2 Sheets--Sheet 1.

L. MIDDLETON & J. B. CARY.

Railroad-Switch.

No. 169,021. Patented Oct. 19, 1875.

Fig 1

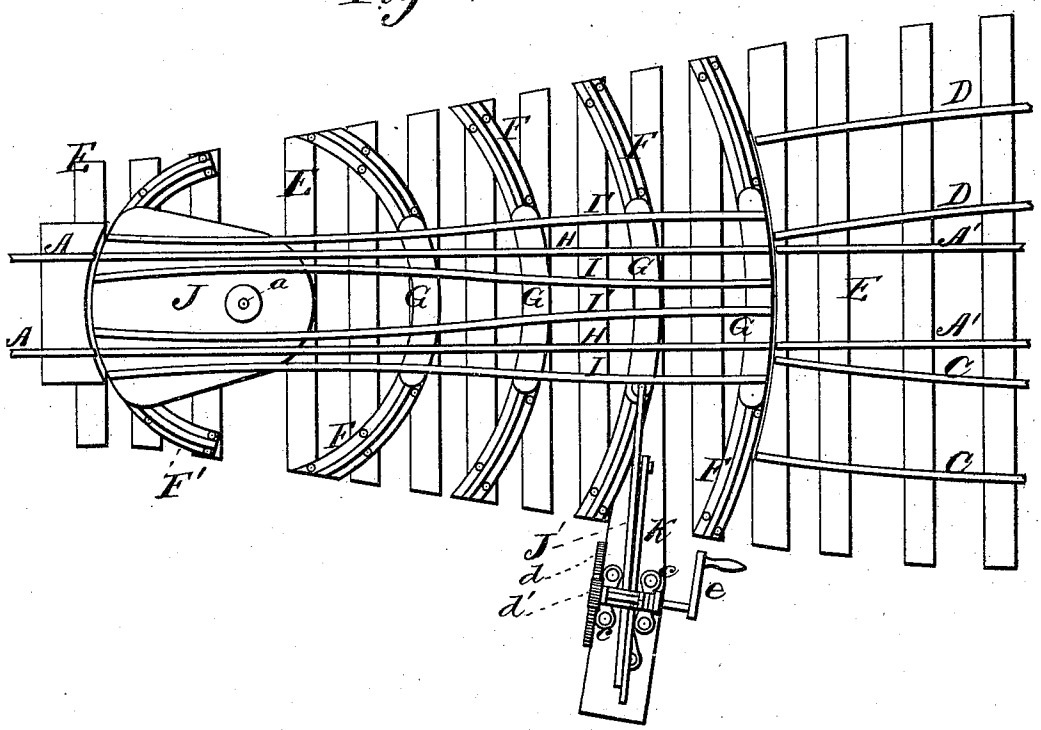

Fig 2

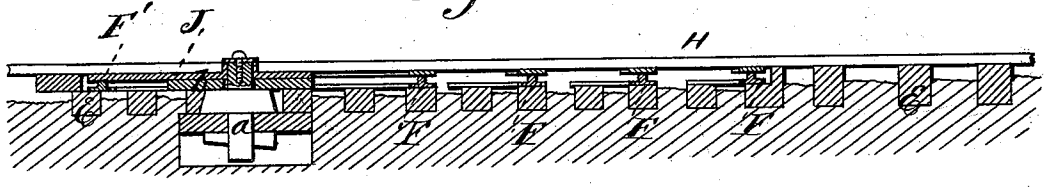

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Fig 3

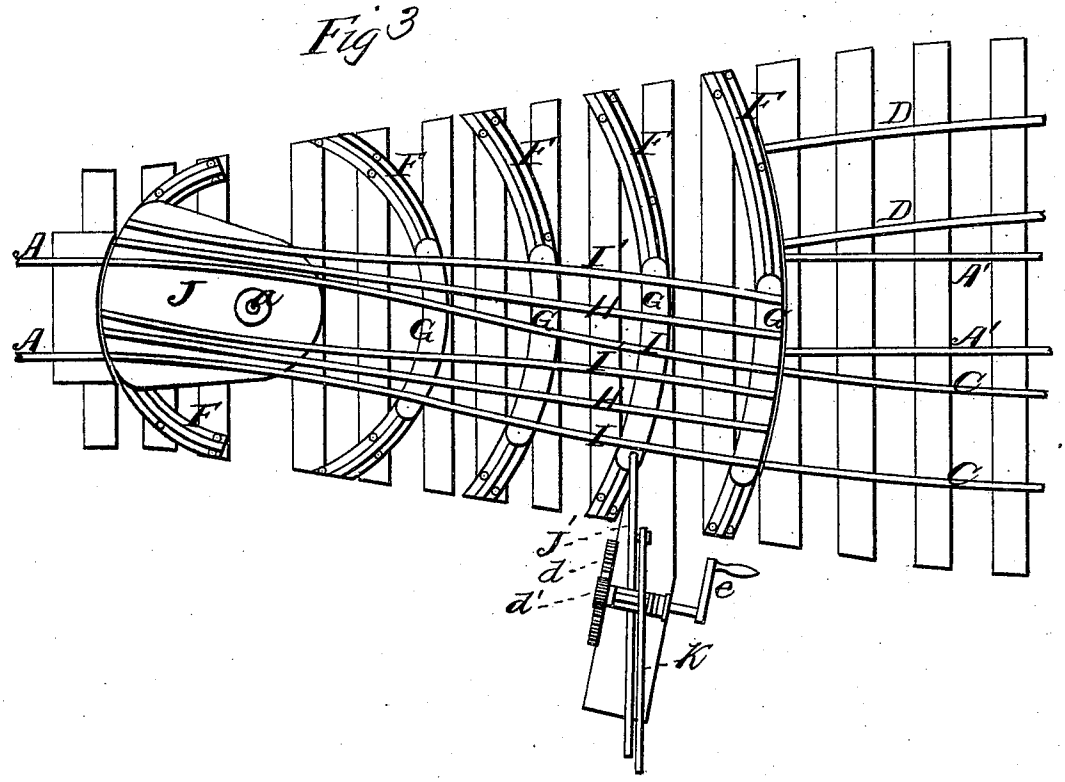
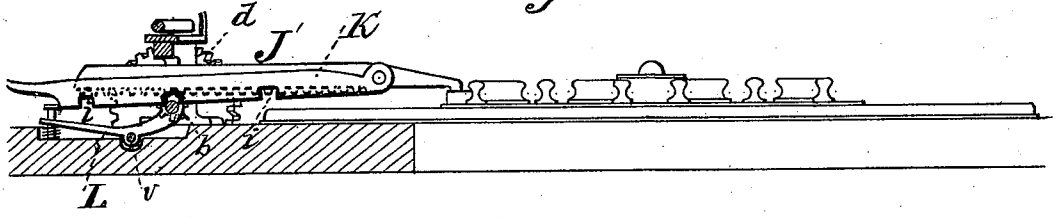


Fig 4



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UNITED STATES PATENT OFFICE.

LEONARD MIDDLETON AND JAMES B. CARY, OF VICTOR, IOWA.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **169,021**, dated October 19, 1875; application filed September 25, 1874.

To all whom it may concern:

Be it known that we, LEONARD MIDDLETON and JAMES B. CARY, of Victor, in the county of Iowa and State of Iowa, have invented a new and valuable Improvement in Railroad-Switches; and we 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 drawings is a representation of a plan view of our railroad-switch, and Fig. 2 is a longitudinal vertical sectional view thereof. Fig. 3 is a plan view, and Fig. 4 a side view, part sectional.

