Dec. 11, 1945. H. A. KNOX 2,390,542

TRACK SHOE

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Fig. 1.

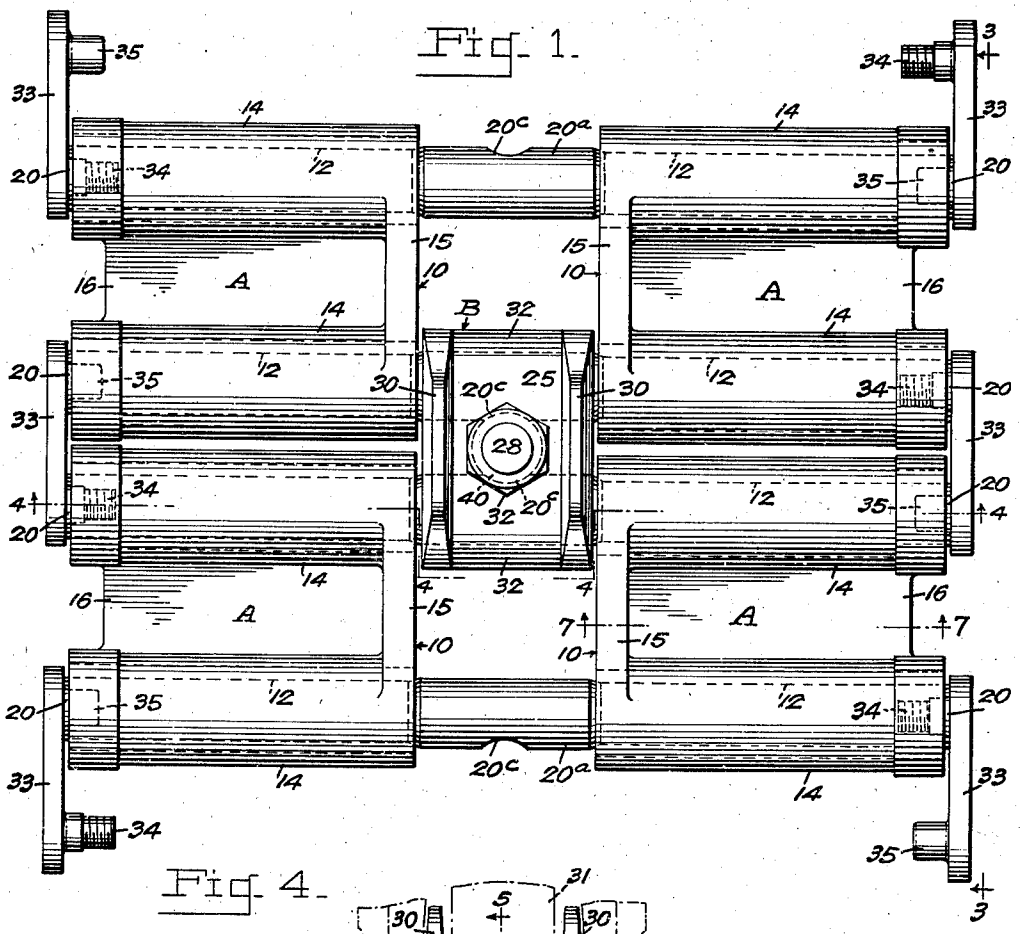


Fig. 4.

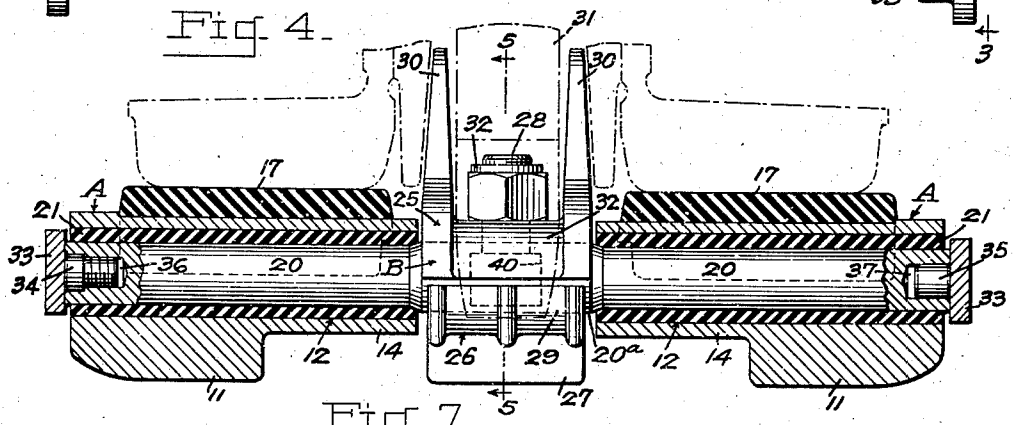
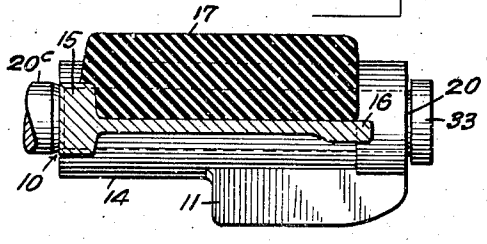


Fig. 7.



