

No. 657,058.

Patented Aug. 28, 1900.

C. H. BLOMSTROM.
MECHANISM FOR PROPELLING BOATS.

(Application filed Mar. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.

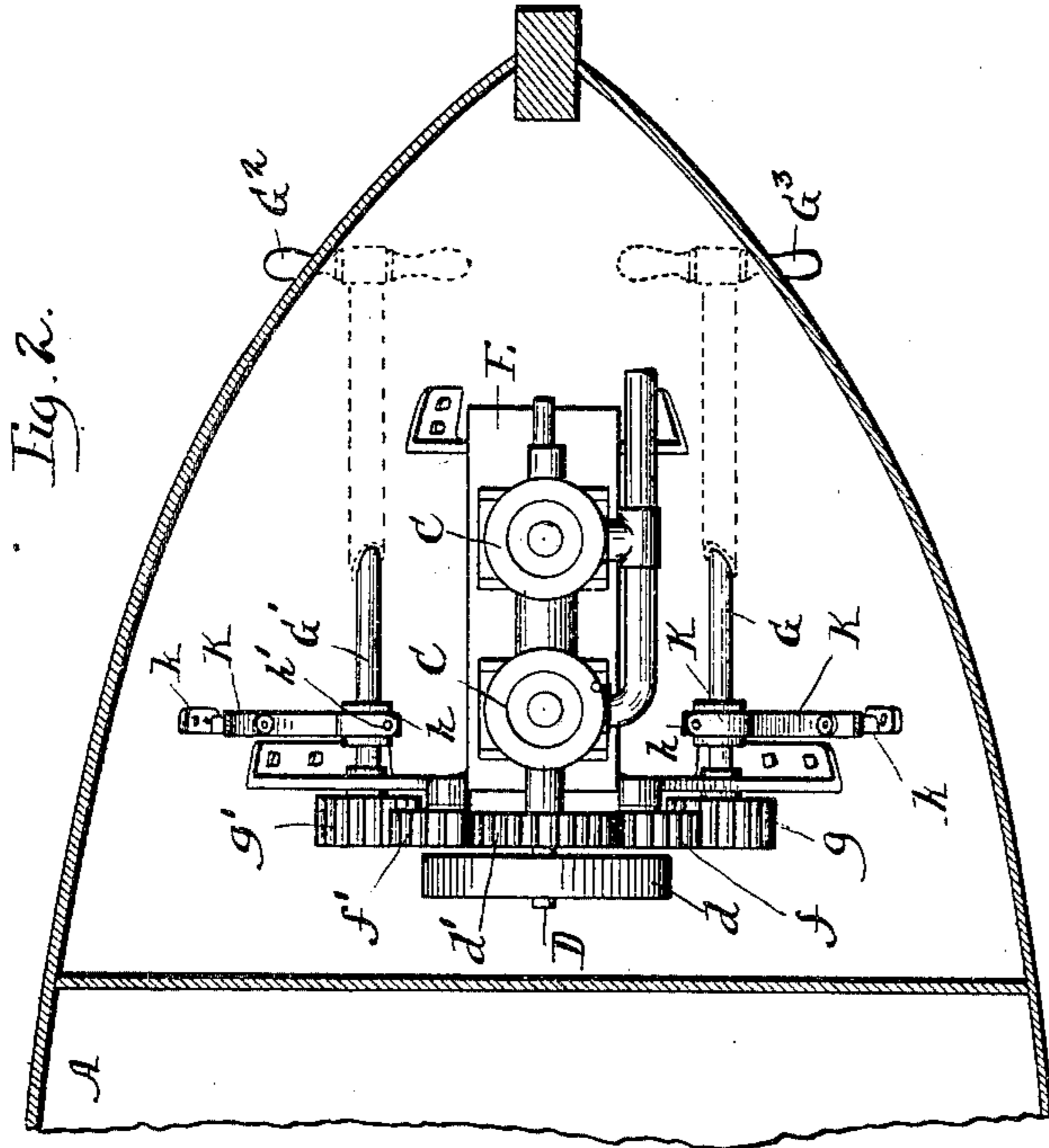


Fig. 3.

