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W. D. LOWE.

MOTOR VEHICLE.

APPLICATION FILED DEC. 2, 1904.

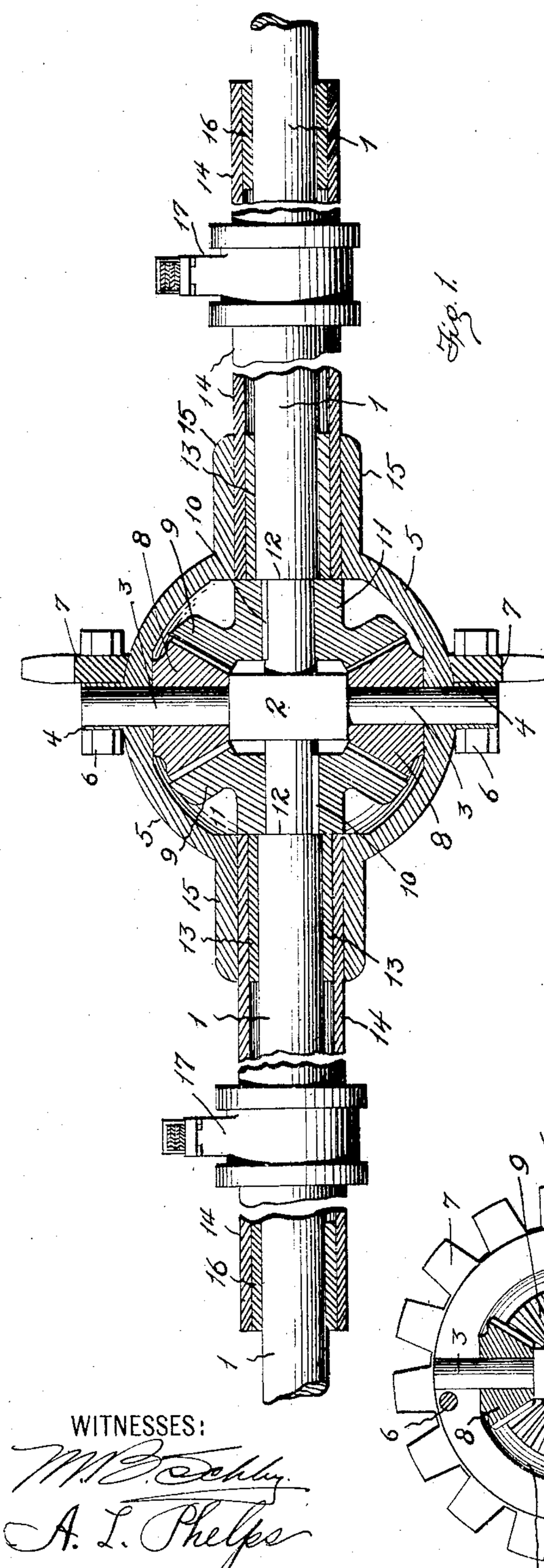

Fig. 1.

