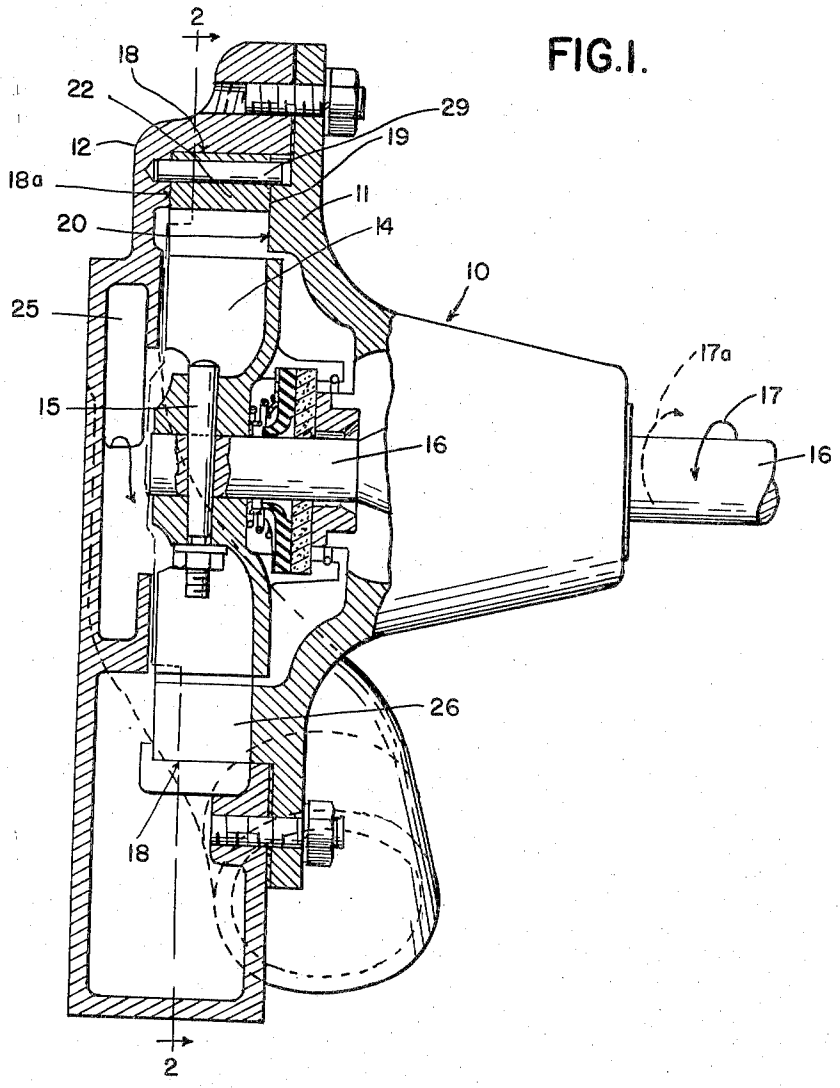
Sept. 25, 1956 W. A. ENGSTROM 2,764,096

WATER PUMP FOR INTERNAL COMBUSTION ENGINE

Filed Dec. 15, 1952

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FIG.1.



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FIG. 3.

