Aug. 23, 1932. C RORABECK 1,872,819

TRACTOR LINK

Filed Feb. 16, 1929 2 Sheets-Sheet 1

Fig. 1.

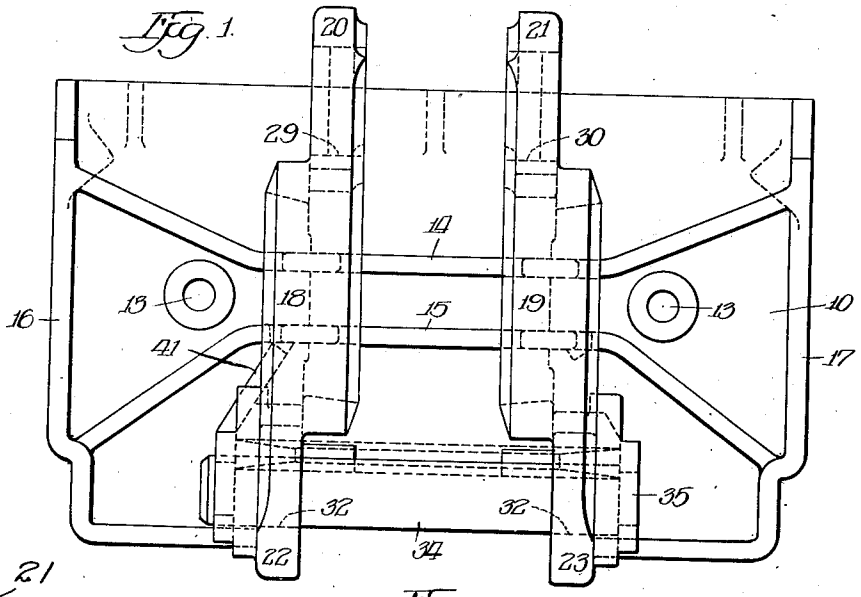


Fig. 4.

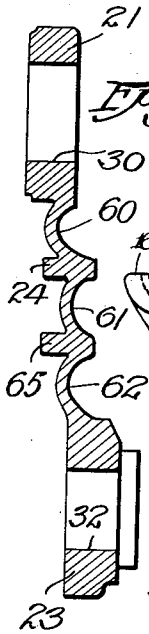


Fig. 2.

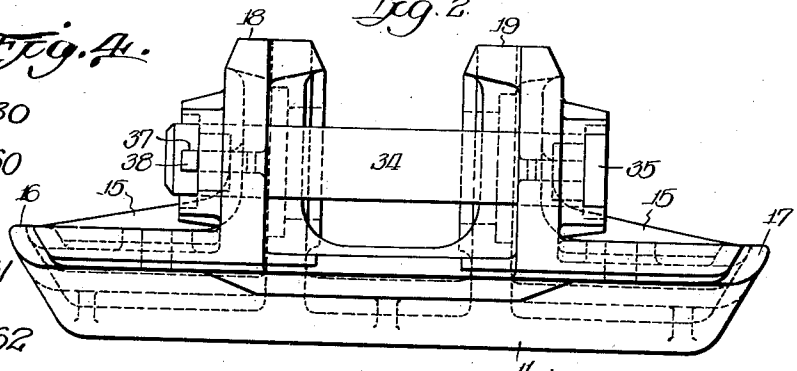
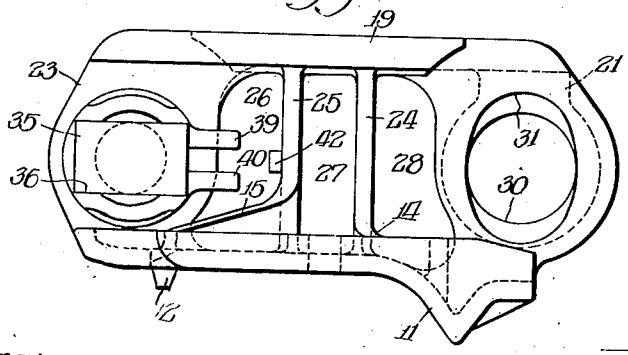


Fig. 3



Witness:
E. C. Davison

Inventor:
Claude Rorabeck,
By Wilkinson, Huxley, Byron & Knight,
Attys.

Aug. 23, 1932. C. RORABECK 1,872,819

TRACTOR LINK

Filed Feb. 16, 1929 2 Sheets-Sheet 2

Fig. 5.