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Fig. 2.

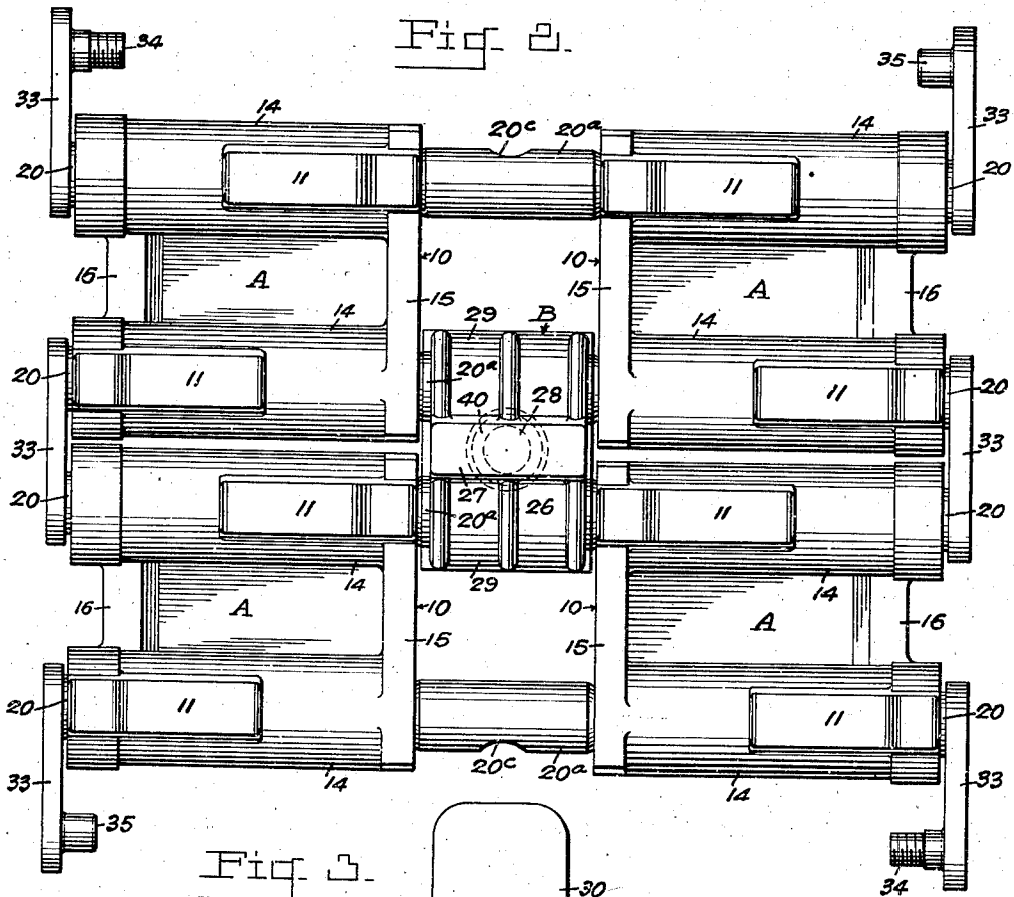


Fig. 3.

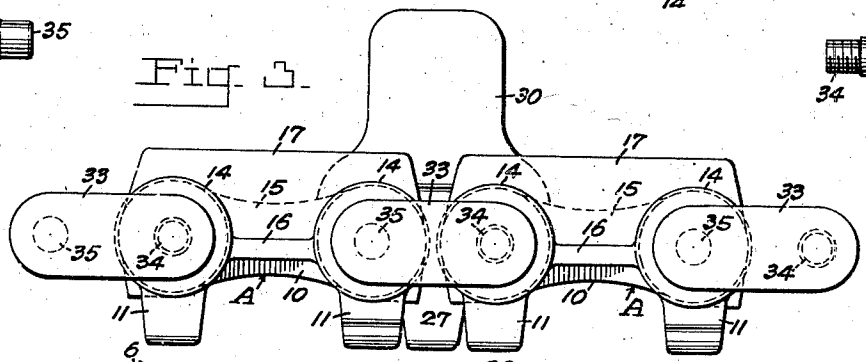


Fig. 5.

