Sept. 13, 1932. C. G. O. H. VON KÖHLER 1,877,210

DEVICE FOR PUMPING OUT BOATS

Filed May 6, 1931

Fig. 1.

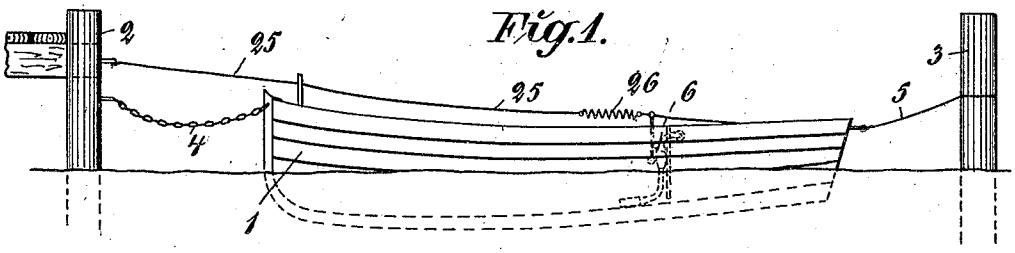


Fig. 2.

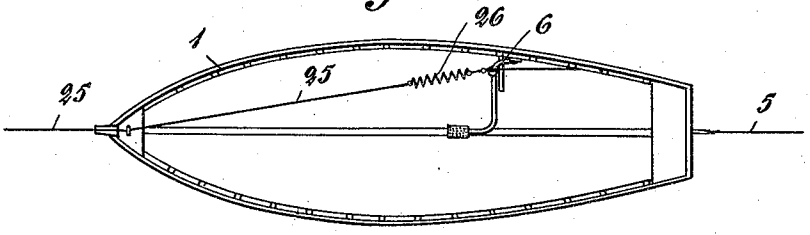


Fig. 3.

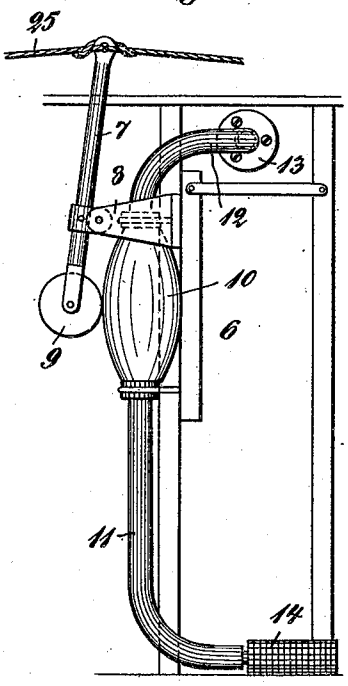


Fig. 4.

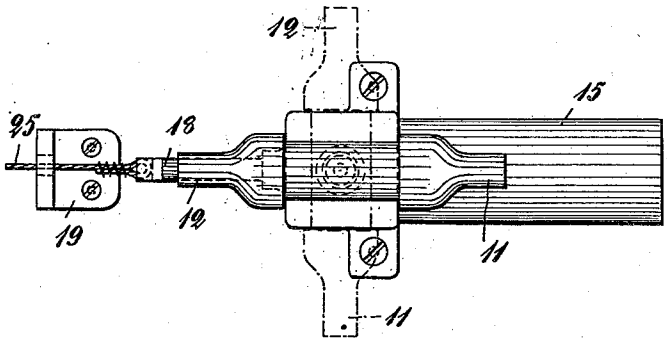
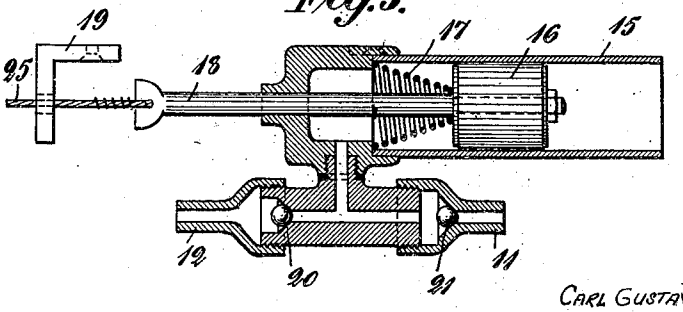


Fig. 5.



