

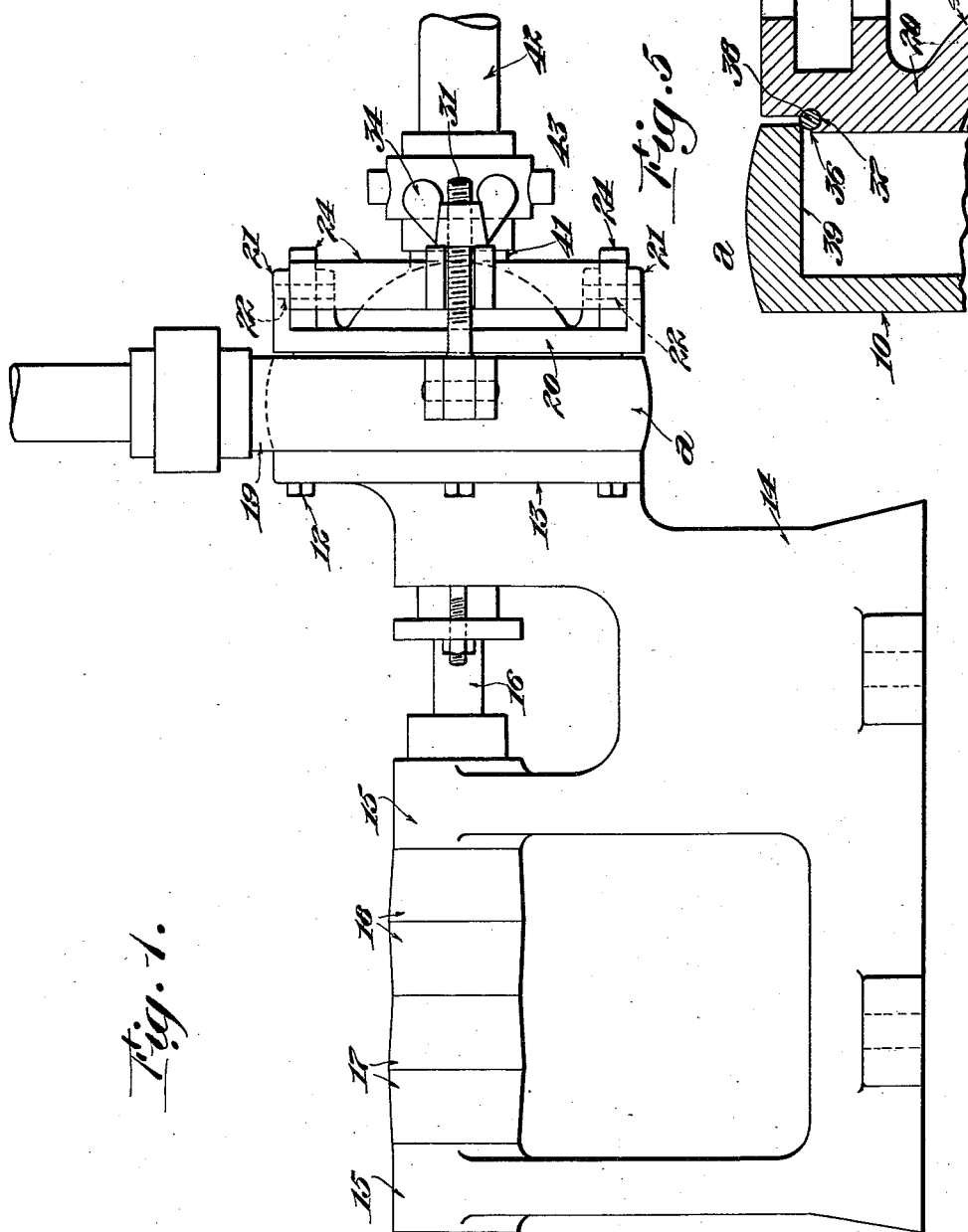
Jan. 1, 1929.

