

(No Model.)

2 Sheets—Sheet 1.

I. RICKARD.

REVOLVING SIGNAL FOR RAILWAY TRAINS.

No. 337,283.

Patented Mar. 2, 1886.

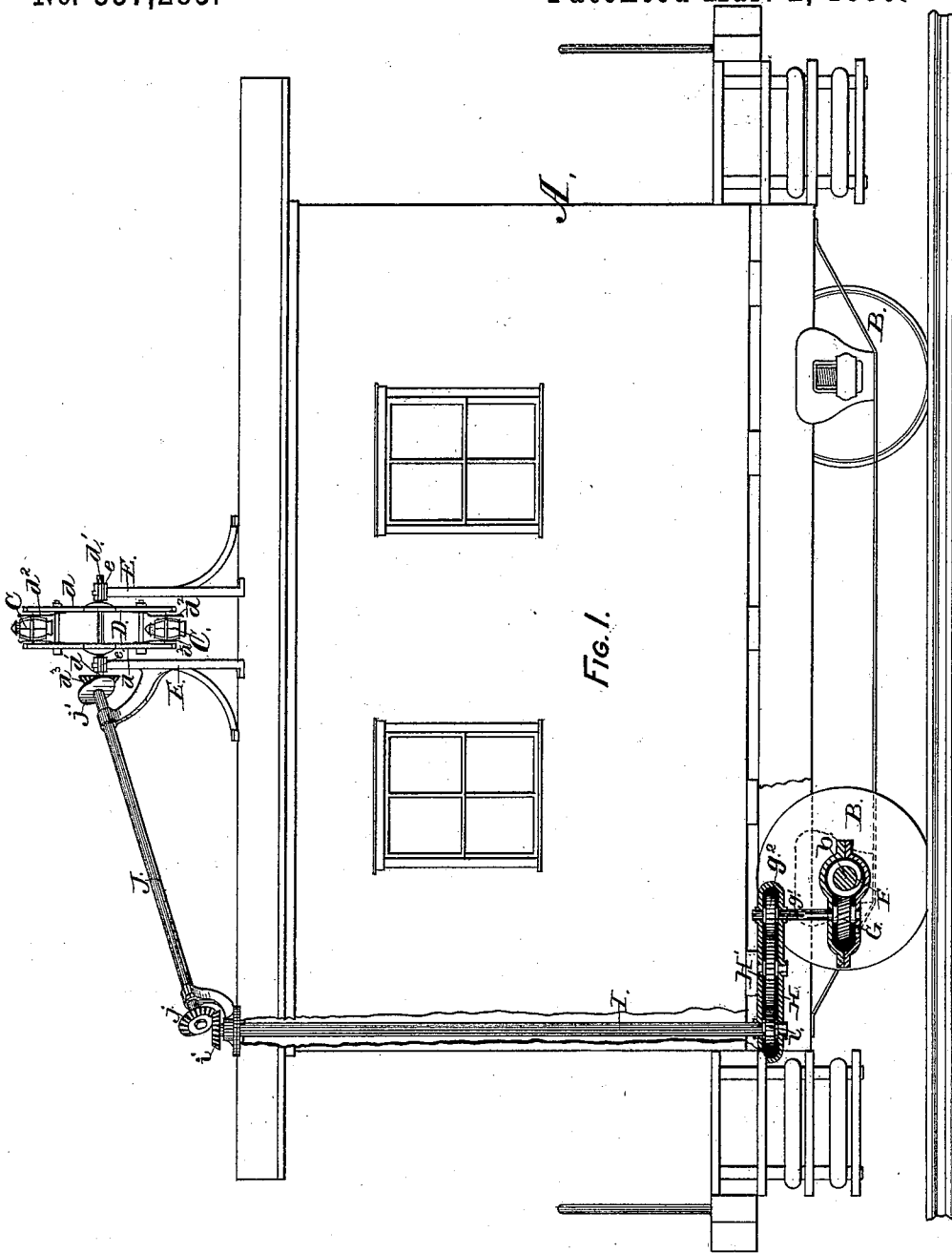


Fig. 1.

Witnesses:

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*C. W. Jeh*

Inventor:

*IRA RICKARD,*  
*by William N. Dow,*

Attorney.

