2 Sheets--Sheet 1.

# E. MATTESON.

## Means for Propelling Vessels

No. 154,336. Patented Aug. 25, 1874.

Fig 1

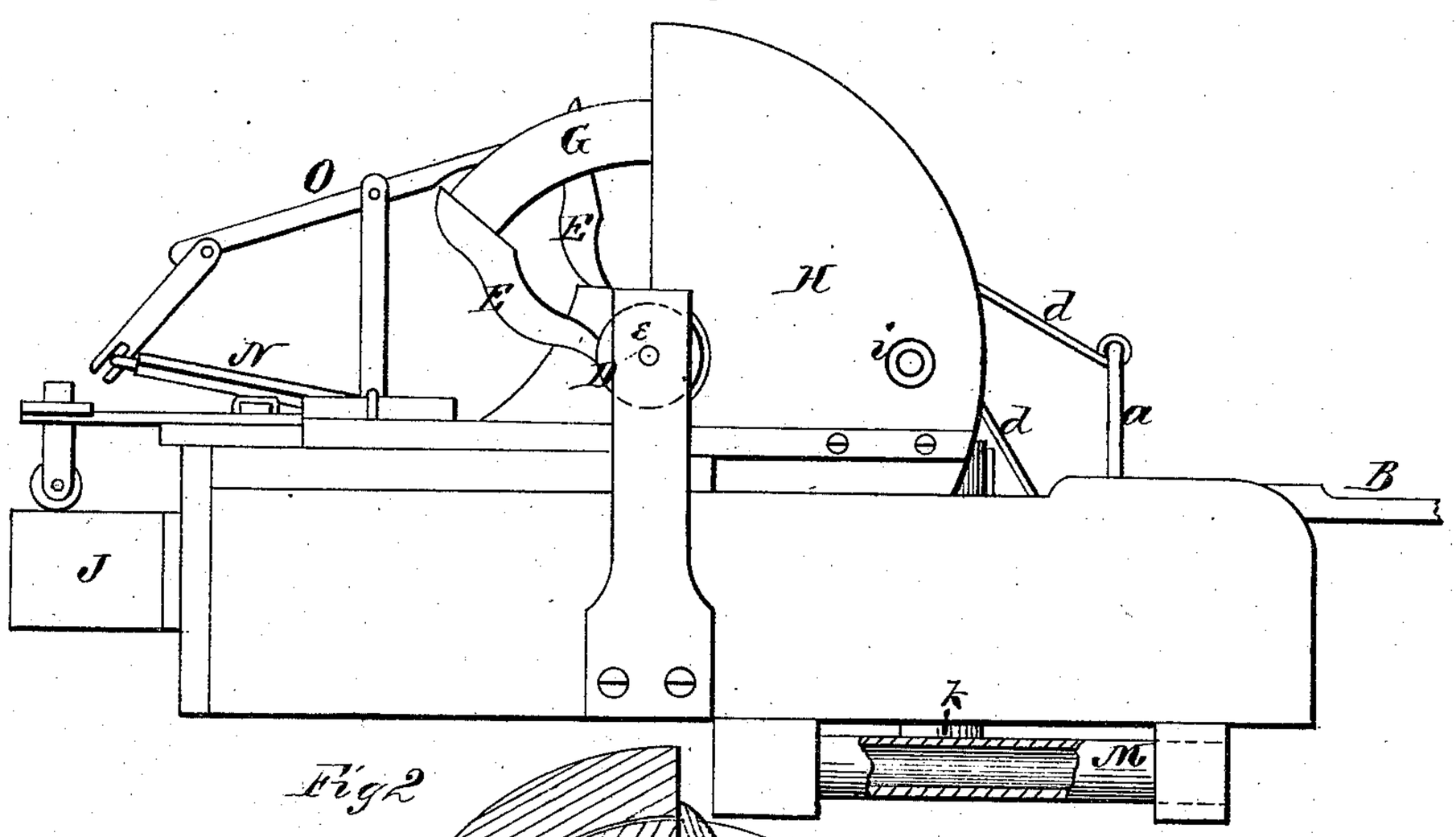
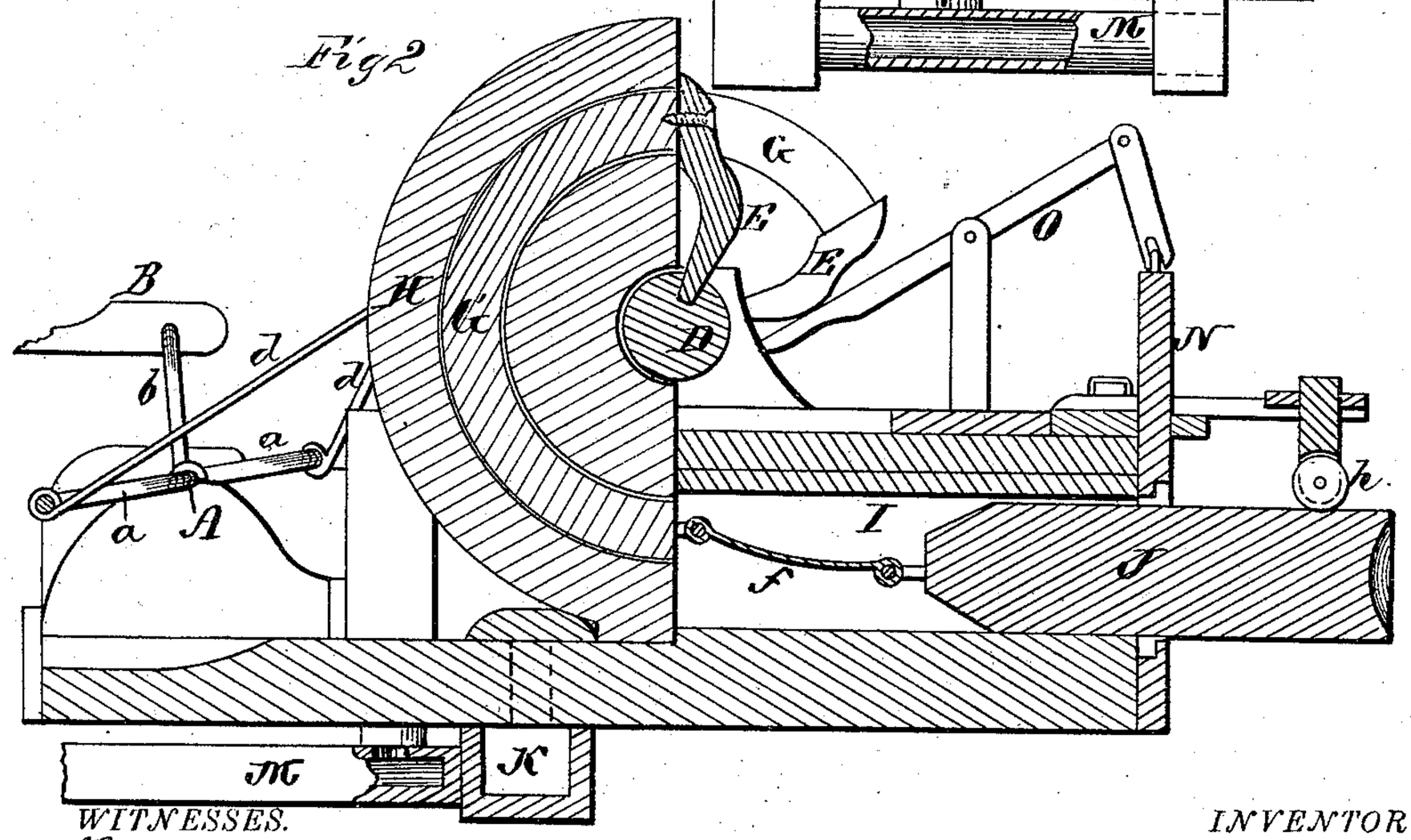



