

904,454.

I. B. ROLKA.
BOAT PROPULSION.
APPLICATION FILED MAY 27, 1908.

Patented Nov. 17, 1908.
2 SHEETS—SHEET 1.

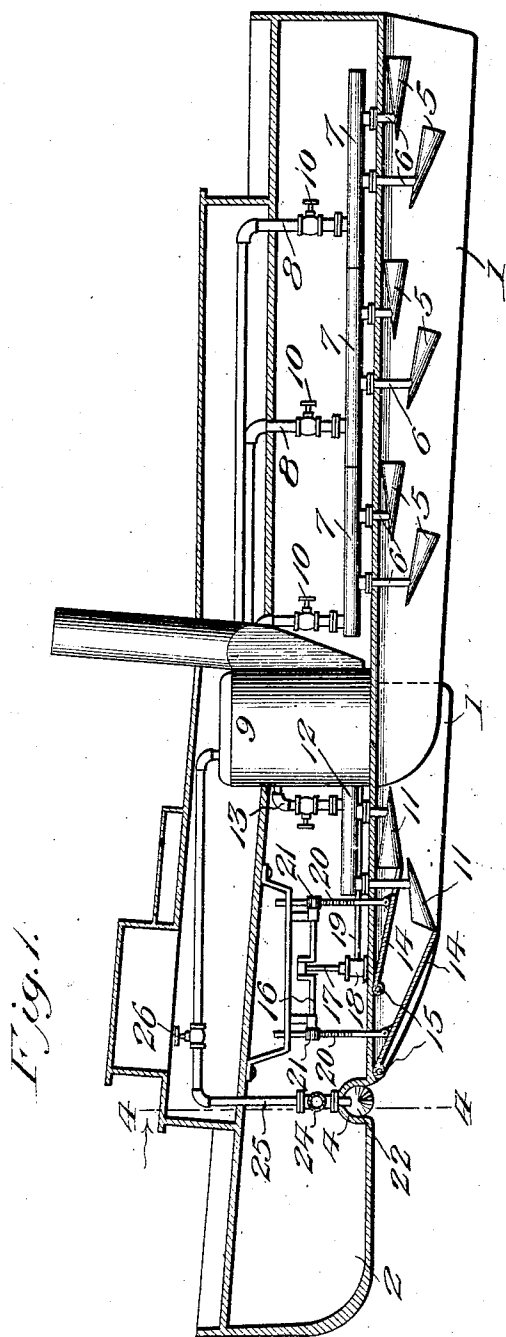
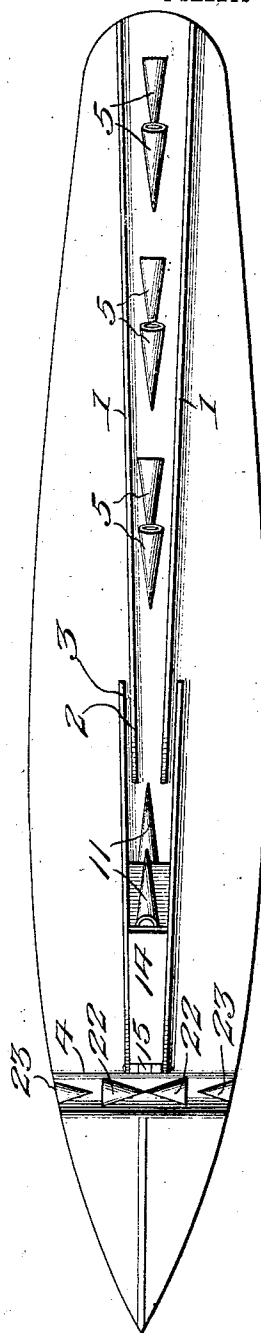


Fig. 1.

Fig. 2.



