

(No Model.)

W. P. THORNBURGH.

MARINE PROPULSION.

No. 362,556.

Patented May 10, 1887.

Fig. 1.

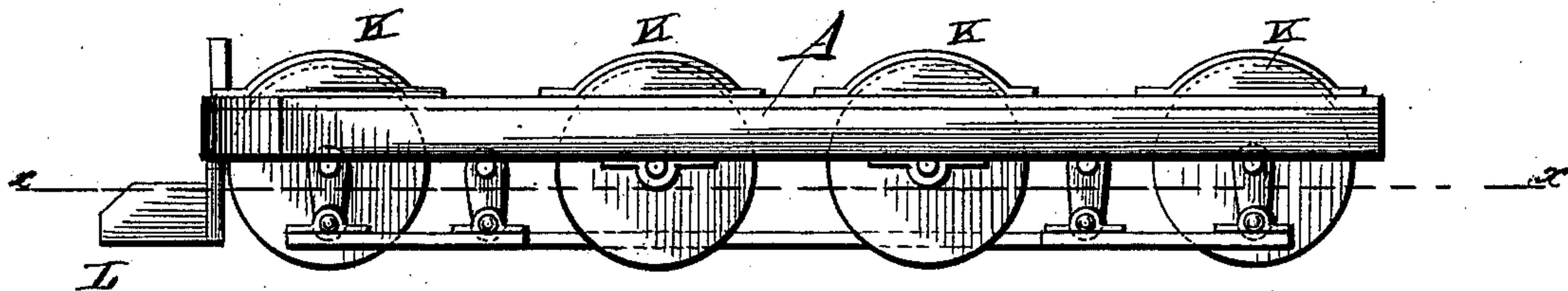


Fig. 2.