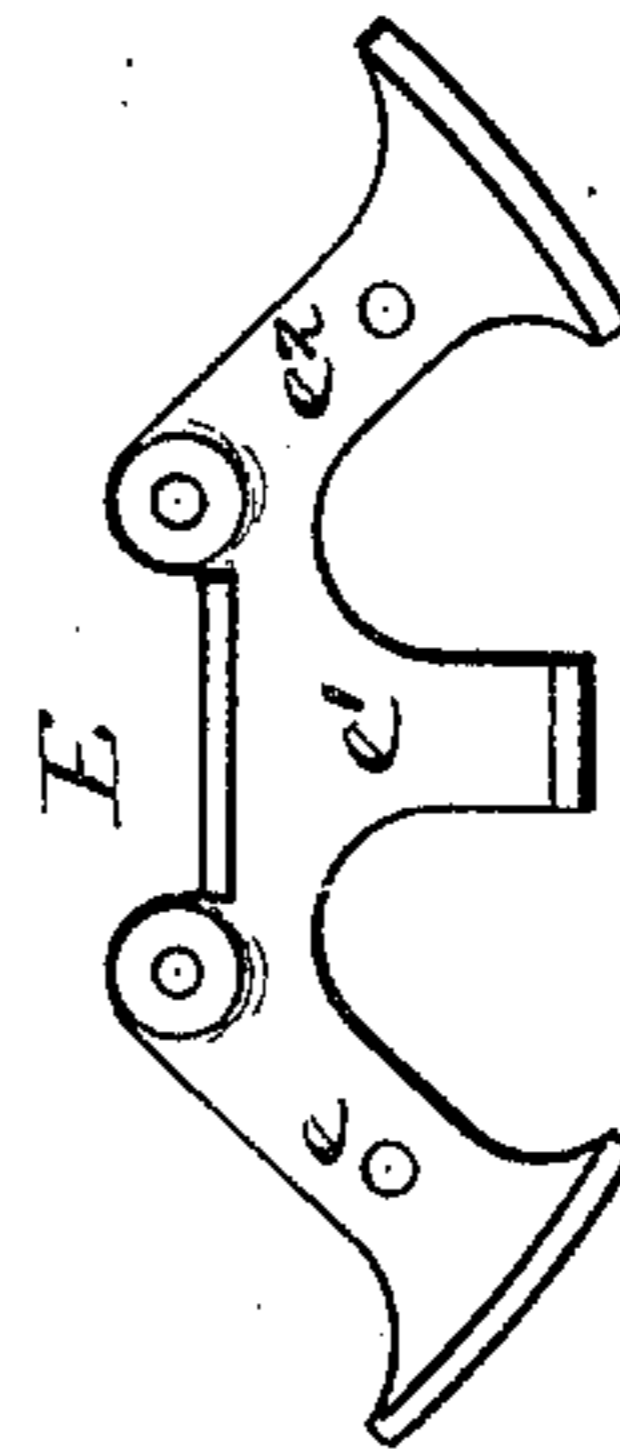
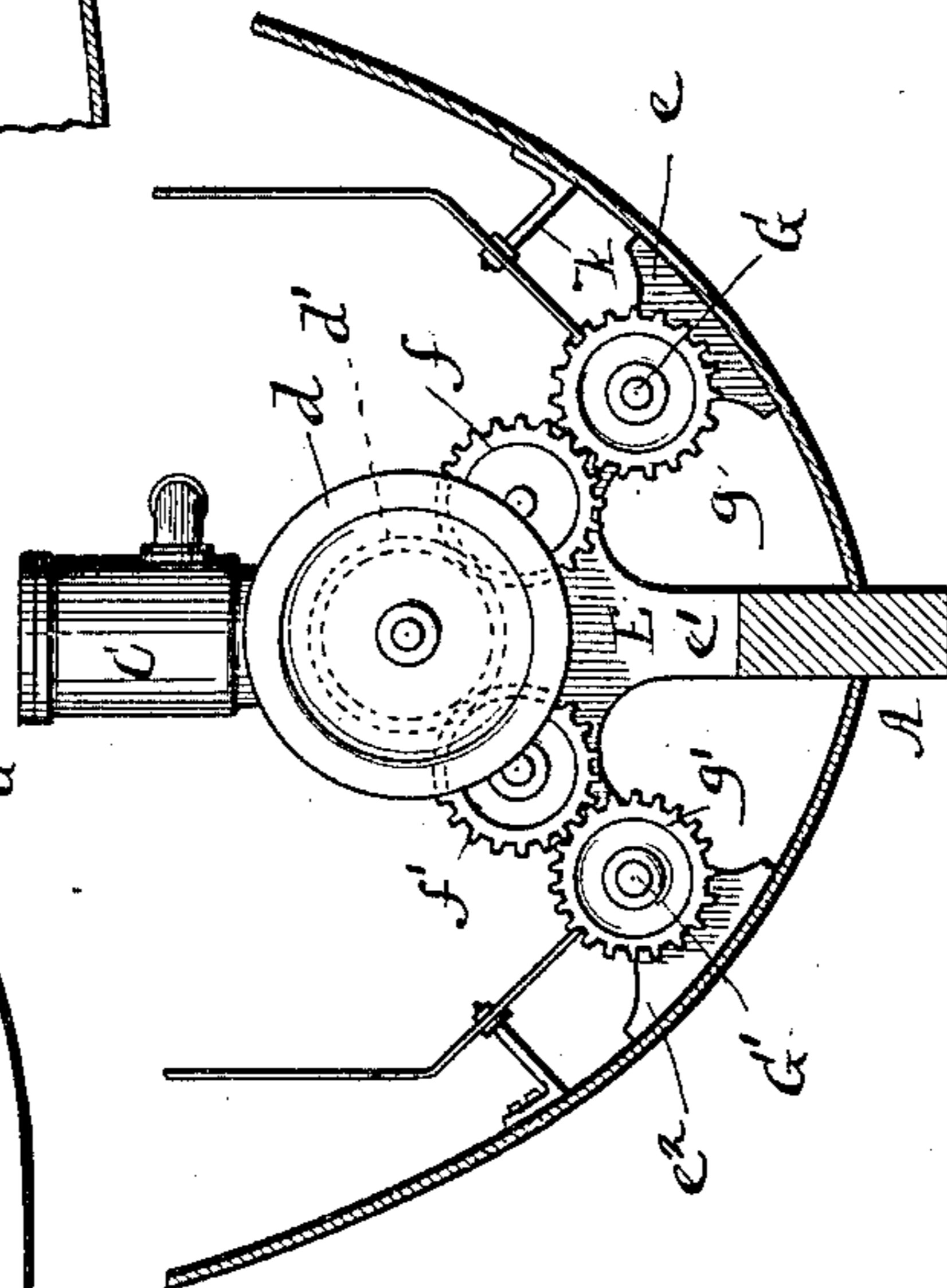
