

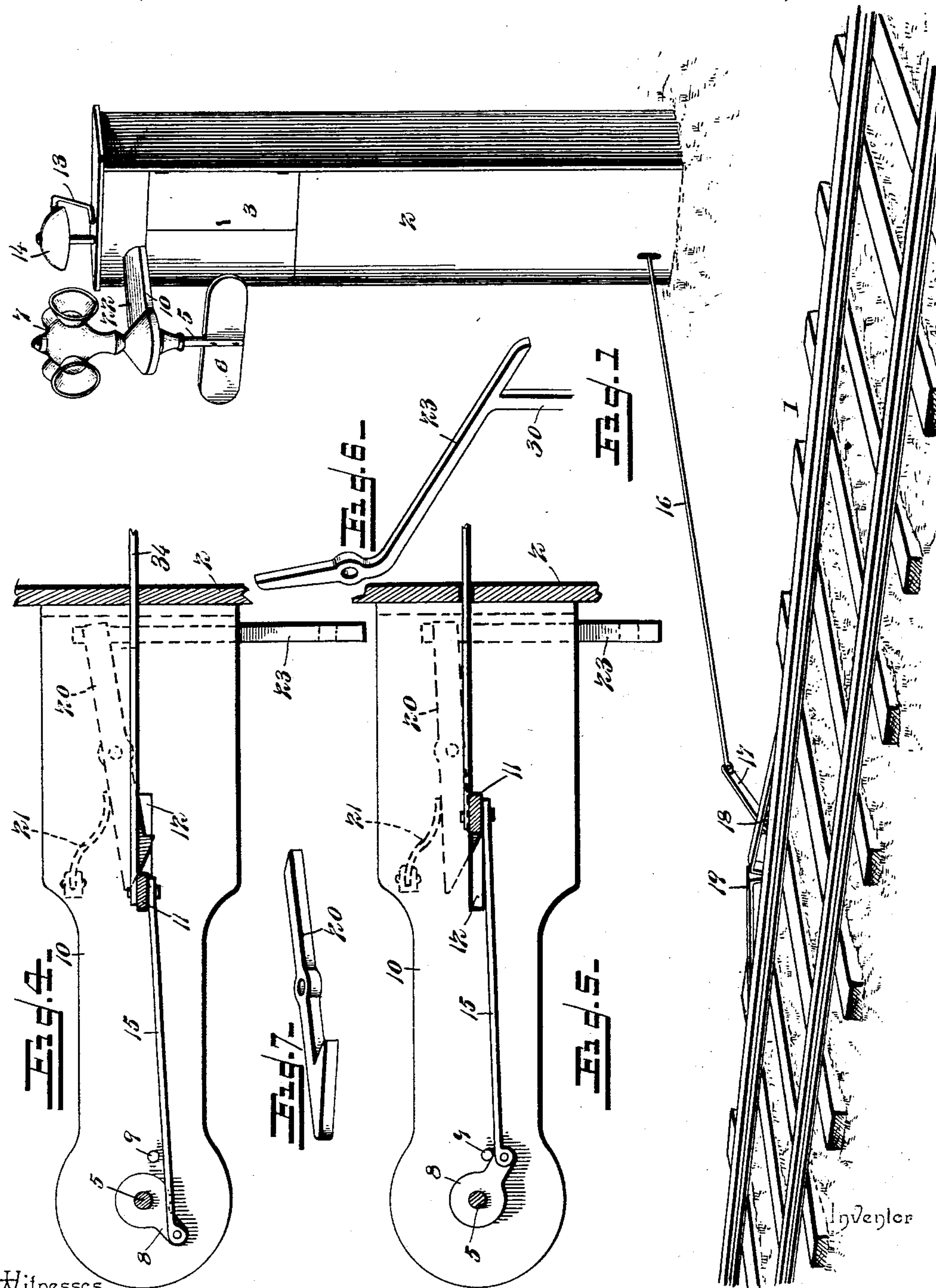
(No Model.)

2 Sheets—Sheet 1.

W. R. MITCHELL.
RAILWAY TIME SIGNAL.

No. 591,926.

Patented Oct. 19, 1897.



Witnesses

E. Stewart,
V. B. Hillyard.

By *W. R. Mitchell* Attorneys.

