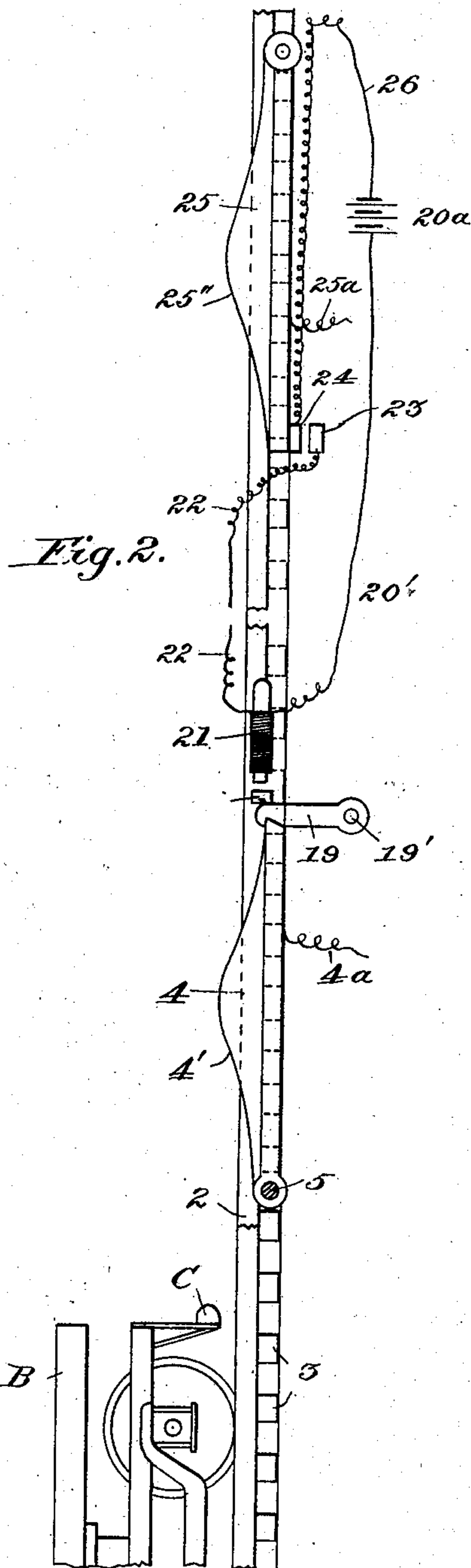
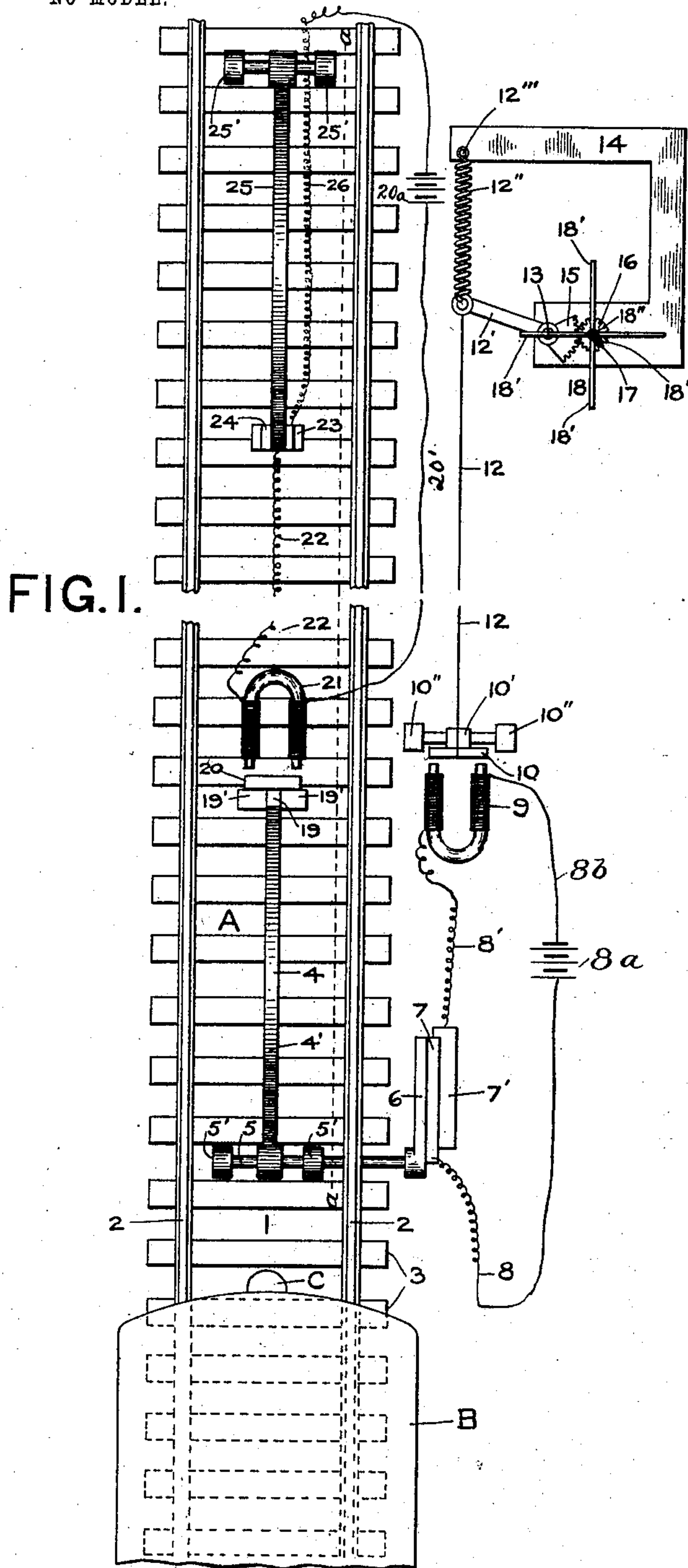