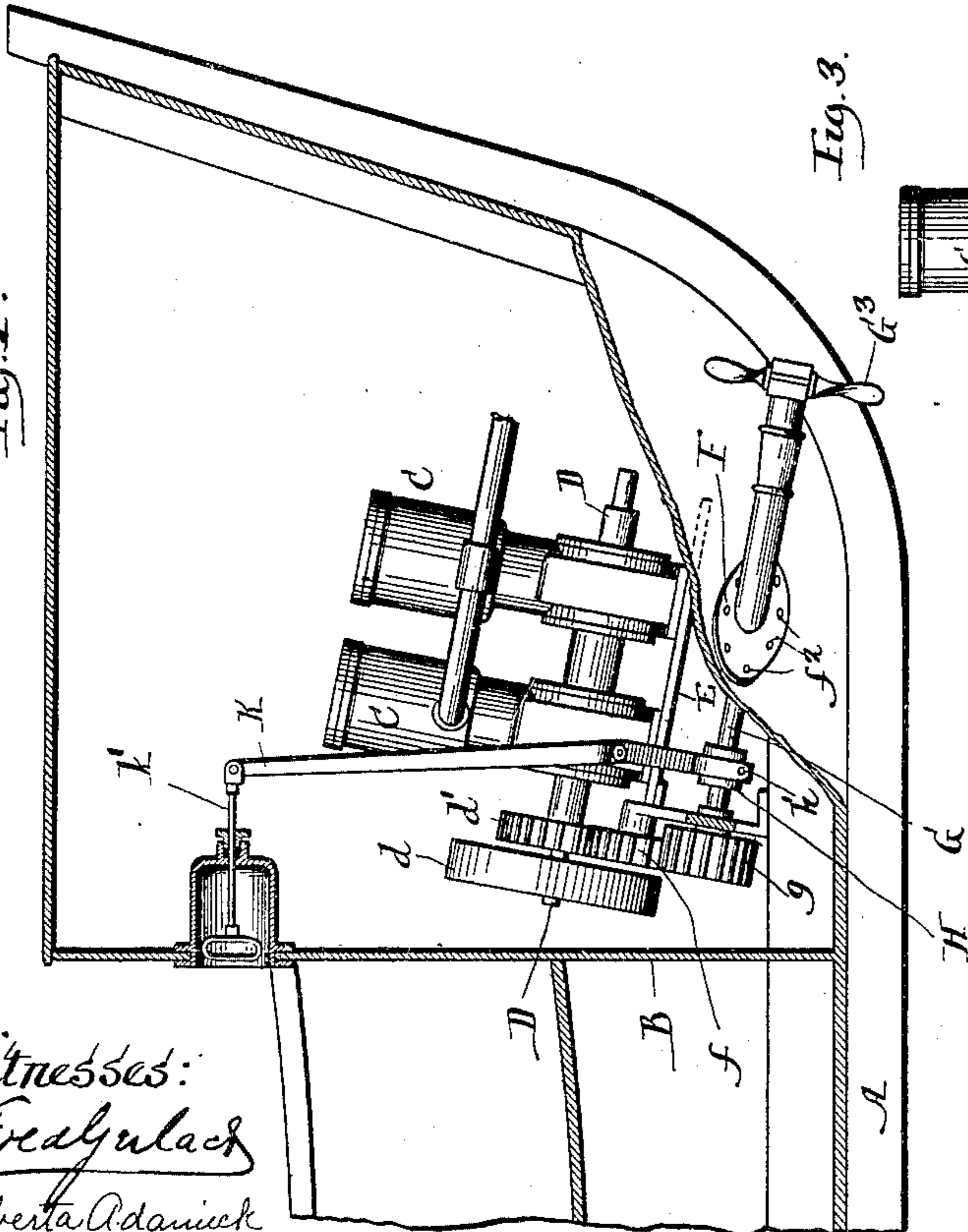


