Nov. 21, 1944. E. F. NORELIUS 2,363,015

TRACK BLOCK

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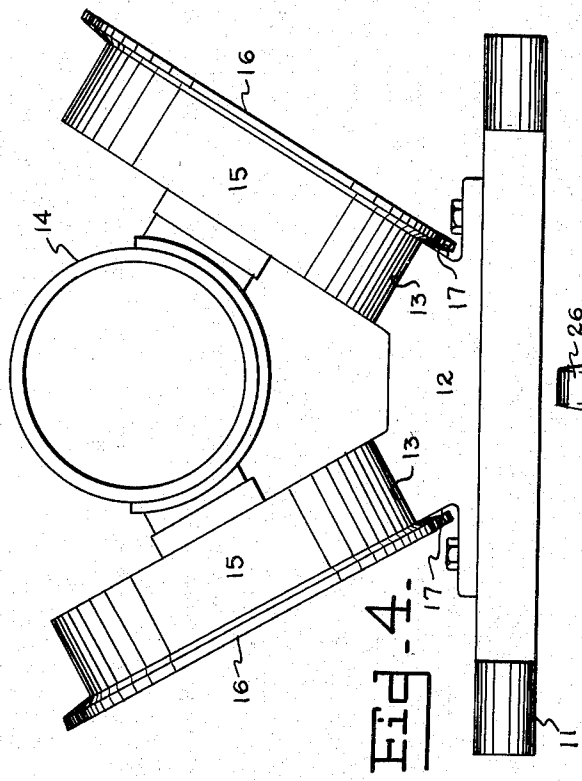


Fig. 4.

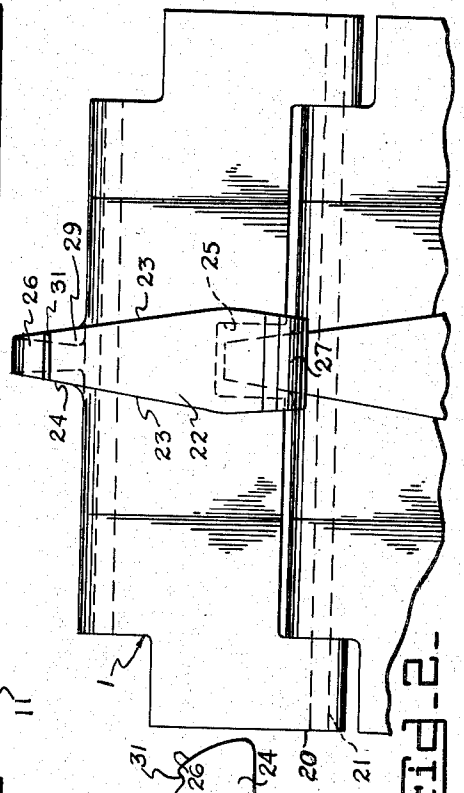


Fig. 2.

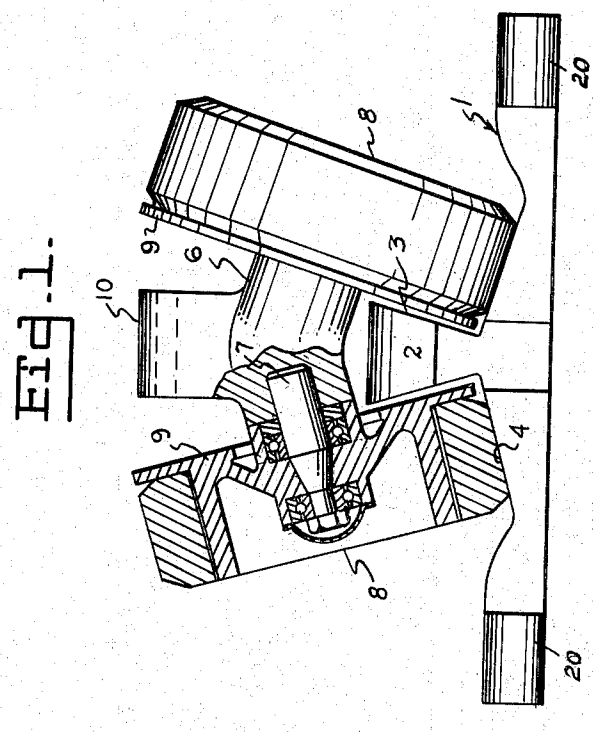


Fig. 1.

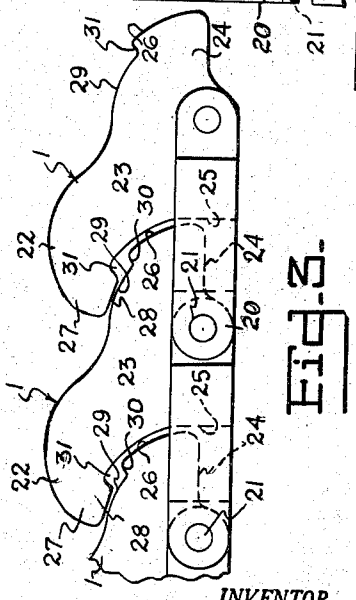


Fig. 3.