Witnesses

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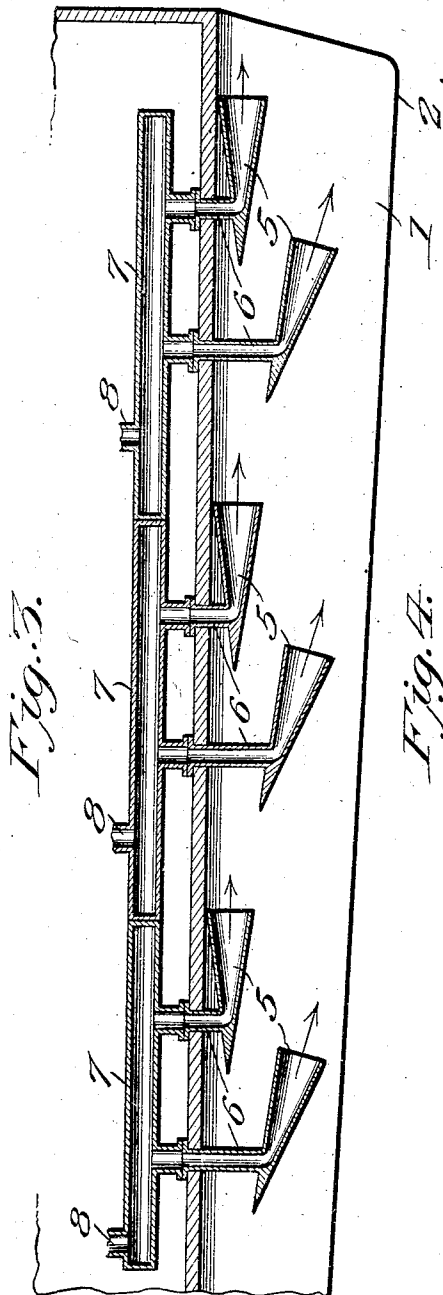


Fig. 3.

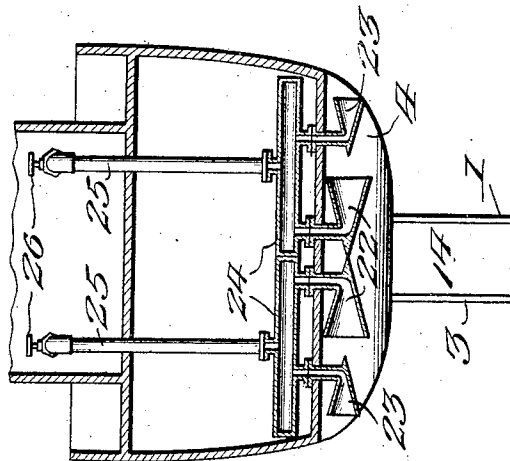


Fig. 4.

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UNITED STATES PATENT OFFICE.

IGNATIUS B. ROLKA, OF PATTON, PENNSYLVANIA.

BOAT PROPULSION.

No. 904,454.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Application filed May 27, 1908. Serial No. 435,313.

To all whom it may concern:

Be it known that I, IGNATIUS B. ROLKA, a citizen of the United States, residing at Patton, in the county of Cambria and State of Pennsylvania, have invented new and useful Improvements in Boat Propulsion, of which the following is a specification.

This invention relates to boat propulsion, the object of the invention being to provide simple and effective apparatus for propelling boats of various sizes, doing away with the usual paddles and propellers and utilizing the steam directed from the boiler by delivering said steam into expansion chambers which are submerged beneath the hull of the boat.

A further object of the invention is to provide such an arrangement of expansion chambers and cooperating devices that the boat may either be propelled ahead or astern or stopped or steered laterally to either side according to requirements.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a vertical longitudinal section through a boat showing the propulsion apparatus of this invention, applied thereto. Fig. 2 is a bottom plan view of the same. Fig. 3 is an enlarged vertical longitudinal section showing the arrangement of the fore and aft expansion chambers. Fig. 4 is a vertical cross section on the line 4—4 of Fig. 1, showing the laterally acting expansion chambers.

In the main, the hull of the vessel may be of the usual or any preferred general shape.

In carrying out the present invention, however, the bottom of the hull is provided with keels 1 arranged side by side and preferably diverging from front to rear, as illustrated in Fig. 2 so as to provide for the ready escape of the body of water contained between the two keels as it is acted upon by the steam in a manner hereinafter described.

