

No. 749,870.

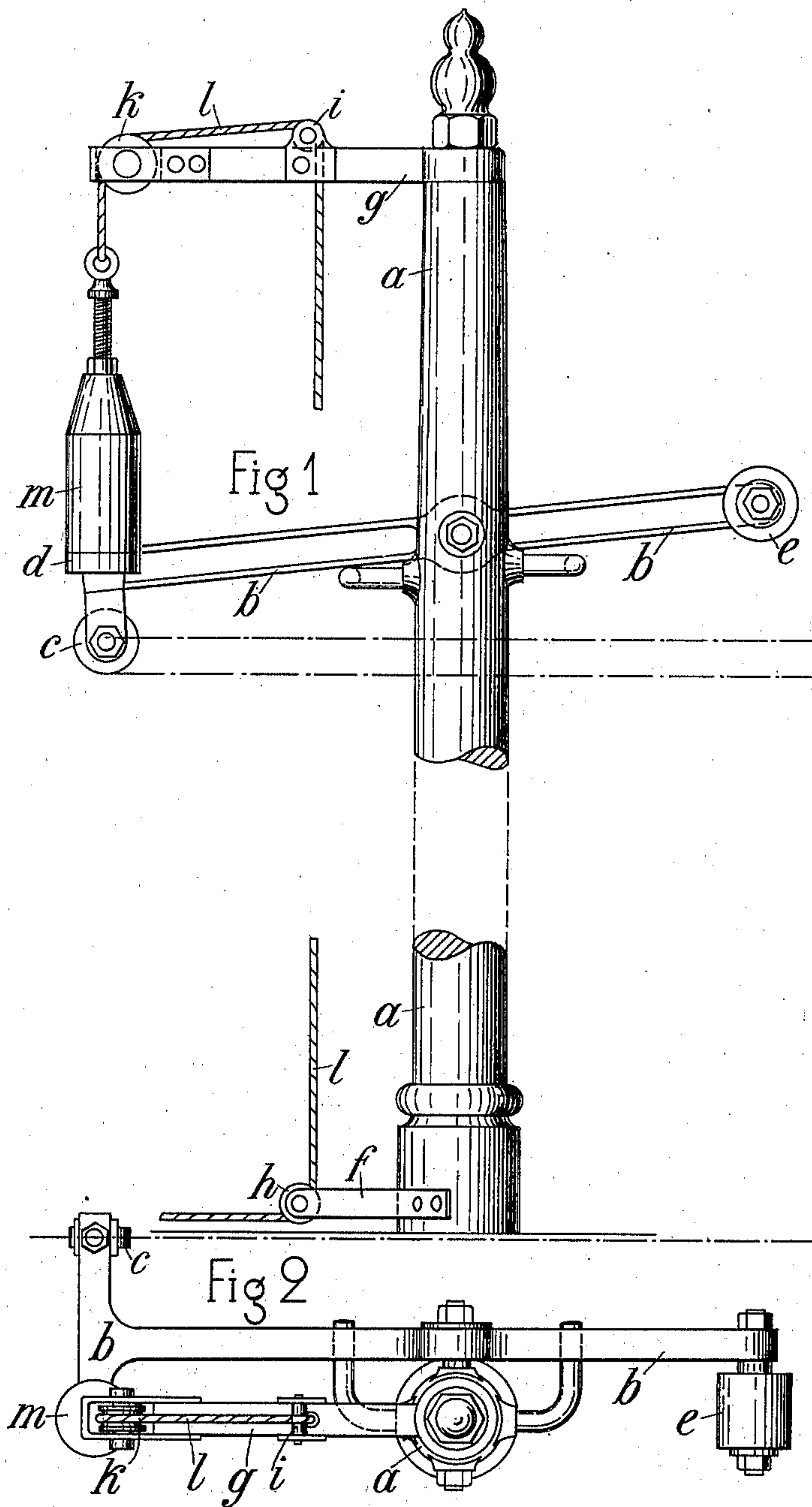
PATENTED JAN. 19, 1904.

