

No. 772,543.

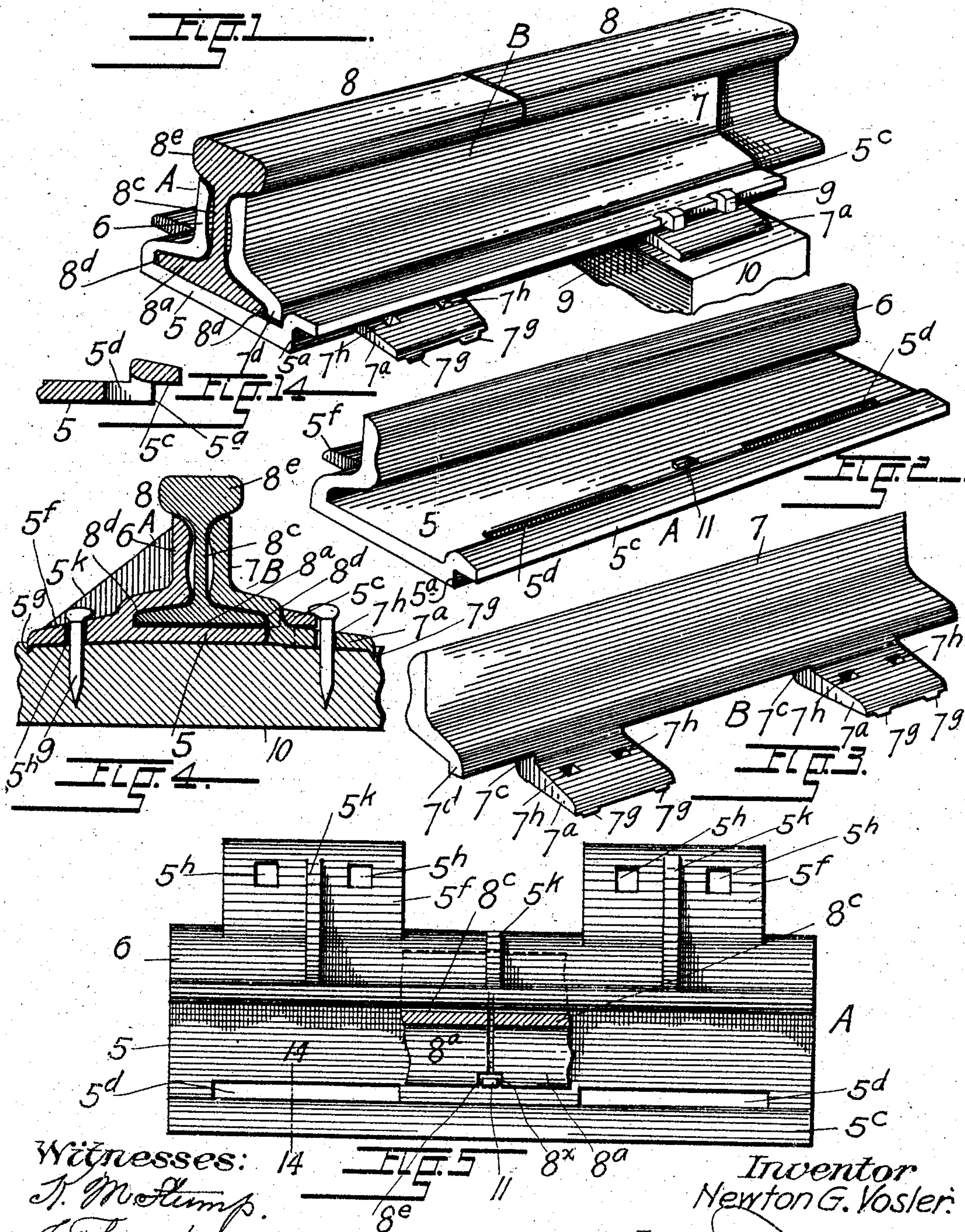
PATENTED OCT. 18, 1904.

