

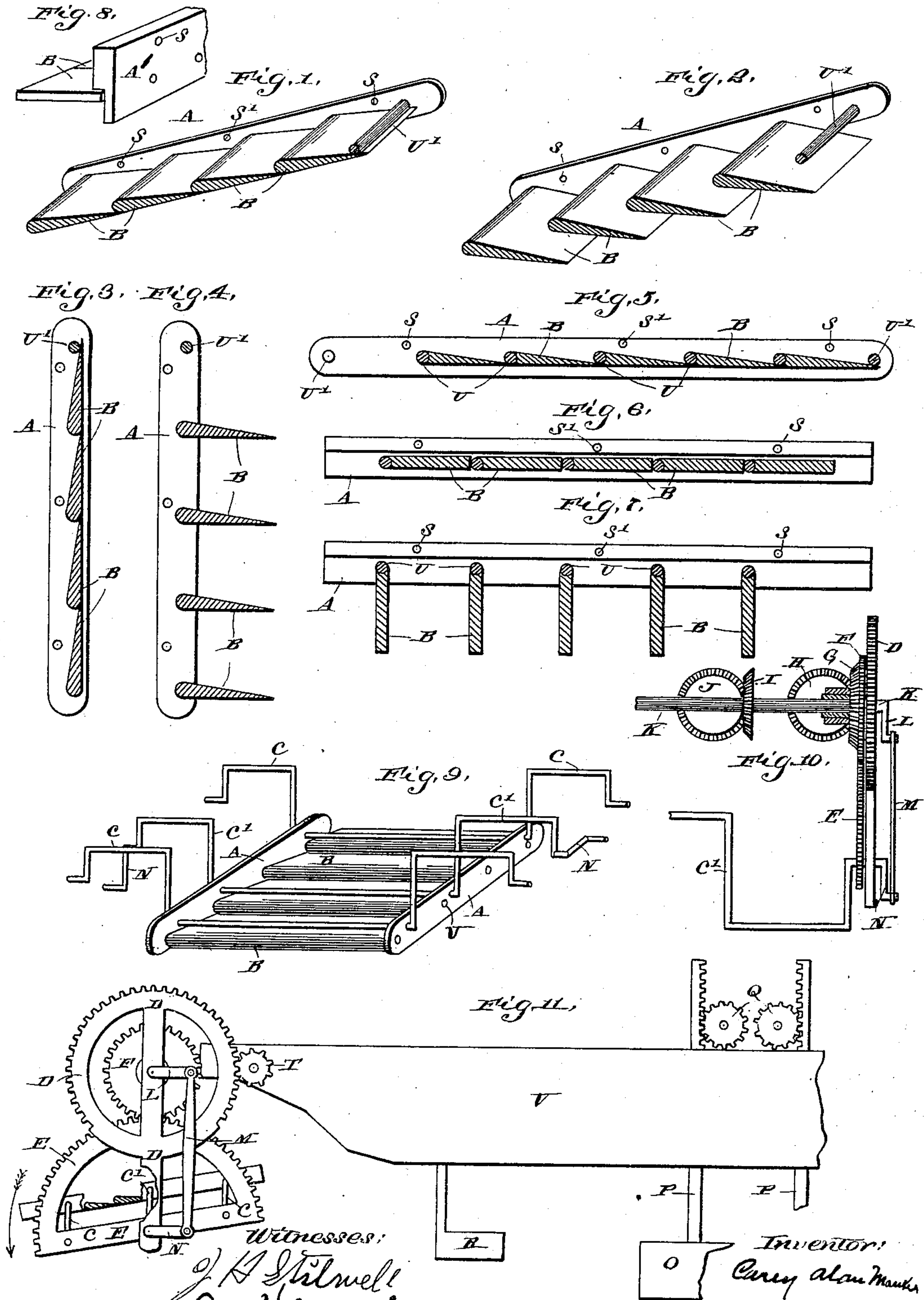
No. 710, III.

Patented Sept. 30, 1902.

C. A. MANKER.
PROPELLER.

(Application filed June 28, 1901.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

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PROPELLER.

SPECIFICATION forming part of Letters Patent No. 710,111, dated September 30, 1902.

Application filed June 28, 1901. Serial No. 66,417. (No model.)