This invention has relation to improvements in railroad-switches; and it consists in the arrangement and novel construction of the various devices employed, whereby the necessity of using frogs is done away with, and other useful results obtained, as will be hereinafter more fully set forth and claimed.

In the annexed drawings, the letter A represents the rails of the main track; A′, the rails forming the continuation thereof; C, those of the right siding, and D those of the left siding, all of which are secured to the cross-ties E in the usual well-known manner. The inner rails C D of the sidings converge gradually toward those A′ of the continuation of the main track, but do not come in contact therewith. F represents a number of segmental rails, rigidly secured to the cross-ties E at a suitable distance apart, which rails are concentrically-arranged with reference to each other, and are designed to serve as guides or bearings for flat metallic plates G, to which the rails H of the main track-switch, and those I and I′ of the right and left siding-switch, are designed to be secured. The ends of rails H and I I′ next the main track-rails A are rigidly secured to a strong metallic plate, J, in the nature of a turn-table, which is pivoted, by means of a suitable bolt, *a*, to a collar, *b*, which is also of metal, rigidly secured to the ties, as shown in Fig. 2. By this means the rails H, I, and I′ are allowed to have an easy equable horizontal vibration to the right and left, so that the rails H of the switch may be brought in line with those A A′ of the main track, thus allowing a train to proceed in a straight line, or the rails I I′ with those C D of the right and left siding.

In practice, plate J will also be supported by a segmental rail, F, arranged near the ends of the main track-rails A, so that the main and the siding switch-rails will be adequately supported, and all danger of a train leaving the track because of a broken rail be effectually obviated. As shown in Fig. 1, the ends of the switch-rails abut snugly against those of the main track and siding-rails without the use of frogs or other similar devices; this effect being due to the fact that the said rails terminate in an arc drawn with the pivot *a* as a center, and the longer arm of the said rails as a radius, the ends of the rails A′ of the continuation of the main track and those C D of the sidings being also laid on a concave arc drawn with the same radius. The switch will be operated in the following manner, to wit: A rack-bar, J′, will be pivotally connected with one of slides G and mesh with the teeth of a pinion, *b′*, having its bearings in standards *c* erected at one side of the track. Pinion *b* will receive motion through the medium of gear-wheels *d* *d*¹, the former of which is keyed upon the end of the shaft of the said pinion, and the latter upon a second shaft arranged above it, and of a crank-arm, *e*, on the end of the upper shaft. According as the crank-arm is worked the pinion *d* will draw the switch toward or thrust it away from the standards *c*, thus causing them to be thrown in line with the continuation of the main track-rails, or with those of the sidings, as the case may be. In order that the switch may be automatically locked and stopped on coming in line with either the main track or sidings a bar, K, having upon its under side a number of notches, *i*, equal to the number of changes to be made, is pivoted to rack-bar J′ and extends over the shaft of pinion *b* between standards *c*, as shown. As the switch is changed from one track to the other the lock-bar K will, upon the completion of such a change, receive the shaft in one of its notches *i*, thereby holding the switch rigidly in place until it is released by the raising of the said bar clear of the shaft *j* of pinion *b*.

In order that this may be conveniently accomplished, I employ a treadle, L, pivoted at *v* to a tie, and extending under and beyond shaft *j*, in close contact with lock-bar K, so when it is operated it will raise the latter free of the shaft *j*, and allow the switch to be further changed.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a railroad-switch the combination, with the rails A, A′, C, and D of the switch-rails H I I′, segmental guide-rails F F′, turn-table J, and slides G, substantially as specified.

2. The combination, with the rails H I I′, of the guide-rails F, and plates G, substantially as specified.

3. The combination, with the pivoted switch H I I′, rack-bar J′, and their operating mechanism, of a lock-bar, K, pivoted to the said rack-bar, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

LEONARD $\overset{\text{his}}{+}_{\text{mark.}}$ MIDDLETON.

JAMES B. CARY.

Witnesses:
GEO. W. PENN,
J. M. DARE.