Fig. 1.



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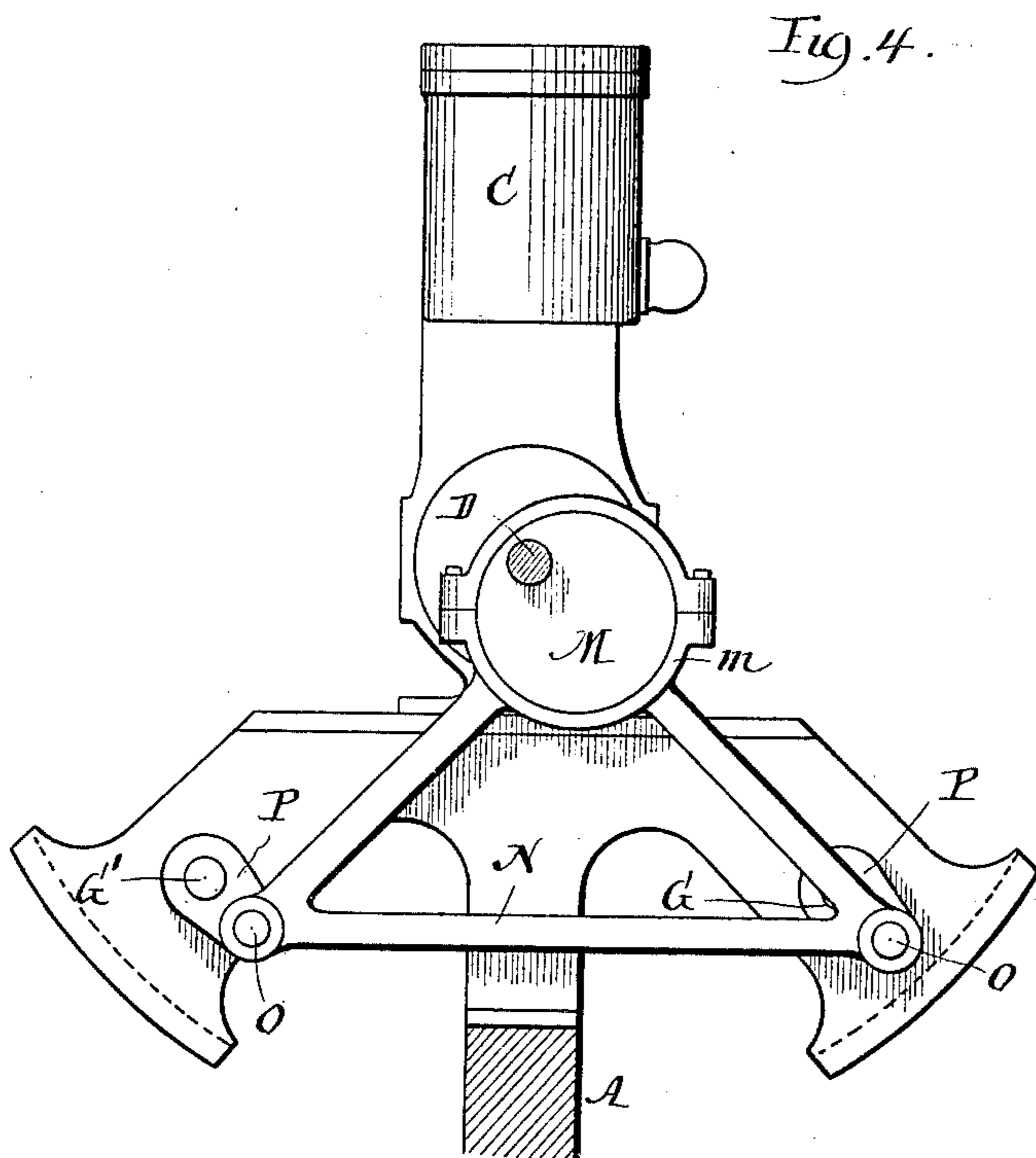
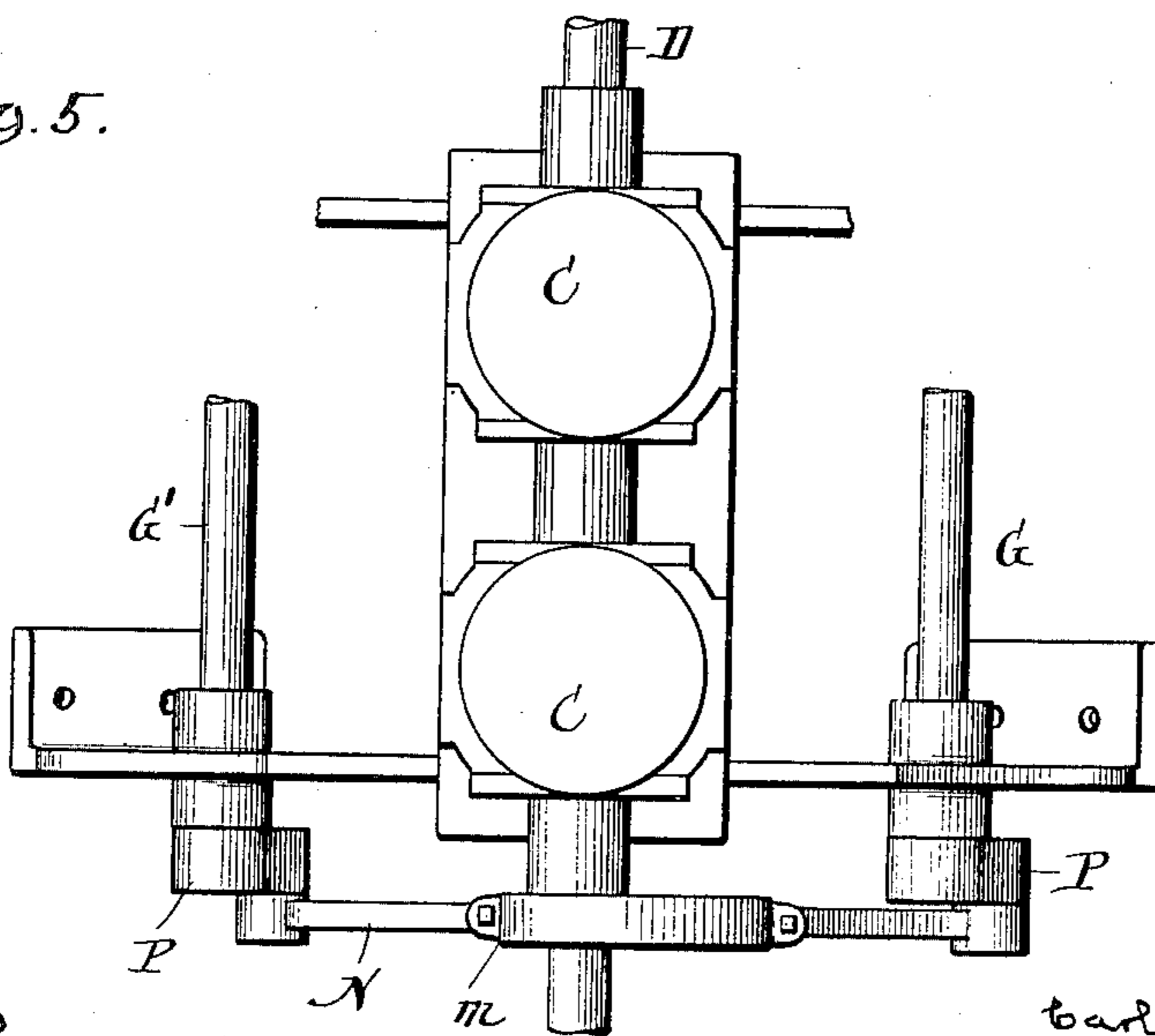