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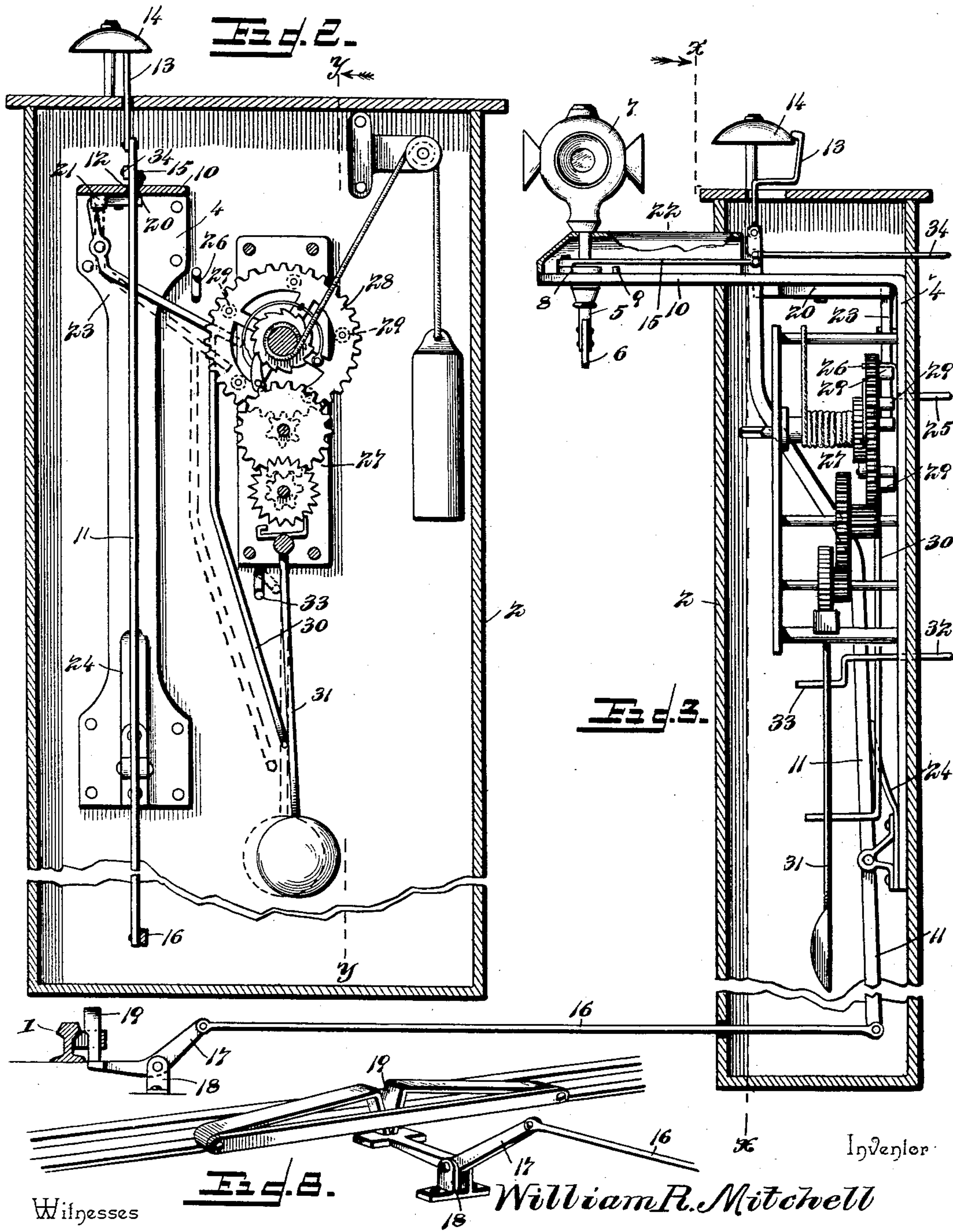
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William R. Mitchell

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM R. MITCHELL, OF ELMHURST, WISCONSIN, ASSIGNOR OF ONE-HALF
TO GEORGE H. WUNDERLICH, OF SAME PLACE.

RAILWAY TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 591,926, dated October 19, 1897.

