

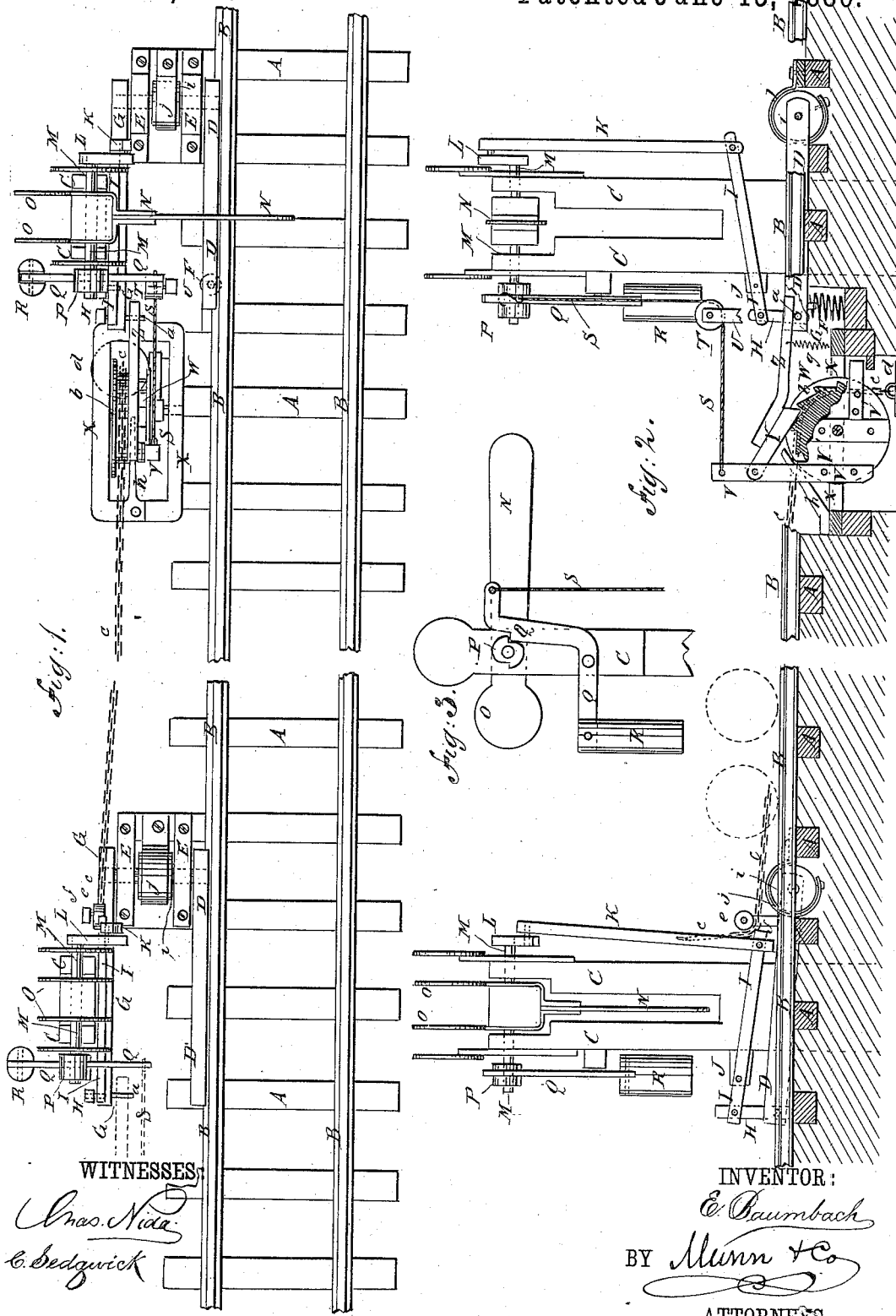
(No Model.)

E. BAUMBACH.

RAILROAD SIGNALING APPARATUS.

No. 343,751.

Patented June 15, 1886.



WITNESSES:

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RAILROAD SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 343,751, dated June 15, 1886.

Application filed September 29, 1885. Serial No. 178,543. (No model.)

To all whom it may concern:

Be it known that I, EMIL BAUMBACH, of Fordham, in the city, county, and State of New York, have invented a new and useful Improvement in Railroad Signaling Apparatus, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a railroad signaling apparatus to which my improvement has been applied. Fig. 2 is an elevation of the same, the ties being shown in section and parts being broken away. Fig. 3 is a side elevation of the upper part of a signal post and its attachments.

The object of this invention is to improve the construction of the railroad signaling apparatus for which Letters Patent No. 316,224 were granted to me April 21, 1885, in such a manner as to make it more reliable in operation.

The invention consists in the construction and combination of various parts of the apparatus, as will be hereinafter fully described and then claimed.

A represents the ties, and B the rails, of a railroad-track, along the side of which and at suitable distances apart are set posts C.

Along the outer sides of the rails B, and adjacent to the posts C and parallel therewith, are placed levers D, in such positions as to be struck and forced downward by the treads of the wheels of the engine or car of an advancing train. The end of each lever D toward the advancing train is journaled to bearings E, attached to the projecting ends of ties A, or other suitable supports, in such positions that the said pivoted end of the lever will be flush with or a little below the face of the rail B. The other end of the lever D, when left free, is supported at a higher level than the face of the rail B by a spiral or other spring, F, placed beneath the said lever, and resting upon the projecting end of a tie, A, or other suitable support.

To the outer end of the journal of the lever D is rigidly attached the end of a lever, G, placed parallel or nearly parallel with the said lever D.