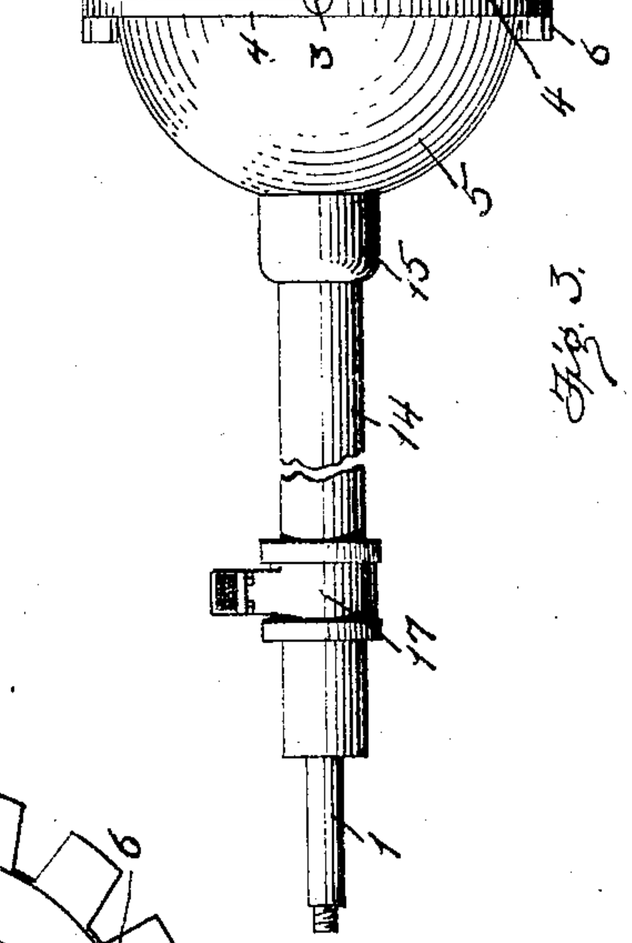

Fig. 3.

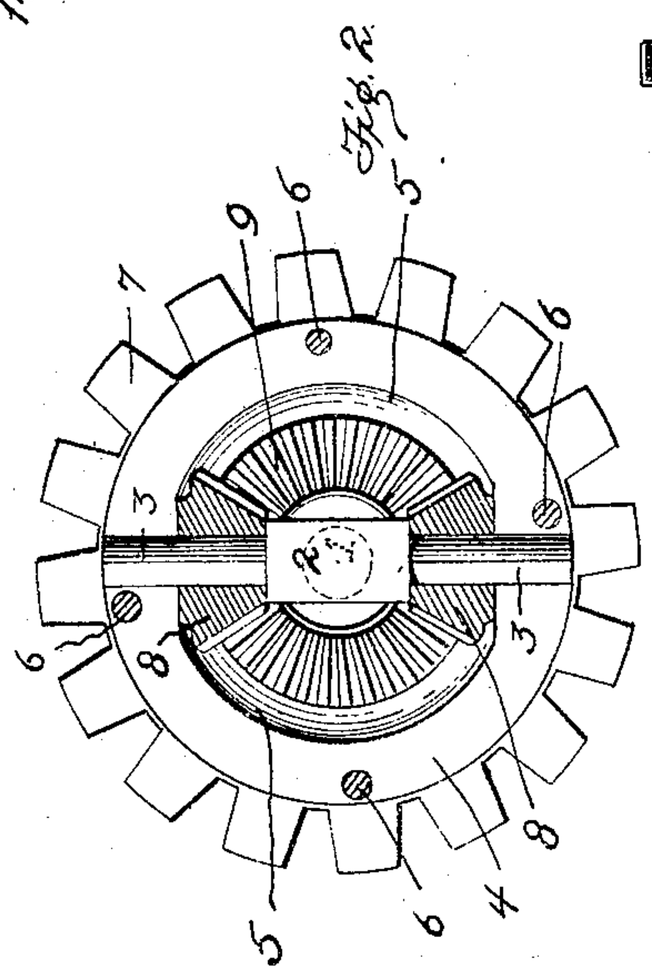

Fig. 2.

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MOTOR-VEHICLE.

No. 805,740. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed December 2, 1904. Serial No. 235,152.

To all whom it may concern:

Be it known that I, WILLARD D. LOWE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Motor-Vehicle-Axle Construction, of which the following is a specification.

My invention relates to a new and useful improvement in motor-vehicle-axle constructions.

The object of the invention is to provide a device of the divided-axle type, wherein the parts are entirely inclosed within a housing and its extensions, which admits of an entirely exterior drive and also allows the axle-sections and the compensating gears to turn in a bath of oil.

A further object of my invention is to provide adjustment for the pinions.

Another novel feature resides in the protection against dirt and grit afforded by my improved construction and also the stability and strength gained thereby

Finally the object of the invention is to provide a device of the character described that will be strong, durable, and efficient, simple and comparatively inexpensive to make, and one in which the several parts will not be liable to get out of operative condition.