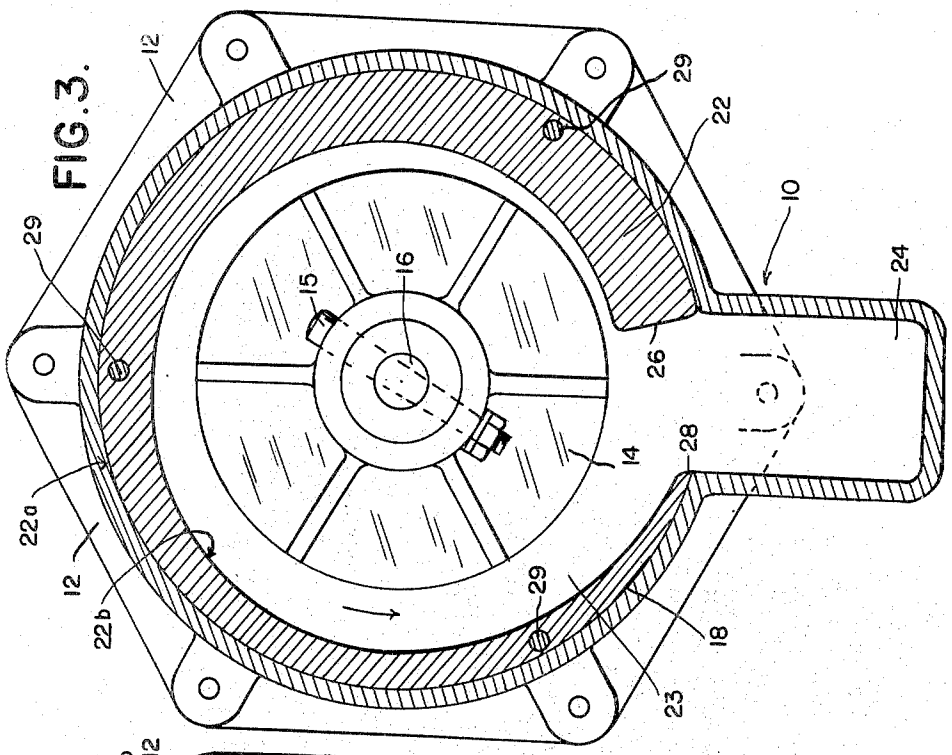
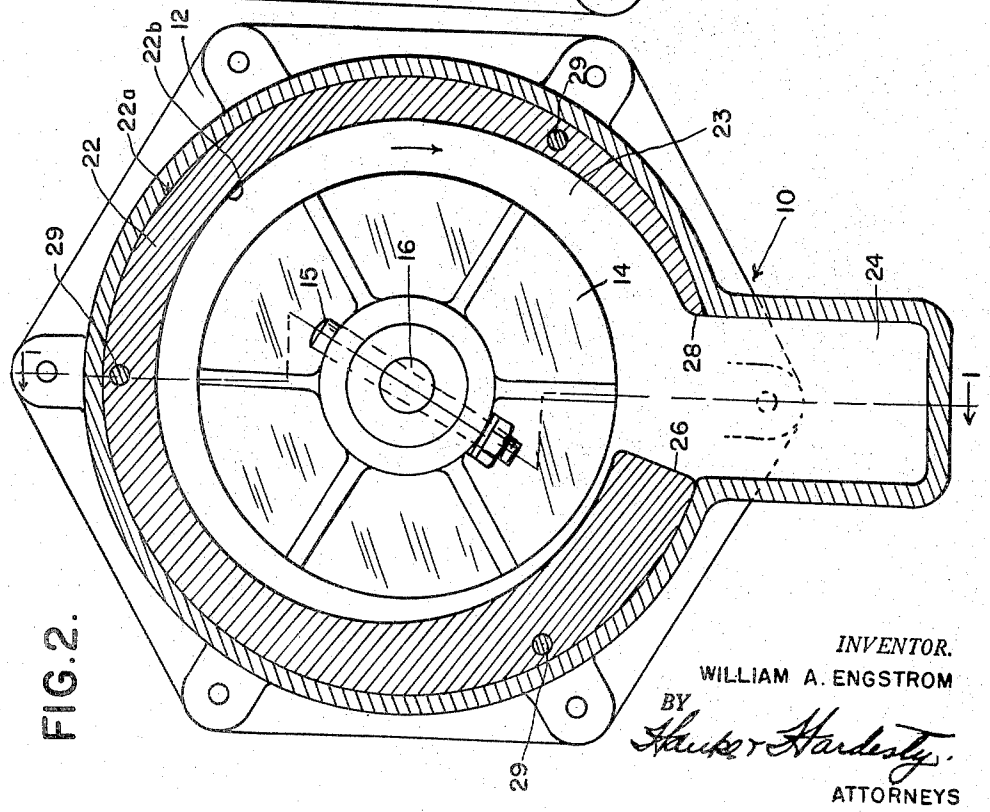


FIG. 2.



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WATER PUMP FOR INTERNAL COMBUSTION ENGINE

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Application December 15, 1952, Serial No. 326,048

2 Claims. (Cl. 103—3)

My invention relates to water pumps and more particularly to the internal pump structure whereby the pump may be adopted to a drive of either right or left hand rotation.

It is customary in pump construction to cast the pump casing with an eccentric impeller recess, but these are capable of being used only with a pump drive of a definite rotation, and when the drive is rotated in the opposite direction, a different cast casing is required.

