(No Model.)

W. B. MITCHELL & F. BENBERGER.

FOOT GUARD FOR RAILROADS.

No. 490,580. Patented Jan. 24, 1893.

Fig. 1.

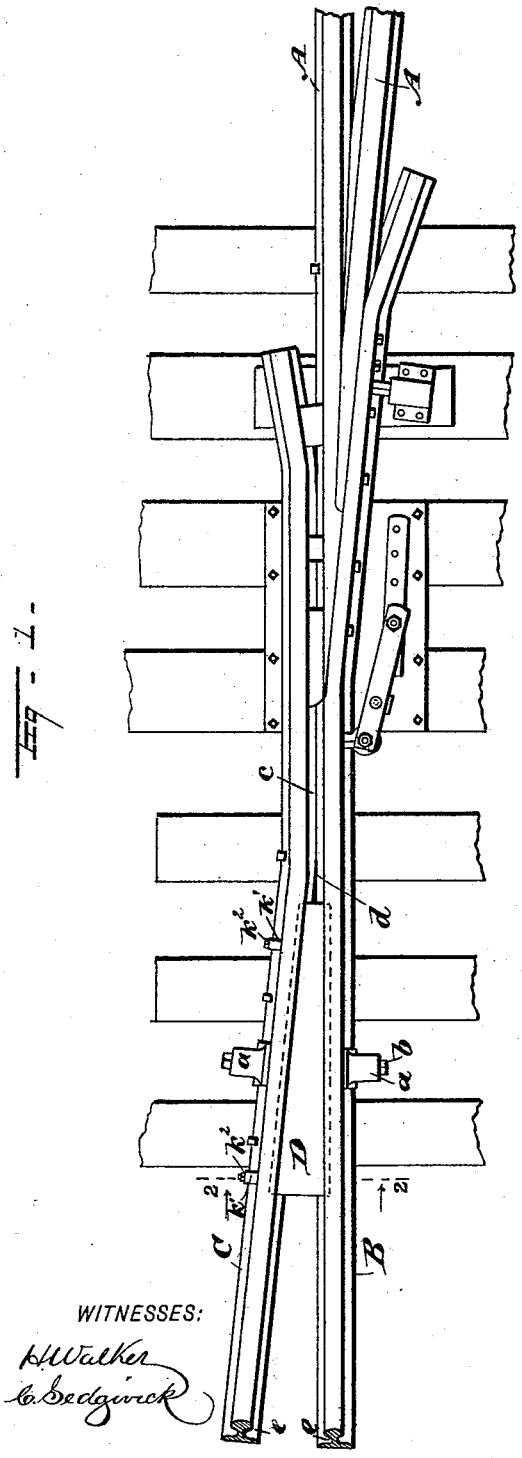

Fig. 3.

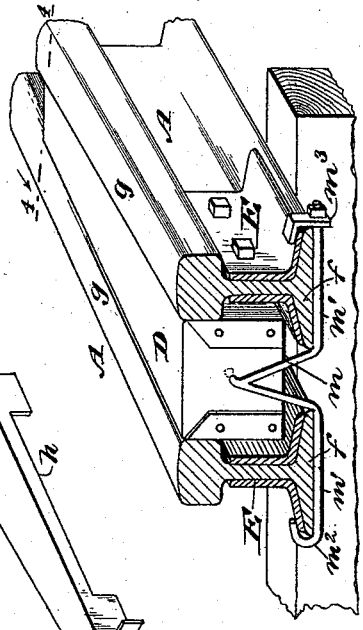

Fig. 5.

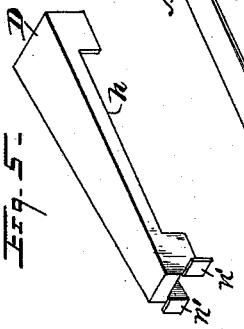

Fig. 4.

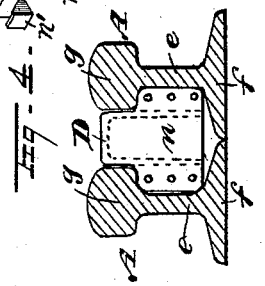

Fig. 6.

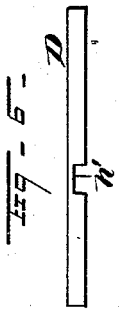

Fig. 2.

