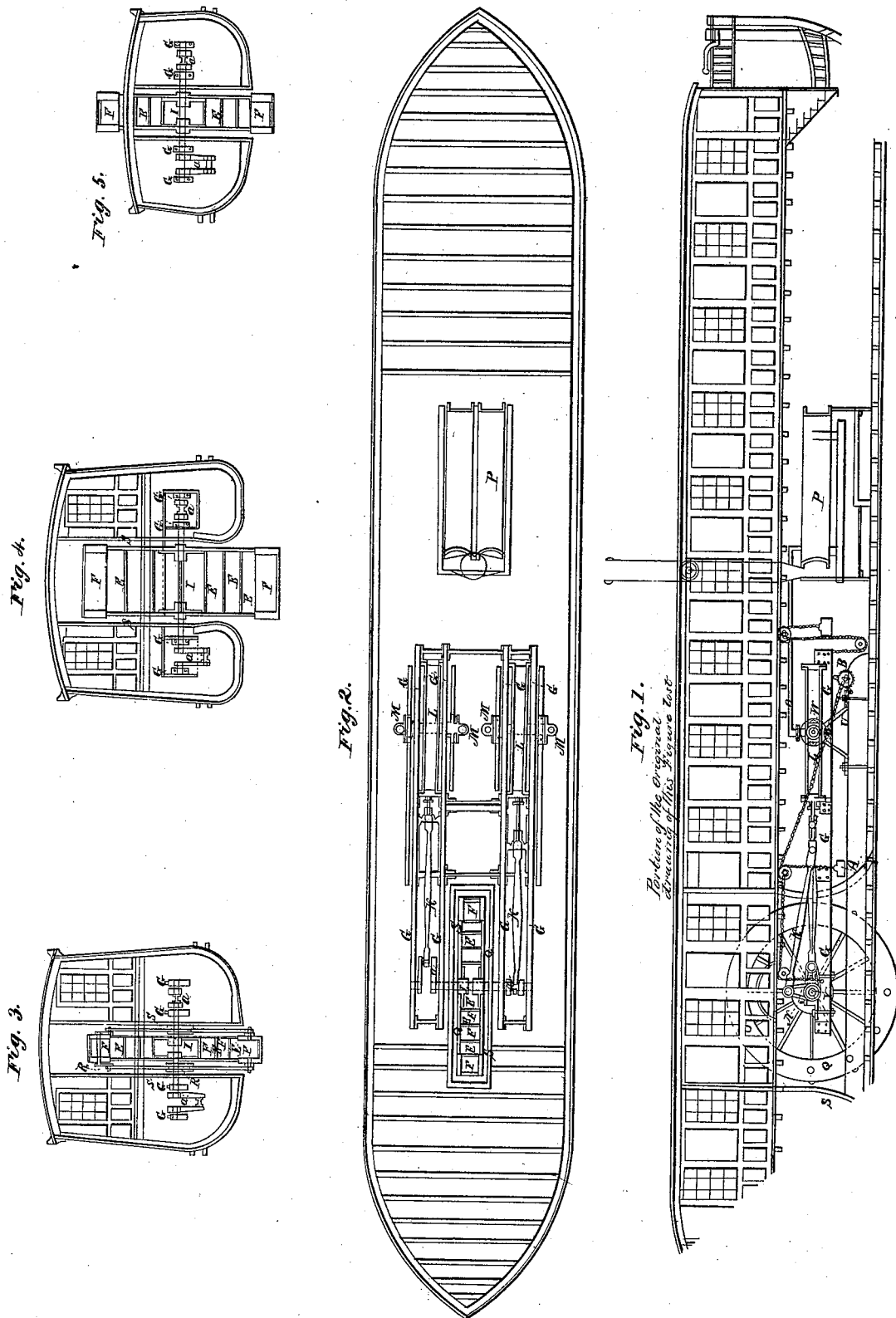


*M. Battel.*  
*Canal Boat.*

*Patented Oct. 14, 1840.*

*Nº 1,820.*



# UNITED STATES PATENT OFFICE.

MELLEN BATTEL, OF ALBANY, NEW YORK.

## IMPROVEMENT IN THE MANNER OF PROPELLING BOATS UPON CANALS OR OTHER SHOAL WATER BY THE AGENCY OF STEAM.

Specification forming part of Letters Patent No. 1,820, dated October 14, 1840.

### *To all whom it may concern:*

Be it known that I, MELLEN BATTEL, of the city of Albany, in the State of New York, have invented an Improvement in the Manner of Propelling Boats upon Canals or other Shoal Waters by the Agency of Steam; and I do hereby declare that the following is a full and exact description thereof.

I construct my boats either with one or with two decks; but I prefer those with two decks where the canal will admit of boats of this construction, as the steam-engine and propelling apparatus may in this case be placed below, and, with the cooking-apartments and crew, be separated from the passengers, who may occupy the upper part.

