No. 658,294. Patented Sept. 18, 1900.

A. A. STROM.

RAILWAY SWITCH.

(Application filed July 16, 1900.)

(No Model.)

Fig. 1.

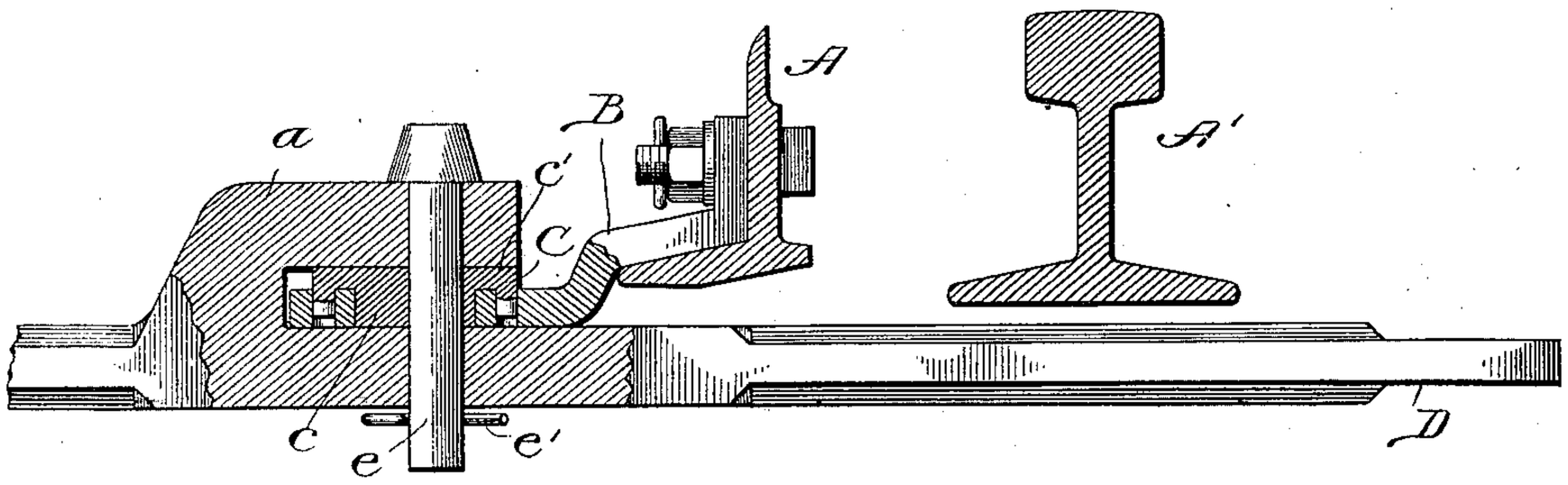


Fig. 2.