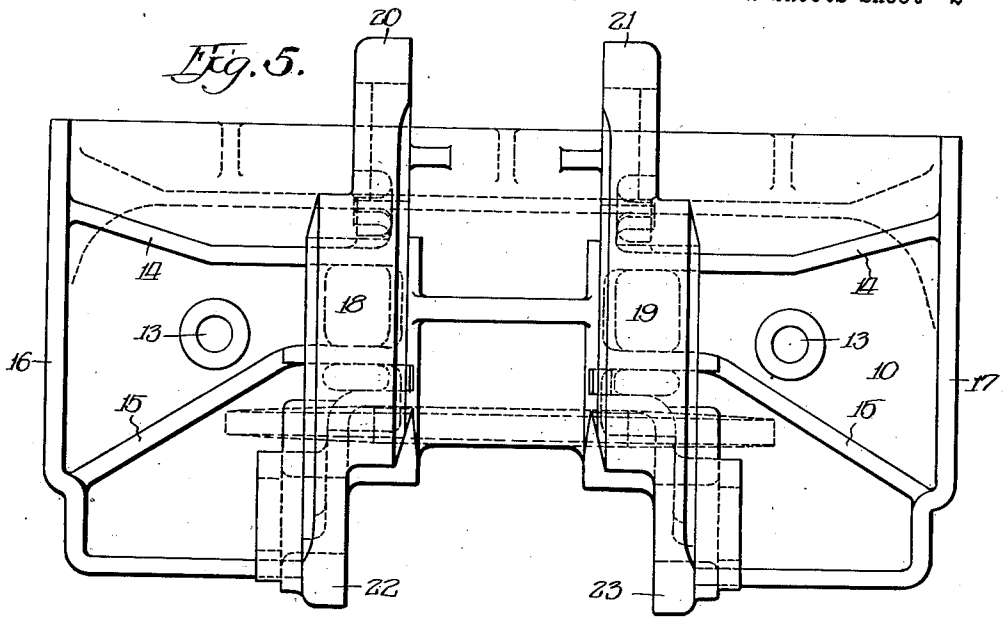


Fig. 6.

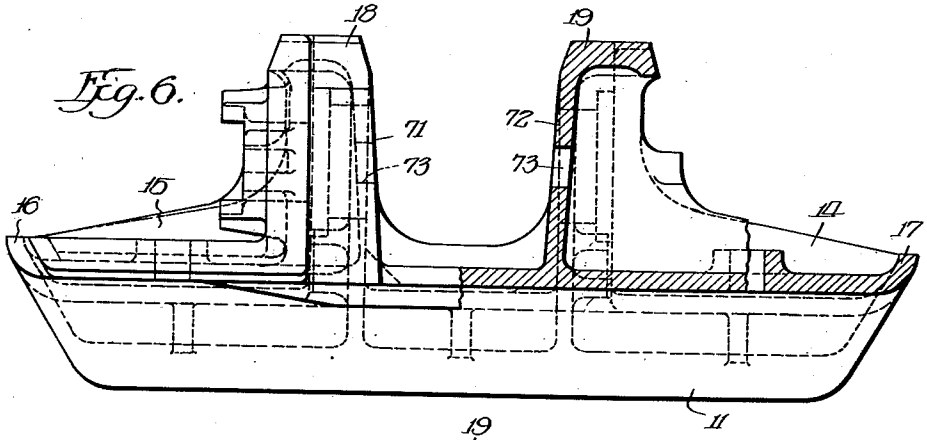
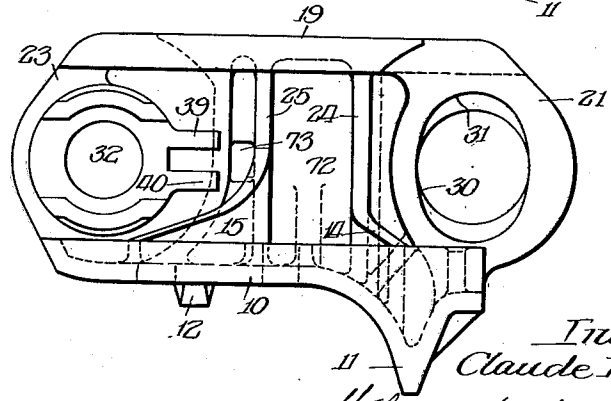


Fig. 7.



Witness:
Ed. C. Davison

Inventor,
Claude Rorabeck
By Wilkinson, Huxley, Byron & Knight
Attys.

