Jan. 6, 1942. F. L. CORBIN 2,269,009

ROTARY CENTRIFUGAL PRESSURE PRODUCING DEVICE

Original Filed July 3, 1939

Fig. 1

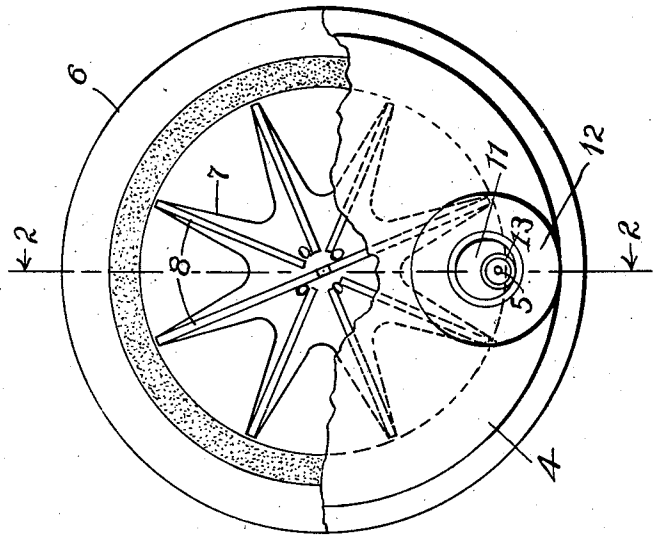


Fig. 2

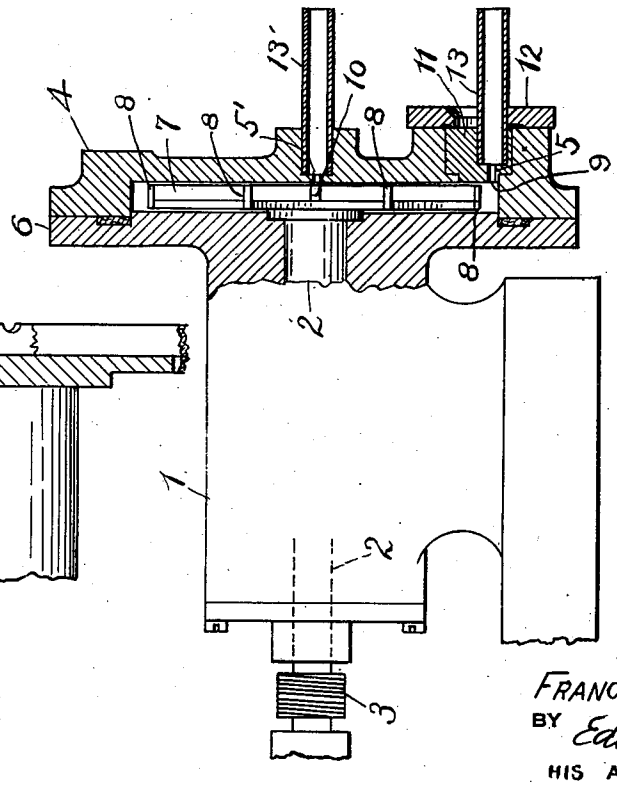
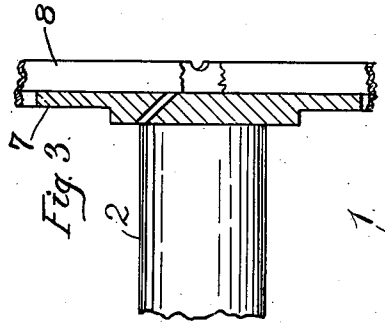


Fig. 3



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ROTARY CENTRIFUGAL PRESSURE PRODUCING DEVICE

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Original application July 3, 1939, Serial No. 282,609. Divided and this application December 5, 1939, Serial No. 307,640

2 Claims. (Cl. 103—97)

This application is a division of my copending application Serial No. 282,609, filed July 3, 1939.

The object of this invention is to produce certain valuable improvements in rotary centrifugal pressure producing devices or pumps, particularly those for producing pressures that oppose and substantially equalize fluid pressures created by other means.

The present invention is particularly useful in connection with the balancing of fluid pressures incident to the use of marine devices such as pitometer rods like those connected with travel indicators for ships, etc., one form of which is described and claimed in my said prior application for a patent, Ser. No. 282,609, filed July 3, 1939.

The present application, therefore, relates to improvements in an operative part that causes accurate control of indicating devices to be accomplished as described in my said prior application and desired in the device of prior United States patent to L. A. Dunajeff, No. 1,451,064, issued April 10, 1923, for a "Speed indicator," and in connection with other apparatus where useful, particularly when greater accuracy, adjustability and reliability are desired.

For a detailed description of one form of the present invention, reference may be had to the following details of construction read with the accompanying drawing, in which—

Fig. 1 is an end view, partly in section or broken away to show the interior of my improved device; Fig. 2 is a diametral sectional view of the main portions of the pump; and Fig. 3 is a somewhat enlarged view of the central or hub portion of the impeller of the pump as shown in Figs. 1 and 2.

Referring to the drawing, the numeral 1, indicates an housing for the driving shaft 2, of the pump, that is preferably connected with the driving means (not shown) by a flexible coupling 3. The numeral 4, indicates a cover plate having an outer pressure conduit communicating with an orifice passage 5 and an intake conduit communicating with an orifice passage 5', and which is carried on the main housing 6, of the pump.

The pump comprises a rotor or impeller 7, having radial blades 8, to rotate the enclosed fluid, usually water.

Referring to Figs. 1 and 2, it will be seen that the orifice passages 5 and 5', may connect with the connecting nipples 13 and 13' and that the planes of the orifices at their inner ends 9 and 10, are parallel with the plane of rotation of the impeller 7, and therefore to the rotary motion of the contained fluid. That arrangement of the ports greatly reduces the liability of causing eddy currents or other disturbances that would tend to produce detrimental effects on the resultant pressures. As will be observed from the drawing the orifice passages 5 and 5' are of relatively small diameter, also for the purpose of reducing the liability of producing undesirable eddy currents.

In said figure it will be seen that the outer orifice passage 5, and the nipple 13, are carried eccentrically in a rotatable plug or inset piece 11, that is retained in position by a plate or collar 12. That structure allows the inset piece 11 to move the orifice passage 5 so that it may be positioned at various radial distances from the axis of the impeller 7, and thereby enable the pressure or flow induced by the latter to be adjusted to the desired point depending upon the speed of the impeller 7.

Various changes may be made in, and other devices, may be connected with, my improved pump without departing from the essentials of this invention as set forth in the appended claims, or exemplified in my prior application Ser. No. 282,609.

What I claim and desire to protect by Letters Patent is:

1. In a rotary centrifugal pressure producing device, an impeller, a casing enclosing the impeller and having two orifice passages therein located at different radial distances from the axis of rotation of the impeller, one of said orifices being located in a casing part movably mounted to vary the radial distance of the orifice passage therein from said axis, said movably mounted orifice passage communicating with a conduit communicating with the exterior of the casing, the movably mounted orifice passage being normal to the portion of the casing wall through which the orifice opens.

2. In a rotary centrifugal pressure producing device, an impeller, a casing enclosing the impeller and having two orifice passages therein located at different radial distances from the impeller axis, the radially outer one of said orifices being located in a casing part movably mounted to vary the radial distance of the orifice passage therein from said axis, said movably mounted orifice passage communicating with a conduit communicating with the exterior of the casing, the movably mounted orifice passage being normal to the portion of the casing wall through which the orifice opens.

FRANCIS L. CORBIN.