Feb. 26, 1924. 1,485,046

M. B. MORGAN

TRACK BELT AND UNIT THEREFOR

Original Filed March 22, 1920 2 Sheets-Sheet 1

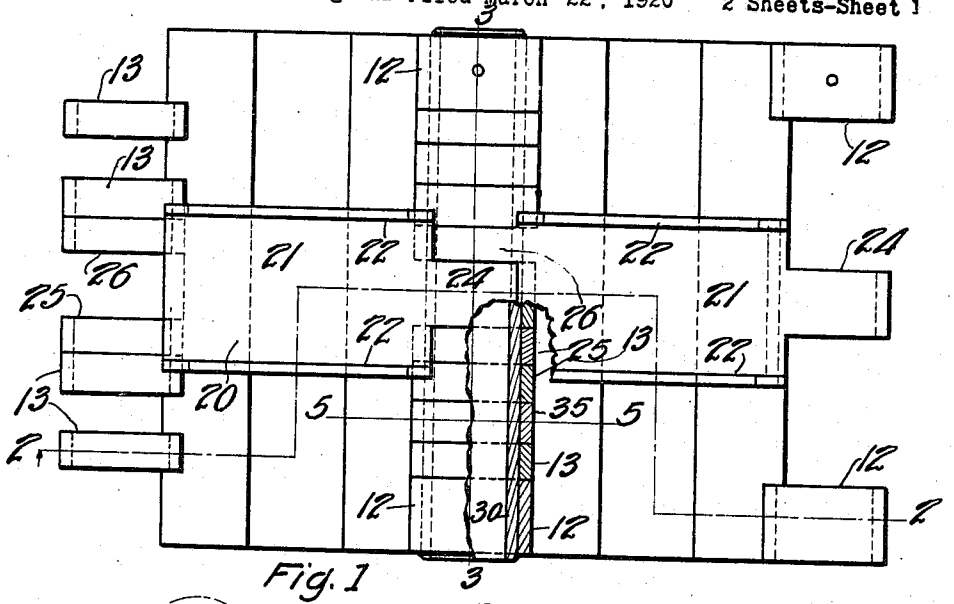


Fig. 1

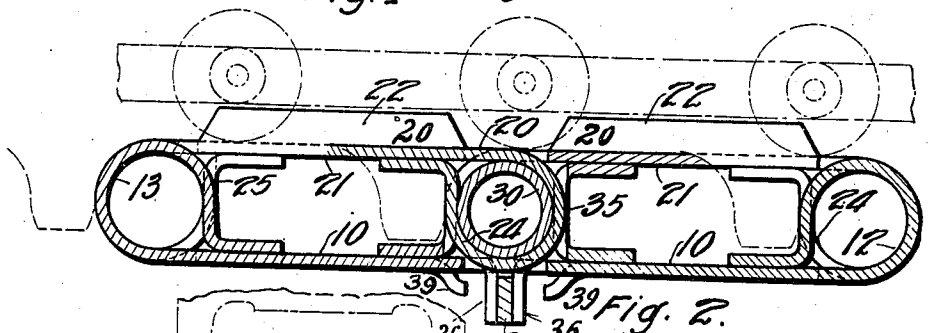


Fig. 2.

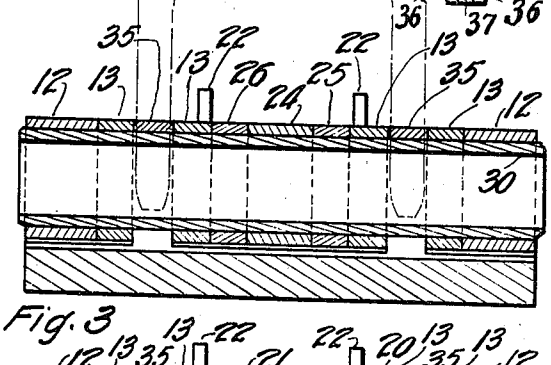


Fig. 3

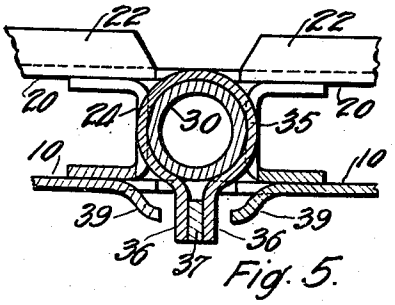


Fig. 5.

