E. R. HEWITT & A. F. MASURY.

GEARING.

APPLICATION FILED FEB. 27, 1912.

1,119,958.

Patented Dec. 8, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

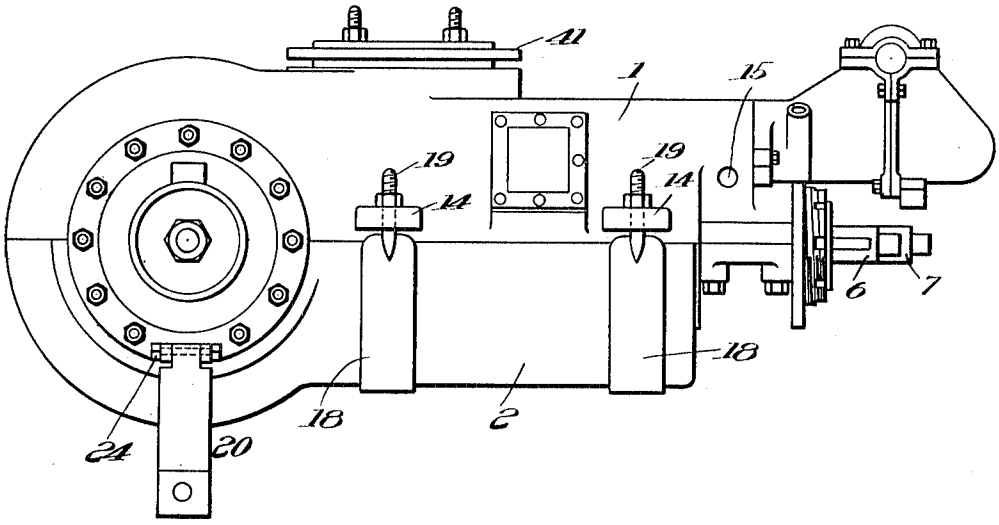


Fig. 3.

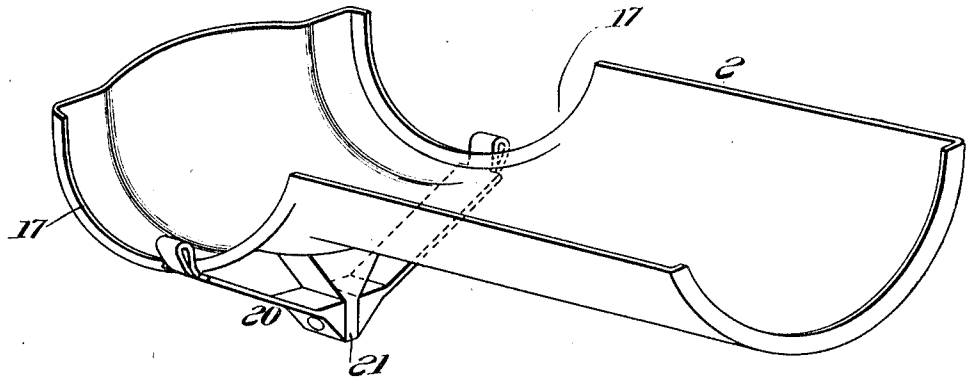
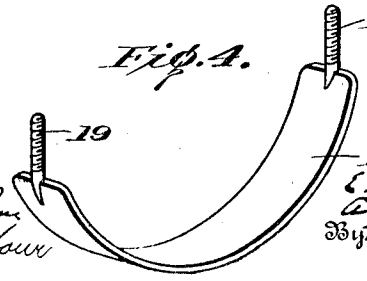


