Oct. 12, 1926. 1,602,698

H. J. NIELSEN

SHAFT ADJUSTING TOOL

Filed Sept. 27, 1924

Fig. 1.

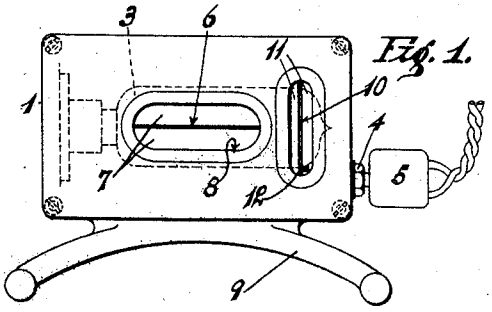


Fig. 2.

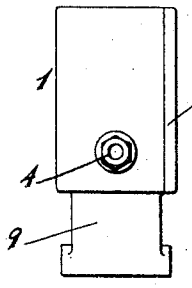


Fig. 3.

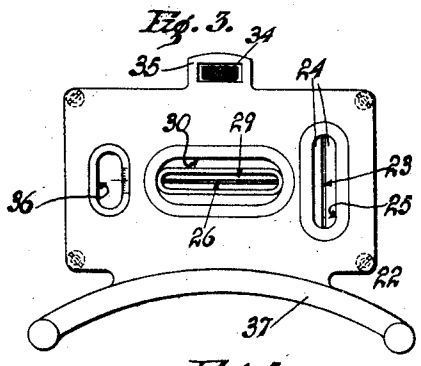


Fig. 4.

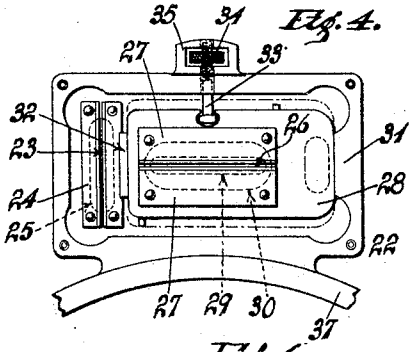


Fig. 5.

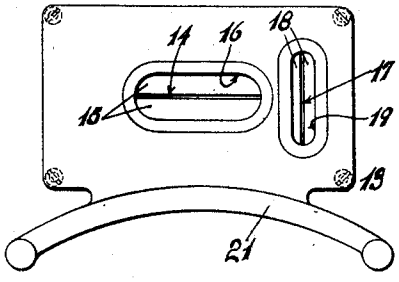


Fig. 6.

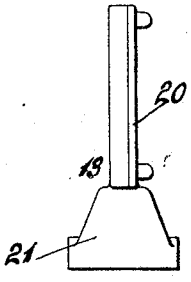
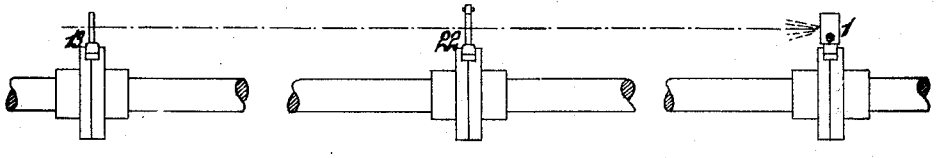


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SHAFT-ADJUSTING TOOL.

Application filed September 27, 1924. Serial No. 740,323.

My invention is an improved shafting adjusting tool, by means of which disalignment of shafting may be discovered. My tool consists of a light box having a small orifice therein, through which light is emitted; a fixed plate having a small sight opening therein, and a second plate, the sight opening of which is vertically adjustable to indicate the amount of mal-alignment in the shaft.

The object of my invention is to provide a tool which may be easily applied to a shaft, and will accurately determine the amount of mal-alignment in said shaft.

In the annexed drawing in which my invention is illustrated:

Figure 1 is a front elevation of the light box.

Figure 2 is an end elevation of the same.

Figure 3 is a side elevation of the adjustable sighting plate.

Figure 4 is a rear elevation of the same with the cover plate removed to show the interior construction.

Figure 5 is a side elevation of the sighting plate.

Figure 6 is an end elevation of the same.

Figure 7 is a diagrammatic view of my tool in position on a shaft.

Referring more particularly to the drawing, a light box 1 has a cover 2 secured to the front face thereof, by means of which the interior may be reached, or to replace a light 3 placed within said box. A suitable switch plug 4 in the end of said box provides means whereby the electrical current may be supplied to the lamp 3 through a suitable plug 5. The rear face of the box 1 is provided with a small sight opening 6 in the form of a slot, and said opening being preferably formed by a pair of plates 7—7 spaced apart the thickness of the opening 6, said plates being mounted within the box 1 and over a large opening 8 in the rear face thereof. An arcuate stand 9 is formed or secured to the bottom of the box 1 and is adapted to rest upon the shaft, or upon a coupling in the shaft.