No. 753,666.

PATENTED MAR. 1, 1904.

T. BRÜCK.
RAILWAY SIGNAL.
APPLICATION FILED JAN. 26, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 753,666, dated March 1, 1904.

Application filed January 26, 1903. Serial No. 140,526. (No model.)

To all whom it may concern:

Be it known that I, TONY BRÜCK, a subject of the Emperor of Germany, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

My invention pertains to railway-signals.

In general terms my improved railway-signal may be said to be operatable by moving trains or cars, which by effecting contact of certain members either open or close, as the case may be, an electric circuit and by means of an electric current conducted through said circuit move an armature which is the prime kinematic member of a mechanism which operates a signal, such as a semaphore or some device cognate therewith. Means are provided for retaining the signal in the position thus assumed. Means practically similar to those first mentioned are provided to release said retaining means, and a spring is used to return the signal to its prime position.

In the drawings, Figure 1 is a top plan view of an apparatus which embodies a form of my invention. Fig. 2 is in part a side elevation and in part vertical longitudinal sections of said apparatus, the sections being taken on the line *a a*, Fig. 1.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring to the drawings, 1 in a general way designates a railway-track having rails 2 2 and ties 3 3. A first rock-arm 4 is fixed on a rock-shaft 5, which is journaled in bearings 5' 5', located at some suitable point between or near the rails 2 2, being herein shown as in the first-mentioned position. The rock-arm 4 has a spring 4^a beneath it, so that it is normally held in raised position, and has a cam-face 4', formed on a portion thereof, which projects above the general surface level of the road-bed, the latter being herein referred to as A. On the rock-shaft 5 is also fixed an arm 6, to which is attached an insulated contact-piece 7, extending from the axis of the rock-shaft 5 to the end of the arm 6. An electrical conductor, herein shown as a wire 8, is attached at one end to the contact-piece 7, preferably at the axis of the rock-shaft 5, and

