

(No Model.)

2 Sheets—Sheet 1.

H. J. JOHNSON.

COMBINED STEAM AND HAND POWER CAPSTAN.

No. 252,039.

Patented Jan. 10, 1882.

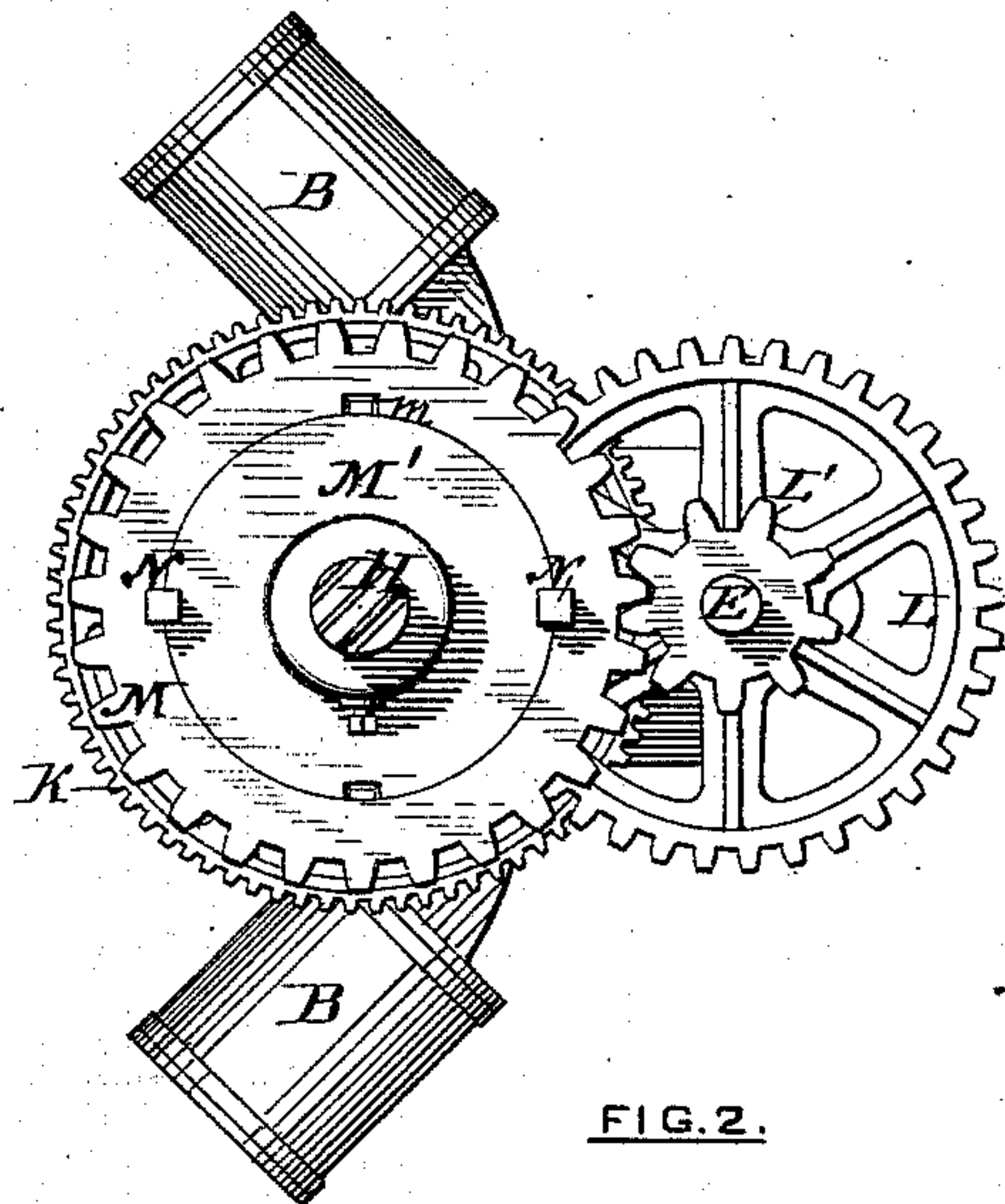
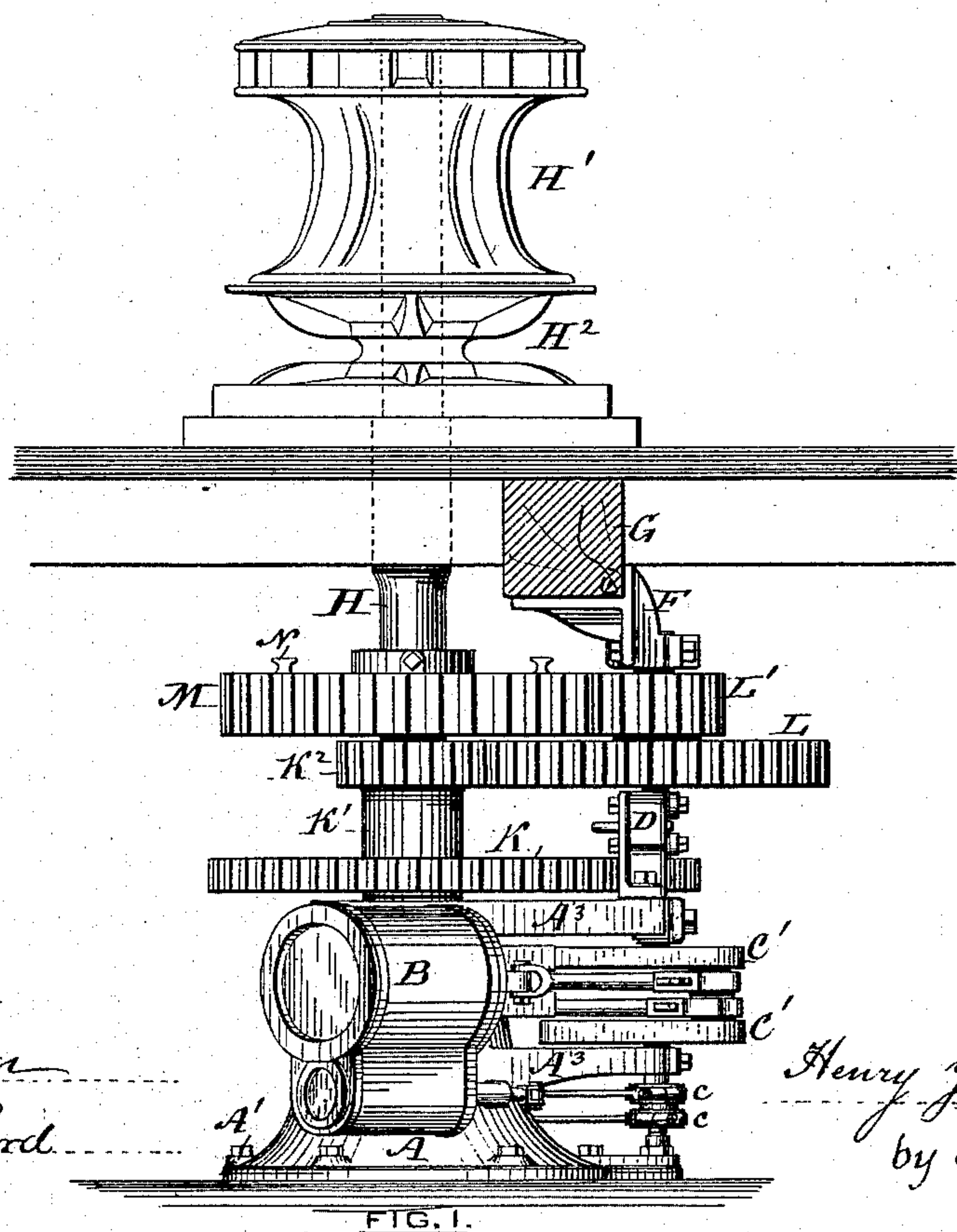