J. J. LUYTEN.  
SIGNAL.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses—  
Ellis Owen  
John Smith

Inventor  
J. J. Luyten  
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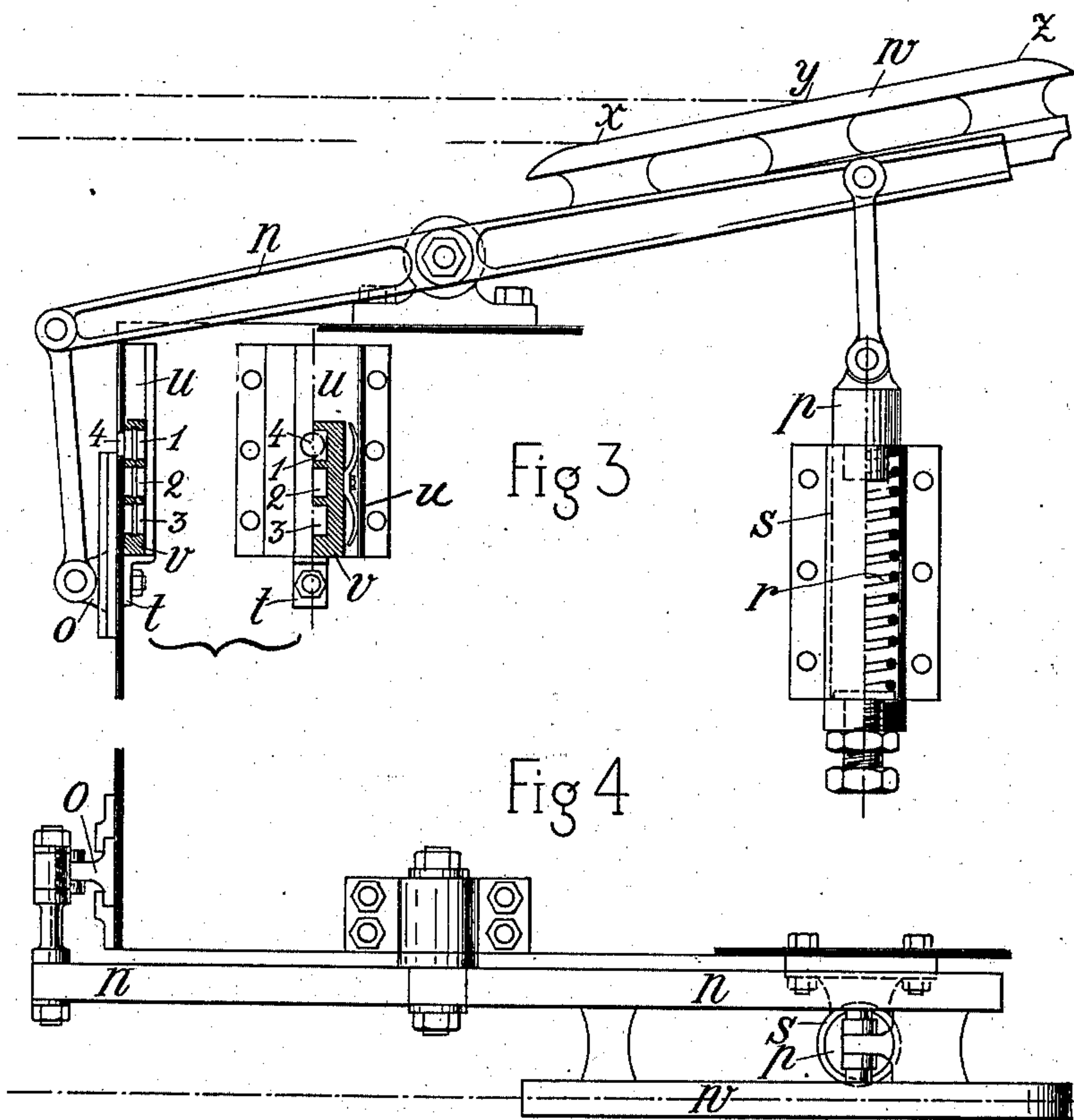
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# UNITED STATES PATENT OFFICE.

