

No. 736,951.

PATENTED AUG. 25, 1903.

H. H. FOWLER.  
MARINE PROPULSION.  
APPLICATION FILED FEB. 20, 1900.

NO MODEL.

Fig. 1.

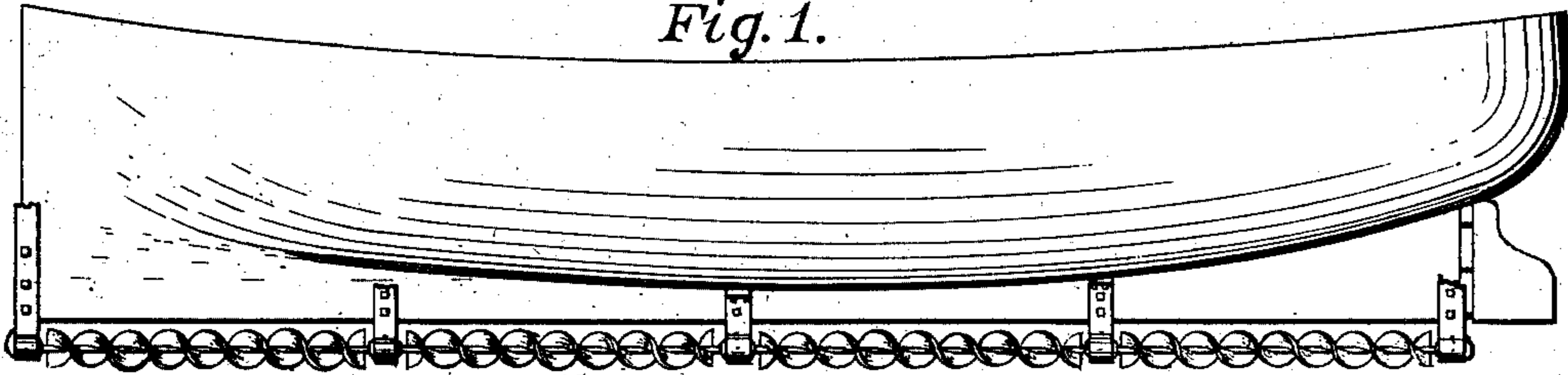


Fig. 2.