Application filed November 6, 1896. Serial No. 611,241. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. MITCHELL, a citizen of the United States, residing at Elmhurst, in the county of Langlade and State of Wisconsin, have invented a new and useful Railroad-Signal, of which the following is a specification.

This invention relates to railroad-signals to be used in connection with a block system for conveying the required information to trains approaching a station, whereby collisions are avoided.

A feature of the improvement is a signal which is automatic in its action, being set in motion by a passing train, and after holding the danger-signal a safe interval of time to automatically shift the danger-signal and expose a signal giving the right of way to the next train, the signal being at all times under the control of the despatcher or station-master, so as to be operated independently of the clock mechanism.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a railroad, showing the signal in position. Fig. 2 is a vertical section on the line X X of Fig. 3, looking to the right. Fig. 3 is a transverse section on the line Y Y of Fig. 2, looking to the left. Fig. 4 is a detail view of the bracket bearing the signal, showing the actuating mechanism therefor. Fig. 5 is a view similar to Fig. 4, showing the relation of the parts when the signal is set to indicate "danger." Fig. 6 is a detail view of the trip for releasing the signal. Fig. 7 is a detail view of the catch for holding the signal set. Fig. 8 is a detail view of the track-bars which are depressed by the truck-wheels for setting the signal at "danger."

Corresponding and like parts are referred to in the following description and indicated

in the several views of the accompanying drawings by the same reference-characters.

The signal is arranged at a station or located at any desired point along a railroad 1, and the operating parts are inclosed within a casing 2, located to one side of the track. This casing may be of desired construction, and the operating mechanism is accessible by means of doors 3, which are locked to prevent tampering with the parts. A bracket 4 is secured to the casing and extends therefrom, its horizontal arm supporting a vertical shaft 5, bearing the semaphore 6 for signaling by day and the lantern 7 for conveying the desired information by night. An arm 8 is secured to the shaft 5 and is limited in its throw in one direction by a stop 9, provided on the horizontal member or arm 10 of the bracket 4. A vertically-disposed lever 11, pivoted near its lower end to the bracket 4, operates through a slot 12 in the arm 10 and carries a hammer 13 at its upper end to strike a bell or gong 14 to give an alarm the instant the signal is set for "danger." A rod 15 connects the arm 8 with the lever 11 to transmit motion from the lever to the shaft 5. A rod 16 connects the lower end of the lever 11 with a substantially bell-crank lever 17, fulcrumed to a bracket 18, secured to a cross-tie, and the free end of the bell-crank lever extends across the path of track-bars 19, located adjacent to one of the rails, so as to be depressed by the truck-wheels of a passing train, thereby moving the lever 11 and setting the signal to "danger." A catch 20 is pivoted between its ends to the arm 10 and interlocks with the lever 11, as shown in Fig. 5, to hold the signal at "danger" until released automatically by a clock mechanism or by the train-master or other attendant. A spring 21 bears laterally against the catch 20 and projects its hooked end across the path of the lever 11, so that when the upper end of the lever passes beyond the hook the latter will regain itself and engage with the lever and hold the signal at "danger" in the manner set forth. A housing 22 is applied to the exposed portion of the arm 10, so as to inclose the parts 8, 9, and 15 and protect the same from the elements.

To release the signal and permit the latter to return to a normal position, so as to indi-