N. G. VOSLER.
RAIL JOINT LOCK.

APPLICATION FILED DEC. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses: 14
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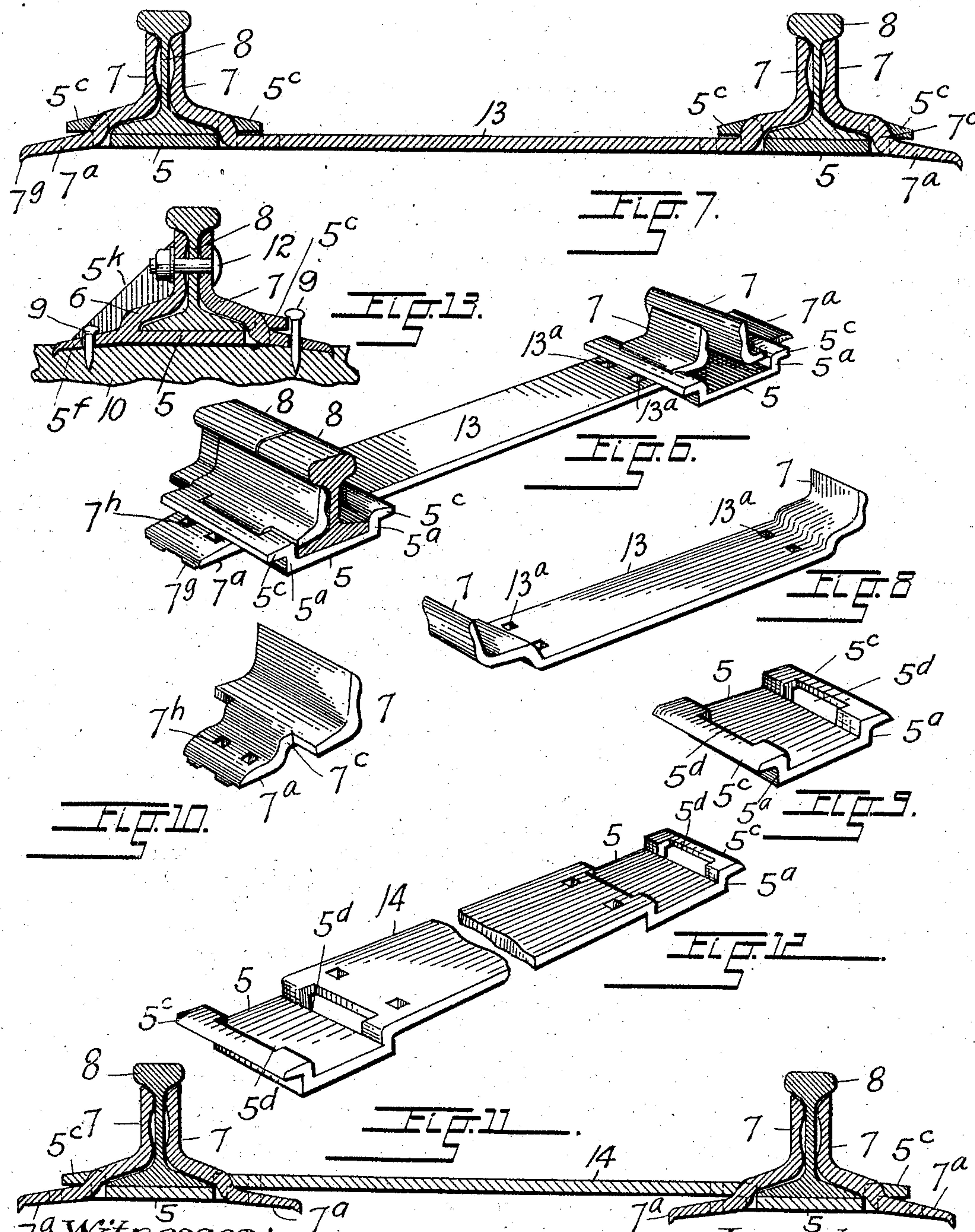
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

NEWTON G. VOSLER, OF FORT COLLINS, COLORADO.

RAIL-JOINT LOCK.

SPECIFICATION forming part of Letters Patent No. 772,543, dated October 18, 1904.

Application filed December 21, 1903. Serial No. 185,998. (No model.)

To all whom it may concern:

Be it known that I, NEWTON G. VOSLER, a citizen of the United States, residing at Fort Collins, in the county of Larimer and State of Colorado, have invented certain new and useful Improvements in Rail-Joint Locks, of which the following is a specification.

My invention relates to improvements in devices for locking together the adjacent ends of railway-rails, and more especially to the class of locks illustrated and described in United States Patent No. 665,984, granted to me January 15, 1901.

The locks described in this specification, although operating on the same principle as the lock described in the above-mentioned patent, differ materially in form and application and are more especially adapted for use on street, electric, and elevated railroads, surface tramways for mines, &c.

