G. M. McMAHAN & J. T. CRAIK.

RAILROAD-SWITCH.

No. 193,534. Patented July 24, 1877.

Fig. 1

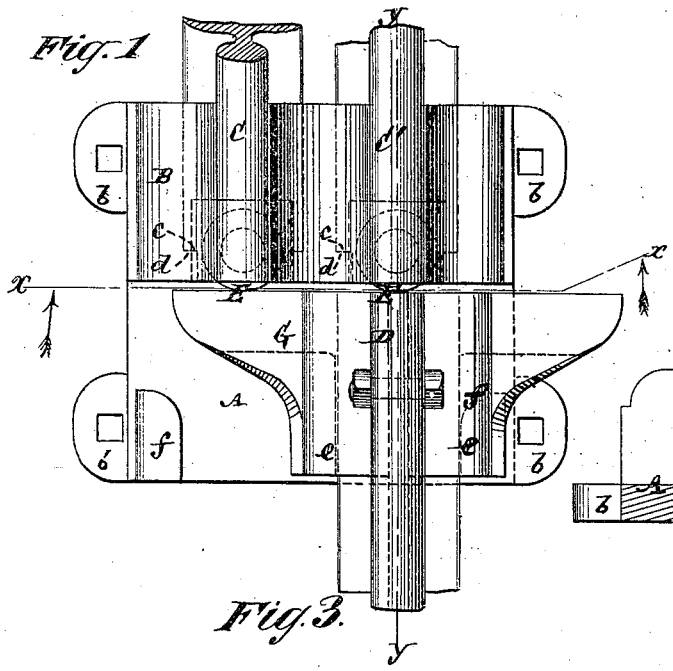


Fig. 2.

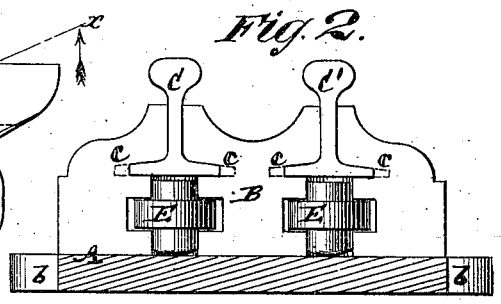


Fig. 3.

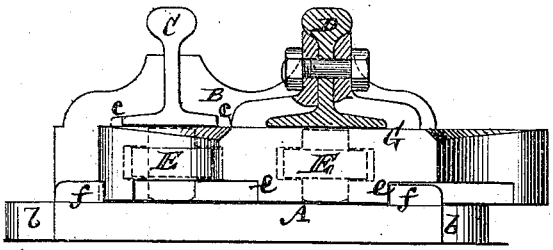


Fig. 4.

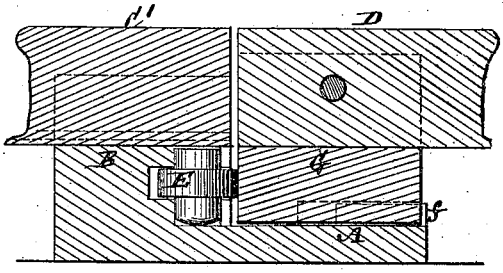
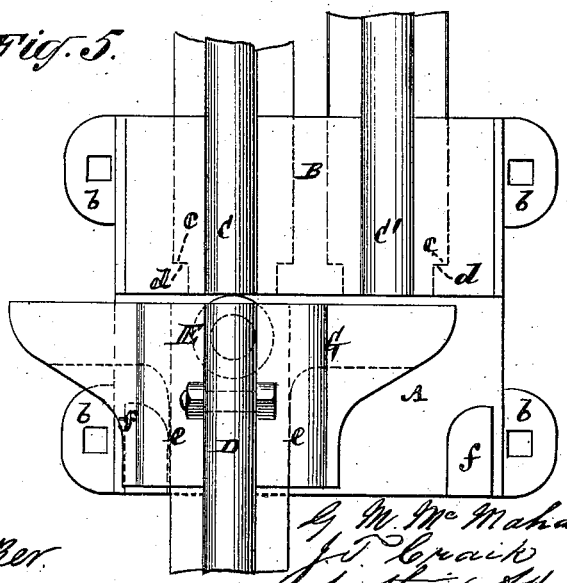


Fig. 5.



Witnesses
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Fred. Haynes

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UNITED STATES PATENT OFFICE.

GEORGE M. McMAHAN, OF CARTER'S CREEK STATION, AND JOEL T. CRAIK, OF COLUMBIA; SAID CRAIK ASSIGNOR OF ONE-HALF HIS RIGHT TO SNOWDEN K. HATHAWAY, OF CARTER'S CREEK STATION, TENNESSEE.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **193,534**, dated July 24, 1877; application filed May 31, 1877.

