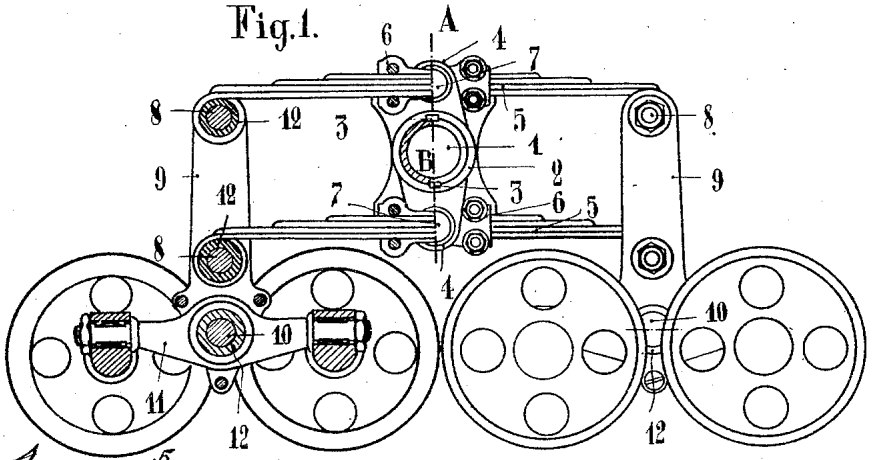
July 21, 1925. 1,547,043

A. KÉGRESSE

SUPPORTING DEVICE FOR ENDLESS TRACK BELTS

Filed Nov. 3, 1922 2 Sheets-Sheet 1

Fig.1.



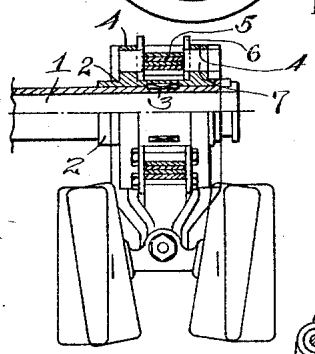
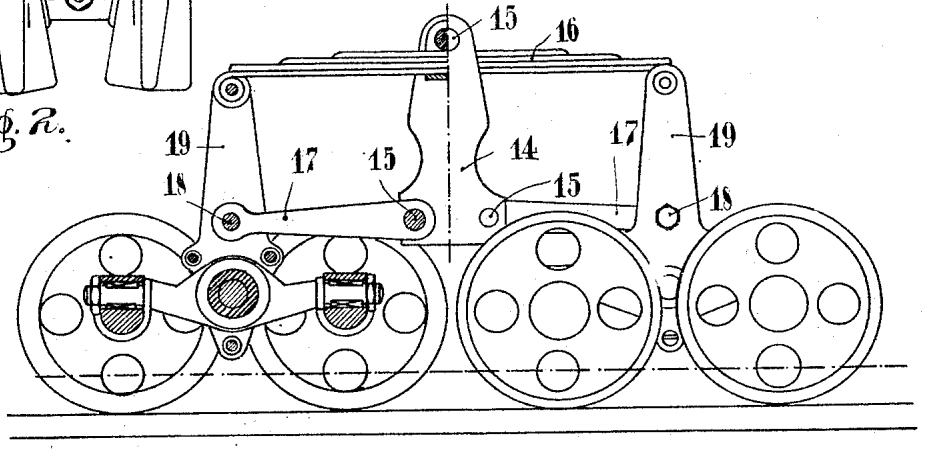


Fig. 2.

Fig.3



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Filed Nov. 3, 1922 2 Sheets-Sheet 2

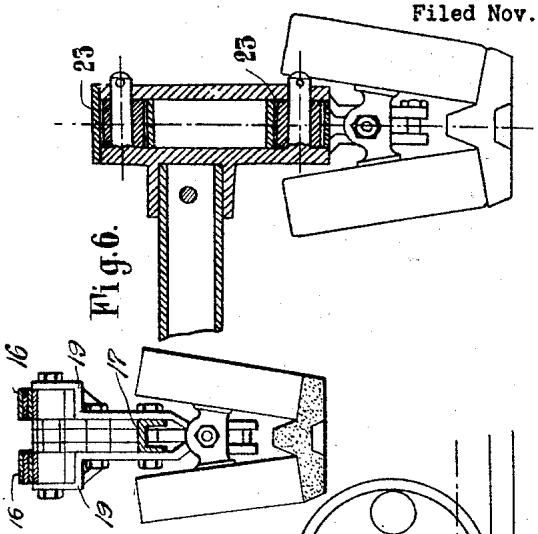

Fig. 6.

