July 23, 1929. R. H. CARSON 1,721,692

SUMP PUMP

Filed March 29, 1926

Fig. 1

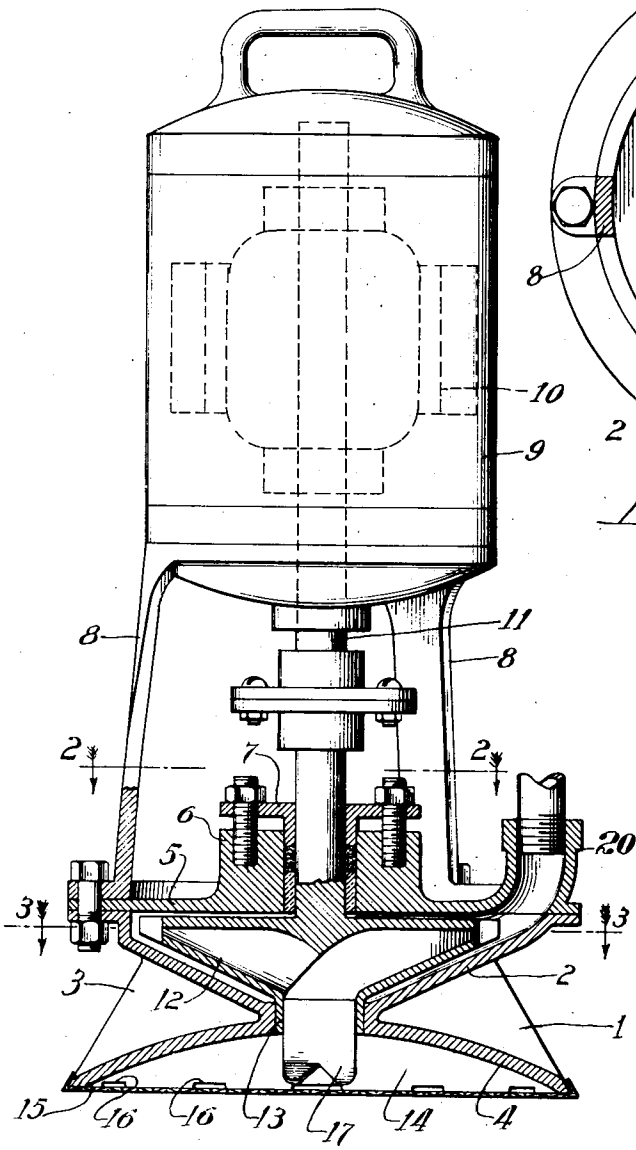


Fig. 2

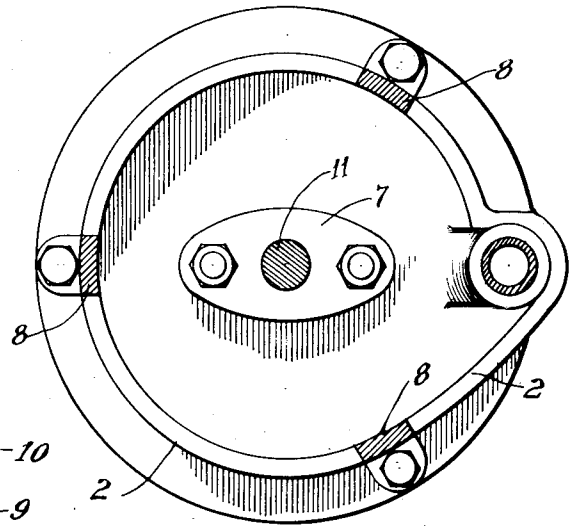
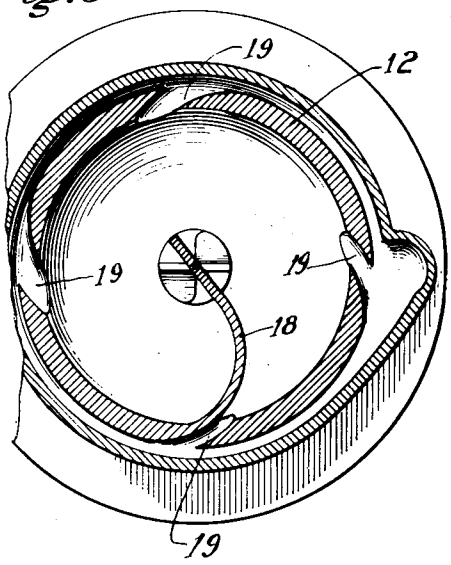


Fig. 3



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UNITED STATES PATENT OFFICE.

