P. J. THULL.

RAIL JOINT FOR PORTABLE TRACKS.

APPLICATION FILED DEC. 18, 1912.

1,072,273.

Patented Sept. 2, 1913.

2 SHEETS—SHEET 1.

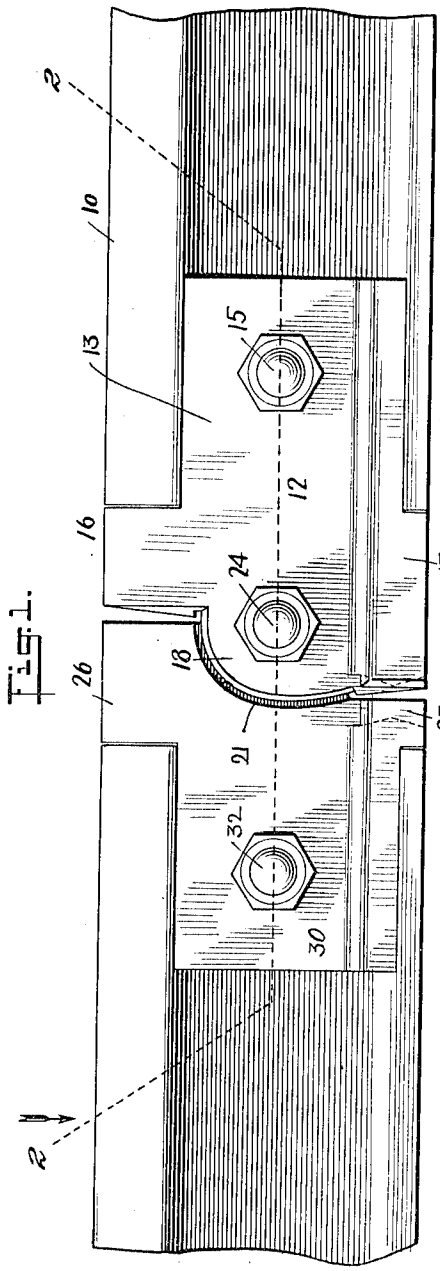


Fig. 1.

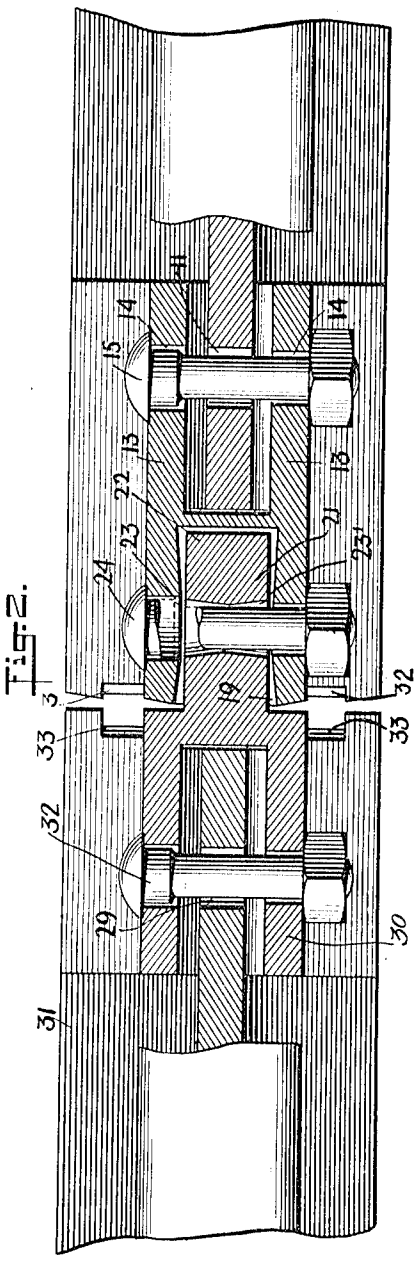


Fig. 2.

