

No. 627,585.

Patented June 27, 1899.

J. P. MANTON.
STEAM STEERING APPARATUS.

(Application filed Feb. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.

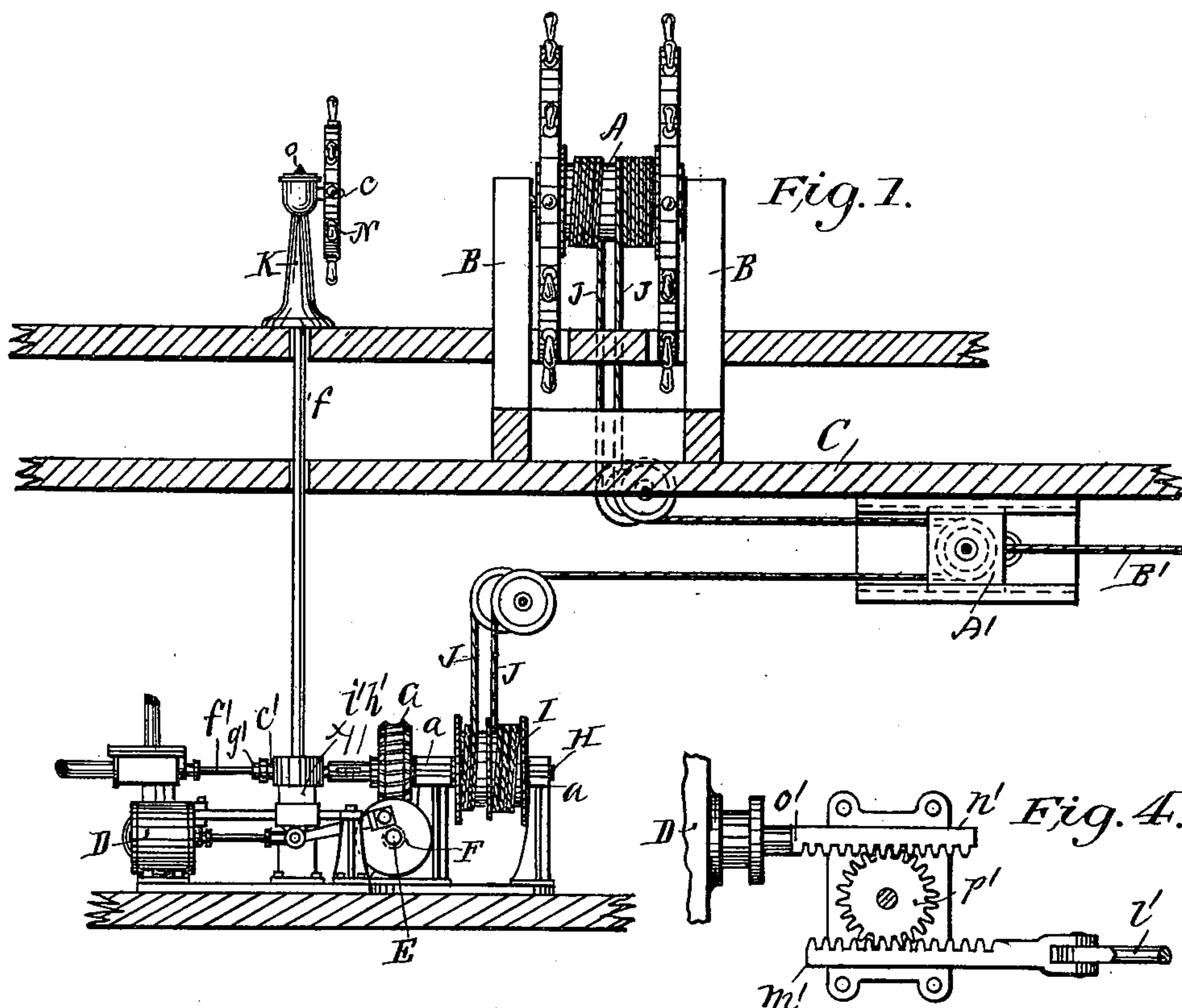


Fig. 2.