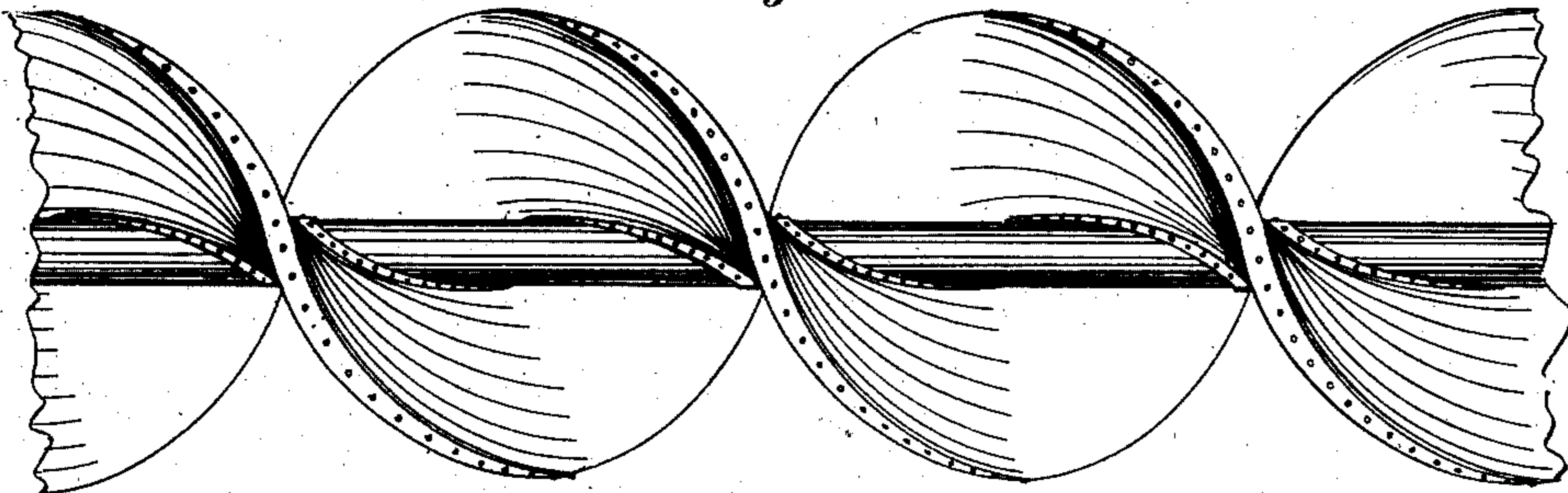


Fig. 3.