My main improvement, however, consists in the manner in which I construct my propelling-wheel and combine it with a vibrating frame, the steam-engine, and its appurtenances. My propelling-wheel I make of large diameter, say from twelve to eighteen feet, more or less, and I so construct it as to adapt it to run upon the ground at the bottom of the canal, and to propel the boat in great part by its bearing upon and friction against the bottom, or where the water is of such a depth as not to allow the wheel to touch the bottom, or when from any other cause it is prevented from so doing it shall then act as an ordinary propelling or paddle wheel. I prefer so to arrange the buckets or floats by which the propelling is effected as that they shall dip into and leave the water in a vertical position, for which purpose they are hung upon gudgeons and their vertical position is preserved by means of cranks and an eccentric wheel, or in any of the modes known and used for producing this effect, the same not making any part of my invention.

My propelling-wheel, which I denominate the "combined ground and paddle wheel," I place in the line of the middle of the boat, which may for that purpose assume the form of a twin boat, or it may be constructed with an opening or well passing through the bottom and deck, as has frequently been done in boats propelled by a single wheel. The rims of my wheel which are to roll upon the ground I connect firmly together by cross-bars between each of the buckets and near to their peripheries.

My combined wheel runs in boxes placed near to one end of a vibrating frame, by means of which frame the wheel may be raised or lowered, and which, when the wheel rests upon the ground, allows it to rise and fall and completely to adapt itself to the inequalities of the bottom. I place my steam-cylinders at or near the end of the vibrating frame opposite to that which sustains the wheel. These cylinders I make with hollow gudgeons for the induction and the eduction of the steam, these gudgeons being situated in the center of the axis upon which the beam vibrates. The steam is admitted and discharged through these gudgeons, which afford a passage for the steam through the induction and the eduction tubes formed on the body of the cylinder in the ordinary way. The steam-pipe leading from the boiler connects with a valve-box attached to one of these gudgeons, and said boxes being furnished with valves for governing the admission and discharge of steam which do not differ from those used in other engines, nor do I designate or confine myself to any particular kind of valve or engine, intending to use those either of high or of low pressure, as may be preferred. When the combined wheel rests upon the ground, its adhesion will be determined by the weight of the wheel and of the vibrating beam, and this may be made as great as may be thought necessary, and to regulate this according to circumstances I attach chains or cords to said beam and allow these to pass over pulleys, by which any counter-weight that is necessary may be applied.

In the accompanying drawings, Figure 1 is a side view of my propelling apparatus as seen in a double-decked canal-boat, a vertical section being made through said boat from stem to stern. Q is one of the rims of my combined wheel, and V one of its gudgeons running in boxes on the vibrating frame G G. One of the steam-cylinders is shown at L, resting on the opposite end of said beam. W is one of the gudgeons upon which the beam vibrates, and which contains one of the hollow gudgeons of the steam-cylinder. P represents the steam-boiler, and O a steam-pipe leading to one of the cylinders. The other side beam of the vibrating frame sustains in like manner a steam-cylinder and its appurtenances, as is

distinctly shown in Fig. 2. The shaft of the propelling-wheel has two cranks, one on each side of the wheel, standing at right angles to each other and operated upon by the piston-rods of the cylinders respectively. K is one of the pitmen attached to one of the cranks and to the slide of one of the piston-rods. A is a weight appended to a chain which serves to counterpoise the weight of the wheel when desired, and B is a windlass by which the frame and wheel may be raised when required.

Fig. 2 is a bird's-eye or top view of the propelling apparatus. G G is the vibrating frame; L L, the two steam-cylinders; M M, the induction and eduction boxes. K K are the pitmen attached to the two cranks *a a* on the crank-shaft I, and to the slides of the respective cylinders. F F are the buckets of the wheel, and E E the bars connecting the rims Q Q of the propelling-wheel, there being one such bar between each of the buckets, their office not being merely to connect the rims of the wheel; but their most important use is to take hold of the ground, and thus to aid in the propelling when the wheel runs on the bottom of the canal, the wheel not being furnished with spikes to enter and hold on to the ground, the injurious effects of which are apparent. S S is the planking of the well inclosing the wheel.

Figs. 3 and 4 are two cross-sections of boats, the two differing somewhat in form, but being

in other respects similar. The parts shown in these figures and in Fig. 5 are designated by the same letters of reference as those used in Figs. 1 and 2.

Fig. 5 is a similar section of a common canal-boat.

Having thus fully described the nature of my improvement and shown the manner in which I carry the same into operation, what I claim as constituting my invention, and desire to secure by Letters Patent, is—

The manner in which I have constructed, combined, and arranged the respective parts by which the propelling is effected—that is to say, the forming of the combined ground and paddle wheel so as to run upon the bottom of a canal and to propel the boat by the hold or friction of the cross-bars and the rims alone, and when raised from the bottom to effect the propelling by the buckets or paddles, said wheels being connected and combined with a vibrating frame within the body of the boat, which frame also sustains the steam-cylinder in the manner set forth, and the respective parts concerned in the operation of propelling being arranged and operating substantially in the manner herein described.

MELLEN BATTEL.

Witnesses:

THOS. P. JONES,  
GEORGE WEST.