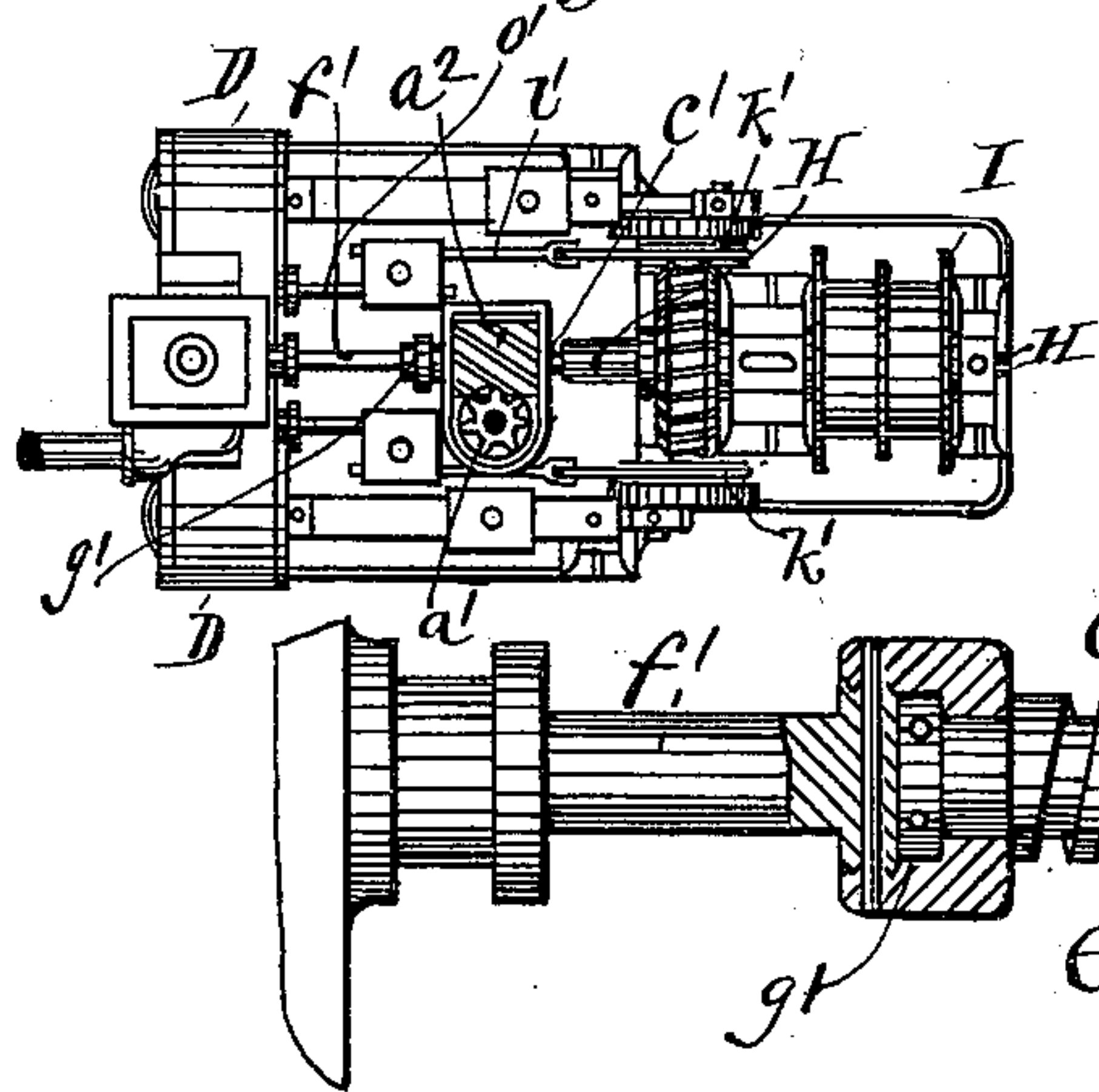