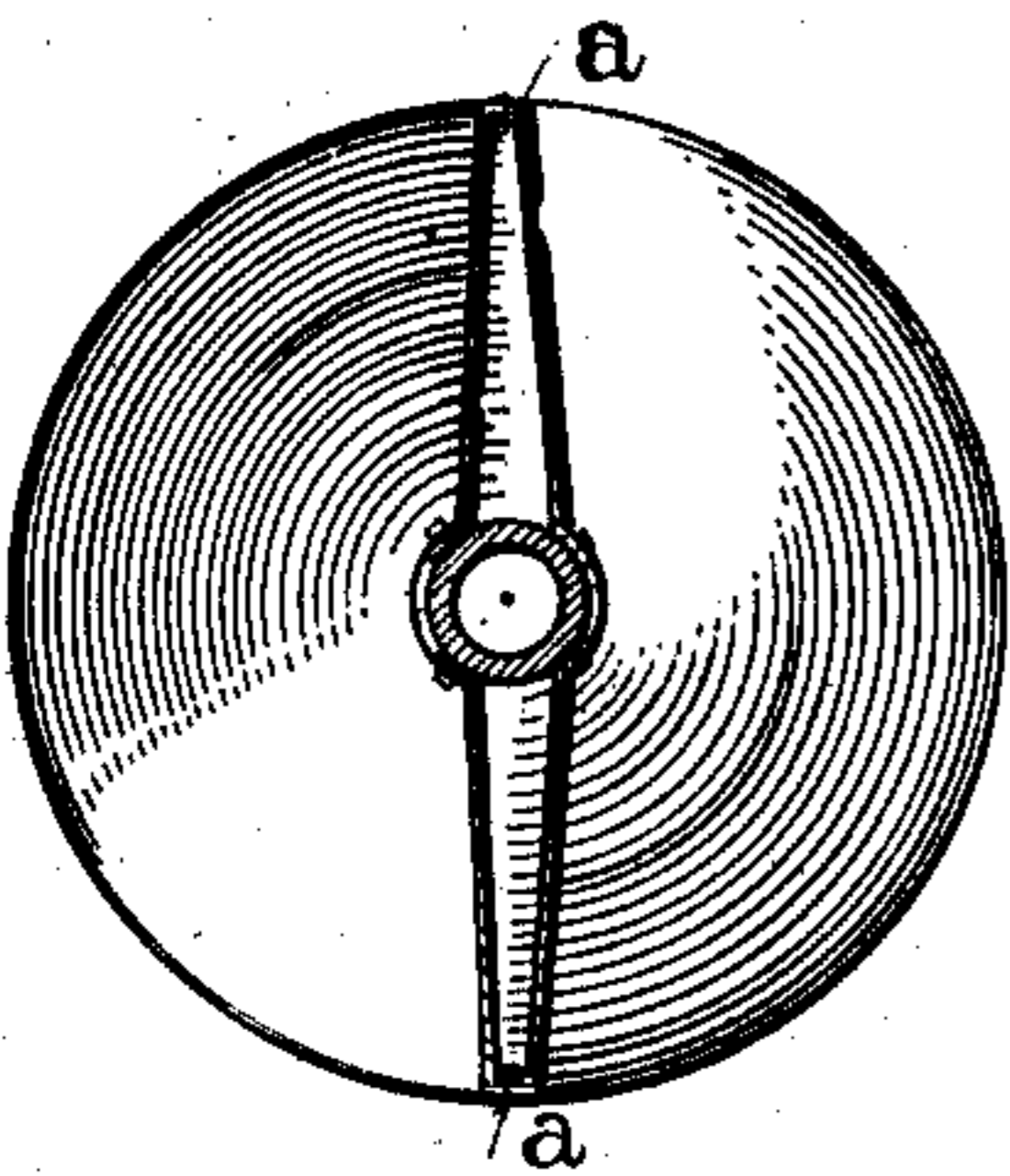


Fig. 4.

