Sept. 8, 1931. B. S. CARR 1,822,009

SUPPORT

Filed Jan. 4, 1929

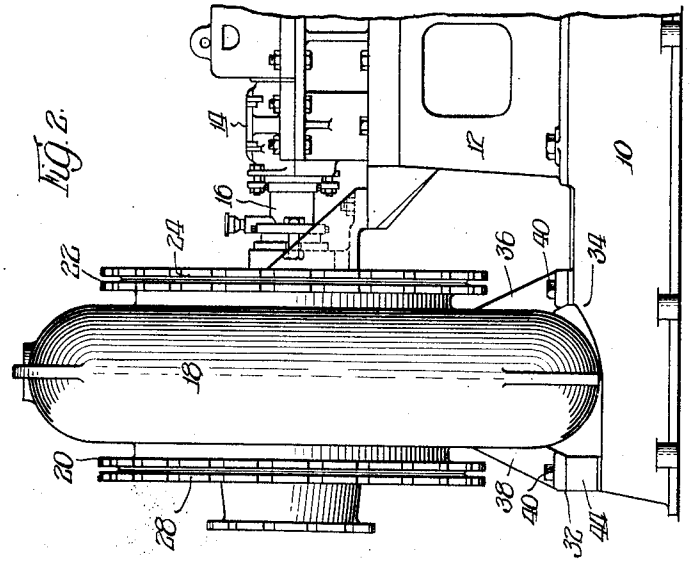


Fig. 2.

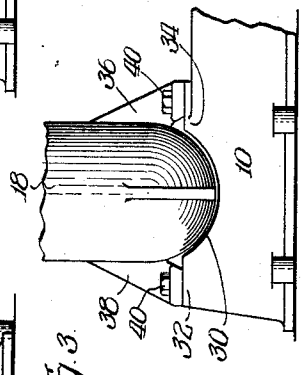


Fig. 3.

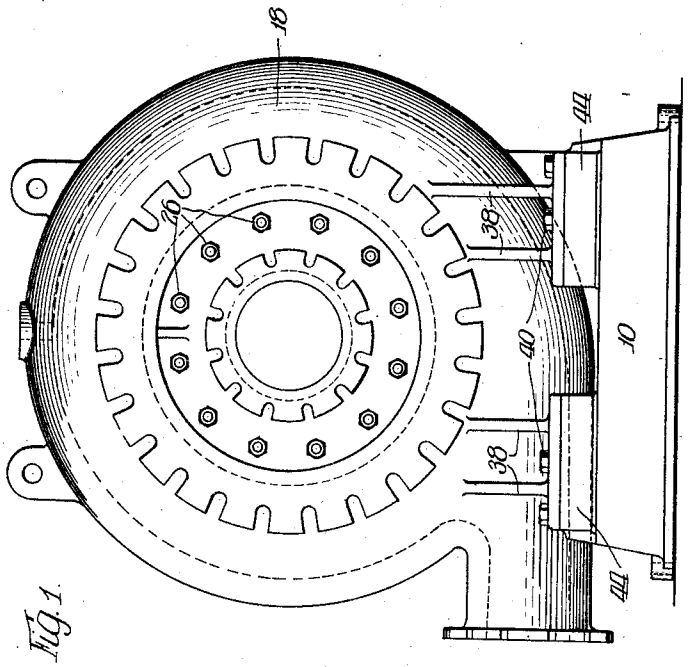


Fig. 1.

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UNITED STATES PATENT OFFICE

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SUPPORT

Application filed January 4, 1929. Serial No. 330,181.

This invention relates to supports and the like, and is illustrated herein as embodied in a base mounting for use in connection with machinery, such, for example, as pumps, turbines, etc.

Generally, or at least in many instances, the rotors of centrifugal pumps and turbines are mounted upon, or near, the extremity of a rotary shaft and are surrounded by a hollow casing which may be moved along the shaft to cover and uncover the rotor mechanism which it encases. By way of mounting such parts, it is customary to provide a base pedestal having an upwardly extending portion equipped with bearings for receiving the shaft, and in order to decrease vibration by mounting the shaft as near the base pedestal as possible, it is further customary to form a recess in the base pedestal for receiving the lower portion of the casing which surrounds the rotor. Heretofore, it has been customary merely to cut away a portion of the pedestal to form a recess extending at right angles to the shaft, and when so formed the walls of the recess are permanent and integral parts of the pedestal.

This is a very desirable form of mounting, but gives rise to considerable inconvenience and trouble when it is desired to remove the casing in order to gain access to the enclosed rotor or to remove the rotor in order to replace parts or make necessary repairs. The disadvantage and inconvenience is occasioned by reason of the fact that the lower portion of the casing must first be lifted out of the recess before it is free to move along the shaft, and, in order to lift it out, it is necessary to disassemble the bearing members and hoist the shaft a distance to enable the lower portion of the casing resting within the recess to be raised clear of the side walls thereof. This matter of disassembling the bearing and hoisting the shaft is exceedingly troublesome and very laborious.

In view of the foregoing desideratum, it is an important object of the present invention to devise an arrangement whereby a casing may be removed, or a rotor may be moved along the shaft, without reliance upon the expedient of hoisting the shaft to lift the casing out of a recess in which it is disposed.

An important feature of the invention which is conducive to the accomplishment of the recited object consists in the provision of a pedestal having the recess therein formed in a novel manner. As illustrated herein, a novel feature of the pedestal consists in providing a false outer wall for the recess and in mounting the false wall in such a manner that it may be easily removed. By means of such an important provision, the wall normally in place forms a recess in exactly the same manner as it has heretofore been formed, but as a new feature, the wall may be removed easily and quickly whereupon the casing and rotor are no longer disposed in a recess, but are free to be slid along the shaft without necessitating the hoisting of the shaft or the raising of the casing and rotor.

