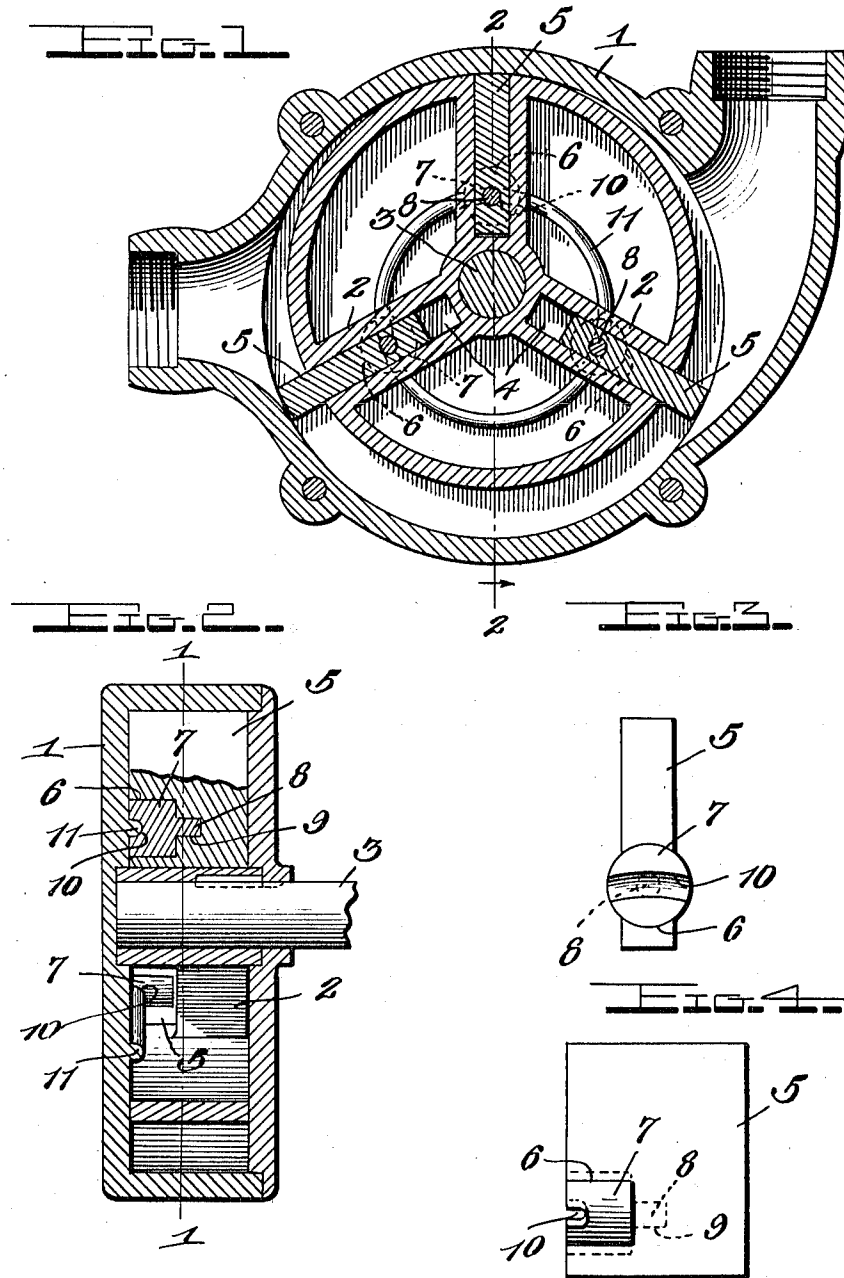


G. F. OBERGE.
 ROTARY PUMP.
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1,041,151.

Patented Oct. 15, 1912



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ROTARY PUMP.

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To all whom it may concern:

Be it known that I, GEORGE F. OBERGE, a citizen of the United States, residing at Haverford, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention comprehends certain new and useful improvements in pumps of the class that embody a casing, a rotor eccentrically mounted in the casing and radially movable vanes or blades carried by the rotor, and the invention has for its primary object
15 a simple and efficient construction of pump of this character which will possess a high degree of efficiency, which will be easy to construct and to maintain and not liable to get out of order, and which will reduce to a minimum the friction between the stationary portion of the casing which is concentric thereto and the guiding members that are carried by the radially movable or
20 sliding vanes or blades of the rotor.

The invention has also for its object a pump of this type which will be positive in its action and at the same time reduce the friction upon the moving parts, the invention also aiming to generally improve this class of devices and to render them more useful and commercially desirable.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter more fully describe and claim.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing in which:—

Figure 1 is a sectional view of a rotary pump embodying the improvements of my present invention. Fig. 2 is a transverse sectional view, the section being taken approximately on the line 2—2 of Fig. 1. Fig. 3 is a detail edge view of one of the vanes or blades of the rotor; and Fig. 4 is an elevation thereof.

Corresponding and like parts are referred to in the following description and designated in the accompanying drawing by like reference characters.

Referring to the drawing the numeral 1

designates the casing of my improved rotary pump, the same being of any desired construction and size according to the particular requirements of the case and formed with inlet and outlet openings or passages which may be disposed as judgment may direct.

