F. H. ROYCE.

ENGINE MOUNTING.

APPLICATION FILED MAR. 6, 1914.

1,120,243. Patented Dec. 8, 1914.

FIG. 1.

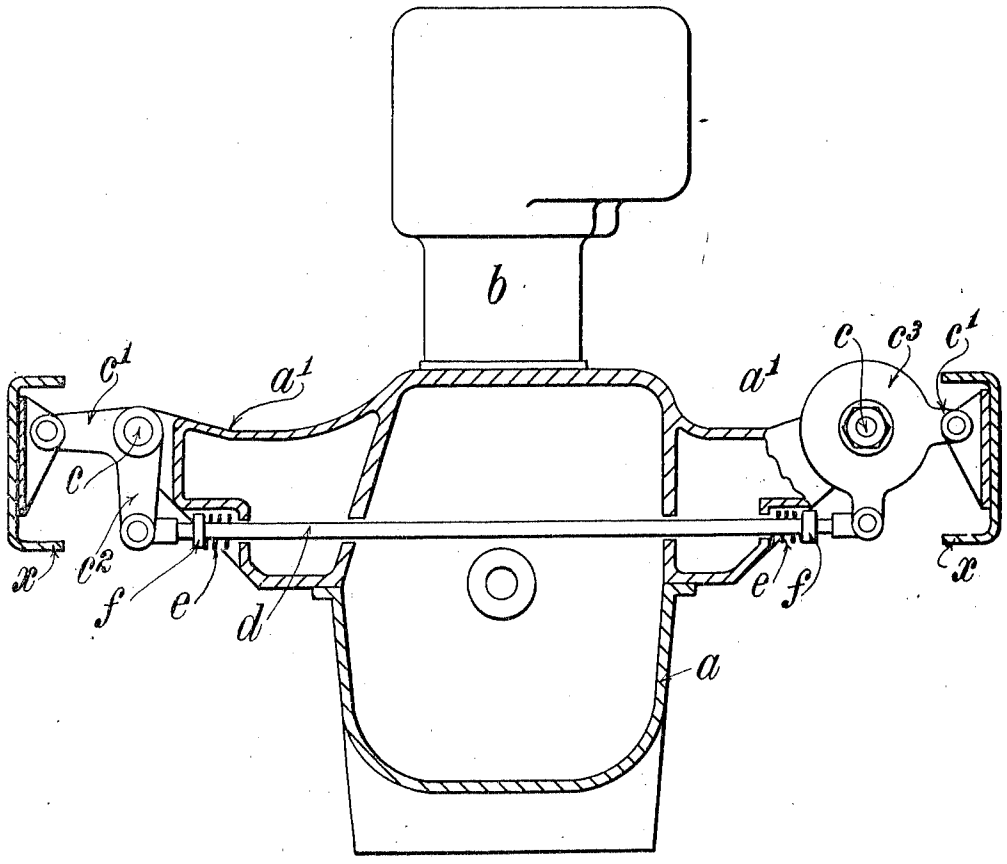
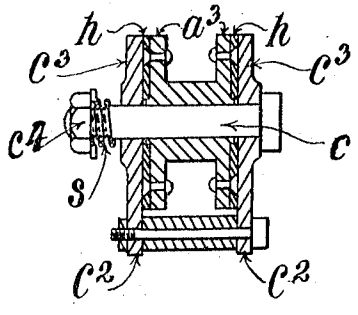


FIG. 2.



WITNESSES.

H. E. Brady,

E. V. Holbrook.

INVENTOR

F. H. Royce.

per Brog. H. Moore

Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK HENRY ROYCE, OF DERBY, ENGLAND.

ENGINE-MOUNTING.

1,120,243. Specification of Letters Patent. Patented Dec. 8, 1914.

Application filed March 6, 1914. Serial No. 822,892.

To all whom it may concern:

Be it known that I, FREDERICK HENRY ROYCE, a subject of the King of Great Britain and Ireland, residing at Nightingale Road, Osmaston Road, Derby, in the county of Derby, England, have invented a new and useful Improvement in Engine-Mountings, of which the following is a full and complete specification.