WITNESSES

B. Joffe

INVENTOR

PETER J. THULL

BY Munn & Co

ATTORNEYS

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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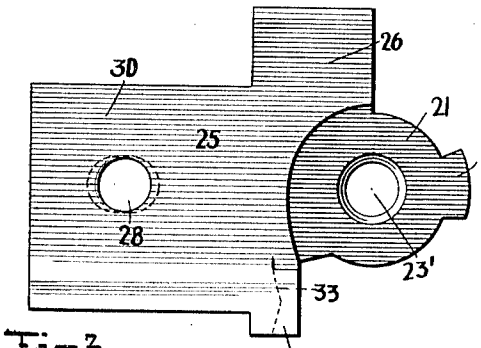


Fig. 3.

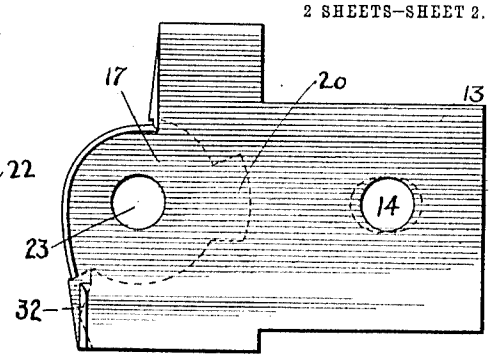


Fig. 5.

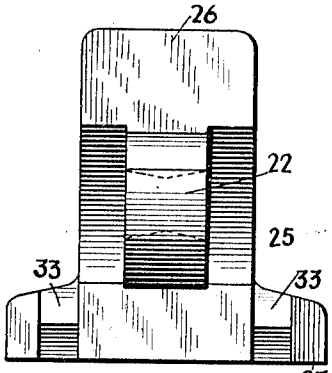


Fig. 4.

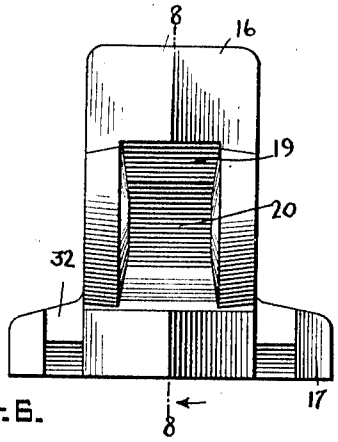


Fig. 6.

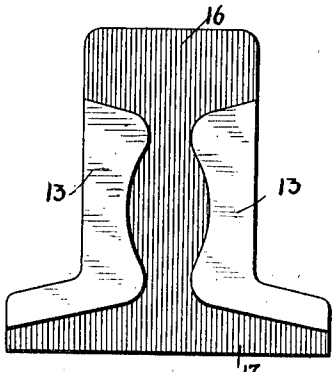


Fig. 7.

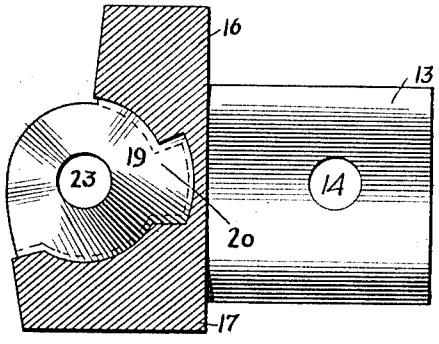


Fig. 8.

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UNITED STATES PATENT OFFICE.

PETER JOSEPH THULL, OF CULEBRA, CANAL ZONE.

RAIL-JOINT FOR PORTABLE TRACKS.

1,072,273. Specification of Letters Patent. Patented Sept. 2, 1913.

Application filed December 18, 1912. Serial No. 737,404.

To all whom it may concern:

Be it known that I, PETER J. THULL, a citizen of the United States, and a resident of Culebra, Canal Zone, Panama, have invented a new and Improved Rail-Joint for Portable Tracks, of which the following is a full, clear, and exact description.

