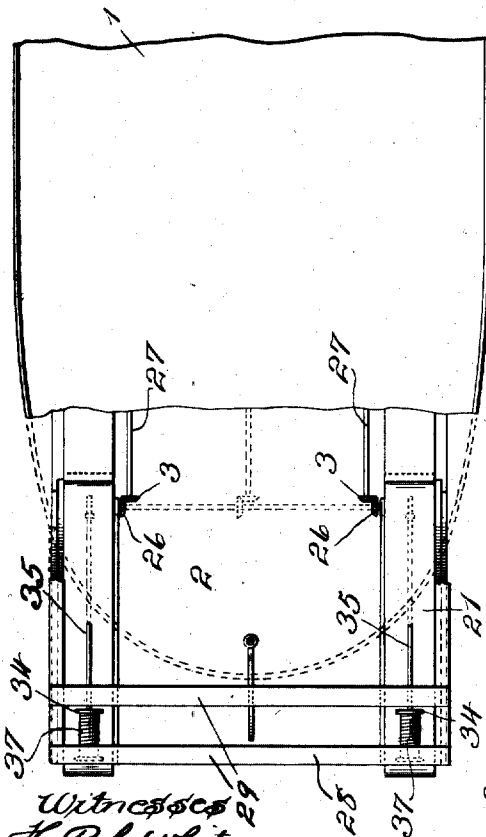
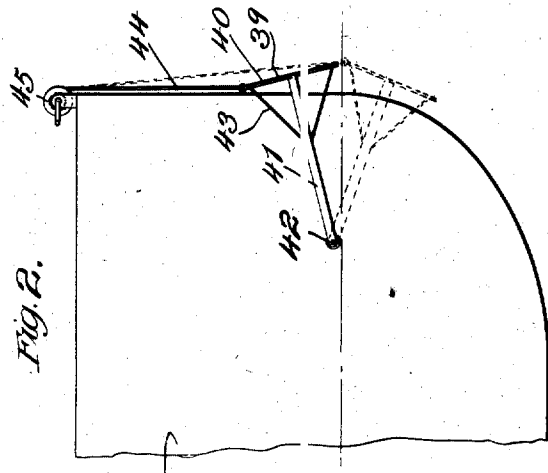
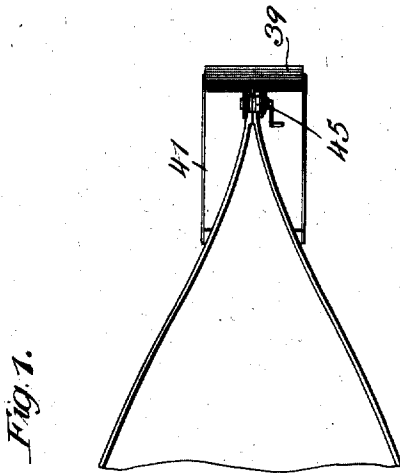


S. B. McHENRY.
BOAT PROPELLER.
APPLICATION FILED MAR. 2, 1910.

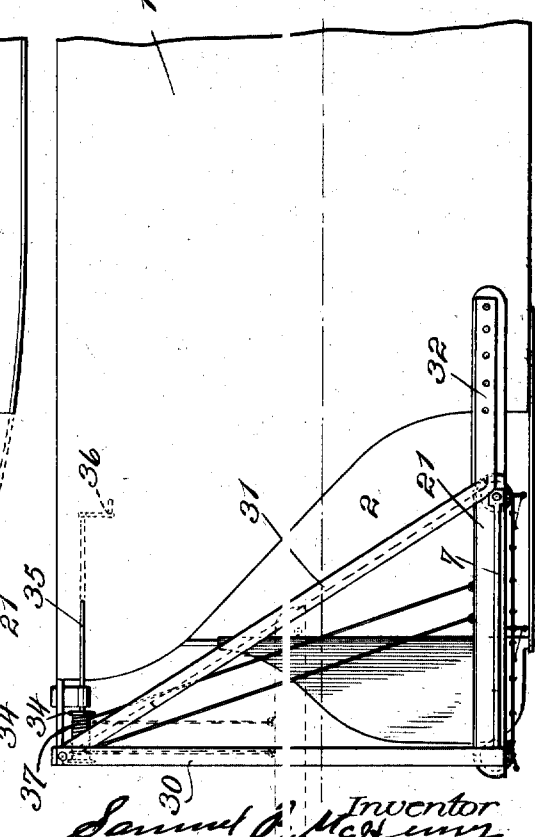
1,008,553.

