March 13, 1934. F. P. MADRESS ET AL 1,951,288

TIGHTENING SUPPORT FOR WATER PUMPS

Filed July 28, 1931

Fig. 1.

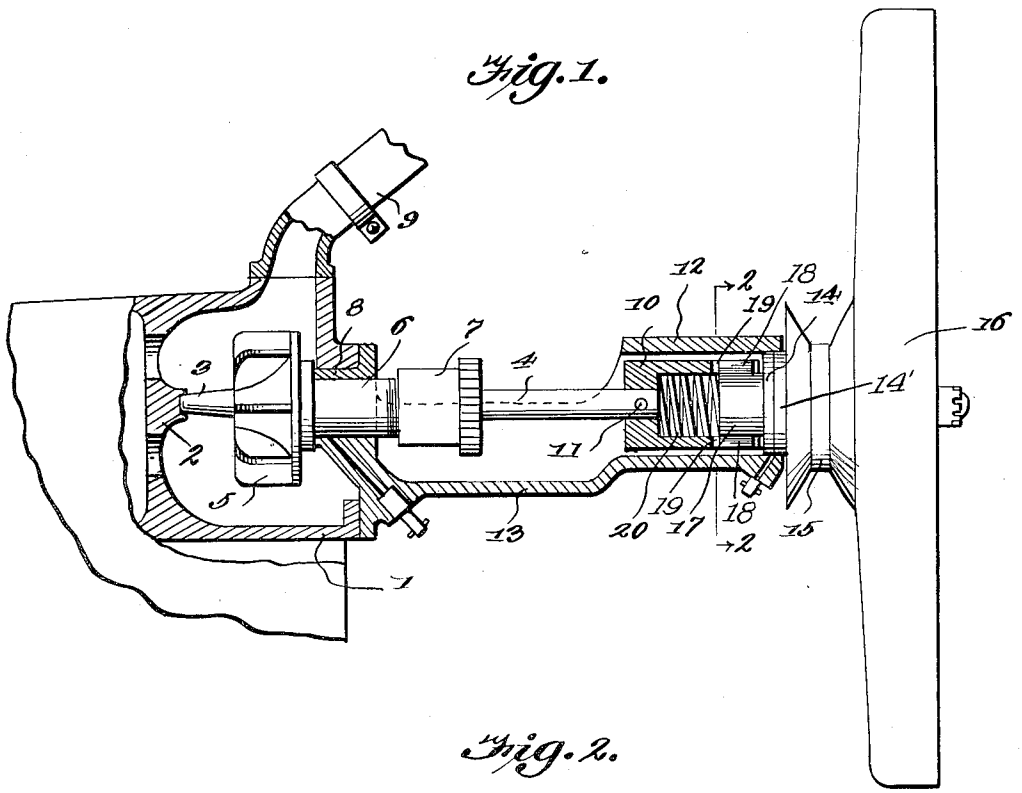
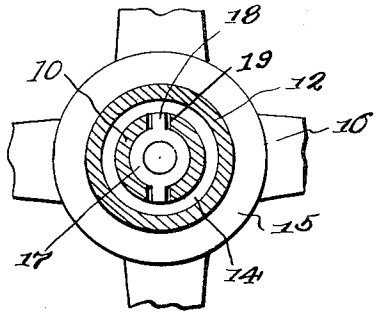


Fig. 2.



Inventor
FRANK P. MADRESS
MURRAY M. COUNTERMAN

By Irving L. McCutcheon
Attorney

Patented Mar. 13, 1934 1,951,288

UNITED STATES PATENT OFFICE

1,951,288

TIGHTENING SUPPORT FOR WATER PUMPS

Frank P. Madress and Murray M. Counterman,
Kalamazoo, Mich.

Application July 28, 1931, Serial No. 553,636

4 Claims. (Cl. 103—103)

This invention relates to a means for supporting a water pump of a motor in a tight position, so as to prevent end play or the inward movement of the pump due to wear, which would be likely to cause the pump to leak around the bushing.

Another object of this invention is the production of a simple and efficient means for yieldably holding the end of the water pump supporting shaft in contact with the cylinder head pivot, so as to prevent end thrust or continual battering of the end of the pump supporting shaft against the cylinder head and prevent reciprocating movement of the shaft within the bushing.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawing:

Figure 1 is a longitudinal sectional view through the water pump supporting portion of a motor, showing the manner of connecting the pump operating shaft with the fan.

