Jan. 27, 1925. 1,524,319

V. C. SPARKS

ADJUSTABLE FAN AND PUMP ATTACHMENT FOR FORD CARS

Filed Sept. 30, 1922

Fig. 2

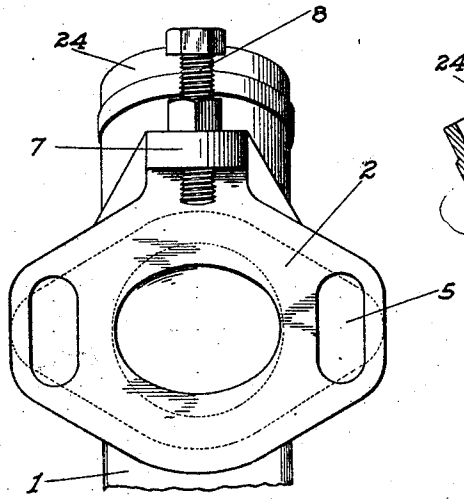


Fig. 1

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ADJUSTABLE FAN AND PUMP ATTACHMENT FOR FORD CARS.

Application filed September 30, 1922. Serial No. 591,643.

To all whom it may concern:

Be it known that I, VERNON C. SPARKS, a citizen of the United States, residing at Stockton, county of San Joaquin, State of California, have invented certain new and useful Improvements in Adjustable Fan and Pump Attachments for Ford Cars; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in water cooling devices for Ford cars, and is particularly an improvement over that type of attachment shown in my co-pending application for patent Serial No. 570,558, filed June 24th, 1922.

While the type of device shown in the present application functions in the same way and for the same purpose as the attachment shown and described in the aforementioned application, the means for enabling vertical adjustment being had, whereby to loosen or tighten the fan-belt, has been simplified considerably, thereby reducing the cost of manufacture, this feature being the principal object of this invention.

As another object, I have provided an improved form of leak-proof bearing means for the combined pump and fan shaft, which positively prevents leakage of the water from the pump and around the shaft.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of refernce indicate corresponding parts in the several views:

Fig. 1 is a vertical section of my improved unit attachment.

Fig. 2 is a fragmentary rear end view thereof.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes the main body member or casing of the pump, having a flange 2 on its rear face adapted to abut against the cylinder block 3 of the engine and to surround the opening 4 therein, in place of the usual elbow water-outlet fitting.

On opposite sides of the flange 2 are vertical slots 5 adapted to receive therethrough the same cap screws 6 as are usually employed to hold the above mentioned elbow fitting in place.

Projecting rearwardly of the member 1 and above the block 3 is a pad 7 threaded through which is an adjustment screw 8 which bears on top of the block 3.

By means of this construction if the screws 6 are loosened, and the screw 8 then turned down or retracted, the member 1 will be raised or lowered accordingly.

Formed with the body on the front face and at the lower end thereof is a boss 9, in which is press-fitted a bearing bushing 10 for the combined pump and fan shaft 11, said shaft having a reduced portion 12 at its inner end thereby forming a shoulder 13 which seats a fiber washer 14, the latter being between said shoulder and a reduced or shoulder portion 15 on the bushing 10. Oil or grease for lubrication purposes is fed to the bushing around the shaft through a hole 10^a leading to said bushing and thence along a groove 11^a cut in the face of the shaft 11, said lubricant being prevented from escape from the outer end of the bushing by means of a packing gland 16, adjustable by a cap 17 turnable by hand. On the outer end of the shaft is secured a flange 18 to which the fan 19 is secured, while a hollow pulley 20 to receive the usual fan belt is mounted over and spaced from the boss 9 and bushing 10 by means of arms 21 projecting from the flange 18, said flange pulley and arms being integrally formed, and the flange and pulley being spaced far enough apart to allow the cap 16 to be reached and set up when necessary without removing the fan and flange and pulley. On the inner end of the shaft 11 beyond the bushing is an impeller device 22, preferably of the double and staggered two-blade type, which draws the water from the outlet 4 through the casing 1 on the rear side of a laterally disposed partition 23 formed with the casing 1, and discharges it on the other and front side of said partition through the casing outlet 24, which is formed, and occupies the same relative place as the original water-outlet fitting previously mentioned.

Between the impeller and the adjacent end of the bushing 10 is another fiber washer 14^a seating against a shoulder 12^a on the portion

12 of the shaft, and backed by a metal washer 14[b], these washers being clamped against the said shoulder with the clamping of the impellers on the shaft, and the shoulders being far enough apart so that a slight end play of the shaft is permitted.

The shouldered features of the shaft and the arrangement of fiber bushings employed prevent leakage of the water around the shaft, irrespective of the direction of the pull or thrust on the shaft, since if the pull on the impeller in one direction is greater than the pull on the fan in the opposite direction, the shaft will be drawn toward the rear and the washer 14 will be squeezed tightly between the shaft and bushing shoulders, providing a seal which the water cannot pass. If the pull on the shaft is reversed in direction the washer 14[a] will bear tightly against the bushing, likewise forming a watertight seal. These washers being members separate from the shaft and bushing, may be readily replaced in the event of wear.

To enable the impellers to be inserted or removed, an opening in the back of the casing of sufficient size to receive the impeller therethrough is provided, said opening being normally closed by a flat plug 25 driven into place.

Adjacent the upper end of the wall 23 is a vent 23[a] so as to relieve and allow the escape of any steam from the pocket formed immediately which might accumulate, especially when the engine is stopped, in the pocket formed immediately under said wall.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A combined pump and fan structure for internal combustion engines comprising, in a unit, a body member, a pump structure therein, a fan mounted and driven in connection with the pump, a flange on the body adapted to abut against the cylinder block of the engine over the water-outlet thereof, said flange having vertical and opposed slots, bolts passing through said slots and screwed into the block, and means carried by the body and acting on the block for causing the body to move vertically when the bolts are loosened.

2. A combined pump and fan structure for internal combustion engines comprising, in a unit, a body member, a pump structure therein, a fan mounted and driven in connection with the pump, a flange on the body adapted to abut against the cylinder block of the engine over the water outlet thereof, said flange having vertical and opposed slots, bolts passing through said slots and screwed into the block, a pad on the body projecting over the block and an adjustment screw threaded through the pad and bearing on the block.

3. In a combined pump and fan unit, a pump body, a bearing sleeve projecting outwardly thereof, a shaft journaled in said sleeve, an adjustable cap on the outer end of the sleeve, a flange fixed on the outer end of the shaft and adapted to have a fan secured thereto, a hollow pulley over the sleeve, the cap projecting outwardly thereof, and spaced arms connecting the flange with the pulley.

4. A pump structure for internal combustion engines comprising a body member, a driven pump structure mounted therein, a flange on the body adapted to abut against the cylinder block of the engine over the water-outlet thereof, said flange having vertical and opposed slots, bolts passing through said slots and screwed into the block, and means carried by the body and acting on the block for causing the body to move vertically when the bolts are loosened.

In testimony whereof I affix my signature.

VERNON C. SPARKS.