(No Model.)

C. BARRY.

RAILWAY TIME SIGNAL.

No. 420,140. Patented Jan. 28, 1890.

FIG. 2.

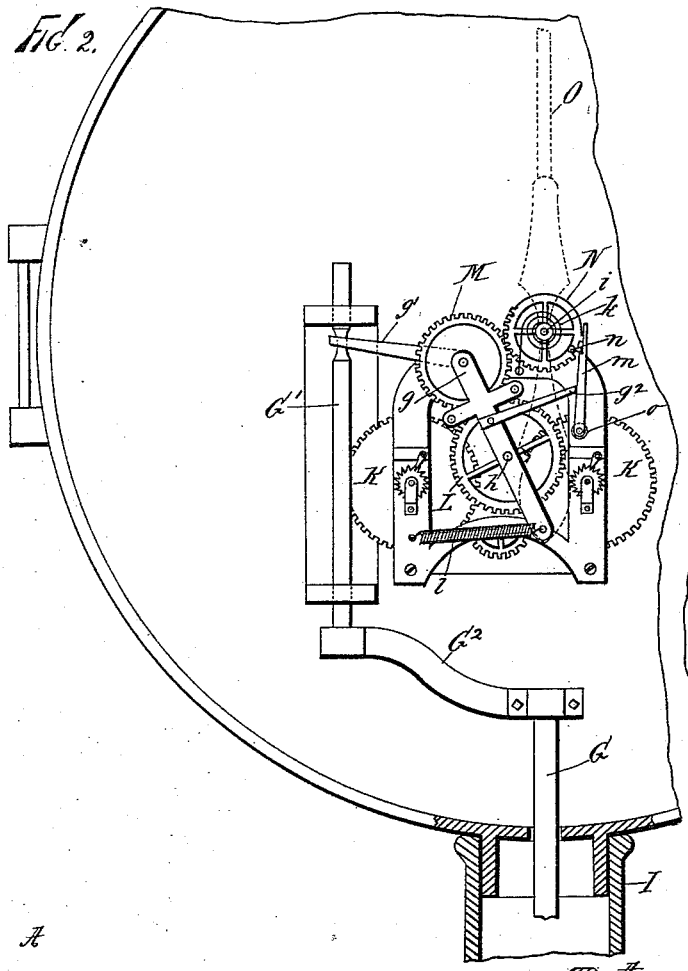


FIG. 1.

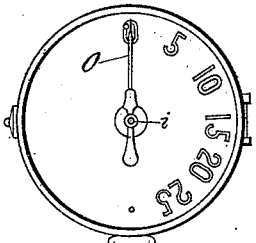
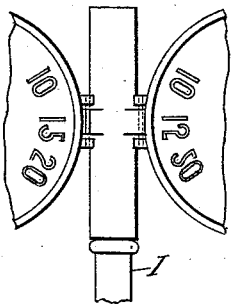
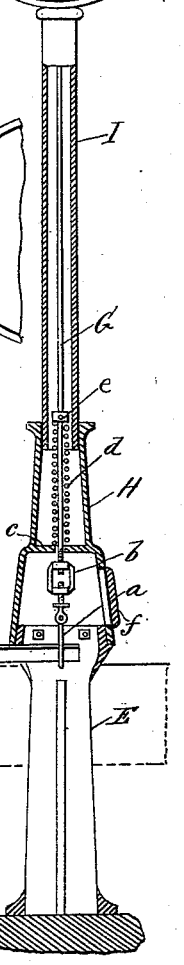


FIG. 3.





Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES BARRY, OF CORNING, NEW YORK, ASSIGNOR OF FIFTY-ONE ONE-HUNDREDTHS TO AUSTIN LATHROP AND GEORGE J. MAGEE, OF SAME PLACE.

RAILWAY TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 420,140, dated January 28, 1890.