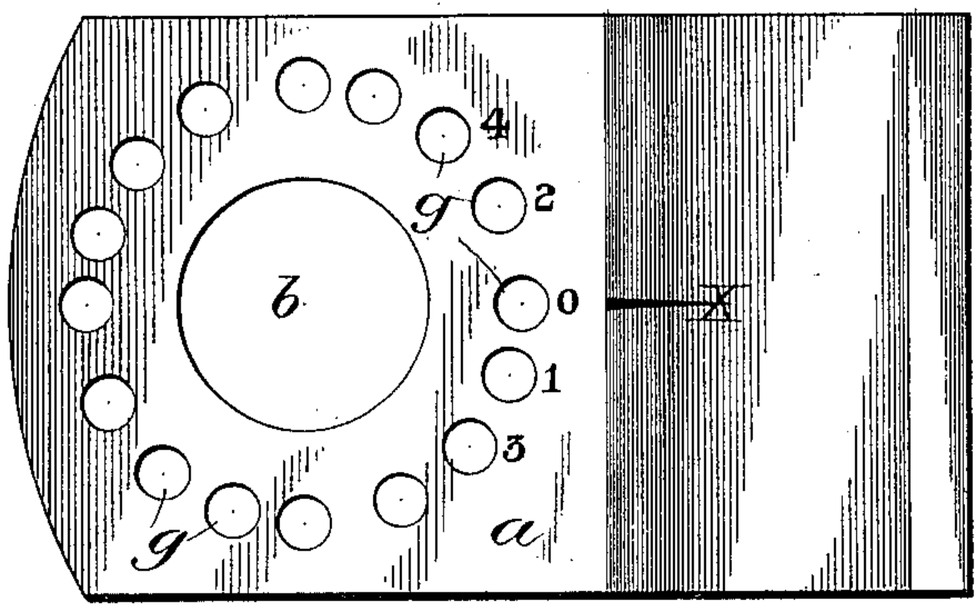


Fig. 3.

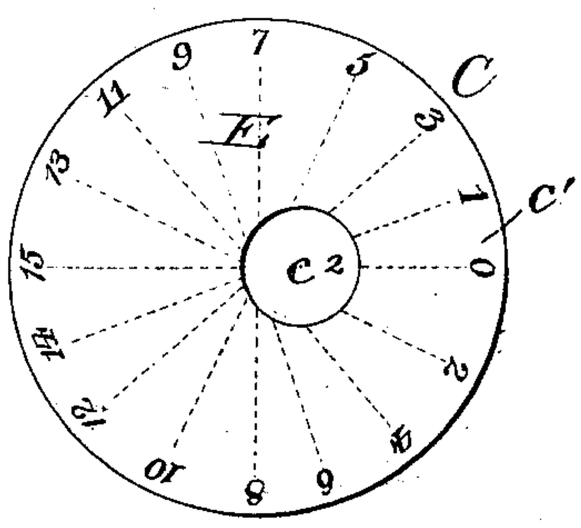
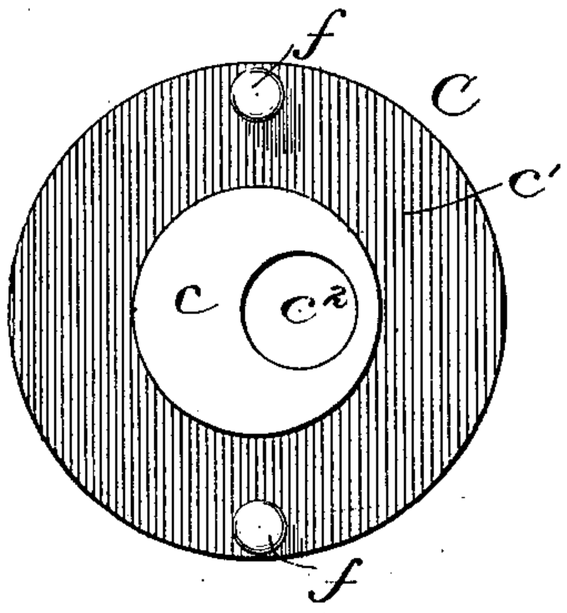


Fig. 4.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 658,294, dated September 18, 1900.

Application filed July 16, 1900. Serial No. 23,759. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Railway-Switches, of which the following is a specification.

The wear to which the different parts of a switch are subjected in use is so great as to render necessary the provision of adjusting means for taking up or compensating for this wear. For the purpose of taking up the wear with the desirable degree of fineness I devised the invention set forth in Letters Patent of the United States No. 625,961, dated May 30, 1899, and have devised the modification forming an improvement on the particular mechanism shown and described in the aforesaid patent and which is set forth in my application for an improvement in railway-switches, Serial No. 23,215, filed July 11, 1900. The switch-rail adjustment for taking up the wear in a split switch which is shown and described in the said patent and that which is shown and described in my said application both involve the same principle of construction and operation, namely: The medium (clip) which serves to connect the point-rail with the tie-bar contains an opening in which is adjustably seated an eccentric, through the eccentric opening in which, as also through the tie-bar, is passed a pin for pivotally connecting together the tie-bar and clip to effect the required connection between the point-rail and switch-stand. The wear on the parts is taken up by adjusting the eccentric in its seat to set the point-rail closer to the adjacent main rail of the switch in accordance with the extent of wear on the parts, and a permanently-fixed stop is provided on either the clip or the eccentric to engage one of a series of stops of any suitable form on the other for locking the eccentric in its adjusted position. In effecting this adjustment it is desirable that the operator shall be enabled conveniently and accurately to gage its extent, and for this purpose I provide as the subject of this application suitable gaging means equipped with an index, shown in the accompanying drawings, in which—

Figure 1 shows a cross-section of a split switch equipped with my improvement. Fig. 2 is a plan view of the clip; Fig. 3, a top plan view of the eccentric, provided with a dial on its upper surface, and Fig. 4 a bottom plan view of the eccentric.