ROBERT H. CARSON, OF DANVILLE, ILLINOIS.

SUMP PUMP.

Application filed March 29, 1926. Serial No. 98,210.

This invention relates to an improved portable sump or puddle pump of the general type of construction shown in my Patent No. 1,382,605, issued June 21, 1921, and is chiefly characterized by a bell shaped base comprising a suction inlet, which is adapted to be set directly into shallow puddles of water, so that substantially all of the fluid may be drawn up.

Heretofore, sump pumps usually were provided with a suction hose having a screen on the end. The shallowest depth that could be pumped was limited by the diameter of the screen. Accordingly, sump holes were usually dug to receive the end of the suction line, which is especially undesirable in concrete floors and the like. Also the flexible hose wore out quickly and was a cumbersome appendage to the pump.

The objects of my invention are to overcome such disadvantages as mentioned above; and to provide a compact portable pumping device, which may be set directly on flat surfaces and will suck up practically all of the water or fluid thereon.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:

Figure 1 is an elevation of the portable pump, with portions shown in section.

Fig. 2 is a section on the line 2—2 of Figure 1.

Fig. 3 is taken on the line 3—3 of Figure 1.

The portable pump comprises an upright structure in which the motor and centrifugal pump are centrally mounted on a vertical shaft. The base of the structure is hollowed out and the inlet to the pump communicates directly to the hollow cavity in the base.

In the drawings, the lower half 1 of the pump housing 2 comprises the bottom frame member 3. The pump housing is of an inverted frusto-conical form and opens directly into the inverted cup-shaped base portion 4. The upper member 5 of the pump housing is substantially flat and is provided with a central hub 6, a packing gland 7 and an upwardly extending integral outlet 20 communicative with the interior of the pump housing 2 at the periphery thereof. A skeleton frame 8 is bolted to the pump housing and supports the cylindrical housing 9 which contains the driving motor 10. The vertical shaft 11 is rotatably mounted in the boss 6 and housing 9, and carries the armature of the motor 10. At the lower end of the shaft, and located in the pump housing, is the pump rotor 12. The rotor 12 conforms to the shape of the housing, and is provided with a hollow sleeve 13 at the bottom, which projects through the housing and into the recess or cavity 14 in the base 4. The bottom of the base is covered with a screen 15, and side ports 16 are provided around the edges.

The pick-up blade or screw 17 is secured in the sleeve 13 and serves to draw the fluid up into the interior of the rotor 12 to initiate the suction. A curved vane 18 is provided across the interior of the rotor 12, and outlet ports 19 are cut in the periphery.

It is manifest that an extremely compact unit is provided. It is easily transported and may be set directly into the shallow puddles of water. No sump holes or drains are required.

Formerly the blade 18 was made straight, but I have found that by curving the blade as shown the efficiency of the pumping is increased. For distributing the flow of the fluid around the periphery of the rotor, the first of the series of ports 19, adjacent the outer end of the blade 18, is made smaller than the rest of the ports which are successively increased in size around the rotor.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In a centrifugal pump, a hollow inverted frusto-conical rotor turning on a vertical axis, and a housing enclosing and conforming to said rotor, a hollow inverted cup-shaped base joined to said housing, said housing having a flat upper wall and an outlet opening upwardly therefrom and arranged to avoid air pockets, a tube portion on the rotor projecting through the lower end of the housing to form an inlet, and said rotor having peripheral apertures.

2. In a centrifugal pump, a hollow rotor turning on a central axis, a housing for the rotor, said housing having a peripheral outlet, a hollow hub on the rotor projecting through the housing, and a single curved vane in the rotor, the periphery of the rotor having a series of ports therein.

3. A centrifugal pump including a hous-

ing, a hollow rotor in the housing, and a single radial blade across the interior of the rotor, said blade being curved at the outer end, the periphery of the rotor having a series of ports therein.

4. A centrifugal pump including a housing, a hollow rotor in the housing, and a single radial blade across the interior of the rotor, said blade being curved at the outer end, the edge of the rotor being provided with a series of ports successively increasing in size from the first port adjacent the outer end of the blade.

Signed at Chicago this 25th day of March, 1926.

ROBERT H. CARSON.