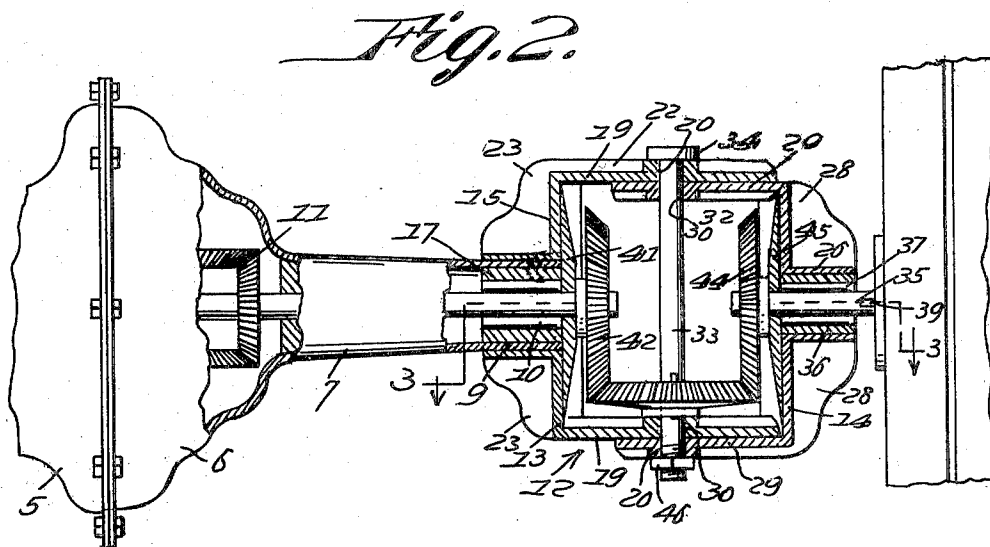
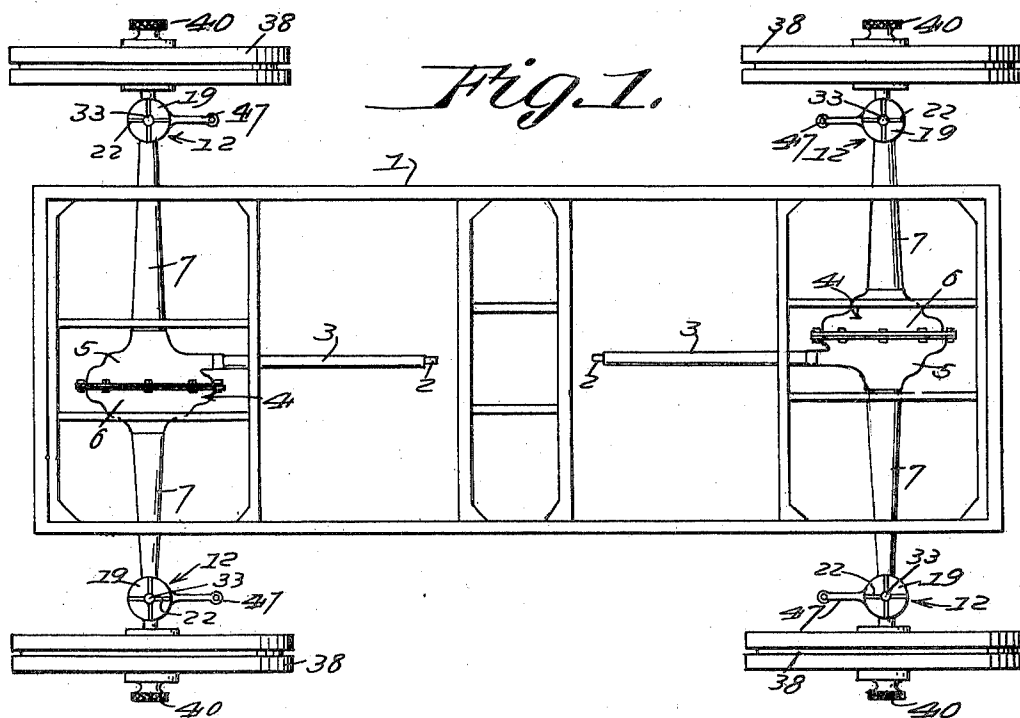


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JOINT FOR DRIVING MECHANISM.
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Patented Nov. 5, 1918.
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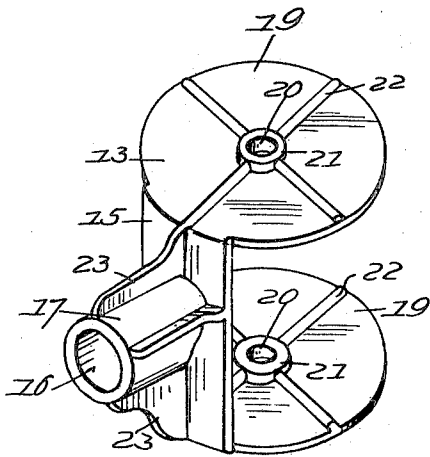


Fig. 4.

