

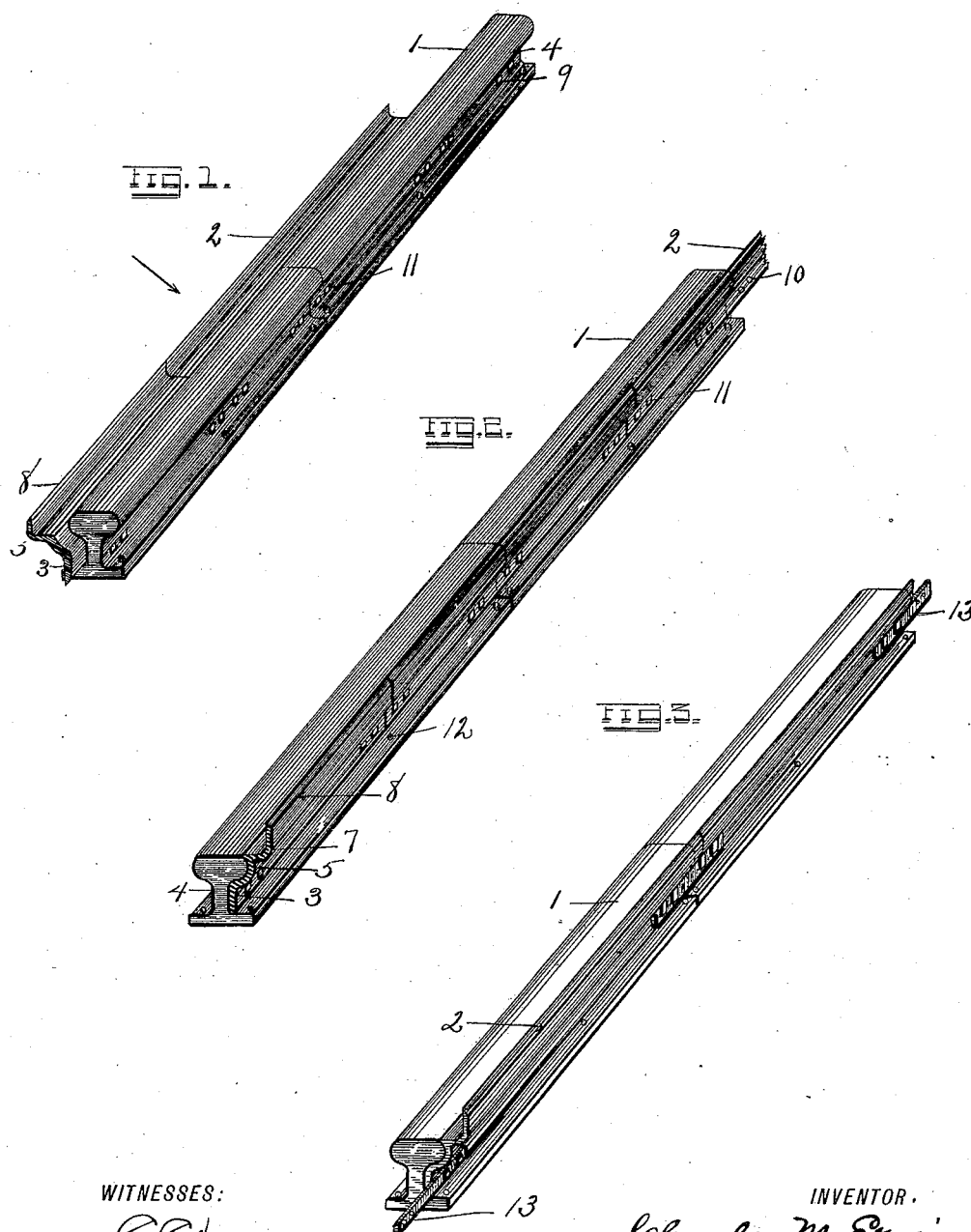
(No Model.)

C. M. ERWIN.

SAFETY FLANGE FOR RAILROAD RAILS.

No. 384,435.

Patented June 12, 1888.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## SAFETY-FLANGE FOR RAILROAD-RAILS.

SPECIFICATION forming part of Letters Patent No. 384,435, dated June 12, 1888.

Application filed December 19, 1887. Serial No. 258,354. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. ERWIN, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Safety-Flanges for Railroad-Rails; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved safety-flange for application to railroad-rails for the purpose of preventing the wheels of locomotive and car trucks jumping the track.

My improved flange is adapted for use with ordinary railroad-rails; and it consists of a plate of metal, as iron or steel, of curved form at its lower portion to permit of its snugly fitting the crown and side of the rail, and having an outwardly and upwardly curved top portion extending above the rail and a short distance horizontally beyond and parallel with the top of the crown thereof. The flange is formed in sections of suitable length, which are bolted to the rail, so as to break joints therewith, by which means the employment of fish-bars is dispensed with, though such may be used, if desired. It is preferred that each rail-section have punched therein a larger number of bolt-holes than is now customary—as, for instance, about eight holes—and a corresponding number of bolt-holes formed in each length or section of the safety-flange through which bolts may be passed to secure the flange and rail together; but the number of such bolts-holes may be varied as desired.