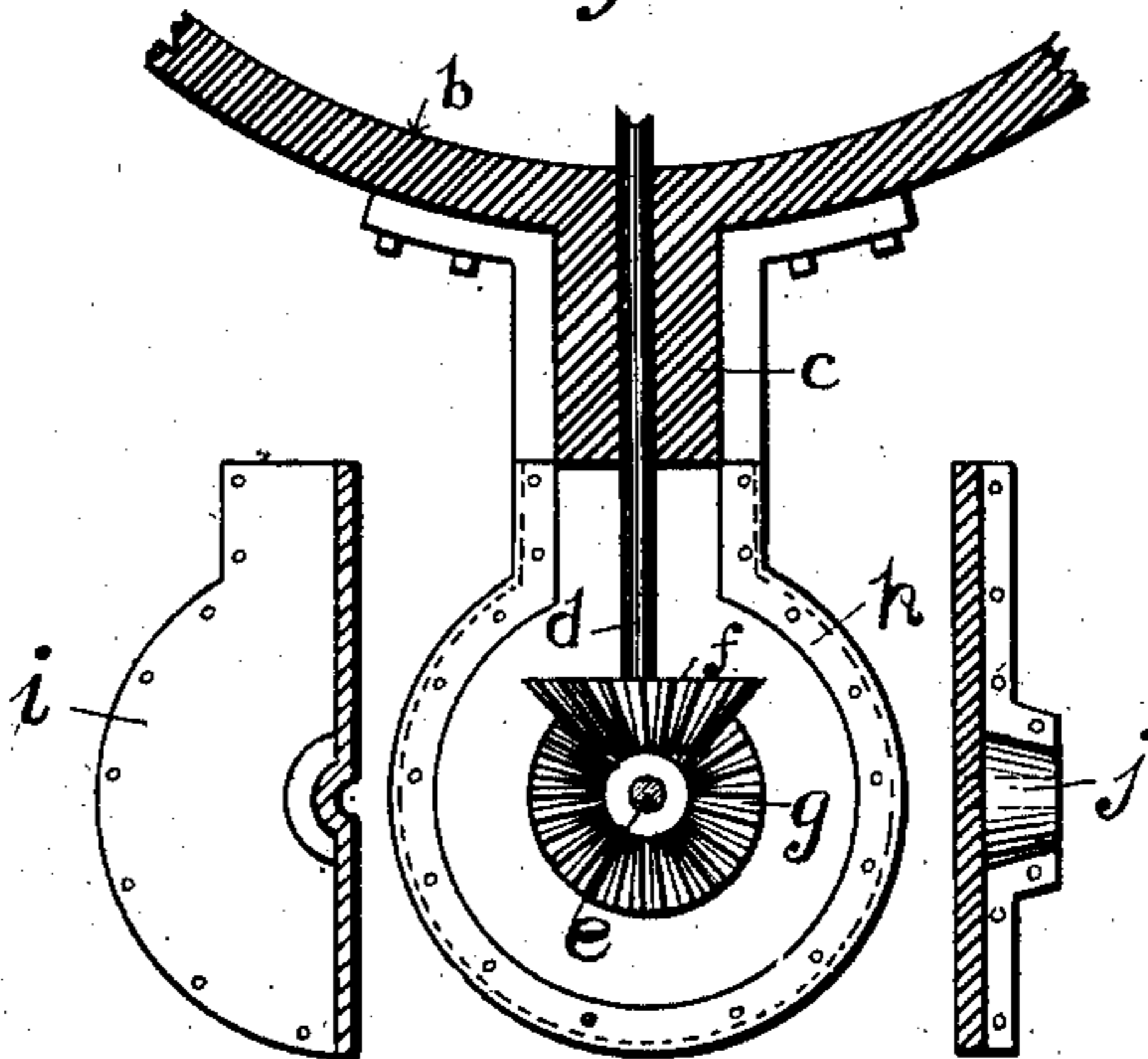


Fig. 7.