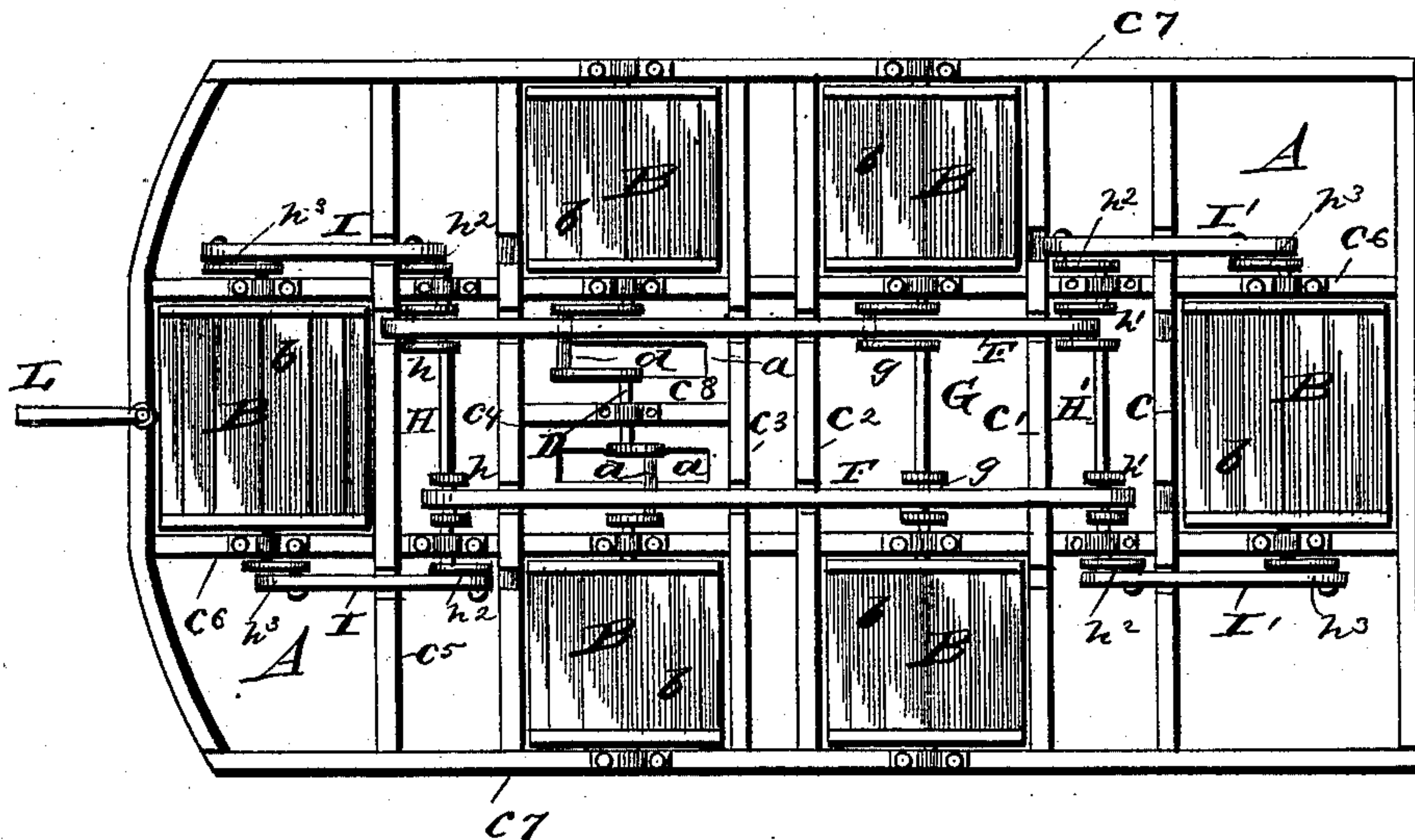


Fig. 3.

