

F. M. MORTEN.
SHIP MANIPULATING AND TURNING APPARATUS.
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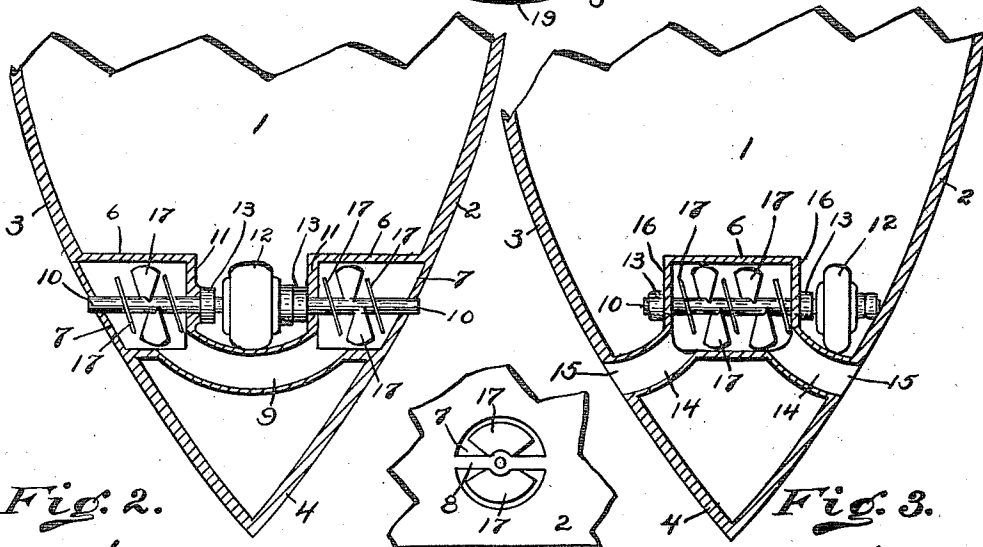
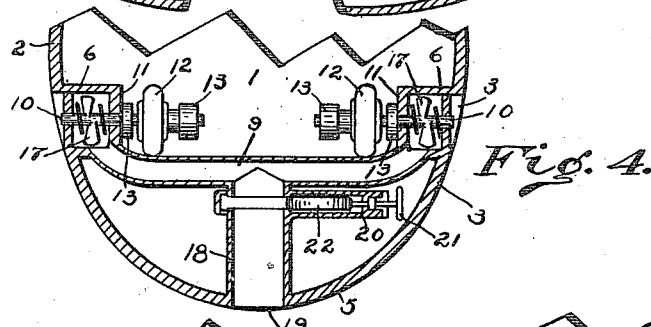
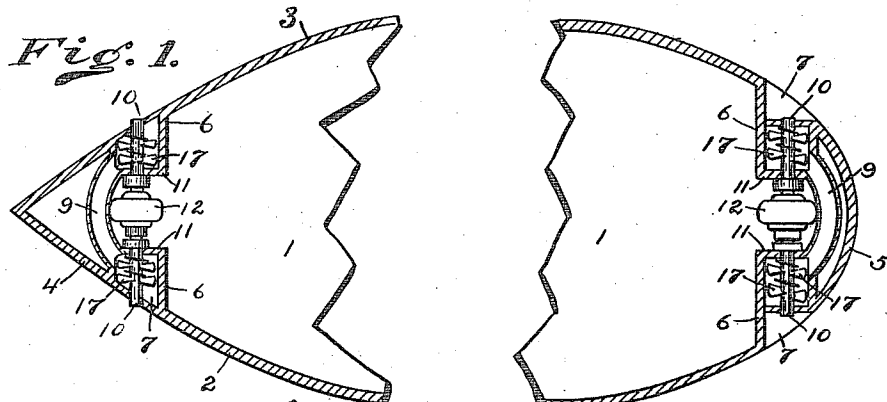


Fig. 2.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

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SHIP MANIPULATING AND TURNING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK M. MORTEN, a citizen of the United States, residing at the city of Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Ship Manipulating and Turning Apparatus, of which the following is a specification.

The object of my invention is to provide an apparatus to be used in connection with a vessel or ship, which will aid said ship in turning or making a circle, to propel and steer the ship in case of accident to propelling or steering apparatus, and to increase the speed.

