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ROTARY PUMP ADAPTED TO BE SUPPORTED AND ACTUATED BY A POWER TAKE-OFF SHAFT OF A MOTOR

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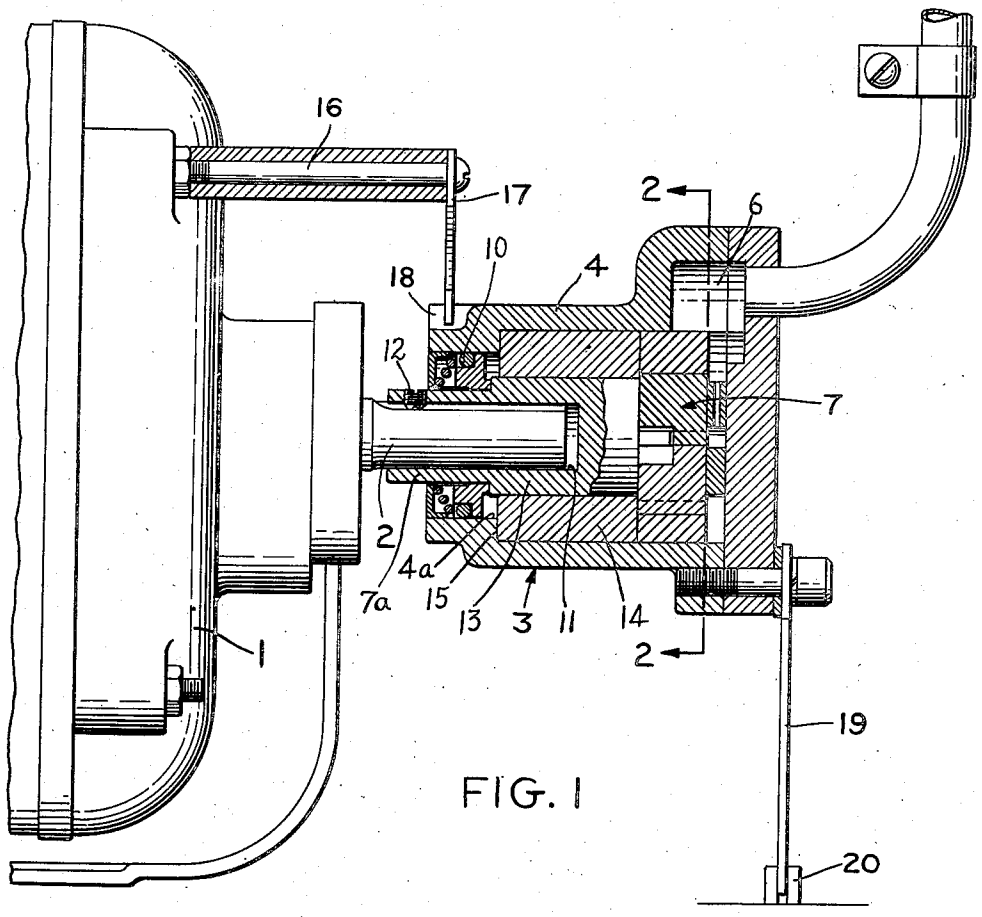


FIG. 1

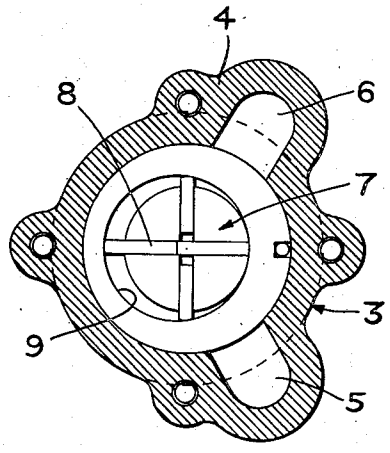


FIG. 2

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ROTARY PUMP ADAPTED TO BE SUPPORTED AND ACTUATED BY A POWER TAKE-OFF SHAFT OF A MOTOR

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2 Claims. (Cl. 103—118)

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This invention relates to pumps of the rotary type and an object of the invention is to provide a cheap, simple pump structure, the rotor of which is mounted directly on the shaft of its operating motor in such manner as to eliminate couplings, and the need of specially constructed motors or motor shafts and to eliminate the need of a pump base.