Another important feature of the invention consists in associating bracing members or elements with the false wall, and as illustrated herein these members comprise a plurality of metallic bars extending between the top of the false wall and the casing to support and stabilize the latter. Similar bars are also provided on the opposite side of the casing and extend from the inner side wall of the recess which, as illustrated herein, is a permanent integral part of the pedestal.

Although the invention has been disclosed herein with particular reference to rotary mechanisms, such, for example, as pumps and turbines, it is to be fully understood that the invention can be used in a multitude of different ways in connection with mechanisms and apparatus entirely too numerous to mention, for, as will be appreciated, the invention does not reside in the mechanism with which the base is associated, but on the contrary it resides in the provision of the improved base and the combination therewith of a suitable type of mechanism be it a pump or a crank case. Furthermore, it is to be understood that certain changes and modifications in the design and construction of the base that is disclosed herein may be made to suit various conditions and demands, and it is likewise to be understood that such changes do not constitute departures from the inven-

tion other than may be determined from the scope of claims hereunto appended; allowing to the applicant all of those changes and modifications which appear from time to time to those skilled in the art.

Other features and objects of the invention will become apparent from a reading of the specification in the light of the accompanying drawings, in which—

Figure 1 is a front elevational view of a rotary pump mounted on a base of the invented type;

Figure 2 is a view in side elevation of the apparatus shown in Figure 1; and

Figure 3 is a fragmentary view in side elevation showing the manner in which the pump of Figures 1 and 2 would have been mounted prior to the provision of the present invention.

As shown in Figure 2 of the drawing, the base support or mounting for the pump comprises a pedestal 10 having an upwardly extending central portion 12 upon which is surmounted suitable bearings 14 for receiving a rotary shaft 16. The shaft 16 carries at its outer extremity a rotor enclosed within a casing 18.

It has been hereinbefore pointed out that the present invention is susceptible of use in connection with enumerable mechanical devices and apparatus and that it is shown herein as embodied in a pump by way of illustration and not limitation. The casing of the pump which is shown herein is provided as shown in Figure 2 with flange parts 20, 22 which surround circular openings formed on opposite sides of the casing and in order to close the openings the flange 22 is tightly secured to a flange 24, and the flange 20 has mounted upon it, by means of bolts 26, (Figure 1) a closure member 28. Partial admission to the interior of the casing and consequently to the parts of the pump mounted therein may be gained by removal of the closure 28, but in the event that such partial admittance is not great enough to permit the desired repairs or adjustments to be performed, it becomes necessary to remove the casing from the rotor and in some instances it is even necessary to remove the rotor from the shaft.

Now in order to position the shaft 16 in near proximity to the base pedestal 10 to reduce vibration, the pedestal 10 has heretofore, as shown in Figure 3, been provided with a recess 30, the side walls 32 and 34 of which are permanent and integral parts of the base pedestal. Into this recess fits the lower portion of the casing 18 and the opposite walls 32 and 34 are provided with flat upper surfaces upon which rest braces 36, 38 that extend downwardly from the opposite sides of the casing to brace and stabilize it. Bolts or other suitable securing members 40 serve to secure the braces 36 and 38 to the base pedestal 10. Continuing to focus attention upon Figure 3, it will be appreciated that when it is desired to move the casing 10 along the rotary shaft 16, the lower portion of the casing must first be lifted out of the recess 30 formed in the pedestal and this lifting of the casing may be accomplished in one of two ways: first, by lifting the casing 18 relatively to the shaft to remove its lower portion from the recess, or, second, to lift the casing and the shaft together to effect the removal. In a great many instances, it will not be possible or desirable to move the casing relatively to the shaft whereupon it becomes necessary to disassemble the bearings 14 and hoist the shaft 16 to lift the lower portion of the casing free and clear of the side walls 32 and 34 of the recess.

Such a proceeding is laborious and tedious as well as difficult and in order to dispense with the necessity of raising the shaft, the arrangement shown in Figures 1 and 2 has been devised. As shown therein, the outer wall of the recess is a false one made up of a plurality of filler members 44 that are held in place between the lower portions of the braces 38 and the base pedestal 10 by means of the bolts 40 passing through apertures formed in the filler members.

Thus, as shown in Figure 2, the recess comprises the inner integral and permanent side wall 34 and the outer false or removable side wall 32, the bracing elements, etc., being provided just as before.

In the use of the improved mounting when it is desired to remove the casing by sliding it horizontally without disturbing the position of the shaft 16, the bolts 40 are all removed, whereupon the filler members or blocks 44 are removed, and the outer side wall of the recess is destroyed leaving the lower portion of the casing free to move sidewise along the shaft without being raised.

It is again pointed out that although the invention is illustrated herein in connection with a rotary pump that it may be used in a multitude of other connections which will at once appear to those skilled in the art, and hence such other uses will not be taken up here in further detail.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent, is:

1. In an apparatus of the character described, a shaft, a casing surrounding the shaft, and a base for supporting the casing, said base being provided with a recess for receiving the lower portion of the casing, one of the side walls of said recess being removable to permit removal of the casing lengthwise of the shaft without disturbing the position of the latter.

2. In an apparatus of the character described, a shaft, a casing surrounding the shaft, and a base for supporting the shaft,

said base being cut away to form a recess extending at right angles to the shaft, the inner wall of said recess being a permanent part of said base, and the outer wall of said recess being removable to permit removal of the casing from the shaft without disturbing the position of the latter relatively to the base.

Signed at Chicago, Illinois, this 29th day of December, 1928.

BRADLEY S. CARR.