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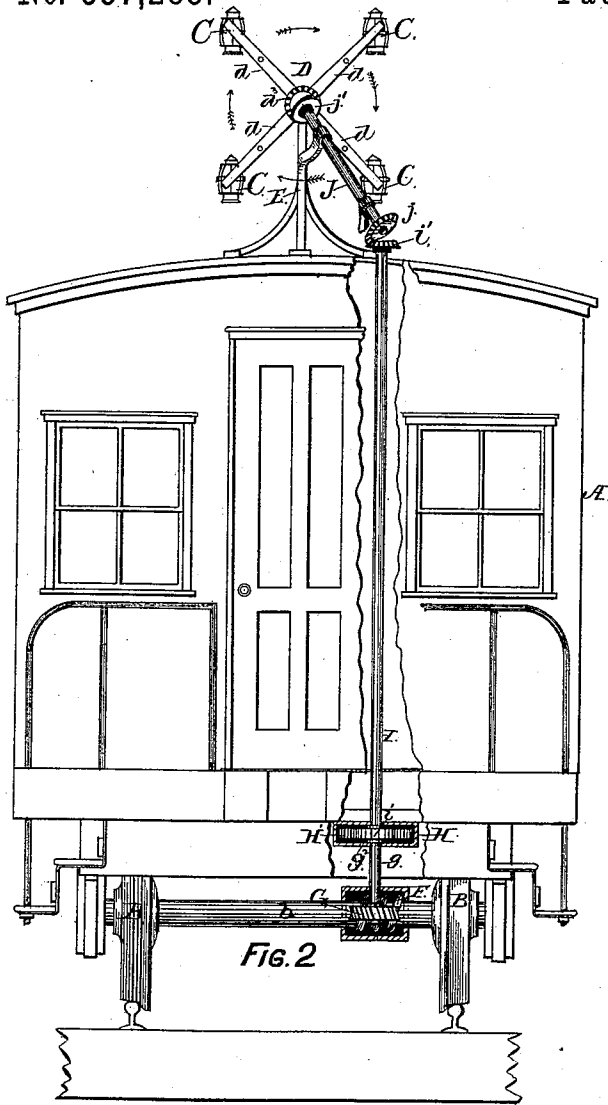


FIG. 2

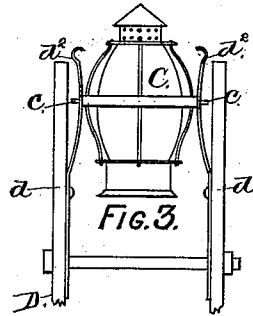


FIG. 3.

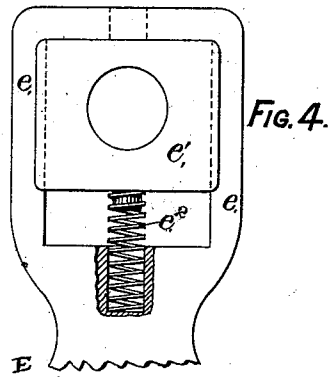


FIG. 4.

Witnesses:

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# UNITED STATES PATENT OFFICE.

IRA RICKARD, OF COBLESKILL, ASSIGNOR OF ONE-HALF TO WILLIAM H. SIDNEY, OF SCHOHARIE, NEW YORK.

## REVOLVING SIGNAL FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 337,283, dated March 2, 1886.

Application filed August 26, 1885. Serial No. 175,357. (No model.)

*To all whom it may concern:*

Be it known that I, IRA RICKARD, of Cobleskill, in the county of Schoharie and State of New York, have invented a new and useful Improvement in Revolving Signals for Railway-Trains, of which the following is a specification.

My invention relates to a revolving signal to be placed on the deck of a car and connected to the running-gear thereof in such manner that the signal will indicate to a certainty whether the train is in motion or not, and, if in motion, the direction in which the train is moving.

The object of my invention is to provide means for avoiding that class of railway accidents incident to a lack of knowledge as to whether a train that is in sight is stationary or under motion. This object I attain by means of the mechanism illustrated in the accompanying drawings, which, being herein referred to, form part of this specification, and in which—

Figure 1 is a side elevation of a freight-train caboose fitted with my signal, a portion of said caboose being broken away to show parts of my apparatus; Fig. 2, a rear end elevation of same with portions broken away for the purpose above stated; Fig. 3, an enlarged detail of the revolving spider, showing the manner of securing the signal-lanterns therein; and Fig. 4, an enlarged detail of the head of the standards in which the spider-shaft revolves.

As represented in the drawings, A is the caboose, mounted in the usual manner on wheels B, attached to the axles *b*.

The revolving signal consists of a series of lanterns, C, which are journaled on trunnions between the spiders D, which consist of radial arms *d*, and are secured to a longitudinal shaft, *d'*. The arms *d* of one spider range directly in line with those of the opposite spider, and the two spiders are spaced at a sufficient distance apart to receive the signal-lanterns between them. The shaft *d'* is journaled in standards E, which are secured to the roof of the car at or near the central line thereof, and so that the shaft *d'* will range lengthwise in line with said central line. By this means the spiders D will be arranged to rotate in a vertical plane transversely to the line of the railway-tracks.