Patented Nov. 14, 1911.

3 SHEETS—SHEET 1.



Witnesses
H. R. L. White
R. A. White.



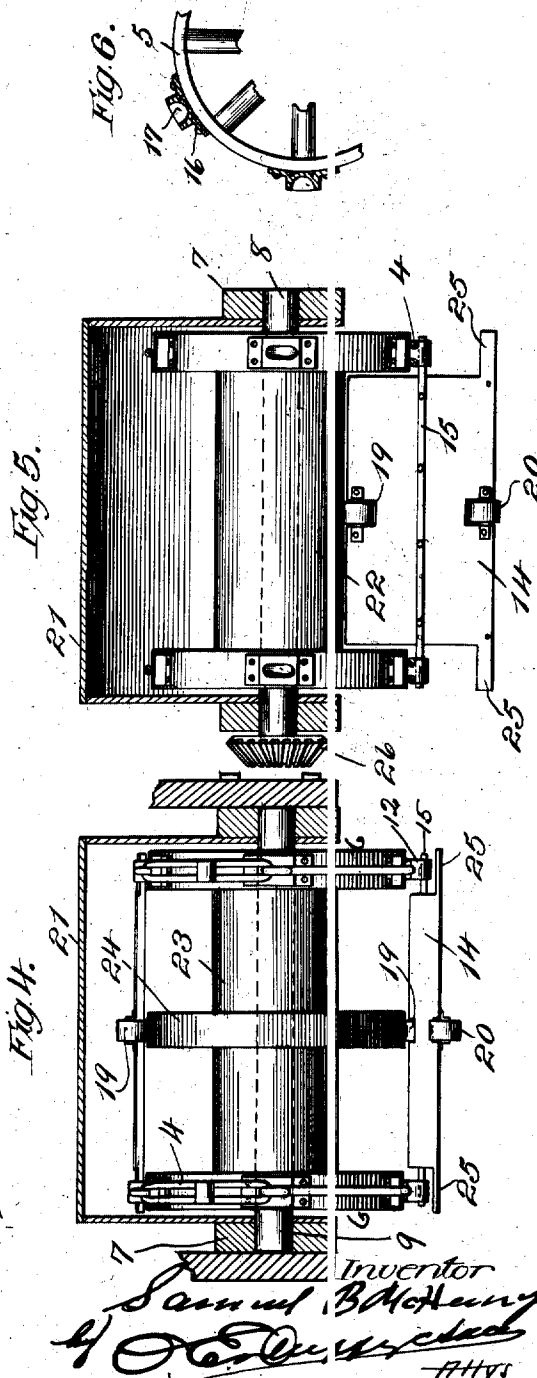
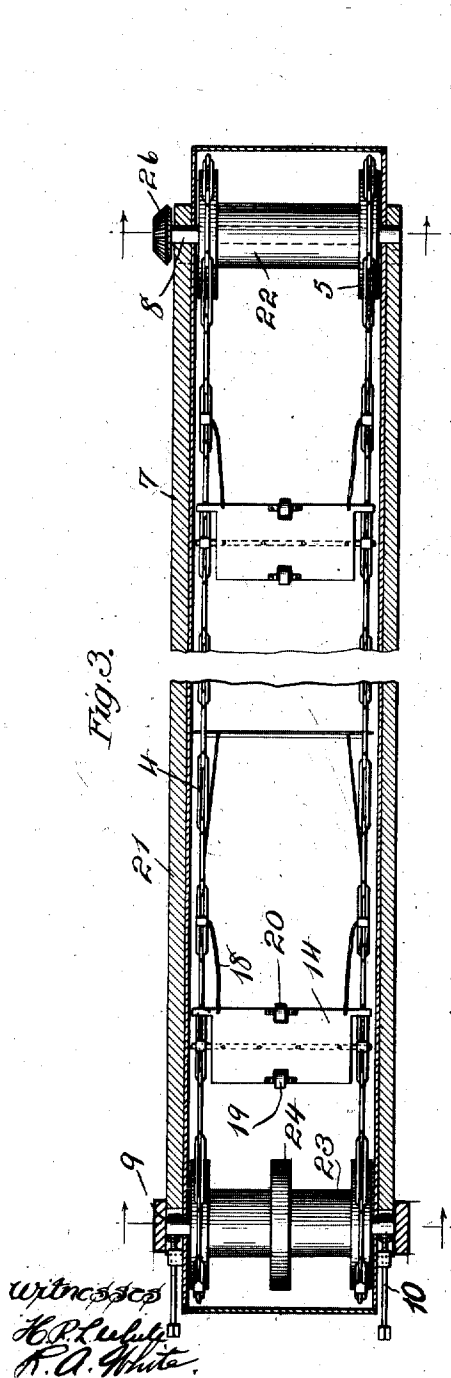
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3 SHEETS—SHEET 2.



