

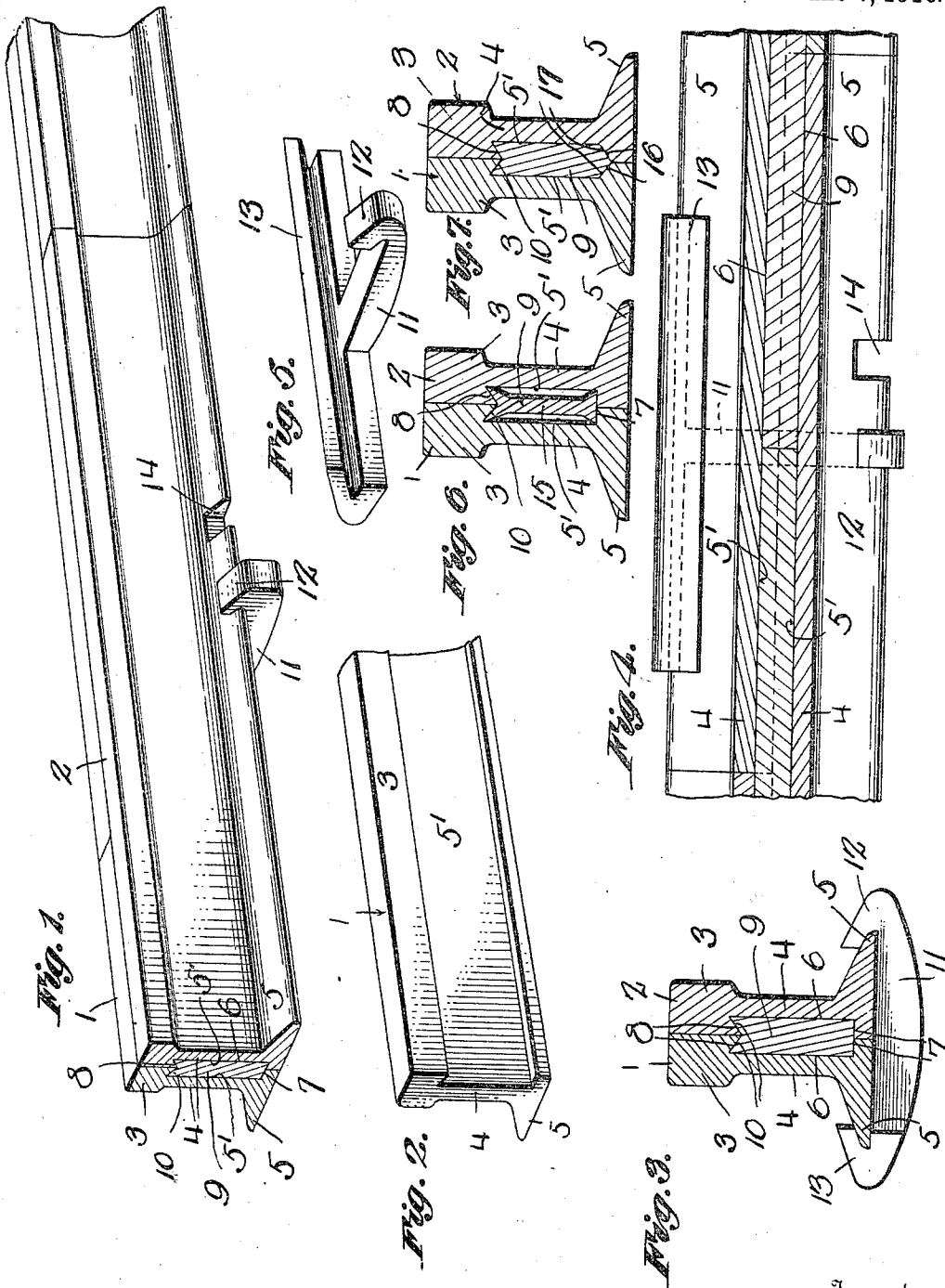
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RAIL.

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960,713.

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Witnesses

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RAIL.

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To all whom it may concern:

Be it known that I, HOWARD L. SAWDEY, a citizen of the United States, residing at Bingham Canyon, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Rails, of which the following is a specification.