In the accompanying drawings, Figure 1 represents a perspective view of a section of a railroad-rail with my improved wheel-guard or safety-flange attached thereto. Fig. 2 represents a similar view taken in the direction of the arrow in Fig. 1. Fig. 3 represents a perspective view of a portion of a rail with my flange connected thereto and with fish-bars in position thereon.

1 represents a railroad-rail of ordinary construction.

2 represents my combined fish-bar and wheel-guard or safety-flange. This flange may be formed of any suitable metal, such as of iron or steel. Iron would answer, as the flange would be subjected to but little wear, and a flange formed of iron would outlast two rails. The flange is, at its lower portion and throughout its length, formed with an inwardly-curved portion, 3, which, when in position, snugly fits against and within the curved sides 4 of the rail, and an outwardly-curved portion, 5, which abuts against and snugly fits the crown of the rail. From the point 5 the flange or guard plate extends in the form of an outward and upward curve, 7, terminating in a substantially straight, or nearly straight, vertical portion, 8, which extends about four inches above the level or crown of the rail. The horizontal extent of the curvature 7 is about an inch, in order that when in position on a rail a play of one inch may be allowed between the wheels of a train and the upwardly-extending portion of the flange to allow for the free passage of the wheels around curves, and also admit of the wheels rocking or oscillating to a slight extent without coming in contact with and straining the upwardly-extending portion 8.

It will be observed that the horizontal portion of the flange extends outward in line with and is flush and parallel with the top of the crown of the rail instead of below the same, as has heretofore been suggested. By constructing the flange so that the horizontal portion thereof shall be parallel with the top of the crown of the rail it, in effect, constitutes a sidewise extension thereof and obviates all possibility of the wheels leaving the horizontal line, as would be the case were said horizontal part of the flange below the top of the crown of the rail.

It is preferred, though not absolutely essential, that each length or section of the rail be drilled or punched with, say, about eight bolt-holes 9—as, for instance, two adjacent to each end and four at about the center—though the number of such holes may be varied, corresponding holes, 10, being formed in the lower

portion of the flange, through which the customary bolts, 11, are passed to secure the rail and flange together.

As represented in the drawings, the lengths or sections of the flange are so arranged and bolted to the rail as to break joints therewith, whereby the use of fish-bars is entirely avoided, and the rails more firmly held and rigidly connected together than when fish-bars alone are employed. By the use of my safety-flange rails of less weight than is customary may be advantageously employed, as said flange materially increases their rigidity. Therefore my improved wheel-guard or safety-flange can, by reason of the possibility of using in connection therewith rails of less weight than is customary, and by reason of fish-bars being unnecessary, be attached to rails and employed without materially, if at all, increasing the cost of the track.

12 represents holes in the rail-flange, through which spikes may be passed to connect the rail to the cross-ties; but such holes may be omitted and the rails otherwise secured to the ties.

By the application of my safety-flange to rails as above described trains may safely travel even around curves at a very high rate of speed without danger of derailment, as by my arrangement it will be utterly impossible for a train to leave the track, because the moment a wheel attempts to mount the rail and before the opposite wheel can leave its rail the outer face of the mounting wheel will come in contact with the safety-flange and be thrown back to its place again.

Another advantage and saving secured by my invention is that after a rail has begun to wear on the inside it can be reversed and the unworn side turned in, thus almost doubling the wearing capacity of the rail.

Where it may not be desired to replace old rails by new ones with an increased number of bolt-holes therein, or where it is desired to employ my safety-flange and yet not to punch more holes in the rail, I take off the fish-bars 13, place the safety-flange in position against the rail, as before mentioned, and then replace

the fish-bars, as represented in Fig. 3 of the drawings. By this arrangement, as shown in Fig. 3, the safety-flange can be very cheaply and readily applied to rails already in use and without disturbing the traffic.

Having thus described my invention, what I claim is—

1. The combination of a railroad-rail having a plurality of bolt-holes extending transversely through the sides thereof adjacent to the respective ends of each rail-section or length, the wheel-guard or safety-flange herein described having a curved lower portion adapted to fit the sides and crown of said rail, a horizontally-curved upper portion in line with the top of the crown of the rail, an upwardly-extending flange to receive the impact of the wheel and guide and retain the same in position upon the rail, and a series of bolt-holes in the side thereof corresponding in number and registering with the bolt-holes in the rail, and a series of bolts and nuts connecting said flange and rail together, substantially as set forth.

2. The wheel-guard or safety-flange herein described having a curved lower portion adapted to fit the sides and crown of a railroad-rail and a horizontally-curved upper portion in line with the top of the crown of the rail, and an upwardly-extending flange to receive the impact of the wheel and guide and retain the same in position upon the rail, substantially as set forth.

3. In combination with a railroad-rail, the safety-flange herein described having a curved lower portion adapted to fit the side and crown of the rail and an outwardly and upwardly extending top portion, the respective lengths of said flange being connected to the rail so as to break joints therewith, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. ERWIN.

Witnesses:

W. J. BARNARD,  
D. T. MASABLE.