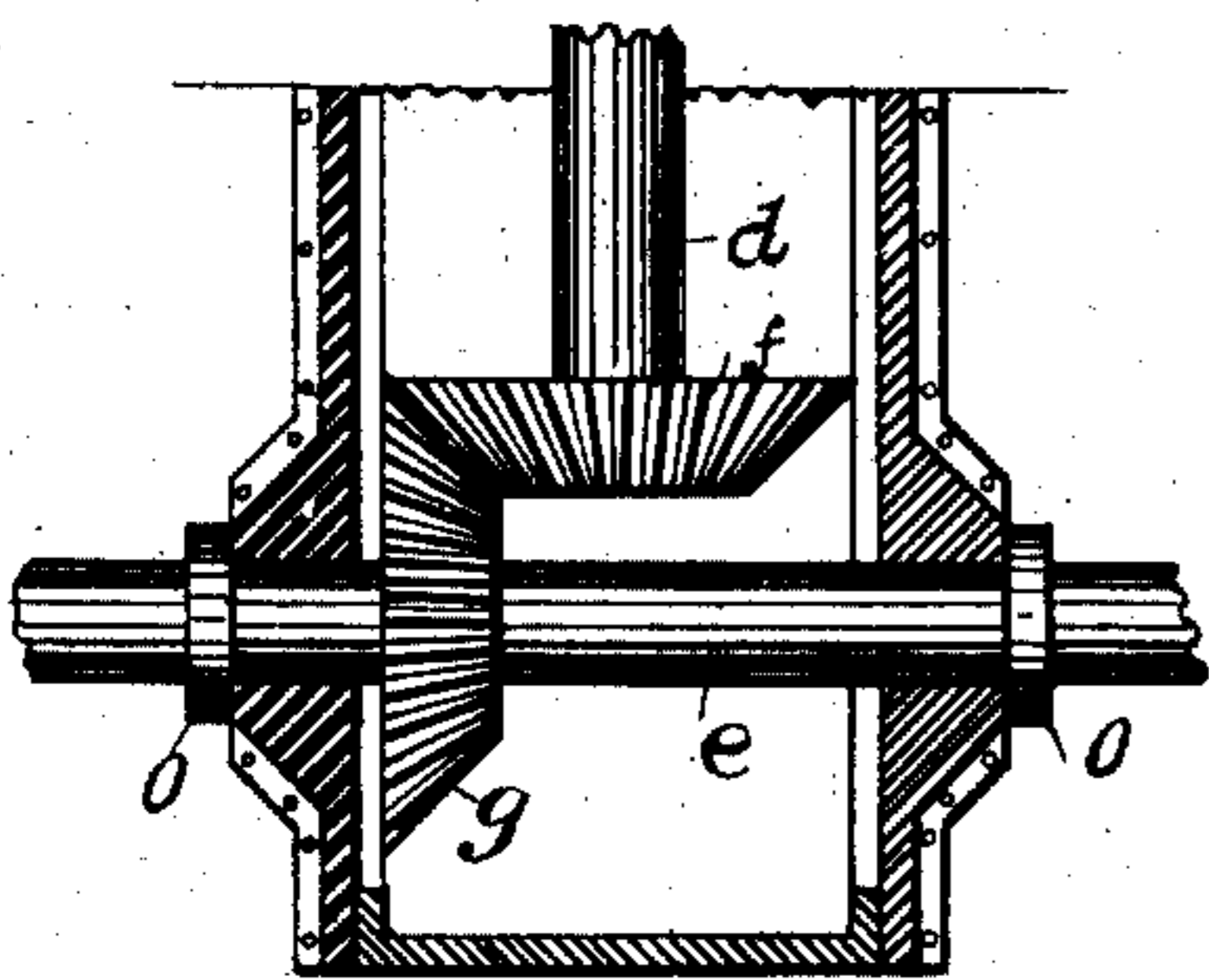


Fig. 6.