Fig. 5.



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UNITED STATES PATENT OFFICE.

CARL H. BLOMSTROM, OF MARQUETTE, MICHIGAN, ASSIGNOR TO THE LAKE SHORE ENGINE WORKS, OF SAME PLACE.

MECHANISM FOR PROPELLING BOATS.

SPECIFICATION forming part of Letters Patent No. 657,058, dated August 28, 1900.

Application filed March 28, 1900. Serial No. 10,449. (No model.)

To all whom it may concern:

Be it known that I, CARL H. BLOMSTROM, a resident of the city and county of Marquette, State of Michigan, have invented certain new and useful Improvements in Mechanism for Propelling Boats, of which the following is a full, clear, and exact description.

This invention has for its object to provide improved mechanism for propelling boats; and with this object in view my improved propelling mechanism comprises propeller-wheels located at opposite sides of the stern of the boat, these wheels being operated by propeller-shafts that extend at each side of the engine within the boat.

The invention is shown as applied to an open boat, such as a life-boat, a surf-boat, or the like; but it will be understood, of course, that the invention is applicable to boats of various kinds and sizes.

The invention consists in the novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view, partly in side elevation and partly in vertical longitudinal section, of the stern of a boat embodying my invention. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a view in vertical cross-section through the hull of the boat behind the rear bulkhead. Fig. 3^a is a view in elevation of the bed-plate or engine-frame. Fig. 4 is a detail front view showing modified mechanism for driving the twin propeller-shafts. Fig. 5 is a plan view of the modified mechanism shown in Fig. 4.

A designates the hull of the boat, that may be of any usual or suitable construction, the stern portion of the boat only being shown. Within the stern and at the rear of the bulkhead B is mounted an explosive-engine. As shown, this engine is a gasolene-engine having twin cylinders C, and beneath the cylinders of the engine extends the crank-shaft D. The engine is mounted upon a bed plate or frame E, this frame being shown as formed with legs or extensions *e*, *e'*, and *e''*, that rest upon the keel of the boat and upon the walls of the hull adjacent the keel. The outer end of the crank-shaft D is shown as provided

with a fly-wheel *d*, and upon the crank-shaft, adjacent this fly-wheel, is keyed the gear-wheel *d'*. The gear-wheel *d'* meshes with pinions *f* and *f'*, that are supported by journal-pins projecting from the frame E, and these pinions *f* and *f'* mesh, respectively, with the gear-wheels *g* and *g'*, that are keyed to the inner ends of the propeller-shafts G and G' at opposite sides of the longitudinal center of the boat and at opposite sides of the engine. The propeller-shafts G and G' have their forward ends journaled in suitable bearings in the frame E, while their rear portions extend through outboard-bearings F, the expanded inner ends of which are bolted, as at *f''*, to the hull of the boat, and the propeller-shafts carry at their rear ends the propeller-wheels G² and G³, by which the movement of the boat will be controlled.

