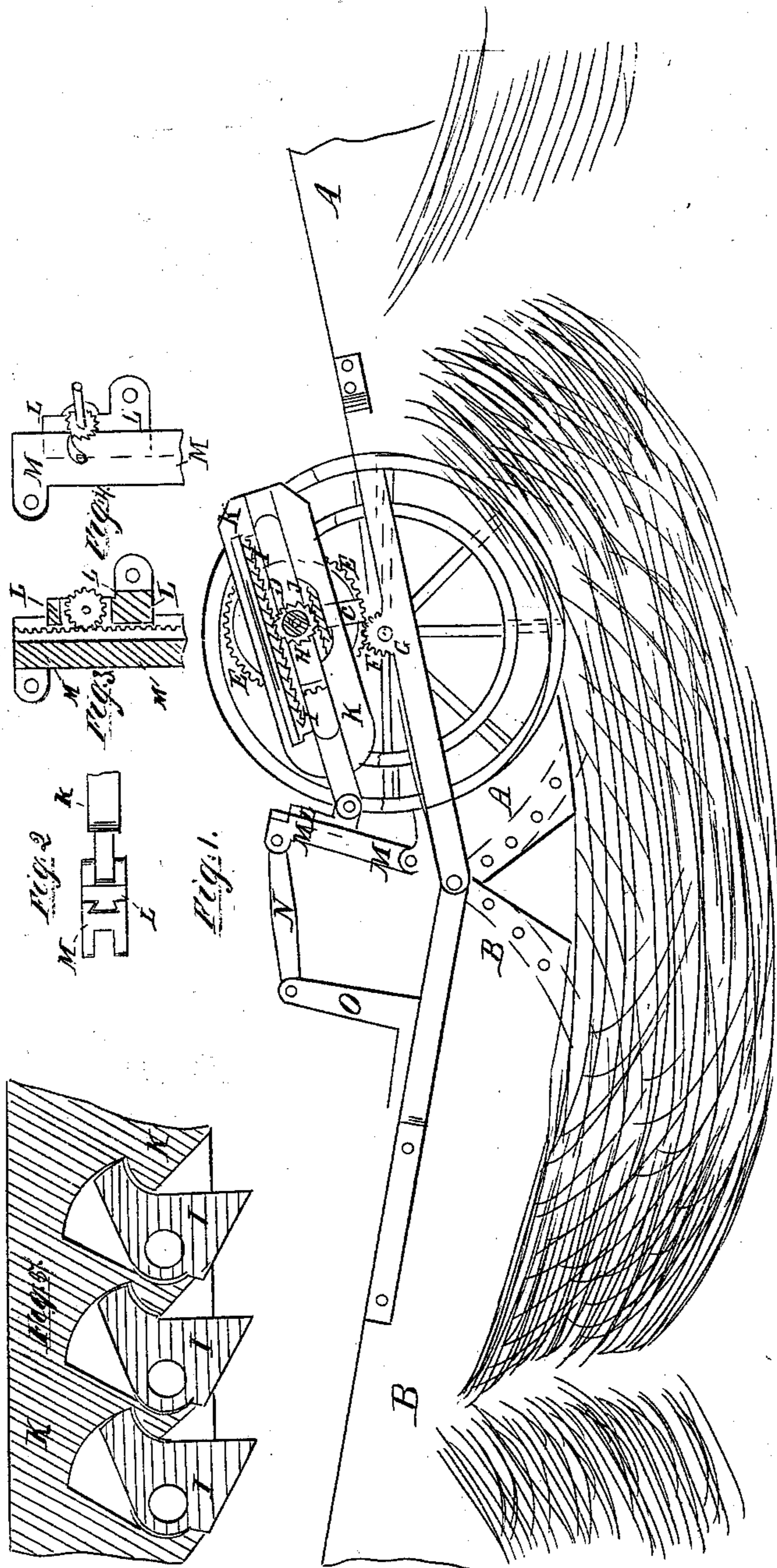


Shedden & Stafford,
Paddle Wheel

No. 72106.

Patented Dec 10 1867.



Witnesses,
Chas. Encke
Wm. Frewin

Inventor
R. R. Shedden
D. F. Stafford
Per Munn & Co
Attorneys

United States Patent Office.

ROBERT R. SPEDDEN AND DANIEL F. STAFFORD, OF ASTORIA, OREGON.

Letters Patent No. 72,106, dated December 10, 1867.

IMPROVED MEANS FOR PROPELLING VESSELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ROBERT R. SPEDDEN and DANIEL F. STAFFORD, of Astoria, in the county of Clatsop, and State of Oregon, have invented a new and useful Improvement in Propelling Vessels, &c.; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the central part of a vessel to which our improvement has been attached.

Figure 2 is a detail top view of the adjusting-slide.

Figure 3 is a detail sectional view, showing a modification of the sliding-device.