The objects of my invention are, first, to provide a device of the class named which being simple and durable in construction may be manufactured at low cost and readily applied to the rails without the use of bolts or other fastening devices, which generally are difficult to apply and which weaken the rails; second, to provide means for effectually locking the meeting ends of rails together, which, holding the rails in perfect top and side alignment, will avoid lateral deflection and so-called "low joints," which are known to be the most fruitful source of breakage and damage to rails and consequent danger to passing trains; third, to provide a rail-joint lock which by the absence of bolts will allow the rails to expand or contract and which being securely fastened to the ties will prevent spreading of the rails; fourth, to provide a device of the class named which may be quickly applied at any time to any part of the rail or rails and in which, owing to its peculiar construction, the weight of the trains on the rails will aid in more securely locking the rail ends together, which, it may be observed, is a decided advantage over the old method of fastening the rails by straps and bolts, which oftentimes break or loosen by the pressure of the train on the rails.

My device may, furthermore, be used to

great advantage in mending cracked or broken rails, as it can be applied in a very short time and without the use of bolts or other fastening devices.

I attain my objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of my device in locked position, the rail ends being shown in place and one of the railway-ties being omitted; Fig. 2, a perspective view of the combined bed-plate and angle-bar employed in my lock; Fig. 3, a perspective view of the removable angle-bar; Fig. 4, a cross-section taken through a rail with the device in locked position and secured to a railway-tie; Fig. 5, a top view of the part of my lock illustrated in Fig. 2, the adjoining ends of the rail being shown in place in section; Fig. 6, a perspective view of a modified form of my device; Fig. 7, an enlarged cross-section through two rails with my device shown in place in the locked position; Figs. 8, 9, and 10, perspective views of the various parts comprising the lock as illustrated in Figs. 6 and 7; Fig. 11, a sectional view of another modified form of my lock; Fig. 12, a perspective view of the connected bed-plates used in the form illustrated in Fig. 11; Fig. 13, a cross-section through the device as illustrated in Fig. 1, showing application of bolts; and Fig. 14, a section taken along the line 14 14, Fig. 5.

Similar reference characters refer to similar parts throughout the various views.

My device, as illustrated in Figs. 1, 2, 3, 4, 5, 13, and 14, comprises two members A and B, one of which, A, is composed of a bed-plate 5, provided along one of its sides with an upwardly-extending integral angle-bar 6, while its opposite side has been offset at 5^a to form a flange 5^c, which extends along that entire side, its lower surface lying approximately in a plane with the upper surface of plate 5. Plate 5 is, furthermore, provided with one or more slots 5^d, which extend along its flanged edge and through the vertical portion 5^a, which connects the flange 5^c to the plate. Two or more feet 5^f, by which the plate may be secured to the cross-ties, extend laterally from the angle-

bar side of the bed-plate and are provided along their outer edges with downwardly-extending teeth 5^e, which are made to enter the tie when the feet are secured thereto by spikes 9, driven through suitably-located apertures 5^h in feet 5^f. The entire structure is reinforced by ribs 5^k, two of which extend vertically from the feet alongside the outside surface of the angle-bar, being integral with both, while the third or middle one extends diagonally from the lower to the upper edge of the angle-bar. The second member, B, which is shown in detail in Fig. 3, is composed of an angle-bar 7, similar in size and shape to the angle-bar 6 and provided with one or more laterally-extending angle projections or knees 7^a, which depend from the lower edge of the angle-bar. They correspond in length and location to the slots 5^d, the vertical portion 7^c being adapted to occupy said slots when the members A and B are assembled. Both the integral as well as the detachable angle-bars are shaped so as to conform to the contour of the under side of the head, the web 8^c, and the upper side and edge of base 8^a of the rail, so that when the rails are placed on the bed-plate and the detachable angle-bar is in place the two bars, in conjunction with the bed-plate, will embrace or clasp said rails. The bed-plate to this end has been made of a width sufficient to admit the base of the rail as well as the drooping edge 7^d of angle-bar 7, which forms a shoulder along the entire length of the plate between the edge 8^d of the rail and the offset 5^a of the bed-plate. The upper edges of both angle-bars rest in practice against the lower surface of the head 8^e of the rail, thus furnishing additional support for the rails. The horizontal portions 7^a of the angle projections on the detachable angle-bar being similar in form to the feet 5^f on the bed-plate project outwardly from beneath the elevated flange 5^c when the vertical portions 7^c of the knees occupy slots 5^d. They are, like feet 5^f, provided with downwardly-extending teeth 7^e and spike-holes 7^h, by which they may be secured to the cross-ties 10. The holes 7^h in the horizontal portion of knees 7^a are so located that when the spikes 9 are driven therethrough the lips and sides of the spikes will engage the outer edge of flange 5^c, thus not only securing the angle-bar to the tie, but at the same time rigidly connecting the two members of the device. Located at a point midway between the ends of the bed-plate and near its flanged side is an upwardly-extending projection or stop 11, the office of which is to limit the longitudinal movement of the rails toward each other. The distance between stop 11 and the offset on the bed-plate should be equal to or exceed the thickness of the lower edge 7^d of the detachable angle-bar, so as to prevent stop 11 from obstructing the path of the edge 7^d when the angle-bar is put in place. The adjacent ends of the rails 8 have been provided with notches

8^x, corresponding in position to the stop 11, so that the latter will engage said notches when the rails are in their proper position on the bed-plate.