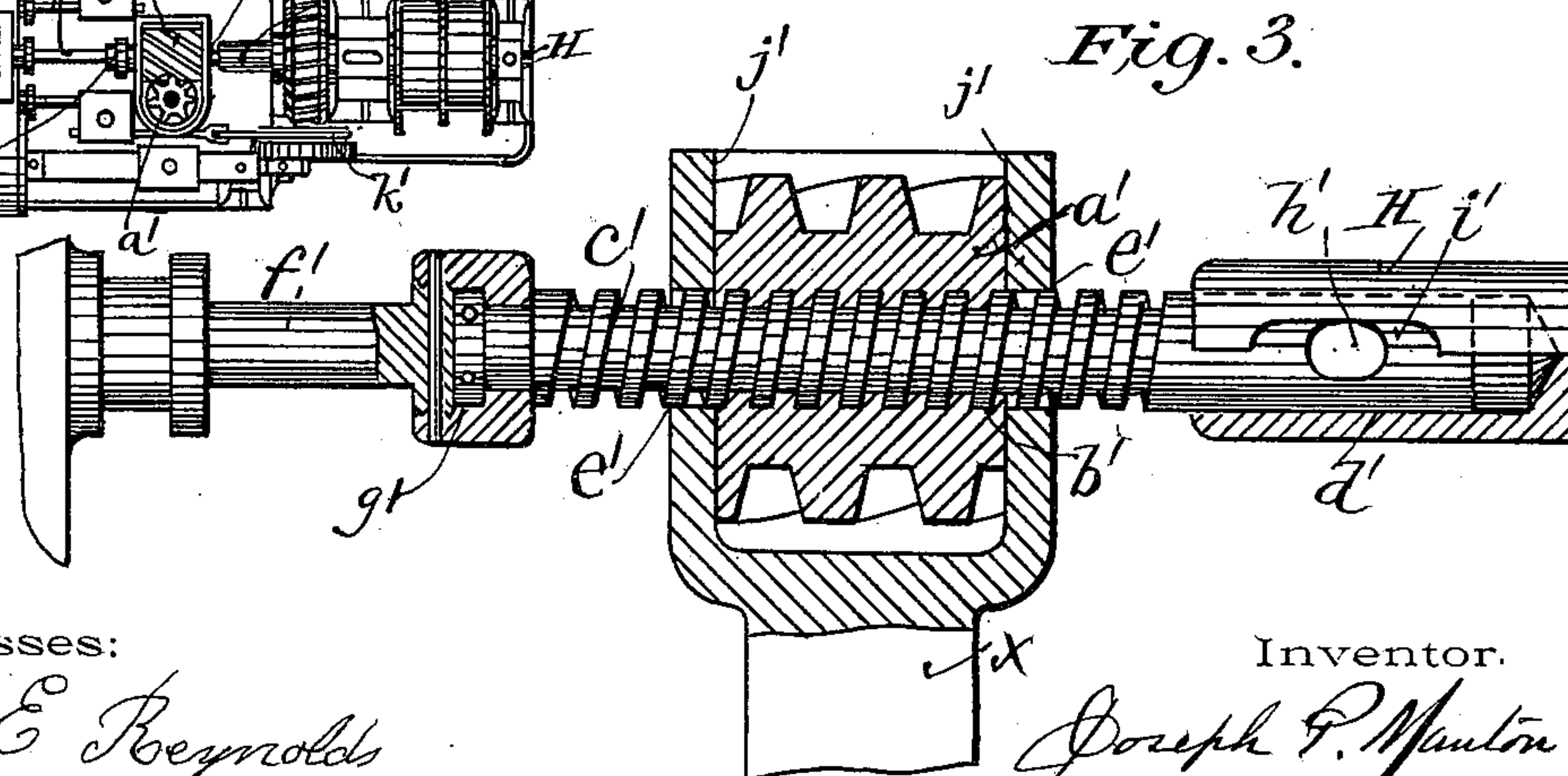