Where mechanical shovels, excavators, cranes, or other similar machines, are used for construction purposes, tracks formed of short lengths are generally provided for the displacement of these machines as the work progresses, and in consequence the tracks are made movable and portable, as during the work side displacements are very necessary. In consequence of this the bed for the tracks is not permanent, and very often the track is placed directly on the dumping ground, which is formed of strata of different character, and consequently does not offer a uniform resistance to the pressure applied by a machine passing over the track. Due to the irregularity of the bed, very often the machine is derailed, as either there is not enough flexibility in the rails to conform with the contour of the ground, or the curvature of the rail is not sufficient for the side displacement required for the machine. To prevent these displacements, very often it is necessary to add a set of different shaped curved rails in both horizontal and vertical planes, and as the work progresses it is frequently necessary to change the rails, which is not only expensive, but requires time.

To obviate the above-outlined difficulties, I have invented a rail joint which will eliminate to a great extent the above disadvantages, and which can be easily used for both vertical and horizontal curvatures, and means associated with this joint whereby the horizontal displacement may be eliminated, while keeping the vertical displacement.

To carry out the above-outlined objects, I provide two articulating members each connected to the ends of the rail and having portions positioned between the extremities of said rails.

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

Figure 1 is a side elevation of an embodiment of my invention; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Figs. 3 and 4 are side and end elevations respectively of the male part of the joint; Figs. 5 and 6 are similar side and end elevations of the female part of the joint; Fig. 7 is the back end elevations of both joints; and Fig. 8 is a section on the line 8—8 of Fig. 6.

Referring to the drawings, 10 represents a rail, as generally used in connection with mechanical excavators and similar machinery, provided near the extremity with elongated apertures 11, and engaging the end of the rail with its side flanges or cheeks 13, is the female part 12 of the joint. The cheeks 13 are abutting against the top and bottom of the rail and provided with an aperture 14 registering with the aperture 11 of the rail 10, so that a bolt 15 binds the cheeks 13 of the female part of the joint to the end of the rail, forcing the upper and lower abutments of the cheeks against the head and bottom flange of the rail. A portion 16 of the female part is offset so as to conform with the head of the rail, abutting against the same and having the same width, and flush at its sides with the cheeks 13. A portion 17 is also offset in a direction opposite to the offset 16, made to conform with the bottom flange of the rail, abutting against it and having the same width, and made flush with the lowermost surface. At the ends opposite the cheeks 13 and substantially central with them, jaws 18 are provided, forming the female portion of the joint, with a recess 19 formed in the body of the female part, and complementing the jaws 18. An additional recess 20 is formed in the recess 19 in the direction toward the cheeks 13, the purpose of which will appear hereinafter. The jaws 18 have their end surfaces beveled, and also the end surfaces of the projections 16 and 17 are similarly beveled, for a purpose to be described hereinafter.

Engaging the female portion 12, by means of a tongue 21 substantially circular in shape, is the male part 25. The tongue fits loosely into the recess 19 of the member 12 and is provided with a projection 22 fitting into the recess 20 with sufficient play at top and bottom, as shown in dotted lines in Fig. 8.

Orifices 23 and 23′, substantially central with the jaws 18 and central member 21, are provided in both the male and female portions, and a bolt 24, binding these two portions, constitutes a center or pivot for the same. The male part 25 is also provided

with flanges 30, offset portions 26 and 27, similar to 16 and 17 respectively, abutting against the head and flange of the rail, and also with orifices 28 registering with orifices 29 in another rail 31, and the male part is similarly attached to the rail 31 by means of a bolt 32, as is the case with the female part above described.

The recess 19 formed in the female portion 12 is beveled, so as to converge toward the middle of the sides. The orifice 23′ is also beveled from the center toward the extremities, so that the male portion can be translated horizontally to right or left in the extent of the bevel provided in the recess 19, and as above described, the offsets 16 and 17 have their end surfaces beveled for the purpose of allowing this horizontal displacement. By means of this provision in the joint for the horizontal displacement, a curvature can be formed in the joint of a certain degree, and the track may have any zigzag shape desired, in the limits of the bevel provided in the joint, that is, in the recess 19 and orifice 23′. The vertical displacement, as can be easily seen, is obtained by the rotation of the joined parts about the center, which is the bolt 24, and this displacement is limited in the vertical direction, up and down, by the portion 22 of the male part engaging the recess 20, as above described. When only vertical displacement is desired, and the horizontal is to be prevented, notches 32 and 33 are provided at each side of the facing ends of the bottom of the male and female parts, these notches being beveled from the center upward and downward, as best shown in dotted lines in Figs. 3 and 5, and also by shading in Figs. 4 and 6, so that a spike may be inserted preventing side displacement, but allowing rotation about a pivot, as there are bevels provided where the spike engages the female and male portions.

