

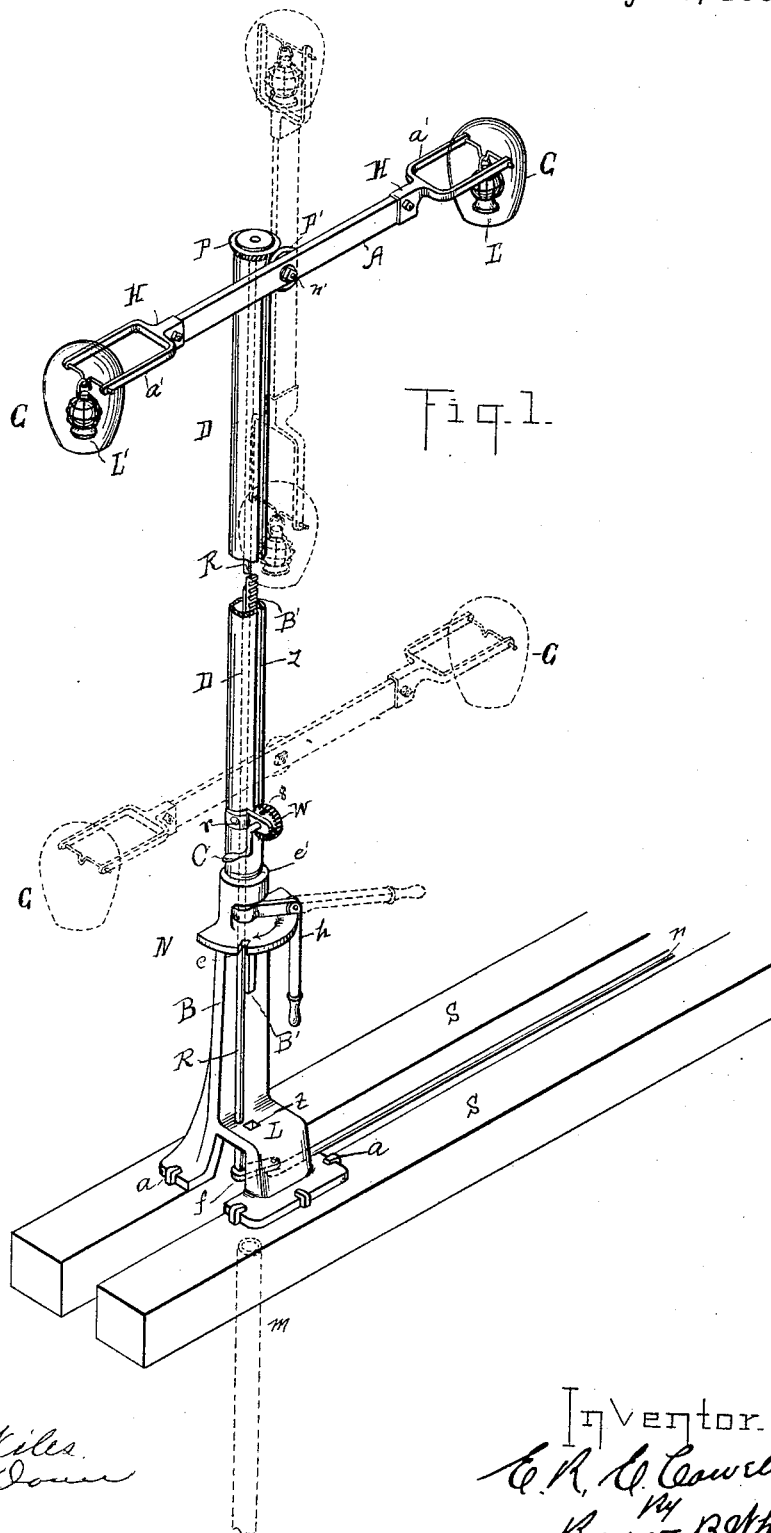
(No Model.)

E. R. E. COWELL.  
SWITCH SIGNAL.

2 Sheets—Sheet 1.

No. 386,057.

Patented July 10, 1888.



Attest.  
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John T. Downer

Inventor.  
E. R. E. Cowell.  
By  
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att'y.