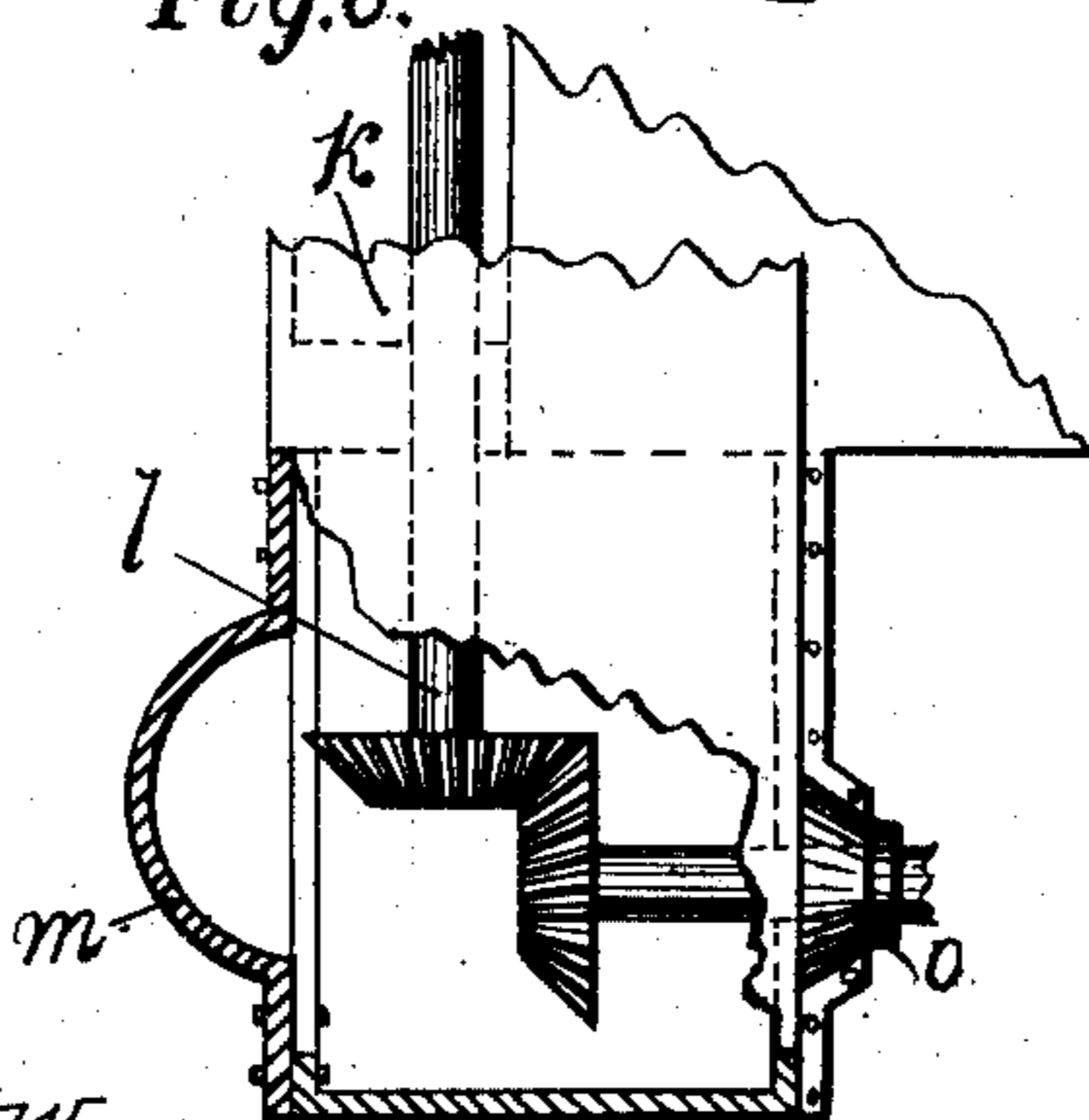
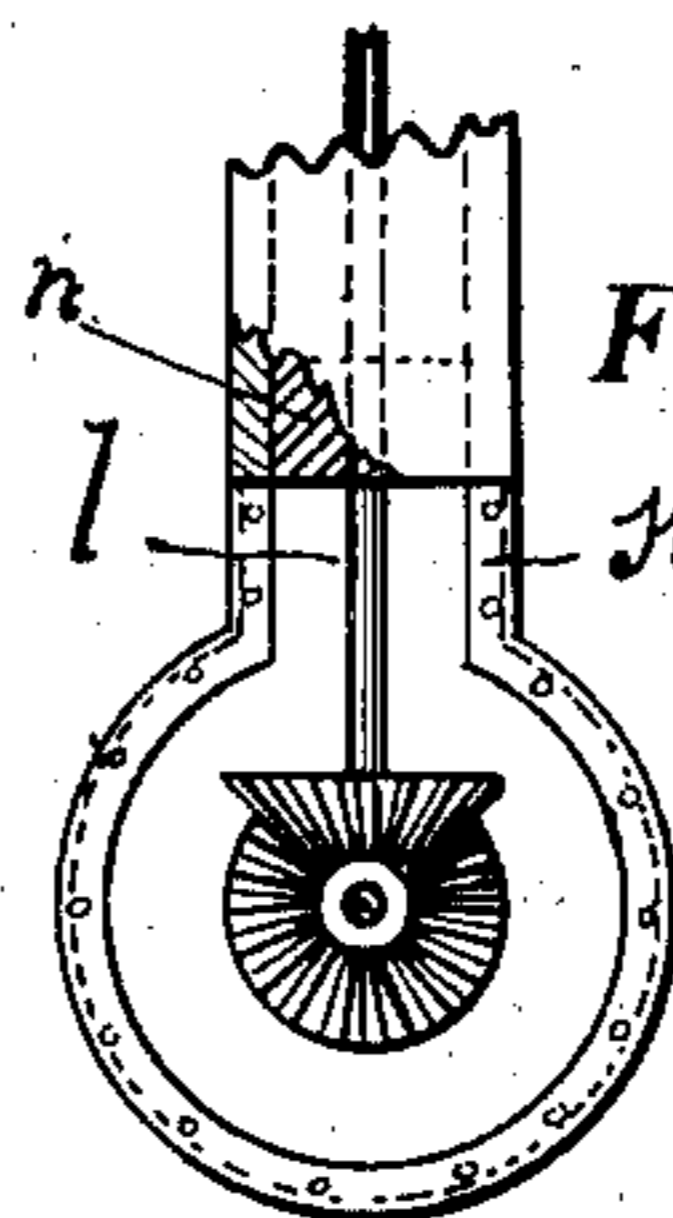


