July 5, 1960 P. G. SIEBERT 2,943,893

BEARING-HANGER STRUCTURE

Filed Feb. 16, 1959

FIG. 1

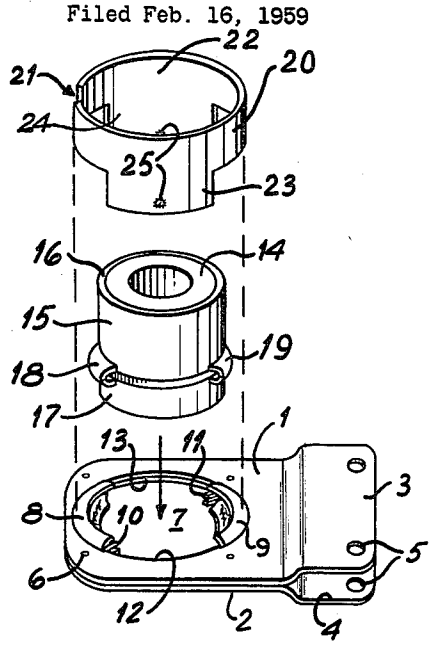


FIG. 2

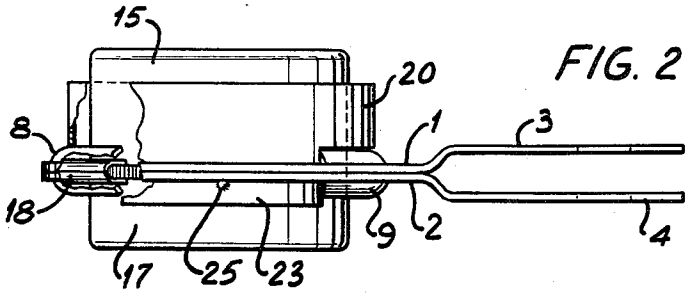
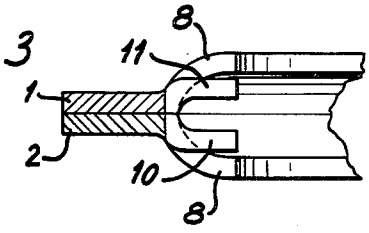


FIG. 3



INVENTOR.
PRESTON G. SIEBERT

BY

Bierman + Bierman

ATTORNEYS

United States Patent Office

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BEARING-HANGER STRUCTURE

Preston G. Siebert, Underhill Road, Ossining, N.Y.

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The present invention is directed to self-alining bearings, more particularly to a novel construction thereof whereby certain unexpected and important advantages are obtained.

Such self-alining bearings have been known for a great many years and one of the prior art structures involved a hanger in the form of a plate, having a central opening provided with arcuate recesses, one of which was substantially semi-circular and the other of which was split into two portions with an opening therebetween. A bearing having a shroud had two pair of opposed tongues of approximately the same length as the split arcuate recess so as to fit into the same. In order to lock the bearing in the hanger, a key of complicated structure was provided. The key was relatively large and had an angular tongue which was intended to fit into the space between the pair of recesses and it also had a hand grip on one end thereof. Considerable difficulty was encountered in the placing of the locking key into position and it required considerable manipulation because of the number of angular bends therein before it would fit into a locking position on the hanger. Also, it often required a tool, such as pliers or a wrench to remove the key when it was desired to replace the bearing after it had become worn.

The present invention is intended and adapted to overcome the difficulties and disadvantages inherent in devices of the type described, it being among the objects of the present invention to provide a combination of hanger and self-alining bearing which is sturdy in construction and effective in operation.

It is also among the objects of the present invention to provide a simple means for locking the bearing into the hanger and for removing the same for replacement without interfering with the self-alining feature of the combination.

It is further among the objects of the present invention to provide a locking arrangement which does not require any tools, which can readily be slipped into and taken out of position, which is proof against loosening accidentally by vibration and which can be operated by unskilled workers.

In practicing the present invention, there is provided a hanger of the usual type, together with a bearing having a shroud thereon. The hanger has in the circular opening a pair of oppositely formed tracks covering an arc of somewhat less than 90°, and usually about 85°. Similarly the shroud has a pair of oppositely formed ribs, each of which is also somewhat less than 90° and usually being approximately 85°. The bearing is fitted into the hanger and a locking strip is provided for holding the bearing in place.

The strip is of resilient material and is circular over an arc of less than 360°, usually from 340° to 350°. On opposite sides of the strip are depending extensions, each of which is provided with a boss extending from the outer periphery thereof. The gap in the strip is sufficient to allow compression thereof by the user until the gap is practically closed, after which the strip is applied to the assembly with the extensions passing through the opening between the sets of tracks. Upon being released, the strip springs back into its original form due to the resiliency thereof and the bosses contact with the hanger to hold the strip in the lock position.

