Sept. 30, 1930. I. L. SHEPHERD 1,777,052

PUMP

Filed Aug. 30, 1929

Fig. 1.

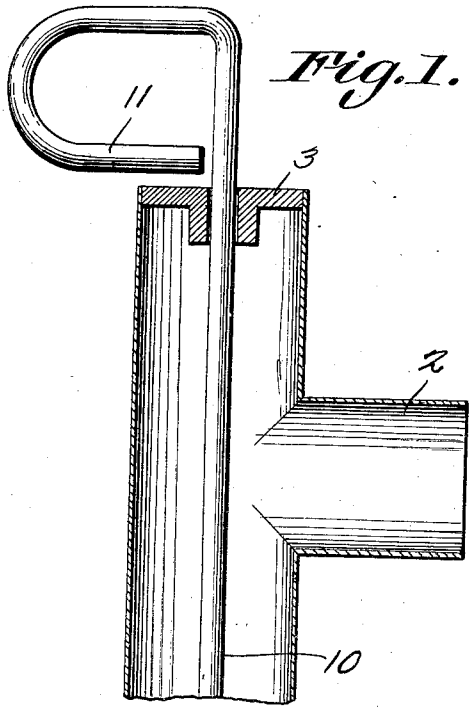
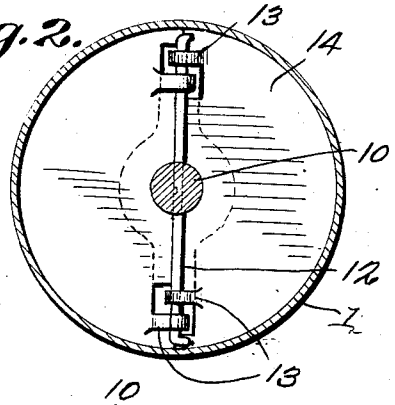


Fig. 2.



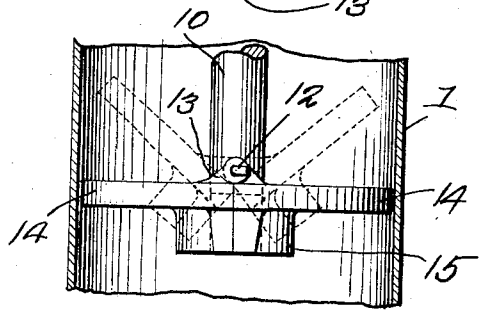
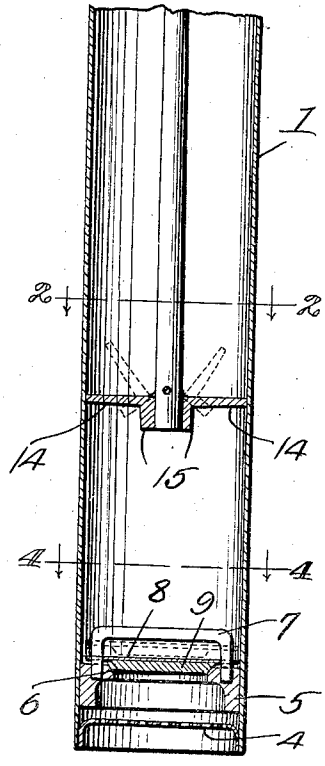


Fig. 3.



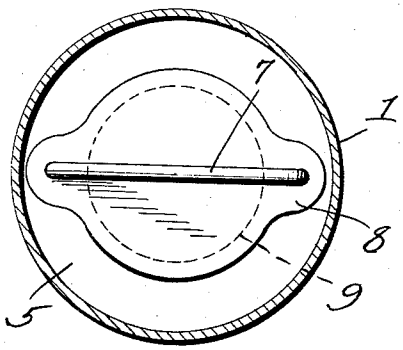


Fig. 4.

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Patented Sept. 30, 1930 1,777,052

UNITED STATES PATENT OFFICE

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PUMP

Application filed August 30, 1929. Serial No. 389,472.