Fig 2




WITNESSES.
F. L. Durand
C. L. Ewert.

INVENTOR
Elisha Matteson
Alexander Mason
By
Attorneys.

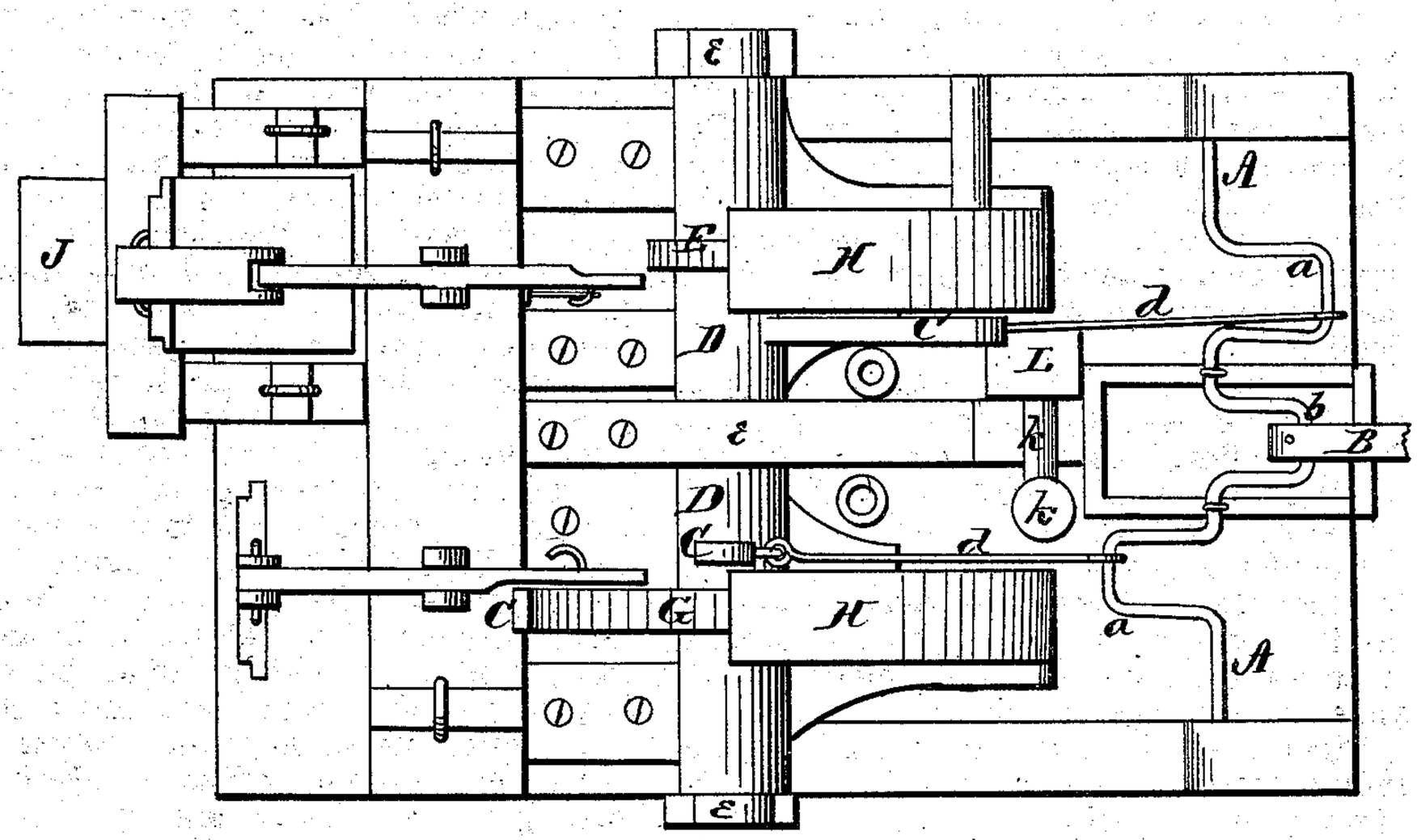
2 Sheets--Sheet 2.

# E. MATTESON.

## Means for Propelling Vessels

No. 154,336. Patented Aug. 25, 1874.

*Fig. 3*




*WITNESSES.*

A. L. Amand

C. L. Ewert.

*INVENTOR*

Elisha Matteson

*By* Alexander & Mason

*Attorneys.*

# UNITED STATES PATENT OFFICE.

ELISHA MATTESON, OF NORWICH, CONNECTICUT.

## IMPROVEMENT IN THE MEANS FOR PROPELLING VESSELS.

Specification forming part of Letters Patent No. **154,336**, dated August 25, 1874; application filed February 13, 1874.