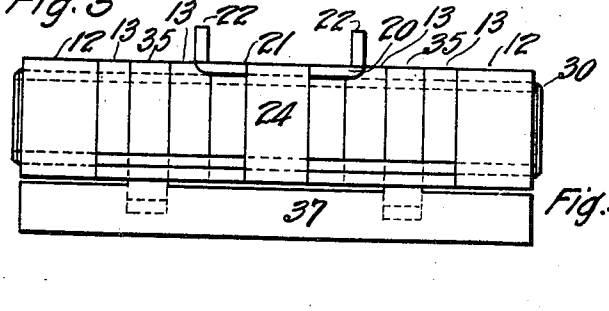


Fig. 4.

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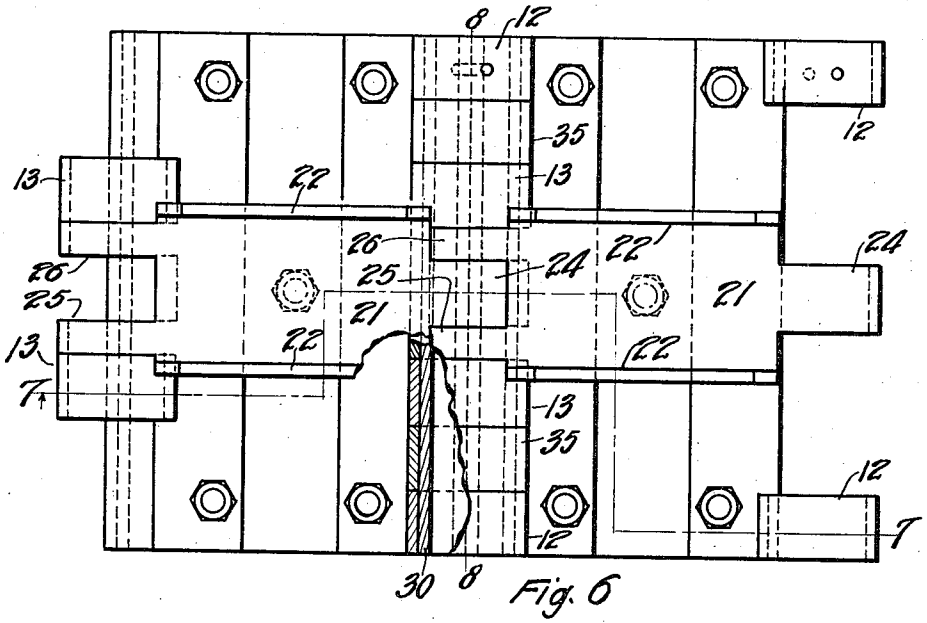