A′ denotes one of the main rails of a split switch, and A is the adjacent point-rail, to which is fastened, as usual, one end of a clip B. In the tail portion *a* of the clip is provided a circular opening *b*, affording a seat for the eccentric C, shown as a circular block *c* having a disk-shaped flange *c′* about its upper end and containing the eccentric opening c^2. The block *c* fits adjustably in the opening *b*, about which it rests at its flange *c′* on the part *a* of the clip, and the latter at its tail portion with the eccentric are shown embraced in a jaw *d*, provided on the adjacent end of the tie-bar D for connecting the point-rail with the switch-stand, (not shown,) the tie-bar and clip being connected pivotally together by a pin *e*, passing through the jaw and the eccentric opening c^2 and held against withdrawal, as by means of a cotter *e′*.

To adjust the point-rail, the clip part of the adjustment is disconnected from the tie-bar to permit access to the eccentric part of the adjustment, which latter is then raised out of the clip-opening *b* to free the stops *f* (shown as studs depending from the under side of the flange *c′*) from the hole-shaped openings *g*, (shown to be provided about the opening *c* in the tail portion of the clip,) each forming a permanently-fixed stop, the engagement with which of the stud-stops locks the eccentric in any position of its adjustment. Upon thus raising the eccentric it is turned in accordance with the degree desired of adjustment and then put back into the opening *b*, whereby the studs *f* enter the respectively-coincident holes *g* to lock the eccentric, when the clip is again introduced into the jaw *d* and the pin *e* is adjusted and fastened in place for pivotally joining the clip with the tie-bar. Two of the studs *f* are shown to be provided, and a plurality thereof is desirable for purposes of strength and durability, though one is all that is necessary.

It may be the matter of the general ar-

rangement of the locking means for the eccentric which forms the subject of my present invention.

The stops *g* for the studs should preferably be relatively so spaced as to produce equal degrees of adjustment about the opening *b*. Thus the adjustment may be provided for in sixteenths of an inch, as shown by way of example. The diameter of each opening *g* must obviously be sufficient to admit into it a stud *f*, which should be adequately thick to afford the strength requisite to resist the strains to which the point-rail is subjected in use. If, therefore, these holes were to be provided the relative distances apart for the predetermined steps of adjustment in regular succession about the opening *b* with the width of clip employed, their extent of separation would not be sufficient to prevent them from intersecting each other or, at least, not enough material would be left interposed between them for strength. This might of course be obviated by increasing the width of the tail portion of the clip, when the series of openings *g* the predetermined distance apart could be caused to extend part way about the opening *b;* but this is impracticable. I therefore provide for effecting the adjustment by turning the eccentric in one direction for the minimum extent thereof, in the opposite direction for the next higher degree, back again beyond the first point for the next higher, and in the contrary direction beyond the second point for the next higher, and so on throughout the entire extent of the circle on which the adjusting is performed. This I accomplish by arranging the locking-holes *g*, as represented in Fig. 2, with the hole for the original setting at the given point O opposite an index-mark X and in radial line with the eccentric center; with the hole next adjacent thereto on the right (regarded from the tail end of the clip) at 1, the distance from said center according to the predetermined rate of adjustment; with the hole next adjacent thereto on the left at 2, approximately twice that distance away from said center; the next hole on the right at 3, approximately three times that distance away from the eccentric center; the next hole on the left at 4, approximately four times that distance, and so on throughout the entire extent for which adjustment is provided. By this arrangement the locking-points are provided to alternate in the order of the predetermined degrees of adjustment and form two series extending from the point of initial setting or zero-point in relatively-contrary directions about the eccentric, and in this way the comparatively-narrow space afforded by the tail portion of the clip is rendered practically available. Of course the degrees of adjustment may be divided, according to desire, into other fractions of an inch than the sixteenths shown.

