

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in and connected with Means for Securing Connecting Rods to Crank Pins and the like.

I, REGINALD WELLESLEY WILSON, of "Cliftonville," Bentinck Road, Newcastle-on-Tyne, in the County of Northumberland, British subject, 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:—

10 This invention comprises improvements in and connected with means for securing connecting rods to crank pins and the like, and has for its object to provide simple and effective securing means which can be readily applied or removed and will afford a high degree of security.

15 According to this invention, the securing means comprises a coiled spring which is caused to encircle the big end bearing and the crank pin and is prevented, when in position, from having endwise motion on the crank pin. It is advantageous, in most cases, to interpose between the coil spring and the big end bearing or bearings, a sleeve member composed of segments or of two half sleeves, the longitudinal edges of the segments or half sleeves meeting so that the contraction of the spring comes upon the sleeve member and cannot have the effect of binding the big end bearing on to the crank pin.

20 In order to enable the invention to be readily understood, reference is made to the accompanying drawing which illustrates, by way of example, two different applications of the invention, and in which:—

25 Figure 1 is a sectional side elevation of means securing a single big end to a crank pin, the securing coil engaging the big end directly.

30 Figure 2 is a transverse section of [Price 1/-]

Figure 1, the section passing through the bearing of the big end.

Figure 3 is a transverse section on the line III—III of Figure 4 and,

Figure 4 is a sectional side elevation of means securing two connecting rods to each of two cranks, the section being on the line IV—IV of Figure 3.

50 Referring to Figures 1 and 2, *a* is the crank shaft, *b* are webs or crank arms thereon, and *c* is the crank pin. The connecting rod *d* may be formed with a big end bearing *e* of semi-cylindrical formation and the bearing may be completed by a half sleeve *f*. For securing the big end bearing *e* and the half sleeve *f* to the crank pin *c* coil springs *g* are employed and these are applied in the following manner:—The end convolution of a coil is opened or spread so that it may be passed over a web or arm *b* and a screwing motion is then imparted to the coil so that it worms its way past the web *b* and on to the crank pin around the bearing *e* and half sleeve *f*. When the coil *g* is fully screwed on, it has the position seen in Figure 1, and the bearing *e* and half sleeve *f* may be formed with shallow end flanges *h* for preventing end-wise movement of the coil. As will be seen from Figure 1, it is preferable to apply two coils *g* one at each side of the connecting rod. The internal diameter of the coils would be a little less than the external diameters of the bearing *e* and half sleeve *f*, so that the contractile effort of the coils would keep the bearing parts in close contact and care would be exercised so that there could be no nipping binding of the bearing parts on the crank pin.

According to the construction seen in

Figures 3 and 4, the shaft *a* has two crank pins *c* and to each of the latter there are secured two connecting rods *d* such as those of a four cylinder V-engine having its cylinder disposed with their axes on the centre line X—X. In this case the big end bearing *c*¹ *c*¹ are of the segmental shape seen in Figure 3, giving the clearances *k k* between their adjacent edges also seen in Figure 3. The bearings *c*¹ may be formed with a thickening *l* where they are joined to the connecting rods *d* and they are enclosed in two half sleeves *m* the longitudinal edges of which butt against one another as seen in Figure 3. In this construction, the shallow flanges *h* are formed on the half sleeves *m* instead of on the actual bearing parts as in Figures 1 and 2. The coils *g* in this construction are applied in the same manner as above described with reference to Figures 1 and 2, but in this construction, the contractile effort of the coils simply has the effect of keeping the half sleeves in close contact with one another and cannot exert any binding effort on the bearing parts which always have the same freedom on the crank pins *c*.

It will now be seen that great security is afforded by the number of convolutions by which the bearing parts and crank pin are surrounded, and that the application or removal of the securing means can be easily and quickly effected in the manner hereinbefore described.

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. Means for securing connecting rods to crank pins or the like, comprising a spring coil adapted to be wormed on into

a position in which it encircles the big end bearing and the crank pin substantially as described.

2. Means for securing connecting rods to crank pins or the like, as claimed in Claim 1, in which a sleeve composed of segments or half sleeves is interposed between the coil and the big end bearing substantially as hereinbefore described.

3. Means for securing connecting rods to crank pins or the like, as claimed in Claim 1 or Claim 2, in which the ends of the bearing parts, or the ends of the interposed sleeve, are formed with shallow flanges for positioning the coil, substantially as described.

4. Means for securing several connecting rods to a crank pin or the like, comprising segmental bearing parts on the big ends adapted to give clearance between the adjacent edges of such parts, a sleeve composed of half sleeves enclosing such bearing parts, a coil spring encircling said sleeve, and flanges on said sleeve for positioning the coil, substantially as described.

5. Means for securing connecting rods to crank pins or the like as claimed in any one of the preceding claims, in which the bearing parts extend to both sides of the connecting rod, there being a securing coil disposed around each bearing part substantially as hereinbefore described.

6. Means for securing connecting rods to crank pins constructed, applied and adapted to operate substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 7th day of May, 1920.

JENSEN & SON,
77, Chancery Lane, London, W.C. 2,
Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

FIG.1.

FIG.2.

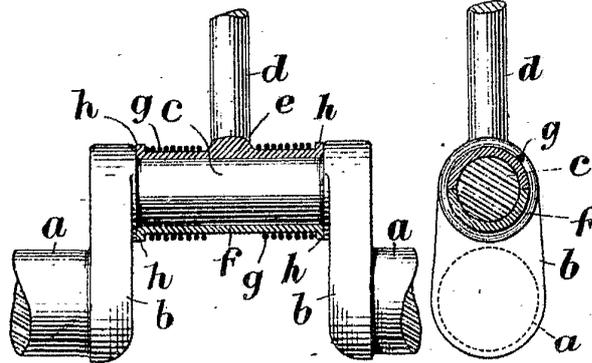


FIG.3.

FIG.4.

