

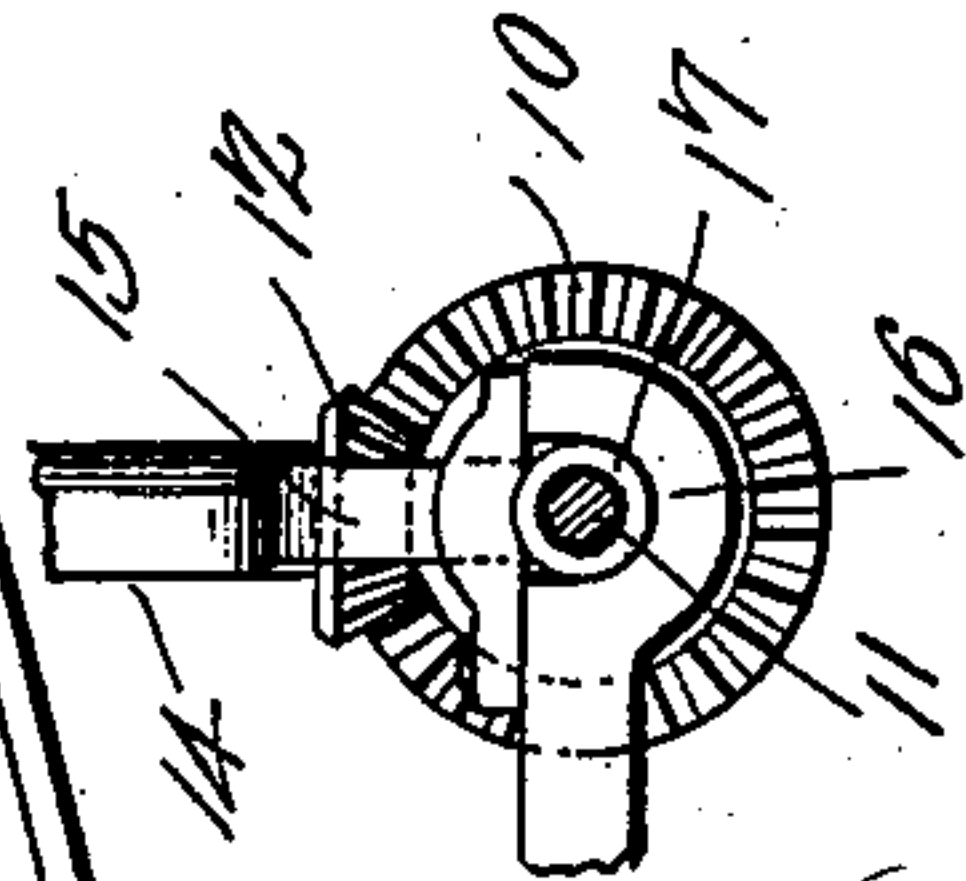
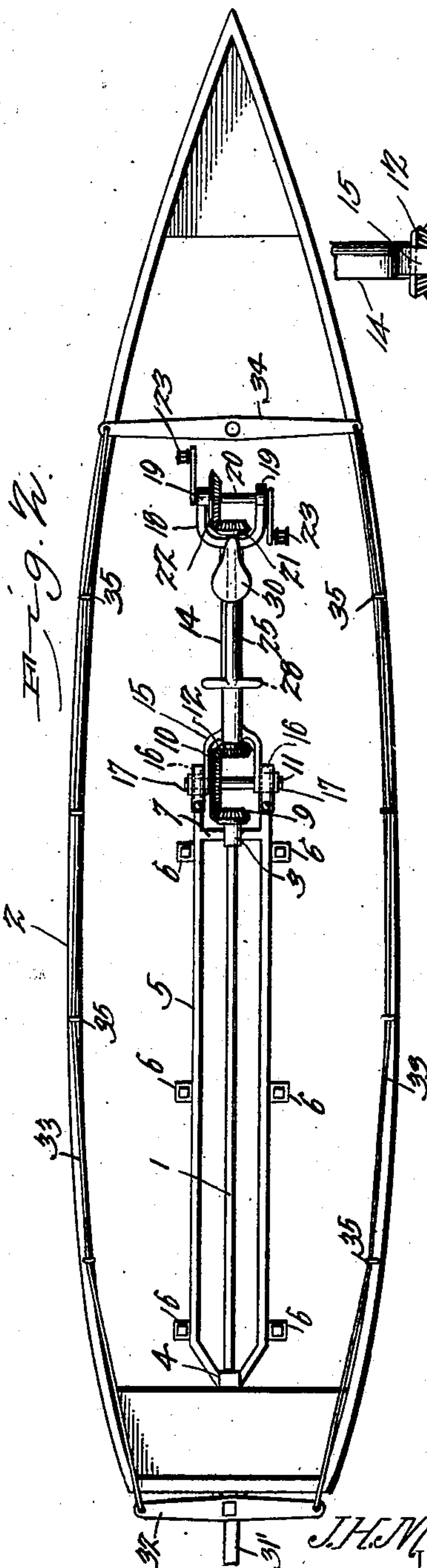
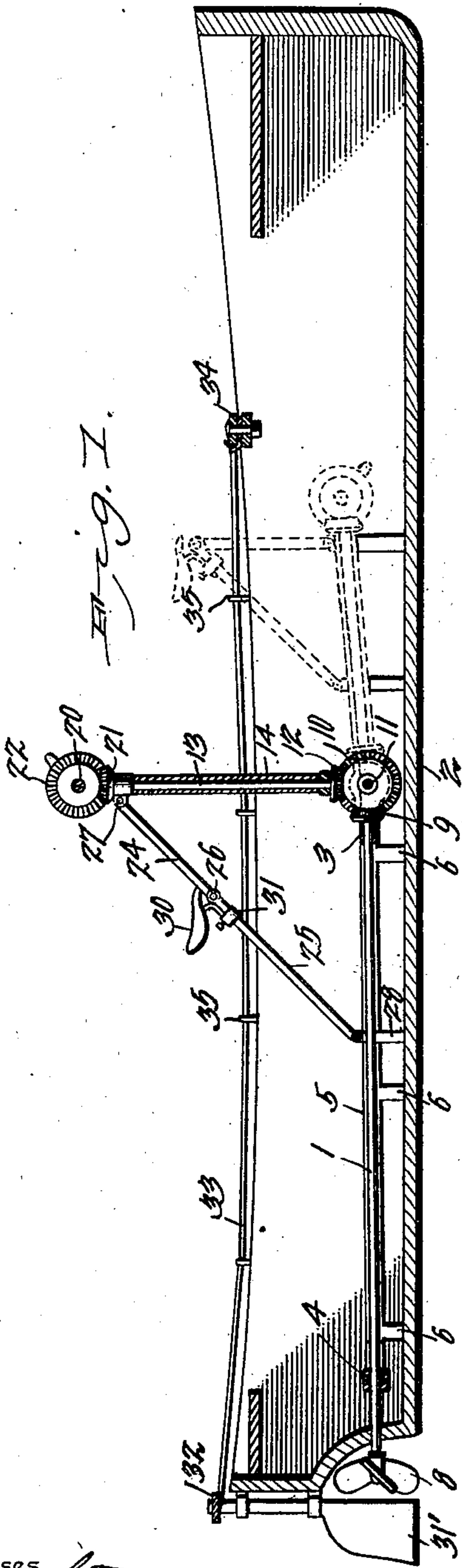
No. 724,486.