For facilitating the adjusting operation I provide on the top of the eccentric C a dial E, with numbers radially arranged according to the number of fractional parts into which the entire extent of adjustment is divided—thus in the order 2 4 6 8 10 12 14 in one direction about the eccentric from the zero-point and the order 1 3 5 7 9 11 13 15 in the contrary direction about the eccentric from that point—and the arrangement accords with the positions of the locking-stop openings *g*. Thus O denotes the point of original setting of the eccentric. To bring the point-rail one-sixteenth of an inch nearer to the main rail, the eccentric is raised in the manner hereinbefore described and turned to the right till the number "1" on the dial E coincides with the index-point X, when the eccentric is replaced in that position in the opening *b*. To bring the point-rail two-sixteenths of an inch nearer to the main rail, the turning of the eccentric should be toward the left till the number "2" coincides with the index-point, and so on, being, according to the particular arrangement shown, turned toward the right for the adjustment to odd numbers of sixteenths and toward the left for the adjustment to even numbers thereof.

While I have shown my improvement as adapted for use in connection with the particular means of adjustment set forth in my said application, it is applicable to the means shown in my aforesaid patent and to any other means for the adjusting purpose involving the same principle of construction and operation, and I intend that my invention shall be understood as including such general application. For the purpose of my improvement it is not necessary, though preferable, that the series of stops *g* or their equivalent in any other form shall be arranged at varying intervals about the eccentric, for they may be arranged at equal intervals and the desired adjustment may be effected by the user by merely observing the indications or numbers arranged on the dial with one order of progression extending about it in one direction from the given point O and the other order of progression extending therefrom in the contrary direction about the dial.

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

1. In a switch-rail adjustment, the combination with the clip part fastened to the switch-rail, of an eccentric part pivotally connecting the clip with the tie-bar and adapted to be adjusted by turning, a series of stops arranged about the eccentric on one of said parts, one or more stops on the other said part to engage with a stop in said series for locking the eccentric in its adjusted position, and a dial on the eccentric having a progression of numbers extending part way about it in one direction from a given point and another progression of numbers extending part way about it in the contrary direction from said point, whereby the user shall be guided in turning the ec-

centric alternately in contrary directions for effecting different extents of the adjustment, substantially as described.

2. In a switch-rail adjustment, the combination with the clip part fastened to the switch-rail, of an eccentric part pivotally connecting the clip with the tie-bar and adapted to be adjusted by turning, a series of stops arranged at intervals denoting a progression of fractions of an inch for the adjustment, and extending in one direction about said eccentric from a given point, a series of stops arranged at intervals denoting another progression of fractions of an inch for the adjustment, alternating with those in the other series and extending from said given point in the contrary direction about said eccentric, a stop on the other said part to engage with a stop in either of said series for locking the eccentric in its adjusted position, and a dial on the eccentric carrying radially-arranged characters in series extending in contrary directions about its center from a given point, the characters in each series denoting a progression of intervals of adjustment alternating with those in the other series, substantially as and for the purpose set forth.

3. In a switch-rail adjustment, the combination with the clip fastened to the switch-rail and provided with an opening and with a series of stop-openings arranged about said opening substantially as described, of an eccentric confined in said clip-opening and having a pin extending through its opening and through said tie-bar to connect said bar and clip pivotally together, a flange about said eccentric carrying one or more stops to engage with said stop-openings, and a dial on said eccentric having a series of radially-disposed odd numbers extending at intervals from zero in one direction about its center and a series of radially-disposed even numbers extending at intervals from said zero in the contrary direction about its center, said numbers in regular succession indicating the predetermined intervals through which to turn the eccentric for adjusting the switch-rail and at which to lock the eccentric in its adjusted position, substantially as and for the purpose set forth.

AXEL A. STROM.

In presence of—
M. J. FROST,
A. D. BACCI.