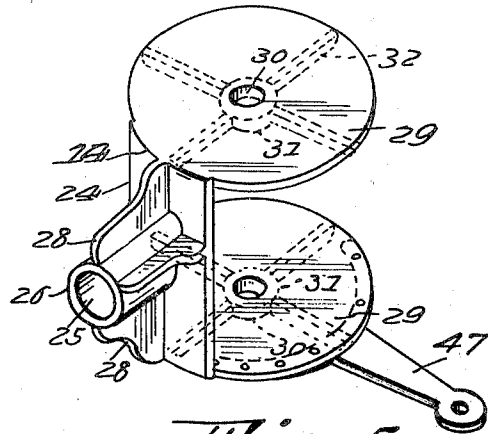


Fig. 5.

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JAMES L. BLOOM, JR., OF LOCK HAVEN, PENNSYLVANIA.

JOINT FOR DRIVING MECHANISM.

1,284,047.

Specification of Letters Patent.

Patented Nov. 5, 1918.

Application filed August 21 1917. Serial No. 187,414.

To all whom it may concern:

Be it known that I, JAMES L. BLOOM, JR., a citizen of the United States of America, residing at Lock Haven, in the county of Clinton and State of Pennsylvania, have invented new and useful Improvements in Joints for Driving Mechanism, of which the following is a specification.

The present invention has reference broadly to improvements in motor vehicles and more particularly relates to a joint for driving mechanism.

It is the primary aim and object of this invention to provide a device of the character described, which is designed to receive and accommodate portions of the driven shafts and stub axles, as well as the transmission means therebetween to assure of an effective and operable relation between the drive shafts and the wheels of the vehicle and at the same time permit of the steering of the latter.

More particularly this invention embraces the provision of a joint of the above character constructed to provide bearings for the pintles and in addition being reinforced so that the strain imparted thereto will be equally distributed thereon thus increasing the longevity of the device as an entirety.

Among the other aims and objects of this invention may be recited the provision of a device of the above character with a view to compactness, and in which the number of parts are few, the construction simple, the cost of production low and the efficiency high.

Other improvements and novel details in the construction and arrangement of the various parts of the apparatus will be brought out more in detail in the description to follow, which for a clear understanding of the invention should be considered in connection with the accompanying drawings, forming a part hereof, and wherein is disclosed for the purpose of illustration a convenient and satisfactory embodiment of the invention. It is to be noted in this connection that minor changes in the construction and arrangements of the parts may be made without departing from the principle of operation of the various parts.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a top plan view of a motor vehicle having a four wheel drive and in which is embodied the improved joint;

Fig. 2 is an enlarged fragmentary vertical section of the invention;

Fig. 3 is a horizontal section taken on line 3—3, Fig. 2;

Fig. 4 is a perspective detail of one section of one of the joints;

Fig. 5 is a perspective detail of the other section of one of the joints.

Similar characters of reference are employed in all the above described views, to indicate corresponding parts.

Referring now, more particularly, to the accompanying drawings, there is provided a motor vehicle embodying a chassis 1 beneath which are the longitudinally disposed front and rear propeller shafts 2 the latter being supported in tubular casings 3 which are in turn connected to the differential gear casings 4. These casings 4 are desirably constructed in sections 5 and 6 while leading from the sections 5 and 6 are tubular sections 7 of the front and rear axle casings. Disposed within the section 7 are the corresponding sections 8 of the front and rear driven shafts. Sleeves 9 are mounted within the adjacent and respective ends of the sections 7 and receive roller bearings 10 which co-act with the adjacent portions of the sections 8, a suitable differential gearing 11 is positioned within the casings 4 therefor to operably connect the propeller shafts 2 to the sections 8 of the driven shafts as is apparent.

As intimated, improved joints indicated in their entireties by the numeral 12 have been provided. Each joint in the present instances consists of an intersection 13 and an outer section 14, and each section is substantially U-shaped in cross section. The section 13 is composed of an intermediate portion 15 provided with a central opening 16 while projecting from the rear face about the opening in the intermediate portion is a collar 17 designed for telescopic relation with the outer end of the adjacent casing of section 7 being rigidly secured thereto