To all whom it may concern:

Be it known that I, CAREY A. MANKER, a citizen of the United States, residing at Pearl, in the county of Pike and State of Illinois, have invented a new and useful Propeller, of which the following is a specification.

My invention relates to improvement in appliances of propulsion for ships, boats, or other vehicles for transportation in or on water or air, but more particularly to water navigation.

The object of my improvement is to furnish a means of propulsion by which boats, ships, &c., are not only propelled forward, but are at the same time lifted or buoyed upwardly, thus diminishing or wholly eliminating displacement, thereby allowing greater forward speed than is possible under a condition of resistance as offered by displacement in ordinary navigation. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters refer to similar parts in the different views.

Figure 1 is a perspective view of a part of the propelling attachment with the slats in closed position. Fig. 2 is a corresponding view with the slats partially open. Fig. 3 is a sectional view of the attachment when mounted vertically and showing the slats closed. Fig. 4 is a corresponding sectional view with the slats open. Fig. 5 is a sectional view of the attachment mounted horizontally with the slats closed. Figs. 6 and 7 show modifications of the appliance as shown in the above-mentioned figures. Fig. 8 is a perspective view showing one corner of the frame which supports the slats in the modified construction. Fig. 9 is a perspective view of the appliance, showing the shafts arranged to support a series of propelling attachments. Fig. 10 is a view showing one form of connections which may be made use of to operate the propeller. Fig. 11 shows the invention applied to one form of boat and also shows a ballast which may be made use of to hold the boat when the latter operates upon the surface of the water.

Referring to the drawings in detail, A indicates a frame composed of two side members, between which are pivotally mounted the substantially wedge-shaped slats B, the latter

being supported upon the pivots U. As clearly shown in Fig. 1, the adjacent edges of the slats B overlap, so that they cannot turn entirely around on their pivots and will be held, as shown, to form a substantially flat surface. A rod U' is carried by the frame A above the free side of the end slat and serves as a stop or shoulder for the same, this being required because there is no other slat for the end slat to engage against.

In the modified form shown in Figs. 6, 7, and 8 the sides of the frame A are provided with shoulders A' and the slats are supported in the same manner as above described except that their adjacent edges do not engage against each other, but are held by the shoulders A', as shown in Fig. 8. When in this form, the rod U' is omitted, being rendered unnecessary, because the shoulders A' extend throughout the length of the frame, and thereby hold the entire number of slats in the required position.

In Fig. 11 I have shown the propeller attached to a boat. The frames D are supported in any known manner at the ends or sides of the boat and are provided with vertical arms or extensions by which the crankshafts C' are supported, the said shafts being provided with cranks for carrying the frames A, as may be clearly seen by referring to Fig. 9. The cranks N are supported at the ends of the shafts C' and are connected by levers M to the cranks L, which are attached to the ends of the driving-shaft K. The said shaft K may be driven in any known manner, as by the use of gears I J, to which motion is imparted by means of an engine in a well-known manner. From this it will be seen that when the shaft K is driven the cranks L and N will be operated and the frame A, which is carried by the crank-shaft C', to which the crank N is attached, will be rotated, thereby raising and lowering the frame A and the slats B, which are mounted therein. The said frame A is supported below the surface of the water, and when lowered the slats B assume the position shown, forming a flat surface, which is forced downwardly into the water by the revolution or operation of the crank-shaft C'. These slats are held in this position, as above described, by their adjacent edges engaging against each

other and the end slat being held by the rod U'. When the crank-shaft C' begins to raise the frame A and the slats B, the resistance of the water turns the said slats vertically, so that they will offer comparatively little resistance to the upward movement of the frame. This operation is performed rapidly by the rotation of the crank-shaft C', the downward movement of the frame A and the slats B offering resistance, the result of which is an upward and forward movement of the boat or ship. As above mentioned, a series of frames and slats may be mounted upon the same shaft in different positions in order to render this upward and forward movement continuous and without breaks.

The shafts C C are arranged at intervals and form a sort of revolving skeleton frame for holding the frames A in the required position, as shown in Fig. 11.

E indicates a semicircular frame provided with gear-teeth which mesh with a cog F, mounted on the shaft K, and within the said frame E the ends of the shafts C are mounted.