FIG. 2.



WITNESSES:

W. B. Masson
C. O. Shepherd

INVENTOR:

Henry J. Johnson
by *E. E. Masson*
att'y.

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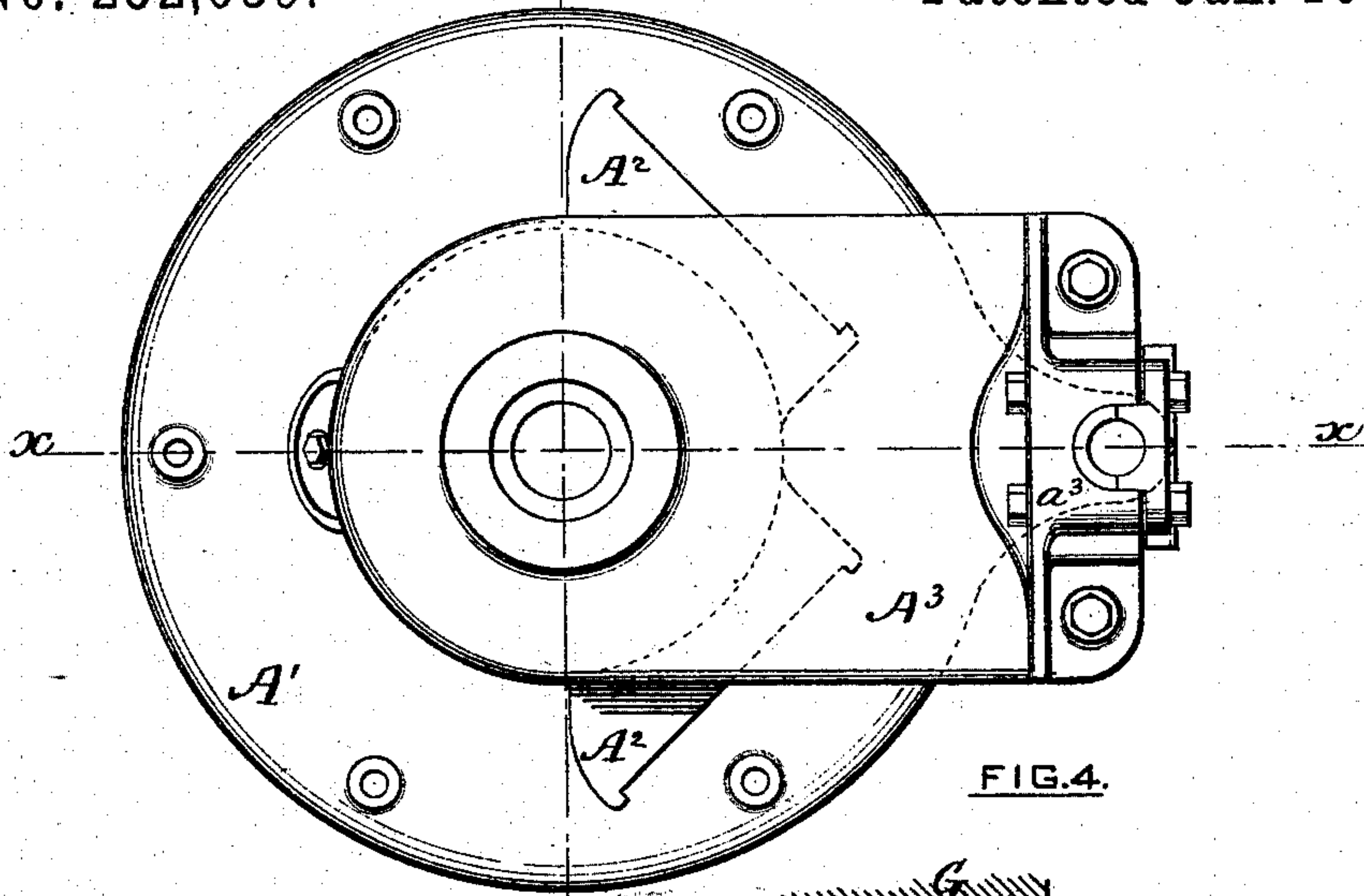


FIG. 4.