To the free end of the lever G is pivoted the lower end of a short connecting-bar, H, the upper end of which is pivoted to the end of the short arm of the lever I. The lever I is pivoted to a bracket or other bearing, J, attached to the post C or other suitable support, and to the end of its long arm is pivoted the lower end of the connecting-bar K, the upper end of which is pivoted to the crank L, attached to the end of the short shaft M. The shaft M rocks in bearings in the slotted upper end of the post C.

To the shaft M, within the slot of the post C, is attached a signal-arm, N, which, when displayed, projects horizontally toward the track, and when withdrawn hangs vertically within the said post.

To the shaft M, and projecting in the opposite direction from the signal-arm N, is attached a pair of arms, O, to carry colored-glass plates for giving night-signals. The glass plates and the lamp to illuminate them are not shown in the drawings, as there is nothing new in their construction or operation.

To the shaft M is attached a single-toothed ratchet-wheel, P, the tooth of which, when the signals are displayed, engages with a tooth formed upon the lever-pawl Q, pivoted to the post C, and which holds the signals in place when displayed. The lever-pawl Q is held against the ratchet-wheel P by a weight, R, suspended from the outer end of the said lever-pawl, and which should be of such a gravity as to only slightly overbalance the inner end of the said lever-pawl. The ratchet-wheel P can have a second tooth upon the side opposite the first tooth, as shown in Fig. 3, so that when one tooth becomes worn the said ratchet-wheel can be reversed and the other tooth used.

To the inner end of the lever-pawl Q is attached the end of a rope or chain, S, which passes around a guide-pulley, T, pivoted to a post, U, set in the ground, or to some other suitable support. The other end of the rope or chain S is attached to the upper end of the upwardly-projecting arm V, attached at its lower end to a frame or disk, V', pivoted to the journal of the ratchet-wheel W, which is journaled to a frame, X, attached to the ties A, or other suitable support.

To the arm V is pivoted a pawl, Y, which

engages with the teeth of the ratchet-wheel W, and is provided with an arm, Z, slightly inclined upward and projecting along the side of the end of the lever G, above a pin, *a*, attached to the side of the said end of the lever G, so that the pin *a*, when the lever G is raised, will raise the said pawl Y out of contact with the ratchet-wheel W. The pawl Y is held down by a spring, *g*, attached to it and to the frame X, so that it will engage with the ratchet-wheel W with certainty when the lever G is lowered.

With the ratchet-wheel W is rigidly connected, or upon it is formed, a chain-wheel, *b*, over which is passed a chain, *c*.

To the end of the chain *c* is attached a weight, *d*, which is placed at the side of the chain-wheel *b*, that will cause the gravity of the said weight to turn the said chain-wheel *b* and its ratchet-wheel W back from the pawl Y.

From the chain-wheel *b* the chain *c* passes forward to the next post C, passes around a guide-pulley, *e*, pivoted to a post, *f*, or other support near the foot of the said post C, and its end is attached to the connecting-bar K.

To the frame X or other suitable support is attached a trip-bar, *h*, which projects into the space between the ratchet-wheel W and the pawl Y, so as to raise the said pawl Y from the said ratchet-wheel W, when the said ratchet-wheel W and chain-wheel *b* are turned forward by a draft-strain upon the chain *c*, caused by the upward movement of the connecting-bar K, with which the said chain is connected.

To the journal of the levers D G is rigidly attached a drum, *i*, to the lower side of which is attached the end of a metallic brake-strap, *j*. The metallic strap *j* passes over the drum *i*, and its other end is attached to a tie, A, or other stationary support, to act in connection with the spring F to prevent the levers D G from being thrown down too far by the action of the engine or car wheel upon the lever D, and thus prevent the signal-arm N from being thrown up too far by the said movement. With this construction, when the wheel of an engine or car runs upon and presses down the lever D, the downward movement of the said lever operates the levers G I and connecting-bars H K and crank L, to raise and display the signal-arm N. As the signal-arm N comes into a horizontal position, the weighted lever-pawl Q engages with the ratchet-wheel P, and

holds the said signal-arm N in position until the engine or car wheel runs upon and depresses the lever D at the second post C, and displays the signal-arm N of the said second post. As the connecting bar K at the second post rises, it draws upon the chain *c*, turns the chain-wheel *b* and ratchet-wheel W, which carry with them the arm V and pawl Y, and draws upon the rope or chain S, and thus withdraws the weighted lever-pawl Q from the ratchet-wheel P, and allows the signal-arm N of the first post to drop out of sight. As the chain-wheel *b* and the ratchet-wheel W are turned by the draft upon the chain *c*, the pawl Y comes in contact with the trip bar *h* and is raised out of contact with the said ratchet-wheel W, and is thus kept from being carried too far. As the engine or car wheel comes in contact with the lever D of the third post C, the signal-arm of the second post C is lowered, which slackens the first chain, *c*, and allows the weight *d* to turn back the chain-wheel *b* and the ratchet-wheel W into position to be again operated, and so on through the entire length of the line of signal-posts. The signal-posts C can be placed at any desired distance apart.

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

1. In a railroad signaling apparatus, the combination, with the weighted lever-pawl Q, that holds the signal-arm displayed, and the connecting-bar K, that displays the signal-arm of the next post, of the ropes or chains S *c*, the pivoted arm V, the pawl Y, carried by the said arm, the ratchet-wheel W, engaging with the said pawl, the chain-wheel *b*, connected with the said ratchet-wheel, and the suspended weight *d*, substantially as herein shown and described, whereby the signal-arm at one post will be withdrawn by the displaying of the signal-arm of the next post, as set forth.

2. In a railroad signaling apparatus, the combination, with the levers D G, of the drum *i* and brake-strap *j*, substantially as herein shown and described, whereby the rising of the signal-arm with too much force will be prevented, as set forth.

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Witnesses:

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