This invention relates to small pumps such as "bilge" pumps for use in boats and the like, one object being to provide a pump that is cheap to manufacture and which utilizes an all-metal valve, seat, and plunger, it being possible readily to assemble the parts and to separate them for the purpose of making repairs and replacements.

With the foregoing and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing,

Figure 1 is a longitudinal section through the pump, two positions of the plunger members and valve being indicated by broken and full lines respectively.

Figure 2 is an enlarged section on line 2—2, Figure 1.

Figure 3 is a side elevation of the plunger, the adjacent portion of the casing being shown in section.

Figure 4 is an enlarged section on line 4—4, Figure 1.

Referring to the figures by characters of reference, 1 designates a pump cylinder or casing made up of seamless metal tubing cut to a desired length and formed with an outlet spout 2 near the upper end thereof. The upper end of this tubing is adapted to be closed by a lid 3 seated tightly therein and held thereto in any manner desired. The lower end of the tubing has a metal screen 4 seated therein.

Securely mounted in the casing or cylinder 1 near the screen 4 is a ring 5 providing a tapered seat 6. This ring has a guide and retaining bail 7 seated therein and extending thereover and slidably mounted on the end portion of the bail is a metal plate 8 provided with a tapered disk 9 secured thereto in any manner desired. This disk and plate constitute a valve, disk 9 being adapted to engage the seat 6. The upward movement of the valve is restricted by the bail 7.

Mounted for reciprocation in the head 3 is a rod 10 the outer end of which is formed with a suitable handle 11. The inner end of the rod has a pivot pin 12 extended diametrically therethrough and mounted on this pin are ears 13 extending from segmental metal flaps 14. The rod 10 is extended between these flaps and each flap is preferably formed with two ears that lap and are disposed adjacent to the ears of the opposed flaps.

The flaps 14, when in alinement as shown by full lines in Figures 1 and 2, form a substantially circular plunger the peripheral portion of which is adapted to travel close to the wall of the casing or cylinder 1. Each flap has an arcuate flange 15 depending therefrom and when the flaps 14 are flush as shown in Figure 3, these flanges will abut at their ends. Thus the flaps are prevented from swinging downwardly relative to each other after they have been brought into the same plane.

In practice the rod is reciprocated as ordinarily so as to cause the flaps to travel downwardly and upwardly within the cylindrical casing 1. Each time the flaps are pulled upwardly away from the ring 5 they will act to lift fluid away from the ring and, by suction, to open the valve formed of the plate and disk 9. When the rod is moved in the opposite direction the flaps 14 will swing upwardly toward each other as indicated by broken lines, thereby allowing fluid to flow freely past the flaps.

It will be seen that a pump such as described can be made entirely of metal and will be capable of withstanding very rough handling.

What is claimed is:

1. A pump of the class described including a tubular casing having an inlet at one end and an outlet, a check valve seated adjacent the inlet, a rod mounted for reciprocation within the casing, opposed segmental flaps pivotally connected to the rod and adapted to swing upwardly and downwardly relative

thereto and to each other, and means carried by the flaps and cooperating with each other and with the rod for limiting the downward movement of the flaps, said means and the pivotal connection between the rod and flaps constituting the sole support for the flaps when closed.

2. A pump of the class described including a tubular casing having an inlet at one end and an outlet, a check valve seated adjacent the inlet, a rod mounted for reciprocation within the casing, opposed segmental flaps pivotally connected to the rod and adapted to swing upwardly and downwardly relative thereto and to each other, and means carried by the flap and cooperating with each other and with the rod for limiting the downward movement of the flaps, said means including arcuate flanges carried by the respective flaps and movable together at their ends when the flaps are flush with each other, said flaps being unsupported at their free edges when closed.

3. In a pump the combination with a valved cylindrical casing, of a rod mounted for reciprocation in the casing, opposed segmental flaps pivotally connected to the rod and embracing the rod, and means depending from the flaps and cooperating with the rod and with each other for limiting the downward movement of the flaps.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

IRVING L. SHEPHERD.