July 28, 1925. 1,547,586

A. KÉGRESSE

SUPPORTING DEVICE FOR ENDLESS TRACK BELTS

Original Filed Nov. 3, 1922 2 Sheets-Sheet 1

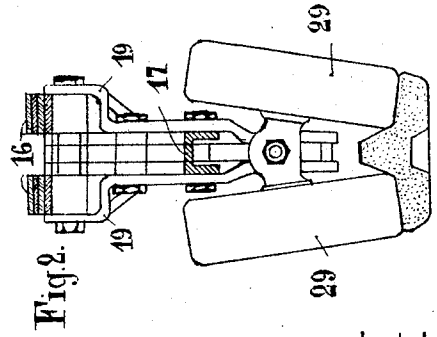

Fig. 2.

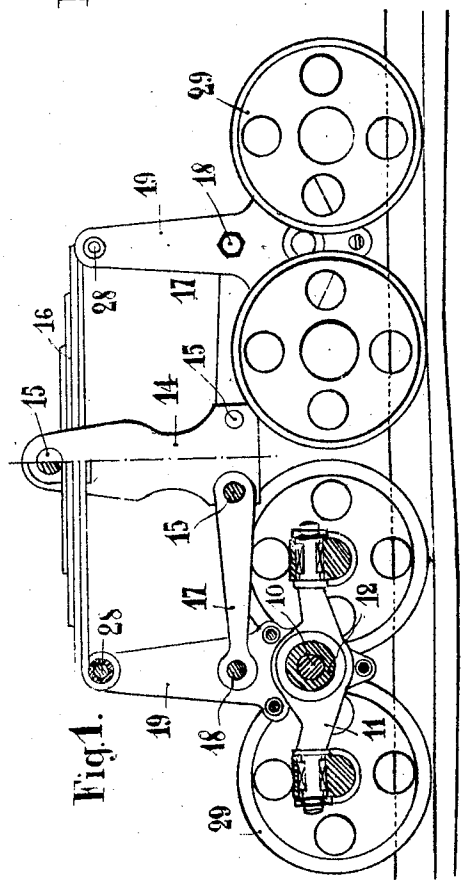

Fig. 1.

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Fig. 3.

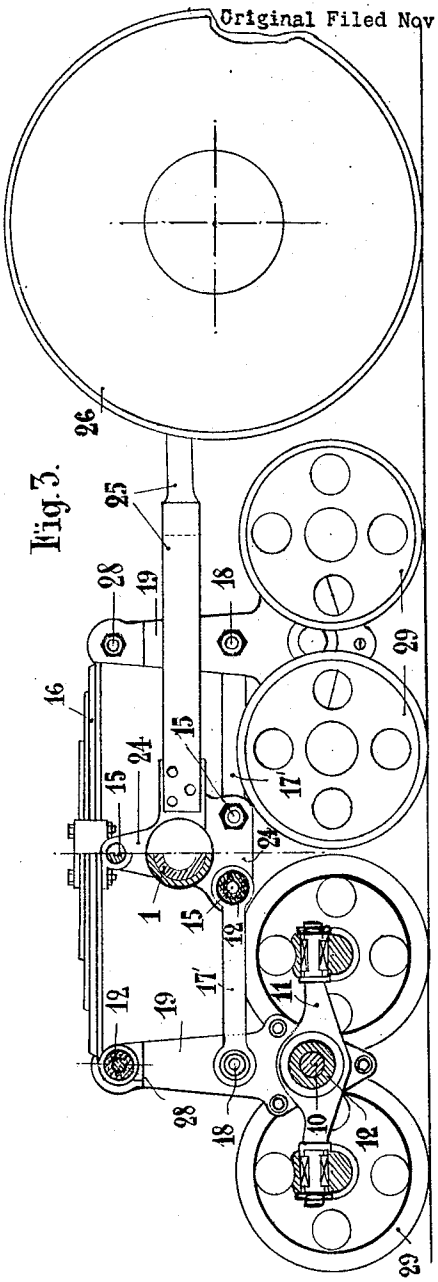
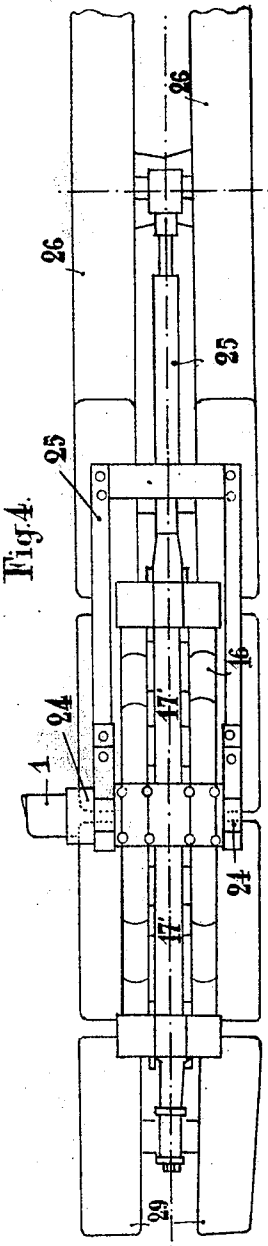


Fig. 4.



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Patented July 28, 1925. 1,547,586

UNITED STATES PATENT OFFICE.

ADOLPHE KÉGRESSE, OF PARIS, FRANCE.

SUPPORTING DEVICE FOR ENDLESS TRACK BELTS.

Original application filed November 3, 1922, Serial No. 598,888. Divided and this application filed March 19, 1924. Serial No. 700,332.