Application filed November 28, 1888. Serial No. 292,086. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BARRY, of Corning, county of Steuben, and State of New York, have invented certain new and useful Improvements in Railway Time-Signals, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to railway time-signals, such as are intended to indicate or measure the time to any limited or desired extent between trains passing the station of the signal—such, for instance, as are of the general class shown in the patent issued to myself and assigned July 10, 1888, No. 386,052.

The object of my present invention is to simplify and improve the general construction of the signal or apparatus, so that it may be more easily and cheaply made, more readily and easily mounted in place and adjusted in readiness for use in connection with the track, so that it will be compact, of few and simple parts, and reliable. To accomplish all of this, and to secure other and further advantages in the matters of construction and operation, my improvements involve certain new and useful arrangements or combinations of parts and peculiarities of construction, as will be hereinafter first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a view of the complete apparatus in its improved form, the railway-track and the connections therewith being shown in sectional elevation, while the dial-head appears in elevation. Fig. 2 is a sectional elevation upon a scale enlarged beyond Fig. 1, showing the clock-movement and its connection with the means for starting the index hand or hands. Fig. 3 is a side view showing fragments of two dials, which, by preference, are employed upon the head.

In all the figures like letters of reference, wherever they occur, indicate corresponding parts.

A A are the rails of any railway.

In this class of signals the weight of the passing load or train, whatever it may be, is relied upon to set the signal at its normal position through means operated by deflection of the rail. The rail in many situations can be deflected but little, and it therefore becomes necessary to provide means for connecting with the signal which shall successfully utilize even the smallest deflection. At some convenient point, as between the rails, I provide a practically rigid bearing for one end of a lever B. This bearing is preferably made by sinking an anchor-stone C below the frost-line, and in this anchoring a rigid rod or bar D, which enters a socket on the end of the lever or is otherwise connected therewith so as to form a fulcrum, from which the lever is in no danger of being accidentally disengaged. From this point or fulcrum the lever extends beneath one of the rails and off to any desired distance upon the side of the track. Under this arrangement the other end of the lever will be moved down by the deflected rail through a greater distance than the rail, and this difference in extent of movement will be augmented as the lever is lengthened. From this it will appear that unless the rail is absolutely rigid (which seldom or never occurs) the weight of the passing load may be relied upon to afford all the deflection necessary to set the signal.

Heretofore for connecting a lever which is moved by the track with the signal mechanism secondary levers of various forms or kinds have been proposed, involving a number of joints, resulting in much lost motion, being difficult to adjust, to say nothing of their increased cost and liability to get out of order. For security, stability, and simplicity I anchor the ground-section of the post which carries the signal-head below the frost-line, as upon the anchor F, and extend the lever B into the top of this section through a suitable opening provided for it, and I connect the end of the lever with a rod G, which reaches up to the clock mechanism within the head. The lever acts directly upon this rod, and there are no intervening connections through which any lost motion can occur. The connection between the lever and rod should be made adjustable, so that the parts

may be readily set up for use in any situation, and for this reason I thread the end of rod G and apply thereon a stirrup *a* through a double nut or turn-buckle *b*. The stirrup receives the end of lever B and may be adjusted to proper place by simply turning nut *b*. Above the ground-section E is the base-section H, having a ledge *c*, upon which one end of a spring *d* may bear. This spring surrounds rod G and acts upon it through any suitable stud, as *e*, applied thereon. At the base of section H is a door *f*, through which access to the stirrup and nut or turn-buckle may be had at any time.

The post I, which carries the dial-head, is mounted upon section H and may be of any desired height. Within the dial-head is the clock-train, which may be of any approved pattern. In the form shown K K are spring-drums geared to transmit motion to a wheel L, which in turn gears with another wheel M. The wheel M is mounted in a yoke *g*, axled upon shaft *h* of wheel L, and all the parts are so proportioned that wheel M (when in gear with it) shall drive the index-wheel about as a minute-wheel. The axled yoke *g* is of rigid parts, of which the arm *g'* extends out to one side sufficiently far to hook around or engage with a vertical rod G', made movable in suitable ways in the casing. The rod G' is rigidly connected with rod G, as by a connecting-arm G^2, so that these parts must move together. Upon shaft *i* are the index-wheel N and indices, as O, a light spring *k* operating to return the indices or pointers to the zero-point on the dials as soon as it has opportunity to act.

