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ELASTIC COUPLING DEVICE WITH RUBBER BALLS

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FIG. 1

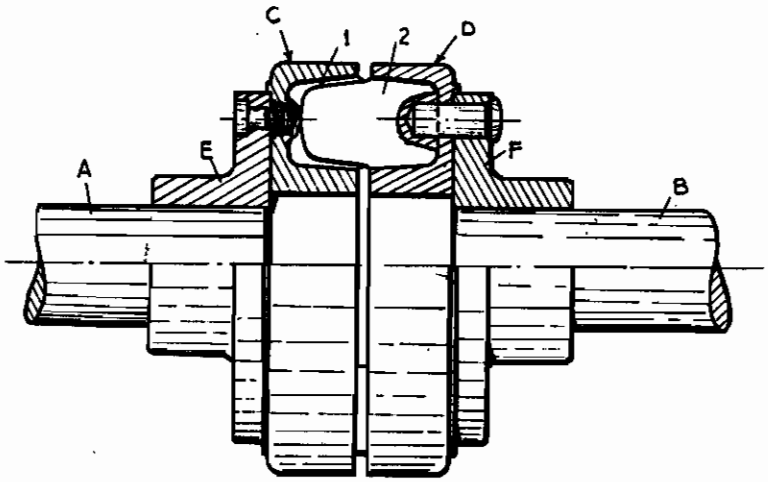
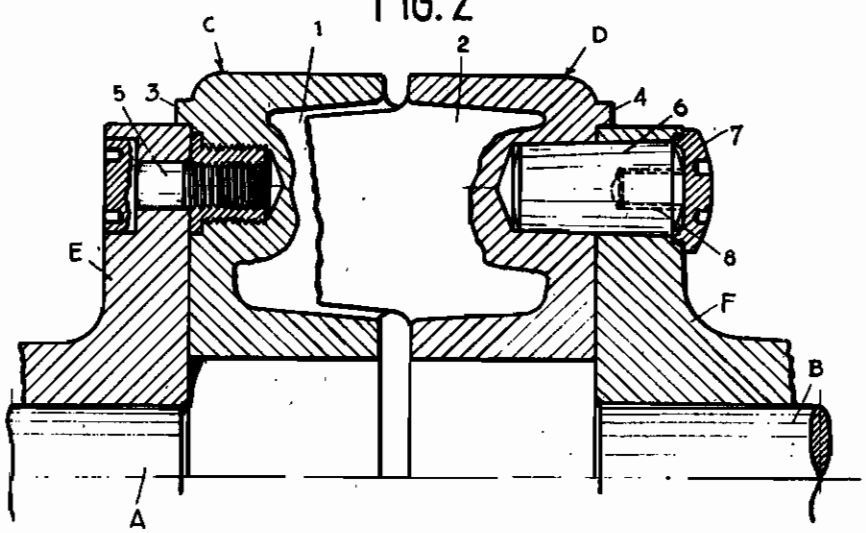


FIG. 2



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ELASTIC COUPLING DEVICE WITH RUBBER BALLS

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The object of the present invention is an elastic coupling device with rubber balls.

The cushioned coupling device according to the invention, for mechanically transmitting power from a driving to a driven shaft, comprises rotary driving and driven members in fixed coaxial alinement, the driving and driven members having complementary series of axially extending lugs, with facing complementary concave engaging portions, and a series of transmitting, spheroidal bodies of elastically compressible material as rubber, each body being interposed and confined between a pair of such concave driving and driven lug portions, said lug portions and elastic body being so relatively arranged that the transmitting stresses operate compressibly on the body substantially at right angles to a plane extended through the rotation axis and the center portion of the body; and said members and bodies being adapted to be assembled by axial approaching movement, the lugs of said complementary series having for this purpose a relatively flared configuration whereby first to roll and progressively compress the bodies in the act of assembling the device, followed by the said concave lug portions wherein the bodies are then relaxed and allowed to expand as they come into operating position.

According to the present invention, the coupling is designed so as to be fitted-on and demounted from said shafts, without any displacement of the latter. The invention solves, besides, the problem of avoiding to fit-in the rubber spheres during the erection—the former operation being performed separately—and then fitting—on the device ready mounted.

One of the characteristic features of the invention consists in providing two half-couplings wherein the rubber balls can be fitted separately, the two coupling-halves being then fitted on the shaft-ends placed at a proper distance, means being provided for fixing the two half-couplings together and on the shaft end.

In an embodiment of said inventive feature, the means for connecting the half-couplings to each other and on the shafts, comprise flanges, keyed to said shafts and connected by proper means to the half-couplings.

The invention will now be disclosed with reference to the annexed drawing, showing, as a simple indication, limiting in no way the invention's range, an embodiment of the coupling.

Fig. 1 is a side-view of the coupling, half of which is in section;

Fig. 2 is a partial enlarged section.

In the drawing, A and B are the two shafts; C and D the two half-couplings; E and F the flanges for fixing the above to the shafts.

As shown, the ends of the shafts A and B are kept apart by a certain amount so as to allow the members C and D, mounted separately, to be inserted between said ends.

The two half-couplings C—D have the respective appendices or projections extending longitudinally with the engaging cup-shaped members, complementary to each other, wherein are inserted the rubber balls (not shown in the drawing), each ball being limited within a pair of said cup-shaped parts, so that the transmission stresses act upon the balls substantially in a direction at right angles to a plane passing through the axis of rotation and the central part of the ball.

The balls are fitted-in by a longitudinal shift, approaching parts C and B, in which shift, due to the particular shape of the facing coups, first a rolling of the balls, then their progressive compression is obtained, until the balls enter the cup-shaped parts carried by 1 and 2, expanding, preferable, just slightly, so that they remain partially compressed.

For mounting the two half-couplings, C and D, together a lathe sight be used, fixing one of the half-joints to the head and the other to the tail-stock.

The group of the two half-couplings connected together with the balls is then slipped-in between the two flanges E and F, previously fixed on the two shafts A and B.

During this operation, the two half-couplings can be compressed against each other, so as to enable their being slipped on to position, a relatively slight pressure will obtain, due to the rolling of the balls, a sufficient decrease of the total width of group C—D, as to allow the rims 3 and 4 to get over the flanges' ends of E and F. The subsequent expansion of parts C—D will centre them in position on the respective flange. The rigid connection between the flanges and each half-coupling is secured by screws 5 (six of which are provided in the example): these are screwed-on loose and light. The conical pins 6 (three per each semi-coupling in the example shown) transmit the torque; they are fixed, blocked and secured by covers 7. Once the pins are fitted, the above screws are tightened dead-on and so the coupling is applied securely.

For taking to pieces the coupling proceed in the reverse manner, taking care that after having removed caps 7, the conical pins are taken-out by screwing, in the threaded holes 8, the extractor provided with the coupling.

Though a complete embodiment has been declared here, it should be understood that, in practice, alterations to it may be made without thereby exceeding the limits of the invention.

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