To all whom it may concern:

Be it known that I, ADOLPHE KÉGRESSE, a citizen of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in Supporting Devices for Endless Track Belts, of which the following is a specification.

This invention relates to devices for supporting the endless track belts of motor vehicles, and is a division of my prior application, No. 598,888.

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 crossing 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 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. According to the invention, a parallel-motion connection between the roller supports and the axle is provided, as in the parent application; but the member or head to which the component parts of the parallel-motion connection are pivotally related is mounted loosely instead of rigidly on the axle and differs in its structural details from that specifically claimed therein. Also, a link connection is preferably provided between the aforesaid head and one of the belt pulleys; and, due to the loose mounting of the head, the distance between that pulley and the adjacent end roller remains constant irrespective of the displacements of the pulley.

An embodiment of the invention is illustrated in the accompanying drawings, in which:

Figure 1 is a part-sectional side elevation of the improved coupling system herein disclosed and claimed;

Fig. 2 is a cross-section thereof;

Fig. 3 is a part-sectional side elevation of a modification or development of the construction shown in Figs. 1 and 2, in which the pivot spindles of the parallel-motion device are mounted in the head of the connecting device of one of the belt pulleys; and

Fig. 4 is a plan view of Fig. 3.

On the opposite ends of the axle of the vehicle which is indicated at 1 in Figs. 3 and 4 are mounted members or heads 14 (Fig. 1), each carrying three spindles 15, one at the top thereof, and two at the bottom. These spindles form the pivots for the horizontal members of the coupling system, two of which members are utilized. The upper member comprises two suspension leaf springs 16, which may be spaced slightly apart, as shown in Fig. 2, or may be arranged in some other manner, and directly across which the upper spindle 15 extends to form a fulcrum therefor. The lower member, on the other hand, consists of two separate parts or sections 17, each in the form of a rigid strut, arranged in endwise alinement and pivoted at their inner ends to the lower spindles 15 and at their outer ends to spindles 18 mounted in vertical supports 19; the latter being additionally provided at their upper ends with spindles 28 with which the terminal eyes on the springs 16 are engaged. The supports 19 are provided adjacent their lower ends with trunnions 10; and to these trunnions 10, in turn, rocking beams 11 are centrally pivoted which carry the pairs of supporting rollers 29 at their ends. Rings 12 made of caout-

chouc or other resilient non-metallic material of like character are interposed between the spring eyes and the spindles 28, and similar rings are also provided between trunnions 10 and beams 11; these rings serving to absorb shocks during the travel of the vehicle, and also avoiding the necessity for lubricating the spring eyes, since the displacements of the springs do not produce rotation of the said eyes about their pivots but merely a molecular displacement of the caoutchouc.

As in the construction disclosed in the parent application, the characteristic feature of this invention is the superposition of the two horizontal members 16 and 17, 17 of the coupling system 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.

In the development of the invention illustrated in Figs. 3 and 4, the pivot spindles 15 and 18 of the springs 16 and the struts 17′, respectively, are mounted in a head 24, secured to the connecting device 25 which links the belt-carrying pulley 26 with the vehicle axle, on which latter said head is pivotally mounted. Shock absorbing rings may, if desired, be arranged between the inner ends of the struts and the spindles 15. In all other respects, the construction is the same as that described above in connection with Figs. 1 and 2.

The operation is substantially as follows: If one of the rollers 29 is pushed upward, the corresponding supports 19 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. When the link 25 is employed, the swinging movements of pulley 26 about axle 1 as a center must also cause the pivot spindles 15 and 18 to oscillate about said axle, 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.

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, a connection between said supports and the chassis of the vehicle; said connection comprising a head mounted on the vehicle axle and provided with upper and lower pivots, and a pair of superposed horizontal members fulcrumed centrally on said pivots and having their opposite ends pivotally related to said supports to conjointly form a parallel-motion device; and a connecting device between said head and one of said pulleys.

2. 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, a connection between said supports and the chassis of the vehicle; said connection comprising a head loosely mounted on the vehicle axle and provided with upper and lower pivots, and a pair of superposed horizontal members fulcrumed centrally on said pivots and having their opposite ends pivotally related to said supports to conjointly form a parallel-motion device; and a link connection between said head and one of said pulleys and pivotally related to the latter at its adjacent end.

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 head provided with upper and lower pivots, and a pair of superposed horizontal members fulcrumed centrally on said pivots and having their opposite ends pivotally related to said support to conjointly form a parallel-motion device, the lower member consisting of a pair of rigid struts which are disposed in endwise alinement and are mounted at their inner ends on the lower pivots.

4. 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 head provided with a horizontal spindle at its top and a pair of spaced, parallel horizontal spindles at its bottom, and a pair of superposed horizontal members extending between said supports and pivotally related to the same at opposite ends to conjointly form a parallel-motion device; the upper spindle extending directly across the central portion of the upper member to form a fulcrum therefor, and the lower member consisting of a pair of rigid struts which are disposed in endwise alinement and are mounted at their inner ends on the lower spindles.

5. 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 head provided with a horizontal spindle at its top and a pair of spaced, parallel horizontal spindles at its bottom, and a pair of superposed horizontal members extending between said supports and pivotally related to the same at opposite ends to conjointly form a parallel-motion device; the upper member comprising a suspension leaf spring, directly across the central portion of which the upper spindle extends to form a fulcrum therefor, and the lower member comprising a pair of rigid struts which are disposed in endwise alinement and are mounted at their inner ends on the lower spindles.

In testimony whereof I affix my signature.

ADOLPHE KÉGRESSE.