Fig. 5.



Witnesses

Charles Miles Snow  
Charles Eugene Frisbie

Inventor

Herman Hansen Fowler

# UNITED STATES PATENT OFFICE.

HERMAN HANSEN FOWLER, OF OAKLAND, CALIFORNIA.

## MARINE PROPULSION.

SPECIFICATION forming part of Letters Patent No. 736,951, dated August 25, 1903.

Application filed February 20, 1900. Serial No. 5,985. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN HANSEN FOWLER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new Propeller for Ships and Boats, of which the following is a specification.

My invention is calculated, first, to increase the power and speed of ships and boats beyond that yet attained by the present means of propulsion; second, to avoid the loss of energy in starting and stopping or riding over high seas in which other wheels and screws would be part of the time out of water, and, third, that the strain incident to the working of vessels by machinery may be more evenly distributed throughout such craft. As illustrated in the accompanying drawings, I attain these objects by a spiral propeller the full length of the ship or boat and directly under the keel, hung at the ends and at as many points between as may be necessary by combination hangers and shields, within which the propeller-shaft is operated by mitered gears and vertical shafts connecting with the power aboard. Owing to the great length of the propeller it will be readily seen that its purchasing power will be enormous as compared with the screw-propellers now in general use, its continuous blades, the depth under water in ordinary circumstances, and the fact that under all conditions in which the ship can be placed at sea short of being bottom up some part of the propeller will be in the water minimizing the loss of energy above referred to, the opportunity for putting engines or other machinery for communicating power in different places throughout the length of the ship thus lessening the shattering strain of the mechanical force upon the ship's structure.

Figure 1 is an elevation of the device, showing its position relative to the ship and approximately proportionate diameter and the divisions in the blades for the accommodation of the combination hangers and shields. Fig. 2 is an enlarged detail in elevation of the propeller, more clearly showing the shaft and blades; and Fig. 3 is an end section of the same. Fig. 4 is a sectional view of one of the

intermedial or interjacent hangers with its combination parts; and Figs. 5 and 6 are a cross and longitudinal section, respectively, of one of the end hangers, while Fig. 7 is an enlarged longitudinal section of one of the intermedial or interjacent hangers.

As seen in Figs. 2 and 3, both shaft and blades are hollow and bolted or riveted together for lightness and strength, a blade being formed by two sheets of metal also bolted or riveted together at *a a* through flanges overlapping each other and running slightly off the parallel toward the shaft to make the blade thicker at that point than at the edge, thus stiffening it and being flanged on both sides for fastening to the shaft.

Fig. 4 is a sectional view of the bottom *b* and the keel *c* of the ship looking from stem or stern, showing the shafts *d* and *e* and gearing *f* and *g* inclosed in the combination hanger and shield *h*, which is securely bolted to the bottom and keel of the ship, *i* and *j* being the different views of the halved fore-and-aft plates, which when bolted together from each side of the propeller-shaft *e* and then to the hanger *h*, with gaskets or calking, where necessary, form the bearings for the propeller and at the same time afford protection for the gearing from the water. Oil-holes in the bearings may be connected with the hold by copper pipes attached to the sides of the plates. Figs. 5 and 6 show a change or two in this combination to suit the ends of the ship. In the first place the sides of the hanger *k* run straight up each side of the keel and stem or stern post to any height that may be desired for operating the vertical shaft *l* either from below or above the waterline, which sides may (above the lowest line of the keel) be connected forward or aft of the vertical shaft *l*, as the case may require, so as to completely box in that part of the vertical shaft. Then as only one bearing is needed for the end of the propeller-shaft the opposite end of the hanger up to the keel-line may be closed by the whole plate *m*, shaped to cover the gearing as closely as possible or with reference to cutting the water and bolted to the hanger. The section marked *n* is a solid bearing for the vertical shaft,

which may be oiled from aboard ship through copper pipes.

o is a collar on the propeller-shaft, serving as a thrust-ring.

5 Fig. 7 is an enlarged section of the combination hanger and shield with double bearings looking at it directly across the ship below the keel-line and sufficiently explains itself.

10 Specifically and distinctly what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. A spiral propeller for ships and boats, with hollow shaft to which are attached hollow blades formed by sheets of metal, which, at the shaft, are flanged outward, for fastening thereto, and, at the blade's edge, inward, for fastening together; suspended from the bottom and keel of the vessel, directly under and extending the full length of the keel, provided at the bearings with collars, to serve as thrust-rings, and mitered gears, by which to operate the propeller: substantially as described.

25 2. A spiral propeller for ships and boats, with hollow shaft to which are attached hollow blades formed by sheets of metal, which, at the shaft, are flanged outward, for fastening thereto, and, at the blade's edge, inward, for fastening together; suspended from the bottom and keel of the vessel, directly under and extending the full length of the keel, provided at the bearings with collars, to serve as thrust-rings, and mitered gears, by which to operate the propeller; having divisions in the blades for the accommodation of intermedial or interjacent hangers, when the length of the vessel makes more than two hangers necessary: substantially as described.