H indicates a gear which is in mesh with the cog-surface G, formed integral with the cog-wheel F. It will thus be seen that by rotating the gear H the frame E will also be rotated, by which operation the frame A can be placed at different inclinations, or by being turned a sufficient distance the said frame may be placed in a vertical position in order to exert a straight pull, and by reason of its deep immersion greater force may be applied to the boat or ship. As shown, the upper portion of the frame D is in the form of a gear and is in mesh with a gear T, which is intended to be rotated in any known manner. By the rotation of the said gear T the frame D may be operated to raise the frames A entirely out of the water for purposes of repair or may be set to hold frames A in position in the water.

Boats or ships using my improved propeller are preferably of the flat-bottom type and the draft is sometimes very shallow and ballast is necessary to prevent the boat from tilting. For this purpose I provide a ballast O, supported below the boat by means of the posts P, which extend upwardly and are provided with gear-racks on their upper ends meshing with the gears Q, by the revolution of which the said posts P and the ballast O may be raised or lowered.

My improved propeller is especially adapted for propelling boats having flattened bottoms, and by forcing the boat upwardly and forwardly I eliminate a great amount of displacement which it would otherwise be necessary to overcome. The slats being forced downwardly are closed and being arranged at an inclination impart an upward and forward movement to the boat. When the said slats are raised, they open in order to offer less resistance and are again automatically closed when the crank-shaft starts them downwardly.

I do not limit myself to the exact construc-

tion herein shown and described, as it is obvious that the details of my invention may be slightly changed within the limits of mechanical skill in order to adapt it for use in aerial navigation.

While I have shown and described my improved propeller especially adapted for boats of the flat-bottom type, it is clear that it may be applied to all types of boats, whether they set deep in the water or merely ride upon the surface. Therefore I do not wish to be understood as limiting my invention to any special form or type of boat.

I claim—

1. The combination with a ship, of a propeller composed of a series of slats attached to the ship by an unyielding connection, means for revolving said slats continuously, and means for temporarily retaining said slats at an angle whereby said propeller will both buoy and propel the boat, substantially as specified.

2. The combination of a rotating propeller composed of the frame A and the slats B pivoted to said frame A, a rotating skeleton frame C, C', C for supporting said frame A, a semicircular wheel E, a frame D, a drive-shaft K, cranks L and N, and the rod M connecting said cranks, substantially as specified.

3. In a propeller for boats, ships, &c., a frame, a series of slats carried thereby, means for temporarily retaining said slats at an angle and unyielding connections between the propeller and the boat for revolving said frame and slats continuously to both raise and propel the boat or ship forwardly, substantially as specified.

4. In a propeller for boats, ships, &c., a frame, a series of slats carried thereby, means for moving said frame and slats to any desired angle, and means for revolving said propeller to buoy and propel the boat, substantially as specified.

5. A propeller, consisting of the frame A and the slats B pivotally carried upon the bearings U, and shoulders A' for holding said slats in alinement in combination with suitable means for revolving the frame and slats so that the boat will be both buoyed and propelled, substantially as specified.

6. In a propeller of vehicles for water navigation, the combination of pivoted slats which close together in a frame and compose thereby an extended surface for action against the water, said slats under reverse action open apart, allowing the water to flow between them, and suitable devices for revolving the frame and slats so that they will both buoy and propel the vehicle.

7. In a propeller of vehicles for water navigation, closing and opening slatted plates attached to a revolving and interrevolving skeleton C, C', C by means of which, said plates are given a reciprocally chopping or plunging and revolving motion in combination with means for temporarily retaining said slatted plates at an angle, substantially as specified.

8. In a propeller for boats, ships, &c., a
frame, a slat carried thereby, means and un-
yielding connections for moving said frame
and slat to any desired angle, and means for
5 revolving said propeller to both buoy and pro-
pel the boat, substantially as specified.

9. A propeller, consisting of an inclined
plane attached to the ship by an unyielding
connection and constructed to be forced down-
10 wardly to simultaneously lift the ship up-
wardly and propel it forwardly in any desired
direction, in combination with means ar-

ranged to cause said plane to rise edgewise
for the purpose of minimizing the resistance
to the medium in which the ship is floating or 15
riding, substantially as specified.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

CAREY A. MANKER.

Witnesses:

J. H. STILWELL,
B. HEAVNER.