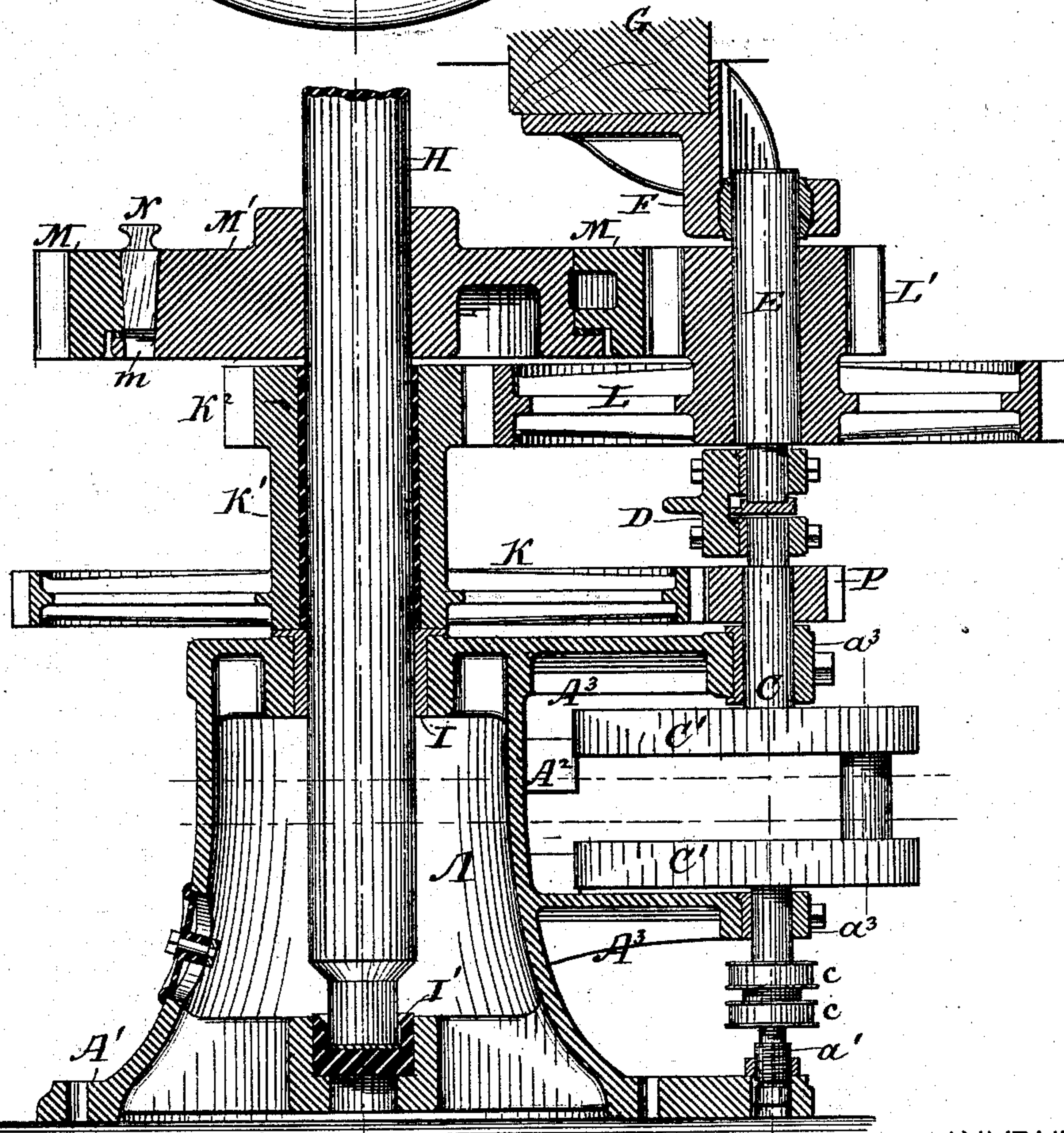


FIG. 3.

WITNESSES:

W. B. Masson
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UNITED STATES PATENT OFFICE.

HENRY J. JOHNSON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO HENRY W. GARDNER, OF SAME PLACE.

COMBINED STEAM AND HAND POWER CAPSTAN.

SPECIFICATION forming part of Letters Patent No. 252,039, dated January 10, 1882.

Application filed December 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. JOHNSON, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Combined Steam and Hand Power Capstans for Ships, of which the following is a specification.

My invention relates to improvements in combined capstan and wild-cat mounted on one shaft and operated either by hand or by steam power; and the objects of my improvements are, first, to provide a peculiarly-constructed frame directly below the capstan, which will serve as a support for the steam-engine, and also serve as a bearing for the lower end of the capstan-shaft; second, to sustain the gearing which multiplies the power transmitted from the steam-engine, so that a portion of it will run loosely upon the capstan-shaft, and thus economize the amount of space required by machines of this class.

Heretofore machines of this class have been provided with a steam-engine secured to the ship on one side of the capstan shaft, and the step for said shaft has been made to rest upon one end or side of the steam-engine foundation; but these machines differ from mine in compactness, as well as in effectiveness and simplicity of construction.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of the entire machine. Fig. 2 is a top view of the machine as it appears after the removal of the capstan, wild-cat, and deck on which they are placed. Fig. 3 is a vertical section, on line *xx* of Fig. 4, of that part of the machine below the deck on which the capstan is placed; and Fig. 4 is a top view of the bed-piece for supporting the cylinders, the lower end of the capstan-spindle, and the independent gear-shaft.

