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T. J. LINDSAY.

DRIVING AXLE STRUCTURE FOR AUTOMOBILES.

APPLICATION FILED MAR. 13, 1905.

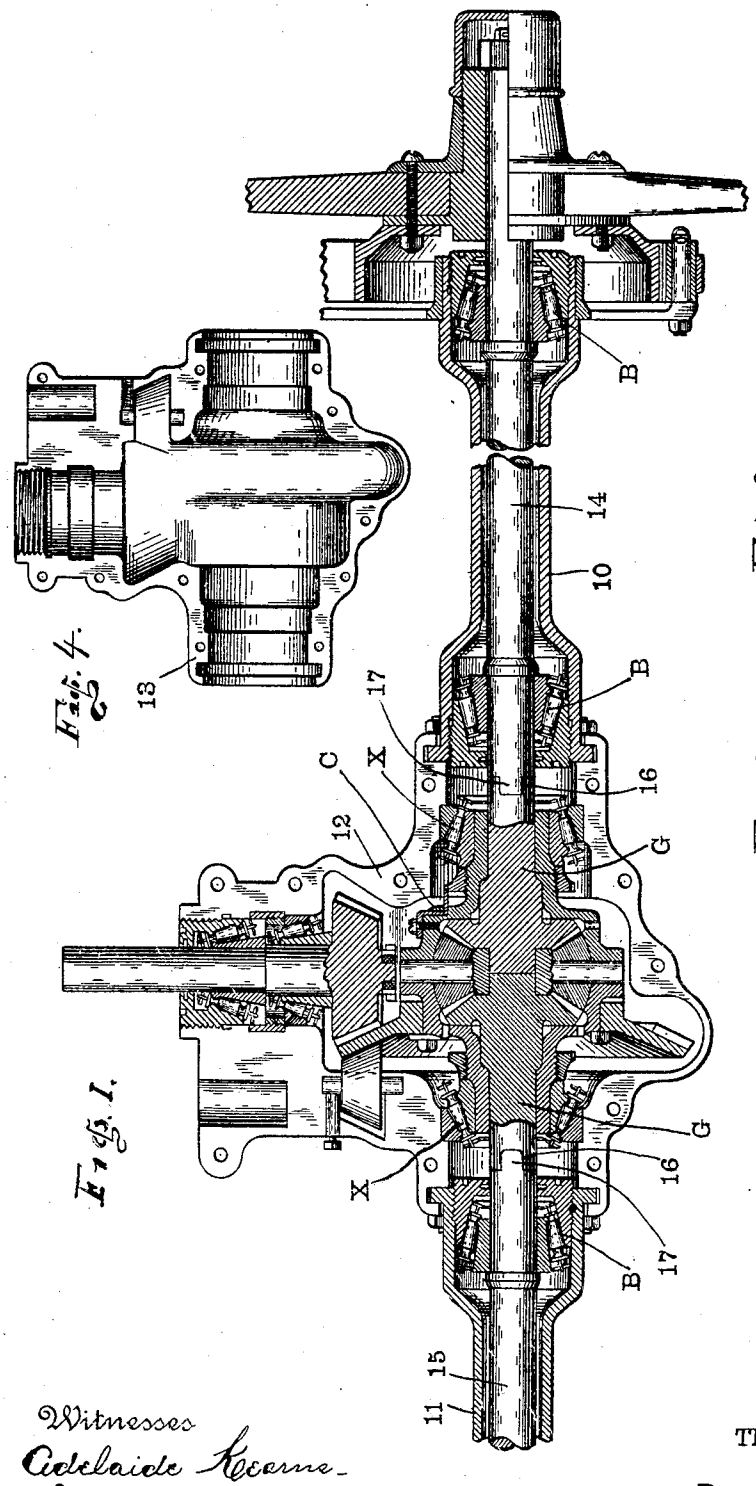


Fig. 1.

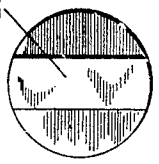


Fig. 3.

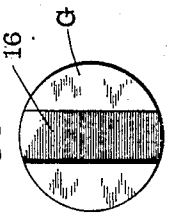


Fig. 2.

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DRIVING-AXLE STRUCTURE FOR AUTOMOBILES.

No. 805,567. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed March 13, 1905. Serial No. 249,926.

To all whom it may concern:

Be it known that I, THOMAS J. LINDSAY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Driving-Axle Structures for Automobiles, of which the following is a specification.

My invention relates to an improvement in automobile rear-axle structure, especially of that type shown in my Patent No. 748,760 of January 5, 1904.

The object of my present invention is to produce a structure from which the compensating gear may be transversely withdrawn without disturbing the shaft-sections.

The accompanying drawings illustrate my invention as embodied in a bevel-gear drive, Figure 1 being a horizontal section of the structure with the transversely-removable cap omitted; Figs. 2 and 3, end elevations of the coöperating ends of a shaft-section and adjacent portion of the compensating gearing; and Fig. 4 a plan, on a reduced scale, of the cap. (Omitted in Fig. 1.)

