Dec. 3, 1963 N. A. KECK 3,112,707

PUMP

Filed Nov. 30, 1962

FIG. 1

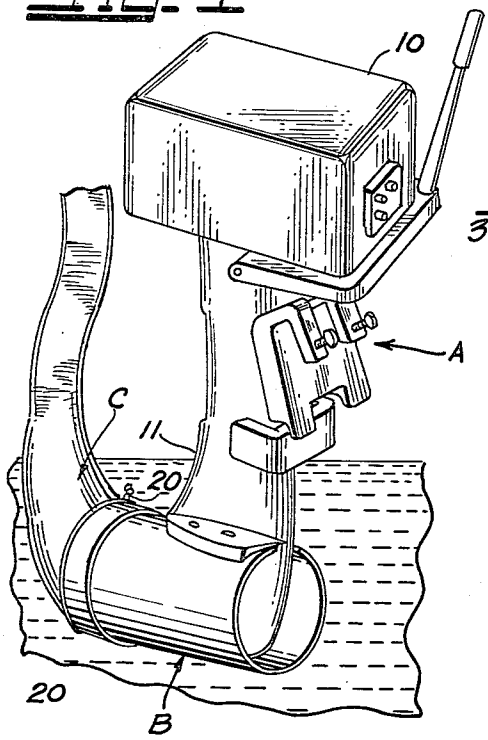


FIG. 2

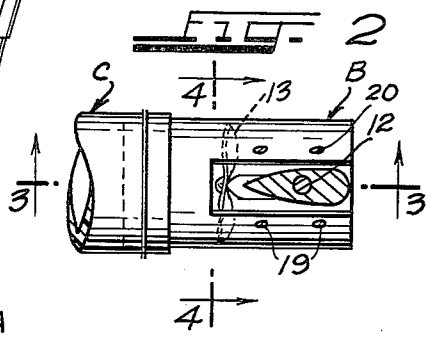


FIG. 3

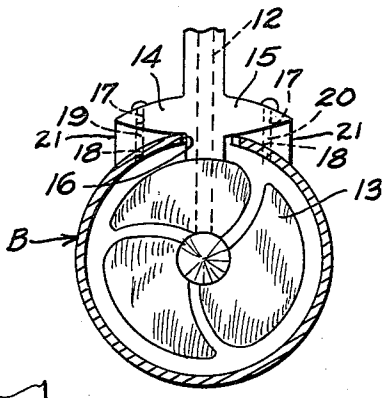
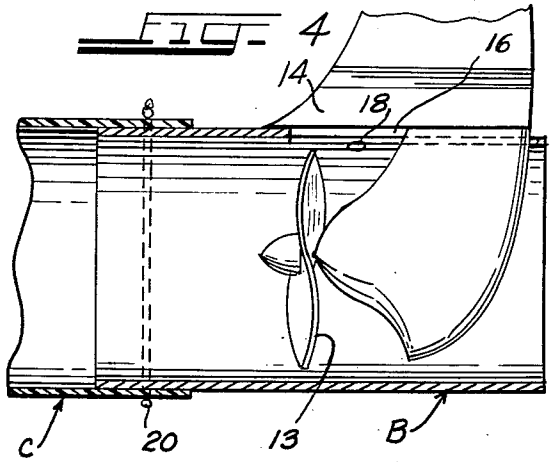


FIG. 4



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This invention relates to an attachment for converting a conventional outboard motor to a pump, and to the pump so provided.

Many people now own boats with outboard motors and use them for sport or for pleasure. The outboard motor therefore is a piece of machinery which is available almost anywhere, and it would be desirable to make it serve other useful functions as well as its primary function of propelling a boat.

One kind of job which may need to be done is the draining of ponds or flooded areas. When a rainstorm occurs to make a flooded area, or if for any reason, water must be removed from some area, it may be very urgent that the area be drained quickly, but no pump is available. In such cases it would be very desirable to be able to convert an available outboard motor to a suitable pump which can quickly drain the area.

