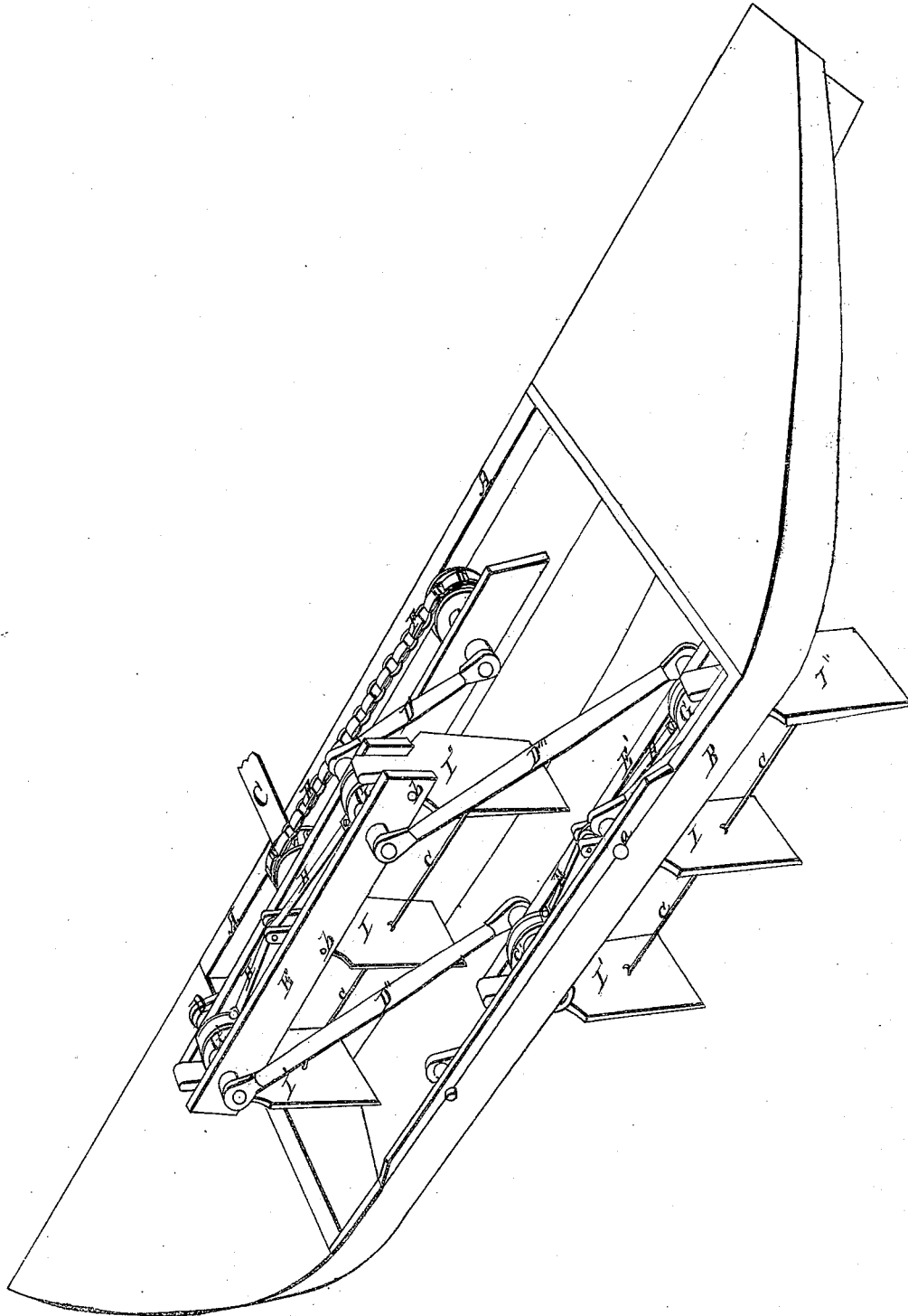


S. Swett, Jr.
Crank Paddle.

Nº 2,089.

Patented May 11, 1841.



UNITED STATES PATENT OFFICE.

SAMUEL SWETT, JR., OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN THE MANNER OF OPERATING PADDLES FOR PROPELLING STEAM AND OTHER BOATS OR VESSELS.

