

(No Model.)

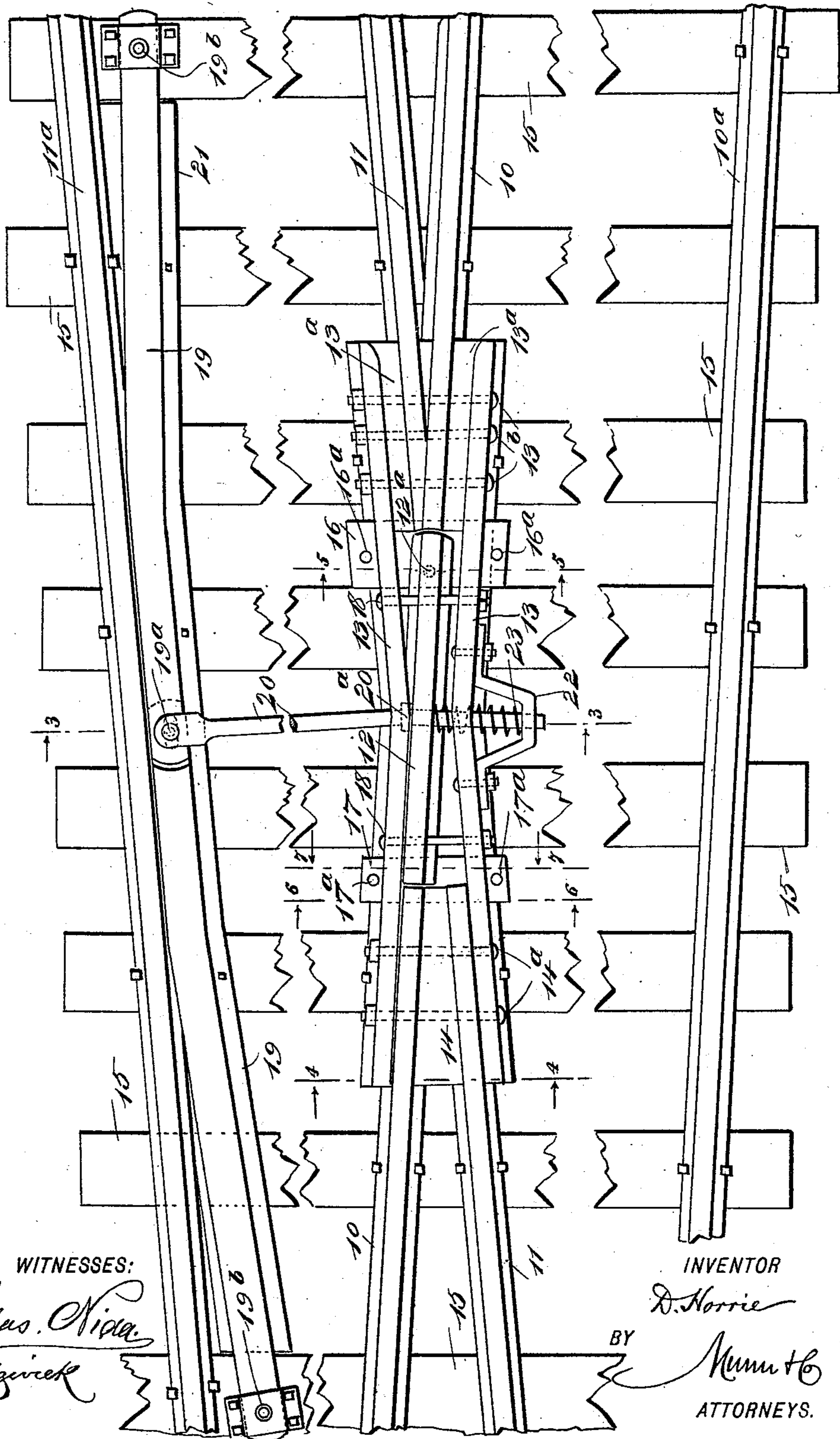
2 Sheets—Sheet 1.