A vertical slot 10 is also formed in the rear face of the box 1 by means of a pair of plates 11—11 placed in juxtaposition over the opening 12 in said box. A fixed sight member 13 (see Figs. 5 and 6) has a horizontal slot 14 formed therein, said slot being formed by a pair of plates 15—15 placed over an opening 16 through said plate. A vertical slot 17 is formed at one side of the member 13 by a pair of plates 18—18 positioned over an opening 19 through said member. A cover 20 is secured to said member to cover the plates 15 and 18. The member 13 is mounted upon an arcuate base 21 by means of which it is mounted upon the shaft, or a coupling of said shaft.

An adjustable sighting member 22 (see Figs. 3 and 4) has a fixed vertical slot 23 at one side thereof formed by a pair of plates 24—24 positioned over an opening 25 in said member. This horizontal slot 26 through said member may be adjusted vertically; this slot is formed by a pair of plates 27—27 secured to a second plate 28 and over an opening 29 in said second plate. An opening 30 is also formed through the member 22 to permit the passage of light therethrough as will be further described.

The plate 28 is accurately guided in a vertical plane within the member 22 by the sides thereof engaging guide shoulders 31 and 32 within the member 22. A bolt 33 has the head thereof secured to the upper edge of the plate 28 and extends upwardly through a knurled nut 34, which nut is positioned within a cage 35 formed on the top of the member 22. Thus it will be seen that by threading the nut 34 upon the bolt 33 the plate 28 may be raised or lowered and the opening 26 therein will consequently be raised or lowered for a purpose to be further described. An opening 36 is formed in the rear face of the member 22 through which plate 28 may be seen; a suitable mark on said plate registers with a scale formed on the edge of said opening, thereby determining the amount of movement of said plate. An arcuate rest 37 is formed or secured to the bottom of the member 22, which is adapted to rest upon the shaft, or upon a coupling of said shaft.

In operation, the box 1 is placed at one end of a shaft and the light is turned on. The fixed sighting member 13 is positioned at the other end of this shaft and the adjustable member 22 is positioned between the box 1 and the member 13. By sighting through the opening 17 and adjusting the member 22 until light is seen through the opening 23 from the opening 10 in the box 1 my tool is accurately aligned in a vertical plane.

The next operation is to determine the disalignment of the shaft in a horizontal plane.

which is determined by sighting through the opening 14 and attempting to locate the light which is emitted through the opening 6. This cannot be done until the opening 26 in the member 22 is in exact alignment with the openings 6 and 14; therefore, the opening 26 is adjusted up or down by turning the nut 34 upon the bolt 33 until light is seen through the opening 14. By reading upon the scale adjacent the opening 36 the amount of disalignment is determined, and the shaft bearing may be adjusted for this amount.

Having described my invention, I claim:—

1. An aligning tool comprising a box having an opening therein, a fixed sighting member having an opening therein, an adjustable sighting member having an opening therein in alignment with the opening in said fixed sighting member, a movable plate in said adjustable sighting member having an opening therein, in alignment with the openings in said fixed sighting member, and said adjustable sighting members, all of said openings being elongated and extending in a horizontal direction, and means to move said plate within said adjustable sighting member.

2. An aligning tool comprising a light box having vertical and horizontal openings therein, a light in said light box, a fixed sighting member having vertical and horizontal openings extending therethrough, an adjustable sighting member having a fixed vertical opening and a second opening extending therethrough, a vertically movable plate positioned over said second opening, said plate being provided with a hole, and a pair of plates positioned over said hole to form a horizontal slot.

3. An aligning tool comprising a light box having vertical and horizontal openings therein, a light in said light box, a fixed sighting member having vertical and horizontal openings extending therethrough, an adjustable sighting member having a fixed vertical opening and a second opening extending therethrough, a vertically movable plate positioned over said second opening, said plate being provided with a hole, a pair of plates positioned over said hole to form a horizontal slot, and means to adjust said plate to vary the width of said slot.

4. An aligning tool comprising a light box having vertical and horizontal openings therein, a light in said light box, a fixed sighting member having vertical and horizontal openings extending therethrough, an adjustable sighting member having a fixed vertical opening and a second opening extending therethrough, a vertically movable plate positioned over said second opening, said plate being provided with a hole in alignment with the said second opening, a pair of plates positioned over said hole to form a slot, said adjustable member being provided with an additional opening through which said plate is visible, and a scale adjacent said additional opening to determine the amount of movement of said plate.

In testimony whereof I affix my signature.

HANS J. NIELSEN.