Fig. 6

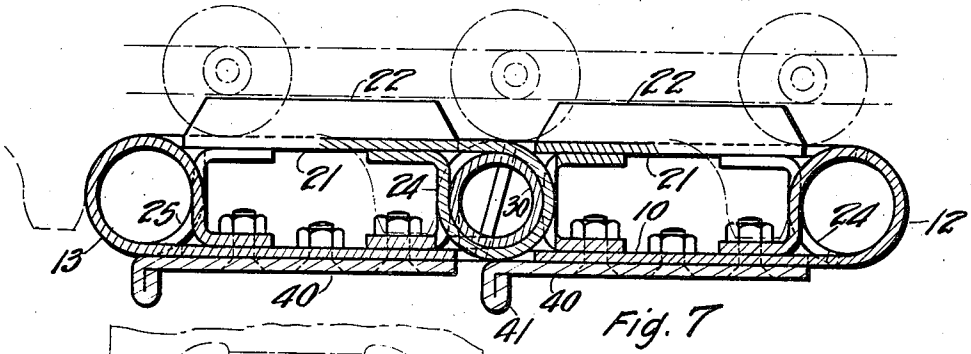


Fig. 7

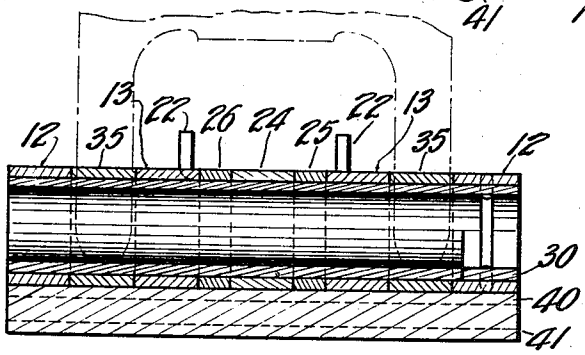


Fig. 8

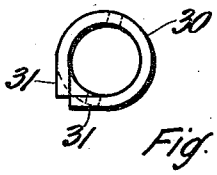


Fig. 9

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UNITED STATES PATENT OFFICE.

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TRACK BELT AND UNIT THEREFOR.

Application filed March 22, 1920, Serial No. 367,716. Renewed February 20, 1922. Serial No. 538,094.

To all whom it may concern:

Be it known that I, MATHEW B. MORGAN, a citizen of the United States, residing at Cleveland Heights, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Track Belts and Units Therefor, of which the following is a full, clear, and exact description.

The object of this invention is to provide a cheap but effective track belt for track laying tractors made up of a plurality of similar pressed steel units; and the invention consists in the combination of parts constituting each unit, and in the combination of a plurality of units with means by which they are pivotally connected to form a track belt.

In the drawing, Fig. 1 is a plan view of two pivoted together track belt units; Fig. 2 is a sectional side elevation in the plane of crooked line 2—2 on Fig. 1; Fig. 3 is a sectional end view in the plane of line 3—3 on Fig. 1; Fig. 4 is a front end view of one of said units; Fig. 5 is a vertical section in the plane of line 5—5 on Fig. 1; Fig. 6 is a plan view of two pivoted together links and associated parts, showing a modified construction; Fig. 7 is a sectional side elevation in the plane of line 7—7 on Fig. 6; Fig. 8 is a sectional view in the plane of line 8—8 on Fig. 6; and Fig. 9 is an end view of one end of the pin by which two links are pivoted together.

Each unit is composed of two pressed metal parts viz, a bottom member 10, and a rail member 20, which are preferably connected together in proper relation to each other by means of the same pin 30 which is used to pivotally connect two of said units together. The bottom member at its front end is formed with two integral cylindrical sleeves 12 having transversely aligned axes, which sleeves are located respectively at the side edges of said bottom member. These sleeves extend upward from the bottom plate, being formed by bending integral tongues upward and rearward and downward, bringing the ends of said tongues into contact with the bottom plate to which said ends are secured by welding or other suitable means. At the rear end of the bottom member are a plurality of other integral cylindrical sleeves 13 which are axially aligned transversely, and which are formed by bending certain rearwardly projecting integral tongues upward, forward and downward into substantially cylindrical form,—bringing the ends of said tongues into contact with the bottom plate and securing them to it by welding or other suitable means or methods. These sleeves, like those at the front end, extend upward from the bottom plate. This bottom member is or may be as wide as it is desired to have the ground engaging shoe of the unit, and may serve as the shoe, as shown in Figs. 1 to 4; or an independently constructed shoe 40 may be secured against the under side of the bottom member 10, as shown in Fig. 7.

The top member serves as the track for the weight supporting wheels (shown in dotted lines Fig. 2) mounted on a tractor. It has a longitudinally extended rail plate 21 which is narrower than the bottom plate; and it has its side ends upturned to form flanges 22 which serve to strengthen the rail plate 21 and also to guide the track wheels of the tractor which are supported by said rail plate and roll upon it when the tractor is equipped with a track belt made as herein described.