Therefore it is an object of this invention to provide an attachment which can be connected with an available outboard motor to provide a pump which is effective for moving liquids.

Another object is to provide attachment structure which can be stored in a minimum of space and which can be easily assembled.

Other objects and advantages will be apparent as the specification proceeds.

One embodiment of the invention is illustrated in the accompanying drawing in which FIG. 1 is a perspective view showing the attachment in place on the outboard motor to provide a pump; FIG. 2 is a top view of the attachment device; FIG. 3 is a sectional view taken along line 3—3 of FIG. 2; and FIG. 4 is a sectional view taken along line 4—4 of FIG. 2.

As illustrated, the improved pump includes the outboard motor A, the cylinder B, and the tube C.

The outboard motor A may be of any type and may be the conventional makes now commonly in use. As shown it has an enclosure 10 which encloses the usual gasoline engine. The frame structure 11 extends downwardly, and within this is the drive shaft 12 which serves to drive the propeller 13. The propeller is driven in a direction to urge liquid rearwardly thus to serve its function in propelling a boat forwardly.

The frame structure 11 is tubular in nature. In cross section it is relatively thin from side to side and elongated from front to back. At its lower portion it is equipped with the flanges 14 and 15 which extend laterally to each side.

The cylinder B is a simple cylindrical section made of metal or plastic or other suitable material. It is of a diameter such that its internal bore is slightly larger than the propeller 13. It contains the slot 16 which extends from the forward end of the cylinder and longitudinally inwardly. This slot is wide enough to receive the frame structure 11, and is shaped at its rearward end so as to fit about the rearward portion of the frame structure 11. Suitably, the slot 16 is long enough to receive all or substantially all of the frame structure 11 therein. With the frame structure thus received within the slot 16, and as shown more particularly in FIG. 4, the propeller 13 is well inclosed within the cylinder and well spaced from either end of it.

A tube C, made of rubber or other flexible material, is connected to the rear or discharge end of the cylinder B. For the tube C I may use a new or used inner tube of a vehicle tire. The inner tube may be severed to provide a rubber tube having two ends. One end is placed over the cylinder B and is secured by a band 20 of metal or wire. A fiber cord could also be used. The other end of the tube may be placed where the liquid is intended to be discharged.

To assemble the pump, the cylinder C is placed at the rear of the outboard motor, and then moved forwardly so that the frame structure 11 is received within the slot 16, and the propeller is received into the center of the cylinder.

Any suitable means may be employed to secure the cylinder to the frame structure of the outboard motor. I have found the flanges 14 and 15, which are provided in most makes of motors, may be effectively employed for making this attachment. One or more holes 17 may be bored in each flange, and corresponding holes 18 may be provided in the cylinder B, the holes 18 being aligned with holes 17 when the frame structure is fully received within the slot 16. If desired, wedges 21 may be inserted between the flanges and the cylinder to make a tighter fitting. Bolts 19 and 20 may extend through the aligned holes 17 and 18 and wedges 21 to bind the cylinder to the flanges and thus secure the cylinder rigidly with respect to the frame structure 11 and the propeller 13.

The cylinder B and tube C may be stored apart from the outboard motor, with the tube C being folded into a small space. Then when the pump is desired these parts may be assembled with the outboard motor as above described. When the pump is no longer needed the cylinder B and tube C may be again stored away while the outboard motor is separately used or stored.

With the device assembled to operate as a pump it may be used by submerging its lower portion consisting of the cylinder B in the liquid which is to be pumped, placing the discharge end of the tube C at the point where the liquid is meant to be delivered, and operating the engine in the usual way.

When the propeller 13 is rotated in the direction which it ordinarily rotates when used to drive a boat, the liquid in which it is submerged will be caused to enter the forward end of the cylinder B, be passed through cylinder B, through tube C, and be discharged at the other end of the tube.

It may be noted that the cylinder B is of relatively large size, being larger in diameter than the diameter of the propeller of the outboard motor. The capacity of the pump is relatively great, and the pump is capable of moving a large volume of liquid in a given length of time.