In said drawings, A represents the bed-piece of the machine. It is a bell-shaped hollow casting, formed with a bottom flange, A', provided with a series of holes to receive bolts to secure it to a ship's deck. There is formed upon two sides of said bell-shaped casting A large lugs A², made with the vertical outer face

of each set at an angle of ninety degrees to the other; and to these lugs the steam-cylinders B are bolted, and thus remain suspended. From the side of the bed-piece A there is also projecting, one above the other, two large brackets, A³, to support the two bearings a³ of the vertical crank-shaft C of the engine. Its crank portion C', being close to and between the two brackets A³, is thus properly sustained. The lower end of the crank-shaft C rests in an adjustable step, a', secured to an extension of the bottom flange, A', of the bed-piece. The upper end of the crank-shaft C is retained in bearings in a bracket, D, secured to the top of the upper one of the brackets A³. This bracket D also carries the bearings for the lower end of an independent shaft, E, placed directly above and in line with the axis of the crank-shaft C. The upper end of the shaft E is retained in bearings supported by a bracket, F, that is bolted to the under side of the deck-beam G.

The capstan-spindle H, to which is secured the capstan H' and the wild-cat H², is retained vertically by bearings I in the top of the bed-piece A, and has its lower end supported in a bearing-step, I', attached to transverse ribs in the interior of and forming part of the bottom of the bell-shaped bed-piece A. Upon the capstan-spindle H there is placed directly above the top of the bed-piece A the large gear wheel K, having the lower end of its hub resting upon the bearing I. This gear K has a long hub or sleeve, K', attached thereto, or preferably cast therewith, and the upper end of this hub carries a pinion, K², to mesh with a large gear-wheel, L, secured to the independent shaft E.

The gear K, pinion K², and connecting-hub K' are mounted loosely upon the capstan-spindle H, and are free to turn thereon at a different speed from the latter.

Upon the hub of the large gear-wheel L there is mounted, or preferably cast therewith, a pinion, L', keyed or otherwise secured to the capstan-spindle H.

The rim-wheel M is connected with its hub M' by means of slightly-tapering keys N inserted in perforations *m*, made correspondingly in the inner periphery of the rim-wheel and the outer periphery of its central portion or

hub. When the keys N are removed the central portion, M', is disconnected from its cogged rim, and will revolve with the capstan-spindle H when the latter is rotated by turning the capstan and its wild-cat by hand, while the engine and its train of gears remain stationary.

The crank-shaft C carries on its lower portion the eccentrics e, operating the slide-valves of the engines. It carries also, near its top, the pinion P, that transmits the rotating motion of the crank-shaft to the transmitting-gear K, running loosely around the capstan-spindle, as above stated, and motion is transmitted from the pinion K² on the hub of the gear K successively to the gear-wheel L, pinion L', and rim-wheel M, and through the hub M' of the latter to the capstan-spindle when the keys N are in position, the power of the engine being multiplied according to the relative size of the gear-wheels and the pinions gearing with them.

The engines can be made, as shown in the drawings, to be operated with slide-valves, and can have a reversing-valve attached, and other appliances commonly used in steam-engines.

Having thus fully described my invention, I claim—

1. A capstan and wild-cat carrying spindle, having its lower end supported upon a frame

carrying suspended therefrom steam-cylinders, for driving said spindle around through gearings, substantially as shown and described.

2. The combination of a capstan-spindle, a rim-wheel secured thereto, with a hub and keys, as described, and transmitting-gears mounted loosely upon said spindle, with gears mounted upon an independent shaft and meshing with the rim-wheel, and with the gear mounted loosely upon the capstan-spindle, substantially as and for the purposes described.

3. The combination of a spindle carrying a capstan and wild-cat, a hollow bed-piece provided with brackets A³ to carry a vertical crank-shaft, and brackets A², with steam-cylinders suspended therefrom, substantially as described.

4. The combination of a capstan-spindle, a hollow bed-piece, steam-cylinders secured thereto, and a vertical crank-shaft connected therewith, with an independent shaft in the axis of the crank-shaft, gear-wheels mounted loosely upon the capstan-spindle, and transmitting-gears, substantially as and for the purpose set forth.

HENRY J. JOHNSON.

Witnesses:

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