At the front end of the rail plate there is a forwardly projecting integral cylindrical sleeve 24 formed by bending downward and rearward and upward an integral tongue, and connecting the end of that tongue with the under face of the rail plate by welding or other suitable means or methods. At the rear end of the rail plate there are two sleeves 25, 26, which are axially aligned transversely, and are formed by bending two integral tongues downward and rearward and upward until their ends are in contact with the under face of the plate 21, and said ends are secured to said plate by welding or other suitable means or methods. These sleeves at both ends of the rail member extend downward therefrom.

The various sleeves are so disposed transversely that the sleeves at the front ends of the two members may be arranged side by side and in axial alignment with each other; while at the same time the sleeves on the two members at the other ends thereof may be side by side and in axial alignment.

When the sleeves at the front and rear ends of these two members are aligned as stated, the two members are secured together by pins 30 which are passed through the

aligned sleeves. These pins are, preferably, the same pins by means of which two links or units are pivoted together.

It is to be noted that when the two members 10 and 20 are arranged as stated, the sleeves at one end of the resulting link are longitudinally aligned with spaces between sleeves at the other end of said link. This relative arrangement of the sleeves and spaced at opposite ends of the link is of importance because thereby it is possible to cause the sleeves at one end of one link to overlap and go into the spaces between sleeves at the adjacent end of the other link.

In practice the two parts 10 and 20 of a link are arranged as stated, with the sleeves at their respective ends in axial alignment; and then another link with its parts similarly arranged is placed in proper relation with the first named link. That is to say, the aligned sleeves on one link are caused to overlap and go into the spaces between sleeves on the adjacent end of the next link. When all of the sleeves on the adjacent ends of the two links are so overlapped and aligned the pin 30 is passed through these sleeves, thereby pivoting two links together as well as connecting the parts 10 and 20 of both links at the ends thereof which are pivoted together. At one end of the pin 30 there are short tongues 31 pressed out (see Fig. 9) into positions substantially at right angles. When the pin is in place, passing through the various sleeves as stated, those tongues 31, by engaging the one with the bottom member 10 and the other with the downwardly extending part of the adjacent sleeve 12 will be prevented from turning in the sleeves on the bottom member.

By referring particularly to Fig. 1, it will be observed that there is a space between the two sleeves 13 at each side of the center line of a link, for which there is no corresponding sleeve at the opposite end of the link. The purpose of these spaces is to receive the rollers 35 which are rotatably mounted upon the pins 30.

It is proposed to use with a track belt formed as shown and described a double sprocket, that is to say, a sprocket having two circumferential rows of sprocket teeth, (as shown by dotted lines on Fig. 3) and these are so placed with respect to each other that the one row of sprocket teeth will engage one of the rollers 35, while the other row of sprocket teeth will engage the other roller 35.

These rollers may be cylindrical and they are shown as such in the embodiment of the invention disclosed in Figs. 6, 7, 8, wherein a shoe 40 having a grouser 41 is secured to the member 10. The construction shown in these figures is substantially like the construction shown in the preceding figures, except in that the bottom member 10 of each link has secured to its lower face a wear plate or shoe 40, the front end of which is turned down to form a ground engaging grouser 41.

It is generally necessary that a track belt on a track-laying tractor be provided with grouser ribs. In the construction shown in Figs. 1 to 5, these grouser ribs are carried by the so-called rollers and project down between the bottoms of two adjacent bottom members 10.