*To all whom it may concern:*

Be it known that I, ELISHA MATTESON, of Norwich, in the county of New London and in the State of Connecticut, have invented certain new and useful Improvements in Propellers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a propeller for propelling vessels of any description, whether upon deep or shallow waters, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation; Fig. 2, a longitudinal vertical section, and Fig. 3 a plan view, of my propeller.

A represents a horizontal shaft, having three cranks, *a a* and *b*, the two side cranks *a a* being set in opposite directions, while the middle crank *b* stands at right angles with the others. B is the pitman or connecting-rod from the piston-rod of the engine, said pitman being placed upon the center crank *b* of the shaft A for rotating the same. Each of the cranks *a* is, by a rod or pitman, *d*, connected with an arm, C, upon a rock-shaft, D. The two rock-shafts D D are placed on a line with each other in suitable boxes or bearings *e e*, and their arms C C are placed one-quarter of a circle or ninety degrees apart. From each shaft D extends another arm, E, one-quarter of a circle from the arm C, and to the arm E is secured a semicircular sliding bar, G, which moves in a correspondingly-shaped passage in a casing, H. This passage is open at both ends, as shown in Fig. 2, the lower end opening into a horizontal chamber, I, which leads toward the rear, and opens at the stern of the vessel or boat. In the chamber I is placed a plunger, J, of shape and size to correspond with said chamber, and move freely back and forth in the same. The front end of the plunger J is, by a rod, *f*, connected with the lower end of the semicircular sliding bar G. By the revolution of the crank-shaft A the two shafts D D, are rocked in their bearings alternately backward and forward, and by the arms E E the semicircular bars G G are moved alternately out and in, in their respective passages in the casings H H, thereby giving to the plungers J J an alternating reciprocating motion. The plungers J J, in their backward movement, act against the water at the stern of the vessel, and thereby propel the vessel forward, and as the parts of the plungers which project beyond the chambers I are of the same size throughout, they will draw no water with them during their forward movement, which would retard or lessen the speed of the vessel. The plungers are to be made concave or dished at their rear ends, and buoyant, so as not to detract from the carrying capacity of the vessel, but, on the contrary, materially increase the same. They are guided by means of friction-rollers *h*, which may be arranged above, below, and on each side of the plungers. These rollers are for the purpose of causing the plungers to move straight in their chambers, and prevent any checking movement of the plungers by the wear of the same in the chambers, or by the movement of the waves acting against the plungers. No stuffing-boxes are needed for the plungers to pass through at the entrances to the chambers I I. Any water that leaks into said chambers will pass up into the casing H, and escape through a waste-pipe, *i*, at the side thereof. The waste water from this pipe may be allowed to go overboard, or it may be conducted into a reservoir, K, from which it may be pumped up into the boiler as occasion may require. L represents the boiler, from which a pipe, *k*, leads outward and downward into a longitudinal tube or pipe, M, which extends forward through the bow of the boat, and opens at the box. By means of suitable valves or cocks, at the same time as the steam is shut off from the engine it is admitted into the pipe *k*, and through the pipe M out at the bow of the vessel. The front end of the pipe M being below the water, the steam rushing out will of course check the forward momen-

tum of the vessel. By this means the vessel can be stopped in a very few moments, or its motion reversed, as desired.

In case of injury to either plunger it may be removed, and the end of the chamber I closed by means of a gate, N, suspended from a pivoted beam or lever, O. The gates N N, when not in use, may rest on top of their respective chambers I I.

This propelling mechanism may be applied to any vessels, whether running on the ocean, lakes, rivers, or canals, and will propel the vessel with great speed, whether the water is smooth or rough, deep or shallow.

The plungers may be arranged on the sides of the vessel in place of paddle-wheels, in which case there will be two plungers on each side, so as to have one plunger working on each side all the time.

I do not confine myself to any specific number of plungers, as that will depend upon the size of the vessel, and the speed which it is desired the vessel should attain. Steam may be forced out at the sides of the vessel to turn the same around almost like on a pivot.

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

1. The combination of the plungers J, operating in the chambers I, connecting-rods *f*, semicircular sliding bars G, casings H, arms E, and rock-shafts D, all substantially as and for the purposes herein set forth.

2. The guiding-rollers *h*, in combination with the plungers J, as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of February, 1874.

ELISHA MATTESON.

Witnesses:
J. TYLER POWELL,
J. M. MASON.