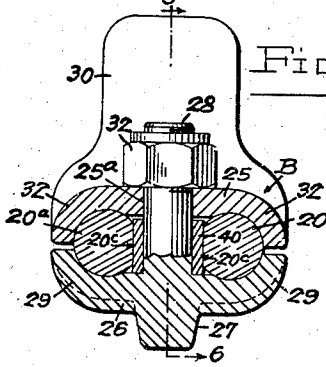
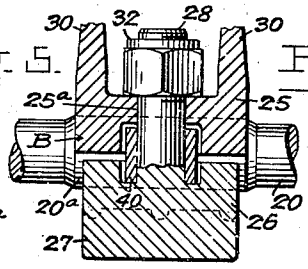


Fig. 6.



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UNITED STATES PATENT OFFICE

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TRACK SHOE

Harry A. Knox, Washington, D. C.

Application December 1, 1941, Serial No. 421,169

7 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.

This invention relates to a track shoe for a track laying vehicle.

An object of this invention is to provide a track having a double row of track shoes with staggered cleats thereon.

Another object of this invention is to provide a track having a double row of track shoes with improved end connections for the adjoining track shoes.

Another object of this invention is to provide an improved means for connecting adjoining track shoes.

Another object of this invention is to provide a track which may be easily assembled and disassembled.

Another object of this invention is to provide a track with a double row of track shoes having staggered cleats thereon and in which the track is adapted to be propelled by a center drive.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawings in which:

Fig. 1 is a plan view taken from the inside of the track and shows a portion of a track incorporating an embodiment of this invention. The track is shown without the wheel supporting rubber thereon.

Fig. 2 is a plan view taken from the outside of the track and shows the staggered arrangement of the grousers or cleats. The track is shown without the wheel supporting rubber thereon.

Fig. 3 is an end view of portions of the track with wheel supporting rubber 17 thereon and is taken in the direction denoted by 3—3 in Fig. 1.

Fig. 4 is a view of portions of the track with wheel supporting rubber 17 thereon and is taken substantially on line 4—4—4—4 of Fig. 1.

Fig. 5 is a view taken substantially on line 5—5 of Fig. 4.

Fig. 6 is a view taken substantially on line 6—6 of Fig. 5.

Fig. 7 is a view taken substantially on line 7—7 of Fig. 1.

Referring to the drawings wherein like numerals designate like parts a double row of track shoes A is disclosed. Each track shoe A is formed from a rectangular metallic frame member 10 having two downwardly extending cleats 11 thereon which extend approximately one-half the width of the track shoe and which are formed integral with cylindrical tubes 14. Tubes 14 define a pair of parallel cylindrical hollow portions 12. Cleats 11 on the same shoe A are staggered and it is understood the cleats 11 may be held on the tubes 14 by mechanical or other means. End pieces 15 are brazed, welded or fixed mechanically to the spaced tubes 14 so as to maintain them in parallel relationship. A web 16 joins the spaced tubes approximately on a line joining the centers of the spaced tubes 14 so as to strengthen the track shoe and to provide a surface upon which a resilient material 17 such as rubber may be fixed by vulcanization or other process.

A pin 20 having a strengthened portion 20*a* midway between its ends and with a groove 20*c* therein is of sufficient length to pass through two aligned hollow portions 12 in laterally disposed adjoining shoes. Resilient material such as rubber 21 is disposed between the pin 20 and tubes 14 in order to produce a quiet, resilient track shoe.

Adjoining pins 20 on adjoining shoes are clamped rigidly together by a clamp B comprising an inner plate 25 and an outer plate 26. The outer plate 26 has a cleat 27 extending outwardly, a threaded bolt 28 adapted to project through bushing 40 which is disposed in pin grooves 20*c* and a pair of semi-cylindrical portions 29 (Fig. 5) adapted to partially encircle the enlarged pin portion 20*a*. The inner clamp plate 25 has a hole 25*a* for the passage of bolt 28, a pair of flanges 30 for guiding the driving wheel 31, and a pair of semi-cylindrical portions 32 (Fig. 5) for the reception of pin portion 20*a* and to provide a bearing surface for the driving wheel 31. The inner clamp plate 25 and outer clamp plate 26 are drawn together by nut 28*a*. The driving wheel 31 must have a recessed portion (not shown) in order to provide clearance for the inwardly extending nut 28*a* and bolt 28.

