(No Model.)

J. B. EASTMAN.

COMBINED RAILROAD SIGNAL AND ALARM.

No. 328,301. Patented Oct. 13, 1885.

Fig. 1.

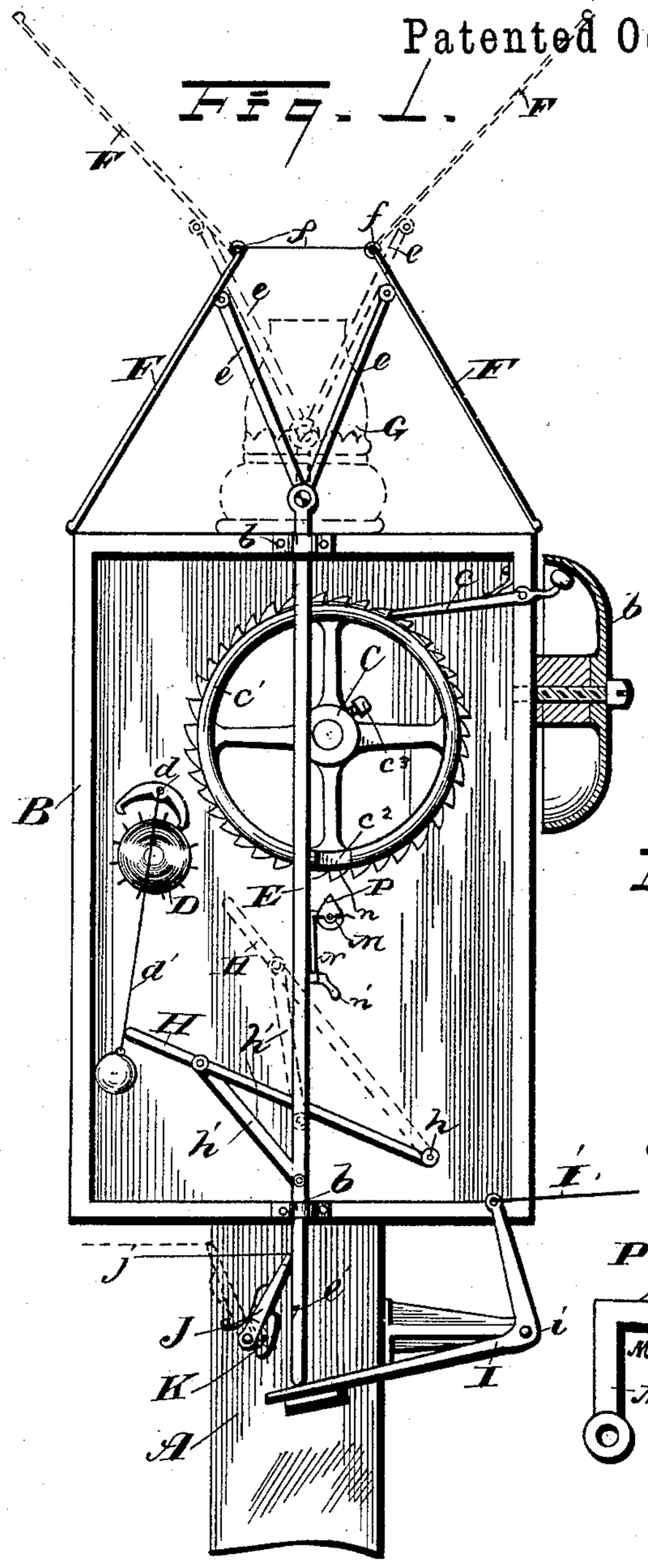


Fig. 2.

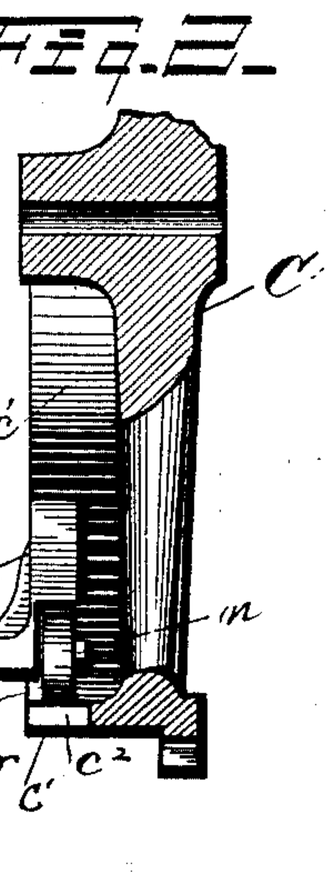
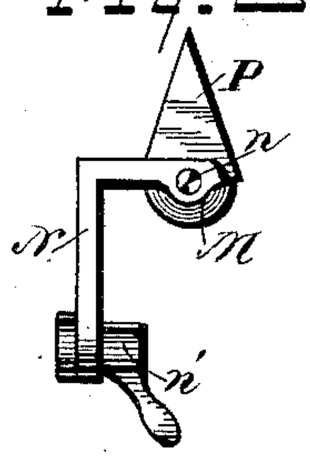


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JEROME B. EASTMAN, OF CLEVELAND, OHIO.

