

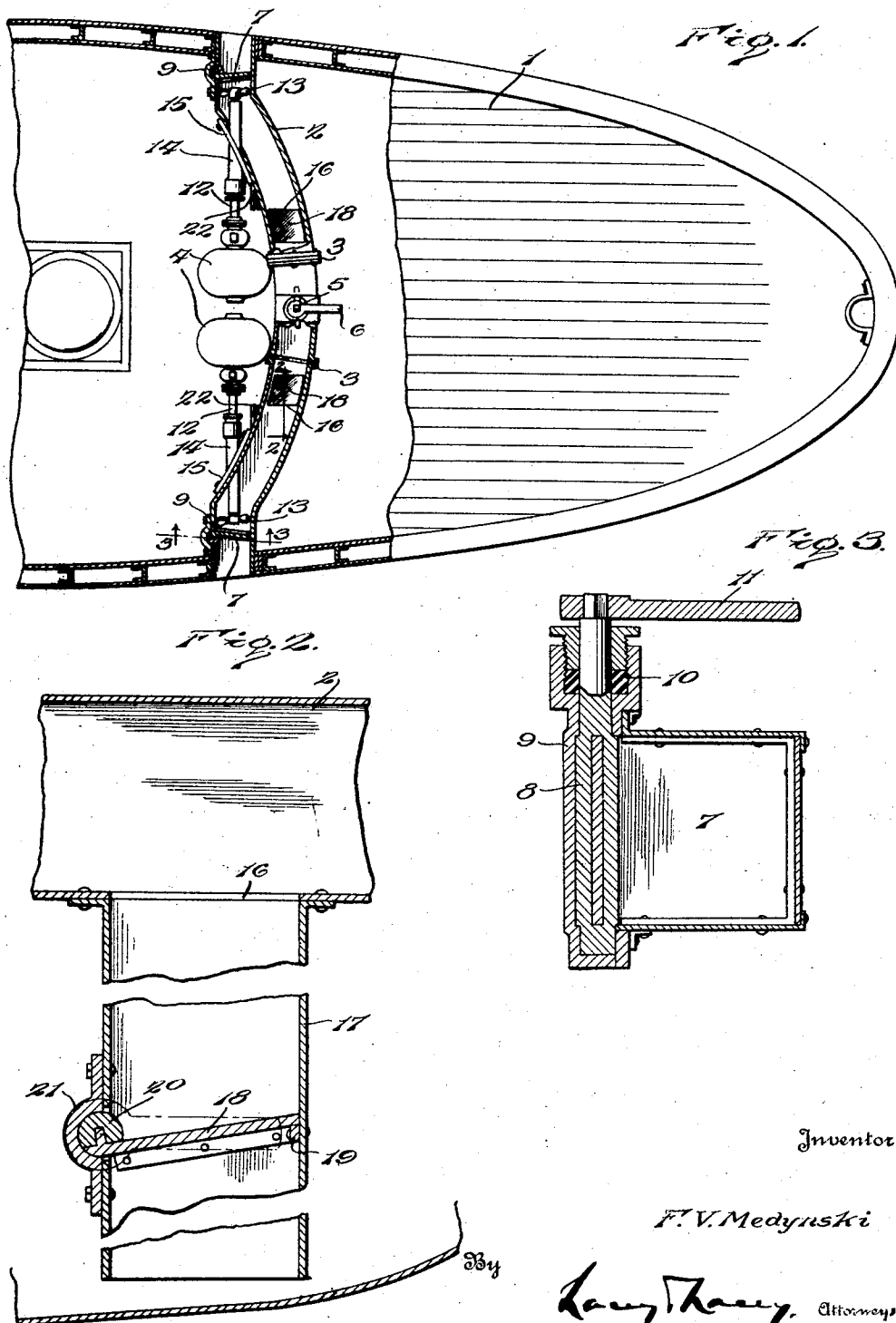
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STEERING AND PUMPING MECHANISM

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STEERING AND PUMPING MECHANISM.

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This invention relates to steering and pumping mechanism for vessels and has special reference to steering attachments of the general type disclosed in Letters Patent, No. 1,288,106, granted to me December 17, 1918. One object of the present invention is to provide means whereby the attachment may be utilized to withdraw bilge-water from the vessel, and another object is to provide simple means whereby the direction of flow of water through the tubes of the mechanism may be easily controlled. The invention is illustrated in the accompanying drawing and will be hereinafter fully set forth.

In the drawing:—

Figure 1 is a plan view, partly broken away and in section, of a portion of the stern of a vessel having the invention embodied therein;

Fig. 2 is an enlarged detail section on the line 2—2 of Fig. 1, and

Fig. 3 is an enlarged detail section on the line 3—3 of Fig. 1.