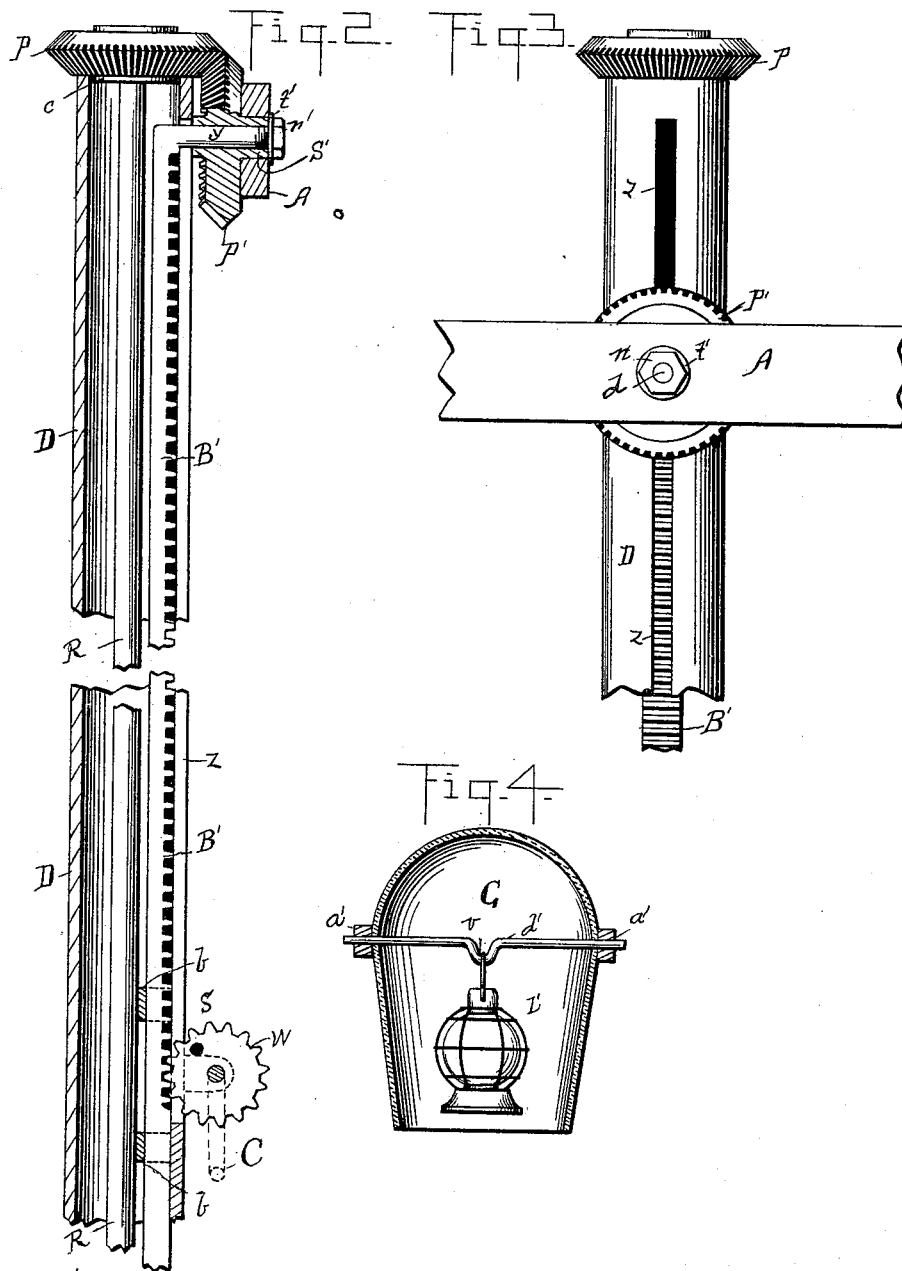
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# UNITED STATES PATENT OFFICE.

EDWARD R. E. COWELL, OF YPSILANTI, MICHIGAN.

## SWITCH-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 386,057, dated July 10, 1888.

Application filed January 21, 1888. Serial No. 261,489. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD R. E. COWELL, a citizen of the United States, residing at Ypsilanti, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Crossing-Signals; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to signals or tower-lights such as are employed at railroad crossings.

The object of this invention is to provide means whereby when the track of a crossing has been shifted the signal-lights of the tower or pillar will be automatically shifted into such position as will indicate to the engineer or switchman of a train the position of the track or rails of the crossing.

The first part of my invention relates to the mechanism for simultaneously shifting the position of the railway track and the lights of the signal.

The second part relates to the mechanism for raising and lowering the supporting-arm of the signal-lights.

The third part relates to the construction of parts whereby colored transparent globes and lights or lanterns are attached to the ends of the traveling supporting-arms of the signal device, as will be hereinafter set forth, and pointed out particularly in the claims.

In the accompanying drawings, forming a part of the specification, Figure 1 is a perspective of my improved device. Figs. 2, 3, and 4 are enlarged details, to which reference will be had hereinafter.

In the drawings, B represents the switch stand or base having the ledge L or offset. Said base is secured to the ties or girders S by means of spike *a*.

*t* is a perforation in the base, vertically below which is located in the soil a pipe, *m*, as shown by dotted lines in Fig. 1.

The head N of the base B is provided with a horizontally-projecting ledge having in its

periphery recesses *e*, which receive the jointed portion of the lever *h*. The head or upper end of the base is hollow, being internally screw-threaded to receive the screw-threaded end *e'* of the column D, which consists of a cylindrical body provided with a longitudinal slot, Z, which extends from near each end of the column. Passing through the column vertically is a shaft, R, having made fast to its upper end and lying on the upper end of said column a pinion, P, having a collar, *c*, filling the upper end of the column, as shown in Fig. 2. Said shaft passes through the base portion B, having on its lower end the crank *f*, to which is coupled the rod *n*. The opposite end of said rod is to be coupled to the shifting rails of a track, such coupling not being shown, as it will be readily understood by those skilled in the art. Located also in the column D is a traveling toothed bar, B', having the right-angled arm Y, which arm projects through and travels in the slotted opening Z of the column D. Mounted so as to rotate on the arm Y is a pinion, P', having a sleeve, S', formed integral therewith. The cogs of the pinion P mesh with the cogs of the pinion P' when the parts are in their normal position, as shown in Figs. 1 and 2.