COMBINED RAILROAD SIGNAL AND ALARM.

SPECIFICATION forming part of Letters Patent No. 328,301, dated October 13, 1885.

Application filed July 5, 1884. Serial No. 136,875. (No model.)

To all whom it may concern:

Be it known that I, JEROME B. EASTMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in a Combined Alarm and Signal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to alarm-signals for railroads, the object being to provide an alarm-bell that will be set in operation by a train when passing a given point and will continue to ring by means of a clock-work until the mechanism is thrown out of gear by the train when passing another given point.

A further object is to provide danger-signals that will be displayed simultaneously with the ringing of the bell and operated automatically by the same mechanism.

A further object is to provide an adjustment by means of which the mechanism, when set in motion by a passing train, will continue to operate a given length of time for blocking trains.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view in elevation of a device embodying my invention. Fig. 2 is an enlarged view, partly in elevation and partly in section, of a portion of the wheel and attachments that actuate the bell-hammer. Fig. 3 is an enlarged side view in elevation of a portion of the mechanism shown in Figs. 1 and 2.

A represents a supporting post or column of such height and so located adjacent to a railroad that the box-like structure B and its attachments, mounted on the column, may be seen from trains in either direction which approach or leave the signal-station. Inside of the structure B is located clock-work. (Not shown.) As there is no special accuracy of movement required, any of the simple inexpensive kinds of clock-work known to the trade will answer the purpose. Two of the shafts or spindles from the clock-work extend through the face of the casing, and upon one is mounted the wheel C, that, when set in motion by the clock-work, actuates the hammer-lever *c* and rings the bell *b'*.

Upon the other shaft is mounted the escape-wheel D, that co-operates in the usual manner with the part *d*, to which is attached the pendulum *d'*, forming the common anchor-escapement, and regulates the motions of the clock-work in the usual manner.

E is a vertical bar that slides in the boxes *b*, the depressed or normal position of which is shown in Fig. 1. To the upper end of the bar are pivoted the rods *e*, which latter in turn are pivoted to the covers F. These covers when closed conceal the signal-lamp G, and the outside of these covers are usually painted white. The covers are hinged at *f*, and when the bar E is raised, by means of the connecting-rods *e*, the covers are raised to the position shown in dotted lines, thereby disclosing the light and displaying the under side of the covers, that are usually painted red, or whatever color may have been adopted for danger-signals.

H is an arm pivoted at *h* to the structure B, or to a post within said structure, and connected by the rod *h'* to the bar E, as shown. When the bar E is raised by means of the connecting-rod *h'*, the arm H is tilted to the position shown in dotted lines, where it is out of the way of the pendulum *d'*. When the bar E returns to its normal or depressed position, it moves the arm H to the position shown in solid lines, and the arm as it is moved to this position engages the pendulum and swings it to the left hand, and somewhat beyond its usual beat, causing the right-hand pallet of the part *d* to engage the escape-wheel D and stop the clock-work. When the arm H is again raised, the pendulum swings back and resumes its ordinary beat, allowing the clock-work again to move forward and revolve the wheel C, so that the bell is sounded at regular intervals as long as the bar E is elevated. The bar E is elevated by the action of the bell-crank I, fulcrumed at *i*, the lateral arm of which passes under the end of the bar E, as shown. The upright arm of the crank I has attached the wire I', that leads off in the direction from which the trains approach and to any distance required. When the bar E is raised, the spring-dog J engages the notch

e' and holds the bar in the elevated position until the dog J, by a pull on the wire j, is withdrawn from the notch, when the bar E descends by its own gravity. The wire j, that is attached to the dog J, leads to any desired point on the track, however distant, that will be passed by trains when leaving the signal-station. At these respective points on the track the wires I′ and j are each attached to one of the well-known devices for "transmitting power from passing trains," and so arranged that when the train passes the respective wires will be drawn endwise.

The operation of the device is as follows: When the approaching trains pass the point where the said power-transmitting device is located, the wire I′ is drawn endwise and actuates the bell-crank I, by means of which the bar E is raised. Meantime the spring-dog J engages the notch e' and holds the lever in the elevated position. As aforesaid, when the bar E is raised, the pendulum is released and the clock-work set in motion, so that the alarm-bell b' is sounded, and at the same time the covers F are raised, disclosing the light, if it be night, or displaying the under side of the covers, if it be day-time. This continues until the train reaches the power-transmitting device, to which the wire j is attached, when the wire j is drawn upon, and in turn draws back the dog J from its engagement with the notch e' and allows the bar E to descend. In case the train should stop, for instance, at a station, or railroad-crossing, or bridge, the signals and alarm-bell would give notice to a following train, and would contiuue to do so until the train passed on and actuated the wire j. The manner of arranging the wires for this purpose, either under ground or on posts, is the same as with ordinary bell-wires, and is so well understood that it is not considered necessary to give any description thereof.