at the other end the wire is attached to one pole of some suitable source of supply of an electric current, as a battery 8^a, the other pole of which is connected by the conductor 8^b with one coil of the electromagnet 9. A second contact-piece 7' is properly positioned to be contacted by the contact-piece 7 when the arm 6 is moved, as hereinafter related, and to the piece 7' is attached one end of a wire A', the other end of which is attached to the other coil of the electromagnet 9. An armature 10 is properly arranged to contact the contact-faces of the magnet 9. The armature 10 is mounted upon a lever 10', which is oscillatably journaled in bearings 10'' 10''. A connection, herein shown as wire 12, is attached to the armature 10 and serves the double purpose of grounding a current transmitted by the armature 10 and of operating a lever 12', which is attached to and radially of a vertical shaft 13, which is journaled, preferably, by ball-bearings (not shown) which are mounted on a frame 14. A spur-gear segment 15 is mounted on the shaft 13 and meshes with a spur-gear pinion 16, which is mounted on a second vertical shaft 17, which is journaled, preferably, in ball-bearings (not shown) which are mounted on the frame 14. A device of suitable form, herein shown as a signal 18, is provided with crossed arms 18' 18', which are attached to a central hub 18'', which is secured upon the shaft 17 by means of a set-screw 18'''. A helical spring 12'' is attached at one end to the lever 12' and at the other end to a stud 12'''', which is fixed in the frame 14. The spring 12'' urges the lever 12' toward the stud 12''''. The free end of the first rock-arm 4 is so formed as to be engageable by a latch 19, which is pivoted at 19' and carries an insulated armature 20. A spring 19^a is interposed in the rear of the arm 19 to force the same into engagement with the rock-arm 4 when the same is depressed. A second electromagnet 21 is suitably positioned to operate the armature 20. A conductor, herein shown as a wire 22, is attached to one coil of the magnet 21 and at the other end to an insulated contact-piece 23, which is properly positioned to be contacted by an insulated contact-piece 24, which is mounted on a second rock-arm 25, which is oscillatably

journalled in bearings 25' 25', which, with the arm 25, are positioned similarly to the bearings 5' and arm 4 relatively of the rails 2. A spring 25^a is placed under the arm 25 to normally hold the same in elevated position. A conductor, herein shown as a wire 26, is attached at one end to the contact-piece 24 and at the other end to one pole of some source of supply of an electric current 20^a, which connects the wire 26 with the wire 20', said wire 20' being connected to the other coil of the electromagnet 21. The arm 25 has a cam-face 25'' formed thereon similar to the face 4' on the arm 4.

A railway-car B, mounted on the rails 2, is provided with a tappet C, so positioned on the car that when the latter is moved on the track 1 in the proper direction said tappet C will contact the cam-faces 4' and 25'' on the rock-arms 4 and 25, respectively. It should be noted that the cam-faces should, respectively, be formed as shown, so as to be operable by a tappet C, regardless of the direction in which the car B may be moved. For the purpose mentioned I have shown each of said cam-faces as formed with two involute curves.

The operation and advantages of my invention will be readily understood and appreciated by those skilled in the art to which it appertains. If a car B or a locomotive or motor, as the case may be, provided with a properly-positioned tappet C be moved along the track 1, the tappet C will engage the cam-face 4', thus rocking the first rock-arm 4 and causing the contact-piece 7 on the arm 6 to contact the contact-piece 7', thus closing an electric circuit from the source of supply first before mentioned along the wire 8 to and through the contact-pieces 7 and 7' and through the wire 8' to the first electromagnet 9, energizing the latter and causing it to attract the armature 10, and thus rock the lever 10', which by means of the wire 12 will so operate the lever 12', the shaft 13, and the gear-segment 15 as to oscillate the pinion 16, the shaft 17, and the signal 18, turning the crossed arms 18' of the latter to the positions which they should assume under the conditions thus related.

