(No Model.)

# B. M. SOULE & P. F. GIVEN.

## FOOT GUARD FOR RAILWAYS.

No. 335,847. Patented Feb. 9, 1886.

Fig. 1.

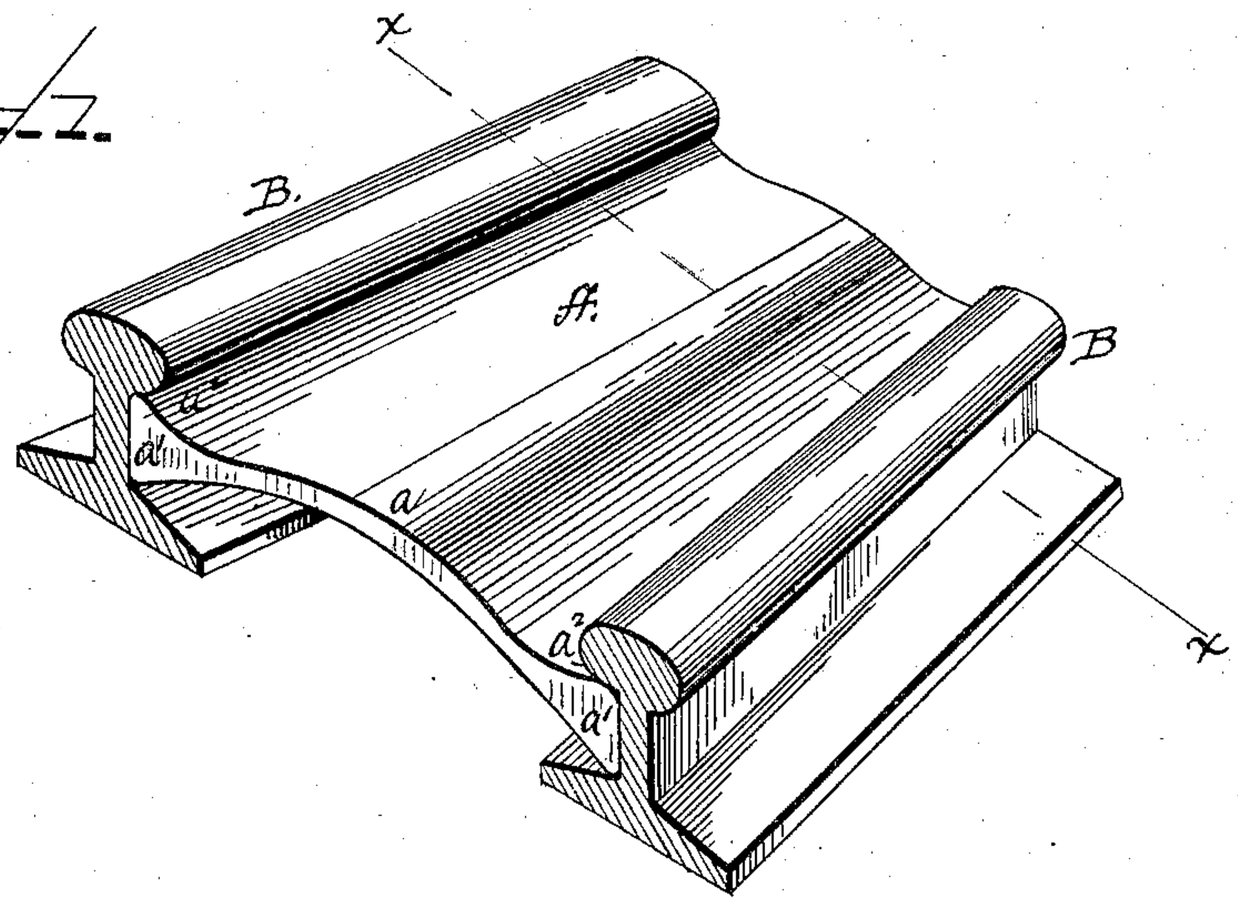



Fig. 2.

