E. FUCHS.

SHAFT COUPLING.

APPLICATION FILED MAY 6, 1916.

1,235,130. Patented July 31, 1917.

Fig. 1

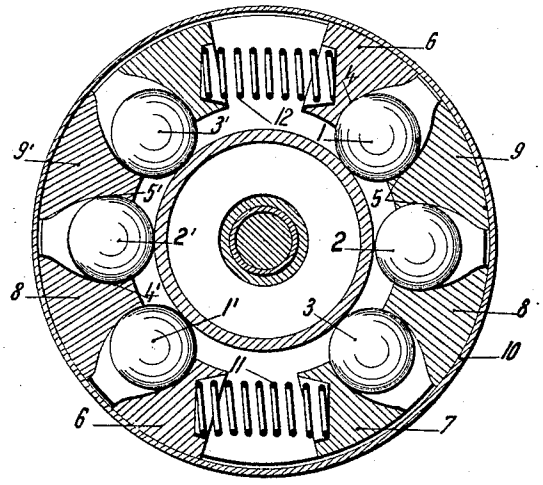
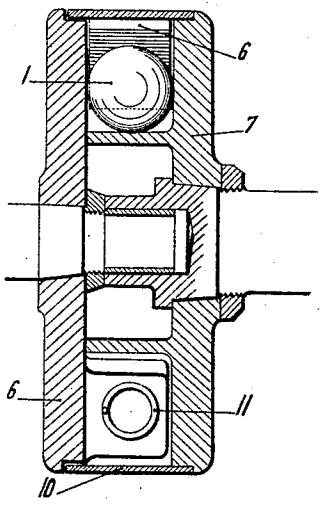


Fig. 2



Inventor.

Ernest Fuchs

by Francis Goldsborough & Neill

Attys.

UNITED STATES PATENT OFFICE.

ERNEST FUCHS, OF BILLANCOURT, FRANCE, ASSIGNOR TO LOUIS RENAULT, OF BILLANCOURT, FRANCE.

SHAFT-COUPLING.

1,235,130. Specification of Letters Patent. Patented July 31, 1917.

Original application filed August 31, 1915, Serial No. 48,354. Divided and this application filed May 6, 1916. Serial No. 95,913.

To all whom it may concern:

Be it known that I, ERNEST FUCHS, engineer, of 15 Rue Gustave Sandoz at Billancourt, Department of the Seine, France, citizen of the French Republic, have invented certain new and useful Improvements in Shaft-Couplings; and I 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.

This application is a division of application Serial No. 48,354 filed by me August 31, 1915.

The present invention relates to a mechanical device for automatically controlling the angle of lead of the ignition under all conditions of internal combustion engines.

The device according to the present invention is of the kind in which use is made of a number of balls subjected to the action of centrifugal force, these balls acting on rolling paths or race-ways in such manner as to displace angularly the plates of the device through a predetermined angle dependent upon the speed of rotation of the system, as soon as they move away from the center.

It has already been proposed to use a number of balls acting on intermediate members in such manner that the respective angular displacements obtained by the action of each ball on its two race-ways were totalized and gave the plates a resulting angular displacement, comparatively large for a small movement of the balls away from the center.

In devices as heretofore known, the intermediate members carrying the race-ways are always interconnected, that is to say that the race-ways in contact with two opposite balls are carried by a common member pivotally connected with the axis of one of the plates. An arrangement of this kind has the disadvantage of rendering the race-ways dependent on the opposite masses thereby giving rise, at the moment of variations of the speed, to shocks within the device.

The present invention has for its object to provide a device permitting of eliminating the above-described dis-advantages and to this end the intermediate members, comprised between the balls, are not pivotally connected to the axis of one of the sleeves but are retained by their external periphery on an outer sleeve connected with one of the plates, which renders them absolutely free and independent of one another.

The accompanying drawing illustrates, by way of example, a constructional form of the invention.

Figure 1 is a section taken at right angles to the axis of the improved device.

Fig. 2 is a section taken on the axis of the same device.

The device illustrated in the drawing, comprises a certain number of masses constituted by balls subjected to the action of centrifugal force and designated bv 1, 2, 3, etc., 1′, 2′, 3′, etc., which tend to separate the race-ways 4, 5 carried on the one hand, by the plates 6, 7, and on the other, by four intermediate independent members 8, 9, etc., 8′, 9′, etc., simply guided by the ring 10 secured to the plate 7.

Two springs 11 and 12 tend to bring the plates 6 and 7 into their relative lagging positions.

The device operates in the following manner:—

The balls in moving away from the center tend to separate the race-ways and to displace angularly, through a certain angle, the two plates. It is obvious that the device is not limited to the number of masses illustrated in the drawing as any number of the same may be used.

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

The combination with a driving shaft and a driven shaft, of a coupling device interposed between the two and comprising a plate secured to the driving shaft, a second plate parallel to the first and secured to the driven shaft, a series of elements positioned between said plates and being relatively movable circumferentially thereof, balls positioned between said elements, said balls

and elements serving to transmit motion from the driving shaft to the driven shaft and said elements adapted to be separated by the balls when the latter are thrown outwardly by centrifugal force, and a circular band secured to one of said plates and encircling said elements and balls, the intermediate elements of said series of elements being loosely retained in association with the balls by means of said band.

In testimony whereof I affix my signature, in presence of two witnesses.

ERNEST FUCHS.

Witnesses:
HENRI COHEN,
CHAS. P. PRESSLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."