Fig. 4.

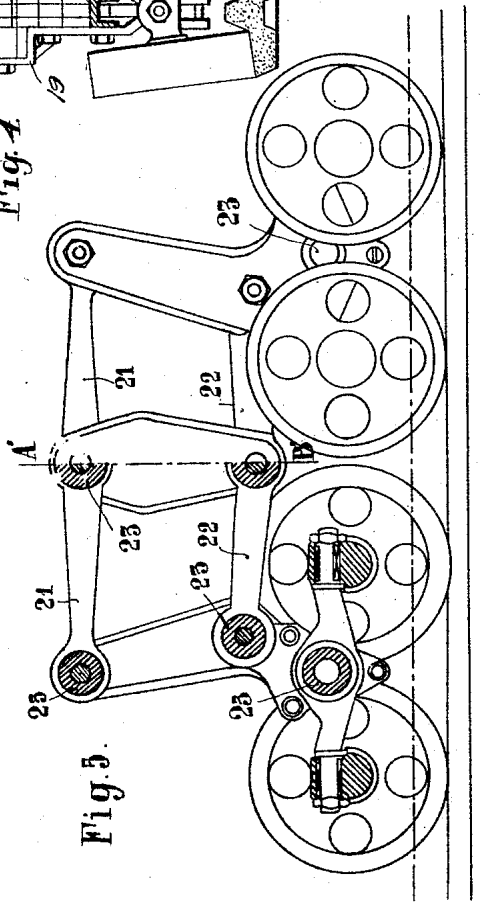

Fig. 5.

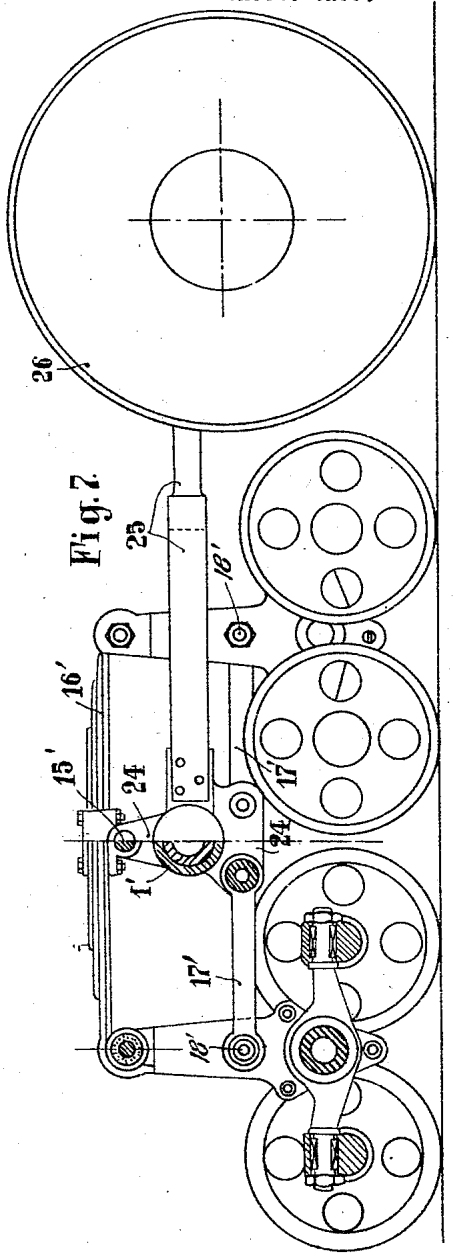

Fig. 7.

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Patented July 21, 1925. 1,547,043

UNITED STATES PATENT OFFICE.

ADOLPHE KÉGRESSE, OF PARIS, FRANCE.

SUPPORTING DEVICE FOR ENDLESS TRACK BELTS.

Application filed November 3, 1922. Serial No. 598,888.

To all whom it may concern:

Be it known that I, ADOLPHE KÉGRESSE, citizen of the Republic of France, and resident of Paris, France (post-office address 53 Rue Balard), have invented a new and useful Supporting Device for Endless Track Belts, which improvements are fully set forth in the following specification.