Fig. 3.



Witnesses:

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Francis B Reynolds

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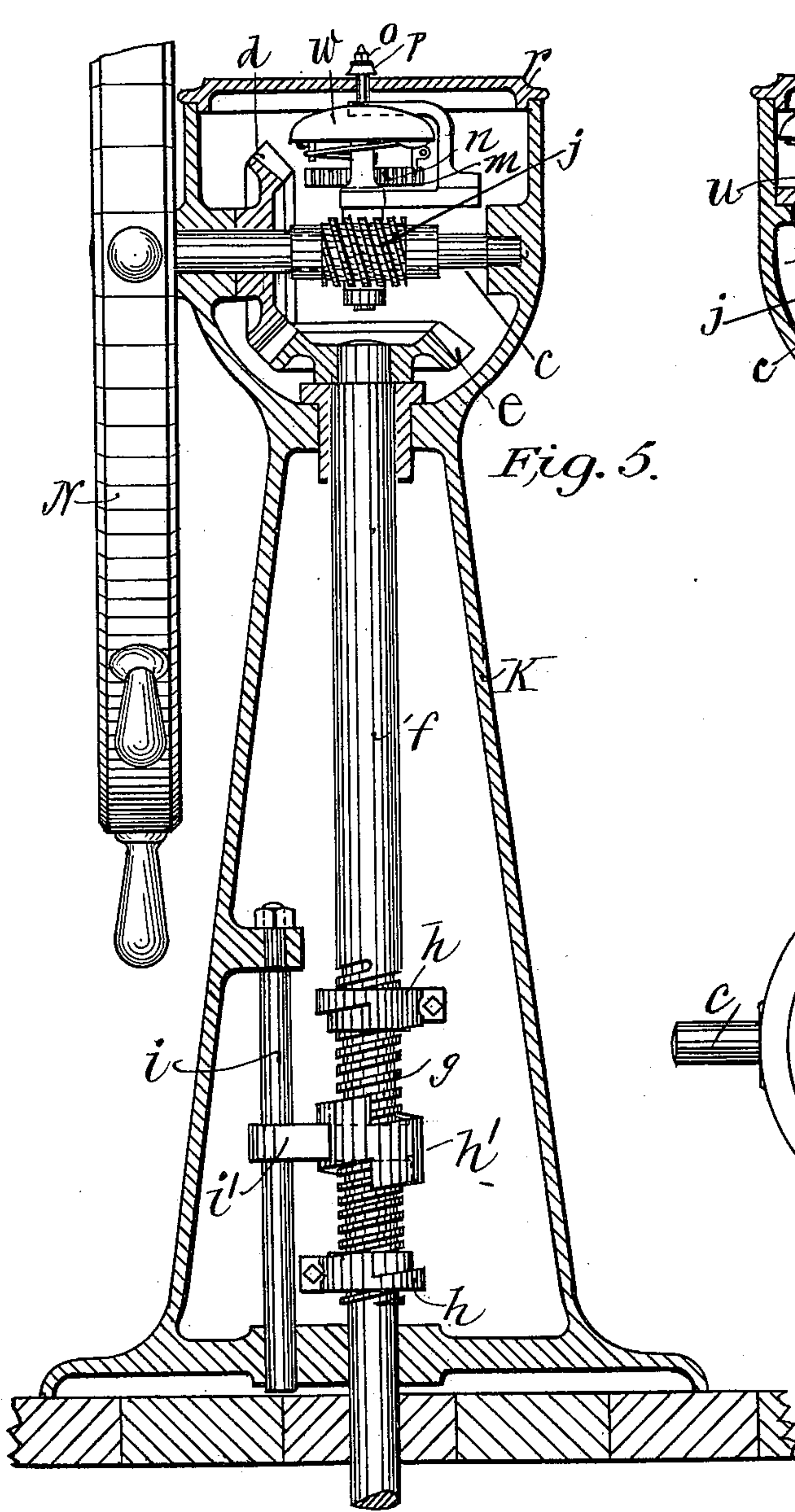


Fig. 5.