With the parts arranged as so far described, the clock-work will drive the hands or pointers around the dials at the rate of about once an hour. As soon as the lever B is deflected the yoke *g* is moved upon its axle through the rod G sufficiently to carry wheel M out of mesh with wheel N, and then the spring *k* immediately returns the hands to the starting-point. The spring *d* will return the rod G to its normal position as soon as the train has passed, and this will enable the yoke *g* to be carried back to its original position by a spring *l* provided for the purpose, throwing wheels M and N into gear again and causing the hands to recommence their travel over the dials. They will continue to travel until the signal is again set, or until they have traveled far enough or long enough for all practical purposes.

The number of minutes indicated by the signal (if the limit has not been passed) corresponds with the length of time between two trains, as will be readily understood. If the signal will indicate thirty minutes' time, that has been found amply sufficient.

The wheel N is usually mutilated, so that it cannot be driven more than a certain length of time. It is of importance that the signal should indicate the time between unusually close trains very accurately. The hands, being released and returned as a train passes, are apt to vibrate and be started by the clock-train at a point in advance of the zero-point unless some provision be made to start them accurately. For this reason I employ a hinged lever *m*, suitably notched to engage a stud *n* on the index-wheel N and operated by a spring *o*, calculated to throw it into engagement so soon as released. Upon yoke *g*, I apply a rigid arm g^2 above the axle *h*. When the yoke is forced out of its normal position, the arm g^2 moves away from lever *m*, permitting the latter to engage the stud *n* and hold the wheel N, and thus the hands, accurately at the zero-point, preventing any vibration or jumping of the hands. The length of arm g^2 is so adjusted that it will throw lever *m* back or out of engagement as soon as the yoke is properly returned and wheels M and N are in gear with each other, but not before. Thus the hands can only be moved by the clock-train from the zero-point.

In my former patent, above named, a lever corresponding with lever *m* is shown; but it was not operated from the yoke in such direct manner as to insure the positively accurate starting of the hands from the zero-point.

Of course a single dial might be used; but it is better to have the two dials, so that the signal may be read from either or both faces, for obvious reasons. I prefer to mount the hands upon one shaft for greater simplicity; but they might be geared so as to run in opposite directions, if desired, or on two shafts.

In former constructions of signals of this class light vehicles—as, for instance, hand-cars—might pass without resetting the signal. Having this in view, the importance and advantage of connections as direct as possible with the rail need not be here enlarged upon.

Being constructed and arranged substantially in accordance with the foregoing explanations, the improved signal has been found to admirably answer the purpose or object of the invention, as previously set forth.

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

1. In a signal of the character herein set forth, the combination, with the deflecting-lever B, passing under rail A, of anchor C, rigid rod D, stirrup *a*, adjusting-nut *b*, post H I, and rod G, leading directly to the clock mechanism, substantially as shown and described.

2. The combination, with the deflecting-lever, the stirrup, adjusting-nut, the rod leading to the clock mechanism, and a returning-spring applied upon said rod, of the base-section of the post, provided with an aperture and an interior ledge upon which the returning-spring bears, substantially as and for the purpose set forth.

3. In a signal of the character herein set forth, the combination of rods G and G',

united by a rigid arm G^2 and connected directly with a deflecting-lever, as explained, and an axled yoke carrying a gear-wheel, the whole being arranged to operate substantially as and for the purposes explained.

4. In a signal of the character herein set forth, the combination, with the notched lever *m*, of the axled yoke carrying a rigid arm g^2, arranged to move said lever at the times and in the manner substantially as explained.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

CHARLES BARRY.

Witnesses:
WORTH OSGOOD,
JOHN BUCKLER.