PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Motor Car Power Plants.

We, THE ALVIS CAR & ENGINEERING COMPANY LIMITED, a British Company, and GEORGE THOMAS SMITH-CLARKE, a British Subject, both of Holyhead Road, Coventry, Warwickshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to the power plants of motor vehicles, and it has for its object to provide an extremely compact plant comprising an engine and gearing which will occupy but a very short space longitudinally on the chassis. This allows considerable room for the body.

According to this invention, two engines, or two rows of cylinders, are arranged at the lateral edges of the power plant driving on to a central shaft which is connected with change speed gearing located on the centreline of the plant.

In one construction, there are employed what amounts to two separate engines, and one is arranged along each lateral edge of the power plant. The two engines may be mounted on a common bed plate, or may be connected together as to their base, and the two crankshafts drive a central gear wheel located on what is actually, or approximately, the centreline of the power plant. This gearing is arranged at one extreme end of the power plant, and the central gear wheel may be of such dimensions in relation to those on the crankshafts that it is driven at a reduced speed.

Between the two engines is a space in which lies, adjacent to the central gear wheel, a friction clutch, and beyond this is a change speed gear also located between the two cylinders. Thus the clutch and change speed gear need not project beyond the limit of the engines. With the clutch casing may be incorporated, or there may be attached to it, a casing containing right angle gearing and, if necessary, a differential gear. The latter casing may communicate for lubrication purposes with the change speed gear box, and that in turn with the clutch casing, and any or all of these may communicate with one or both crank chambers, so that there may be only one source of lubricant to supply all the necessary parts.

The invention is particularly applicable to front wheel driven vehicles, in which case the right angle gearing would be arranged at the front of the power plant.

By this means a very compact plant can be produced which occupies very little space on the chassis and permits the use of cylinders of very small dimensions.

Dated this 22nd day of June, 1928.

ERIC W. WALFORD,
Fellow of the Chartered Institute of Patent Agents,
19, Hertford Street, Coventry,
Agent for the Applicants.

COMPLETE SPECIFICATION.

Motor Car Power Plants.

We, THE ALVIS CAR & ENGINEERING COMPANY LIMITED, a British Company, and GEORGE THOMAS SMITH-CLARKE, a British Subject, both of Holyhead Road, Coventry, Warwickshire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the power plants of motor vehicles, and it has for its object to provide an extremely compact plant comprising an engine and transmission gearing which will occupy but a very short space longitudinally on the chassis. This allows considerable room for the body.

According to this invention, the power plant has two engines, a change speed gear and a clutch, the engine cylinders being arranged alongside the sides and

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the change speed gear and clutch directly between them.

The accompanying drawings show diagrammatically two methods of carrying out the invention. In these

Figure 1 is a plan of one arrangement, and

Figures 2 and 3 are respectively a plan and elevation, on a smaller scale, of another arrangement.

Like numerals indicate like parts throughout the drawings.

In the construction shown in Figure 1, there are employed what amounts to two separate engines, (the tops of the cylinders of which are shown at 2 and 3) and one is arranged along each lateral edge of the power plant. The two engines may be mounted on a common bed plate 4, or may have their bases connected together, and the two crankshafts 5 and 6 drive by gears 8 and 9 on to a central gear wheel 7 located on what is actually, or approximately, the centre line of the power plant. This gearing 7, 8, 9 is arranged at one extreme end of the power plant, and the gear wheel 7 may be of such dimensions in relation to the gears 8 and 9 that it is driven at a reduced speed.

Between the two engines is a space in which lies, adjacent to the gear wheel 7, a friction clutch 10, and beyond this is a change speed gear 11 also located between the two cylinders. Thus the clutch and change speed gear need not project beyond the end of the engines. With the gear casing 11 may be incorporated, or there may be attached to it, a casing 12 containing right angle gearing, and, if necessary, a differential gear through which a transverse shaft or axle 13 is driven. The casing 12 may communicate, for lubrication purposes, with the change speed gear box 11, and that in turn with the clutch casing 10, and any or all of these may communicate with one or both engine crank chambers, so that there may be only one source of lubricant to supply all the necessary parts.