D. HORRIE.
RAILROAD FROG.

No. 528,776.

Patented Nov. 6, 1894.

Fig. 1.



WITNESSES:

Chas. Nida.
C. Sedgwick

INVENTOR

D. Horrie

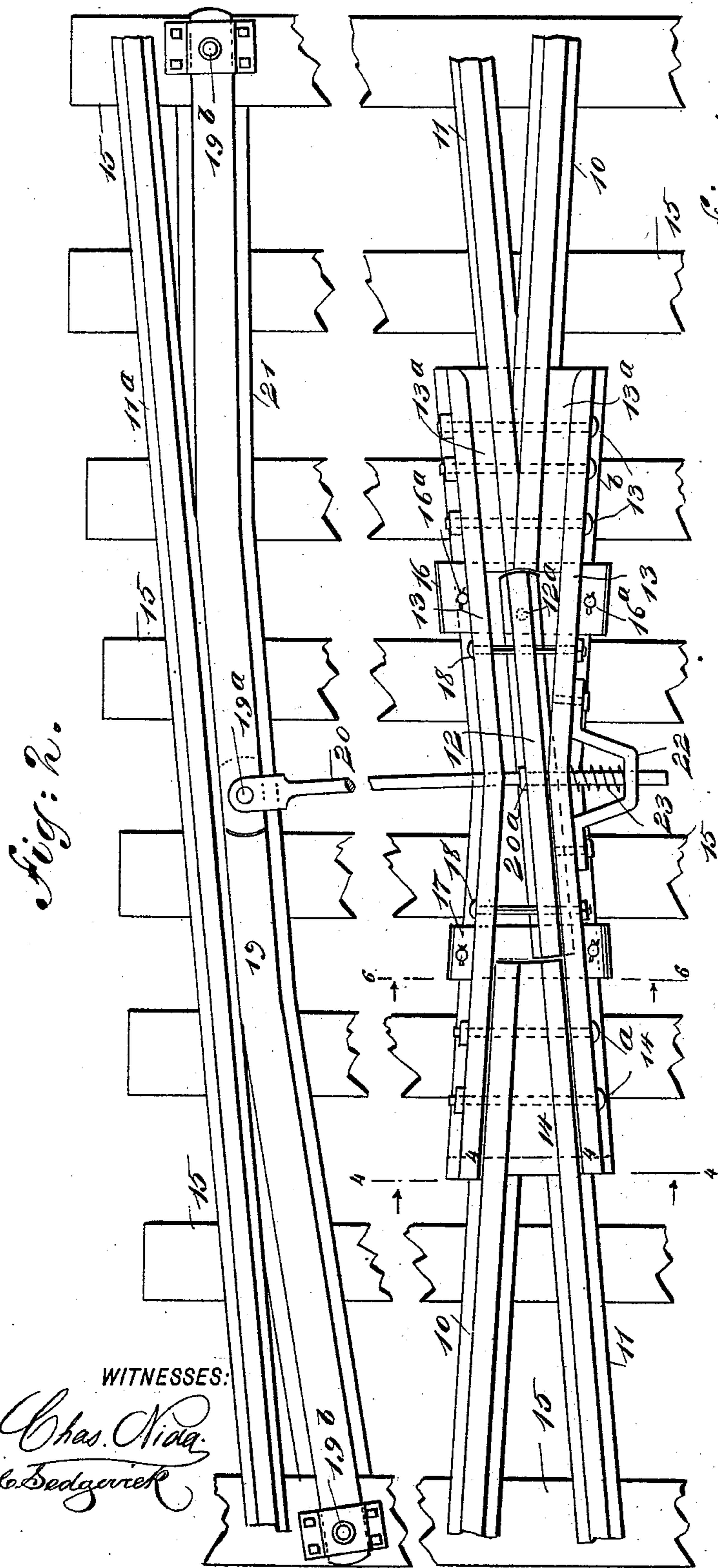
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Munn & Co.
ATTORNEYS.

