(No Model.)

W. GOLDIE.

RAILROAD RAIL BRACE.

No. 421,268. Patented Feb. 11, 1890.

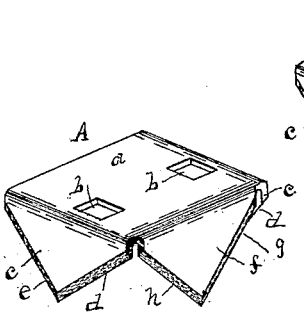

Fig. 2.

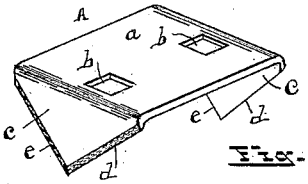

Fig. 1.

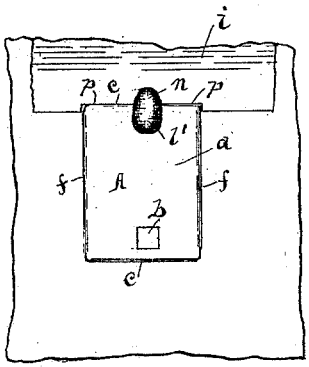

Fig. 5.

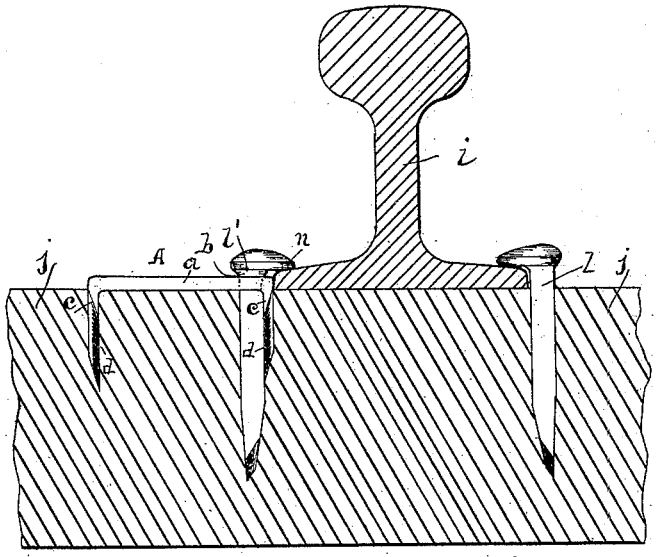

Fig. 3.

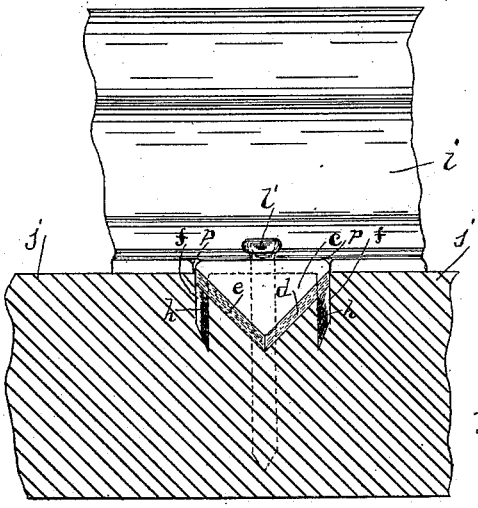

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WEST BAY CITY, MICHIGAN.

RAILROAD-RAIL BRACE.

SPECIFICATION forming part of Letters Patent No. 421,268, dated February 11, 1890.

Application filed December 3, 1889. Serial No. 332,376. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Railroad-Rail Braces; 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 of reference marked thereon, which form a part of this specification.

My invention relates to devices to be applied to railroad ties or sleepers for bracing the rail against the crowding strain to which they are subjected from the passing cars; and my invention consists chiefly in a rail-brace composed of sheet metal, provided on its body portion with suitable openings for the spike and having the ends outside of or beyond the said openings turned at a right angle with the body portion; and my invention also consists in the form and construction of the device, and also in the combination and arrangement of the device, together with the tie and rail, as I shall presently explain, and which will be explicitly set forth in the claims of this specification.

One of the objects of my invention is to arrange a device to be applied to the cross-ties of a railroad as a brace to support the rail in position against a crowding strain from the passing cars, whereby an even and true line of the rails may be maintained and the spreading of the rails is prevented.

Another object is to provide devices for assisting in sustaining the rails against a crowding strain, which device will be inserted between the rail-flange and spike, whereby a greater surface is presented to receive the chafing or grinding action of the rail-flange and the cutting and wearing of the neck portion of the spike from the contact with rail-flange prevented.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my improved brace arranged to resist a crowding strain on the rail. Fig. 2 is a view in perspective of the device arranged to prevent a crowding strain and also to prevent creeping of the rails. Fig. 3 is a view in transverse section of the rail and longitudinal section of the cross-tie and embodying my invention, as shown in Fig. 1. Fig. 4 is a side view of the rail and transverse section of cross-tie with my invention, as shown in Fig. 2, applied thereto. Fig. 5 is a plan view of a portion of Fig. 4.