Patented Aug. 23, 1932 1,872,819

UNITED STATES PATENT OFFICE

CLAUDE RORABECK, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR TO AMERICAN MANGANESE STEEL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE

TRACTOR LINK

Application filed February 18, 1929. Serial No. 340,452.

This invention relates to improvements in the construction of tread chains for tractors and particularly to the design of the individual connected links. It has hitherto been proposed to form a tread chain for tractors having the links thereof similarly formed and connected by link pins extending through spaced pivot ears on the inner side of a ground-engaging shoe forming the body of the link. The pivot ears on the opposite ends of the link are connected by trackways forming a supporting surface for the carriage wheels of the vehicle leaving a space or passageway therebetween through which the teeth on the sprocket wheel move. The link pins are usually enclosed in bushings or integral barrels which provide a driving connection for the sprocket teeth. In a previous design the track ways have been supported or joined to the shoe by integral webs, the webs being provided with openings permitting the passage of dirt therethrough.

It is a purpose of this invention to generally improve upon the details of construction of the tractor links by providing a link that is lighter and stronger in construction by supporting the middle portion of the track ways by ribs extending transversely thereto which integrally merge into the body of the shoe. The pivot ears are joined both to the shoe and to the ends of the track ways. Thus the sides of the track ways between the shoe and top surface thereof are open except for the strengthening ribs and the connection of the pivot ears.

It is a further object of this invention to additionally strengthen the link by providing webs extending from the inner edges of the track ways to the shoe in addition to the transverse ribs extending from the track ways to the sides of the shoe.

Another feature of my invention resides in a construction in which the ribs and the pivot ears are joined by curved webbing extending from the shoe to the track ways, the curvature of the webs allowing for an expansion or contraction during heat treatment of the casting.

Other objects and advantages of my invention will be more clearly apparent as the invention is fully described.

In the drawings wherein I have shown various embodiments of my device—

Figure 1 is a top plan view of my improved link showing a link pin in place.

Figure 2 is a vertical elevation of one end of Figure 1.

Figure 3 is a side elevation of the right hand end of Figure 2.

Figure 4 is a detail view in section showing a modified form of web construction.

Figure 5 is a top plan view of a modified form of link having integral webbing between the tracks and the shoe.

Figure 6 is a front elevation of Figure 5, partly in section.

Figure 7 is an end elevation of Figure 5.

First describing the constuction of the link shown in Figures 1 to 3, a shoe 10 is provided which has downwardly extending ribs 11 and 12 which form ground-engaging means so that the shoe 10, as shown, may be used as a grouser although an additional grouser may be attached if desired, by means of openings 13 in Figure 1, extending through the shoe 10. On the inner side of the shoe 10 there are provided strengthening ribs or webs 14 and 15. The ribs 14 and 15 extend transversely to the direction of movement of the shoe and are closely spaced near the middle portion of the shoe but diverge near their ends to points adjacent the ends of the shoe 10. The edges of the shoe 10, shown at 16 and 17, are slightly upturned and merge with the ends of the ribs 14—15.

Track surfaces or rails 18 and 19 are provided which are spaced from the inner side of the shoe 10 and are spaced apart to provide a passage way for the teeth of the driving wheel. The tracks 18 and 19 are connected at their ends through pivot ears 20, 21, 22 and 23 to the shoe 10; thus in Figure 1 the upper ends of the tracks 18—19 are extended and narrowed to form pivot ears 20—21 which, as shown in Figure 3, are joined to the shoe and the tracks by integral webbing. The opposed ends of the tracks are extended and form widened pivot ears 22—23, which are so spaced that they permit the entrance

therebetween of pivot ears on adjacent links corresponding to pivot ears 20—21. The pivot ears 22—23 are also integrally connected to the tracks 18—19 and to the shoe 10 by webbing. In Figure 3 it will be apparent that portions of the ribs 14 and 15 beneath the track surfaces 18—19 are upwardly extended and connected to the tracks to form supporting members 24—25. The ribs 14 and 15 through the upstanding portions 24—25 are joined to the tracks or rails 18—19 substantially across the entire width thereof. Thus it will be apparent in Figure 3 that three wide openings 26, 27 and 28 are provided between the tracks 18—19 and the shoe 10, thus permitting a complete discharge of any dirt that may accumulate in the space between the tracks.