The standards E are provided with heads *e*, made in the form of open frames, each containing a journal-box, *e'*, in which the shaft *d'* is fitted to revolve, and which rests upon a spring, *e''*, that forms an elastic seat for each bearing, to break the force of any jar or jolt to which the caboose may be subjected.

The lanterns C are each provided with a pair of trunnions, *c*, which project in a line with each other at diametrically opposite sides of the lantern, and which are fixed at a sufficient height above the center of gravity to always maintain the lantern in an upright position, regardless of the position of the arms which it is attached. The journals *c* are journaled near the outer end of the arms *d*; or, as I preferably arrange them, they may be journaled in springs *d''*, which are fixed near the outer end of said arms, and which will yield sufficiently to permit the lanterns to be taken out of the spiders D; but in either case the said lanterns should be so hung on their trunnions that they can be readily removed from the spiders for the purpose of trimming and lighting.

By hanging the lanterns on oppositely-located trunnions, as herein described, they are prevented from swinging fore and aft, and thereby the danger of striking against the spiders is avoided, which striking must soon render the lanterns broken and useless.

To provide means for rotating my signal in a positive manner, a spiral worm, F, is fixed on one of the axles *b*, which worm engages in a worm-wheel, G, secured to a vertical shaft, *g*, which is provided with a key-seat, *g'*, and passes through bearings in a fore-and-aft frame or box, H, in such manner that said shaft is free to receive an up-and-down motion through the frame H, so as to permit the body of the caboose to move up and down on the springs on which it is carried without hinderance. Near the upper part of the shaft *g* a spur-gear, *g''*, is fitted, so as to permit said shaft to slide freely, said gear being provided with a feather or spline, which engages in the key-seat *g'*, so that the shaft and gear will rotate together. The gear-wheel *g''* engages with an idle-wheel, H', which is journaled in the frame H, and said idle-wheel engages in a spur-gear, *i*, that is secured to the lower end of a vertical shaft,

I. To the upper end of the latter is secured a bevel-wheel, *i*, which engages in a corresponding wheel, *j*, secured to the outer end of a shaft, *J*, that is placed in an angular position, and has on its inner end another bevel-wheel, *j'*, which engages in a corresponding bevel-wheel, *i'*, that is secured to the shaft *i'*.

When preferred, the several bevel-wheels above described may be dispensed with, and in their stead universal joints or other well-known equivalent devices for connecting shafts to transmit motion around angles may be substituted. The spiral worm *F* and worm-wheel *G* or the intermediate gearing should be so proportioned as to produce a very moderate rate of rotation for the signal, say, about twenty-five revolutions to each mile of travel. The number of revolutions per mile being once established and known, the rate of speed at which the train is moving can be readily determined by counting the number of revolutions of the signal in a given time.

The lanterns should each be of a different color, those colors of strong and marked contrast being preferable, so as to prevent any confusion of said colors, and when so arranged the direction in which a train is moving can be determined with great accuracy, whether the signal is seen from either end or either side of the train, for assuming that while the train is "going ahead" the signal revolves in the direction indicated by the arrows in Fig. 2, it will revolve in a contrary direction while the train is "backing," and will remain motionless while the train is stationary on the track.

I claim as my invention—

1. In a revolving signal for railway-cars, the combination, with a pair of revolving spiders, *D*, composed of radial arms *d*, the said spiders being arranged opposite and parallel to each other, and secured to the shaft *d'*, so as to rotate in a vertical plane transversely to the line of travel of the car to which it is attached, and lanterns *C*, fitted between said spiders to turn freely on their trunnions *e*, but incapable of any fore-and-aft swaying motion, of the car-axle *b*, provided with a spiral worm, *E*, worm-wheel *F*, and the mechanism, substantially as described, intermediately between said worm-wheel and the shaft *d'*, for giving a positive motion to the latter, as herein specified.

2. The combination, with the lanterns *C*, provided with oppositely-projecting trunnions *e*, as herein described, of the pair of spiders *D*, composed of radial arms *d*, provided with springs *d''*, adapted to receive the trunnions *e* of said lanterns, as herein specified.

3. The combination, with the spiders *D*, fixed on the shaft *d'*, and carrying the lanterns *C*, as herein described, of the standards *E*, having open heads *e*, containing journal-boxes *e'*, resting on springs *e''*, as and for the purpose specified.

IRA RICKARD.

Witnesses:

WM. W. LOW,  
CLARENCE M. ZEH.