There are many devices for transmitting power from passing trains, any of which could be made available for this purpose and could readily be arranged by ordinary workmen, and as such devices form no part of my invention I do not consider it necessary to describe them.

I will next describe the attachment for blocking trains.

The wheel C is provided with a laterally-projecting rim, c', through which there is an opening, c^2, of sufficient size to admit the passage of the roller M. This roller is journaled on the stud n that is secured to the bent arm N, that at the other end is secured by a bolt and thumb-nut, n', to the rod E. When this device is not in use, the thumb-nut is loosened and the lever turned forward out of the way of the wheel C. When it is desired to block trains, first the dog J is fastened by the button K so that it cannot engage the notch e'. Next the arm N is turned up alongside of the bar E and secured by the thumb-nut n', in which position the triangular-shaped or pointed guide P, secured to or formed integral with the arm N, extends up into the opening c^2 in the rim c'.

The wheel C is fastened to its shaft by the thumb-screw c^3, by loosening which the wheel may be turned so that the notch c^2 is in position for the passage of the roller M. By this arrangement of parts, when the bar E is raised, the roller M passes through the notch c^2, and as the wheel C immediately commences to revolve the roller M cannot pass back through the opening c^2 until the wheel C has made a revolution. The roller meantime travels on the inner surface of the flange and supports the bar E, and of course the bell is sounded and the signals displayed while the wheel C is making its revolution.

If it is desired to block the trains and keep them five minutes apart, the pendulum-weight is adjusted on the pendulum-rod so that the wheel C will make a revolution in five minutes. When the train is approaching one of these signal-stations, if the signal-bell is ringing, or the signal-light or covers are seen, the train is required to stop. When the bell ceases to sound, the train may approach, and in so doing the bar E is again raised and the signal and bell again set in operation for the benefit of the following train.

When it is no longer desired to block trains, by turning the button K to release the dog J and turning the arm N forward the apparatus is in condition to act as first described. For trains passing in the opposite direction, either on a single or double track, another apparatus of the same kind is located on the other side of the track, and the wires and mechanism for transmitting the power from the passing trains arranged accordingly.

What I claim is—

1. In a railroad-signal, the combination, with a signal-lantern, movable covers for concealing the lantern, a bell, a clock-work, and a hammer operated by said clock-work, of a movable bar for simultaneously elevating the movable covers and starting the clock-work, substantially as set forth.

2. In a railroad-signal, the combination, with an alarm or day-signal, a clock-work for sounding the alarm, a lantern or night-signal, and movable covers surrounding the lantern, of the vertically-movable bar and the arm H, connected to said vertically-movable bar and adapted when the vertically-movable bar is in its depressed position to hold the pendulum against movement, substantially as set forth.

3. The combination, with the sliding bar E and the rods e, of the covers F, connected by the rods e to the bar in such manner that by the vertical movement of the bar the covers are tilted to the position shown in solid or dotted lines, substantially as set forth.

4. In a railroad-signal, the combination, with an alarm, a clock-work for sounding the alarm, and a wheel having an opening in the rim thereof, of a vertically-movable bar having a roller thereon, which latter registers with

the opening in the rim, and the arm H, pivoted to said vertically-movable bar and adapted to hold the pendulum against movement when the vertically-movable bar is in a depressed position.

5. In a railroad-signal, the combination, with a signal-lantern and movable covers around said lantern, of a rotating wheel having an opening in its rim and a movable bar connected to the lantern-covers and operated in one direction by a train and in the opposite direction by gravity and provided with a roller, which latter is adapted to enter the opening in the rim of the wheel and rest on the perimeter of said rim while the wheel makes a single revolution, substantially as set forth.

6. In a railroad-signal, the combination, with an alarm, a clock-train for sounding said alarm, a signal-lantern, and movable covers around said lantern, of a wheel having an opening through its rim, a vertically-movable bar connected to said covers and having a roller thereon, which latter is adapted to pass through the opening in the rim of the wheel and rest on the perimeter of said rim, and the arm H, connected to said vertically-movable arm for holding the pendulum against movement when the vertically-movable bar is in a depressed position, substantially as set forth.

7. In a railroad-signal, the combination, with a signal and the wheel C, forming a portion of the clock-train and provided with a rim having an opening therein, of the vertically-movable bar for controlling the signal and the roller secured to said bar and adapted to rest on the perimeter of said rim and hold the bar in an elevated position, substantially as set forth.

8. In a railroad-signal, the combination, with a signal, a wheel having an opening in its rim, and devices for rotating said wheel, of the vertically-movable bar for controlling the signals and arm N, movably secured to said rod, substantially as set forth.

9. In a railroad-signal, the combination, with a signal and a wheel having an opening in its rim, of the vertically-movable bar for regulating or controlling the signal and the arm N, secured thereto and provided with a roller and guide, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 1st day of April, 1884.

JEROME B. EASTMAN.

Witnesses:
ALBERT E. LYNCH,
CHAS. H. DORER.