The operation of the device and mode of applying same to the rails are very simple. The rails having been placed on the bed-plate in the recess formed by the plate and the integral angle-bar, so that notches 8^x engage stop 11, the knees 7^a of the detachable angle-bar 7 are inserted in slots 5^d until the vertical portions 7^c occupy said slots and angle-bar 7 rests against the rail. The entire structure is now secured to the cross-ties by spikes 9, driven through apertures 5^h and 7^h in the feet of the bed-plate and the horizontal portions of the knees 7^a, the lips of the spikes driven through the latter resting against the upper surface of flange 5^c, as heretofore explained, thus affording supplementary means for holding the different parts intact. When the spikes are driven home, the downwardly-extending projections 5^e on the feet of the bed-plate and on the horizontal portion 7^a of the knees, as well as portions of the parts themselves, the ends of which to this end have been made pointing downward, will enter the surface of the cross-ties. This feature of my invention is intended to form an absolute safeguard against spreading of rails, which is a great source of danger on railroad-tracks as they are now constructed. Moreover, in my device I gain the advantage that the spikes on the inside of the rail have the same holding power against lateral movement as those on the outside, which greatly adds to the strength of the joint. The teeth and ends of the lateral projections of the bed-plate and detachable angle-bar entering the ties cross-wise of the grain, shoulders are formed which not only will prevent lateral movement, but materially relieve the strain on the spikes. When the detachable angle-bar has been put in place and the entire structure spiked down on the ties, the two parts of the device will be rigidly connected, this rigidity being augmented when the weight of passing trains is brought to bear on the rails, owing to the suspension of the joint where it is spiked to the tie. The assembled members A and B, it will be observed, form together a recess in close conformity to the shape of the cross-section of the base, web, and under surface of the head of the rail in which the rail ends will be clasped firmly, so as to assure perfect alignment of the meeting rails. I wish it understood, however, that although lateral movement of the rails clamped in my lock is prevented said rails may still move longitudinally when expanded or contracted.

Although, as a general rule, it is my intention to secure the lock to two cross-ties, it may, if necessary, be made longer, so as to engage three or even more ties, or when used on side tracks or for repairing slightly-

cracked rails it may be shortened to the width of one tie.

It will be observed that instead of placing the rails on the bed-plate previous to putting the movable angle-bar in place the latter may be inserted first, in which case the rails are pushed into the ends of the recess formed by the bed-plate and the two angle-bars until arrested by stop 11.

Should it be deemed advisable on account of economy in manufacturing or other reasons to omit stop 11, the rails may be secured against longitudinal movement by means of bolts 12, projecting through properly-placed holes in the web of the rails and the angle-bars, as illustrated in Fig. 13. I wish it understood, however, that the bolts are in no case required for any other function, as they do not add to the strength or safety of my device.

In Figs. 6, 7, 8, 9, and 10 is illustrated a form of my device which is especially adapted for use on railroads of narrow gage and light traffic, such as the surface tramways used in mines. The construction and operation of the locking parts of the device are practically the same as described in my above-mentioned patent, there being besides a bed-plate 5 two detachable angle-bars 7. In this case, however, the two inner angle-bars of the corresponding locks on the two rails composing the track have been connected by a metal strap 13, integral with both angle-bars and provided with suitable apertures 13^a for fastening purposes. The shape of the outside angle-bars is similar to that of the detachable angle-bar hereinabove described. In the drawings only one knee has been shown; but it will be understood that as many may be employed as desired. The connected inner angle-bars differ from the outer ones in width. Owing to the fact that on account of their being attached to each other they have to be inserted from the under side of the bed-plate, their width cannot exceed that of the slots in the plate. The connecting-plate 13, which takes the place of the horizontal portions of the knees in the other angle-bars, is made of the same width as the angle-bars to which they are attached. The construction of the bed-plate is practically the same as in the two-piece lock, excepting that as both angle-bars are detachable the integral angle-bar has been replaced by a flange similar in shape to flange 5^c, while the feet 5^f have been omitted. Slots 5^d instead of being in the base-plate are in the flanges 5^c, and the edges of the rail-base rest against offsets 5^a when in place. The operation also is similar to that of the previously-described lock, with the exception, as heretofore explained, that the connected angle-bars are inserted from the bottom instead of the top of the bed-plates, and when the different parts of the locks are placed in their relative positions

on the rails the corresponding locks on the two rails will form one whole. This construction enables me to dispense with the cross-ties, especially when the rails are to be placed on a rocky surface, to which the connecting-strap 13, as well as the feet of the outside angle-bars, may be spiked.