2 Sheets—Sheet 2.

No. 528,776.

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WITNESSES:

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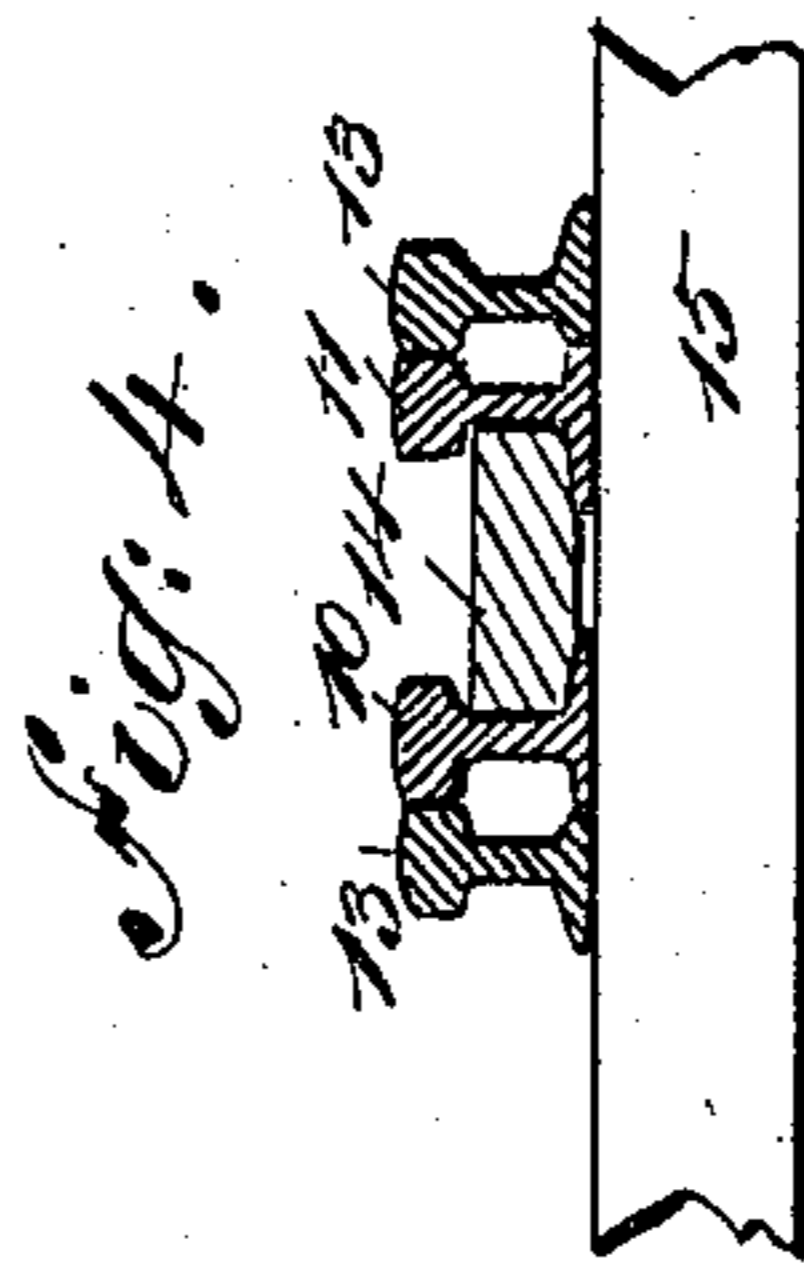


Fig: 4.