2 designates the rotor which is mounted upon the drive shaft 3, said shaft being eccentrically journaled in the casing 1 and having the rotor 2 concentrically disposed thereon. The rotor 2 embodies a cylindrical rim and any desired number of connecting webs, said webs being, respectively, formed with radially disposed and peripherally opening guide channels 4 for the reception of the blades or vanes 5 that are radially slidable therein. In the present embodiment of the invention there are three vanes shown, but it is to be understood that this is simply arbitrary and that the invention is not limited to this or to any number of vanes. Each of the vanes 5 is formed in one edge with a recess 6 the opposite walls of which are curved correspondingly as best illustrated in Fig. 3, the recesses of the vanes or blades being designed to accommodate guide members 7 which, in the present instance, are formed with cylindrical body portions and are at one end provided, respectively with relatively short studs 8 designed to fit within the reduced inner ends 9 of the recesses 6. Each guiding member 7 lies flush at its outer face with the adjoining edge of the vane or blade which carries it and may be of such a diameter that it will project beyond the opposite parallel side faces of the vane, as best illustrated in Fig. 3. This is rendered possible, owing to the fact that, as best illustrated in Fig. 2, the webs of the rotor in which the radially disposed channels 4 are formed, are cut away at the side adjoining the ridge 11 which is formed on one of the heads of the casing 1. Hence, a proper bearing is provided for the guiding members, while at the same time, friction is not increased, but will decrease, owing to the fact that by cutting away the webs at one side, there is less surface area of said webs directly contacting with the head 1 which is provided with the rib 11. Each guiding member is formed on its outer face with a curved recess 10, the recesses of all the guiding members being designed for engagement

on the rounded ridge or rib 11 just mentioned.

From the foregoing description in connection with the accompanying drawing, the operation of my improved rotary pump will be apparent. The circular or annular guiding rib 11 which is formed on the inner face of one of the heads of the casing 1 is concentric to the casing, as clearly illustrated in Fig. 1, while the rotor 2 is eccentric thereto. Hence it will be understood that in the rotation of the rotor under the influence of the gas, air, steam, or other fluid motive medium, or when driven by the shaft 3 when used as a pump and not a motor, the vanes or blades 5, owing to the engagement of their guiding members 7 with the annular rib 11 of the casing, will at all times be held properly with their outer ends in engagement with the rim of the casing, so as to prevent leakage past the vanes or blades, and at the same time insure that friction at this point shall not be excessive. Owing to the construction and arrangement of the guiding members 7 and the rib 11, it is not necessary to thicken the head of the casing which carries the guiding element 11, or otherwise to reinforce or strengthen said head on its outer wall, and hence, space is economized without sacrificing strength and efficiency. In their revoluble movement, the guiding elements 7 will at all times accommodate themselves in position so as to avoid excessive friction between them and the rib 11, it being noted that the guiding members can turn freely in the recesses 6 in which they are seated. It will further be understood that no fastening devices are necessary to retain the guiding member 7 in place. Thus it will be seen that I have provided a very simple, durable and efficient construction of rotary pump, the parts of which may be cheaply manufactured and readily assembled and which will not be liable to get out of order.

While the accompanying drawing discloses what I believe to be the preferred embodiment of my invention, it is to be understood that the invention is not limited thereto, but that various changes may be made in the construction, arrangement and proportion of the parts without departing from the scope of the invention as defined in the appended claims.

Having now fully described my invention, what I claim is:—

1. A device of the class described, including a casing, a rotor eccentrically mounted in said casing and formed with a plurality of radially disposed guide channels, the casing being provided on the inner wall of one head

with an annular ridge concentric to the casing, vanes slidably disposed in the guide channels of the rotor and formed with recesses, and guiding members mounted to freely turn in said recesses and slidably engaging said ridge.

2. A device of the class described, including a casing formed on the inner wall of one head with a concentric transversely rounded ridge, a rotor mounted in said casing and formed with a plurality of radially disposed guide channels, vanes slidably mounted in said channels and each formed in one edge with a recess, and cylindrical guiding members mounted in said recesses and flush with the adjoining edge of the vanes, the guiding members being formed with curved recesses adapted to fit over said ridge.

3. A device of the class described, including a casing, a rotor eccentrically mounted in said casing and provided with a plurality of radially disposed guide channels, vanes slidably mounted in said channels, the casing being provided on the inner wall of one head with a concentric transversely rounded ridge, the vanes being formed in one edge with recesses having reduced inner ends, and cylindrical guiding members mounted to turn freely in said recesses and formed with studs fitting in the reduced inner ends of the recesses, the guiding members being flush with one edge of the vanes and formed in their outer faces with curved recesses fitting over said ridge.

4. A device of the character described, including a casing, a rotor eccentrically mounted in said casing and embodying a cylindrical rim, and a plurality of connecting webs formed, respectively, with radially disposed guide channels, vanes slidably mounted in said channels, the casing being provided on the inner wall of one head with a concentric ridge, the vanes being formed in one edge with recesses having reduced inner ends and cylindrical guiding members mounted to turn freely in said recesses and formed with studs fitting in the reduced inner ends of the recesses, the guiding members being flush with one edge of the vanes and formed in their outer faces with curved recesses fitting over said ridge, the webs being cut away on one side adjoining the head of the casing which is formed with the ridge, whereby to provide clearance spaces for the said cylindrical guiding members.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE F. OBERGE.

Witnesses:

GEO. S. LIVINGSTON,
FREDERICK S. STITT.