REINFORCEMENT MEANS FOR A TRACK PLATE OF A TRACK LAYING VEHICLE

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Application September 27, 1955, Serial No. 536,953

Claims priority, application Sweden October 1, 1954

10 Claims. (Cl. 305—10)

The present invention relates to improvements in the design of the tracks of track-laying vehicles such as tractors for pulling earth moving equipment and agricultural implements, weapon carriers etc., and more particularly to the hingedly connected track plates which form the running surface of such tracks.

The track plates as herein referred to, are plates from the working face of which a lug also known as grouser protrudes. The grouser extends across the width of the plate transversely to the running direction of the vehicle.

Grousers as heretofore known, are of uniform height and thickness. Experience shows that the wear and tear experienced by the grousers are considerably greater near the edges than at the middle portion. Due to such irregular wear, the track plates must be replaced at a time when the middle portion of the grouser, or in other words the major part of the grouser is still high and thick enough to render further service.

Accordingly, one of the objects of the present invention is to provide novel and improved reinforcement means which greatly extend the useful life of the track plates.

Another object of the invention is to provide novel and improved reinforcement means which compensate for the irregular wear experienced by the grouser during use.

Still another object of the invention is to provide novel and improved reinforcement means attachable to a worn grouser for restoring the full usefulness thereof.

A further object of the invention is to provide novel and improved reinforcement means attachable to a worn grouser to reinforce the end portions thereof which are particularly subject to wear, beyond their original height and/or width whereby the grouser remains of substantially uniform height during the entire period of service of the reinforcement means.

A still further object of the invention is to provide novel and improved reinforcement means having a contour which permits a convenient and secure attachment of the reinforcement means to the grouser and which snugly fits the contour of a worn grouser.

Other and further objects, features and advantages of the invention will be pointed out hereinafter and set forth in the appended claims forming part of the application.

In the accompanying drawing, a preferred embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawing:

Fig. 1 is a plan view of a conventional track plate.
Fig. 2 is a section taken on line 2—2 of Fig. 1.
Fig. 3 is an elevational side view of a reinforcement shoe according to the invention for a worn grouser.
Fig. 4 is a cross-section of the reinforcement shoe and the track plate.
Fig. 5 is an isometric view of two reinforcement shoes and a track plate, and
Fig. 6 is a fragmentary phantom view of a tractor having the grousers which are reinforced with shoes according to the invention.

Referring first to Figs. 1 and 2, the track plate comprises a base 1 suitably mounted on the track proper and a grouser 2 protruding from the base. The dashed line 3 of Fig. 2 shows the wear which the grouser normally experiences after a period of use. As is apparent, the major middle portion of the grouser has still substantially its initial height and is in any event, of uniform height whereas the two end portions are worn down to or nearly to the base plate. When the grouser reaches the condition indicated by line 3, the track plate must be replaced even though the major portion of the grouser is still in serviceable condition.

According to the invention, two shoes are provided which fit upon a grouser worn as indicated in Fig. 2 and compensate for the wear thereby considerably extending the useful life of the track plates.

As shown in Figs. 3, 4 and 5, each shoe comprises an elongated solid member 4 the base of which has a contour fitting one half of a grouser 2 worn as indicated by line 3. However, it is generally preferable to dimension the shoe so that its end part experiencing the maximum wear is enlarged as to height and width as is shown at 5 and 6 respectively. Such an enlargement affords the advantage of considerably prolonging the useful life of the reinforcement shoe.

The shoes are fastened to the worn grouser by any suitable means, generally by a welding operation. To facilitate the welding operation, the shoes may be tapered or chamfered at 7 and the grooves thus formed between the shoes and the grouser are filled by welding as is shown in Fig. 4. After the shoes are secured to the grouser, the inner ends of the shoes are also welded or otherwise secured together.

While two complementary shoes are shown, the invention obviously encompasses the provision of a single shoe fitting the entire grouser. However, it is generally preferable to provide two shoes. This has the advantage that the two shoes can be cut to size by cutting off a part at the inner end of each shoe if necessary. In actual practice, track plates or at least grousers of different width are used so that an adaptation of the shoes is sometimes necessary.

The configuration of the shoes lends itself to manufacture of the shoes by drop-forging. Suitable material for the shoes is an appropriate steel for instance, a low-alloyed manganese steel. If desired, the shoes may be hardened and tempered by a suitable heat treatment known for the purpose. The wearing surfaces may be specially hardened by treatments also conventionally known for the purpose.

While the invention has been described in detail with respect to a certain now preferred example and embodiment of the invention it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, to cover all such changes and modifications in the appended claims.

What is claimed is new and desired to be secured by Letters Patent, is:

1. A reinforcement shoe portion for reinforcing a worn portion of the grouser of a track plate as used for track laying vehicles, said shoe portion being in form of an elongated solid member having a longitudinal bottom concave contour substantially fitting the contour of the upper surface of a convex worn grouser portion reduced in width and height towards its outer end, the upper contour of said shoe being concave and defining a surface of maximum width and height at the outer end portion of the member.
2. A reinforcement means for reinforcing a worn grouser of track plates as used for track laying vehicles, said reinforcement means comprising two solid shoes each having a longitudinal bottom contour substantially fitting the contour of the upper side of an end part of a worn grouser reduced in width and height relative to the middle portion, the upper side of each shoe being concave and enlarged to maximum width and height at one end portion, the enlarged end portion of each shoe being flittable upon the respective end part of a worn grouser, and said shoes complementing each other to extend over the entire upper side of a grouser.

3. A reinforcement means according to claim 2, wherein said shoes are of similar shape and length.

4. A reinforcement means according to claim 2, wherein the length of each shoe is substantially one half the length of a grouser.

5. A track plate having a grouser protruding therefrom for a track of a track laying vehicle in combination with two solid reinforcement shoes having lower concave surfaces welded to the grouser of the track plate, each of said shoes fitting about one half of the grouser, the upper side of each shoe being concave and having outer end part of maximum width and height relative to the width and height of the inner end of the shoe.

6. A track plate according to claim 5, wherein the lower part of each shoe is tapered in longitudinal direction to form in conjunction with the upper part of the grouser longitudinal grooves on both sides of the grouser, said grooves being filled with welding material.

7. A device for reinforcing the grouser of a vehicle track plate reduced at both outer ends of its running surface in width and height relative to its middle portion by wear experienced during use, said device comprising a solid and rigid reinforcement means having an upper and lower side and a length corresponding substantially to the length of the grouser, said lower concave side having a contour substantially matching the worn running surface of the grouser, the upper and lower sides of the reinforcement means being concave and enlarged toward both outer ends in width and height relative to the middle portion.

8. A device for reinforcing the grouser of a vehicle track plate reduced at both outer ends of its running surface in width and height relative to its middle portion by the non-uniform wear normally experienced during use, said device comprising a solid rigid reinforcement means having outer ends spaced apart a distance corresponding substantially to the length of the grouser to be reinforced, said reinforcement means having a lower side with a concave surface contour of arcuate configuration corresponding to the contour of the worn grouser and an upper side with an oppositely facing concave surface contour whereby the height of said reinforcement means is greater at said outer ends than at an intermediate portion thereof, and the width of said upper side of said reinforcing means being greater at said outer ends than the width at said intermediate position whereby the reinforcement means reinforce the outer ends of the grouser as to height and width.

9. A device as set forth in claim 8, wherein the oppositely facing contour of said upper side is substantially identical to the contour of said lower side.

10. A device as set forth in claim 9, wherein the opposite ends of said reinforcement means are inclined upwardly and inwardly from said lower side toward said upper side.

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