This invention relates to an improved method of mounting engines in or on the frames of motor vehicles, and it has for its object counteracting the effect of the reaction of the engine on the frame and at the same time preventing undue oscillation of the engine about its longitudinal axis. I attain these objects by the mechanism illustrated in the accompanying drawing in which:—

Figure 1 is a view in end elevation, partly in section, and Fig. 2 is a sectional view of a suitable frictional damper.

In both views similar parts are marked with like letters of reference.

On arms a^1 formed on the crank-chamber a of the engine—on which are mounted the cylinders b—are pivoted by means of pins c bell-crank levers arranged in two pairs located fore and aft. As these pairs are exactly similar in construction and arrangement I have shown only one pair. One of the arms c^1 of each of the bell-crank levers is pivoted to the side members of the frame x of the vehicle so that it lies in an approximately horizontal plane, and the other arm c^2 of each of the bell-crank levers lies in an approximately vertical plane. The arms c^2 of each pair of bell-crank levers are coupled together by rods d and on said rods, between collars f thereon and the sides of the crank-chamber a, are springs e which operate to keep the engine in a vertical position and limit its movement in a rotary direction within certain limits.

To prevent undue oscillation of the engine a frictional damper is introduced into one or more of the joints of the suspension mechanism at the points where the bell-crank levers are pivoted to the crank-chamber. Each of the arms a^1 of said chamber terminates in an enlarged boss a^2 and the bell-crank lever is made in duplicate and has enlarged bosses c^3 for the pins c which are constructed and arranged to clamp the duplicate bell-crank lever to the boss a^2 one on each side thereof. To increase the friction, frictional faces h of fiber or other suitable material are fixed on the faces of the enlarged boss a^2 by rivets or the like and a spring s is mounted on the pivot pin c so as to operate between the face of one part of the bell-crank lever and a washer held up by a nut c^4 screwed on the end of the pin c, whereby the friction between the parts can be adjusted as required.

It will be seen that before the engine can move in a rotary direction about its longitudinal axis, one or other of the springs e must be compressed, that said movement causes movement to take place between the friction faces h of the boss a^2 of the arm a^1 of the crank-chamber and the two parts of the bell-crank lever, and that the friction set up at this point will prevent the engine from getting into a state of oscillation due to the recoil of the springs controlling its rocking motion.

It will be obvious that the friction damper may be applied with equal effect to any of the joints of the suspensory mechanism.

What I claim as my invention, and desire to secure by Letters Patent is:—

1. In a motor vehicle, the combination with the frame and the engine, of bell-crank levers pivoted at their angles or apices to the crank-chamber of the engine and arranged in pairs fore and aft of said chamber—one arm of each of said levers being pivoted to one of the side members of the frame and the other arm of each said lever being connected by a coupling rod to the corresponding arm of the oppositely arranged lever of each pair, of springs interposed and operating between the bell-crank levers and the crank-chamber of the engine, and of a frictional damper operating between one of the bell-crank levers and the crank-chamber of the engine.

2. In a motor vehicle, the combination with the frame and the engine of bell-crank levers pivoted at their angles or apices to the crank chamber of the engine—said bell-crank levers being arranged in pairs fore and aft of said chamber and having one arm of each lever of one pair pivoted to one of the side members of the frame and one arm of each lever of the other pair pivoted to the other side member of the frame the other arm of each lever of one pair being connected to the corresponding arm of each lever of the other pair by coupling rods, of springs interposed and operating between

the coupling rods and the crank-chamber of the engine, and of a frictional damper operating between one of the bell-crank levers and the crank-chamber of the engine.

3. In a motor vehicle, the combination with the frame and the engine of bell-crank levers pivoted at their angles or apices to the crank-chamber of the engine and arranged in pairs fore and aft of said chamber—one arm of each of said levers being pivoted to one of the side members of the frame so that said arms lie in the horizontal plane and the other arms of each pair of levers being connected by coupling rods to the corresponding arms of the opposite pair of levers so that said arms lie in the vertical plane, of springs interposed and operating between the coupling rods and the crank-chamber of the engine, and of a frictional damper operating between one of the bell-crank levers and the crank-chamber of the engine at one of the joints by which said bell-crank lever is pivoted to said crank-chamber.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

FREDERICK HENRY ROYCE.

Witnesses:
C. POPPLETON,
MAURICE OLLEY.