H. E. WRIGHT
CENTRIFUGAL PUMP

Filed Aug. 1, 1925

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2

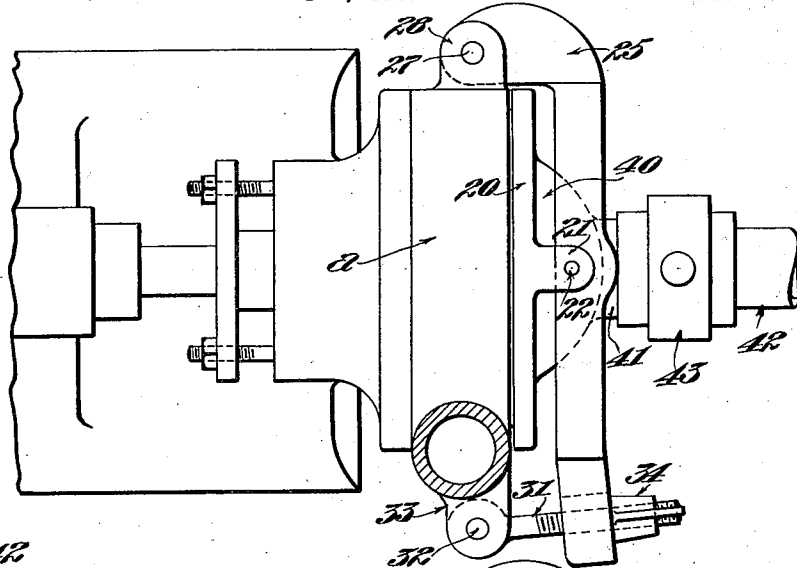


Fig. 4

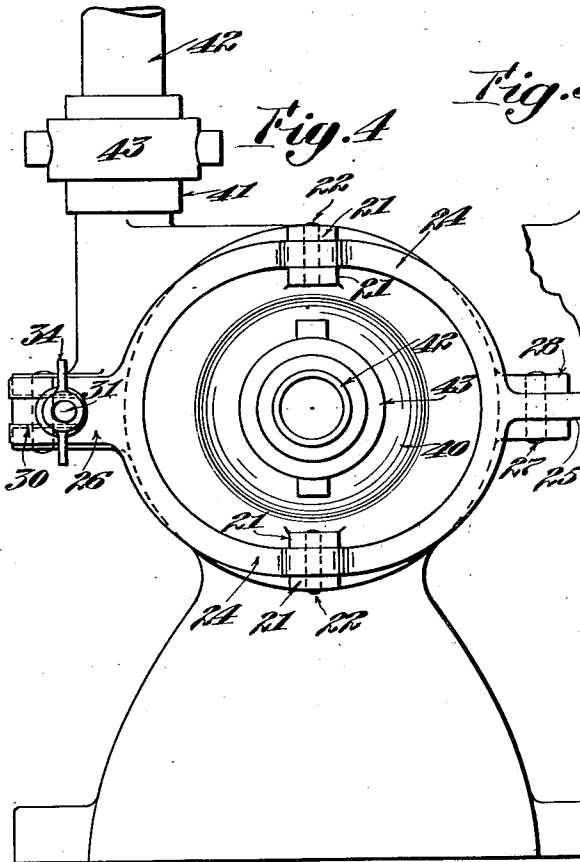
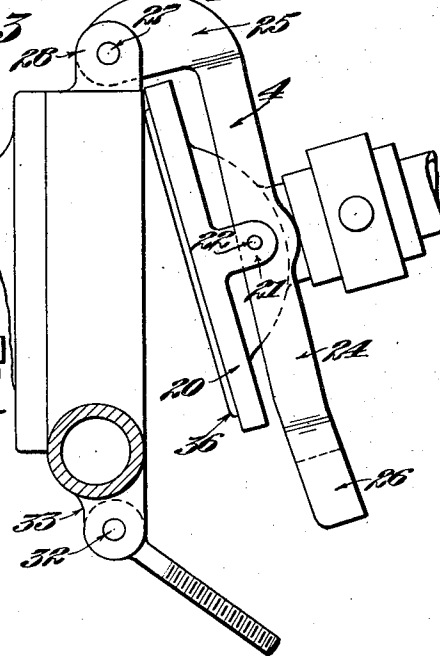


Fig. 5



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UNITED STATES PATENT OFFICE.

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CENTRIFUGAL PUMP.

Application filed August 1, 1925. Serial No. 47,396.

This invention relates to centrifugal pumps of that character in which a bladed rotor is located within a casing open at one side and provided with a cover having an axially arranged fluid inlet.

A pump of this character among other uses is particularly adapted for pumping milk and like fluids, and requires frequent cleaning to maintain the same in a sanitary condition.

The present invention has for its object to provide pumps of the character described with a cover which can be opened and closed in a minimum time and with minimum effort, and with which a fluid-tight joint may be effected with pump casings having relatively irregular or rough surfaces.

To this end, the cover of the pump having the usual axial inlet, is mounted to rock in a supporting member, secured to the pump casing, and said supporting member is preferably made as a lever or yoke, which is pivoted at one end to the pump casing, and has its other or free end slotted for the reception of an eye-bolt, which is pivoted to the casing and has co-operating with its free end a wing-nut by which the yoke may be quickly and easily secured in fixed relation to the pump casing.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Fig. 1 is a side elevation of a pump embodying this invention;

Fig. 2, a detail in plan on a larger scale of a portion of the pump shown in Fig. 1, with the cover closed.

Fig. 3, a view like Fig. 2, with the cover partially opened;

Fig. 4, an end elevation of Fig. 2 looking toward the left, and

Fig. 5, a detail in section to be referred to.

Referring to the drawing, *a* represents the casing of the pump, which is substantially circular in shape and open at its front side and closed at its rear side by wall 10, which is secured by screws 12 to a disk or plate 13 affixed to a base 14, having bearings 15 for the shaft 16 of a bladed rotor, not shown, which is located in the casing *a* and revolves therein. The shaft 16 is provided with the usual fast and loose pulleys 17, 18. The casing *a* is provided with the usual tangential fluid outlet 19.

The pump as thus far described is of known construction and is not herein claimed broadly.

