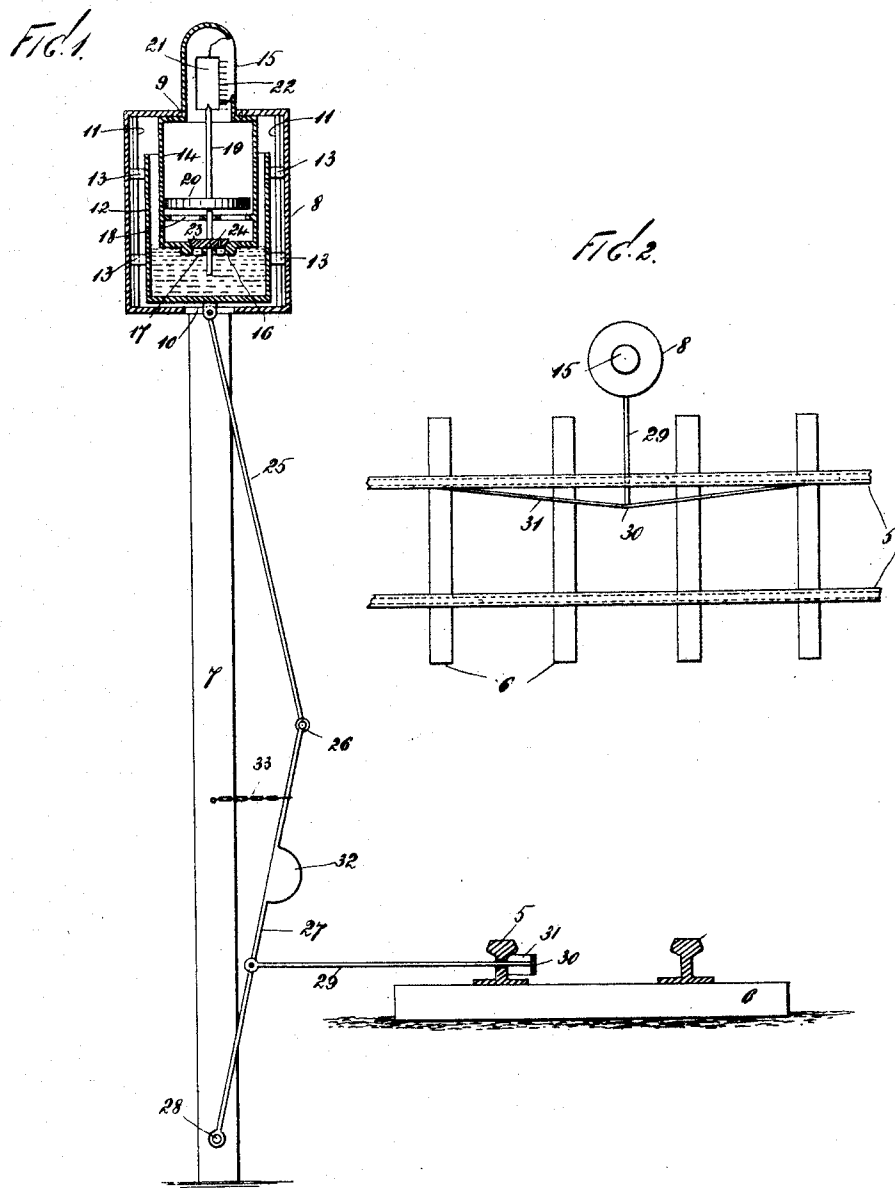


(No Model.)

W. H. J. LANCE
RAILWAY SIGNAL.

No. 586,609.

Patented July 20, 1897.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM HENRY JOSEPH LANCE, OF LONDON, ENGLAND.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 586,609, dated July 20, 1897.

Application filed January 28, 1897. Serial No. 621,036. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY JOSEPH LANCE, a subject of the Queen of Great Britain, residing at Pinner, London, in the county of Middlesex, England, have invented certain new and useful Improvements in Railway-Signals, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to railway-signals; and the object thereof is to provide an improved signal apparatus of this class by means of which the time which has elapsed after a train passes a certain point or points where the signal apparatus is located may be definitely and easily determined.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a sectional side view of my improved signal apparatus and showing a transverse section of a railway-track, and Fig. 2 a plan view of that portion of the track adjacent to the signal apparatus.

In the drawings forming part of this specification the separate parts of my improvement are designated by the same numerals of reference, and in said drawings I have shown in Fig. 1 a section of a railway-track which consists of the usual rails 5 and the ties 6, and in the practice of my invention I place at any desired point along the track or at any station or wherever a signal apparatus for the purpose specified is required a suitable post 7. The post 7 is provided at its upper end with a casing 8, which is mounted thereon or secured thereto in any desired manner, and the casing 8 is preferably cylindrical in form, and the top thereof is provided with a circular opening 9 and the bottom with a corresponding opening 10.

Mounted within the casing 8 at each side thereof are vertical guides or standards 11, and within the casing 8 is a vertically-movable cylindrical receptacle 12, which is closed at its lower end and open at its upper end and which is provided at its opposite sides with sleeves or keepers 13, which are adapted to slide on the standards or guides 11.

Within the receptacle 12 is a cylindrical casing 14, which is secured to the top of the

casing 8 and the upper end of which is closed and provided with a tubular upwardly-directed extension 15, which passes through the opening 9 in the top of the casing 8, and the lower end of the casing 14 is provided with a central opening 16, centrally of which is formed a spider 17, and another spider or guide-frame 18 is secured in the casing 14, near the bottom thereof, and passing vertically through said spiders 17 and 18 is a vertically-movable rod 19, on which is secured a float 20, which is free to move in the casing 14.