The pivot ears 20—21 are provided with openings 29—30 for the passage of a bushing member. Also the outer ends of the openings 29—30 are widened at opposed sides providing an elliptical opening 31, as shown in Figure 3, in which the correspondingly shaped head of a bushing may be seated thus preventing the turning of the bushing in the bearings. The pivot ears 22—23 are provided with bearings 32—33 for a link pin 34. As shown, the link pin 34 is designed with a T-shaped head 35 which seats in a correspondingly shaped recess 36 formed on the outer side of either of the two pivot ears 22—23. At the opposite end of the link pin from the head 35 there is an opening 37 for a square cotter pin 38. The cotter pin 38 may be passed through the end of the link pin and its inner end bent between lugs 39 and 40. The lugs 39 and 40 as shown in Figure 3, are attached to and form extensions of the pivot ears 22—23. The bent end 41 of the cotter pin 38 abuts against the rib 15 and there may be formed on the rib 15 a small inclined projection 42 against which the end 41 will seat.

As shown in this design the link pin 34 is securely attached and prevented from any turning movement both by the T-shaped head 35 and the square cotter pin 38. Furthermore, the cotter pin cannot easily become dislodged in use, since there is no free exposed end that might catch on obstructions and bend so as to dislodge the pin. Instead, in order to remove the cotter pin 38 a drift pin is passed through the link in order to strike the bent end 41 of the cotter pin 38.

It may be desired to use in addition to the ribs 24—25 stengthening webs, and I have shown in Figure 4, a section of a link illustrating this form of construction. Thus between the ribs 24 and 25 and between the pivot ears 21 and 23 there are shown curved webs 60—61 and 62 which are adapted to merge into the ribs 24—25 and join the shoe 10 with the upper track 19. The curvature of the webs 60, 61 and 62 allow for expansion and contraction during heat treatment of the casting.

Figures 5, 6 and 7 show a modified form of link somewhat the same as the modified form described with respect to Figure 4 except that the internal webbing is smooth instead of curved, thus in Figure 6 it will be apparent that the tracks 18 and 19 are connected to the shoe in addition to the ribs 24—25 by inner smooth sides 71 and 72. The sides 71 and 72 are provided with openings 73 allowing the admission of a draft pin to remove the cotter pin 38. The smooth sides 71 and 72 prevent the accumulation of dirt within the interior passage way for the sprocket teeth.

The provision of the supporting ribs for the middle portion of the track ways makes a light and strong construction and due to their diverging ends, the shoe is further strengthened; however, when it is desired to have an exceptionally strong construction, the additional webbing, shown in Figure 4 or Figures 5, 6 and 7, may be used together with the transverse ribs 14 and 15.

I claim:—

1. An integral tractor link casting consisting of a ground-engaging shoe, a pair of rails extending in the direction of travel of the link, pivot ears joining the ends of the rails to the shoe portion, the central portion of each of said rails being supported from the shoe by a pair of transversely extending vertical ribs joined to said rails substantially across the entire width thereof and continuations from each pair of ribs divergently extending to the side edges of the shoe.

2. An integral tractor link casting consisting of a ground-engaging shoe, a pair of pivot ears at one end of the shoe spaced apart to provide a channel for the driving sprocket teeth, a pair of pivot ears at the opposite end of the shoe having a wider space therebetween, a pair of flat rails forming trackways joining the top portions of the pivot ears between the opposite ends of the link, a pair of transversely extending vertical ribs supporting the mid-portions of the rails from the shoe, whereby open spaces are provided beneath the rails between the pivot ears and the vertical ribs for the extrusion of dirt and continuations from the vertical ribs divergently extending to the side edges of the shoe.

3. An integral tractor link casting comprising a ground-engaging shoe having upwardly curved side edges, a pair of vertical strengthening ribs upwardly extending from the shoe, said ribs including substantially parallel portions closely spaced at the central portion of the shoe and divergently extending end portions terminating at the side edges of the shoe to merge with the upwardly curved side edges, a pair of separated pivot ears at each end of the shoe, one set of pivot ears being more widely spaced than the other

set of pivot ears and a pair of flat rails extending between the pivot ears at the opposite ends of the shoe, the width of said rails being substantially equal to twice the width of the pivot ears, said ribs including vertical portions beneath the rails upwardly extending and merging with the rails to support the central portions of the rails between the pivot ears, the link including openings beneath the rails between the vertical supporting ribs and between the ribs and the pivot ears for the extrusion of dirt from the space between the rails.

Signed at Chicago Heights, Illinois, this 13th day of February, 1929.

CLAUDE RORABECK.