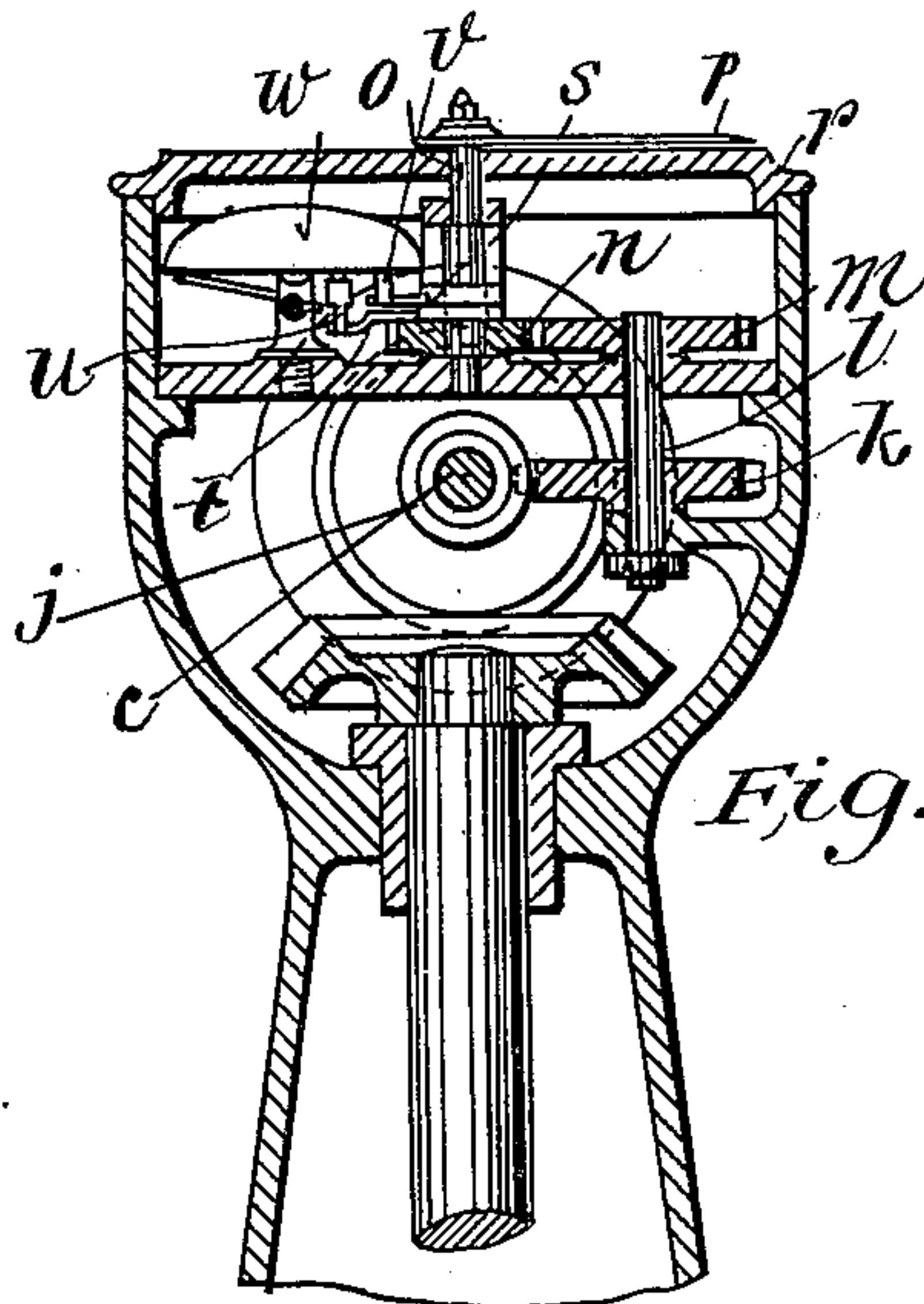


Fig. 6.