The present invention has for its object to provide the pump with a cover for the open side of the casing *a*, which cover is constructed and arranged as will be described, to enable it to be opened and closed in a minimum time without the use of tools and yet afford a fluid-tight joint with the casing and to enable it to conform to a casing having irregularities in its surface when in its closed position and which is secured to the casing in both its opened and closed positions.

To this end, the cover comprises a circular disk 20 having at diametrically opposite points outwardly extended lugs 21, which are pivotally connected by pins 22 with a supporting member, preferably made as herein shown and comprising a yoke or lever having a ring-like body portion 24 from which extend lugs 25, 26 located at substantially diametrically opposite points in said body portion.

One of the lugs as 25 extends substantially at right angles to the body portion so as to project over the casing *a* of the pump and is pivoted at 27 to lugs 28 on said casing. The other lug 26 is provided with a slot 30 open at its outer end and cooperates with an eye-bolt 31 pivoted at 32 to lugs 33 on the casing.

The bolt 31 is extended through the slot 30 in the closed position of the cover and has co-operating with it a nut 34, preferably a wing-nut, which engages the lug 26 on the lever or yoke and serves to lock or hold the cover in its closed position.

The disk 20 of the cover is preferably provided on its inner face with an annular projecting portion or member 36 (see Fig. 5) having a circumferential groove 37 for the reception of an endless ring 38 of rubber or like resilient material, which co-operates with the casing and preferably with the inner circumference 39 of said casing to form a fluid-tight joint therewith when the cover is closed and held or locked in such position by the wing-nut 34, as represented in Fig. 2. The cover is preferably provided with an outwardly extended curved center portion 40 provided with an axially arranged pipe

section 41, which forms the fluid inlet pipe for the pump and is designed to be connected with a supply pipe 42 by a coupling 43.

From the above description it will be seen
5 that the cover for the opening in the side of the pump casing can be quickly and easily closed by the operator in a minimum time and without the use of a wrench, for it is only necessary to apply the wing-nut 34 to
10 the bolt 31 after the latter has been passed into the slot 30 in the end of the lever or yoke, and turn up said nut by hand, which causes the lever or yoke to press the packing ring 38 against the pump casing and form
15 a fluid-tight joint between the cover and said casing.

To open up the cover, it is only necessary to back off the wing-nut 34 and turn the yoke or lever outwardly, and as pumps employed for pumping milk must be frequently
20 inspected and cleansed, this may be done by the operator in a minimum time and at a minimum cost.

Furthermore the construction enables the cover to be rendered fluid-tight with relatively light pressure, and therefore enables the wing-nut to be employed, which avoids the danger of breaking bolts by applying
25 too much pressure with a wrench.

30 By mounting the cover on the lever or yoke so as to rock on the latter, the cover is enabled to accommodate itself to slight irregularities in the surface with which it cooperates, and thus make a leak-proof joint therewith.

35 It will also be observed that only three parts are subjected to wear in the opening and closing of the cover, to wit: the wing-nut thread, the eye-bolt thread, and the
40 hinge pin 27 for the lever or yoke, which parts can be quickly and easily replaced, which tends to reduce the cost of maintenance. The cover is attached to the casing through the supporting lever pivoted to the
45 lug 28 on the casing, and is locked in its closed position by the nut 34 on the bolt 31 pivoted to the casing.

One embodiment of the invention is herein shown, but it is not desired to limit the
50 invention to the particular construction shown.

What I claim is:

1. A pump of the character described, having a casing provided with substantially
55 diametrically opposite external lugs and with

an opening in one side, a cover-supporting member having a ring-like body portion provided at one side with a lug having a slot and at its opposite side with a lug extended substantially at right angles to said body
60 portion, means for pivoting the last-mentioned lug to one of the internal lugs on the said casing, a cover for said opening provided with a fluid inlet in open communication with said casing when said cover is in
65 its closed position and pivotally mounted to rock on said body portion and having an annular projection adapted to enter the opening in said pump casing, a yielding packing member on the circumference of said projection, a bolt pivoted to said casing and co-
70 operating with the slotted lug of said cover-supporting member, and a nut on said bolt co-operating with said slotted lug to close said cover fluid-tight.

2. A pump of the character described, having a casing provided with an opening in one side and having substantially diametrically opposite lugs extended therefrom, a lever pivoted to one of said lugs and having
80 a ring-like body portion having a slotted lug extended therefrom, a cover for said opening provided with a substantially central fluid inlet in open communication with said casing when said cover is in its closed
85 position and having ears pivoted to the ring-like body portion of said lever substantially at right angles to the pivot for said lever, and a bolt pivoted to the other lug on said casing and capable of being extended through
90 the slotted lug on said lever, and a nut on said bolt to engage the said slotted lug and move the cover into its closed position.

3. A pump of the character described having a casing provided with substantially diametrically opposite external lugs and with
95 an opening in one side, a cover-supporting lever having at one end a laterally projecting lug extended over the said casing and pivoted to one of said external lugs, a cover for said opening pivotally mounted to rock on said supporting lever, and means pivoted to the other of said external lugs for securing the free end of said cover-supporting member in fixed relation to said casing
100 with the cover in its closed position.

In testimony whereof, I have signed my name to this specification.

HERBERT E. WRIGHT.