PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in or relating to Couplings for Shafts or the like.

I, VINCENZO LANCIA, an Italian subject, Sole Proprietor of the firm Lancia & C., of 99, Via Monginevro, Turin, Italy, 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 couplings for aligned elements (for example two shafts) which are to rotate together and in which a sleeve engages over the two abutting ends of the elements, either the sleeve or the elements being split. This sleeve is secured to the said elements by means of ribs and grooves provided on the inner surface of the sleeve and on the outer surface of the said elements.

The invention comprises a coupling device of this kind in which one of the members (for example the two shafts) comprises ribs and grooves which all have a uniform cross-section, the other member (for example the split sleeve) having grooves and ribs the cross-section of which is not uniform but which is varied so that there is play or clearance on a portion of the circumference of contact when the coupling is loose but none when the coupling is tight.

In this way the coupling is assembled and dismantled with greater ease, whilst the grooves and ribs are in complete engagement and all surfaces are in contact when the coupling is tight.

A construction according to the invention is illustrated by way of example in the accompanying drawing, in which—

Figure 1 shows in side elevation two shafts coupled together in accordance with this invention,

Figure 2 is an end view, and

Figure 3 a cross-section, on a larger scale, on line 3—3 in Figure 1, of a coupling before it is fully tightened.

In the construction shown, the ends of two shafts 1 and 1^1 to be coupled have equal longitudinal grooves between ribs 2 projecting to a small extent relatively to the diameter of the shafts.

In the construction illustrated, the ribs 2 are of trapezoidal cross-section, but they may also have a triangular or any other suitable cross-section.

The two shafts 1, 1^1 are coupled by slipping over them a sleeve 3 longitudinally split at 4, the inner surface of which has grooves fitting substantially the ribs 2 of the shafts 1 and 1^1. The inner grooves of the sleeve 3 fit exactly the ribs of the two shafts in the zone which is farthest away from the slot 4, whilst in the neighbourhood of the said slot there is a play or clearance between the sleeve 3 and the two shafts before the sleeve is fully tightened. This clearance may originate at any point of the periphery and be uniform or varied. This clearance may be produced by giving a uniform cross-section to the grooves and ribs of one of the members (for example the two shafts) and by giving a varied cross-section to the ribs and grooves of the other member (the sleeve). In any case one of the members is pressed against the other, which in the case of a split sleeve 3, is effected by means of bolts 5 or the like mounted in tangential seats 6, 6^1 for tightening the sleeve 3 on the shaft ends 1, 1^1.

When the sleeve is fully tightened the play in the vicinity of the slot 4 between the inner grooves of the sleeve and the ribs of the shafts is done away with, so that the shafts 1 and 1^1 are gripped by the sleeve 3 on all points of their periphery. The shafts are thus rigidly secured to each other in the direction of rotation, and are prevented from moving endwise by friction. Owing to the springiness of the sleeve the original play or clearance is again available when

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the bolts 5 are loosened, so that the coupling can be easily dismantled.

The same result can be obtained by using a non-springy or rigid sleeve and splitting the ends of the shafts, so that they may be expanded for the purpose of gripping them against the inner surface of the sleeve.

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:—

1. A coupling device for coaxial elements of the kind referred to, comprising a sleeve provided with inner ribs and grooves adapted to engage similar ribs and grooves on the said elements, characterised by the ribs and grooves of one of the members of the coupling (for example the coaxial elements) having a uniform cross-section, and the ribs and grooves of the other member (for example the sleeve) having a varied cross-section so as to leave a clearance when the coupling is loose and which is taken up when the coupling is fully tightened.

2. The coupling substantially as described or substantially as illustrated in the accompanying drawing.

Dated this 25th day of March, 1926.

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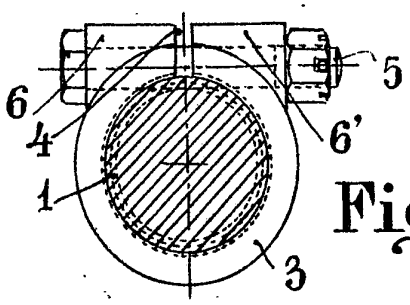


Fig.2

Fig.1

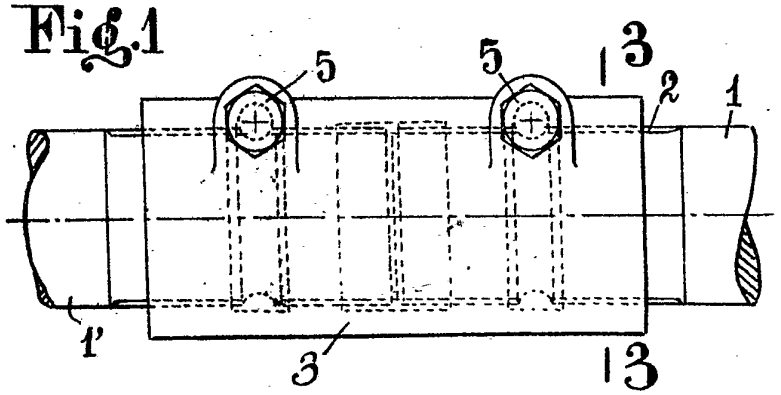
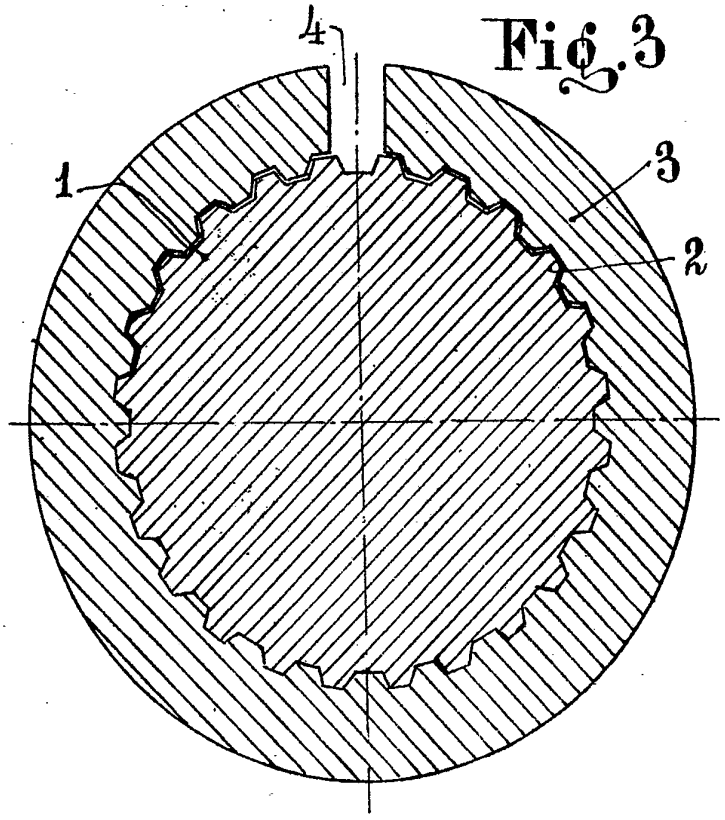


Fig.3



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