Referring to the drawings, in which similar letters indicate like parts throughout the several views, A represents my improved brace, and it consists of a metal plate *a*, of any suitable width and length and of a thickness nearly the same as the base-flange of an ordinary railroad-rail, and *b* are openings formed through the plate to receive the spikes commonly used for securing the rail, and *c* are portions of the plate outside of the openings *b*, turned at a right angle with the plate downwardly, and they are preferably made in a V form, with the lateral edges of the V beveled to form diagonal cutters *d* and *e*. As will be seen in Fig. 2, *f* are portions on the opposite side edges of the plate *a*, bent downwardly at a right angle, and are arranged with a V form and provided with cutters *g* and *h*, in a like manner to the cutters *d* and *e* before described.

i is an ordinary railroad-rail, and *j* is the cross-tie or sleeper, to which the rail is secured by the spike *l* upon the inner side, while upon the outer side the brace A is placed, with one end presented to the rail and with one side of one of the portions *c* against the lateral edge of the rail-flange, and the portions *c* are then driven into the tie until the under side of the plate *a* rests upon the tie-surface. A spike *l'* is then driven through the opening *b* into the tie, with the extended portion *n* of the head reaching over the upper bent edge of the portion *c*, and also over the rail-flange, which firmly holds the brace and rail in position.

It will be noticed that the portions *c*, by being thin and provided with diagonal edges, divide the wood across the grain or fiber with a clean shearing cut, and leave the fiber with little or no compression or bending, so that when in position they present at differ-

ent locations on the tie two broad surfaces to bear against the end grain of the wood, so that the rails are rigidly held against spreading or lateral movement as the cars pass over them, and the side of the inner portion *c*, which bears against the lateral edge of the rail-flange, presents a broad bearing-surface to receive the chafing or grinding action of the flange, which occurs when loaded trains pass over and depress the rails upon the elastic fiber of the supporting-ties.

As it is necessary and desirable to use on heavy grades, &c., of the road some means to prevent the rails from "creeping" or moving longitudinally, I use the form of rail-brace illustrated in Fig. 2 for this purpose, the lateral edge of the rail-flange being cut out, as at *p*, to receive the end of the plate *a*, and the portions *c* and *f* are then driven into the tie, with the end of the plate within the notch *p*, and the spike *l* is then driven in place to hold the rail and rail-brace down, and the portions *f* then present sufficient surface to retain the brace against a movement laterally, and the notch *p* in the rail prevents any movement thereof longitudinally in relation to the plate, while the portions *c* operate, as before explained, to prevent a crowding strain from spreading the rails apart. It is not essential, however, that all of the downwardly-turned portions shall be used, as for resisting the crowding strain of the rails one of the portions *c* or *f* would be very effective and produce a fair result.

A very great advantage is gained by the use of my improvement, as it will be readily understood that the rails supported by a series of my improved braces will remain in position without liability of spreading apart under all ordinary conditions, so that derailing trains from that cause will be avoided, and the expense and trouble of keeping the rails in line will be greatly reduced.

Of course it is understood that while I have described the downwardly-turned portions *c* and *f* as being of a V form and provided with cutting-edges, this is not altogether essential, as some other form may be adopted, if desired, so long as parts are properly supported by the end grain of the wood fiber, and the cutting-edges may be omitted, if desired, especially on the lateral portions *f*, as they enter the wood lengthwise of or parallel with the fiber, and one spike-opening may be omitted, if desired, although I prefer to form two openings, so that either end may be placed against the rail-flange, and also in curves two spikes might be profitably used to provide extra resistance. It will also be noticed that my improved rail-brace is formed so as to be light and strong and can be made in the various forms, as a new article of manufacture, and shipped in packages and used wherever required without change or without other manipulation than driving the projecting portions into the tie.

What I claim, broadly, as my invention is—

1. A railroad-brace consisting of a metal plate having a body portion of rectangular form and provided at its end with a spike-opening, and having its end portions turned at a right angle with the body portion and provided with cutting-edges, substantially as set forth.

2. A railroad-rail brace consisting of a metal plate having a body portion of rectangular form and provided with openings for the spike, and having portions of a V form projecting at right angles from the edges of its under side and provided with sloping cutters, substantially as set forth.

3. The combination, with a rail and cross-tie, of a rail-brace consisting of a metal plate of rectangular form and with one edge against the lateral edge of the rail-flange and provided with openings for the spike and with V-shaped portions projecting at right angles from its under side into the tie, and a spike driven through the said opening into the tie and with its head portion reaching over the outer edge of the base-flange of the rail, substantially as set forth.

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

WILLIAM GOLDIE.

Witnesses:
F. H. TURNER,
THOMAS TIERNEY.