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TRACK BLOCK

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9 Claims. (Cl. 305—10)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention pertains to a novel track for track-laying vehicles and more particularly to the guide element thereof. As understood in the art, these elements guide the track with respect to the bogie wheels, the drive sprocket and the idler.

One of the problems in this art is to provide a track that cannot be thrown off the wheels and sprockets on striking prominent obstructions. An object of the invention is to provide such a track. This object is accomplished by means of a guide element mounted centrally of the track block and having lateral surfaces that converge towards the block. The guide runs between a pair of bogie wheels which also converge towards the block. The wheels, riding either on the guide or the blocks, have portions thereof adjacent to the converging surfaces of the guide, with the result that a withdrawal of the track from the wheels wedges the guide between the wheels and resists separation of the track.

Another object of the invention is to reduce the stress in the pin joints on outward bending of the track in passing over obstructions. Hitherto, this movement has been limited by abutting surfaces disposed close to the connecting pin of adjacent blocks. In the device herein described, the abutting surfaces for limiting this movement are provided at a substantial distance from the connecting pin. As a result, the stress set up in the pin on the outward bending movement is proportionally reduced.

An illustrative embodiment of the invention is disclosed in the following description and in the accompanying drawing in which:

Figure 1 is an end view of a block with bogie wheels thereon, partly in section;

Figure 2 is a plan view of a pair of blocks;

Figure 3 is a side elevation of a series of blocks, and

Figure 4 is an end view of a modified construction.

In Figure 2 is shown a portion of an endless track composed of a series of track blocks 1 articulated in a chain in any approved manner. Each block is formed with a center guide member 2 having lateral faces 3 that converge towards the block. At each side of the guide element, the inner surface of the block is sloped at 4 in a manner to converge with the outer surface 5 in the direction towards the nearer lateral edge of the block. The surfaces 4 are substantially at right angles to the adjacent surfaces 3.

The bogie includes a suitable frame member 6 in which are journaled a pair of axles 7 lying parallel, respectively, to the surfaces 4. Each axle carries a wheel 8 rolling on a surface 4. The inner side of each wheel may carry a flange or flat ring 9 lying adjacent and parallel to one of the surfaces 3 of the guide member 2. The frame 6 is preferably formed with a central boss 10 for attachment to the suspension mechanism.

It may now be seen that the positioning of the tapered guide member 2 between the sloped inner sides of the wheels 8 prevents the track from separating from the wheels. This is particularly true in operation on a side slope, where separation is more likely to occur. Also, the divergence of the wheels away from the track provides a wider space for the accommodation of a center arm type of mounting as represented by the boss 10.

A somewhat modified construction is shown in Figure 4. Each block 11 carries a center guide 12 formed with a pair of exposed surfaces which slope in opposite directions and divergently from the center of the guide towards the nearer end of the block. The bogie frame 14 carries a pair of wheels 15 that ride on the surfaces 13. The axes of the wheels are preferably, but not necessarily, parallel to the surfaces 13. The outer side of each wheel carries a flange 16 lying closely adjacent to the corresponding side 17 of the guide member. The sides 17 diverge away from the block 11 and are farther apart, where intersecting the surfaces 13, than the outer peripheries of the flanges 16, in the same plane perpendicular to the block. Consequently, the tendency of the wheels to separate from the guide member will be resisted by a wedging of the guide member between the flanges 16 in somewhat the same manner as in Figure 1.

As shown in Figure 2, each block 1 is formed at both ends with a pair of lugs 20 extending in a given direction lengthwise of the track beyond the body of the block for pivotal attachment to the adjacent block by suitable pivot pins 21. Each of the center guides 22 is formed with lateral faces 23 converging towards the block as previously described. Each guide is formed with a tail 24, beyond the pin, extending into a recess 25 in the adjacent guide. The wall of the recess is arcuate about the center of the pins 21 of the adjacent block. The tail 24 has an arcuate wall 26 about the same center.

Each guide 22 is formed with a nose 27 pro-

jecting over the adjacent tail 24 at the side thereof more remote from the body of the block. The end 28 of the nose is preferably arcuate and positioned to ride on an arcuate surface 29 of the adjacent guide, both surfaces having as their center the common center of the pin 21 of the same guide. In a straight portion of the track, the nose 27 is spaced from the adjacent wall 30 of the tail 24, as indicated by the numeral 31 in Figure 3.