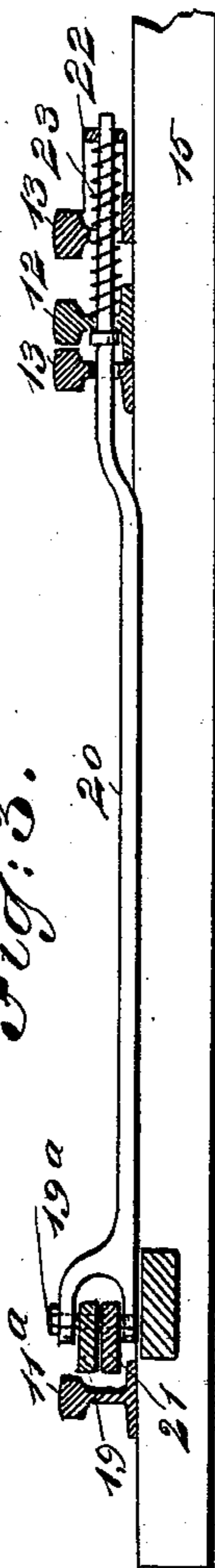


Fig: 3.

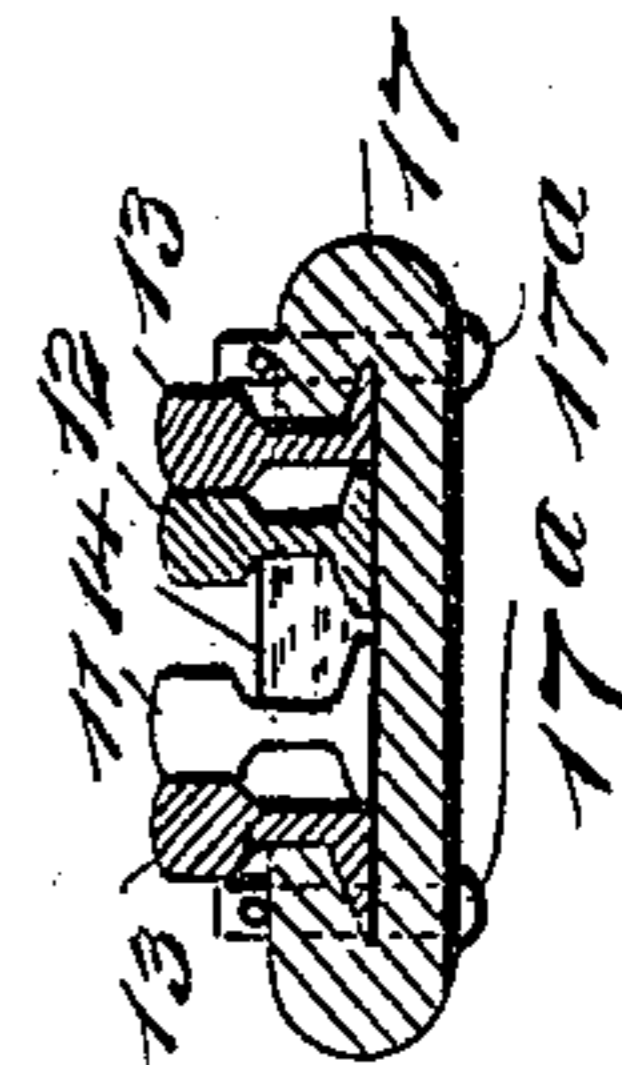


Fig. 4.