It is another feature of the invention that the tube C, being of a flexible resilient material, such as a rubber inner tube of a tire, has its walls in collapsed condition when not delivering liquid, so that the discharge end of the tube C may be easily placed with its discharge end at the desired point, and then when the pump comes into operation, the tube fills, and its walls approximate a cylindrical shape, permitting a relatively large volume of liquid to pass through it in a given time with a minimum of resistance to the flow of liquid.

It is another feature of the invention that the pump may be connected in series with a second pump of the same kind, the tube C of one pump having its end received over the forward end of the cylinder B of the second pump and fastened with a band such as the band 20. By thus connecting the pumps in series relationship a substantially greater pressure can be delivered and a greater head of liquid maintained.

It will be understood that although only one embodiment of the invention has been described in detail herein, the invention may take many forms, and many changes and alterations may be made in line with the spirit of this disclosure and the skill of the art without departing from the invention.

I claim:

1. An attachment for converting an outboard motor to a pump comprising a cylinder, a slot in the wall of said cylinder, said cylinder being adapted to receive the propeller of an outboard motor with the drive shaft for said propeller received within said slot, means for attaching said cylinder to the frame structure of said outboard motor, and a tube having its one end received over and attached to the rearward end of said cylinder to receive liquid from said cylinder and discharge the liquid through its other end.

2. A pump comprising an outboard motor equipped with a propeller and a shaft for driving the propeller, said shaft being enclosed in a frame structure, a cylinder extending about said propeller and having a slot into which said frame structure is received as the cylinder is moved to enclose the propeller, means for fastening said cylinder to said frame structure, and a tube having its one end received over and attached to the rearward end of said cylinder, whereby liquid propelled through said cylinder by said propeller is passed through said tube and discharged at the other end thereof.

3. A pump comprising a motor equipped with a propeller and a shaft for driving the propeller, said shaft being enclosed in a frame structure, a rigid cylinder extending about said propeller and having a slot into which said frame structure is received, means for fastening said cylinder to said frame structure, and a rubber tube having its one end received over and attached to the rearward end of said cylinder, whereby liquid propelled through said cylinder by said propeller is passed through said tube and discharged at the other end thereof.

4. A pump comprising an outboard motor equipped with a propeller and a shaft for driving the propeller, said shaft being enclosed in a frame structure having a flange thereon, a metal cylinder extending about said propeller and having a slot into which said frame structure is received, means for fastening said cylinder to said flange to make it secure with said frame structure and fixed about said propeller, and a rubber tube having its one end received over and attached to the rearward end of said cylinder, whereby liquid propelled through said cylinder by said propeller is passed through said tube and discharged at the other end thereof.

5. A pump as set forth in claim 3 wherein said tube is an inner tube of a vehicle tire which has been severed to provide its two ends.

6. A pump comprising an outboard motor equipped with a propeller and a shaft for driving the propeller, said shaft being enclosed in a frame structure having a flange protruding laterally therefrom on each side thereof, a cylinder extending about said propeller and having a slot into which said frame structure is received, means for fastening said cylinder to each of said flanges to make it secure with said frame structure and fixed about said propeller, and a severed inner tube of a vehicle tire having its one end received over and attached to the discharge end of said cylinder whereby liquid passed through said cylinder through the propulsion of said propeller will be passed through said inner tube and discharged at the other end thereof.

7. An attachment for converting an outboard motor to a pump comprising a cylinder, a slot in the wall of said cylinder opening at the end of the cylinder and adapted to receive the shaft frame of an outboard motor so that the propeller of the outboard motor will be disposed inside said cylinder, and a flexible tube having its one end received over and attached to the discharge end of said cylinder and adapted to conduct liquid therethrough and discharge the same at its other end.

8. An attachment as set forth in claim 7 wherein said flexible tube is resilient and has its end secured to said cylinder by a band extending around said tube at the place it is received over the end of said cylinder.

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