The rod 19 passes upwardly into the tubular extension 15 of the casing 14, and said tubular extension is provided at its opposite sides with vertical slots or openings 21, and at one side of said slots or openings on each side of the tubular extension is a scale 22, which represents hours and fractions thereof.

Mounted on the rod 19, adjacent to the lower end thereof, is a valve 23, in which is formed a small vertical passage 24, and the valve 23 is adapted to close the port or opening in the bottom of the casing 14, and in practice the receptacle 12 is filled or partially filled with a fluid which will not freeze or congeal, except at a temperature which is lower than is ever reached in a latitude where the signal apparatus is located.

Pivotaly connected with the lower end of the receptacle 12 is a rod 25, the lower end of which is pivotaly connected at 26 with a lever 27, which is pivoted at or near the lower end of the post 7, as shown at 28, and pivotaly connected with the lever 27 at a point slightly above and parallel with the ties 6 of the railway-track is a rod 29, which passes through the adjacent rail 5 and which is connected in any desired manner at 30 with a spring plate or bar 31, the ends of which press against the side of the body portion of the rail 5, through which the rod 29 passes, and the central portion of which is curved inwardly or in the direction of the opposite rail.

The lever 27 is provided above its pivotal connection with the rod 29 with a weight 32 and also with a chain or other fastening device 33, one end of which is connected with the post 7, and the operation will be readily understood from the foregoing description when taken in connection with the accompa-

nying drawings and the following statement thereof.

The spring plate or bar 31 or the central portion thereof is adapted to be forced outwardly against the body portion of the rail 5, through which the rod 29 passes, by the flange or rim of the car-wheels as they pass the point where the signal apparatus is located, and in this operation either one or both of the ends of the spring plate or bar 31 slide along the rail, so as to permit the central portion thereof to be forced outwardly, and after the train has passed the said spring plate or bar again assumes the position shown in Fig. 2. As the train passes the spring plate or bar 31 or the central portion thereof is forced outwardly, as described, by the flanges of the car-wheels, and this operation raises the rod 25 and the casing 12 and forces the liquid therein up through the central opening in the bottom of the receptacle 14, the rod 19, the float 20, and the valve 24 being raised within said casing 14 as the liquid is forced thereinto. The spring plate or bar 31 is of such length that the rod 29 is held in its outermost position until the entire train has passed, after which said spring-plate and the weight 32 on the lever 27 will operate to lower the casing to its normal position and the valve 23 will drop upon its seat and the liquid within the casing 14 will be gradually fed through the small opening 24 in the valve 23, and as the float 20 descends it carries with it the rod 19, and the upper end of this rod serves as a pointer to indicate on the scale 22 the time which has elapsed since the passage of the train.

The chain 33 serves to prevent the lever 27 from moving outwardly too far; but this chain may or may not be employed, and the spring plate or bar 31 may be composed of two pieces, if desired, and other changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages.

My improved signal apparatus is well adapted to accomplish the result for which it is intended and is also comparatively inexpensive and may be located at any desired point or at any station along the railway-track.

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

1. In a railway signal apparatus, the combination with an upright post or standard which is provided with a casing at its upper end, of a vertically-movable receptacle mounted in said casing and open at its upper end and closed at its lower end, a stationary casing mounted in said receptacle, and provided with a tubular extension at its upper end which projects through an opening in the

top of the casing in which the receptacle is mounted, said tubular extension being provided with a vertical slot or opening in the side thereof, adjacent to which is a scale, and said stationary casing being also provided with an opening in its lower end, a vertically-movable rod mounted in said casing and provided with a valve which is adapted to close said opening, said movable rod being also provided with a float which is mounted thereon above said valve, said valve being provided with a small port or opening, and devices connected with the lower end of the vertically-movable receptacle and with one of the rails of the track and adapted to be operated by a passing train so as to raise and lower said receptacle substantially as shown and described.

2. In a railway signal apparatus, the combination with an upright post or standard which is provided with a casing at its upper end, of a vertically-movable receptacle mounted in said casing and open at its upper end and closed at its lower end, a stationary casing mounted in said receptacle, and provided with a tubular extension at its upper end which projects through an opening in the top of the casing in which the receptacle is mounted, said tubular extension being provided with a vertical slot or opening in the side thereof, adjacent to which is a scale, and said stationary casing being also provided with an opening in its lower end, a vertically-movable rod mounted in said casing, and provided with a valve which is adapted to close said opening, said movable rod being also provided with a float which is mounted thereon above said valve, said valve being provided with a small port or opening, and devices connected with the lower end of the vertically-movable receptacle and with one of the rails of the track and adapted to be operated by a passing train, so as to raise and lower said receptacle, consisting of a rod which is pivotally connected with the lower end of said casing, and with a lever which is pivotally connected therewith, and one end of which is pivotally supported at the bottom of the post or standard, and a rod which is pivotally connected with said lever, and passed through the adjacent rail of the track, and connected with a spring plate or bar the central portion of which is inwardly curved, and the ends of which bear on said rail of the track, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 12th day of January, 1897.

WILLIAM HENRY JOSEPH LANCE.

Witnesses:

GERALD FITZ-ALLAN BIRD,
CHARLES HALE.