40 3. A spiral propeller for ships and boats, with hollow shaft to which are attached hollow blades formed by sheets of metal, which, at the shaft, are flanged outward, for fastening thereto, and, at the blade's edge, inward, for fastening together; suspended from the bottom and keel of the vessel, directly under and extending the full length of the keel, provided at the bearings with collars, to serve as thrust-rings, and mitered gears, by which to operate the propeller; having divisions in the blades for the accommodation of intermedial or interjacent hangers, when the length of the vessel makes more than two hangers necessary; operated, at the ends of the vessel, and at intermedial or interjacent points, by mitered gears meshing with the corresponding gears on the propeller-shaft and connected with the power aboard by vertical shafts: substantially as described.

60 4. A combination hanger and shield, for the purpose of suspending a propeller, and inclosing mitered gears or other operating mechanisms for protection against the water; depended from the bottom and keel of the vessel, intermedial or interjacent to the ends thereof: formed by a partly-cylindrical hanger, of sufficient diameter to accommodate the operating mechanism used, the sides of which, leaving the cylinder form, run up on each corresponding side of the keel, angled and fitted to the bilge, bolted to keel and bilge; and fore-and-aft halved plates, with bearings for the propeller-shaft, bolted together and to the hanger: substantially as described.

70 the sides of which, leaving the cylinder form, run up on each corresponding side of the keel, angled and fitted to the bilge, bolted to keel and bilge; and fore-and-aft halved plates, with bearings for the propeller-shaft, bolted together and to the hanger: substantially as described.

75 5. A combination hanger and shield, for the purpose of suspending the ends of a propeller-shaft, and inclosing mitered gears or other operating mechanisms for protection against the water; depended from the stem or stern post of the vessel: formed by a partly-cylindrical hanger, of sufficient diameter to accommodate the operating mechanism used, the sides of which, leaving the cylinder form, run up on each corresponding side of the stem or stern post, bolted to the same; and halved plates, with bearings for the end of the propeller-shaft, on the inner end of the hanger, bolted together and to the hanger; and a whole plate, shaped to accommodate the operating mechanism used, and to cut the water, bolted to the outer end of the hanger: substantially as described.

95 6. The combination of a spiral propeller for ships and boats, with hollow shaft to which are attached hollow blades formed by sheets of metal, which, at the shaft, are flanged outward, for fastening thereto, and, at the blade's edge, inward, for fastening together; suspended from the bottom and keel of the vessel, directly under and extending the full length of the keel, provided at the bearings with collars, to serve as thrust-rings, and mitered gears, by which to operate the propeller; having divisions in the blades for the accommodation of intermedial or interjacent hangers, when the length of the vessel makes more than two hangers necessary; operated, at the ends of the vessel, and at intermedial or interjacent points, by mitered gears meshing with the corresponding gears on the propeller-shaft and connected with the power aboard by vertical shafts: and the combination hangers and shields suspending the propeller, as above mentioned, and inclosing mitered gears or other operating mechanisms, for protection against the water; depended from the stem and stern post, and intermedial or interjacent points, when the length of the vessel makes more than two hangers necessary; and formed by partly-cylindrical hangers, of sufficient diameters to accommodate the operating mechanism used, the sides of which, leaving the cylinder form, run up on each corresponding side of the keel, and stem, or stern post, angled and fitted (where necessary) to the bilge, and bolted to keel and bilge, and stem or stern post, as the case may be, and halved plates on both ends of the intermedial or interjacent hangers and the inner ends of the stem and stern hangers, having bearings for the propeller-shaft, bolted together

and to the hangers, and, in the case of the  
outer ends of the stem and stern hangers,  
whole plates shaped to accommodate the op-  
erating mechanism used, and to cut the wa-  
5 ter, bolted to the hangers: substantially as  
described.

In testimony whereof I have signed my

name to this specification in the presence of  
two subscribing witnesses.

HERMAN HANSEN FOWLER.

Witnesses:

CHARLES MILES SNOW,

CHARLES EUGENE FRISBIE.