through the instrumentality of suitable fastening devices 18. Spaced parallel ears 19 project outwardly at substantially right angles from the respective ends of the intermediate portion and are preferably of a disk-like formation being provided with central apertures 20 for a purpose that will presently appear. Bosses 21 which act as bearings in a manner that will hereinafter become apparent are formed on the upper surfaces of each of the ears 19 about the openings 20 while reinforcing ribs 22 radiate from the bosses being of course integral with the upper surfaces of the ears. In addition bracing webs 23 are formed integral between the intermediate portion 15 and the collar 17 to reinforce the collar with respect to the intermediate portion. Each outer section 14 is composed of an intermediate portion 24 having a central opening 25 therein from the outer face of which projects a collar 26 integral at its inner end with the intermediate portion about the opening 25. Suitably bracing webs 28 are formed integral with the collar and the intermediate portion 24 for reinforcing the collar. Disk-like ears 29 project at right angles from the respective ends of the intermediate portion and are arranged in spaced parallel relation with each other and are provided with central openings 30. Bosses 31 are formed on the under surface of the ears 20 while reinforcing ribs 32 radiate from the bosses being formed integral with the under surfaces of the ears. In connecting the sections 13 and 14 of each joint, the upper smooth surfaces of the ears 29 are arranged in close relation with the under smooth surfaces of the ears 19 so that the openings 30 register with the openings 20. A pintle or bolt 33 is now extended through the alining openings 20 and 30 while the head 34 thereof rests upon the boss 21 of the upper arm 19. It is to be noted particularly that the sections 13 and 14 are substantially similar in construction with the exception of the positioning of the bosses and the ears.

Stub axles 35 are now employed and are each disposed within the collars in the outer sections 14 and also in the opening 25 therein. Also fitted within the collars are sleeves 36 for accommodating roller bearings 37 which in turn co-act with the adjacent stub axles 35. Wheels 38 are keyed to the outer portions of the axle as at 39 and are held in place through the medium of suitable nuts 40. At this point it may be mentioned that inasmuch as the four wheel drive is particularly designed to act as a motor truck the tires of the wheels may be of the duplex type as indicated.

With a view toward providing improved transmission means between the section 8 of the driven shafts and the adjacent stub axles 35, a washer 41 is disposed about the

projecting end of the adjacent section 8 so as to abut the inner surface of the intermediate portion of the adjacent section 13, while a beveled gear 42 is rigidly mounted on the projecting end of the adjacent shaft 70 section and positioned within the section 14, as indicated in Fig. 2. This gear 42 meshes with another beveled gear 43 keyed to the adjacent bolt 33 subsequent to the application of the bolt. At this point it may be mentioned that the adjacent boss 21 of the under arm of each inner section serves as a bearing for the adjacent gear 43. Another beveled gear 44 is mounted on the inner end of the adjacent stub axle 35 and meshes with the adjacent gear 43 while a washer 45 is disposed about the adjacent axle 35 between each gear 44 and the inner surface of the adjacent intermediate portion 24 of the outer section 14. Suitable means, such as lock nuts 46, are employed for retaining the bolts 33 in position subsequent to the arrangement of the parts as indicated.

Suitable arms 47 are connected to the outer surfaces of the lower arms 29 and are adapted to be connected to suitable steering mechanism to facilitate the steering of the vehicle.

In use, upon actuation of the propeller shafts rotary motion will be transmitted through the differential gearing to the sections 8 of the driven shafts. Rotary motion is likewise independently transmitted to each of the stub axles 35 through the instrumentality of the meshing gears 42, 43, and 44 carried respectively by the outer end of each driven shaft, the section 8, the adjacent bolt 33 and the adjacent stub axle 35 and inasmuch as the wheels are carried by the stub shaft 35 it is to be appreciated that they will rotate about to assure of the movement of the vehicle. Likewise the wheels may be guided by adjusting the arms 47 through the instrumentality of suitable means, not shown, so as to swing the outer sections 14 about the bolts 33 and relative to the sections 13. It is to be particularly observed that the bosses act as bearings for the bolts 33 while the radiating reinforcing ribs of the ears of the sections 13 and 14 are designed to equalize the strain thereon and thus increase the longevity of the device.

It is believed that in view of the foregoing description a further detailed description of the operation of the invention is entirely unnecessary. Likewise it is believed that the advantages of the invention will be readily apparent.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof and it is intended that all matter contained in the above description or shown in the accompanying drawings

shall be interpreted as illustrative and not in a limited sense. It is also to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention which as a matter of language might be said to fall therebetween.

Having thus fully described the invention, what is claimed as new and desired to be secured by Letters Patent is:—

In a driving mechanism, the combination with a driven shaft, a casing therefor, and a stub axle, of a joint composed of two substantially U-shaped sections each embodying an intermediate portion having an opening therein, disk like ears projecting from the intermediate portion and provided with central openings, and a collar projecting from the outer face of the intermediate portion about the opening therein, the upper surfaces of the ears on one section and the under surfaces of the ears of the second section being formed about the openings with integral

bosses serving as bearings, and also being formed with reinforcing ribs radiating from the bearings and integral with the adjacent faces of the ears, each section having a bracing web between the intermediate portion and the collar, means for securing the collar on one section to the casing subsequent to arranging the driven shaft through the opening in the intermediate portion, a bolt engageable with the openings of the ears and passing through the bosses for pivotally connecting the sections, the stub axle being journaled within the collar on the second section, and motion transmitting gears meshing with each other and carried respectively by the driven shaft, the bolt and the stub axle and positioned within the joint sections for transmitting movement from the driven shaft to the stub axle without interfering with the angular adjustment of the latter.

In testimony whereof I affix my signature.

JAMES L. BLOOM, JR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."