As the track travels over its sprockets and idlers, it is curved in a manner to bring the guides 22 in a curved path within a similar path formed by the pins 21. In this movement of the track the spaces 31 become elongated. In moving over an obstruction the track bends in the opposite direction. It is desirable, however, to limit the degree of bending possible in this manner. Ordinarily the bending is limited by the abutting of adjacent blocks at surfaces in close proximity to the connecting pins 21. In the construction herein described, however, the limitation occurs through the closing of the spaces 31 and the abutment of the end walls 30 against the adjacent noses 27. The abutment occurs, therefore, at a comparatively large distance from the alined pins 21 about which two adjacent blocks are turned. The stress in the joints made by the pins 21 is reduced in proportion to distance of the abutting surfaces from the pins.

While a specific embodiment of the invention has been illustrated and described, it is intended that various alterations in the details of construction may be made without departing from the invention as indicated by the scope of the appended claims.

What I claim is:

1. In combination, a series of track blocks, a guide on each block and having a pair of lateral surfaces converging towards the block, a bogie frame, a pair of wheels journaled in said frame on axes diverging towards the engaged block, each wheel having a flat surface lying close to one of said lateral surfaces, said flat surfaces having a minimum spacing less than the maximum spacing of said lateral surfaces in a given plane.

2. In combination, a series of track blocks, a guide on each block and having a pair of lateral surfaces converging towards the block, a bogie frame, a pair of wheels journaled in said frame on axes diverging towards the engaged block, each wheel having a flat surface lying close to one of said lateral surfaces, said flat surfaces having a minimum spacing less than the maximum spacing of said lateral surfaces in a given plane, said blocks having surfaces engageable by the peripheries of said wheels.

3. In combination, a series of track blocks, a guide on each block and having a pair of lateral surfaces converging towards the block, a bogie frame, a pair of wheels journaled in said frame on axes diverging towards the engaged block, each wheel having a flat surface lying close to one of said lateral surfaces, said flat surfaces having a minimum spacing less than the maximum spacing of said lateral surfaces in a given plane, said guides having surfaces engageable by the peripheries of said wheels.

4. In combination, a series of track blocks, a guide on each block and having a pair of lateral surfaces converging towards the block, a bogie frame, a pair of wheels journaled in said frame on axes diverging towards the engaged block, each block having oppositely inclined surfaces at the sides of said guide and adapted for engagement by the peripheries of said wheels, each wheel having its inner flat surface lying close to one of said lateral surfaces, said flat surfaces having a minimum spacing less than the maximum spacing of said lateral surfaces in a given plane.

5. In combination, a series of track blocks, a guide on each block and having a pair of lateral surfaces converging towards the block, a bogie frame, a pair of wheels journaled in said frame on axes diverging towards the engaged block, each guide having oppositely inclined surfaces adapted for engagement by the peripheries of said wheels, each wheel having a flange lying close to one of said lateral surfaces, said flanges having a minimum spacing less than the maximum spacing of said lateral surfaces in a given plane.

6. In combination, a series of track blocks, pins pivotally connecting adjacent blocks, a guide on each block, each guide having a recess in one end thereof receiving a portion of the adjacent guide, said portion having an end wall, said recess having an end wall spaced from the first end wall in a direction inward of the track in a straight portion of the track, both walls being disposed at a substantial distance from the pins connecting the corresponding blocks, whereby said walls abut each other on inward bending of the track.

7. In combination, a series of track blocks, pins pivotally connecting adjacent blocks, a guide on each block, each guide having a recess in one end thereof receiving a portion of the adjacent guide, said portion having an end wall, said recess having an end wall spaced from the first end wall in a direction inward of the track in a straight portion of the track, both walls being disposed at a substantial distance from the pins connecting the corresponding blocks, whereby said walls abut each other on inward bending of the track, each guide having a curved surface adjacent to said portion thereof and concentric with its pin, the adjacent guide having a part adapted to ride on said surface on inward bending of the track.

8. In combination, a series of track blocks, pins pivotally connecting adjacent blocks, a guide on each block, each guide having a recess in one end thereof receiving a portion of the adjacent guide, said portion having an end wall, said recess having an end wall spaced from the first end wall in a direction inward of the track in a straight portion of the track, both walls being disposed at a substantial distance from the pins connecting the corresponding blocks, whereby said walls abut each other on inward bending of the track, said recess and portion having curved surfaces facing each other and concentric about the connecting pin.

9. In combination, a series of track blocks, pins pivotally connecting adjacent blocks, a guide on each block, each guide having a recess in one end thereof receiving a portion of the adjacent guide, said portion having an end wall, said recess having an end wall spaced from the first end wall in a direction inward of the track in a straight portion of the track, both walls being disposed at a substantial distance from the pins connecting the corresponding blocks, whereby said walls abut each other on inward bending of the track, said recess and portion having curved surfaces facing each other and concentric about the connecting pin, each guide having a curved surface adjacent to said portion thereof and concentric with its pin, the adjacent guide having a part adapted to ride on said surface on inward bending of the track.

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