All of the parts mentioned are retained in the positions described, this being effected by the engagement of the end of the first rock-arm 4 by the latch 19. Further continued movement of the car B causes the tappet C to contact the cam-face 25'' of the second rock-arm 25, thus depressing said arm and with it the contact-piece 24 a sufficient distance to cause the latter to contact the contact-piece 23, thereby closing an electric circuit from the last-mentioned source of supply through the wire 26, the contact-pieces 24 and 23, and the wire 22 to the second electromagnet 21, energizing the latter and causing it to attract the armature 20, and thereby oscillate the latch 19 sufficiently to cause it to release the first

rock-arm 4, which with all the members mechanically in train therewith, including the signal 18, will be returned to their respective prime positions by means of the spring 12''.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features of construction and arrangement in the adaptation of the device to various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and modifications as properly fall within the scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A railway-signal, comprising a rock-arm designed to be actuated by a moving car, an electromagnet and armature therefor, means whereby the rocking of said arm will energize said magnet to attract its armature, a signal mechanism arranged to be actuated by said armature in one direction, a latch adapted to retain the rock-arm in the position to which it was rocked, and means for releasing said latch.

2. A railway-signal, comprising a first rock-arm designed to be depressed by a moving car, an electromagnet and armature therefor, means whereby the rocking of said arm will energize said magnet to attract its armature, a signal mechanism connected to said armature whereby it will be actuated by the latter, a latch arranged to hold said first rock-arm in its depressed position, a second rock-arm designed to be depressed by the car, a second electromagnet arranged to be energized by the depression of the second rock-arm and provided with an armature, and a connection between said armature and said latch whereby the former will release the latter, as set forth.

3. A railway-signal, comprising a first rock-arm having a cam-face, means attached to a car for moving said arm, an electromagnet and armature-lever therefor, means controlled by said arm for actuating said armature-lever, a wire attached to said lever and to an arm which is attached to a shaft, a signal operated by mechanism connected to said shaft, a latch adapted to retain the first rock-arm in the position to which it was rocked, a second rock-arm having a cam-face and adapted to be operated by means attached to a car, means operated by the second rock-arm to release the latch, and means for returning the signal to its prime position.

4. A railway-signal, comprising a first rock-arm having a cam-face, means attached to a car for moving said arm, an electromagnet and armature-lever therefor, means operated by said arm for actuating said armature-lever, a wire attached to the armature-lever and to an

arm attached to a shaft, mechanism operated by the shaft which operates the signal, a latch adapted to engage and retain the first rock-arm in the position to which it was rocked, a
5 second rock-arm having a cam-face and adapted to be operated by means attached to a car, means operated by the second rock-arm to release the latch, and means for returning the signal to its initial position.

10 5. A railway-signal, comprising a first rock-arm, a first electromagnet, means operated by the rock-arm to energize the magnet, means operated by the magnet to move the signal in one direction, a latch operated to retain the
15 first rock-arm in the position to which it was rocked, a second rock-arm having a cam-face and operated by means attached to a car, a second electromagnet, means operated by the second rock-arm to energize said second magnet, means operated by the second magnet to
20 release the latch, and means for returning the signal to its initial position.

6. A railway-signal, comprising a signal

mechanism proper, an electromagnet provided with an armature operatively connected with 25 said signal mechanism to actuate the same, an arm designed to be moved by a car or the like and provided with means to close the circuit of said magnet to energize the same and attract and move its armature whereby to ac- 30 tuate the signal mechanism, a latch designed to hold said arm in the position to which it has been moved by the car, a second electromagnet provided with an armature connected with said latch to release the same, and a sec- 35 ond arm designed to be moved by the car and provided with means to close the circuit of said second magnet, as and for the purpose set forth.

In testimony whereof I have signed my name 40 in the presence of the subscribing witnesses.

TONY BRÜCK.

Witnesses:

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J. C. PYBAS.