2 Sheets--Sheet 1.

S. NUNAMAKER.

Automatic Railroad-Signals.

No. 154,273. Patented Aug. 18, 1874.

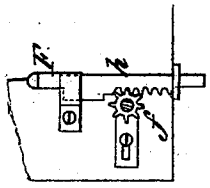

Fig. 2

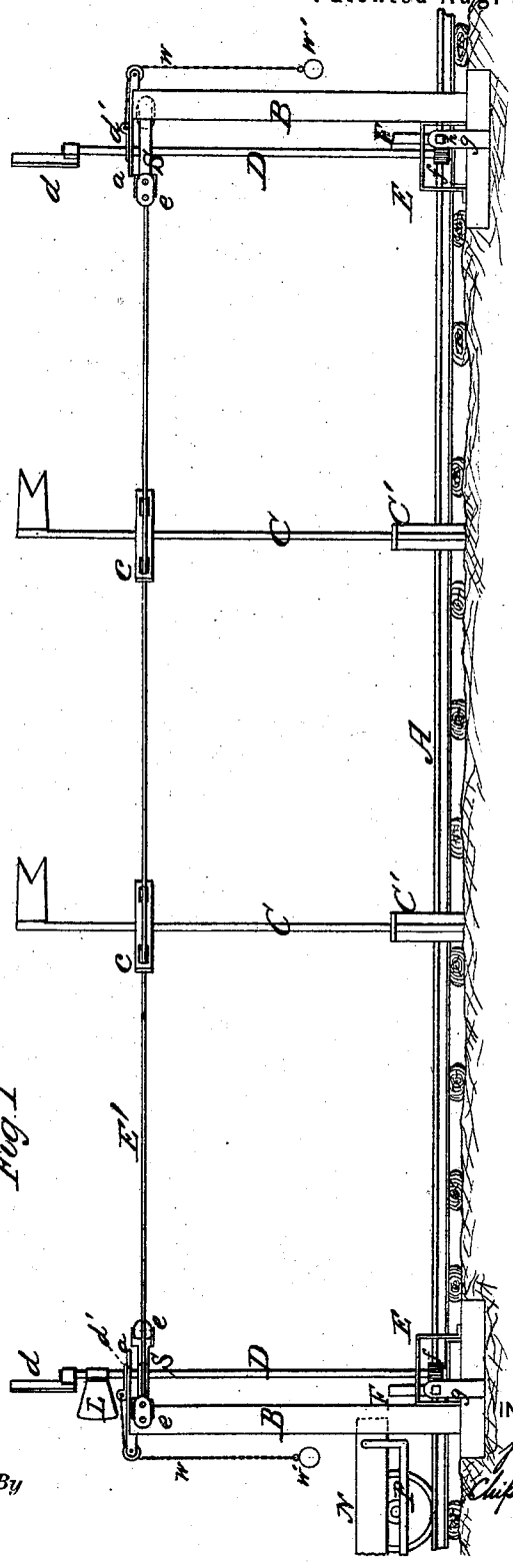

Fig. 1

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Fig. 3

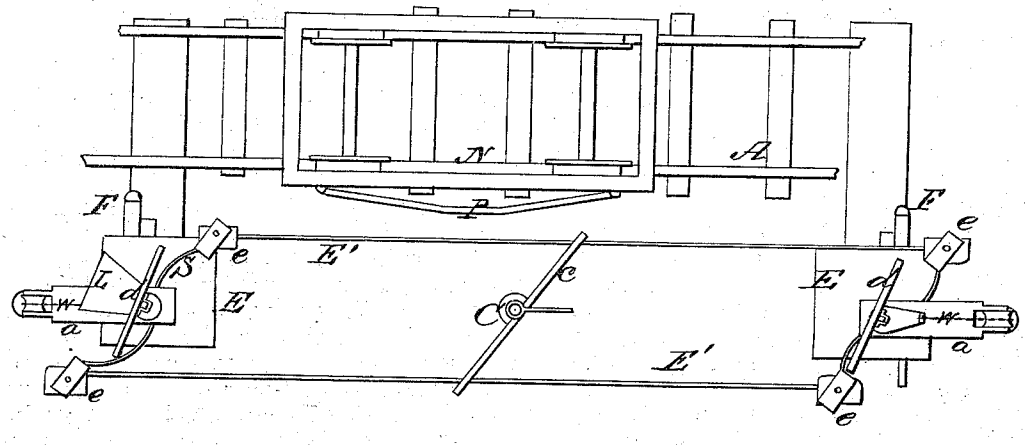
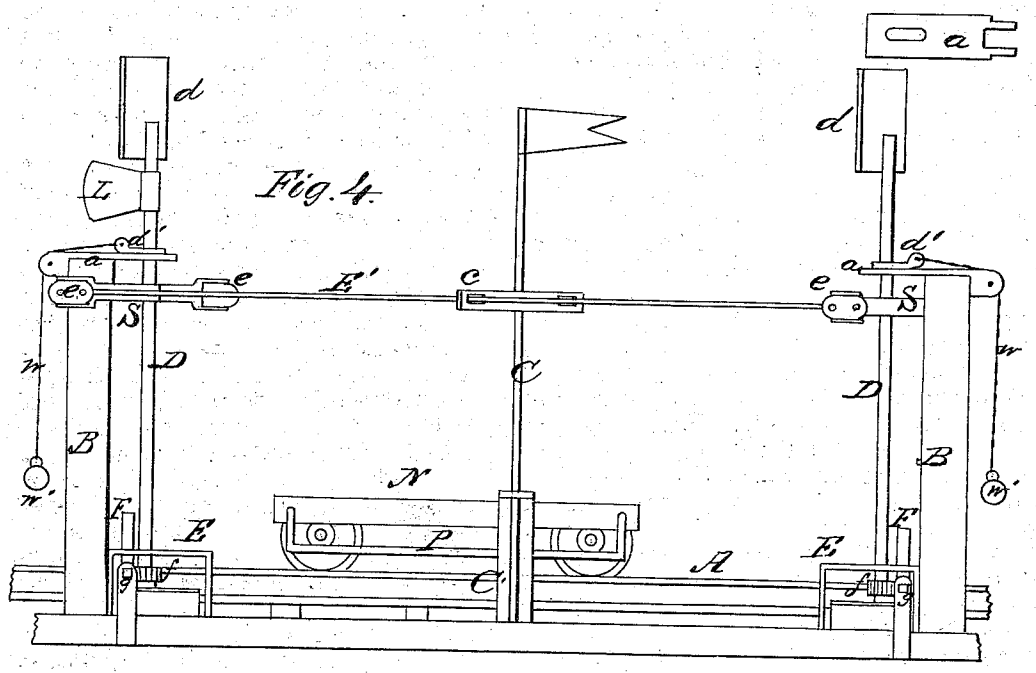