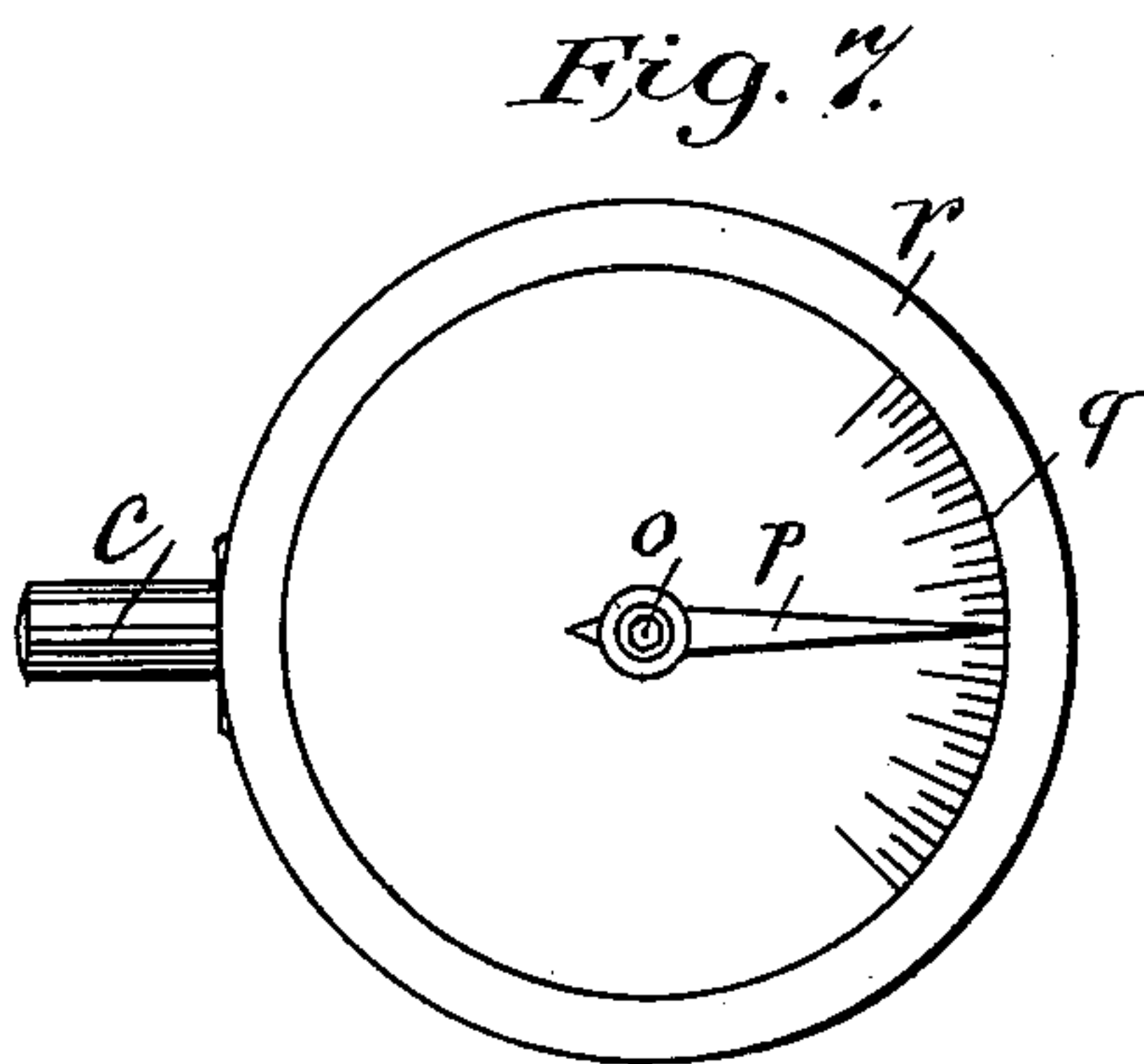


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOSEPH P. MANTON, OF PROVIDENCE, RHODE ISLAND.

STEAM STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 627,585, dated June 27, 1899.

Application filed February 8, 1897. Serial No. 622,570. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. MANTON, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Steam Steering Apparatus, of which the following is a specification.

My invention consists in the improved construction and arrangement of the mechanism for controlling the action of the reversing-valve of the engine and in the improved arrangement of stops to prevent damage to the rudder-head and in the combination of a bell with the dial which indicates the position of the rudder, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a sectional view showing the arrangement of these several parts of the apparatus. Fig. 2 represents a top view of the engine. Fig. 3 represents an enlarged detail sectional view of the screw and nut for changing the relative position of the reversing-valve. Fig. 4 represents an enlarged detail view of the connection between the eccentrics and the main valves of the engine-cylinders. Fig. 5 represents an enlarged vertical section of the standard which supports the "trick-wheel." Fig. 6 represents a detail section taken at right angles to that of Fig. 5. Fig. 7 represents a top view of the trick-wheel standard, showing the dial which indicates the position of the rudder.