Also, adjoining pins of adjoining shoes are clamped at their ends by means of a metallic bar 33 having cylindrical projections 34, 35 thereon which are insertable in hollow portions 36, 37 (Fig. 4) in the adjoining ends of pin 20. Projection 34 is threaded and cooperates with the threaded portion in one of the hollow portions 36. A sliding fit is provided between projection 35 and hollow portion 37.

In order to assemble adjoining track shoes with the bars 33 fixed to the pins 20 it is necessary to move the adjoining track shoes laterally with respect to one another so that the non-threaded

projections 35 slide in the non-threaded hollow portions 37 (Fig. 4); the ends of the track are held in that position by means of the center clamp B which comprises plates 25, 26 and nut 28a.

Since the adjoining pins of adjoining shoes are prevented from moving independently with respect to one another by means of clamp B, the projections 34, 35 are not susceptible to wear on that account.

As a practical matter the threaded bar projection 34 is loosely screwed into its cooperating screw threaded recess 37 so as to allow ease in assembling adjoining shoes and yet projections 34, 35 cooperate with the adjoining pins to provide a rigid connection between adjoining pins.

In the preferred embodiment of this invention the bar 33 has its projection 34 screw threaded so as to cooperate with the screw threaded hollow pin portion 36 for fastening the bar to the track; it is understood that other fastening means are readily suggested to those skilled in the art and this invention is not limited to the particular screw threaded means disclosed. It is realized that the bar 33 might be made integral with the track shoe whereby projection 34 could not be removed from pin hollow portion 36 but it is preferred to have the bar 33 pivotally mounted on screw threads as shown in the drawings.

I claim:

1. In a track for track laying vehicles, a series of laterally spaced pairs of shoes, each shoe comprising a body joining a pair of bearings extending transversely of the track, a link pin extending through the bearings of a pair of laterally spaced shoes and having its ends projecting therefrom, said link pin having a central portion with a groove therein, said link pin ends having hollow portions therein, resilient bushings fast on each link pin and engaging the bearings, a centrally disposed link for connecting link pins of adjoining shoes, each link consisting of a pair of plates for engaging the central portion of the link pin, a bolt on one plate interposed between link pins and fitting in the grooves thereof, means for clamping the bolt to the other plate, a bar having two spaced projections insertable in pin hollow portions, and means for fastening one of the projections in one of the hollow portions.

2. In a track for track laying vehicles, a series of laterally spaced pairs of shoes, each shoe comprising a body joining a pair of bearings extending transversely of the track, a link pin extending through the bearings of a pair of laterally spaced shoes and projecting therefrom, each link pin having a non-circular central portion, said link pin having a hollow portion in each end thereof, resilient bushings fast on each link pin and engaging the bearings, a centrally disposed link for connecting link pins of adjoining shoes, each link consisting of a pair of plates for engaging the non-circular central portion of the link pin, a bolt on one plate interposed between link pins, means for clamping the bolt to the other plate, a bar having two spaced projections insertable in pin hollow portions, and means for fastening one of the projections in one of the hollow portions.

3. In a track for track laying vehicles, a series of laterally spaced pairs of shoes, each shoe comprising a body joining a pair of bearings extending transversely of the track, a link pin extending through the bearings of a pair of laterally spaced shoes and projecting therefrom, said link pin having a hollow portion in each end and having a central non-circular portion, resilient bushings fast on each link pin and engaging the bearings, a link for connecting link pins of adjoining shoes, each link consisting of a pair of plates for engaging the central portion of the link pin, means separating the link pins for clamping the plates to the link pins, a bar having two spaced projections insertable in the pin hollow portions, and means for fastening one of the projections in one of the hollow portions.

4. In a track for track laying vehicles, a pair of parallel pins each having a cylindrical hollow portion coaxial with the pin axis and in at least one of their adjacent ends, a bar having a pair of projections and disposed with the projections in adjacent hollow portions, and a screw thread on one of the projections cooperable with a threaded hollow portion to hold the bar in place in relation to both pins.

5. An article of manufacture, a connecting link for adjoining shoes of a track laying vehicle comprising a bar having two cylindrical projections thereon with the axes of the projections parallel to one another, and fastening means on one of the projections only, the bar being held in place in relation to both shoes by the fastening means of the one projection.

6. In a track for track laying vehicles, a pair of track shoes, a pin in each track shoe, each pin having a hollow in at least one of the adjoining ends, a bar having a pair of projections on the same side thereof and disposed with the projections in adjoining hollows, and means integral with one of the projections cooperable with a hollow to hold the bar in place in relation to both pins.

7. A connecting link for adjoining shoes of a track laying vehicle comprising: a bar, two cylindrical projections on the bar, and a thread on one projection cooperable with a threaded hole in one of the track shoes to hold the bar in position in relation to both shoes.

HARRY A. KNOX.