cate "safety" or that the block is clear, a trip 23 is provided and pivoted between its ends to the bracket 4, and the upper end of this trip 23 extends across the path of the rear end of the catch 20, so that upon depressing the long arm of the trip the catch 20 will be turned upon its pivotal support and release the lever 11, which will move under the action of a spring 24 provided to move the said lever when released to throw the signal to "safety." This trip 23 is adapted to be operated automatically or by hand, and for the latter purpose a shaft 25 is journaled to the casing and its inner end has a crank 26 to engage with the trip 23 and move the latter upon the shaft 25 being turned by an attendant. For operating the trip automatically a clock-movement 27 is provided, and a wheel 28 of this movement has a series of stops 29 on one side to engage with the trip 23 to operate it automatically to release the lever 11 and permit the signal to return to a normal position under the action of the spring 24. These stops 29 are located at intervals apart, so as to prevent a following train entering a block too soon after the passage of the preceding train. A wire 30 is secured to or forms a part of the trip 23, and its lower end is bent so as to engage with the pendulum 31 of the clock-movement to stop the latter the instant the lever 11 is released and the signal returns to "safety." This wire 30 normally holds the pendulum to one side of a perpendicular line, which is of advantage in automatically starting the movement when the signal is set to "danger," so that after the movement has run a predetermined time the signal will be released and the movement automatically stopped by the wire 30 engaging with the pendulum 31, as indicated by the full lines in Fig. 2. The movement 27 is of ordinary construction such as commonly employed in time-pieces and is wound up in the usual way, and may be run either by spring or weight, the latter being shown. In some instances it may be desired to hold the signal at "danger" for a greater length of time than indicated by the movement, and in order to accomplish this end a shaft 32 is journaled in the casing and is provided at its inner end with a crank-arm 33, the latter being adapted to be brought into engagement with the pendulum 31, as indicated by the dotted lines in Fig. 2, thereby stopping the movement for any required length of time. By this means the movement may be thrown out of action to permit a switch-engine to move backward and forward to make up a train or shift cars from one point to another.

From the foregoing it will be seen that the signal is at all times under the control of an attendant or may be operated automatically by the clock-movement. When a train passes the station, the track-bars 19 are depressed and the lever 11 operated, and through the connections described sets the signal at "danger," said signal being held in this position

by the catch 20. When the lever 11 is operated, the catch 20 is moved from a normal position and engages with the trip 23 and moves the latter a sufficient distance to carry the wire 30 away from the pendulum, as indicated by the dotted lines in Fig. 2, thereby permitting the clock-movement to operate, and at the elapse of the predetermined interval of time a stop 29 will engage with the trip 23 and move it, so as to release the lever 11, and the catch 20 being liberated will under the action of its spring 21 assume a normal position and throw the trip, so as to cause the wire 30 to engage with the pendulum 31, as indicated by the full lines in Fig. 2, thereby bringing the movement to a full stop. The signal may be set by hand by means of a rod 34, attached to the upper end of the lever 11 and running through the casing to within convenient reach.

Having thus described the invention, what is claimed as new is—

1. In a railroad-signal, the combination of a shaft bearing a signal and having an arm extending therefrom, a vertically-disposed lever, a rod connecting the upper end of the lever with the aforesaid arm, a spring for holding the signal at "safety" and the vertical lever in a normal position, means actuated by a passing train for operating the vertical lever to set the signal at "danger," a spring-actuated catch to engage with the vertical lever and hold the signal at "danger," and a trip having a portion projecting across the path of the spring-actuated catch for disengaging it from the said vertical lever, substantially as shown for the purpose set forth.

2. In a railroad-signal, the combination of a shaft bearing a signal, a lever having connection with the said shaft, means for operating the lever to set the signal to "danger," a catch to interlock with the lever and hold the signal at "danger," a trip for operating the catch, and a clock-movement for automatically actuating the trip to release the lever, substantially as and for the purpose set forth.

3. In a railroad-signal, the combination of a signal, a lever for operating the signal, a catch to interlock with the lever and hold the signal set at "danger," a clock-movement, and a trip for starting and stopping the clock-movement and in turn automatically actuated by the clock-movement for releasing the signal and permitting the latter to automatically return to "safety," substantially as described.

4. In a railroad-signal, the combination of a signal, a lever for operating the signal, a spring for normally returning and holding the signal at "safety," a catch to interlock with the said lever and hold the signal at "danger," a trip, a clock-movement for automatically actuating the trip to liberate the signal when set, and a wire connected with the trip for normally holding the clock-movement out of action, substantially as set forth.

5. In combination, a shaft bearing a signal

and having an arm, a lever having connection with an arm of the said shaft, a spring for returning and normally holding the signal at "safety," a gong sounded by the afore-
5 said lever when the signal is set, a spring-actuated catch for interlocking with the lever and holding the signal at "danger," a trip, a clock-movement for automatically actuating the trip, and a wire having connection with

the trip and normally holding the clock-movement out of action, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM R. MITCHELL.

Witnesses:

J. W. PARSONS,
S. PLEOGER.