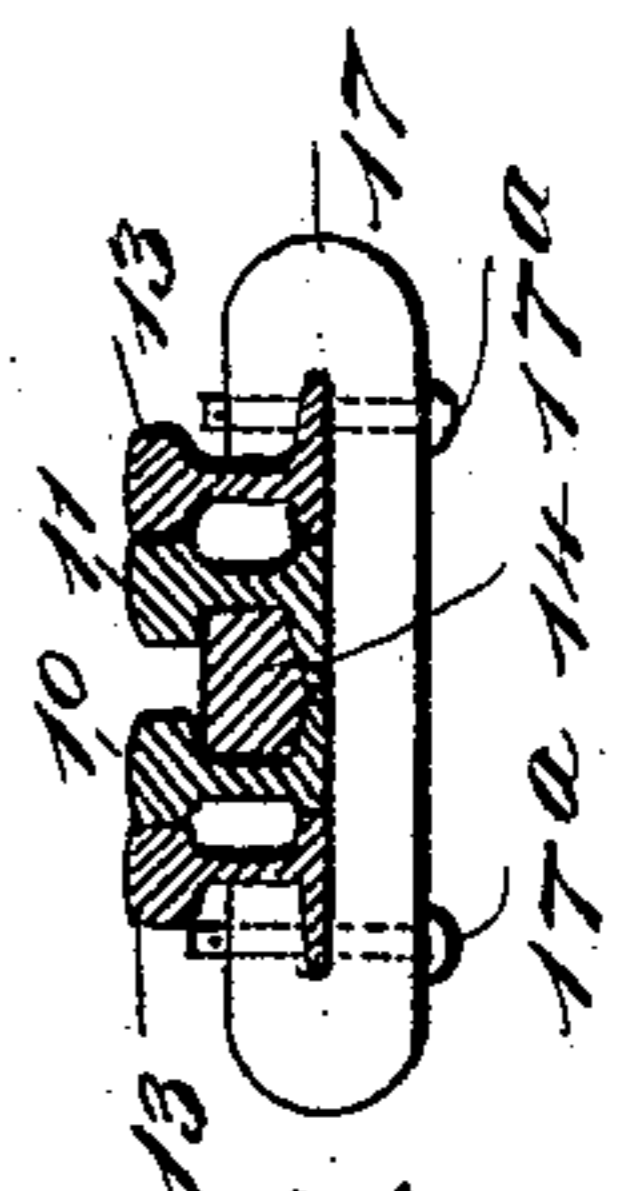


fig. 6.

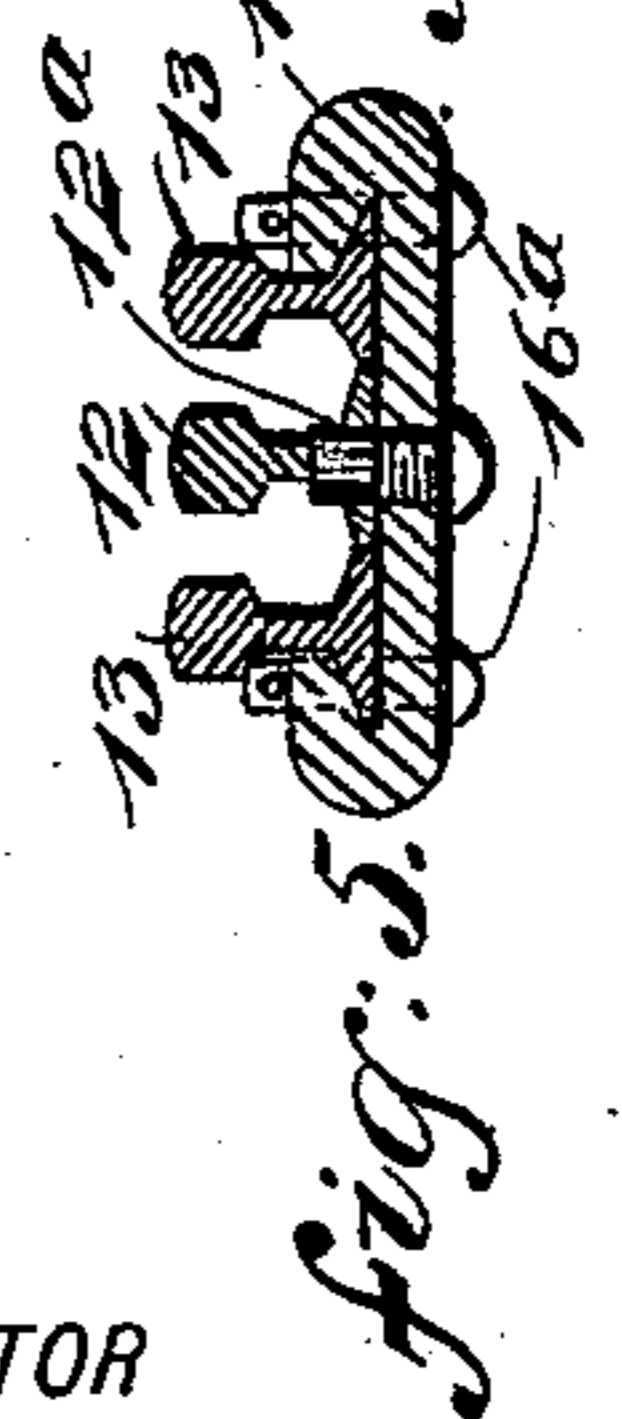


fig: 5.