In the accompanying drawings constituting a part hereof and in which like reference characters indicate like parts,

Fig. 1 is an exploded view of the invention, showing each of the three elements thereof in perspective;

Fig. 2 is a side elevational view of the combined bearing and hanger in its operative position; and

Fig. 3 is a fragmentary enlarged view partially in section showing a detail of one of the features.

The hanger consists of a pair of flat plates **1** and **2**, one end of which being bent outwardly as shown at **3** and **4**, respectively, forming a space adapted to receive a stationary part of an apparatus to which the bearing structure is to be applied. Bolt holes **5** are provided therein whereby the hanger may be secured to the support. The two plates are permanently secured together, as for example by spot welds **6**.

A circular opening **7** has tracks **8** and **9** integrally formed with plates **1** and **2** and projections **10** and **11** diagonally opposite each other are formed in one of the ends of tracks **8** and **9** and constitute stops in order to properly locate the bearing in the hanger. Spaces **12** and **13** intermediate tracks **8** and **9** cover an angle of slightly more than 90° and usually about 95°.

A bearing **14**, which may be of any usual type but commonly is a metallized graphite oilless bearing **14**, is provided with a metal shroud consisting of a cylindrical member **15**, one edge of which **16** is crimped over one edge of the bearing. A complementary shroud **17** has one end crimped over the other end of bearing **14**. Ribs **18** and **19** are formed at the adjacent edges of shroud elements **15** and **17**, the length of said ribs being approximately equal to the length of tracks **8** and **9**.

Locking strip **20** of resilient metal has a gap **21** at the adjacent edges thereof. The strip covers an angle somewhat less than 360° and usually from 340° to 350°. Opposite sides **22** of strip **20** constitute finger holds whereby the locking strip may be grasped by the thumb and forefinger for compression purposes. Depending from parts **22** are extensions **23** and **24** having bosses **25** punched therein on the outer surface of said extensions.

In the operation of the invention, bearing **14** is inserted in opening **7** of the hanger, with ribs **18** and **19** adjacent to surfaces **12** and **13** until said ribs are opposite said tracks. The bearing is rotated, causing the ribs and tracks to interfit and the motion is limited by stops **10** and **11**. Then parts **22** of strip **20** are grasped, the strip compressed until gap **21** is practically closed, the strip pushed into opening **7** until bosses **25** pass through said opening. The strip is then released, causing it to spring back into contact with the edges of opening **7**, the bosses **25** locking under the hanger, as more particularly shown in Fig. 2. This firmly locks the assembly in position against even violent vibration so that the bearing is securely held in position. At the same time, since strip **20** does not bear against bearing **14**, it is still free to aline itself with the shaft.

Although the invention has been described setting forth a single specific embodiment thereof, the invention is not to be limited to the details of construction as various changes may be made within the spirit of the invention. The materials may be other than those specifically set forth, the shape of the various elements may be altered considerably and single elements may be made of several parts and vice versa. The invention is, therefore, to be

broadly construed and not to be limited except by the character of the claims appended hereto.

I claim:

1. In a bearing and hanger for shafts having a plate, means for attaching said plate to a support, said plate being provided with a substantially circular opening, a cylindrical bearing, a shroud on the outer periphery of said bearing, cooperating means on said shroud and said opening for retaining said bearing in said hanger, the improvement in which said cooperating means comprises a pair of arcuate ribs extending from said shroud and in opposed relation cooperating with a pair of arcuate tracks for the reception of said ribs extending from said opening and in opposed relation, whereby said ribs and tracks are adapted to coincide, leaving at least one arcuate area between opposed tracks and ribs, an arcuate resilient strip adapted to fit into said area, and means for retaining said strip in said hanger against accidental displacement.

2. In a bearing and hanger according to claim 1, the feature wherein said retaining means is at least one boss on said strip adapted to seat against one face of said plate.

3. In a bearing and hanger according to claim 1, the feature wherein there are two opposed areas and said strip fits into both of said areas.

4. In a bearing and hanger according to claim 1, the feature wherein said strip has an extension fitting into said area.

5. In a bearing and hanger according to claim 1, the feature wherein said strip has an extension fitting into said area, said extension is arcuate, the length of said extension being less than the length of said area.

6. In a bearing and hanger according to claim 1, the feature wherein the length of the arc of each of said ribs is slightly less than 90°.

7. In a bearing and hanger according to claim 1, the feature wherein the length of the areas is slightly greater than 90°.

8. In a bearing and hanger according to claim 4, the feature wherein said retaining means is at least one boss on said extension adapted to seat against one face of said plate.

9. In a bearing and hanger according to claim 4, the feature wherein said arcuate strip has a length slightly less than 360°.

10. In a bearing and hanger according to claim 4, the feature wherein said arcuate strip is provided with means on the side opposite said extension for gripping and compressing said strip.

References Cited in the file of this patent

UNITED STATES PATENTS

2,819,932 Walker ---------- Jan. 14, 1958