An object of my present invention is to make a universal pump capable of selective operation with right and left hand drives by incorporating a reversible stripper part within the internal pump structure.

For a detailed understanding of the invention reference may be had to the accompanying drawings illustrating a preferred embodiment thereof in which like parts are referred to by like characters throughout the several views, and in which

Fig. 1 is a side view, partly in section of a water pump, and taken substantially on the line 1—1 of Fig. 2.

Fig. 2 is a vertical transverse sectional view taken on the line 2—2 of Fig. 1, and

Fig. 3 is a similar transverse sectional view showing the stripper reverse in position for adaptation of the pump to a drive rotating in the opposite direction to the drive illustrated in Figs. 1 and 2.

Referring to Figs. 1 and 2, the pump casing comprises a casing structure 10 consisting of one part 11 and a cover part 12. An impeller 14 of substantially standard construction is pinned or otherwise secured to a drive shaft 16 operating in the direction as shown by arrow 17. For convenience, I have chosen to show the impeller 14 secured to the shaft 16 by a pin 15, and this shaft is rotatably supported by the casing part 11, the cover 12 being bolted to the part 11, preferably as shown.

One of the casing parts, in this case, the cover part 12, is provided with circular recess 18 positioned concentrically with respect to the impeller 14, the casing part 11 having a projected circular portion or boss 19 entering the recess 18, the face 20 of said portion or boss 19 being parallel and spaced with respect to the bottom face 18a of said recess 18 when the casing parts are secured together.

A stripper part 22 having eccentric inner and outer circular peripheries is seated in the recess 18 and tightly fitted between the faces 18a and 20. Thus the outer periphery 22a of the stripper is concentric with respect to the impeller and the inner periphery 22b is eccentric with respect thereto, thereby providing a circular passage 23 of progressively increasing cross section toward the water outlet 24. A suitable inlet 25 provides for the intake of the water to the pump interior where it is picked up by the impeller and discharged through passage 23 and outlet 24 in the conventional manner.

The stripper part is constructed of a circular tapered

cross section (see Fig. 2) and the two ends 26 and 28 thereof are annularly spaced as shown. Dowel pins 29, symmetrically spaced about the center of the recess 18, are provided to locate the stripper within said recess.

For assembly of the pump to an engine drive rotating in the opposite direction to that shown by arrow 17, such as in the direction indicated by the dotted line arrow 17a, the stripper is reversed in said recess and positioned as shown in Fig. 3. No other alteration or revision of the pump parts is required for selectively adapting the pump for rotation in either direction and thus the pump is readily selectively adapted for a right or left hand engine drive.

It will be apparent to those skilled in the art to which my invention relates that changes and modifications may be made therein without departing from the spirit of my invention or from the scope of the appended claims.

I claim:

1. A water circulatory pump for an internal combustion engine comprising a casing having an inlet and an outlet, an impeller rotatably supported in said casing, a circular recess in said casing and disposed substantially concentric with the impeller axis, and a separate stripper having parallel end faces and secured in said casing about said impeller, said stripper constructed to be symmetrical with respect to a medial plane parallel to the end faces thereof, and means for selectively securing said stripper in said casing in different end for end positions to adapt said pump for rotatable operation in a clockwise or counterclockwise direction, said stripper having an outer periphery concentric to the impeller axis and fitted into said casing recess and an inner periphery eccentric to the impeller axis to provide a volute passage terminating in an outlet disposed adjacent to and communicating with said casing outlet.

2. A water circulatory pump for an internal combustion engine comprising a casing having an inlet and an outlet, an impeller rotatably supported in said casing, a circular recess in said casing and disposed substantially concentric with the impeller axis, and a separate stripper having parallel end faces and secured in said casing about said impeller, said stripper constructed to be symmetrical with respect to a medial plane parallel to the end faces thereof, and means for selectively securing said stripper in said casing in different end for end positions to adapt said pump for rotatable operation in a clockwise or counterclockwise direction, said stripper comprising an integral structure having an outer cylindrical periphery concentric to the impeller axis and closely fitted into said casing recess and an inner cylindrical periphery eccentric to the impeller axis to provide a volute passage terminating in an outlet at said casing outlet, said stripper being thus selectively positioned to dispose the outlet of said volute passage to the right or left of a plane containing said casing outlet and the impeller axis, whereby to arrange said assembly for coacting operation with operation of the impeller in a clockwise or counterclockwise direction.

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