JOHANNES JACOBUS LUYTEN, OF BATAVIA, JAVA.

## SIGNAL.

SPECIFICATION forming part of Letters Patent No. 749,870, dated January 19, 1904.

Application filed August 2, 1902. Serial No. 118,156. (No model.)

*To all whom it may concern:*

Be it known that I, JOHANNES JACOBUS LUYTEN, mechanician, a subject of the Queen of the Netherlands, residing at Batavia, Java, have invented certain new and useful Improvements Relating to Signals, of which the following is a specification.

The signals by which the rail-track and station *personnel* of railways indicate to the engine-drivers the state of the line are often not visible in time or at all—for example, in mist or fog or when snowing. Auxiliary signals are therefore employed, which indicate to the locomotive-driver the position of the main signals at a certain distance in front of the latter. The auxiliary signals in use are placed by the side of the rail-track, as are the main signals, and the signaling is similarly given as by the main signals—that is to say, in the auxiliary signals by different positions of a round disk and in the main signals by different positions of an arm by day and by different colors of the light of a lantern by night. These auxiliary signals would fulfil their purpose if they in bad weather were visible in immediate proximity; but often they are as little visible as the main signals.

The present invention relates to an auxiliary signal consisting of a transmitter placed on the side of a railway, which auxiliary signal, as in the known auxiliary signals, is connected with the main signal by a wire in such a manner that its position is changed simultaneously with that of the latter and to an indicator provided in the locomotive-cabin, which indicator on the passage of the auxiliary signal is displaced and indicates to the engine-driver the position of the main signal by day or night, as well as in good or bad weather, and always in the same manner and with the same certainty.

An auxiliary signal according to the present invention is illustrated in the drawings, in which—

Figure 1 illustrates the transmitter in elevation. Fig. 2 is a corresponding plan. Fig. 3 is an elevation of the indicator, and Fig. 4 is a plan thereof.

The transmitter consists of the double-armed lever *b*, pivotally mounted on a horizontal pin

upon the pillar *a*, which lever has a pulley *c* and a disk *d* at one end and a counterweight *e* at the other. Arms *f* and *g* are secured at the foot and top of the pillar *a* and respectively carry pulleys *h*, *i*, and *k*, over which runs the wire rope *l*. At one end of the latter hangs the weight *m*, while the opposite end is supposed to be connected with the main signal.

The indicator consists of a double-armed lever *n*, which is pivotally mounted upon a horizontal pin on the roof of the locomotive-cabin and is connected at one end with the slide *o*, provided in the front wall of the cabin, and at its other end with the piston *p*. The latter is constantly pressed upwardly by the spiral spring *r*, which is contained within the socket *s*, fixed upon the side wall of the cabin, so that the lever *n* ordinarily assumes the position shown in the drawings. The angular ledge *t* is fixedly connected upon the slide *o* and serves to uplift the indicating-slide *v*, which is guided in the guides *u*.

The indicating-slide *v* is provided with three apertures 1, 2, and 3, covered with differently-colored glass, of which apertures in the lowest position of the indicating-slide *v* the highest, 1, corresponds with an aperture 4 in the front wall of the engine-cabin.

Upon one arm of the lever *n* the rail *w* is fixedly connected, and the latter runs under the pulley *c* when the locomotive passes the transmitter, whereby the lever *n* is displaced according to the position of the lever *b*. In the "stop" position of the main signal the weight *m* of the transmitter rests upon the disk *d*, so that the lever *b* assumes the position shown in the drawings. In this position the pulley *c* meets the rail *w* at the point *x* and presses it down against the action of the spring *r* to an extent corresponding to the distance between the points *x* and *z*, whereby the indicating-slide *v* is uplifted so far as to bring its lowest aperture 3 in position to coincide with the aperture 4 and to color the light passing through the latter—for example, red.