With the above and other objects in view the invention consists of the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the accompanying drawings, wherein—

Figure 1 is a longitudinal sectional view portions thereof being shown in elevation and the axle-sections being broken away to facilitate the illustration. Fig. 2 is a face view of the housing-section carrying the sprocket-ring and showing the compensating pinions in section, and Fig. 3 is an elevation of my improved axle construction.

In the drawings, the numeral 1 designates the opposed sections of the divided axle. The inner ends of the sections 1 are reduced in diameter and bear against the sides of a rectangular block 2, from the opposite ends of which project vertical trunnions or stub-shafts 3. The stub-shafts project to the outer peripheries of connecting-flanges 4, which extend from semispherical housing-sections 5. The housing-sections 5 are securely held together by bolts 6, which also serve to hold in place against one of the flanges 4 a sprocket-ring 7, to which power is transmitted. It is obvious that the housing-sections when fastened together by the bolts 6 will securely hold the stub-shafts 3, and thus the block 2, in place and that suitable bearing-points will be formed between the block 2 and the housing for the reception of loosely-mounted pinions 8. The pinions 8 mesh with bevel-gears 9, arranged on each side thereof and fixed by means of keys 10 upon the reduced portions of the axle-sections. The gears 9 are formed with laterally-extending collars 11, which bear against the shoulders 12, formed on the axle-sections. About the axle-sections and abutting the collars 11 I arrange bushings 13, which separate the axle-sections from tubular or sleeve-like extensions 14, fixedly secured within the collar portions 15 of the housing-sections 5, so as to turn therewith. The sleeves 14 extend from the housing to such a point on the axle-sections as to contact with the hub of the vehicle-wheels when they are placed upon the ends of the said sections. At their outer ends the sleeves 14 are supported and separated from the axle-sections by loose bushings 16, similar to the bushings 13. Any suitable form of spring-boxes, such as 17, may be disposed upon the sleeves 14 for supporting the vehicle-body; but it is to be understood that the boxes must be loose in order that the sleeves 14 may revolve therein.

The operation of my device is as follows: Motion being transmitted to the sprocket-ring 7 and the latter being secured to the housing-sections 5, the same are caused to revolve and likewise the sleeves 14, which are fixed within the housing extensions 15. Motion is transmitted from the housing to the axle-sections 1 by the stub-shafts 3, pinions 8, and gears 9. It is obvious, however, that the axle-sections being separated and having independent driving-gears one of said sections is capable of revolving at a lower or higher rate of speed than the other section—as, for instance, when a vehicle provided with my axle construction rounds a corner the inner wheel will turn slower than the outer wheel, thus causing the two axle-sections to revolve at different rates of speed. It is to be noted, however, that the sleeves 14 and the housing-sections 5 still revolve at the same rate of speed irrespective of the differences in the revolution of the axle-sections.

To compensate for the uneven wear of the

bearings and gearings, the shaft 3 may be moved in the recesses in which it is mounted to adjúst the bearing-faces of the block 2 with reference to the axle centers. When adjustment is needed, the bolts in the flanges 4 are loosened and the end of the shaft 3 gently forced in the direction required.

A device constructed in accordance with my invention affords great protection to the compensating gears and the axle-sections against dirt and grit, and owing to the fact that the housing-sections 5 are securely fastened together a receptacle is provided for a bath of oil or other lubricant, which, as is obvious, will travel along the axle-sections and thoroughly lubricate the parts adjacent thereto. The block 2 will take up all end thrust, thereby relieving the gears and pinions.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a device of the character described, the combination with a divided axle of a housing consisting of two parts having outwardly-disposed flanges, a shaft, with an enlarged central portion, secured within and extending through recesses in said flanges, pinions loosely mounted on said shaft having their inner faces engaging the enlarged portion thereof, and their outer faces engaging bearing-faces on the interior surface of the housing, and gears secured to said axle-sections meshing with said pinions.

WILLARD D. LOWE.

In presence of—
A. L. PHELPS,
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