A further object of the invention is to provide simple inexpensive means to prevent rotation of the casing of the pump during its operation.

With these and other objects in view, as may appear from the accompanying specification, the invention consists of various features of construction and combination of parts, which will be first described in connection with the accompanying drawings, showing a rotary pump adapted to be supported and actuated by a power take-off shaft of a motor of a preferred form embodying the invention, and the features forming the invention will be specifically pointed out in the claims.

In the drawings:

Figure 1 is a longitudinal section through a pump constructed in accordance with the present invention showing it mounted on the power take-off shaft of an electric motor.

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

Referring more particularly to the drawings, 1 indicates a standard type electric motor having a power take-off shaft 2. The pump 3 includes a casing 4 having the usual fluid intake and outlet ports 5 and 6. A rotor 7 is mounted within the casing 4 of the pump 3, and in the drawings the rotor 7 is of the sliding vane type including a plurality of radially extending sliding vanes 8 which cooperate with the eccentric bore 9 of the casing for pumping the fluid. While the drawings show a sliding vane type of pump, it is to be understood that the invention is equally applicable for employing gear pumps wherein the rotor comprises a toothed member or gear in lieu of the sliding vanes. Such gear pumps are well known and are quite old.

The pump structure 3 is wholly supported upon the shaft 2 thus eliminating the need of a pump base and its corresponding cost.

Thus the rotor 7 is formed integrally with a lateral projection or real wood extension 7a. The extension 7a extends outwardly of the casing 4 through an opening 4a and is provided with a longitudinally extended axial bore for recess 11 which runs inwardly from the outer end of the extension 7a, to provide means to receive the

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power take-off shaft 2. The extension 7a has a set screw 12 or any other suitable means adjacent its outer end to fixedly connect the rotor for rotation with said power take-off shaft 2.

The shaft 2 thus supports and rotates the rotor 7 without contacting the casing 4. The casing is in turn supported on the extension 7a of the rotor by means of a bearing portion 13 formed thereon having a lesser diameter than the rotor which bearing portion rotates in a bearing member 14 mounted in the casing in abutment with an annular stop shoulder 15 formed inwardly of the opening 4a. The reduced diameter of the bearing portion 13 and the annular stop shoulder 15 act to prevent lateral movement of the bearing member 14.

Means are provided for preventing rotation of the pump casing during rotation of the rotor and such casing anchoring means may constitute the bolt 16 attached to the motor 1 to the outer end of which bolt is attached a bar 17. The bar 17 engages against an abutment 18 formed on the casing 4 of the pump so as to hold the casing against rotation. The casing 4 is shown in Figure 1 of the drawings as having a second anchoring structure connected thereto which comprises an anchor bar 19 attached to or engaging the casing 4 of the pump and adapted to engage against any suitable abutment or stationary member 20 located in the vicinity of the pump. Either one of the anchoring elements 17 or 19 or both of them may be employed to prevent rotation of the casing of the pump during rotation of its rotor.

What is claimed is:

1. A rotary pump operated and wholly supported by the power take-off shaft on a motor including a casing having an opening on the side adjacent the power take-off shaft and an annular shoulder formed in the casing inwardly of said opening, a pump rotatable in said casing and having an extension projecting outwardly through said opening with a bore in the outer end thereof to mount said rotor on said power take-off shaft, and means to lock said rotor extension to said power take-off shaft to allow said rotor to rotate therewith, a bearing portion formed integrally with said extension on the portion thereof disposed inwardly of said opening, a bearing member mounted in said casing and abutting said annular shoulder, said bearing member mounted on said bearing portion of the extension to wholly support said casing thereon, and means to prevent rotation of said casing on rotation of said rotor.

2. In combination a motor having a power take-off shaft and a rotary pump operated and wholly supported by said power take-off shaft including, a casing having an opening on the side adjacent the power take-off shaft, an annular shoulder formed in said casing inwardly of said opening, a pump rotor rotatable in said casing and having an extension projecting through said opening, said extension having a bore formed therein to receive said power take-off shaft, locking means to connect said extension on said power take-off shaft for rotation of said rotor therewith, a bearing portion formed on said extension of the rotor on the portion thereof just inwardly of the opening, and a bearing element

mounted on said bearing portion and in abutment with said annular shoulder to wholly support said casing, and means to prevent rotation of said pump casing upon rotation of said power take-off shaft.

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