In the arrangement shown in Figures 2 and 3 the cylinders 2 and 3 are mounted on a common crank or base chamber 14 and the space in the latter between the cylinders is adapted to accommodate the friction clutch 10 and change speed gear 11 so that these are totally enclosed. The driven shaft 15 of the change speed gear is continued to the forward end of the chamber 14 and is there provided with a right angle gear 16 engaging a corresponding gear 17 within the casing 12 to drive the transverse shaft or axle 13.

The gear 8 in this construction directly engages the central gear 7 whilst the latter is in driving connection with the gear 9 through an idler wheel 18, so that the crankshafts 5 and 6 are caused to rotate in opposite directions, the torque reactions being thereby opposed.

The invention is particularly applicable to front wheel driven vehicles, in which case the right angle gearing in the casing 12 would be arranged at the front of the power plant.

By this means a very compact plant can be produced which occupies very little length on the chassis and permits the use of a large number of cylinders of very small dimensions.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A power plant for a motor vehicle having two engines, a change speed gear, and a clutch, in which the engine cylinders are arranged along the sides and the change speed gear and clutch directly between them.

2. A power plant as claimed in Claim 1, in which the change speed gear drives right angle gearing whereby a transverse shaft arranged at the end of the plant is driven, the gear box and casing for the right angle gearing being connected together.

3. A power plant as claimed in Claim 1 or Claim 2, in which the central clutch shaft is driven through reduction gearing from the crankshafts.

4. A power plant as claimed in any of the preceding claims, in which the central shaft, clutch and change speed gear are arranged within a chamber forming a common crankcase for the two engines.

5. A power plant as claimed in any of the preceding claims, in which any or all of the casings containing the clutch, change speed gear and right angle gearing communicate with one another and/or a crank chamber, substantially as and for the purpose described.

6. The complete power plant for a motor vehicle substantially as described or illustrated in Figure 1 or Figures 2 and 3 of the accompanying drawings.

Dated this 27th day of February, 1929.

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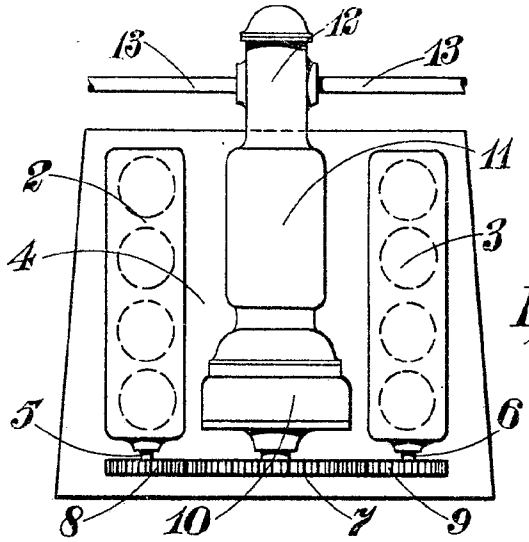

Fig.1.

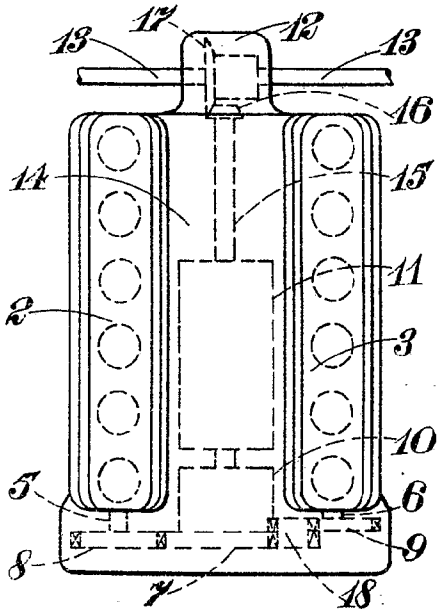

Fig.2.

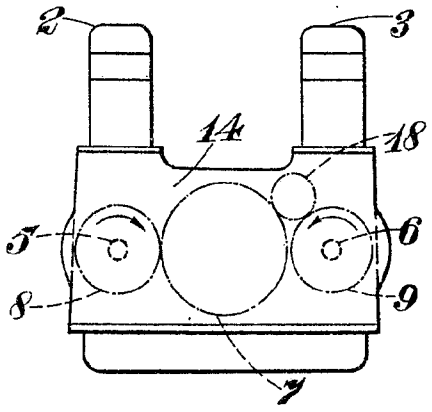

Fig.3.

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