In Figs. 11 and 12 is illustrated a modified form of the above-described connected locks. In this case the inner flanges on the bed-plates of corresponding locks on the two rails have been replaced by a connecting-bar 14, while all the angle-bars are detachable and separated. The spikes on the inside of the locks are driven through the connecting-flange 14, as well as through the horizontal parts of the knees of the inside angle-bars, the holes in both having been made to correspond.

Having thus described my invention, what I claim is

1. In a rail-joint lock the combination with a bed-plate adapted to be interposed between the rail and the tie, having an integral angle-bar extending along one of its sides and being provided with slots along its opposite side, of a detachable angle-bar having knees extending downwardly through said slots and outwardly from the slotted side of said plate, said knees and said bed-plate being provided with suitably-located spike-openings, substantially as described.

2. A rail-joint lock comprising a base-plate provided with an integral angle-bar along one of its sides and an elevated outwardly-extending flange, formed by an offset along its opposite side, slots in said base-plate extending through said offset, a detachable angle-bar having knees extending from its lower edge and adapted to extend through said slots, underneath said flange and outwardly therefrom, said angle-bars being adapted to confine between them a rail placed on the bed-plate, substantially as described.

3. A rail-joint lock comprising a bed-plate, a ribbed angle-bar integral with said bed-plate extending along one of its sides, feet extending laterally from said bed-plate and adapted to be spiked to the ties, downwardly-extending projections on said feet, a flange formed by an offset along a side of said bed-plate, slots in said plate extending through said offset, an angle-bar having angle-knees adapted to be passed through said slots and to be spiked to the tie and downwardly-extending teeth on the outwardly-extending portions of said knees, substantially as described.

4. A rail-joint lock comprising a slotted base-plate adapted to be interposed between the tie and the rails and adapted to be spiked to the cross-ties, an angle-bar integral with said base-plate and extending along one of its sides, a detachable angle-bar having angle-knees adapted to be passed through the slots in said plate and to project outwardly from said plate, and a projection on said bed-plate

for limiting the inward movement of the rails placed thereon and confined between said angle-bars, substantially as described.

5 A rail-joint lock comprising a bed-plate adapted to be interposed between the tie and the rail and having outwardly-extending projections adapted to be spiked to the ties, an upwardly and inwardly extending angle-bar integral with said bed-plate and extending
10 along one of its sides, an outwardly-extending flange formed by an offset extending along the opposite side of said plate, slots in said plate extending through said offset, an angle-bar having knees adapted to be passed through
15 said slots, to project beyond said flange, and to be spiked to the ties, said angle-bar having a downwardly-extending flange extending between said offset and the edge of the base of the rail placed on said bed-plate and confined
20 between said angle-bars, substantially as described.

6. A rail-joint lock comprising two slotted bed-plates adapted to receive the bases of two rails composing a railroad-track, angle-bars,
25 between which the rails are to be confined having knees adapted to be passed through the slots in said plates and a strap, connecting those angle-bars which face each other and the center of the track, substantially as described.
30

7. A rail-joint lock comprising two bed-plates adapted to receive the bases of two rails composing a railroad-track and provided with

outwardly-extending elevated slotted flanges, along their sides, angle-bars having knees 35 adapted to be passed through the slots on the outside of said plates, and a strap adapted to connect said plates, its extremities being formed into angle-bars, adapted to be passed through the slots on the inside of said plates, 40 substantially as described.

8. A rail-joint lock comprising two connected slotted bed-plates adapted to receive simultaneously the bases of the two rails composing a railroad-track, and angle-bars be- 45 tween which the rails are to be confined, having knees adapted to be passed through the slots in said plates and to be spiked to the surface on which the track rests, substantially as described. 50

9. A rail-joint lock comprising two bed-plates adapted to receive the bases of two rails composing a railroad-track and provided with outwardly-extending slotted, elevated flanges 55 along their sides, angle-bars having knees adapted to be passed through the slots in said flanges and to extend beyond the same, and a plate connecting the flanges which face each other and the center of the track, substantially as described. 60

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

NEWTON G. VOSLER.

Witnesses:

G. J. ROLLANDET,
R. M. STUMP.