In the drawing, the reference numeral 1 indicates a portion of the deck of a vessel which may be of any approved form, and the reference numeral 2 indicates a tube which may be disposed either longitudinally or transversely of the vessel or otherwise as may be deemed most advantageous under any normal conditions but is illustrated as disposed transversely of the stern substantially as is shown in my aforesaid patent. The ends of this tube are submerged, a distance of about one foot below the surface of the water being generally found sufficient for the successful operation of the apparatus. The ends of the tube are, of course, fitted water-tight in the sides of the vessel and the tube may be of any preferred shape. To facilitate the placing of the tube in position, it is preferably made in sections which are constructed at their meeting ends with flanges, as indicated at 3, through which securing bolts may be inserted, a suitable packing being placed between the opposed faces of the flanges. The tube is offset or bowed between its ends so as to accommodate the motors, indicated at 4, and facilitate the placing of the motors in axial alinement with the ends of the tube. At the center of the tube is arranged a valve 5 which is preferably a single disk valve adapted to, in one position, entirely cut off flow through the tube and in another position extend axially

of the tube to permit the flow. The valve is provided with an external lever handle 6 whereby it may be set in a given position and the position of the handle will at all times indicate the position of the valve. In the ends of the tube are mounted swinging valves 7 which are adapted to entirely cut off flow through the tube and are arranged to open outwardly. These valves are illustrated in the form of disks or plates secured at one side edge to a rock shaft or pivot 8 which is journaled in the side of the tube and in a casting or cap plate 9 secured upon the tube, a gland 10 being provided at the upper end of the rock shaft or pivot so as to form a water-tight joint. A lever handle 11 is secured to the upper end of the pivot and the position of this handle will at all times indicate the position of the valve.

The motors 4 are reversible and may be propelled by electricity or steam or any other driving agency. The shaft of each motor is coupled to a propeller shaft 12 arranged in axial alinement therewith and extending into the tube 2 and carrying at its outer extremity a propeller 13 which is arranged adjacent the respective valve 7. The propeller shaft is carried by a bearing sleeve 14 which is formed integral with a plate 15 secured on the side of the tube so that a water-tight joint will be provided.

In the bottom of the tube 2 at opposite sides of the central section thereof is an opening 16, and to the under side of the tube in alinement with said opening is secured a suction tube 17 which extends downwardly into the hull of the vessel and terminates close to the bottom so that any water which collects there may readily enter the tube, the lower end of the tube being open, as clearly shown in Fig. 2. At an intermediate point of the height of each tube 17 and above the engine deck, a valve 18 is mounted therein to extend across the tube and normally cut off flow therethrough, the free edge of the valve resting upon a stop 19 on the inner wall of the tube, as clearly shown in Fig. 2. This valve 18 is secured to and carried by a rock shaft or pivot 20 disposed horizontally in one wall of the suction tube and held thereto by a bearing plate or cover 21 corresponding to the plate 9 and furnishing a water-tight joint in which the valve may work. The valve 18 is equipped with a handle 22 upon one end of its pivot so that the

valve may be manually set when desired and the position of the handle will indicate the position of the valve at all times.

When the mechanism is to be used for steering, the valve 5 is opened so that the water may flow through the tube and the end valves 7 are turned to open position and locked in said position in any convenient manner. The motors 4 are then started and they may be controlled through electric circuits having controlling switches within the pilot house of the vessel so that the water may be caused to flow in one or the other direction as needed. When the device is to be used for pumping water from the vessel, the valve 5 is closed so as to cut off the flow through the middle of the tubes and the valves 7 are permitted to swing freely. When the mechanism is used for steering, the valves 18 will be held in their closed positions by the weight of the water which enters through the tops of the tubes 17, but when the mechanism is used for pumping, the water which may be in the tube 2 will be driven through the ends thereof by the action of the propellers 13 and the valves 7 will automatically open under the increased pressure exerted thereon by the operation of the propellers. As suction will be created above the valves 18 under these conditions, said valves will open automatically and the water in the hold of

the vessel will be drawn therefrom and discharged through the ends of the tube 2. It will be readily seen that I have provided an exceedingly simple mechanism which will not take up any appreciable quantity of the space in the vessel and which will prove highly efficient in relieving the vessel of water. When used for steering, the mechanism will be found especially advantageous when a vessel is in port and is about to tie up to a wharf as the use of tugs will be unnecessary and the vessel may be brought into the desired position quickly and without damage to either the wharf or the sides of the vessel.

Having thus described the invention, I claim:—

Apparatus for the purpose set forth comprising a tube to extend through a vessel and open through the sides of the same, a valve disposed between the ends of the tube, outwardly opening valves in the ends of the tube, suction tubes communicating with said tube and depending therefrom at opposite sides of the first-mentioned valve therein, upwardly opening valves within said suction tubes, and means for inducing flow of water through the tubes.

In testimony whereof I affix my signature.

FRED V. MEDYNSKI. [L.S.]