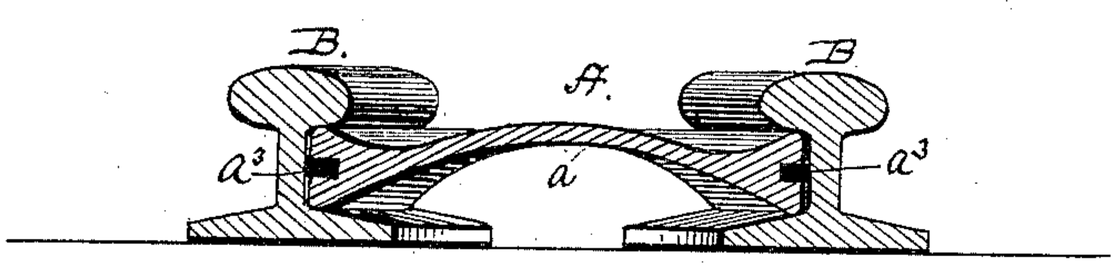
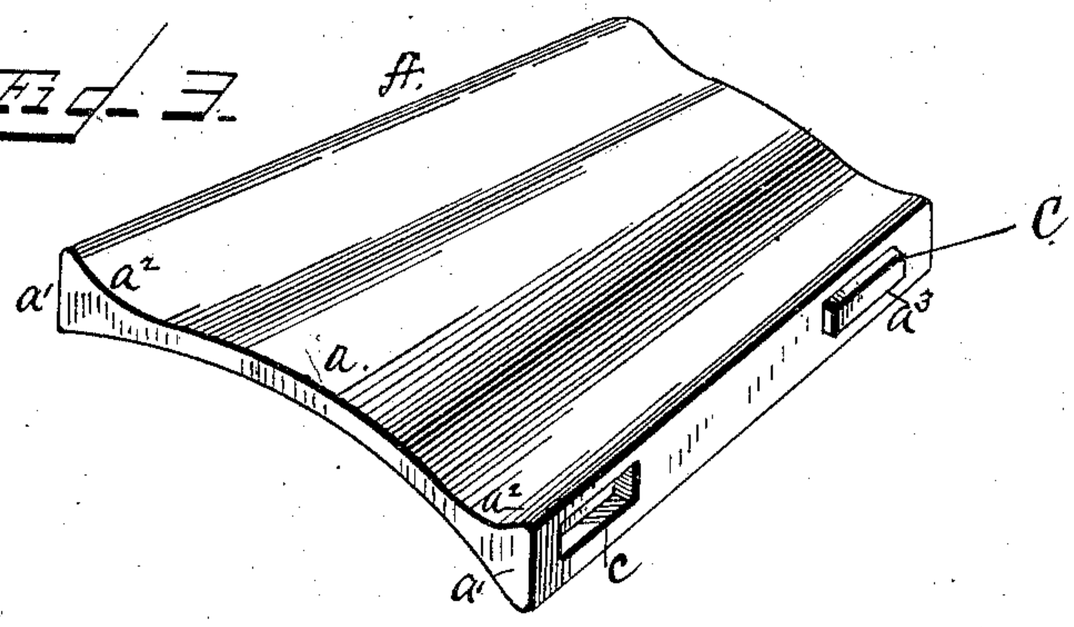



Fig. 3.

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# UNITED STATES PATENT OFFICE.

BUREN M. SOULE AND PHILONZO F. GIVEN, OF CEDAR RAPIDS, IOWA; SAID P. F. GIVEN ASSIGNOR TO CARL E. GIVEN, OF SAME PLACE.

## FOOT-GUARD FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 335,847, dated February 9, 1886.

Application filed August 31, 1885. Serial No. 175,787. (No model.)

*To all whom it may concern:*

Be it known that we, BUREN M. SOULE and PHILONZO F. GIVEN, citizens of the United States of America, residing at Cedar Rapids, in the county of Linn, in the State of Iowa, have invented a new and useful Improvement in Foot-Guards for Railways, of which the following is a specification.

