair being electrically connected with one of said lights and with said trolley or conductor, a circuit-closing lever pivoted intermediate its ends
 75 and adapted to complete electric circuits through said pairs of contacts, a lever extending longitudinally of the track and pivoted at its center, a link connecting said levers, and cam-shaped trips carried by the
 80 ends of said longitudinally-extending lever and adapted to be engaged by the flanges of the wheels of cars or trains passing over said track, substantially as described.

3. An electric signal for railways comprising 85 track-rails, an electric trolley or conductor, an electric signaling device, a pair of contacts, one of the latter being electrically connected to one of the track-rails and the other to said signaling device and said trolley or
 90 conductor, a circuit-closing lever for completing the circuit through said contacts, a lever extending longitudinally of the track-rails and carrying trips for engagement with the wheels of a passing car and a connection be- 95
 tween said levers.

4. The combination with a track-rail, of a circuit-closing device comprising electrical contacts, a circuit-closing lever to coact therewith and a second lever operatively 100
 connected with said circuit-closing lever and carrying trips to be operated by the wheels of a car passing over said track-rail.

5. The combination with a track-rail, of a circuit-closing device comprising electrical 105 contacts, a circuit-closing lever to coact therewith, a lever extending longitudinally of the track-rail, a connection between said levers, and cam-shaped trips carried by said longitudinally-extending lever, and adapted 110
 to be actuated by the flanges of the wheels of a car passing over said track-rail.

6. The combination with a track-rail, of a circuit-closing device comprising electrical 115 contacts, a circuit-closing lever to coact therewith, a lever extending longitudinally of said track-rail, a link connecting said levers, slidably-mounted bars connected to said longitudinally-extending lever and trip- 120
 blocks carried by said bars and adapted to be actuated by the flanges of the wheels of a car passing over said track-rail.

7. The combination with a track-rail, of a support or casing, opposing pairs of electrical contact-plates, a circuit-closing lever pivoted 125
 intermediate its ends and adapted to have

one of its ends alternately engaging the con-
tacts of said pairs, a lever extending longi-
tudinally of the track-rail, a link connecting
said levers and trips carried by said longi-
5 tudinally-extending lever and adapted to be
actuated by the wheels of cars passing over
said track-rail.

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

WILLIAM F. DREER.

Witnesses:

ROBERT COPELAND, Jr.,
FRANK W. ZOLLERS.