It can be easily seen that with my device, any safe unevenness in the ground will be taken up by the vertical displacement of the joint, that is, by its pivotal connection. Similarly, no necessity will be required for a series of curves, as the safe curvature for a rail will be formed by the articulated joint in the horizontal plane, as above described.

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

1. In a rail joint, a pivotal connection formed between the juxtaposed ends of the rails, said ends having means whereby a predetermined displacement of said ends in a vertical and in a horizontal direction normal to the longitudinal axis of the rails can be made.

2. In a rail joint, a pair of articulated members each having means for securement to the end of a rail, said members having means whereby a predetermined maximum displacement in a vertical and in a horizontal direction normal to the longitudinal axis of the rail can be made, this displacement being followed by the rails attached to said members.

3. In a rail joint, a pair of articulated members having male and female portions engaging each other, and means associated with said male and female portions and connecting said articulating members, and constituting the axis of articulation, said means permitting both vertical and horizontal flexure at the articulation point of the joint.

4. In a rail joint, a pair of articulating members, means connecting said members and constituting a pivot for the same, said members having an upper and a lower offset corresponding to the shape of the head and flange of the rail respectively and abutting against and flush with the same, and means associated with said members for attaching the same to the end of the rail.

5. In a rail joint, a pair of articulating members, means connecting said articulating members and constituting the pivot for the same, said members having an upper and a lower offset abutting against the head and base of the rail respectively, one of said members having a tongue intermediate said offsets and centrally provided with an orifice converging from the sides toward the center and engaging said connecting means constituting the pivot, the second of said members having jaws intermediate said offsets and adapted to engage said tongue, said jaws being centrally provided with an orifice and adapted to engage said connecting means.

6. In a rail joint, a female and a male part, means for pivotally connecting the same, said male part comprising an upper and a lower offset corresponding to the shape of the head and flange of the rail respectively and abutting against the end of the same and flush with the side of the rail, a tongue intermediate said offsets projecting away from said offsets and central of the same, said tongue having a central orifice converging from the sides toward the center, and a projection on its lateral surface remote from said offsets, said female part comprising upper and lower offsets similar to the offsets of said male part and similarly abutting against the end of the rail, said female part having means intermediate said offsets adapted to engage centrally said tongue and said projection of said male part, and having an orifice registering with said orifice of the male part and receiving said means constituting the pivot, and said male and female parts having means for connecting them to the ends of the rail.

7. In a rail joint, a pair of articulating members each abutting against the end of a

rail and adapted to move in a vertical and in a horizontal plane, and means associated with said articulating members whereby the horizontal movement may be eliminated.

8. In a rail joint, a female and a male part, means for pivotally connecting the same, said male part comprising an upper and a lower offset corresponding to the shape of the head and flange of the rail respectively and abutting against the end of the same and flush with the side of the rail, a tongue intermediate said offsets projecting away from said offsets and central of the same, said tongue having a central orifice converging from the sides toward the center, and a projection on its lateral surface remote from said offsets, said female part comprising upper and lower offsets similar to the offsets of said male part and similarly abutting against the end of the rail, said female part having a recess intermediate said offsets adapted to engage said tongue and said projection on said tongue, and having an orifice registering with said orifice of the male part, and receiving said means constituting the pivot, said recess in said female part diverging from the center toward the extremities, thereby allowing translation of said male part in said recess in a horizontal plane, and said projection on said tongue displacing in a vertical plane in the corresponding recess, and said male and female parts having means for connecting them to the ends of the rail.

9. In a rail joint, a pivotal connection formed between the juxtaposed ends of the rails, said ends having means whereby the predetermined independent displacement of the said ends in a vertical or in a horizontal direction normal to the longitudinal axis of the rails can be made.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER JOSEPH THULL.

Witnesses:

DAVID W. LIGHT,

WILLIAM S. BELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."