In the drawings, A represents the hand-operated barrel or drum of the steerer, said barrel being mounted in suitable bearings at the top of the standards B B, which are secured to the deck C. The pair of engines D D are arranged to operate upon the shaft E, upon which is secured a worm F, (shown by dotted line in Fig. 1,) the said worm engaging with the teeth of the worm-gear G, secured upon the drum-shaft H, mounted in the bearings A A. The drum I is secured to the shaft H, and the ropes or chains J J pass from the drum I to the hand-operated barrel A, the said ropes or chains passing around the sheaves of the sliding pulley-blocks A', from which connection is made by chains or ropes B' to the rudder, as usual in steam steering apparatus. The trick-wheel N is attached to the shaft c, which is mounted in suitable bearings at the top of the hollow

standard K, and to the shaft c is secured the bevel-gear d, which engages with the corresponding bevel-gear e at the end of the upright shaft f, the said shaft being provided with a screw-thread g, upon which are placed the clamped screw-threaded stops h h, which in conjunction with the nut h' upon the shaft f will serve as a stop for the movement of the trick-wheel by hand when the proper limit of movement in either direction has been reached, the said nut h' being guided in its up-and-down movement by means of the fixed guide-rod i, which passes loosely through a perforation in the arm i' of the nut.

Upon the shaft c is placed the worm j, which engages with the worm-gear k, secured upon the upright shaft l, at the upper end of which is secured the spur-gear m, engaging with the pinion n upon the shaft o, to the upper end of which is secured the pointer p, which in conjunction with the graduations q upon the covering-plate r will serve to indicate the angular position of the rudder relatively to the axis of the ship, and upon the shaft o above the pinion n are secured the arms s and t, which by engagement with the pins u and v serve to ring the bell w to attract the attention of the helmsman when the extreme point of steering movement in either direction is being reached, and thus preventing damage to the rudder-head.

The shaft f extends downward to the standard x, attached to the engine-bed, and upon the said shaft is secured the spiral gear a', engaging with the spiral gear a², which is provided with a screw-thread b', fitting the thread of the screw c', which at its rearward end is held in the bore d' of the shaft H of the drum I and is held in the bearings e' e' of the standard x, and to the forward end of the screw c' is secured the valve-rod f' by means of the swivel-joint g', whereby the screw c' will be allowed to revolve without imparting rotary movement to the valve-rod f'. The screw c' is secured to the shaft H for rotation therewith and for endwise movement by means of the pin h' in the side of the screw and the slot i' in the side of the shaft H. The spiral-gear nut a², which serves to transmit the opening movement to the steam-valve of the engine D, is prevented from endwise movement by means of the bearing sides j' j'

of the standard x . Upon the movement of the trick-wheel in either direction the steam-port will be opened and the valve be immediately brought back to its closed position 5 by the resulting movement of the drum-shaft H. The preferable form of connection between the eccentric k' and the main valve of the steam-cylinder D is shown in Fig. 4, in which the eccentric-rod l' is jointed to the 10 sliding rack m' , and connection is made with the rack n' upon the valve-rod o' by means of the intermediate gear p' .

I claim as my invention—

1. In a steam steering apparatus, the combination of the drum I, and shaft H, with the 15 screw c' , having a sliding connection with the shaft H, the valve-rod f , connected with the screw, the spiral-gear nut a^2 , held against

endwise movement upon the screw, and the spiral gear a^2 , for operating the spiral-gear 20 nut to cause the movement of the valve-rod, substantially as described.

2. In a steam steering apparatus, the combination of the "trick-wheel" N, and bevel-gears d and e , with the upright shaft f pro- 25 vided with the screw-thread g , the nut h' provided with the perforated arm i' , the fixed guide-rod i for the perforated arm of the nut, and the clamped screw-threaded stops h , h , arranged upon the screw-thread of the shaft 30 f at opposite sides of the nut, substantially as described.

JOSEPH P. MANTON.

Witnesses:

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