INVENTOR

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UNITED STATES PATENT OFFICE.

DAVID HORRIE, OF KAUKAUNA, WISCONSIN.

RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 528,776, dated November 6, 1894.

Application filed March 2, 1894. Serial No. 502,052. (No model.)

To all whom it may concern:

Be it known that I, DAVID HORRIE, of Kaukauna, in the county of Outagamie and State of Wisconsin, have invented a new and useful Railroad-Frog, of which the following is a full, clear, and exact description.

My invention relates to an improved railroad frog of the swing rail type, and has for its objects, to provide a swing rail frog of simple and reliable construction, dispense with the use of a base-plate for the frog, permit the passage of a locomotive and cars in either direction of travel from a side track to an intersected main track, and automatically return the swing rail of the frog to alignment with near rails of the main track after the rolling stock has passed from one intersecting track to the other.

To these ends, my 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 figures of reference indicate corresponding parts in all the views shown.

Figure 1 is a plan view of the improvement in position at the intersection of a side track with a main track, the parts being shown adjusted to render the main track continuous. Fig. 2 is a plan view of the improved frog at the crossing of a side track and main track, the swing rail of the frog being shown adjusted to align it with adjacent rails of the side track. Fig. 3 is a transverse sectional view on the line 3—3 in Fig. 1. Fig. 4 is a transverse sectional view on the line 4—4 in Figs. 1 and 2. Fig. 5 is a transverse sectional view on the line 5—5 in Fig. 1. Fig. 6 is a transverse sectional view on the line 6—6 in Figs. 1 and 2; and Fig. 7 is a transverse sectional view, on the line 7—7 in Fig. 1.

In the drawings, 10, 10^a, represent the parallel rails of a main track, and 11, 11^a the similarly arranged rails of a side track where these tracks are disposed to cross each other at a suitable angle. The inner or nearest track rail portions 10 of the main track and 11 of the side track, are each divided into two sections where the frog is to be introduced, and as represented in Figs. 1 and 2, these track rail portions 10, 11, are in pairs laterally inclined toward each other, so as to

locate an end of the main track rail adjacent to an end of the side track rail, with a space between the ends of these angularly converged rail portions, which space is provided for the introduction of the swing rail 12, that alternately serves as a part of the main track line or side track, as occasion requires.

Two carrier nails 13, form essential parts of the frog, and as shown in Figs. 1 and 2, are laterally bent an equal degree at their longitudinal centers, so as to approach the swing rail 12 when the several parts of the frog are in position for use. The length of the similar carrier rails is proportioned to suit the requirements of the service they perform, and the lateral bend given to each of these rails is such as will adapt their end portions to lie in planes parallel with the converged end portions of the track rails 10, 11, opposite which they are placed.

The end portions of two of the rail sections 10, 11, at one end of the frog are sloped so as to produce a point on the joint rails slightly exceeding in width the breadth of a single rail head, and between the inner sides of the track rails and carrier rail ends at this part of the frog, the spacing blocks 13^a are introduced and secured, by transverse bolts and nuts 13^b, these blocks not extending above the webs of the rails. At the other end of the frog the converging track rail portions 10, 11, are separated a proper degree by the insertion of a wedge-shaped spaced block 14, between them so as to bear on their webs, the block and rails being held together by the cross bolts 14^a, and nuts on their ends shown in Figs. 1 and 2, said bolts also clamping the end portions of the rails 13 upon the track rails. The track rails and carrier rails which have been described are all securely affixed upon the cross ties 15, which are properly embedded in the graded road bed of the railroad, so that the parts will be stably maintained in their proper places.