Figure 2 is a section taken on line 2—2 of Figure 1.

By referring to the drawing it will be seen that 1 designates the water jacket in the cylinder head and block, which may be of any suitable or desired structure, the present illustration being that of the well known Ford type of motor. The present device, however, is adaptable for use in connection with any suitable or desired motor. The cylinder head is provided with an inwardly extending boss 2 against which is adapted to fit a nose 3 of the water pump supporting shaft 4.

The usual water pump impeller 5 is mounted upon the shaft 4, which shaft 4 is carried by the bushing 6, the bushing being sealed through the medium of the usual packing nut 7, mounted upon the shaft 4. The bushing 6 extends through the aperture 8 formed in the cylinder head or water jacket 1, and from this water jacket or cylinder head extends the radiator inlet hose 9 as is usual with such structure.

The forward end of the shaft 4 carries a thimble-like socket member 10, which is connected thereto in any suitable or desired manner and may be keyed or locked in engagement with the shaft 4 by means of a pin 11. This thimble-like socket member 10 is mounted within the fan supporting sleeve 12 of the water pump frame 13, and the collar 14 of the fan pulley 15 is adapted to rotate within this sleeve 12. A suitable fan 16 is carried by the pulley 15.

The pulley 15 is also provided with a reduced inwardly extending neck 17 which is provided with a plurality of laterally extending lugs 18, fitting in longitudinally extending slots 19 formed in the thimble-like socket member 10, thereby locking the fan and pulley against independent rotation with respect to the thimble-like socket member 10. A coil spring 20 is mounted within the thimble-like socket member 10 and engages the inner end of the reduced neck or shank 17, thereby urging the pump supporting shaft 4 inwardly to cause the nose portion 3 to bear upon the boss 2 and this yieldable means, in the nature of the spring 20, will prevent the shaft from hammering against the boss 2 and tend to hold the shaft steady and tight against longitudinal reciprocable movement. A thrust bearing 14' of conventional construction fits tightly in the sleeve and engages the collar 14 to prevent the shank from sliding outwardly.

By means of the structure just described, it should be understood that the coil spring 20 will greatly assist in preventing the shaft 4 from having end play between the water pump shaft pivot and the cylinder head, and this assembled structure will constitute an efficient means for keeping the pump tight and permitting the same to continuously operate evenly without undue wear upon the bushing. Through the medium of this structure it will also be noted that considerable length of life will be added to the bushing since the steady and tight condition of the pump shaft will eliminate the necessity of frequently renewing the bushing.

It should be understood that certain detail changes in mechanical construction may be employed without departing from the spirit of the invention, so long as these changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A device of the class described comprising a support, a shaft, an impeller mounted upon said shaft, said shaft provided with a projecting nose, said support provided with a boss for receiving said nose and constituting a bearing therefor, a fan, and means for yieldably connecting said shaft and fan for yieldably urging said shaft inwardly and holding said nose in contact with said boss.

2. A device of the class described comprising a support provided with a journal boss, a pump shaft carrying an impeller, said shaft provided with a nose journalled in said boss, a fan having a pulley, said pulley provided with a reduced extension, a socket member carried by said shaft for receiving said reduced extension and opera-

tively connected thereto, and yieldable means carried by said socket member and engaging said reduced extension for urging the shaft inwardly and holding said nose in firm contact with said bearing boss.

3. A device of the class described comprising a support provided with a bearing boss, a shaft extending longitudinally of said support and provided with a projecting end contacting with said boss, a fan and pulley mechanism, said pulley provided with a reduced extension having laterally extending lugs formed thereon, a slotted sleeve fixed to said shaft for receiving said reduced extension and lugs, whereby said fan will be locked for rotating movement with said shaft, and yieldable means mounted within said sleeve and between said reduced extension and said shaft for yieldably forcing one end of said shaft in tight contact with said boss, whereby said shaft will be resisted against longitudinal movement.

4. A device of the class described comprising a support, a water pump supporting shaft, means engaging one end of said shaft for constituting a bearing and holding the shaft against movement in one direction, a thimble-like socket member carried by the other end of said shaft, means for facilitating the keying of a fan to said thimble-like member, and a coil spring mounted within said thimble-like member for yieldably forcing said shaft inwardly with respect to said support.

FRANK P. MADRESS.
MURRAY M. COUNTERMAN.