PATENTED APR. 7, 1903.

J. H. MILLIGAN.
BOAT PROPELLER.

APPLICATION FILED JUNE 24, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN H. MILLIGAN, OF BALTIMORE, MARYLAND.

BOAT-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 724,486, dated April 7, 1903.

Application filed June 24, 1902. Serial No. 113,013. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MILLIGAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Boat-Propeller, of which the following is a specification.

The invention relates to improvements in boat-propellers.

The object of the present invention is to improve the construction of propelling mechanism for boats and to provide a simple, inexpensive, and efficient boat-propelling gear adapted to be readily arranged for operation by hand or foot power.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of a boat provided with propelling mechanism constructed in accordance with this invention and arranged for operation by hand. Fig. 2 is a plan view, the parts being arranged for operation by foot-power. Fig. 3 is a detail view of the gearing at the hinged end of the movable frame.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a propeller-shaft journaled in front and rear bearings 3 and 4 of a frame 5, which is secured to the boat, at the bottom thereof, and which is composed of two sides provided at intervals with feet 6 and having converging rear portions. The feet are perforated for the reception of suitable fastening devices for securing the same to the bottom of the boat 2. The bearings are preferably provided with antifriction-balls or other suitable antifriction devices, and the rear bearing is located at the rear end of the frame. The front bearing is supported by a cross-piece 7, which connects the sides adjacent to the front ends thereof. The rear end of the propeller-shaft extends through the stern of the boat and is provided with a suitable propeller 8, which may be of any desired construction and size to adapt it for the boat to which it is to be applied. The front end of the propeller-shaft has keyed or otherwise secured to it a bevel-pinion 9, which meshes