To all whom it may concern:

Be it known that we, GEORGE M. McMAHAN, of Carter's Creek Station, and JOEL T. CRAIK, of Columbia, both in the county of Maury and State of Tennessee, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a description; reference being had to the accompanying drawings, which form part of this specification.

This invention consists in a switch-chair for railroads, and in certain novel constructions and combinations of parts, whereby an efficient roller-joint is obtained for said chair, and a free action secured for the switch, without binding or cutting the ends of the rails, under all variable or extreme expansions of the latter.

Figure 1 represents a plan of a switch-chair for railroads, constructed in accordance with the invention. Fig. 2 is a transverse section of the same on the line *x x*. Fig. 3 is an outer end view of a sliding cross-head, which carries the shifting-rail and forms the movable portion of the chair; and Fig. 4 a vertical longitudinal section on the line *y y*. Fig. 5 is a plan view of a modified construction of the switch-chair.

A is the bed-plate of the chair, provided with lugs *b b* for securing it by spikes to a cross-sill or tie of the track. Mounted or formed on said bed, so as to constitute a stationary attachment thereto, is a fixed head, B, within which the ends of one pair of the fixed rails C C′ of the main and side track are entered from the outer face of said head, until shoulders *c c* on the entering ends of said rails nearly meet or bear up against shoulders *d d* in the stationary head B of the chair. Thus forming a stop or rest to the ends of the rails within the fixed head B keeps the outer faces of said ends in proper position, relatively, to the adjacent end of the movable rail D of the switch, regardless of the expansion and contraction of the fixed rails C C′.

In the back or inner portion of the fixed head B are formed open chambers and bearings for the reception and support of rollers E E, having upright axes, and of such dimensions and so arranged that the peripheries of the rollers project slightly beyond the inner surface or back of the fixed head B. By making these rollers of cast-iron or cast-steel, case-hardened, a durable and unyielding surface is obtained for said rollers.

G is a movable head on the same chair, at the back of the fixed head. This movable head carries the movable rail D of the switch and constitutes a cross-head, which is made capable of being slid on and across the bed A of the chair to put the rail D into connection or line with one or the other of the fixed rails C C′. The inner face of said movable cross-head is constructed to form a bearing or guiding-surface for the cross-head against the rollers E E, or so that said face of the cross-head may bear up against the rollers without causing the face of the end of the rail D, carried by and secured by cross-bolt within the cross-head, to touch or strike the approximate ends of the rails C C′ as the cross-head G is shifted from side to side, and is arrested by one or the other of two shoulders, *e e*, on the under side of the cross-head, coming into contact with one or the other of two fixed stops, *f f*, on the bed-plate, accordingly as the rail D is put in line with the rail C or the rail C′.

The usual lever, or any other suitable switch-shifting mechanism, may be used to adjust the cross-head G with its rail D, as described, and by a suitable connection, to simultaneously and correspondingly adjust the opposite or other half of the switch or its cross-head carrying the other movable rail of the line or track, both sides of which latter, as regards its switch-chairs, are constructed alike.

With a switch-chair constructed substantially as described, with a hard roller-joint between the sliding cross-head and the fixed head of the chair, and with the opposite ends of the rails C, C′, and D retained in proper relative position by the heads of the chair which carry them, the rails C C′ are prevented from pinching or closing on the rail D, or the latter on the former by the expansion of the rails. In this way a uniformly close but not binding joint is established between the end of the movable rail D and opposite end of

either fixed rail C C′, which will secure an easy and reliable action for the switch at all times and under extreme expansions of the rails, thus doing away with the necessity of ever cutting the ends of the rails to insure a free action of the switch, and protecting the ends of the rails from injurious usage.

Any number of rollers may be used at the joint which separates the movable and immovable heads of the chair. Thus only one roller, E, might be used, and this be arranged within and carried by the movable or sliding cross-head G, and the back of the fixed head B be constructed to form a bearing or guiding surface for said roller, as in the modification shown in Fig. 5 of the drawing.

We claim—

1. The combination, with the fixed head of the chair and movable or sliding cross-head thereof, of one or more rollers, arranged to protrude from one of said heads for operation in relation with or against a bearing or guiding surface on the other of said heads, the whole constituting a switch-chair having a roller-joint, substantially as specified.

2. The combination of the fixed stops *f f* with the cross-head G, fitted to slide upon the bed A of the chair, and constructed with a roller guiding or bearing surface, the duplicate protruding back rollers E E, and the stationary head B of the chair by which said rollers are carried, essentially as shown and described.

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