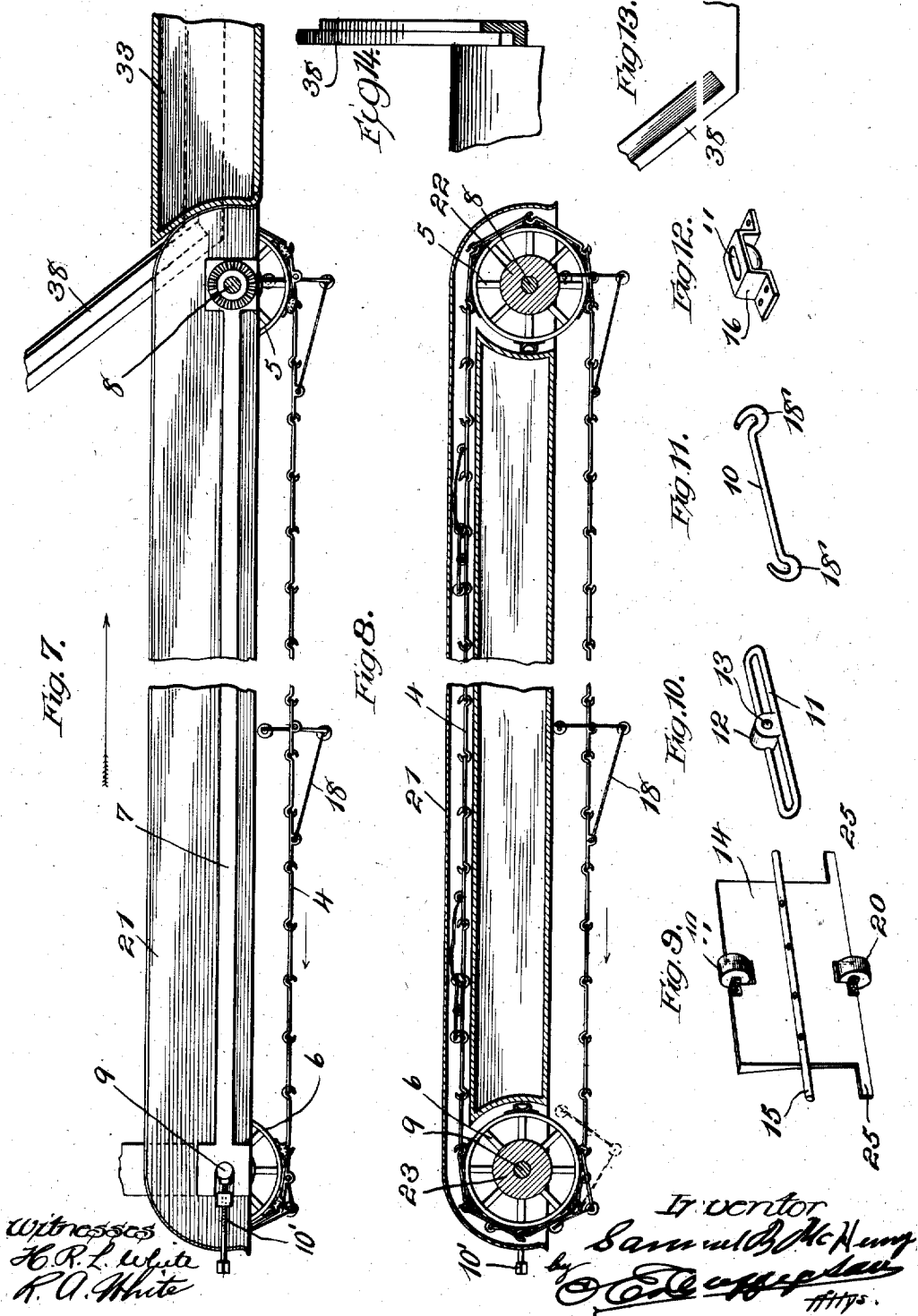
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