The swing rail 12, is produced from the same standard of railway rail that is used in the construction of the main tracks and side tracks 10, 11, its length being so proportioned that it will loosely fit in the gap between the ends of the pairs of converged track rails.

At the end of the frog where the spacing blocks 13^a are located, and the sloped ends

of the track rails afford a point slightly exceeding in width the breadth of one track rail head, a clip plate 16 is affixed beneath the carrier rails 13, by the hooked engagement of the inwardly bent or folded ends of the clip plate with the outer flanges of the bases on the carrier rails, the keeper bolts 16^a serving to retain the clip plate in position. At the ends of the rail sections 10, 11, having the interposed wedge-shaped spacing block 14 between them, a clip plate 17, similar in form to the plate 16 is in a like manner secured upon the outer flanges of the carrier rails 13, by the bolts 17^a.

The disposition of the carrier plates 16, 17, adapts them to afford a substantial base for the rail 12, which is pivoted upon the carrier plate 16, near the end of said rail that is adjacent to the joined ends of the rails 10, 11, as shown in Figs. 1, 2 and 5, at 12^a, the head of the pivoted rail being thus retained nearly in contact with the tapering end of the connected rail sections mentioned, and the body of the swing rail permitted to receive lateral vibration, so as to align it with either of the spaced track rails at its opposite end, the width of the block 14 at its point being proportioned to permit such an adjustment of parts to be effected.

The carrier rails 13 and swing rail 12, are oppositely perforated at two points which are a correct distance from the ends of the swing rail, to receive the guide bolts 18, which are firmly secured in the carrier rails, and have a loose engagement with the swing rail, said bolts serving to prevent an upward displacement of the swing rail.

As shown in Fig. 4, the adjacent base flanges of the carrier rails 13, and track rails 10, 11, are cut away, so as to permit the heads of these rails to have lateral contact, the base flanges being also impinged at their cut edges, which will enable the firm connection of these rails by the transverse bolts 14^a, as before mentioned.

To facilitate the efficient action of the swing rail 12, the inner portions of the base flanges on the rails 13 are also cut away a proper degree from the free end of the swing rail toward its pivoted end, which will allow the head of the swing rail to have a lateral contact with the head of either carrier rail, as indicated in Figs. 1, 2, and 7, whereby lateral support is furnished to the swing rail when it is aligned with a main track rail or a side track rail.

At the inner side of the outer side track rail 11^a, two tripping bars 19 are located, which are substantially alike, each comprising a flat metal plate of proper breadth and thickness, and bent edgewise at a correct distance from their nearest ends, which ends are lapped upon each other and pivoted together by a bolt that also passes through the parallel members of the furcated end of the shifting rod 20. The pivot bolt 19^a is fast in the fork of the shifting rod, and loose in the

lapped ends of the tripping bars, the perforations to receive the bolt being slightly elongated lengthwise in the latter named parts to permit their free vibration.

The lateral bends of the bars 19 project their outer ends away from the inner side of the side track rail 11^a, sufficiently to provide a free entrance for the flanges of car wheels that traverse said rail with their treads, and each outer end of the pivoted bars 19 is loosely secured upon a cross tie or other stable support, as shown at 19^b in Figs. 1 and 2. The tripping bars 19, are seated upon the plank sill 21, which pieces consist of hard wooden planks having a proper thickness to elevate the tripping bars so that their top faces will lie slightly below the top surface of the side track rail they are near to, the sills being imposed on the cross ties and thereto secured.

The shifting rod 20 is extended toward the frog, and from its relative position is permitted to freely pass through a longitudinally central perforation in the web of the nearest carrier rail 13, the rod also extending through perforations in the swing rail 12, and opposite carrier rail, as clearly shown in Fig. 3.