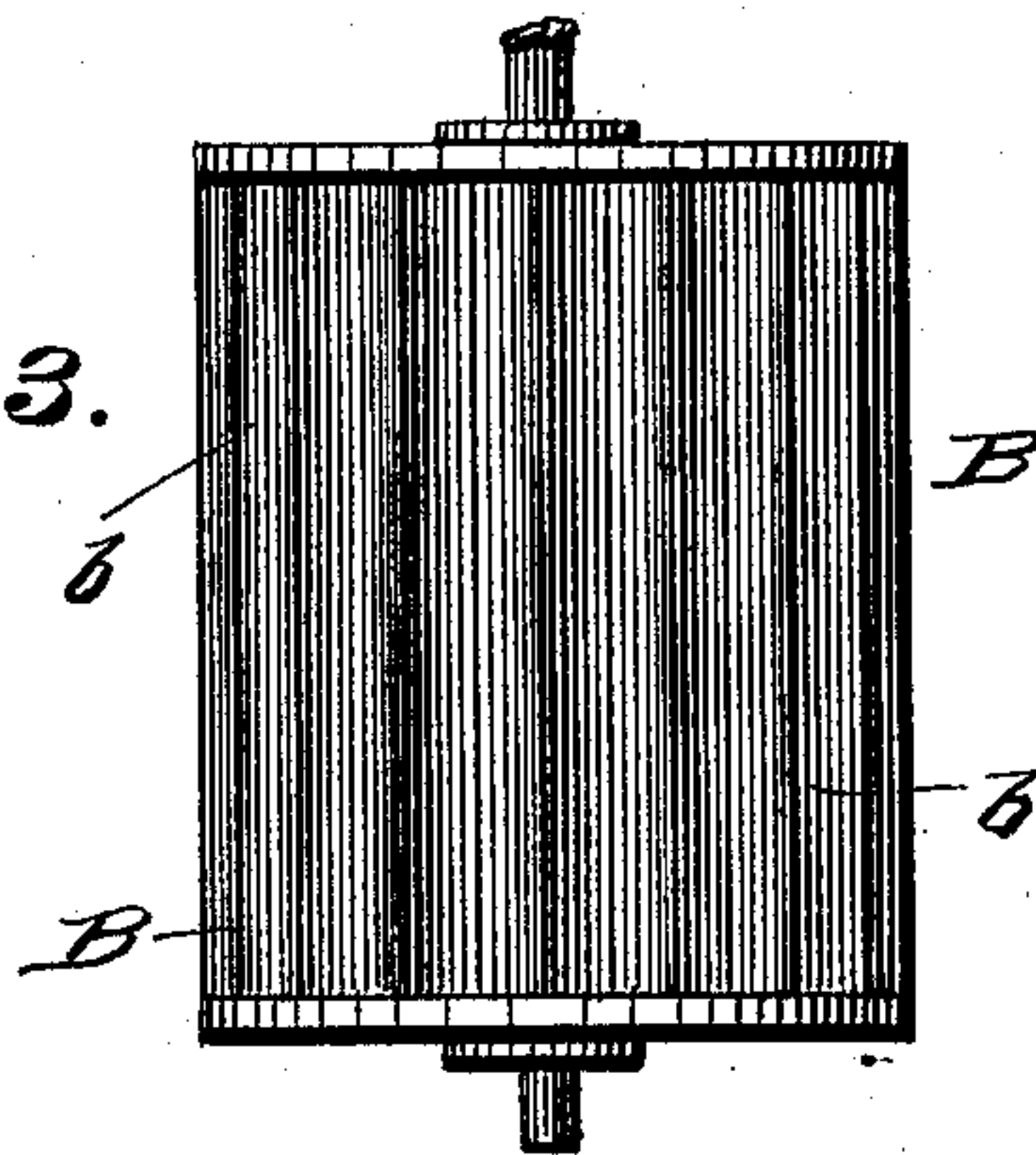
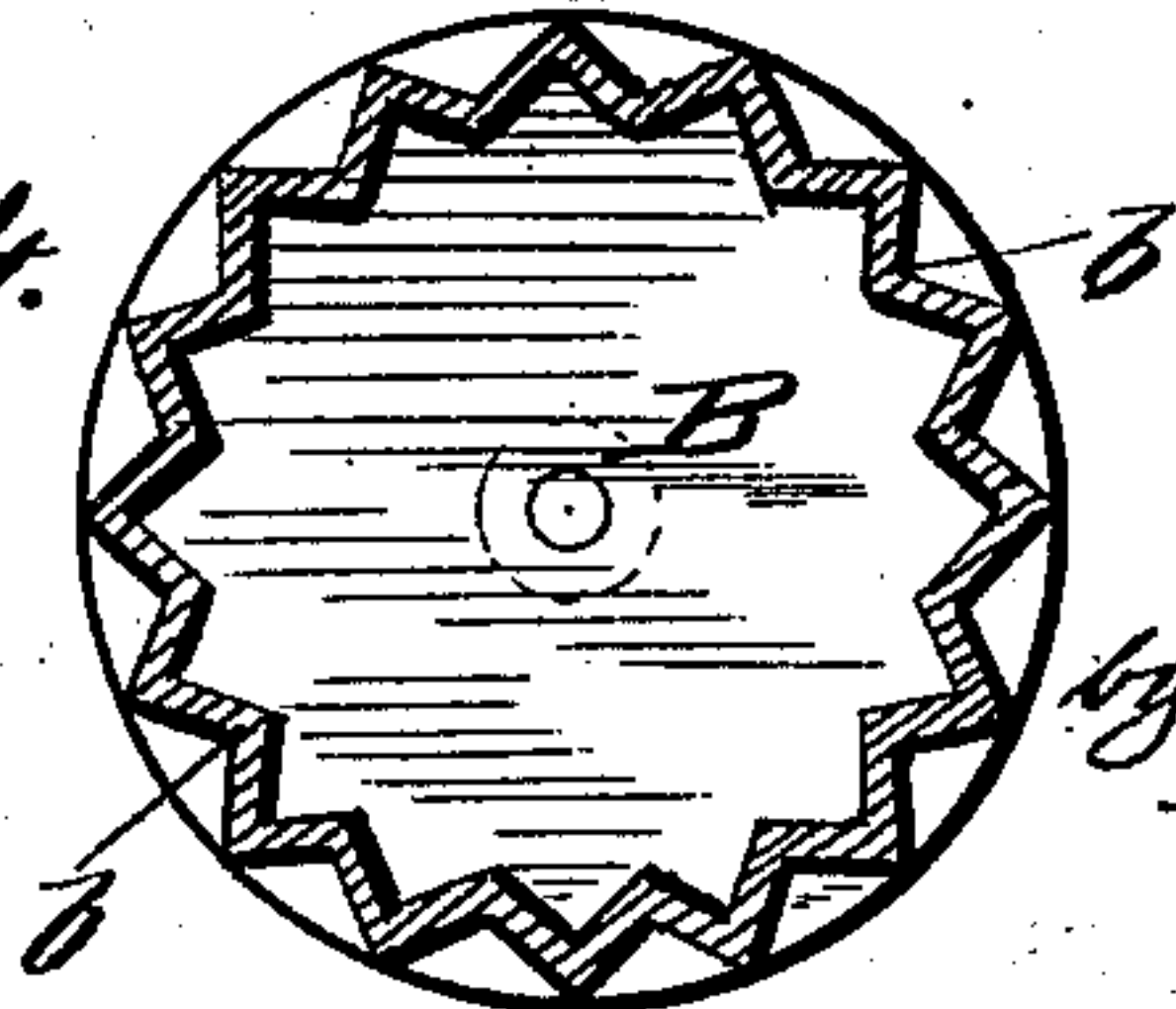


Fig. 4.



WITNESSES

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WILLIAM PURNEL THORNBURGH, OF NEW MARKET, TENNESSEE.

MARINE PROPULSION.

SPECIFICATION forming part of Letters Patent No. 362,556, dated May 10, 1887.