The invention relates to an improvement in rails, being more particularly directed to a rail of sectional formation in which the sections are braced against independent vertical or lateral movement by an intermediate key and held against lateral separation by a clamp.

The main object of the present invention is the provision of a rail formed of duplicate sections and constructed on their proximate faces for the reception of and coöperation with a wholly inclosed key, the disposition and arrangement of the key causing the load-sustaining strength of each section to be materially reinforced by the opposite section, whereby the rail strength at the section joints is practically equivalent to the rail strength at any other portion of the joint lengths.

Another object of the invention is the arrangement of the key between the web portions of the rail sections, and the use of the clamp to prevent the lateral separation of the section, whereby the load-sustaining strength of the key is practically its shearing strain, as the web portions of the rail sections prevent lateral twisting or movement of the key under any conditions of strain.

Another object of the invention is the provision of an integral clamp initially serving to prevent lateral separation of the flange end of the rail sections, and also supporting the flanges of the sections throughout their width, the clamp being formed to prevent a twisting thereof in movement of the sections in contraction and expansion.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which—

Figure 1 is a perspective view of the improved rail complete. Fig. 2 is a perspective view of a portion of one of the sections. Fig. 3 is a sectional view transverse the completed rail. Fig. 4 is a horizontal section taken through the webs of the sections. Fig. 5 is a perspective view of the clamp. Fig. 6 is a transverse sectional view showing an-

other form of the key. Fig. 7 is a similar view, showing an additional form of the key.

Referring particularly to Figs. 1 to 5 of the accompanying drawings, wherein are shown the preferred details of construction, the improved rail is made up of duplicate and oppositely disposed sections 1 and 2, each including a tread portion 3, a web 4, and a flange 5, which parts are to be of any desired sectional formation, either conventional, as shown, or any other form.

The proximate face of the web portions of each section is formed with a key recess 5', which in the preferred type extends throughout the length of the web portion with its outer wall 6 in approximately parallel relation to the outer surface of the web, its lower wall 7 forming practically a right angle with the outer wall 6 and its upper wall 8 undercut, that is inclining downwardly and inwardly from the outer wall 6. By this construction when the sections are assembled there is provided between them an approximately rectangular recess having its side or vertical walls in parallel relation, its bottom wall at right angles to the side walls, and its upper wall of V-shape with the apex arranged centrally and longitudinally of said wall. In connection with the rail sections I utilize a key 9 having a sectional configuration conforming to that of the opening formed by the recesses in the respective sections. In the preferred form illustrated the key is an approximately rectangular strip having plane side and bottom surfaces and an upper surface formed with a V-shaped depression 10 to fit the upper wall of the opening. The key acts to bind the opposite sections of the rail together, it being noted that it coöperates equally with each section and that the undercut shoulder 8 of each section has under load-sustaining pressure a tendency to move toward the opposing section, thus causing the load to force the sections together in effect to practically provide an integral rail.

In Fig. 5 I have illustrated a clamp member designed to engage the base flanges of the rail sections to prevent their independent lateral movement when assembled. The clamp comprises a connecting section 11 designed to underlie the base flanges of the rail and clamping sections 12 and 13 designed to engage and bear upon the upper surface of the respective flanges. The connecting section 11 is preferably wedge-

shaped in plan, the clamp 12 projecting from the narrower end and the clamp 13 from the wider end. The respective clamp sections are in effect upturned lips from the connecting section, the angle of the respective surfaces of the clamp section and connecting section corresponding to the angular relation of the upper surface of the flange with the lower surface, so that the clamp sections accurately fit the flanges of the rail sections throughout the engaged portions.

In order to prevent a twisting or independent movement of the respective ends of the clamp under the movement of the rail sections in expansion and contraction, I prefer to form the clamp section 13 of materially greater length than the section 12, thereby preventing any possibility of twisting of the clamp when applied, without in any way interfering with the independent longitudinal movement of the rail sections.

In assembling the parts the rail sections are applied in position on the key, it being understood that if desired the vertical dimension of the key as compared to that of the opening between the sections may be such as to permit disconnection by a lateral swinging of the base flange into position after the application of the undercut shoulder 8 to the channel in the key. The joints between alined sections on one side of the key are of course to be arranged intermediate the joints between the alined sections on the opposing side of the key, and the joints between the ends of the key sections are intermediate opposing and adjacent joints of the rail section. It is, of course, to be understood that the key extends throughout the length of the rails and that by the arrangement described the joint between any two alined members always opposes a solid section of the remaining alined members. The clamp is applied by engaging the clamp section 13 with one base flange, and passing the clamp section 12 upwardly through the usual spike notch 14 in the opposing base flange, and moving the clamp longitudinally of the flanges to the desired position.