SAMUEL B. McHENRY, OF CHICAGO, ILLINOIS.

BOAT-PROPELLER.

1,008,553.

Specification of Letters Patent.

Patented Nov. 14, 1911.

Application filed March 2, 1910. Serial No. 546,848.

To all whom it may concern:

Be it known that I, SAMUEL B. McHENRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Boat-Propellers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to boat propellers and has for its object to provide a positive and direct means for propelling a boat, vessel or the like without the use of screws, paddle wheels, etc.

A further object of this invention is to provide a propelling device for the use of boats, vessels or the like which can be applied to the boat or vessel without altering the propeller shaft or shafts and which can be quickly applied so as to be driven by the propeller shaft or shafts with which the boat or vessel has been equipped.

A further object of this invention is to provide a propelling mechanism which can be quickly raised out of the water for the purpose of repairing the same in such manner that the boat or vessel does not have to be dry-docked or hauled out as is now necessary with the usual propelling mechanism.

A further object of this invention is to provide an efficient means for quickly stopping the headway of a boat, vessel or the like to prevent collisions and to add to the safety of the boat or vessel.

With all these objects in view this invention consists in the novel construction of the propelling mechanism, and it also consists in the novel arrangement for applying the propelling mechanism to a boat, vessel or the like.

The invention also consists in the novel means for stopping the headway of the boat, vessel or the like; and the invention also consists in certain other novel details of construction and in combinations of parts all of which will be first fully described and afterward specifically pointed out in the appended claims.

Referring to the accompanying drawings:

Figure 1 is a fragmentary plan view of a vessel showing the propelling mechanism at-

tached thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a detail longitudinal sectional view through the propelling mechanism. Fig. 4 is a rear elevation of the propelling mechanism the casing being shown in section. Fig. 5 is a front elevation of the propelling mechanism the casing being shown in section. Fig. 6 is a fragmentary view of one of the sprocket wheels. Fig. 7 is a fragmentary side elevation of the propelling mechanism. Fig. 8 is a fragmentary longitudinal sectional view through the propelling mechanism. Fig. 9 is a perspective view of one of the blades or paddles. Fig. 10 is a perspective view of one of the links in which the blades or paddles are pivoted to the propelling mechanism. Fig. 11 is a perspective view of one of the links of the endless chain. Fig. 12 is a perspective view of one of the socket plates on the sprocket wheels. Fig. 13 is a perspective view of the guide carrying the propelling mechanism, and Fig. 14 is a fragmentary view of the guide mechanism showing one corner of the propelling mechanism.

Like numerals of reference indicate the same parts throughout the several figures in which;

1 indicates the vessel and 2 the propelling mechanism.

As will appear from Fig. 1 the boat or vessel to which the mechanism is applied may be what is known as a twin screw vessel or a single screw vessel, and before applying my propelling mechanism to the vessel the usual propelling screws are removed from the propelling shafts and a suitable bevel gear wheel 3 is applied to the ends of the shafts as shown in Fig. 1, this construction being followed when the vessel has twin shafts. The propelling mechanism 2 comprises an endless chain 4 which passes over suitable sprocket wheels 5 at the forward end of the device and suitable sprocket wheels 6 at the rear end of the device, the sprocket wheels 5 and 6 being connected by suitable longitudinal bracing pieces 7 (Fig. 7) in which bracing pieces 7 the shafts 8 and 9 of the sprocket wheels are journaled and the suitable adjusting means 10' being employed at the rear end of the propelling mechanism for tightening the endless chain 4 as is clearly evident. The chain 4 is made up of a series of links 10 (Fig. 11) and links 11 (Fig. 10), the links 11 being provided with a boss 12 which forms a bearing at 13

for the propelling blades 14, each propelling blade 14 being provided with a transverse shaft 15 which enters the boss 12 on the links 11 in such manner that each blade 14 can turn within the boss 12. The peripheries of the sprocket wheels 5 and 6 are provided with a series of socket plates 16 which are securely fastened to the wheels 5 and 6, said plates 16 being each provided with a recess or socket 17 to receive the hooks 18' on the ends of the links 10 as is clearly shown in Fig. 8.