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

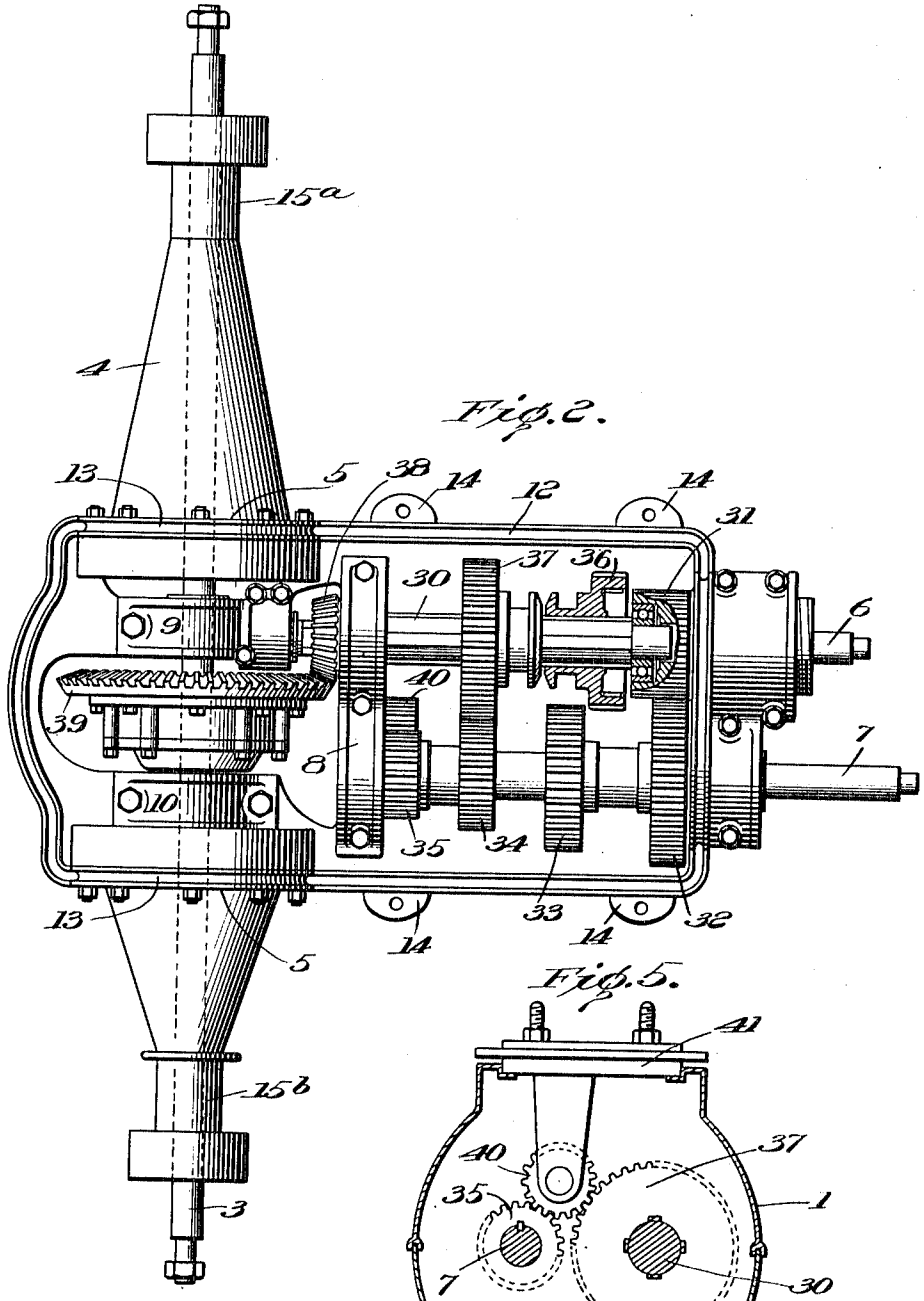


Fig. 5.

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UNITED STATES PATENT OFFICE.

EDWARD R. HEWITT AND ALFRED F. MASURY, OF NEW YORK, N. Y., ASSIGNORS TO HEWITT MOTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

GEARING.

1,119,958. Specification of Letters Patent. Patented Dec. 8, 1914.

Application filed February 27, 1912. Serial No. 680,257.

To all whom it may concern:

Be it known that we, EDWARD R. HEWITT and ALFRED F. MASURY, both of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gearing; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our object is to provide an improved arrangement of gearing and a single housing or casing in which all of the transmission gears may be inclosed, the housing being sectional and readily dismantled to gain access to the gears, and also to provide a means of applying power from the motor to any mechanical device on the truck, using a portion of the power to propel the truck at the same time.

A feature of the invention resides in the extreme cheapness with which the box can be manufactured, owing to the minimum of finish required on the lower section of the box, also in the absence of the usual bolts and flanges used in fastening the two sections of the box together. These parts are all arranged in the casting and do not require machinery.

The invention is primarily adapted to motor trucks employing a jack-shaft, this form of embodiment being shown on the drawing where—

Figure 1 illustrates the gear box fully assembled; Fig. 2 is a bottom plan view with the pan or cover removed; Fig. 3 shows the pan, and Fig. 4 one of the straps. Fig. 5 is a detail.

The gear box as shown comprises two parts, an upper section 1 and a lower section 2, the former being secured beneath the body of the truck or vehicle. It is intended that the box shall be of such size and formation as to completely inclose and protect all the gears and also provide a bearing for the jack-shaft 3. This shaft in practice carries sprockets at its extremities connected by chains with the traction wheels. The casings 4 through which the jack-shaft extends are shown bolted to the section 1, the latter having the sides of its shell shaped to correspond to the circular plates 5 on the casings 4. At its forward end the section 1 is formed with bearings for the driving shaft 6 and the lay-shaft 7. We have also shown bearing members 8, 9 and 10 within the section 1 to provide for suitably mounting the shafts.