The construction and mode of operation of each of the propeller-wheels, and as well also the construction of its bearing-sleeve, are fully set forth in an application for Letters Patent, filed in the United States Patent Office on the 27th day of January, A. D. 1900, Serial No. 2,933, and need not be more particularly described here. It may be stated, however, that the propeller-wheels belong to that class of wheels having revoluble blades, the movement of which blades varies the angles at which they shall cut the water in the revolution of the wheel, this movement of the blades being controlled by the longitudinal movement of the propeller-shaft.

By reference to Figs. 1 and 2 of the drawings it will be seen that the gear-wheels *g* and *g'* have their faces considerably broader than the faces of the pinions *f* and *f'*, the purpose of this construction being to enable these gears and pinions to remain in mesh notwithstanding the longitudinal movements of the propeller-shafts necessary to vary the angle of the propeller-blades. Upon each of the propeller-shafts G and G' is fixed a collar H, that is encircled by a band or ring *h*, the trunnion-pins *h'* of which are engaged by the fork-shaped lower ends of the operating-levers K, these levers being shown as pivoted to brackets *k*, projecting from the side walls of the boat. The upper end of each of the levers K is provided with a handle *k'*, by

which the lever can be manipulated in order to shift the corresponding propeller-shaft in forward or backward direction, and thereby vary the angle of the blades of the propeller-wheel that is carried by said shaft.

From the foregoing description it will be seen that when revolution is imparted to the drive-shaft D of the explosive-engine corresponding revolution will be imparted from the drive-shaft, through the medium of the pinions f and f' and gear-wheels g and g' , to the propeller-shafts G and G' at opposite sides of the engine. If it be assumed that the operating-levers K are in the same position, then the propeller-wheels G^2 and G^3 will have their blades so set as to cut the water at a like angle, and the boat will be propelled in straightforward direction if the position of the operating-levers K be set for this action. If, however, it is desired to reverse the motion of the boat, then the operator by shifting the levers K can reverse the angle of the blades of the propeller-wheel, and thus effect the backward movement of the boat. If it be desired to turn the boat to the right or to the left, the operator can manipulate the operating-levers K so that the blades of the propeller-wheels G^2 and G^3 will cut the water at different angles, thereby causing the boat to turn to one side or the other or to turn completely around, if desired. I have found in practice that by locating the propeller-shafts on opposite sides of the engine, these shafts being geared to the forward end of the engine crank-shaft, a very compact and effective arrangement is secured and one particularly well adapted for small boats in which explosive-engines are employed, and by providing the propeller-shafts with propeller-wheels the blades of which are variable to change the direction of travel of the boat the steering of the boat can be readily effected by means of the propeller-wheels.

In Figs. 4 and 5 of the drawings I have illustrated modified means for transmitting motion from the crank-shaft to the propeller-shafts located at opposite sides thereof. In this form of the invention the crank-shaft has keyed thereto an eccentric M, that is en-

circled by a yoke m , connected with a triangular frame N. At opposite sides of the base of this triangular frame N are formed holes to receive the wrist-pins O, that project from the cranks P, attached to the forward ends of the propeller-shafts G and G'. From the foregoing description it will be seen that as the crank-shaft D is revolved revolution will be imparted to the propeller-shafts G and G' through the medium of the eccentric, the triangular frame, and the cranks at the forward ends of the propeller-shafts.

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

1. The combination with a boat and with an engine therefor located in the stern and having a crank-shaft, of two propeller-shafts parallel to said crank-shaft, located upon opposite sides of said engine, and extending through the stern of the boat, said propeller-shafts having propeller-wheels at their outer ends and having their inner ends operatively connected with the forward end of said engine crank-shaft.

2. The combination with an engine having a crank-shaft, of two propeller-shafts located on opposite sides of said engine, said propeller-shafts having their inner ends suitably connected to the crank-shaft and provided at their rear ends with propeller-wheels having revoluble blades and suitable means whereby the angles of the propeller-blades may be independently shifted to vary the direction of travel of the boat.

3. The combination with an engine having a crank-shaft provided with a gear-wheel, of two propeller-shafts located upon opposite sides of said engine, means whereby said propeller-shafts may be shifted in longitudinal direction, propeller-wheels at the outer ends of said propeller-shafts and provided with revoluble blades, and gear-wheels at the inner ends of said propeller-shafts suitably connected with the gear-wheel of the crank-shaft.

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