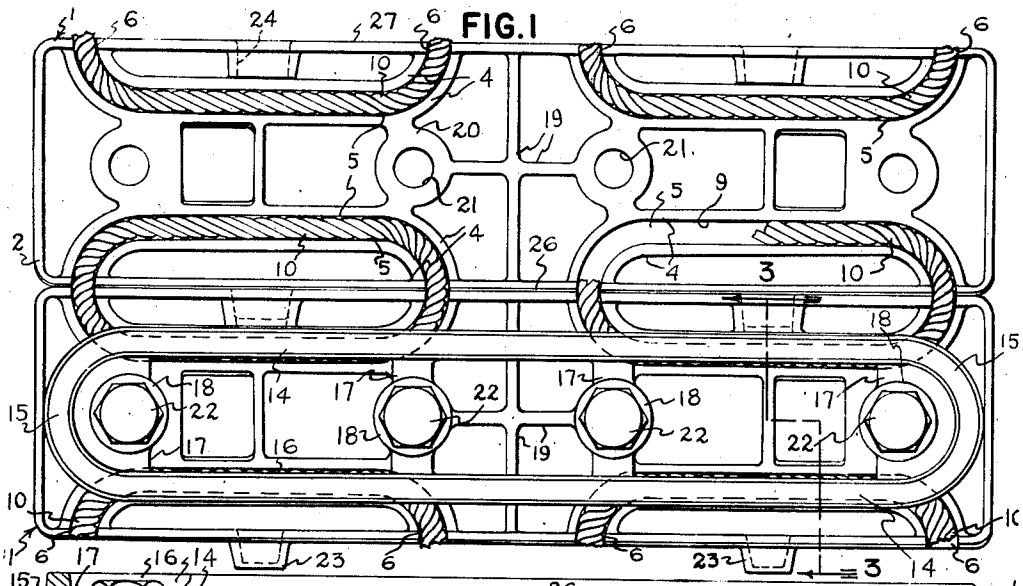
June 20, 1944. N. B. WALES 2,351,647

TRACK FOR TRACK-LAYING VEHICLES

Filed April 21, 1943

FIG. 1



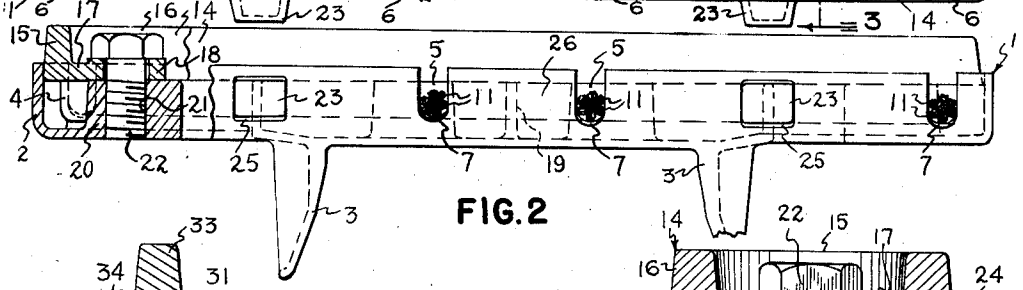


FIG. 2

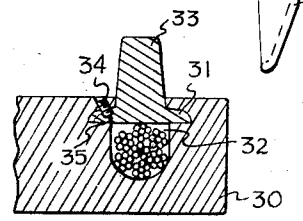


FIG. 4

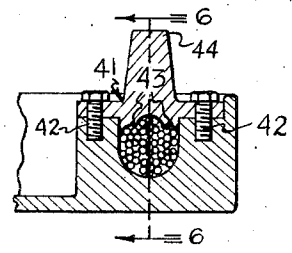


FIG. 5

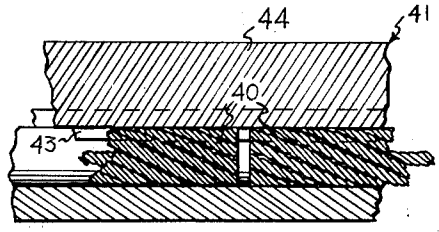


FIG. 6

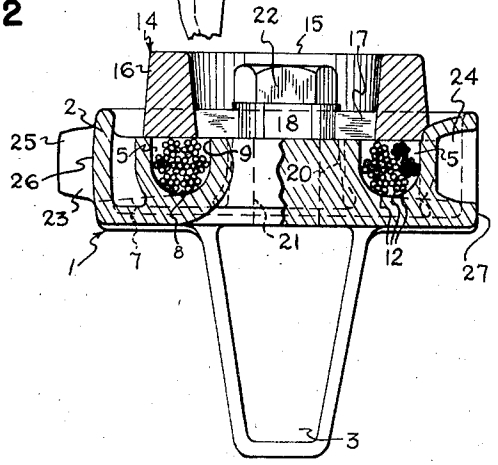


FIG. 3

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TRACK FOR TRACK-LAYING VEHICLES

Nathaniel B. Wales, Southampton, Long Island, N. Y.

Application April 21, 1943, Serial No. 483,839

12 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 such as combat tanks, heavy tractors, and the like. Such a track consists of a succession of blocks articulated one to another usually by means of hinge pins inclosed in rubber. One of the objects of the invention is to simplify the articulation means and eliminate the rubber. Another object is to provide a joint that does not require lubrication. Other features of the invention are low cost, ease of repair and replacement and all-metallic construction.

These objects are accomplished principally by the employment of loops of wire rope as the connecting and articulating means between successive blocks. The loops are laid flatwise in open grooves in adjoining blocks and each block is next fitted with a surface plate that covers the groove or grooves therein and also carries the grousers. Thus, a broken loop can be replaced after removing the grouser plate from the affected blocks. Similarly, a broken grouser requires only the replacement of the plate rather than of the entire block.