In the specific construction as shown clearly in Figs. 4 and 5, the so-called rollers are formed from a rectangular blank having two parallel end members 36 which are connected by straps, which when this blank is bent, are bent into substantially cylindrical shape to form rollers 35. The two end members are bent outward from the rollers so that their flat sides are parallel and close together. Then the narrow strip 37 is preferably placed between the parts 36, and all three are secured together by welding or otherwise, to form the grouser ribs. When the rollers are put into the spaces between sleeves on the two links and around the pins 30 those ribs project down between and below the two bottom members of adjacent links. When a completed track belt is in use the rollers will have only a limited rocking movement upon the pin, said movement being limited by the engagement of their downwardly projecting transverse grouser ribs, with down pressed tongues 39 which are integral with the two members 10 of the two links.

Again referring to the construction shown in Figs. 6, 7, 8, attention is called to the fact that at the rear end of the bottom link member 10 there are only two sleeves instead of four, as are shown in Figs. 1, 3 and 4, for example.

As a matter of fact, it is of no great consequence with respect to the present invention whether there be more or fewer sleeves than specifically shown at either end of either of the link members 10 and 12. The relative arrangement of sleeves as described is essential, but such arrangement substantially is possible regardless of the number of sleeves.

Having described my invention, I claim:—

1. A track belt unit comprising a bottom member having at both its ends upwardly extending integral transversely aligned sleeves, and a rail member having at its opposite ends integral transverse sleeves which extend downward to positions such that the sleeves at the ends thereof may be transversely aligned with sleeves at the corresponding ends of the bottom member,—the sleeves at both ends of said unit being ar-

ranged in longitudinal alignment with openings between sleeves at the other end of said unit, and a pivot pin at each end of the unit extending through the transversely aligned sleeves.

2. A track belt unit comprising a bottom member having at both its ends upwardly extended integral transversely aligned sleeves, and a rail member having at its opposite ends integral transverse sleeves which extend downward to positions such that the sleeves at the ends thereof may be transversely aligned with sleeves at the corresponding ends of the bottom member, the sleeves at both ends of said unit being arranged in longitudinal alignment with openings between sleeves at the other end of said unit, and a pivot pin at each end of the unit extending through the transversely aligned sleeves, the rail member being narrower than the bottom member and having upturned longitudinal flanges at its sides.

3. A track belt unit comprising a bottom member having at both its ends upwardly extended integral transversely aligned sleeves, and a rail member having at its opposite ends integral transverse sleeves which extend downward to positions such that the sleeves at the ends thereof may be transversely aligned with sleeves at the corresponding ends of the bottom member the sleeves at both ends of said unit being arranged in longitudinal alignment with openings between sleeves at the other end of said unit, and a pivot pin at each end of the unit extending through the transversely aligned sleeves, and rollers which embrace the pivot pins between aligned sleeves through which the pins pass.

4. In a track belt, the combination of two units, each comprising a bottom member having at both its ends transversely aligned upwardly extended sleeves, and a rail member having at its ends downwardly extended sleeves which are in transverse axial alignments with sleeves on corresponding ends of the bottom member,—the aligned sleeves at the front end of one unit being in longitudinal alignment with spaces between sleeves at the adjacent end of the other unit, and being disposed in said spaces and in axial alignment with the sleeves on said other unit, a pivot pin which extends transversely through the axially aligned sleeves on the two units.

5. A pressed steel track belt unit comprising a bottom member having at its ends tongues which are bent upward and around into substantially cylindrical form and down against the upper surface of said bottom member to which they are rigidly secured, and a rail member having at its ends tongues which are bent downward and around into cylindrical form and up against the under face of said rail member to which they are rigidly attached, the resulting sleeves at the ends of the rail member being arranged in axial alignment with the sleeves at the corresponding ends of the bottom member, and a pin passing through the aligned sleeves at each end of said unit.

6. In a track belt, the combination of two pivoted together units, a transverse pivot pin whereby they are pivoted together, two longitudinally split rollers which loosely embrace said pivot pin each roller having two integral flanges which are bent down from the meeting edges thereof, and a grouser strip which extends between the flanges of both rollers and is secured to them thereby connecting the rollers and holding them against distortion and forming with the flanges a reinforced grouser rib.

In testimony whereof, I hereunto affix my signature.

MATHEW B. MORGAN.