On the outer side of the carrier rail that is farthest removed from the tripping bars 19, a bracket frame 22 is secured by its ends, said frame being shaped as shown in Figs. 1 and 2, an integral portion that projects from the carrier rail near the center of the frame being perforated in alignment with the opposite perforations in the carrier rails and swing rail, so as to permit the free end portion of the shifting rod 20 to pass out through the bracket frame and be guided thereby. The perforation in the carrier rail 13, whereon the bracket frame 22 is affixed, is of such a diameter as will allow the spiral spring 23, to be introduced and freely work therein, and thus have its ends in enforced contact with the web of the swing rail 12, and inner surface of the U-shaped bracket frame, the opposite side of the swing rail web being pressed by a fixed collar 20^a on the rod 20.

In the completed frog, the pressure of the spring 23 will force the swing rail 12, to normally align with the main track rail 10, that the swing bar is near to, so that lateral pressure on the opposite side of the swing rail is required to vibrate and align it with the side track rail 11.

In service, cars can always move freely toward and across the frog from either direction on the main track without a movement of the swing rail, and when the frog is approached from either direction on the intersecting side track, the flanges on the locomotive or cars will first wedge between the tripping bar end that is nearest said wheels, and the inner side of the side track rail 11^a, the progressive movement of the wheels moving the pivoted tripping bars into the position shown in Fig. 2, opening a throat for the passage of the wheel flanges, and vibrating the

swing rail so as to align it with the side track rail.

It is claimed for this improved frog, that the weight of rolling stock passing over the swing rail 12, will be mainly sustained by the carrier rails 13, as the treads of the car wheels will rest on the heads of the latter near the free end of the swing rail, on account of the lateral contact produced between the carrier rail and swing rail engaged by the treads of the moving wheels. The provision of the clip plates 16, 17, dispenses with the need of a base plate for the frog, and serves to transfer the weight borne by the swing rail upon the carrier rails.

Such a proportionate length is given to the shifting bars 19, that two wheels of a car will always be in contact with the parts of the bars that are normally parallel with the side track rail when cars are moving over the frog, which will prevent numerous vibrations of the swing rail that would be detrimental to it.

As the carrier rails 13 lap on the sides of the track rails 10, 11, at the free end of the swing rail 12, the joint between the end of the swing rail and track rail it may be aligned with, is protected, the carrier rail bearing the weight of rolling wheels passing over this joint, so that injury to the ends of the rails is avoided.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a main track and a side track, of two carrier rails bent toward each other between their ends, plates hung from the carrier rails, and a spring-pressed swing rail pivoted on one of said plates, substantially as described.

2. The combination, with a main track and a side track, of two carrier rails bent toward

each other at their longitudinal centers, plates hung from the carrier rails near converged ends of pairs of track rails, and a spring-pressed swing rail pivoted near one end on one of the plates and slidably supported on the other plate, substantially as described.

3. The combination, with supported main track rails, and side track rails arranged on cross-ties to intersect the main track rails, of two inwardly-bent carrier rails opposite a gap left where paired main track rails and side track rails converge, plates hung from the carrier rails near the converged ends of the paired track rails, a swing rail pivoted on one suspended plate and imposed on the other plate, and a spring-pressed device that is arranged to swing the pivoted rail in advance of rolling wheels on the side track rails, substantially as described.

4. The combination, with two pairs of converged track rails, and two spaced parallel rails, of a frog comprising two inwardly-bent carrier rails, two plates clipped on the base flanges of the carrier rails, a swing rail pivoted near one end on one plate and slidable on the other plate, two transverse guide bolts fast in the carrier rails and loose in the swing rail, and a device to vibrate the swing rail, comprising two edge-bent tripping bars fast at their outer ends and pivoted together at their meeting ends, a shifting rod pivoted to the tripping bars where they are jointed together and passing through the carrier rails and swing rail, a bracket frame on one carrier rail, and a spiral spring pressing the frame and swing rail, substantially as described.

DAVID HORRIE.

Witnesses:

M. C. CONNORS,
G. H. DAWSON.