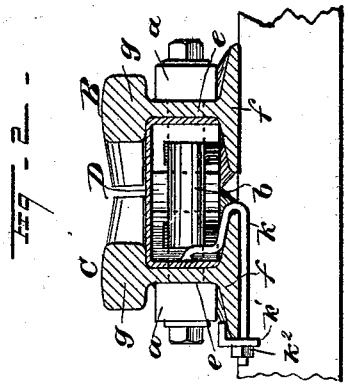

Fig. 7.

WITNESSES:

H. Walker

C. Sedgwick

INVENTORS

W. B. Mitchell

F. Benberger

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM B. MITCHELL AND FRANK BENBERGER, OF GALION, OHIO.

FOOT-GUARD FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 490,580, dated January 24, 1893.

Application filed June 4, 1892. Serial No. 435,569. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM B. MITCHELL and FRANK BENBERGER, of Galion, in the county of Crawford and State of Ohio, have invented a new and useful Foot-Guard for Railroads, of which the following is a full, clear, and exact description.

This invention relates to a novel device for filling the converging spaces resulting from the formation of frogs for railroads by the angular junction of track rails; and particularly to a safety appliance for the heels and points of spring rail frogs.

The object is to provide a simple and reliable device which can be easily secured in place, and that will close up the converging spaces in the heels and points of such frogs, or others of analogous construction, so as to obviate the danger of persons wedging their feet between such parts of a frog, and becoming liable to serious injury from passing trains.

To this end our invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view showing the guard applied to a fixed and a spring rail of a railway frog; Fig. 2 is an enlarged transverse section of the same, taken on the line 2—2 in Fig. 1; Fig. 3 is an enlarged broken perspective view with parts in section, showing a slightly modified construction of the improved foot guard and a securing device for the same, applied to two fixed rails; Fig. 4 is a cross section on the line 4—4 in Fig. 3, showing a means for the retention of one end of the foot guard between the converging ends of the rails; Fig. 5 is a detached perspective view of the guard, indicating a slightly different means for securing the device in position at one end between the rails of a frog; Fig. 6 is a reduced side view of a modified form of the foot guard; and Fig. 7 is a reduced side view of the foot guard illustrated in Fig. 1, showing a slight modification therein.

The spring rail frog shown in Fig. 1 is one of a kind in common use, and serves to illustrate the application of the improvement, the converging rails A, A, forming the tongue or point of the frog, B the spring rail, and C the fixed rail. The spring rail B, is held normally against the fixed rail C, by springs (not shown) in the boxes *a*, which encircle the end portions of a transverse bolt *b*, that passes through slots in the webs of the rails B and C.

At *c*, the rails B, C, are parallel and so close that the foot of the pedestrian could not enter the space between the rail heads, and from the point *d*, the fixed rail diverges from the spring rail, thereby producing a triangular throat, which if left unprotected forms a trap to catch and hold the foot of an unwary track walker. A person moving along the track toward the point of the frog may inadvertently place one foot between the webs of the converged rails, B, C, near the point where they are parallel, and be thus held firmly, the overhanging heads of the rails preventing the party from lifting his foot, a retrograde movement being difficult to perform if the foot has been swung between the rails forcibly.

The improved guard piece D, consists of an elongated box preferably made of sheet metal, having the lower side open, said box being tapered as indicated, the degree of taper being such as will adapt the guard piece to fit between the converging rails. The guard piece D, may be located between the webs *e* of the rails B and C of the frog, as shown in Figs. 1 and 2, or may be seated upon the base flanges *f*, and project upwardly between the head portions *g* of the rails, as shown in Fig. 3. The later named location for the guard piece D, may be between the rails A, A, of the frog point, or fixed frog rails of any type of frog.

To permit the easy insertion of the guard piece D, when it is applied to the adjacent fixed and spring rails of a frog, as represented in Figs. 1 and 2, there are opposite notches cut in the side walls of the guard piece, as shown in Figs. 5 and 6. Should the device be designed for insertion into place, without a removal of the bolt *b*, the notches in the side wall of the guard piece should be elongated as in Fig. 7, at *h*, which will allow the tapering box to be dropped between the rails where they are sufficiently separated to freely receive it, the front portion of the notches then receiving the bolt body, and as the guard piece is shoved forwardly between the converging rails, the bolt will traverse the long

notched places *h*, and the sides of the box or guard piece engage the frog rails. When the bolt *b*, is to be removed to permit an insertion of the guard piece D, into place between two frog rails, and be afterward replaced, the notches are not required to be lengthened but may be of such a width and depth as to allow the bolt to slide through without looseness, such a form of notch being represented in Fig. 6, at *h'*.