Our invention has relation to improvements in means for filling in the spaces between adjacent rails of switches, frogs, and guard-rails to prevent accidents; and the object is to improve existing devices of the kind by providing a foot-guard which is held in its place by the function of frictional contact and by the force of springs, so that it will meet all the purposes intended, and because of its particular construction and mechanical function will remain fixed in position under all temperatures, ordinary exigencies of contraction or expansion of metallic surroundings, and the jars and jolts of moving trains.

We attain these objects and purposes of our improvements by means of the devices illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of the foot-guard seated between convergent rails. Fig. 2 is a cross-section taken through the line *x x* of Fig. 1; and Fig. 3 is perspective of the foot-guard, showing the springs in the side flanges.

The letter A designates the foot-guard, comprised of a plane-faced metal plate formed with an arched center, as seen at *a*, and side flanges, *a'*, formed to fit the stem, and between the flanges of the rails, the upper edge of the flange being formed to reach under the top lip of the rail B and set below it so as to avoid contact with the flanges of the car-wheels. The plate is made thinner in the central or main portion, and is re-enforced in those parts approaching the union with the side flanges, the line of union being somewhat below the middle of the vertical height of the flange, and the upper surface being carried in a curve to the top of the side flange, substantially as seen at $a^2$ in the drawings. The side flanges form the abutments or supports for the guards, and no supplementary supports are used, as they are not essential or necessary. The sides of the plate are formed to meet the direction of the rails, between which it is to be seated.

In the drawings a plate is shown tapering, and seated between rails arranged to form a corresponding direction of alignment. As thus formed, the plate is convexo-concave in cross-section, and being of metal makes a body which can be forced into position between the rails, and has sufficient spring to press outward and maintain itself firmly in position, and this conformation and arrangement, under ordinary circumstances of statical condition, will prove sufficient; but the foot-guard being surrounded by material which contracts and expands by variation of temperature, and being of a material subject to like changes, we prefer, in order to secure the guard in position under all circumstances, exigencies, and relations or conditions of parts, to secure to the sides of each of the side flanges one or more springs, as, $a^3$, which are arranged to bear outward, and thus meet all changes incident to the causes named.

In the drawings we have shown the device as having rubber cushions C, disposed in mortises *c*, formed in the sides of the side flanges; but it is apparent that other forms of springs or springs of other material may be secured to the flanges and serve the same purpose.

The foot-guard is placed in position by putting it between the rails at a place where it can loosely set between them, and then forcing it snugly and firmly in the position determined upon.

It will be readily perceived that when the guard is in position the restraint of the rails tends to raise the arch of the plate, while at the same time, the resiliency of the plate presses the flanges home between the flanges of the rails and against their stem, and thus the plate is held firmly and securely in place without spikes or other fastenings. It will be seen, also, that as the plate is driven home the springs will set within the mortises or seats and meet any and all alteration of spread between the rails, the plate, by reason of its resiliency and by its springs, always adjusting itself in its seat.

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

1. A foot-guard for railways, consisting of a convexo-concave metal plate having a planed arched surface, and side flanges formed to set between the flanges and against the stem of

the rails, and adapted to be held in position by the resiliency of the arch of the plate, substantially as described.

2. A foot-guard for railways, consisting of a spring-metal plate of plane-arched shape in cross-section, and having side flanges to set between the rails, whereby the guard is held in position by the force of the spring-plate, substantially as described.

3. A foot-guard for railways, consisting of a plane-faced convexo-concave metal plate formed with recessed side flanges to set between the rails and provided with side springs resting in the recesses in the side faces of the side flanges, substantially as described.

4. A foot-guard for railways, consisting of a convexo-concave metal plate formed with supporting side flanges to set between the rails and having mortises formed in the side flanges and rubber springs fitted in the mortises, substantially as described and for the purpose stated.

In witness whereof we have hereunto set our names in the presence of two attesting witnesses.

BUREN M. SOULE.
PHILONZO F. GIVEN.

Attest:
I. N. WHITTAM,
C. E. GIVEN.