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UNITED STATES PATENT OFFICE

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DEVICE FOR PUMPING OUT BOATS

Application filed May 6, 1931, Serial No. 535,370, and in Sweden May 6, 1930.

The present invention relates to a device for pumping out water from boats, which device is automatically operative when the boat is moored. The invention is based upon the fact that, even in very quiet harbors, there is always some motion of the water due partly to the wind and partly to the swells caused by passing boats. Even faint gusts of wind which may be insufficient to produce movement of the water will cause the boat to rock. According to this invention, the tensile forces produced by the movement of the boat with relation to the water are utilized to operate a pumping device.

The invention comprises essentially a pump, the pumping member of which is connected with a cable which can be connected with a mooring post so as to allow the pumping member to be acted upon by said cable when the moored boat is oscillated by the action of waves or wind.

In the accompanying drawing,

Fig. 1 is a partly diagrammatic view of a boat provided with a pumping device embodying the features of the present invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a side view showing on a larger scale one embodiment of the pumping device;

Fig. 4 is a side view of a modified form of the pumping device;

Fig. 5 is a central longitudinal sectional view taken through Fig. 4.

Referring to Fig. 1, the boat 1 is moored, at stem and stern, to the two mooring posts 2 and 3 respectively by means of the cables 4 and 5 respectively in the usual manner. In addition, there is a cable 25 having one end attached to the post 2, and preferably including a resilient member 26, for instance a spring, the other end of the cable 25 being connected with the pumping device 6 (see Figs. 1 and 3). When the boat is oscillated by the action of waves, wind or the like, said device 6 is caused to act by the varying tensile stresses in the cable 25 so as to cause the water contained in the boat to be pumped out. It should be pointed out that the chain cable 4 may be dispensed with, if desired, and the cable 25 take its place as a mooring cable.

In the embodiment shown in Fig. 3 the cable 25 has one end attached to one end of a double-armed lever 7 pivotally mounted in a bracket 8. The other end of the lever 7 carries a roller 9, which, when the lever is swung on its pivot, acts upon a collapsible elastic bulb 10, which communicates at one end with a suction pipe 11 provided at its lower end with a strainer 14, the bulb communicating at its opposite end with one end of a delivery pipe 12, which carries at its opposite end a flanged connecting member 13, by means of which it may be secured in alinement with an opening in the side of the boat thereby to deliver the pumped water outside of the boat.

In the embodiment shown in Figs. 4 and 5 the device consists of a pump cylinder 15 made preferably of a stainless metal. Disposed for reciprocation in the cylinder 15 is a piston 16, the rod 18 of which is connected with the cable 25 whereby the piston may be displaced in one direction by the tensile forces arising in the cable. The piston is moved in the opposite direction by the influence of a spring 17. To prevent the piston rod 18 from bending when the tensile forces in the cable 25 are not in line with the direction of movement of the piston rod a guide 19 for the cable 25 is provided in axial alinement with the piston rod. 21 and 22 are two balls serving as check valves and located respectively in the suction and delivery pipes 11 and 12.

It may be pointed out that the embodiments described above are illustrative only, and that the construction of the device may be considerably modified without departing from the scope of the invention as set forth in the appended claim.

Having now particularly described the nature of my invention and the manner of its operation what I claim is:

A device for pumping water from boats, comprising a collapsible elastic bulb disposed within the boat, a suction pipe and a delivery pipe communicating with said bulb, each of said pipes having a check valve, a double-armed lever mounted for pivotal movement on said boat, a flexible member secured at

one end to one arm of said lever and at its opposite end to a fixed point outside of the boat, the other arm of said lever being disposed in contact with said bulb, whereby the vibrations of said flexible member will cause the lever to swing on its pivot thereby to produce alternate collapse and expansion of said bulb.

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

CARL GUSTAF OTTO HJALMAR VON KÖHLER.