Jan. 10, 1950 W. W. ABLETT 2,494,152

TOOL TO CHECK CENTRALITY AND ALIGNMENT OF KEYWAYS IN SHAFTS

Filed May 24, 1945

Fig. 1

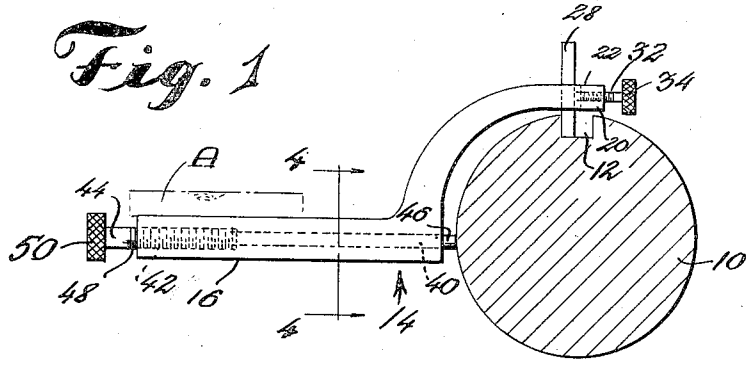


Fig. 2

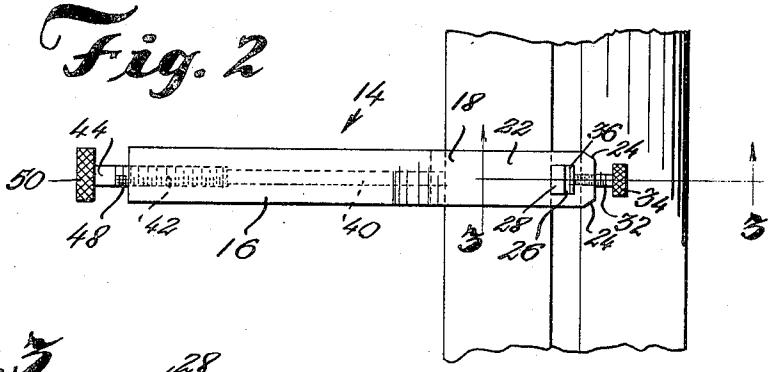


Fig. 3

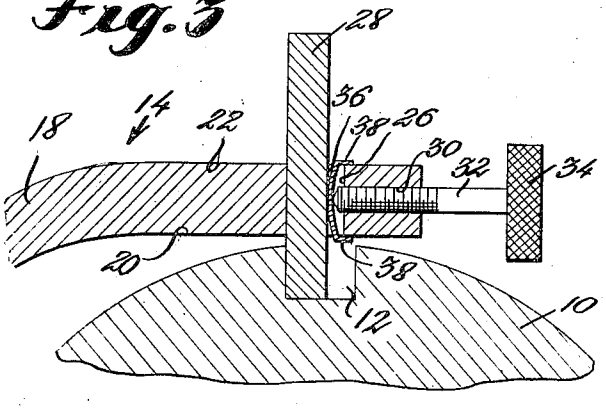
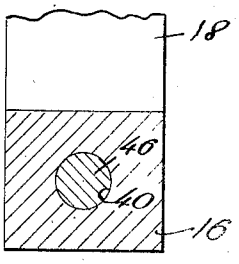


Fig. 4



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TOOL TO CHECK CENTRALITY AND ALIGNMENT OF KEYWAYS IN SHAFTS

William W. Ablett, Detroit, Mich.

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1 Claim. (Cl. 33—180)

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This invention relates to a tool for checking the centrality and alignment of keyways in shafts.

An object of the invention is to provide a tool that is simple in its operation but efficient in its results in checking the relation of the keyway to the shaft.

With this and other objects and advantages in view the invention consists of the novel construction and arrangement of elements described, claimed and illustrated in the accompanying drawing forming a part of this specification in which:

Fig. 1 is a side elevation of an embodiment of the invention as applied to a shaft having a keyway therein.

Fig. 2 is a top plan view of the same.

Fig. 3 is a sectional view on the line 3—3 of Fig. 2, and

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

Referring more in detail to the drawing, the numeral 10 designates a shaft having a central keyway 12 therein.