In the drawings, 10 and 11 indicate a pair of hollow-axle sections which are connected at their inner ends by means of a gear-inclosing casing consisting of a portion 12, to which the axle-sections are rigidly connected, and a removable cap 13, which complements the structure 12 and which may be readily removed therefrom. Mounted in the axle-sections 10 and 11 are shaft-sections 14 and 15, respectively, which in the present case are shown as journaled in the axle-sections by suitable bearings B. Journaled in suitable bearings X is the compensating-gear structure C, which may be of any desired type, the main gears G of which, however, preferably permanently project beyond the bearings X. The adjacent ends of the gears G and the shaft-sections 14 and 15 are provided with coacting parts, which permit transverse withdrawal. In the present case said connections consist of a diametrical slot 16, formed across the end of the shank of the gear G, and a corresponding diametrical rib 17, formed at the end of the shaft-section 14 or 15.

The bearings X are preferably bodily transversely removable from the casing 12.

In operation the shaft-sections 14 and 15 may remain in position, and when the cap 13 is removed and the shaft-sections turned until the portions 17 of the two shaft-sections lie at substantially right angles to the casing 12 the compensating-gear structure C may be bodily transversely withdrawn from the structure without disturbing the shaft-sections in the axle structure.

I claim as my invention—

1. In a driving-axle structure for automobiles, the combination of a hollow-axle structure, a pair of shaft-sections mounted therein and having their adjacent ends separated, a compensating-gear structure journaled in the axle structure between the adjacent ends of the shaft-sections, and driving connections between the said shaft-sections and compensating gear permitting transverse withdrawal of the compensating gear without axial movement of the shaft-sections.

2. In a driving-axle structure for automobiles, the combination of a hollow-axle structure, a pair of shaft-sections rotatably mounted therein with their adjacent ends separated, a rotatable driving element mounted in said structure between the adjacent ends of the shaft-sections, and driving connections between said rotatable driving element and the adjacent ends of the shaft-sections permitting transverse withdrawal of the driving element without axial movement of the shaft-sections.

3. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure consisting of a pair of hollow casings, and an intermediate larger casing connecting the adjacent ends thereof and consisting of a main portion and a removable cap, a pair of shaft-sections mounted in said axle structure and having their adjacent ends separated but projecting into the intermediate casing, a compensating-gear structure arranged in said larger casing between the adjacent ends of the shaft-sections; and driving connections between said compensating-gear structure and the adjacent ends of the shaft-sections permitting transverse withdrawal of the compensating-gear structure without axial movement of the shaft-sections.

4. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure consisting of a pair of hollow-axle casings and an intermediate larger casing connecting the adjacent ends thereof and consisting of a main portion and a removable cap, a pair of shaft-sections mounted in said axle

structure and having their adjacent ends separated but projecting into the intermediate casing, a compensating-gear structure independently journaled in the main portion of said larger casing, and driving connections between said compensating-gear structure and the adjacent ends of the shaft-sections permitting transverse withdrawal of the compensating-gear structure without axial movement of the shaft-sections.

5. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure, a pair of shaft-sections mounted therein and having their adjacent ends separated, a compensating-gear structure journaled in the axle structure between the adjacent ends of the shaft-sections, and a driving connection between the inner end of each shaft-section and the adjacent portion of the compensating gear consisting of a diametrical rib and corresponding slot permitting transverse withdrawal of the compensating gear without axial movement of the shaft-sections.

6. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure, a pair of shaft-sections rotatably mounted therein with their adjacent ends separated, a rotatable driving element mounted in said structure between the adjacent ends of the shaft-sections, and a driving connection between each end of the rotatable driving element, and the adjacent shaft-section end consisting of a diametrical rib and slot permitting transverse withdrawal of the driving element without axial movement of the shaft-sections.

7. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure consisting of a pair of hollow casings, an intermediate larger casing connecting the adjacent ends thereof and consisting of a main portion and a removable cap, a pair of shaft-sections mounted in said axle structure and having their adjacent ends separated but projecting into the intermediate casing, a compensating-gear structure arranged in said larger casing between the adjacent ends of the shaft-sections, and a driving connection between each end of said compensating-gear structure and the adjacent shaft-section end consisting of a diametrical rib and slot permitting transverse withdrawal of the compensating-gear structure without axial movement of the shaft-sections.

8. In a driving-axle structure for automobiles, the combination of, a hollow-axle structure consisting of a pair of hollow-axle casings and an intermediate larger casing connecting the adjacent ends thereof and consisting of a main portion and a removable cap, a pair of shaft-sections mounted in said axle structure and having their adjacent ends separated but projecting into the intermediate casing, a compensating-gear structure independently journaled in the main portion of the larger casing, and a driving connection between each end of said compensating-gear structure and the adjacent shaft-section end consisting of a diametrical rib and slot permitting transverse withdrawal of the compensating-gear structure without axial movement of the shaft-sections.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 3d day of March, A. D. 1905.

THOMAS J. LINDSAY. [L. S.]

Witnesses:
ARTHUR M. HOOD,
JAMES A. WALSH