Application filed July 9, 1886. Serial No. 207,567. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PURNEL THORNBURGH, of New Market, in the county of Jefferson and State of Tennessee, have invented certain new and useful Improvements in Marine Propulsion; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the propulsion of steam-vessels by means of paddle-wheels; and the object of my invention is to increase the buoyancy and speed of this class of steam-vessels and to greatly reduce the steam-power required to propel a vessel of any given dimensions.

The above ends I accomplish, first, by employing paddle-wheels in the form of air-tight drums or cylinders, which so buoy up the hull that it does not rest upon the water nor sink into it at all; and I further develop my invention by so placing the paddle-wheels that they shall not only support the hull entirely above the water, but also exercise their utmost power of propulsion. Furthermore, I provide operative connections from the engine or engines of such character that at the utmost no more power is required to attain the increased speed which is attained by my vessel than is necessary in propelling the present types of steam-vessels at the usual comparatively low rates of speed.

In order that my invention, so far as perfected by me, may be understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side-elevation of my improved vessel. Fig. 2 is an inverted plan view of the same. Figs. 3 and 4 are respectively a plan view and a sectional view of one of the paddle-wheels.

In the said drawings, A designates the deck of the vessel, and (referring to Fig. 2) B designates the propelling-wheels. These wheels will be particularly described hereinafter; but it should here be stated that they are all air-tight cylinders and so located with relation to the deck or hull A that the latter lies above the water-line, as shown in Fig. 1.

As seen in Fig. 2, two of the wheels B are

placed, one at each end of the deck or hull of the boat, and a pair of said wheels are placed at each side of the hull or deck, within the guards of the same. By virtue of this arrangement the wheels at the sides insure the utmost buoyant stability of the hull and the wheels at each end of the hull materially increase the speed of the vessel. Furthermore, the greater speed which the boat attains the greater the proportionate buoyancy which will be afforded her.

Each paddle-wheel is in the form of a drum or cylinder, (see Figs. 4 and 5,) the periphery of which is provided with hollow V-shaped paddles *b*, which serve to propel the vessel with equal speed in both directions.

In order to properly actuate the six paddle-wheels, I mount and connect them as follows: *c c' c² c³ c⁴ c⁵* designate transverse partitions properly secured beneath the deck or hull, and the partitions *c' c⁴* are connected with the ends of the hull by longitudinal partitions *c⁶*, while the longitudinal partitions *c⁷* connect said transverse partitions together. The end paddle-wheels have their journal-bearings on the partitions *c⁶*, while the side paddle-wheels have their journal-bearings on the guards and on the partitions *c⁷*. A short longitudinal partition, *c⁸*, connects the transverse partitions *c³ c⁴*, and in this partition is journaled the main crank-shaft D, which connects the two after side paddle-wheels B. The connecting-rods E from the engine or engines connect with the cranks *d* of said shaft and work through openings *a a* in the hull or deck A. These cranks *d* are of double length, to receive both the connecting-rods from the engine or engines and the connecting-rods F, to be hereinafter described. The connecting-rods F are also journaled in the cranks *g* of a crank-shaft, G, which connects the two forward opposite paddle-wheels B, and the forward and after ends of the connecting-rods F are journaled upon cranks *h h'* of crank-shafts H H', which are located, respectively, beneath the forward and after parts of the hull. At their ends the shafts H H' are provided with cranks *h² h³*, which are connected by rods I I' I' I' to crank-sections *j j'* of the end paddle-wheels B. Thus it will be seen that all of the paddle-wheels are oper-

ated in unison from the same engine or engines, and that they are properly journaled in the hull.

I have shown the paddle-wheels B as covered 5 above by housings K, and a rudder, L, is also shown as placed at one end of the hull or deck.

Suitable upper decks or housings may be built upon the deck A without departing from the spirit of my invention.

10 I am aware that boats have heretofore been provided with buoyant propellers so arranged as to propel the hull and at the same time to sustain it clear of the water. I am also aware that such buoyant propellers have been vari- 15 ously disposed relative to the hull; hence I make no broad claim to such previous features of construction, but confine myself to the arrangement of the propellers and their actuating-connections, whereby the wheels are all si- 20 multaneously actuated from a common source of power.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

The combination, with the hull A and the 25 cylindrical propellers B, located in pairs at each side of the hull, and also singly at the bow and stern of the same, of the crank-shafts connecting the opposite pairs of wheels, the actuating-rods F, connecting the crank-sections 30 of said pairs, the crank-shafts H' near the ends of the hull, and the links I', connecting the cranks of the end propellers with the crank-sections h^2 of the shafts H', as and for the purpose described. 35

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM PURNEL THORNBURGH.

Witnesses:

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A. R. JAMES.