It is often necessary for a vessel or ship to make a quick turn, as for instance a war vessel; or to make a turn in a comparatively small space, as for instance a ship at a wharf or dock; or in case of danger of any character, where, by a quick turn or a turn in a small space, said danger may be avoided. The ability to make this turn of the ship quickly and in a small space is one of the features of my invention.

Another feature of my invention enables me to keep the vessel or ship on her course, in case the propeller shaft is broken or the propeller disabled and also to guide the vessel, even though the rudder be broken or disabled.

My apparatus is especially valuable and applicable to a war ship of any character, as, by its use the war ship may be readily and quickly turned to a point of advantage to fire at the enemy or turned away in an opposite direction or moved bodily sidewise to a point of safety with reference to the fire of, and to confuse the enemy.

My apparatus consists essentially in providing at the bow and stern of the ship a cross pipe, extending across the ship, through which water is sucked and forced, creating at one side of the ship a suction and at the opposite pressure, through the agency of screws mounted on shafts which are operated by motors or the like. Its advantages and features will readily become apparent from the following specification.

In the accompanying drawing forming part of this specification—Figure 1 is a longitudinal section through the hull of the ship, showing my apparatus in position in the bow and stern, the ship being broken away in the middle, the shaft, screws and motor not being in section. Fig. 2 is a lon-

gitudinal section through the bow of a ship, being an enlarged view of the apparatus shown in Fig. 1. Fig. 3 is a longitudinal section through the bow of a ship as shown in Fig. 2, one screw and shaft being shown instead of two as in Fig. 2, and the shaft and screw being entirely on the inside of the ship. Fig. 4 is a longitudinal section through the stern of a ship, separate motors, shafts and screws being shown, one set on each side, a rear connecting pipe and a valve for governing same being shown, which connecting pipe leads to the propeller or rear end of the ship. Fig. 5 is a side view of the ship, showing the water inlet or outlet to the screws and the arm in which the shafts are journaled, the ship being broken away.

The ship is represented by numeral 1, its sides are marked 2, 3, its bow or prow 4 and its stern 5.

At the bow 4 and the stern 5 (see Fig. 1) I place a jacket, cylinder or housing 6 at each side of the ship. These jackets or cylinders 6 are connected to the sides 2, 3, of the vessel in any desired manner (no particular form being shown). At the point, in the sides of the vessels, where these jackets 6 are present is cut a hole or opening 7 (see Fig. 5). Across the mouth of the opening or hole 7 is a bearing piece, arm or cross piece 8. A goose neck or peculiar shaped curved pipe 9 extends between the jackets 6. A shaft 10 journaled at one end in the bearing piece 8 and at its other end in the rear wall 11 of jacket 6 is present at each side of the ship. A motor 12 supported on standards or supports 13, is placed between the jackets 6, 6, and suitably connected to the shafts 10 to properly operate said shafts. In Fig. 4, I show two motors 12, one at the end of each shaft 10 and in Figs. 1 and 2, I show one motor 12 to operate two shafts 10. In Fig. 3, I show only one motor 12 at the end of one shaft 10. In Fig. 3, I have the jacket or housing 6 inside of the ship and have two pipes 14, 14, extending from the jacket 6 to the sides 2, 3, of the ship, the mouth of the pipes designated by numeral 15. In this case the shaft 10 is journaled in the walls 16 of jacket 6 (see Fig. 3). On the shafts 10 are placed paddles, wings, or spirals 17, as many of which may be used as will be found desirable and practicable. These wings or paddles 17 are rigidly connected to the shafts 10 and may be made of

any desired form or shape, usually like a propeller in contour and outline. The shafts 10 revolve and when they revolve, they carry with them the wings or paddles 17, thus acting like a screw in the water, the motors 12 of course being stationary and only imparting motion to the shafts to turn the shafts and screws.

In Fig. 4 the pipe or goose neck 9 is shown longer than in Figs. 1 and 2 and has extending from it, rearwardly, a large pipe 18, which extends through the stern 5 of the ship 1; the mouth of the pipe being 19. The flow through this pipe 18 is controlled through the agency of an ordinary gate valve 20 which by operating the wheel 21 to the right or left, opens or closes the gate 22 in the pipe 18, to allow or shut off, the flow of water through pipe 18.

The motors may be operated and controlled in any desired manner.