By reference to Fig. 2 it will be noted that the lower edge of section 1 is formed with a groove 12 extending over its entire length. In order to continue this groove at the points of location of the plates 5 the latter are also formed with peripheral channels 13. The section 1 is also provided with lugs 14. It is shown formed with a transverse bore 15 by which it may be held by a suitable hanger supported by the vehicle truck. The casings 4 which inclose the jack-shaft are also shown formed at 15^a and 15^b to be suitably supported by the truck.

The section 2, as shown in Fig. 3, comprises a single metallic shell of the formation shown. Its edges are adapted to be received by the grooves 12 and 13 and its sides are cut away as at 17 to accommodate the plates 5 on the casings 4. When the sections are assembled as in Fig. 1 the straps 18 are passed beneath the section 2 and the bolts 19 at their extremities are received by the lugs 14 and bolted. The strap 20 which is used at the rear end of the section 2 is preferably made of two pivoted members seated in a block 21 on the lower side of section 2 and formed with ears at its extremities receiving bolts 24 passed through flanges in the plates 5.

In actual use the groove in the lower edge of the upper section of the box is filled with a soft packing material which is usually cemented in place. The lower section of the case is then strapped up against this soft packing material, the straps being so arranged that they distribute the pressure nearly equally over the whole edge of the case, pressing the lower case into the soft packing and making an oil tight joint. In actual practice, this joint is found to be more satisfactory than that made with bolts and flanges.

As shown in the drawings, the lay-shaft 7 extends beyond the front end of the gear box so that it may be used for operating mechanism carried by the truck such as pumps, hoisting devices, dumping mechanism, etc. This shaft may be rotating at constant speed and direction while the truck is standing still or moving at any speed.

We have shown the driving shaft 6 of two

telescopic sections to provide a driving shaft proper, and a spline shaft 30. Shaft 6 carries a gear 31 constantly in mesh with gear 32 on the lay-shaft 7, the latter also having keyed thereon pinions 33, 34, 35. The spline shaft 30 carries the shiftable gears 36, 37 and the beveled pinion 38 by which the jack-shaft gear 39 is rotated. The gear 36 has internal teeth adapted to engage gear 31. When thus connected for high speed the lay-shaft 7 through gear 32 is rotated at corresponding speed. When gear 36 is shifted to mesh with pinion 33 the drive is from gears 31, 32, shaft 7 and pinion 33. This creates an intermediate speed. Gear 36 may be shifted to a neutral point and gear 37 brought into mesh with pinion 34 for low speed. It may also be further moved to mesh with an idler gear 40 in mesh with pinion 35 to reverse. In Fig. 5 we have shown the idler gear 40 journaled in a bracket on a plate 41 fitting over an opening in the top of section 1 of the gear box. It will be noted that regardless of the various speeds the direct connection between the shafts 6 and 7 through gears 31, 32, results in a constant rotation of the lay-shaft for the purposes previously suggested.

When access to the gears is desired for any purpose it is only necessary to remove the straps 18 and 20 and allow section 2 of the gear box to fall.

We claim as our invention:—

1. An integral gearing box for motor vehicles to inclose the variable speed gearing and the driving gearing comprising an upper section and a lower section detachably secured thereto, one of said sections having its meeting edges formed with grooves adapted to receive the edges of the other section, a filling of soft packing material in said grooves, lugs carried by the upper section and straps embracing the lower section and secured detachably to said lugs, whereby the edges of the sections are maintained in engagement throughout by uniform pressure.

2. In a motor vehicle, the combination with the jack-shaft and its casings, and gearing for operating said jack-shaft, of a shell adapted to be secured to a vehicle truck and to partially inclose said gearing, means for securing said shell to said casings, and a second shell adapted to complete the inclosing of said gearing, and means for securing said shells together.

3. In a motor vehicle, the combination with the jack-shaft, the casings therefor, having flanges, said flanges having channels in their peripheries, and gearing for operating said jack-shaft, of a shell adapted to be secured to a vehicle truck and to partially inclose said gearing, said shell having grooves in its edges registering with the channels in said flanges, means for securing said shell to said flanges, and a second shell adapted to fit at its edges into said grooves and channels, and to complete the inclosing of said gearing, and means for securing said shells together.

4. In a motor vehicle, in combination, a gear box comprising upper and lower sections, variable speed transmission gearing including a driving shaft and a lay-shaft mounted in said upper section, a driven shaft, shiftable gears carried by said driving shaft, pinions on said lay-shaft adapted to engage said shiftable gears to vary the speed of rotation of the driven shaft, a removable plate mounted in an opening in the top wall of the upper section, a depending bracket fixedly secured thereto and a pinion mounted rotatably adjacent the lower end of said bracket, said pinion being operatively disposed with respect to the lay-shaft and the driven shaft whereby the direction of rotation of the latter may be reversed.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses.

EDWARD R. HEWITT.
A. F. MASURY.

Witnesses:
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