The invention is fully disclosed by way of example in the following description and in the accompanying drawing in which:

Figure 1 is a plan view, with one of the grouser plates removed;

Figure 2 is a side elevation partly in section;

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a detail section of a modification;

Figure 5 is a detail section of another modification, and

Figure 6 is a section on the line 6—6 of Figure 5.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

Each of the blocks is a substantially rectangular steel casting 1 formed with a peripheral wall or skirt 2. One or more driving guides 3 extend from one surface of the block for engagement with the sprocket wheels around which they are trained in the usual manner. This will be termed the outer surface.

Within the confines of the skirt 2 are formed suitably shaped intermediate walls 4 to provide grooves or recesses 5. The grooves are of semi-oval shape and have their ends opening into the skirt 2 at the longer sides thereof as indicated by the numeral 6. One or more such grooves are formed along each longitudinal edge of the block. The ends 6 are belled or flared at 7 for a purpose that will presently be described. In cross section each groove represents a semi-circular seat 8 with tangentially extended sides 9 as long as the radius of the seat. The centers of the several seats lie in the pitch plane of the corresponding blocks. The grooves open into the outer side of the blocks as shown in Figure 3.

In assembling the tracks, the grooves of successive blocks register with each other in end to end relation. In this position each pair of registering grooves receives a closed loop 10 of wire rope. The rope consists of a suitable number of helical strands 11, each of which in turn consists of a number of helical wires 12.

When the grooves in a block are loaded, the block is covered on its outer surface by the plate frame as shown in Figure 1. This member comprises two flat longitudinal sides 14 joined by end members 15 which may be arcuate.

The sides are dimensioned and positioned to cover the major portion of the grooves, leaving the ends exposed to permit slight flexing of the loops. The member has an outwardly extending flange or skirt 16 around its periphery, which functions as the grouser. The plate is webbed transversely at suitable intervals, as indicated by the numeral 17 to carry rings 18 providing bolt holes for a purpose that will presently appear.

Similarly, the block 1 is webbed transversely at 19 to carry rings 20 positioned to register with the rings 18 of the superimposed plate. The rings 20 are tapped at 21, and the parts are secured together by bolts 22.

One edge of each block is formed with lugs 23 and with complementary recesses 24 in the opposite edge. Thus the lugs of any block are adapted to be received in the recesses of the next block. The outer ends of the lugs and the adjacent edge of the block are finished convex as indicated by the numerals 25 and 26 respectively in order to provide rolling contact against the adjacent flat face 27 of the next block. The lugs 23 when seated in the recesses 24 prevent relative lateral movement of adjacent blocks.

In the modification shown in Figures 3 and 4, the block 30 is formed with a mortise 31 over each groove 32, and a properly shaped key 33 is fitted in the mortise. The key projects beyond the surface of the block and thus serves as a grouser. In order to prevent shifting, the key

may be fastened by means of a bolt 34 passed through a portion of the block and into a recess 35 cut in the base of the key.

In the modification shown in Figures 5 and 6, the connecting loop is in two separate sections 40, each bridging the space between the blocks. The grouser plate 41 is secured to the block by bolts 42 disposed within and immediately outside the loop. The inner surface of the grouser plate is formed with relatively short concave ribs 43 which fit on the loop and clamp it in position when the bolts are tightened. The exposed or ground-engaging portion of the grouser plate is reduced to form a relatively thin and sharp traction rib 44.

In passing around the sprocket wheels, the unitary loop is capable of flexing about 3 degrees without undue stress. By reason of the flared ends of the semi-oval grooves, this limit is not exceeded. Lubrication of the joints is therefore not required.

As previously indicated, the handling of the tracks and replacement of broken parts are accomplished easily and economically by reason of the unique construction herein described.

Although specific embodiments of the invention have been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:

1. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its outer surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, and a surface member secured to each block to cover the grooves and retain the loop members therein.

2. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its outer surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, a surface member secured to each block to cover the groove therein, and a grouser formed on the outer surface of said covering member.

3. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its outer surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a continuous loop member received in the registering grooves of said blocks, and a surface member secured to each block to cover the grooves and retain the loop members therein.

4. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove extending transversely of the track and with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, and a member secured to each block to cover the grooves and retain the loop members therein.

5. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove extending transversely of the track and with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a continuous loop member received in the registering grooves of said blocks, and a member secured to each block to cover the grooves therein.

6. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, said grooves being flared at said ends, and a member secured to each block to cover the grooves therein.

7. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, a projection from the abutting edge of one of said blocks, the abutting edge of the next block having a recess receiving said projection, and a member secured to each block to cover the grooves therein.

8. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, and a member secured to each block to cover the grooves therein and a substantial portion of said surface.

9. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, a member secured to each block to cover the groove therein, and loop-binding elements on the inner surface of said covering member.

10. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, a relatively narrow member secured to each block to cover the groove therein, and loop-binding elements on the inner surface of said covering member.

11. In a track for a track-laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, a relatively narrow member secured to each block to cover the groove therein, a rib formed on the outer surface of said covering member and constituting a grouser, and loop-binding elements on the inner surface of said covering member.

12. In a track for a track laying vehicle, a pair of substantially abutting blocks, each block having in one of its surfaces a groove with its ends disposed in the abutting edge of the block, the ends of the grooves in said blocks being in register, a loop member received in the registering grooves of said blocks, the abutting edge of one of said blocks being convex, and a member secured to each block to cover the groove therein.

NATHANIEL B. WALES.