Figure 4 is a side view of the same.

Figure 5 is a detail sectional view, showing a modification of the ratchet-bars.

Similar letters of reference indicate corresponding parts.

Our invention has for its object to furnish an improved means by which the motion of the waves may be used for propelling vessels, or working pumps or other machinery; and it consists in the combination of the parts by means of which the motion of the hinged parts of the vessel or other structure is communicated to the paddle-wheel or propeller-shaft, as hereinafter more fully described.

A represents the forward, and B the stern part of a vessel, made in two parts, securely and strongly hinged to each other, so that their outer ends may move freely up and down, but can change their relative positions in no other direction. C are two posts, (one of which is not shown in the drawing,) securely attached to and projecting above the part A of the vessel, in which posts are formed the bearings for the ratchet-shaft D. E is a large gear-wheel, attached to the ratchet-shaft D, the teeth of which mesh into the teeth of the smaller gear-wheel F, attached to the paddle-wheel shaft G. H is a ratchet-wheel, securely attached to the shaft D, and to which motion is imparted by the racks I and J, which are placed and work in the rack-frame K. The rack-bars I and J are placed and secured in the rack-frame K, the one above and the other below the ratchet-wheel H, and are held forward against the ratchet-wheel by springs, so that, as the rack-frame K is moved towards the bow of the vessel, the upper rack I may take hold of the said ratchet-wheel H, and impart motion to it, while the lower rack J slides over the teeth of the said ratchet-wheel; and while the said rack-frame is moving in the other direction, the lower rack J may take hold of the teeth of the ratchet-wheel and operate it, while the upper rack I slides over it, so that the said ratchet-wheel may be moved in the same direction, whatever be the direction in which the rack-frame K may be moving. In cases where much power is required, I prefer to make the rack-teeth separate, as shown in red in fig. 5, each tooth being pivoted to the frame K, so that as the rack is sliding over the ratchet-wheel, it may not be necessary for each tooth of the said ratchet-wheel to raise the entire rack-bar. This latter method we prefer, as greatly diminishing the friction. The rear end of the rack-frame K is pivoted to the slide L, which works up and down in a groove in the rocking-post M, so that by shifting the position of the said slide, the length of the stroke may be lengthened or shortened at pleasure, and by lowering it a sufficient distance, the motion of the machinery may be entirely stopped. The position of the slide L may be shifted in various ways. A very convenient way to do this is shown in red in figs. 3 and 4, that is to say, by means of a cog-wheel pivoted to the slide L, the teeth of which take hold of rack-teeth formed upon the rocking-post M, the slide being held in any position by means of a ratchet-wheel and pawl, as shown in fig. 4. But the manner in which this is done is immaterial. The lower end of the post M is securely hinged to the part A of the vessel, so that it may work freely as the vessel is acted upon by the waves. To the upper end of the post M is pivoted the end of the connecting-bar or pitman N, the other end of which is pivoted to the upper end of the post O, which is securely and rigidly attached to the part B of the vessel.

The uses of this device are various. It may be attached to a sail-vessel, which is the use especially intended, or it may be attached to a light-ship, to enable her to ride out a storm without straining her cables or breaking from her moorings. One part of the device may be attached to a dock or other stationary structure, and the other part to a float, which will enable the device to be used for working a pump, or other similar purposes. It may also be used instead of a crank for transmitting motion from the piston-rod of a steam-engine to the machinery to be driven, enabling the engine at all times to exert its full power upon the said machinery. In

case the paddle-wheels are attached to the after part of the vessel, or if a propeller-screw is used, the position of the device should be changed, the stationary post O being attached to the forward part of the vessel, and the other parts being attached to the stern part of said vessel.

In some cases it may be advisable to have the apparatus so constructed that the movement of the machinery may be reversed. This may be done in various ways. A convenient means for reversing the motion is to have two ratchet-wheels attached to the ratchet-shaft, with teeth pointing in opposite directions, and to have two sets of rack-bars or rack-teeth attached to the rack-frame. Then by connecting levers to the said rack-bars, either set may be moved away from the ratchet-wheels, and the motion thus reversed as desired. But for ordinary purposes, this arrangement will not be required.

We claim as new, and desire to secure by Letters Patent—

1. The combination of the rack-frame K, racks I and J, and ratchet-wheel H, with each other and with a shaft, D, for the purpose of applying power to said shaft, substantially as herein shown and described.

2. The combination of the stationary post O, pitman N, rocking-post M, and adjustable slide L, with each other, with the rack-frame K, and with the hinged parts of a vessel or other structure, one or both of said hinged parts floating in the water, so as to be acted upon by the motion of the waves, substantially as herein shown and described.

ROBERT R. SPEDDEN,
DANIEL F. STAFFORD.

Witnesses:

C. M. SCAMMON,
A. VAN DUSEN.