In Fig. 6 I have shown a slightly different form of key in which that portion between the ends is reduced in thickness, as at 15, so that a space is provided between the inner surfaces of the web portions of the section and the side walls of the key when the parts are in applied position. By this form of key a saving in material is provided for.

In Fig. 7 I have illustrated another form of key in which the bottom wall of each recess is inclined downwardly and inwardly, as at 16, the bottom wall of the key proper being V-shaped at 17 to fit the V-shaped bottom of the opening formed by the in-

clined wall 16. In this form when the rail sections are drawn into contact with the key a slight wedging action is secured, serving as an additional holding means for the parts.

In the rail constructed as described there are several material and important advantages to which special attention is directed. The rail sections are, of course, to be initially separated from the next section in alinement to provide for the necessary movement of the sections in expansion and contraction. As the respective sections of the present rail are not secured one to the other, nor secured within the clamp, they are permitted a free endwise movement under such contraction and expansion. Hence the disadvantages known as creeping, and incident to all rails of a jointed type in which the joints are secured is entirely obviated, and the danger of a spreading rail from such cause prevented. The important feature incident to the present construction is the avoidance of a weakening of the strength of the rail at the joints between the alined sections. Ordinarily the strength at this point would be simply that of the opposing solid section, or practically one-half the strength of the rail at any other point. The present construction, however, causes the end of any one section to utilize its full strength to reinforce the strength of the opposing section. This result is gained by the formation and arrangement of the key, as it will be obvious that the key being, of course, unbroken at the joint between any two sections presents at such joint a solid area to resist the load pressure upon the end of the section. As the section end is solidly supported and as the pressure thereon is borne in part by the solid adjacent rail section, owing to the fact that the key seats on a square shoulder in the bottom of such opposing solid section, it must necessarily follow that the full strength of the rail end is utilized to reinforce the strength of the opposing solid section. In other words the breaking strain at the end of any one rail section is resisted by the key and through the key by the opposing solid rail section. Hence the end of any one section is equally strong as the solid portion, and, therefore, the rail is weakened only in the space between the proximate ends of the alined section provided for contraction and expansion. The pressure is transmitted to the key and through the key equally to both rail sections, so that at every point throughout the length of the rail, the strength of the sections to resist a breaking strain is equal. Furthermore, the key is wholly inclosed, and any twisting or torsional displacement is resisted by the web portions of the rail sections. Therefore, the breaking strain of the key is its shearing strain.

The respective clamping sections of the clamp may be made of any length desired, and the hook sections thereof either of an integral length, as shown or in a plurality of spaced hooks, the sole requirement being that one of the clamping sections be of such size to permit its convenient passage through the spike notch in order to permit the application of the clamp.

While preferring the details of construction herein shown and described, it is to be understood that I do not limit myself thereto, but consider as within the spirit of the present invention all such changes and modifications as may fall within the scope of the appended claims.

I claim:

1. A rail made up of sections, each formed with a key recess having the upper wall inclined downwardly and outwardly, and a key adapted to be inclosed by and free of connection with the sections, said key being formed with a V-shaped recess to receive the upper walls of the key recesses in the section.

2. A sectional rail, a key inclosed by and free of connection with the sections, and a

clamp engaging the base flanges of the sections, said clamp including a clamping section arranged for free passage through one of the spike notches of the base flange.

3. A sectional rail, a key inclosed by and free of connection with the sections, and a clamp engaging the base flanges of the sections, said clamp including a clamping section arranged for free passage through one of the spike notches of the base flange, and an opposing clamp section of greater length than the first mentioned clamping section.

4. A rail including duplicate rail sections each formed with a key-receiving recess, and a key fitting in the combined recesses and free of connection with the sections, the upper walls of the recesses and the upper surface of the key being formed to cause a movement of the upper portions of the sections toward each other under a load strain.

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

HOWARD L. SAWDEY.

Witnesses:

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