One means for retaining the guard piece D, in place consists in clamping bolts *k* one being shown in Fig. 2, which bolt has its headed end engaged with the inner side of the guard piece, the bolt body extending from the same, and then bent downwardly to engage the base flange of the fixed rail C, thence below said flange and outwardly of a length to project beyond the latter. An L-shaped clamping plate *k'*, is slipped upon this end of the bolt and held locked upon the outer edge of the base flange by a nut k^2, so that the adjustment of the nut will press the end of the bolt *k* upon the inner wall of the guard piece D and prevent its displacement. The construction described, will secure the guard piece D, upon the fixed frog rail C, permit a lateral movement of the spring rail B, and prevent the guard piece from slipping out of place.

When the guard piece is formed as represented in Figs. 3 and 4, the device for holding it in position may be constructed as herein shown, consisting of a bolt *m*, that is looped at the center so as to project upwardly, and at the center the bend has a lateral pintle formed on it. The pintle is inserted through a hole in the end wall of the guard piece at its widest end, there being oppositely bent limbs *m'*, formed integrally with the looped center, which limbs project below the base flanges of the frog rails outwardly, having a hook m^2, on one limb end that engages the edge of one frog rail and an L shaped clamp m^3 strung upon the projecting end portion of the other bolt limb, which end is threaded and engaged by a nut that bears upon the clamp forcing it into close contact with the base flange of the frog rail, or upon an L-shaped fish plate E, as shown in Fig. 3. The hook m^2 may also be located on an opposite fish plate of a like construction to the one engaged by the clamp m^3. It will be seen that by an adjustment of the nut on the limb *m'*, the guard piece D, in Fig. 3, will be drawn forcibly upon the base flanges of the rails A, A, so as to prevent the piece D from upward movement at its largest end, or a longitudinal displacement of the guard piece.

In Fig. 4, the opposite end of the guard piece shown in Fig. 3, is indicated, and as a preventive against upward movement at this end a flap *n*, is turned down over two wings *n'* that are shown in Fig. 5, and thereto secured by rivets, thus providing lateral projections from the body of the guard piece which are of such a relative height as will adapt the upper edges of said wings to bear upon the lower sides of the overhanging heads *g* of the rails A, while the lower edges of the wings and flap rest upon the base flanges *f*. If preferred the flap *n*, may be dispensed with and the wings *n'* formed as shown in Fig, 5, be alone used to hold the guard piece D. in position at its smaller narrow end.

When the guard piece is employed in conjunction with converging frog rails, either of spring rail or rigid type, or upon the point and heel of a spring rail frog as herein shown and described, it will be evident that it will afford complete protection against the wedging insertion of a human foot within the angular space between the rails, and thus prevent serious accidents from occurring that frequently happen when such a safe-guard is not provided.

Having thus described our invention, we claim as new and desire to secure by Letters Patent,

1. A foot guard for frog rails, comprising a wedge shaped box-like piece, and securing devices therefor that retain the box-like guard piece between converging rails, by clamping it to the rail bases substantially as described.

2. A foot guard for frog rails, comprising a tapering body adapted to engage the webs and heads of converging frog rails, and a securing bolt therefor, engaging the guard body, and a clamp plate that bears on the base flange of one rail substantially as described.

3. A foot guard for frog rails, comprising a tapering box-like structure, notched on the side edges, and a bent bolt adapted to retain the guard piece from longitudinal displacement, substantially as described.

4. A foot guard for frog rails, comprising a tapering box-like structure provided at one end with lateral wings, notched in side edges, and engaged by a securing bolt at the end opposite the winged end, substantially as described.

5. In a foot guard for frog rails, the combination with a tapering box-like structure notched on side edges to engage a transverse frog bolt, and winged on one end, of a bent bolt engaging the box-like structure at its opposite end, a clamping plate on the bolt, and a nut on the bolt bearing on the clamping plate, substantially as described.

6. In a foot guard for frog rails, the combination with a laterally tapered box-like structure, and wings at one end of said structure adapted to engage the overhanging heads of converging T-rails, of a securing bolt interlocking with the opposite end of the box-like structure, limbs projected oppositely on said bolt, a hook on the end of one limb, a clamping plate on the other limb, and a nut engaging the bolt and plate, substantially as described.

WILLIAM B. MITCHELL.
FRANK BENBERGER.

Witnesses:
GEO. W. BROWN,
L. M. MILLER.