The tool 14 for determining the centrality and the alignment of the keyway 12 in the shaft 10 comprises an elongated rectangular body 16 having an upwardly extending arcuate shaped portion 18 formed integral with one end thereof. The free end of the portion 18 is formed with flat lower and upper surfaces 20 and 22 respectively, and is bevelled at 24 as shown in Fig. 2.

The end of the arcuate portion 18 is provided with a vertical square shaped opening 26 which is adapted to receive the vertically disposed gauge block 28 which is uniform in width and thickness and smaller in these dimensions than the opening 26. The length of the gauge block can be varied depending upon the depth of the keyways to be tested, and is adjustable vertically within the opening 26.

The end of the arcuate shaped portion extending from the opening 26 to the outer end thereof is provided with an internally threaded horizontal bore 30 which is adapted to receive the complementary threaded retaining screw 32 which is used to retain the block 28 in position in the opening 26. The screw 32 is provided with a knurled knob 34 to permit easy manipulation thereof.

To prevent the end of the screw 32 from marring the block 28 a transversely curved concave spring 36 having forwardly extending right angled flanges 38 is positioned in the opening 26 intermediate the end of the screw 32 and the block 28.

The width and length of the concave portion of the spring 36 are the same as the width and length

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of the opening 26 and when the screw 32 is tightened the concave portion will become convex as shown in Fig. 3 and tend to more firmly bind the flanges 38 on the lower and upper flat surfaces 20 and 22.

The body 16 of the tool 14 is provided with a longitudinally extending bore 40 which merges into a larger internally threaded bore 42. The bores 40 and 42 are adapted to receive the body leveling adjusting screw 44, a portion 46 of which is smooth to conform to the bore 40 and a portion 48 of which is externally threaded to be received in the threaded bore 42. The screw 44 is provided at its outer end with a knurled knob 50 for easy manipulation thereof.

The body 16 of the tool 14 is so made that it will accommodate shafts 10 having a difference of one-half inch in their diameter.

When the tool 14 is to be used the shaft 10 is placed on a suitable support such as V-blocks or angle plates placed on a flat surface of suitable size.

The gauge block 28 is then inserted in the keyway 12 which is positioned at the exact top center of the shaft 10 with relation to the supports.

The knob 34 is then turned clockwise to force the screw 32 into contact with the spring 36 and the spring into contact with the block 28, thereby retaining the block 28 in the keyway 12.

Then by placing a level A on the upper flat surface of the body 16 the screw 44 is turned clockwise by means of the knob 50 until the screw 44 contacts the shaft 10 and levels the body 16 by adjustment thereof.

Then by moving the tool 14 to the opposite end of the keyway 12 and the opposite side of the shaft 10 the centrality of the keyway can be tested because if the body 16 remains level the keyway 12 is in the exact center of the shaft 10.

With this adjustment shafts having the same diameter can be checked without further adjustment of the tool 14.

It will be apparent to those skilled in the art that a tool has been provided that will accomplish the purpose of the invention and that various changes and modifications of the form, proportion and arrangement of the various parts may be made without departing from the spirit of the invention or extending beyond the scope of the appended claim.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

A tool of the character described comprising, an elongated rectangular shaped body having a for-

ward arcuate shaped portion with flat lower and upper surfaces on the free end of said arcuate shaped portion, and said portion having a square shaped opening in the forward end thereof in vertical relation to said lower and upper surfaces, a gauge block in said opening, a set screw in the outer edge of the forward end of said arcuate portion at right angles to the opening and engaging the block to retain the block in the opening, a cushioning means in the opening between the inner end of the set screw and the block, a smooth bore in said body extending longitudinally thereof from one end thereof for a portion thereof, a tapped bore in said body of larger diameter than said smooth bore and extending longitudinally of the body from the other end of the body, and communicating with said smooth bore, a body leveling adjusting screw having a smooth portion adapted to enter the smooth bore and a threaded portion adapted to enter the tapped bore and said screw having a knob end whereby said screw may be rotated when said tool is used to check the centrality and alignment of keyways in shafts.

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