Specification forming part of Letters Patent No. 2,089, dated May 11, 1841.

To all whom it may concern:

Be it known that I, SAMUEL SWETT, Jr., of Chelsea, in the county of Suffolk and State of Massachusetts, have invented an Improvement in the Manner of Constructing the Apparatus for Propelling Boats and other Vessels which are Navigated by Steam or other Power; and I do hereby declare that the following is a full and exact description thereof.

The paddles or buckets by which the propelling is to be effected are attached to frames which stand horizontally and which are made to vibrate back and forth, and are raised up and down by means of cranks. The paddles or buckets attached to the vibrating frames would, were they immovably affixed thereto, dip into and rise from the water vertically; but instead of so attaching the paddles to the vibrating frames I hang them upon pivots, which admit of their having a vibratory motion communicated to them independently of that which they receive with the frame. The intention of this is to cause them to enter and to leave the water in a direction varying a few degrees from a vertical line, and this they are made to do by means of eccentrics upon the ends of the cranks which carry the vibrating frames, there being shackles or connecting-rods from said eccentrics leading to and connected with one or more of the paddles. I intend in general to use two vibrating frames, each carrying three paddles on either side of the boat or other vessel; but this number and also the location of the propelling apparatus may be varied at pleasure, while the general principle of action remains unchanged.

In the accompanying drawing, A A is the gunwale, and B B the guard, of a steam-vessel.

C is the main driving-shaft, carrying a crank D, upon which is suspended one end of the vibrating frame E. A similar crank D' sustains and moves the opposite end of the frame E. The shaft of the crank D' is represented as driven by a gearing-chain F, leading from the main driving-shaft; but it may be actuated by cog-gearing or otherwise. Were one vibrating frame only used the crank-shafts would have the bearings of their outer ends on the guard B B, as at a a; but two or more such frames are to be so arranged that one set of paddles will always be acting upon the water.

E' is a second vibrating frame, moved by the lengthened crank-arms D'' D''. The frame E' and its paddles are arranged and operate in the same manner with that already described.

So far this propelling apparatus does not differ materially from what has been heretofore known, and I now proceed to describe the improvements which I have made thereon, for the purpose of giving a vibratory motion to each of the paddles, independently of the general vibratory motion common to them and to the vibrating frames.

Upon each of the crank pins or shafts, which connect the outer ends of the crank-arms or wrists, I affix an eccentric or crank wheel G G, and from these I carry the shackles or connecting-rods H H to the upper end of the paddle I, which is produced or extended upward for that purpose. The paddles I I' I'' are all hung to the vibrating frame by pivots at b b, upon which they vibrate, and it will be manifest, therefore, that the paddle I will be made to vibrate on the pivots b b whenever the apparatus is in action.

To cause the paddles I' and I'' to vibrate in the same manner with that marked I, they are connected to it by means of rods c c, which not only communicate the required motion, but serve to brace them together. These rods might be affixed to the upper ends of the paddles, produced or extended upward for that purpose; but they would not then operate equally well as braces. A single eccentric-wheel might also serve to communicate the required vibration to the paddles; but the two will give more steadiness to the apparatus.

By means of the above-described apparatus for giving an independent vibratory motion to each of the paddles they will be made to enter the water at an inclination from the perpendicular toward the bow of the vessel and to leave it at a like inclination toward the stern, by which means one of the main objections to the use of vertical paddles will be obviated. This angle of inclination may be regulated by the eccentricity of the eccentric-wheels, or by connecting the shackles or connecting-rods to the paddles at different heights from the pivots upon which they vibrate.

Having thus fully described the nature of my improvement and shown the manner in

which I carry the same into operation, what I claim therein as constituting my invention, and desire to secure by Letters Patent, is—

The giving to the paddles or buckets in the particular kind of apparatus herein described for propelling boats or other vessels, an independent vibratory motion within the vibrating frames to which they are attached, for the purpose of causing them to enter and to

leave the water in a line inclined from the perpendicular, the whole being constructed substantially in the manner and for the purpose herein fully set forth.

SAMUEL SWETT, JR.

Witnesses:

RICHD. REED,
JOSEPH HOOLE.