In the "all-clear" position of the main signal the disk *d* is relieved of the weight *m*, and the lever *b* under the action of the counterweight *e* takes such a position that the pul-



ley *c* meets the rail *w* only at the point *y*, and therefore presses it downward only to an extent corresponding to the distance between the points *y* and *z*—i. e., to an extent equal to one-half the distance between the points *x* and *z*. The indicating-slide *v* is thereby moved only so far that its aperture 2 coincides with the aperture 4 and that the light passing through is, for example, colored green.

As soon as the pulley *c* releases the rail *w* the lever *n* by the spring *r* is brought back into its original position. The slide *o* and the angular ledge *t* return, therefore, to their lowest position. The indicating-slide *v*, on the contrary, remains in its uplifted position by virtue of the friction of its lateral springs in the guides *u* until the engine-driver presses it down.

At night a lantern is placed before the aperture 4, the light of which passes through the aperture. The latter is always disposed in front of the driver and its operation is certain, being unaffected by bad weather or in any other way. By the slide *o* also a small meter may be actuated to indicate the distance traveled over.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, and means for indicating the condition of the line according to the extent of movement given to the contact-lever by the auxiliary signal, substantially as described.

2. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide positively connected to said contact-lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, and capable of being held in any position into which it is uplifted by the slide aforesaid, and an aperture in said cabin in the line of the apertures in the loose indicating-slide, substantially as described.

3. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, means for indicating the condition of the line according to the extent of movement given to the contact-lever by the transmitter, and means for causing said contact-lever to assume its original position after passing the transmitter, substantially as described.

4. In auxiliary signaling apparatus for rail-

ways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide positively connected to said contact-lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, and capable of being held in any position into which it is uplifted by the slide aforesaid, and an aperture in said cabin in the line of the apertures in the loose indicating-slide, and means for causing said contact-lever to assume its original position after passing the transmitter, substantially as described.

5. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide connected to said lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, said slide having lateral springs engaging on guides by which it may be retained in any position in which it is uplifted, substantially as described.

6. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a lever pivoted to said pillar, a weight carried by said lever, said weight being uplifted for signaling, an indicator fitted in the locomotive-cabin, said indicator consisting of a directly-operated contact-lever capable of being depressed by the lever of the transmitter, and means connected to said indicator-lever for indicating the position of the transmitter-lever and the condition of the line according to the movement given to the indicator contact-lever, substantially as hereinbefore described.

7. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a double-armed lever pivoted to said pillar, a weight carried by one arm of said lever, said weight being uplifted for signaling, and a counterweight carried by the other arm of said lever, an indicator fitted in the locomotive-cabin, said indicator consisting of a lever capable of being depressed by the lever of the auxiliary signal, and means connected to said indicator-lever for indicating the position of the lever of the transmitter and the condition of the line according to the movement given by the lever of the transmitter to the lever of the indicator, substantially as hereinbefore described.

8. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a double-armed lever pivoted



to said pillar, a weight carried by one arm of said lever, said weight being uplifted for signaling, a pulley carried by the same arm of said lever, and a counterweight carried by the other arm of said lever, an indicator fitted in the locomotive-cabin, said indicator consisting of a lever, said lever being provided with a rail capable of being depressed by the pulley provided on the auxiliary signal-lever, and means connected to said indicator-lever for indicating the position of the lever of the transmitter and the condition of the line according to the movement given by the auxiliary signal-lever to the indicator-lever, substantially as hereinbefore described.

9. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a lever pivoted to said pillar, a weight carried by said lever, a fixed arm

carried by said pillar above said lever, said fixed arm carrying pulleys, a cord for carrying said weight passing over said pulleys and connected to the main signal, and an indicator fitted in the locomotive-cabin, said indicator consisting of a lever capable of being depressed by the lever of the auxiliary signal, and means connected to said indicator-lever for indicating the position of the transmitter-lever and the condition of the line according to the movement given to the indicator-lever, substantially as hereinbefore described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHANNES JACOBUS LUYTEN.

Witnesses:

CARL GEORG REIMANN,  
GEORGE OTTO MEYER.