with a gear-wheel 10 of a horizontal shaft 11, and the said gear-wheel 10 also meshes with a bevel-pinion 12 of a connecting-shaft 13, mounted in suitable bearings of a tubular standard 14. The tubular standard 14, which is provided at its lower end with a fork 15, has the terminals thereof arranged in bearings 16 of the front ends of the sides of the frame 5, whereby the said standard is hinged to the bearing-frame and is adapted to be arranged in an upright position, as shown in full lines in Fig. 1, or in an approximately horizontal position, as shown in Fig. 2. The terminals of the sides of the fork 15 are also provided with bearings 17 for the reception of the transverse shafts 11, and these bearings are preferably provided with balls or other antifriction devices. The upper end of the tubular standard is also provided with a fork 18, having bearings 19 for the reception of a crank-shaft 20. The upper end of the connecting-shaft 13 has keyed or otherwise secured to it a bevel-pinion 21, which meshes with a gear-wheel 22 of the crank-shaft 20; but sprocket or any other form of gearing may be employed for connecting the crank-shaft with the horizontal shaft at the front end of the frame 5. When the standard is arranged in an upright position, as shown in Fig. 1 of the drawings, the crank-shaft is provided at the ends of its arms with grips or handles, and when the said standard is arranged in an approximately horizontal position, as shown in dotted lines in Fig. 1 and as shown in full lines in Fig. 2, the crank-shaft is provided with pedals 23, which are removable and which may be of any desired construction. The standard, which forms a hinged frame for carrying the gearing, is supported in an upright position by an inclined brace composed of sections 24 and 25, connected at their adjacent ends by a suitable hinge-joint 26. The upper section 24 is connected by a hinge 27 with the top of the hinged frame, and the lower end of the lower section 25 is provided with a forked portion 28, which straddles the propeller-shaft and which is suitably secured to the bottom of the boat. The hinge-joint 26 is provided with suitable shoulders which limit the swing of the section and which permit the sections to swing from the position shown in full lines in Fig. 1 to that

illustrated in dotted lines, when the forked foot portion of the lower section is detached. When the forked foot portion of the lower section is detached from the boat, the hinged frame or standard may be swung downward, and the sections of the brace then form a seat-supporting frame, the section or bar 24 being arranged in an upright position and the other section or bar being inclined. A seat 30, having a clamp 31, is adjustably mounted on the brace, preferably at the upper portion of the bar or member 25, as clearly shown in Fig. 1, and it is adapted to accommodate the operator when the propelling-gear is arranged for operation by hand or foot.

The boat is provided with a suitable rudder 31, provided at its upper end with a transverse tiller-bar 32, which is connected by side ropes 33 with a front steering-bar 34, located in advance of the gearing. The boat is provided at opposite sides with suitable guides 35 for the reception of the connections 33; but any other form of steering-gear may be provided.

What is claimed is—

1. In a device of the class described, the combination with a propeller-shaft, of a hinged frame movable either to an upright or a horizontal position, gearing carried by the hinged frame for rotating the propeller-shaft, a brace composed of upper and lower sections hinged together in a right line, the upper section being also hinged to the said frame and being arranged longitudinally of the lower

section or in an approximately vertical position to form a support for the lower section, and a seat mounted on the brace, substantially as described.

2. In a device of the class described, the combination with a propeller-shaft, of a hinged frame, a crank-shaft at the upper or outer end of the hinged frame, said hinged frame being movable to an upright position to permit the crank-shaft to be operated by hand and downward to permit the same to be operated by foot, and gearing for connecting the crank-shaft with the propeller-shaft, substantially as described.

3. In a device of the class described, the combination of a bearing-frame, a propeller-shaft mounted on the bearing-frame, a hinged frame connected with the front of the bearing-frame, a transverse shaft at the hinged end of the hinged frame, a connecting-shaft extending longitudinally of the hinged frame, a crank-shaft at the outer end of the hinged frame, gearing connecting the said shafts, and seat-supporting means connected to and movable with the hinged frame, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN H. MILLIGAN.

Witnesses:

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