As will appear from Fig. 7 the propelling blades 14 are provided at their lower edges with flexible cords or cables 18 which are connected to the next succeeding link 11 in such manner as to maintain the propelling blades 14 in a vertical position while they are propelling the boat or vessel. It will also be seen from Fig. 9 that each of the propelling blades 14 is provided at its top and bottom with rollers 19 and 20. When the propelling blades 14 are on their return travel and directly under the casing 21 as shown in Fig. 8 they maintain a horizontal position, and as they pass over the forward sprocket wheels 5 they enter the water in a vertical position the upper roller 19 of each link engaging the hub 22 of the sprocket wheels 5 as soon as the blades 14 assume a vertical position. As the blades are moving rearwardly in their propelling motion the pressure of the water against the blades causes them to maintain their vertical position until they reach the rear sprocket wheels 6. As soon, however, as they reach this point the chain carrying each link passes around the sprocket wheels and causes the flexible cables 18 to draw each link into the position shown in Fig. 8 thus folding each link against the chain. The rear hub 23 of the rear sprocket wheels 6 is provided with a central flange or wheel 24 against which the upper roller 19 of each blade 14 engages as is clearly shown in Fig. 4, thus causing each of the blades to be folded down upon the chain and to return to the forward socket wheels 5 in this folded position where they can enter the water in a vertical position and assume said vertical position until they reach the rear sprocket wheels 6. By means of this construction a feathered action is accomplished and the whole tendency of the propelling mechanism is to force the boat or vessel ahead. As will appear from Figs. 5 and 9 each of the blades 14 is provided at its lower edge with two projections 25 which act as stops against the endless chain 4 when the blades are in a folded position which prevents said blades from turning too far on their return travel.

Referring now to the mechanism for attaching the propelling device to a boat, vessel or the like reference is made to Fig. 1

in which figure two bevel gear wheels 26 are shown in mesh with the bevel gear wheels 3 on the propeller shafts 27. The said bevel gear wheels 26 are keyed on the driving shaft 8 of the forward sprocket wheels 4 so that the rotation of the propeller shafts 27 is transmitted to the driving shafts 8 of the propelling mechanism. When the boat or vessel has only a single propeller shaft as is shown in dotted lines in Fig. 1 a transverse shaft having a single bevel gear wheel thereon is provided to mesh with the central propeller shaft as is shown in dotted lines in Fig. 1. Extending from the stern of the vessel 1 about flush with the deck thereof is an out-board structure 28 which comprises preferably two transverse and thwart ship pieces 29. To the aft thwart ship pieces 29 are connected two vertical bracing pieces 30 which pass down laterally of, and receive between them the carrying members 7 of the shaft 9 of the rear sprocket wheels 6 as is clearly shown in Figs. 2 and 4, which bracing pieces 30, however, are not connected to said shaft 9. Connected to the thwart ship pieces 29 are two forward bracing pieces 31 which lie in an oblique position and each of which is provided with a forwardly extending arm 32 which is connected to the hull of the vessel in any approved manner, and filling the space between the hull or keel of the vessel and the propelling mechanism is a base 33 (Fig. 7) which is also secured to the hull of the vessel in any substantial and rigid manner. Arranged over each of the propelling mechanisms and supported suitably in the thwart ship pieces 29 is a winding drum 34, and a shaft 35 and crank 36 for each drum, and passing over each of the drums 34 to each of the propelling mechanisms are cables 37 so arranged that when either one or both of the drums are rotated the cables 37 will be wound up thereon and will raise the propelling mechanism into position shown in dotted lines in Fig. 2 which is clear of the water so that the propelling mechanism can be adjusted or repaired whenever it is required. In order to allow the propelling mechanisms to be raised to this position I provide a slide 38 (Figs. 7 and 14) which operates in the guide oblique forward brace pieces 31, thus allowing the propelling mechanism to be raised above the surface of the water or entirely removed. The slides 38 operating in the bracing pieces 31 cause the propelling mechanisms to be guided into their normal positions as shown in full lines in Fig. 2 in which position the bevel gears 26 of the propelling mechanism are caused to mesh with the bevel gears 3 on the propeller shafts 27.

