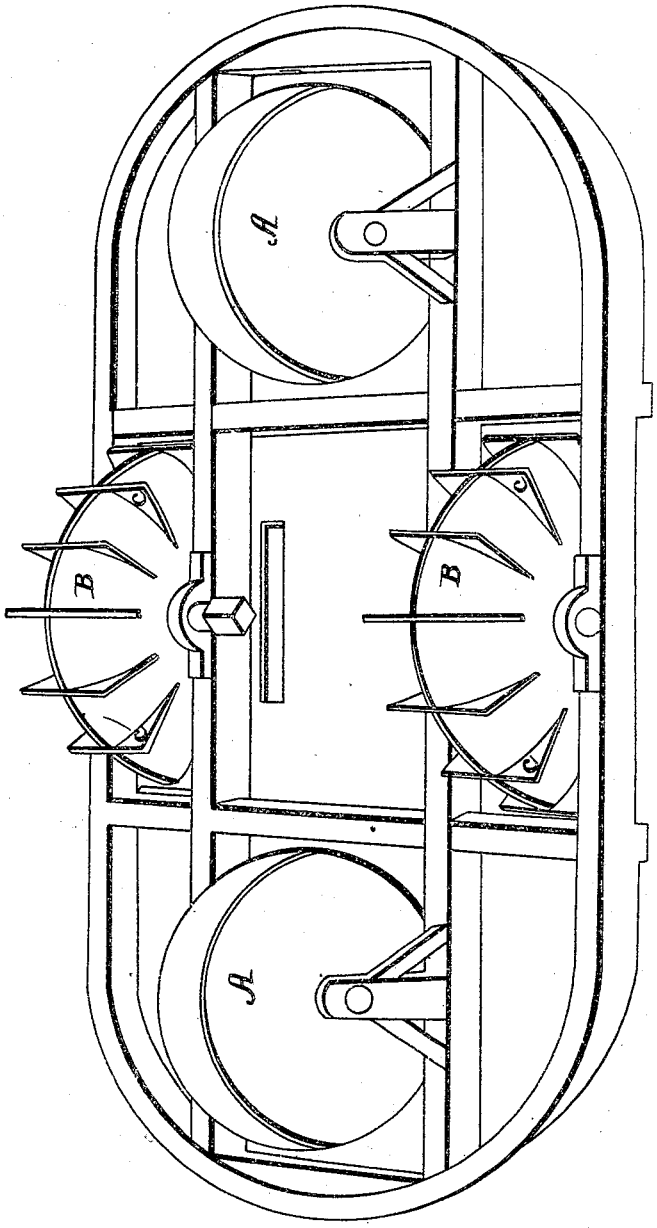
G. Burnham.

Buoyant Propeller.

No. 1,893. Patented Dec. 10, 1840.



UNITED STATES PATENT OFFICE.

GEORGE BURNHAM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE MODE OF BUILDING AND PROPELLING VESSELS.

Specification forming part of Letters Patent No. **1,893**, dated December 10, 1840.

To all whom it may concern:

Be it known that I, GEORGE BURNHAM, of the city of Philadelphia, in the State of Pennsylvania, have invented or discovered a new mode of building buoyant vessels for sea or for river service, which vessels I denominate "Locomotive-Steamers;" and I do hereby declare that the following is a full and exact description thereof.

My vessel or locomotive-steamer is to be rendered buoyant and to be propelled by means of hollow air-tight floats in the form of drums or of spheroids or spheres, which are to be of such capacity as to sustain the vessel and its load without the dipping of any part of the hull or body of the vessel into the water and without the submersion of any larger portion of such hollow floats than shall be compatible with their being advantageously used to carry buckets or paddles for the purpose of propelling said vessel. These floats are to operate in the water in a manner somewhat resembling that of the propelling-wheels of locomotives on land; but they must, of course, be furnished with buckets or paddles to act upon the water in the manner of ordinary paddle-wheels of steamboats.

The accompanying drawing represents the under side of a locomotive-steamer furnished with four buoyant spheroidal floats A A and B B, the two former being shown as occupying a position near the ends of the vessel and the two latter at its sides. The floats B B are shown as furnished with buckets or paddles, and the floats A A as without them; but it is not intended by this representation to exemplify the number, position, or exact form or proportions of these floats. It may probably be found best to furnish the whole number used with paddles and to apply the propelling-power of the engine to each of them; but in this I intend to be governed by the results of experience and by the particular purpose to which the vessel is to be applied. The paddles C C, it will be seen, do not project out beyond the peripheries of the floats, by which arrangement I am enabled to bring a larger portion of the hollow float into the water than I could do were the paddles permitted so to project. When the floats are made cylindrical or in the form of drums, the paddles may be arranged around on each of their sides, so as that their circle of revolution shall not be greater than that of the periphery of the cylindrical float to which they are attached.

I am aware that it has been proposed to use hollow drums or cylinders to give buoyancy to boats, and also to place paddles upon such drums; but these hollow cylinders were to cross from side to side under the boat and were to be furnished with paddles extending along their peripheries, and they could not in practice, therefore, be made of sufficient diameter to operate as propellers, as they would, were they so made, elevate the vessel to such a height as would destroy its utility. This objection I remove by the manner of constructing my floats, which are to operate as locomotive-wheels rather than as rollers, and which I intend to make of large diameter—say thirty feet, more or less, and ten, twelve, or more feet from side to side. These propelling-floats will be allowed to rise up through wheel-houses, so that the upper part of the vessel need not be at a greater elevation above the surface of the water than that of an ordinary steamer, and by this means sufficient buoyancy will be obtained from the floats without its being necessary for them to dip into the water to a greater distance than is compatible with their due action as paddle-wheels.

I have not designated any particular material of which to construct my floats, nor do I think this necessary, as they may be made either of wood or of sheet metal, or of both combined, according to circumstances, all that is requisite being that they should be perfectly water-tight in the part that is immersed and as light as is compatible with the required strength. The manner of gearing so as to produce the revolution of the floats will be such as is well known and in common use, and need not, therefore, be represented. The propelling-power I intend to obtain from the employment of that kind of steam-engine now in general use for locomotives, as this engine combines lightness with a capacity of generating steam with great rapidity, and of employing it under a very high pressure more perfectly than any other in use.

The whole structure of this vessel is such as will reduce the cost of building it more than one-half when compared with that for steamboats as ordinarily constructed. The resistance opposed to it in passage through the water will also be much reduced, and its

adaptation to the purpose of a rapid and secure conveyance of passengers will, as I am firmly convinced, be such as to insure its being preferred for that purpose to any vessel now in use.

Having thus fully described the nature of my invention and shown the manner in which the same is to be carried into operation, it is to be understood that I do not claim to be the first to have used buoyant cylinders or floats having paddles or buckets upon their peripheries; but

What I do claim therein, and desire to secure by Letters Patent, is—

The using of revolving floats for obtaining buoyancy and as propellers, in the manner herein set forth—that is to say, said floats being in diameter equal to that of the paddle-wheels ordinarily employed, and like them rising above the deck of the vessel and being furnished with buckets or paddles, the outer edges of which are to be on a line, or nearly so, with that of the peripheries of the floats, the whole to be constructed and arranged substantially as herein set forth.

GEORGE BURNHAM.

Witnesses:
WM. R. SMITH,
ROBERT T. FRY.