The water finds its way into the jackets 6 through opening 7 and the shafts 10 revolve; carrying with them the screws, propellers, wings, paddles or the like 17, the water is by suction drawn into the jackets 6 on one side and through pipe 9 out through the jacket 6 on the opposite side of the ship and is forced out with pressure, thus on one side a suction is created and on the other side a pressure. In order to obtain the best result in making the ship turn short and quickly as though on a pivot under the center, say the bow to move to starboard, while the stern moves to port, the bow apparatus is operated to cause a suction on the starboard, and the outward force on the larboard or port, both powers, the one suction drawing and the other force or compact, forcing at the same time to make the bow move to the right or starboard. At the same time the power exerted at the stern apparatus is reversed, the suction being on the port side, while the outward force is on the starboard, both acting together to make the stern move to the port side, the bow and stern thus describing an arc of a circle, with the center of the keel as an approximate center. When it is necessary or desirable, the force or outward flow of water may be on the same side of the vessel at both bow and stern, and the suction on the other. In which case all forces unite to make the ship move bodily sidewise toward the suction side and away from the outward force side. If desired, one or more of the apparatus may be placed between those at the bow and stern, to facilitate the movements.

It will be readily seen that by the use of this apparatus, the ship can be readily and quickly turned or moved in a variety of revolutions, for any purpose and in any direction.

The device shown in Fig. 3 operates in the same manner, except that the screws, pad-

dles or wings 17 are in the jacket inside of the ship and the water passes in and out through pipes 14, through openings 15.

The device in Fig. 4 operates as described above, except that a motor is used with each jacket separately and this is done for the reason that, if the propeller shaft of a ship is broken or disabled, the valve 20 may be opened and the motors on both sides force water into the long pipe 9 and through the pipe 19 to propel the ship and keep her on the course.

If the rudder be disabled, the pressure and suction on either the bow or the stern apparatus, only one being necessary, can be so arranged that the bow or stern can be turned in a proper direction to such an extent that the ship can be kept on her course.

The motors, shafts, pipes, jackets and connections may be arranged in any desired manner to produce the best results and any kind of mechanism may be employed to operate the motors or shafts.

It will be readily seen that this apparatus will be of great value on warships and of inestimable advantage to the contestant whose ships are equipped with them. On merchant ships, it will also be of great value, enabling the ship in case of threatened collision to move either or both the bow and stern to either side, to turn one or both ends of the vessel or more sidewise at congested places, such as docks, and in case of loss of propeller or breaking or bending of the main shaft, to be a substitute without delay, propelling the vessel, and in case of accident to the rudder as a means at hand, as a substitute without delay in keeping the bow pointed in the direction desired. Either apparatus being reversible, a few revolutions of the shaft only being necessary to recover the direction, when the bow sheers from the proper course.

When desired, the apparatus shown in Fig. 4, may be used to increase the speed of the ship, even when no accident has befallen. As is well known, the drag or suction caused by the stern drawing away from the surrounding water, greatly retards the speed, the propeller wheel also thus working in water where exists as it were, a partial vacuum; the result not as effective as in more solid water. The apparatus in Fig. 4. takes the water from the sides, where it is not required, forces it out at the stern, not only tending to prevent the partial vacuum and in a great measure overcoming the drag, but furnishes the propeller wheel with a more solid or substantial hold on the water, a less number of revolutions of, and a saving of the steam engines in consequence, and increased speed of the ship.

It will readily be seen that if both the rudder and main shaft or propeller are disabled, the bow apparatus can be used as a

substitute for the rudder in guiding the ship, while the apparatus in Fig. 4, be used to propel the ship.

What I claim as new and of my invention and desire to secure by Letters Patent is:—

5 In an apparatus for manipulating and turning vessels of the character described, shafts, cylinders, a series of screw paddles, said paddles mounted on said shafts, and
10 operating in said cylinders, each shaft operated independently of the other, a pipe extending from one cylinder to the other and connecting them, said connecting pipe approximately extending to the sides of the

vessel; a pipe leading from the last named 15 pipe to the stern of the vessel, means for opening and closing the mouth of said rearwardly extending pipe to allow or prevent the outward flow of water, and operating means for taking in and forcing out the 20 water through the pipe extending to the stern of the vessel, for propelling the vessel, as set forth.

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Witnesses:

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