Fitted so as to rotate with slight tension on the sleeve S' is the signal-supporting arm A, the desired tension being obtained by tightening the nut *n'* on the arm Y, forcing the washer *t'* against the side of the arm A, and said arm against the pinion P'.

The ends of the supporting-arm A are provided with the forked metal heads H. Through the free ends of the forks *a'* is secured a truss rod or bar, *d'*. The rods *d'* pass also through the colored glass or transparent globe G, which globes are closed at the top and open at the bottom. The rods *d'* pass through said globes at a point above the horizontal center, whereby the greater weight of said globes is below the points on which they are suspended within the forks *a'* of the heads H, as clearly shown in Fig. 4.

L' represents lanterns which are hung onto the rods *d'* within the globes, which when lit up give a colored light through the globes, said lights being signal-lights.

Near the bottom of the column D is secured

a bracket, *r*, carrying a cog-wheel, *w*, the cogs of which pass through the slot *Z* and mesh with the cogs on the bar *B'*.

*C* is a crank for revolving the wheel *w*, and *b b* are transvers bars, which hold the bar *B'* in gear with said wheel.

The operations are as follows: The parts being in the position of Fig. 1, to hang the lanterns in the globes or to light them, a pin (not shown) is drawn out of the hole *s* of the wheel *w*, the crank *C* turned so as to cause the bar *B'* to move downward, its lower end passing through the perforation *t* and into the pipe *m* until the supporting-arm *A* is down to the horizontal dotted position of Fig. 1, when the globes *G* will be lowered sufficiently to enable the operator to readily reach them without climbing. The lanterns being hung within the globes, they are elevated to former position by turning the crank *C* in the opposite direction. As the pinion *P'* advances to the pinion *P* in the upward movement of the arm *A*, the cogs of said pinions mesh with each other, as shown in Figs. 1 and 2, and are held in such locked position by placing a locking-pin through the hole *s* of the wheel *w*. The parts being in the position of Fig. 1, the operator to shift the crossing-rails of the track moves the lever *h* from the locked position around in the direction of the arrow of Fig. 1, dropping the pivoted end of the lever into the channel *e'*, thereby rotating the shaft *R*, turning the crank *f*, moving the bar *n* and its coupled track, (not shown,) also rotating the pinion *P* at the top of the column *D*, causing the pinion *P'* to rotate therewith, swinging the supporting-arm *A* from a horizontal to a vertical position, as shown by dotted lines in Fig. 1, which last position of the lights indicates the position of the shifted track.

It will also be observed that as the globes *G* are pivoted at a point over their horizontal centers, said globes by gravitation rotate on the ends of the supporting-arms as said arms swing from a horizontal to a vertical position, and vice versa, thereby remaining at all times in an upright position.

Having thus fully set forth the features of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a signal device, the combination of the base, the column mounted thereon, having the

longitudinal opening, the shaft located in said column, having on the lower end a crank and on its upper end a pinion, the toothed bar located in said column, having the horizontal arm, the pinion mounted on said arm, the supporting-arm pivoted on the sleeve of said pinion, the signal-lights mounted on the ends of said supporting-arm, the cog-wheel for raising and lowering the toothed bar, the lever *h*, and switch-operating rod *n*, as and for the purposes specified.

2. In a signal device, the combination of the base, the column mounted thereon, the longitudinal slot in said column, the shaft located in said column, the pinion mounted on the upper end of said shaft, the lever for rotating said shaft, the toothed bar located in said column, having the arm *Y*, the sleeved pinion mounted thereon, the supporting-arm pivoted on the sleeve of said pinion, signal-lights mounted on the ends of the supporting-arm, and the toothed wheel for raising and lowering said supporting-arm, substantially as and for the purposes specified.

3. In a device for the purposes specified, the combination of the base, the slotted column, the toothed bar located in said column, having the arm *Y*, the arm *A*, pivotally carried on said toothed bar and having on its ends the forked heads, the globes pivotally mounted on said forked heads at a point above the horizontal center of said globes, signal-lights supported within said globes, and the cog-wheel and crank for raising and lowering said signal-lights with the supporting-arm, as and for the purposes specified.

4. In combination with the base, the slotted column screw-threaded thereto, the toothed bar having the arm *Y*, the supporting-arm *A*, carried by the toothed bar, the globes and lanterns mounted on the ends of the supporting-arm, the cog-wheel and crank for operating the toothed bar, and the pipe *m*, located in the soil vertically below the toothed bar, so as to receive said toothed bar, as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD R. E. COWELL.

Witnesses:

JOHN T. DOAN,

ROSCOE B. WHEELER.