This invention relates to devices for supporting the endless track belts of motor vehicles.

In the flexible endless belt systems provided with a train of rollers and belt-carrying pulleys linked with one of the vehicle axles, the rollers and pulleys, due to their passage over uneven ground, are caused to swing about the axle, describing arcs of a circle the radius of which is equal to the distance between the roller or the pulley concerned and the axle.

As the axle is necessarily positioned somewhat higher than the rollers, the latter must have relatively considerable longitudinal play. But on the other hand, in passing over an obstacle, such as either a depression or a projection, it very frequently happens that the arcs described by the rollers tend to intersect those described by the pulleys; the result being impeded travel since, in such cases, the end rollers are apt to strike against the adjacent pulleys, and vice-versa.

In order to obviate these drawbacks, it has been proposed, in connection with known systems, to provide a comparatively large space between the end rollers and the belt-carrying pulleys, to the prejudice of proper guiding of the belt and of the general working capabilities of the apparatus, chiefly as regards the passage across obstacles.

Moreover, vibrations are set up in the apparatus when required to travel at high speed over hard ground, resulting in the destruction of the mechanism, however soundly built.

The object of my invention is to provide a swinging or rocking singletree coupling for endless belt carrying trains that does away with the above mentioned drawbacks and permits the train of rollers to be resiliently connected with the carrying axle.

In order to make the invention clearly understood, various practical embodiments thereof are illustrated, by way of example, in the accompanying drawings, wherein:

Figure 1 is a part-sectional side elevation of one form of coupling system.

Fig. 2 is an end view, partly in vertical cross-section on line A—B of Fig. 1.

Fig. 3 is a part-sectional side elevation of a modification.

Fig. 4 is a cross-section of Fig. 3.

Fig. 5 is a part-sectional side elevation of a further modification in which the springs are replaced by rigid singletrees mounted in resilient fittings.

Fig. 6 is a cross-section on line A′—B′ of Fig. 5.

Fig. 7 is a front view of a modification or development of the construction shown in Figs. 3 and 4, in which the pivot spindles of the horizontal members of the parallel-motion device are mounted in the head of the connecting device of one of the belt-carrying pulleys.

On the axle 1 (Figs. 1 and 2) of the vehicle is mounted a sleeve 2 having key connections 3 therewith, said sleeve being formed with spaced cheeks 4 between which extend the suspension springs 5 of the roller system. These springs 5 are secured on special parts 6 carrying trunnions 7 which fit loosely in openings provided for them in cheeks 4.

The ends of springs 5 are connected to horizontal spindles 8 whereon are loosely mounted supports 9 provided adjacent their lower ends with trunnions 10; and to these trunnions, in turn, rocking beams 11 are centrally pivoted which carry the pairs of supporting rollers at their ends.

Between spindles 8 and springs 5 are arranged rings 12 made of caoutchouc or other resilient non-metallic material of like character, similar rings being provided between trunnions 10 and beams 11. These rings serve to absorb shocks occurring during the travel of the vehicle, and they also avoid the necessity for lubricating the ends of the springs, for the displacements of the springs do not produce rotation of the terminal eyes of the springs about their pivots, but merely a molecular displacement of the caoutchouc.

The characteristic feature which differentiates the construction above described from those hitherto known, consists in the superposition of the plate springs 5 which permits the mechanism to be simplified. Due to such arrangement, perfect guidance of the

rollers is obtained, while at the same time resiliency of the whole is assured, together with a minimum of weight and a minimum number of parts. The sleeve 2 can be fixed to the axle or loosely mounted thereon, as preferred, for the purpose in view.

Figures 3 and 4 show a modification of the coupling system in which the lower spring is replaced by rigid struts and in which two upper springs, arranged in parallel relation, are employed, the mounting being as follows:

On the opposite ends of the axle are rigidly secured members or heads 14 carrying three spindles 15. The upper spindle extends directly above and across the two upper springs 16 which may be arranged side by side or may be somewhat spaced. as shown in Fig. 4. The two lower spindles form pivots for rigid struts 17, the other ends of which are pivoted at 18 to supports 19, the latter carrying at their lower ends the pivots or trunnions for the rocking balance beams which carry the rollers. No claims specific to this modification are contained herein, as the construction in question forms the subject of a divisional application, No. 700,332, filed March 19, 1924.