While this propelling device will effectually propel a vessel in a forward direction at a high rate of speed it is necessary for

safety to supply a means for checking the headway or speed of the vessel. Consequently I provide at the bow of the vessel a brake 39 which comprises a flat plate 40 arranged thwart ship of the vessel and located in front of the stem or bow thereof, said plate 40 being carried on arms 41 suitably pivoted at 42 and braced to the arms by braces 43, a suitable cable 44 and winding drum 45 being provided for raising the brake clear of the water as shown in full lines in Fig. 2. When it is desired to check the headway of the vessel the brake is allowed to drop into position shown in dotted lines in Fig. 2 thus causing the headway of the vessel to be checked suddenly and bringing same to a full stop in a short distance. While the brake is in operation the direction of movement of the propelling mechanisms may be reversed which will assist to a considerable degree in checking the headway of the vessel. While the propelling mechanisms will not exert the same power in a reverse direction as they will in a forward direction still they are sufficiently powerful to back the vessel when making landings and for any other purposes desired.

Having thus fully described the invention what I claim as new and desire to secure by Letters Patent of the United States, is;—

1. A propelling mechanism for boats, vessels or the like comprising an endless chain, suitable paddles or blades carried thereon, a drive shaft for said chain, a bevel gear on said driving shaft, a propeller shaft, a bevel gear on said propeller shaft, said last mentioned bevel gear being adapted to mesh with the bevel gear for driving the propelling mechanism, and means for raising said propelling mechanism clear of the water, substantially as described.

2. A propelling mechanism for boats, vessels and the like, including an endless chain equipped with paddles or blades, a shaft carrying sprocket-wheels encompassed by said chain, said sprocket wheels being provided upon their peripheries with socket-plates, said chains being provided with hook-ended links, with the backs of the hook-ended portions thereof received by the sockets of said socket-plates, and means for actuating the shafts of said sprocket-wheels.

3. A propelling mechanism for boats, vessels or the like comprising an endless chain,

suitable blades or paddles carried thereon, 55 means for feathering said blades or paddles, a propeller shaft, intermediate means in engagement with said propeller shaft for driving said propelling mechanism and means 60 for raising or lowering said propelling mechanism into or out of engagement with said propeller shaft.

4. A propelling mechanism for boats, vessels and the like, comprising an endless chain equipped with paddles or blades, shafts 65 carrying sprocket-wheels encompassed by said chain, one of said shafts being provided centrally with a flange or wheel, said blades or paddles, each, being provided with rolls adapted to travel upon said central flange 70 or wheel, and means for actuating the shafts of said sprocket-wheels.

5. A propelling mechanism for boats, vessels and the like, comprising an endless chain equipped with paddles or blades, shafts 75 carrying sprocket-wheels encompassed by said chain, said blades or paddles each being provided, near a longitudinal edge, with lateral projections adapted to engage the upper run of said chain when the blades or 80 paddles are depressed into horizontal or ineffective position, means for effecting such depression or disposition of said blades or paddles.

6. A propelling mechanism for boats, vessels and the like, comprising an endless chain equipped with paddles or blades, shafts 85 carrying sprocket-wheels encompassed by said chain, said chain having certain of its links provided with apertured bosses, said 90 blades or paddles each being provided with a transverse laterally extended shaft having its lateral extensions received by the apertures of said bosses, said blades also being provided with lateral projections near a longitudinal edge thereof, adapted to engage 95 the upper run of said chain when the blades have been depressed into horizontal position, means for effecting such disposition of said blades or paddles, and means for actuating 100 the shafts of said sprocket-wheels.

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

SAMUEL B. McHENRY.

Witnesses:

M. SCOTT,

G. L. TOALE.