In order to provide vents for the water and steam at points intermediate the length of the keels, said keels are divided or made in sections as shown in Fig. 2 and provided with overlapping portions 2 and 3. Just ahead of the keels 1, the bottom of the hull is also provided with a cross tunnel or recess 4 in which the laterally acting expansion

chambers are located and housed as will hereinafter appear.

Arranged between the after sections of the keels 1 is a plurality of steam expansion chambers 5 which are in the shape of cones having the points thereof disposed toward the bow of the boat. Each of said expansion chambers is in communication with a steam pipe 6 and said expansion chambers are also arranged in groups and each group is connected by means of the pipes 6 with a longitudinal series of steam chests 7 as best illustrated in Fig. 3. Each steam chest 7 is supplied with steam by means of a pipe 8 which leads from the chest to a steam boiler 9. Furthermore, each pipe 8 is provided with a stop cock 10 by means of which the steam may be cut off or supplied to the respective steam chest and the amount of steam so supplied regulated. It will be observed that the expansion chambers 5 have their larger discharge ends toward the stern of the boat so as to deliver the expanding steam into the water passing through the space between the keels 1, which results in driving the boat ahead.

Between the forward sections of the keels there are arranged other expansion chambers 11 which correspond with the expansion chambers 5 except that they are reversed so that the discharge ends thereof open out toward the bow of the boat. The expansion chambers 11 are in communication with the steam chest 12 from which a steam pipe 13 leads to the boiler 9. In order to prevent the water from entering the expansion chambers 11, deflectors 14 in the form of plates are hinged as shown at 15 to the bottom of the vessel and adapted to be moved up and down as may be required by means of a crank shaft 16 mounted in suitable bearings within the hull of the vessel as shown in Fig. 1, said crank shaft being operated by the rod 17 of a piston working in a steam cylinder 18 from which a supply pipe 19 leads to the boiler 9. Connected with the deflectors 14 are rack bars 20 which mesh with openings 21 on the crank shaft 16, the arrangement being such that when the piston of the rod 17 is moved in one direction the deflectors are raised and when moved in the opposite direction said deflectors are lowered to the position shown in Fig. 1 thus preventing the entrance of water to the expansion chambers when the boat is being propelled ahead.

To provide for steering the boat, reversely

disposed expansion chambers 22 and 23 are arranged in the tunnel 4 as best illustrated in Fig. 4, said expansion chambers communicating with steam chests 24 arranged within the hull of the vessel and connected by steam pipes 25 with the boiler, said pipes being controlled by valves 26. The expansion chambers 22 and 23 at one side of the center of the hull face in one direction while those at the opposite side face in the other direction. Therefore, by admitting steam to one set of chambers 22 and 23 the bow of the vessel will be deflected to one side while by admitting steam to the other set of expansion chambers the bow of the vessel will be deflected to the other side.

From the foregoing description it will be seen that the vessel may be propelled or backed or stopped and also steered by directing steam to the appropriate expansion chambers located below the water line.

I claim:—

1. In boat propulsion, the combination with the hull of a vessel, of keels arranged side by side and comprising overlapping sections providing vents between the overlapping portions of the sections, steam expan-

sion chambers located in the space between the keels below the water line, and a steam boiler in communication with said expansion chambers.

2. In boat propulsion, the combination with the hull of a vessel, of reversely disposed laterally acting steam expansion chambers; a steam boiler in communication with said expansion chambers, and means for controlling the communication between the boiler and said expansion chambers.

3. In boat propulsion, the combination with the hull of a vessel, of steam expansion chambers located below the water line, a steam boiler in communication with said expansion chambers, deflectors for cutting off water from or admitting water to the expansion chambers, and means controlled by the action of the steam for moving said deflectors.

In testimony whereof I affix my signature in presence of two witnesses.

IGNATIUS B. ROLKA.

Witnesses:

WM. H. SANDFORD,
ANTHONY KLINE.