In the further modification illustrated in Figs. 5 and 6, the two springs shown in Fig. 1 are replaced by rigid upper and lower singletrees or beams 21 and 22. The lower beam 22 is shown, by way of example, as shorter than the upper beam in order to render clearly apparent the possibilities of arrangement of the carrier train, the rollers of which will move upwards along the lines of least longitudinal resistance, while permitting the mechanism to be housed within the space enclosed by the endless belt. As will also be apparent from the figures last mentioned, all the pivotal connections are equipped with rings 23 of resilient material which serve to localize vibrations.

The operation will be readily understood and is substantially as follows:

If one of the rollers is pushed upward, the corresponding supports 9 (Figs. 1 and 2) are likewise raised along an oblique line approaching the vertical, since the axes of rotation of the system are positioned at a suitable distance from one another to form a parallel-motion device.

In Fig. 7, the pivot spindles 15′ and 18′ of the upper springs 16′ and the rigid struts 17′, respectively, are mounted in a head 24 secured to the device 25 which connects the belt-carrying pulley 26 with the vehicle axle, on which latter said head is pivotally mounted.

As will be readily understood, the swinging movements of pulley 26 about axle 1 as a center must also cause the pivot spindles 15′ and 18′ of springs 16′ and 17′ to oscillate about said axle 1′, so that a constant connection is thus obtained between the positions of the roller-carrying train and the corresponding positions of the belt-carrying pulley.

It is to be clearly understood that the various embodiments hereinbefore described are given merely as examples, and that the right is reserved to modify constructional details, features and arrangements without departing from the scope of the invention.

I claim as my invention:—

1. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing upon the lower stretch of the belt; the combination of supports with which the rollers are pivotally connected, and a connection between said supports and the chassis of the vehicle; said connection comprising a pair of superposed members mounted to rock about individual central fulcra having their opposite ends pivotally related to said supports to conjointly form a parallel-motion device.

2. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a plurality of pairs of rollers bearing upon the lower stretch of the belt; the combination of a pair of supports, a rocking beam pivotally connected at its center to the lower portion of each support and disposed longitudinally of the belt, each beam having a pair of said rollers connected to each end thereof, and a connection between said supports and the chassis of the vehicle; said connection comprising a pair of superposed members mounted to rock about individual central fulcra and having their opposite ends pivotally related to said supports to conjointly form a parallel-motion device.

3. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing upon the lower stretch of the belt; the combination of supports with which the rollers are pivotally connected, and a connection between said supports and the chassis of the vehicle; said connection comprising a member mounted on the vehicle axle and provided with upper and lower pivots, and a pair of superposed members fulcrumed centrally on said pivots and having their opposite ends pivotally related to said supports to conjointly form a parallel-motion device.

4. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing on the lower stretch of the belt; the combination of vertical supports with which the rollers are pivotally connected, and a connection between said supports and the chassis of the vehicle; said connection comprising upper and lower members which are mounted to rock about individual central fulcra, and which have their opposite ends pivotally related to said

supports to conjointly form a parallel-motion device, and yielding rings interposed between the ends of said members and their points of pivotal connection with the supports.

5. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing on the lower stretch of the belt; the combination of vertical supports with which the rollers are pivotally connected, and a connection between said supports and the chassis of the vehicle; said connection comprising a pair of superposed horizontal springs which are mounted to rock about individual central fulcra, and which have their opposite ends pivotally related to said supports to conjointly form a parallel-motion device.

6. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing on the lower stretch of the belt; the combination of vertical supports with which the rollers are pivotally connected, a sleeve keyed on the vehicle axle and provided with upper and lower pairs of spaced cheeks, and upper and lower horizontal springs fulcrumed centrally between the respective pairs of cheeks and having their opposite ends pivotally connected with said supports to conjointly form a parallel-motion device.

7. In a vehicle embodying an endless track belt, pulleys around which the belt passes, and a set of rollers bearing on the lower stretch of the belt; the combination of vertical supports with which the rollers are pivotally connected, a support fixed to the vehicle axle and projecting above and below the same, and a pair of superposed horizontal elements centrally fulcrumed in the upper and lower projecting portions of the last-named support, the opposite ends of said elements being pivotally related to the first-named supports to conjointly form a parallel-motion device.

In testimony whereof I have signed this specification in the presence of a subscribing witness.

ADOLPHE KÉGRESSE.

Witness:
CHARLES LÉON LOISEL.