Fig. 4.



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UNITED STATES PATENT OFFICE

SOLOMON NUNAMAKER, OF NINEVEH, PENNSYLVANIA.

IMPROVEMENT IN AUTOMATIC RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **154,273**, dated August 18, 1874; application filed March 28, 1874.

To all whom it may concern:

Be it known that I, SOLOMON NUNAMAKER, of Nineveh, in the county of Westmoreland and State of Pennsylvania, have invented a new and valuable Improvement in Railroad-Signals; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side view of my railroad-signal. Fig. 2 is a detail view of the same, and Fig. 3 is a plan view. Fig. 4 is a side view.

This invention has relation to railroad-signals which are located suitable distances apart, and so constructed that they will be actuated by an angular offset placed on the locomotive or on the tender, whereby each train will signal a considerable distance ahead and in rear, and thus, by notifying approaching trains, prevent collisions; and the novelty consists in the construction and arrangement of the parts, as hereinafter more fully set forth.

In the annexed drawings, A represents a line of railroad, and B B designate posts, which may be located at any suitable distance apart along this line. D D are vertical rods, which have signals *d* secured to their upper ends. The lower ends of these rods are suitably supported upon extensions of the cross-ties, and the upper ends of these rods pass through oblong holes made through guides *a*, fixed to posts B, and also through plates or journal-boxes *d'*, which are applied on the guides *a*, and which are acted on by weights *w'*, suspended by cords or chains *w*. The rods D are connected together by means of wires E', which are secured to **S**-shaped spring-arms S by means of pivoted blocks *e*. The rods D will thus oscillate together, and the signals *d* will all stand at the same angle with respect to one another. At one or more points between the signal-posts I shall employ supporting-posts C, which are steadied by guides and allowed to oscillate. Each one of these posts has rigid arms *c* secured to it, through which the wires E' freely pass and are thus sustained. The wires E' will contract and expand considerably, and to compensate for this change in their length the spring-arms S are employed, which will give and take up slack. The slides *d'*, with their weights and chains, will allow the rods D to give and keep the wires under proper tension. The lower ends of the posts or rods D have pinion spur-wheels *f* keyed on them, which engage with horizontal rack-bars *h*, arranged at right angles to the rails A. These rack-bars *h* play in guides *g*, and are inclosed in boxes or housings E, and thus protected from snow, ice, &c. Those ends F of the rack-bars *h* which are next the rails A are turned up vertically, so that they will be struck by an angular offset, P, on the passing train. The offset P, which is shown secured to a truck, N, presents two angular or wedging portions and an intermediate portion, which latter is parallel to the side of the truck. The rack-bars *h* are so adjusted that when one of them is pressed outward or from the rails the other will be moved inward or toward the rails. When a train passes one of the signal-stations the offset P on such train will strike the rack-bar and move the signals so as to indicate danger, and on leaving a section between two signals they will be adjusted so as to indicate safety in such section. The method of signalizing at night is by parabolic reflectors L, which will have their front ends covered with glass to protect their polished surfaces from the weather. These reflectors are secured to the upper ends of the signal-rods D, and so adjusted that when they are presented toward an approaching train they will reflect the light thrown upon them from the head-light of the locomotive.

What I claim as new is—

The connected signal-rods D D, applied in slotted guides *a*, in combination with the sliding boxes *d'*, chains *w*, and weights *w'*, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SOLOMON NUNAMAKER.

Witnesses:

PHIL. C. MASI,

GEORGE E. UPHAM.