H. B. Fay.

Paddle Wheel.

No. 27,042. Patented Feb. 7, 1860.

Fig: 2.

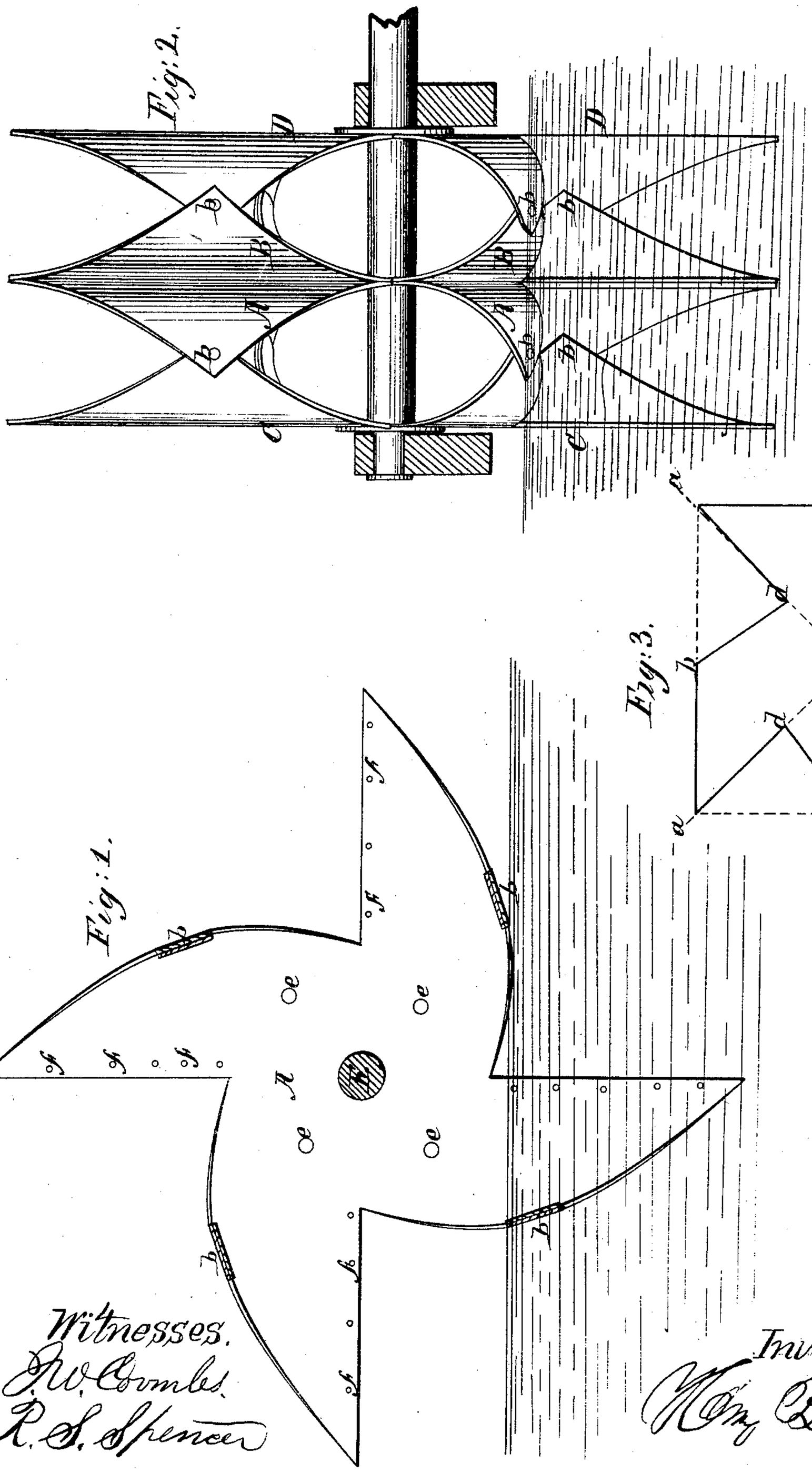

Fig: 3.

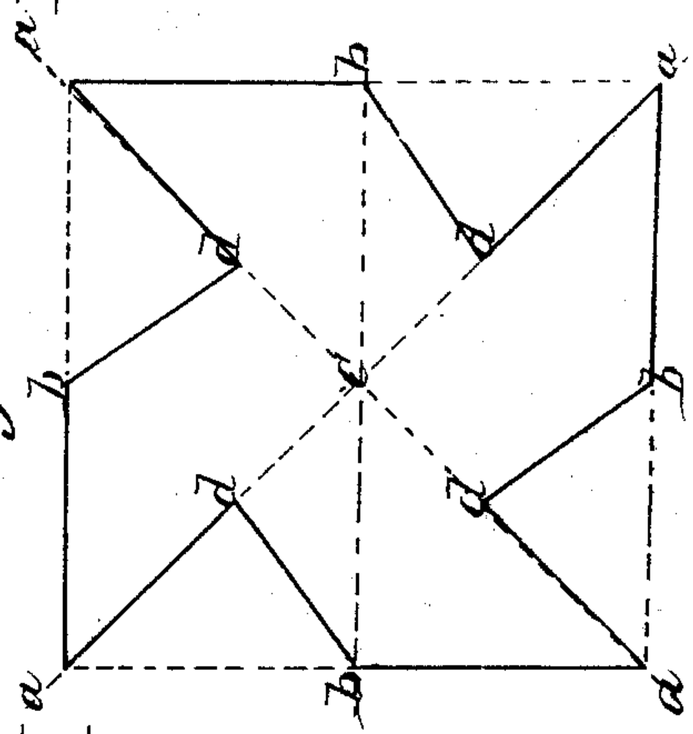

Fig: 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY B. FAY, OF NEW YORK, N. Y.

PADDLE-WHEEL.

Specification of Letters Patent No. 27,042, dated February 7, 1860.

To all whom it may concern:

Be it known that I, H. B. FAY, of the city, county, and State of New York, have invented a new and useful Improvement in Paddle-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, forming a part of this specification, in which—

Figure 1 represents a vertical longitudinal section taken through one side of my improved wheel. Fig. 2 is an end view of my wheel showing the same submerged to the proper water-line. Fig. 3 shows the form and construction of the plates.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a simple, cheap, and efficient paddle wheel which shall have a constant propelling action, and which action will gradually increase as the floats or propelling wings are submerged, and be diminished as they are drawn up from the water, so that there will be very little, if any, lifting of water; and so that the greatest effective action of the floats will be in a parallel direction with the surface of the water, and this will only take place when the float reaches its lowest point, or is vertical, and the others are not acting. The wheel, on account of its peculiar form and construction, can be submerged lower than the present wheels, and a much greater superficial area will be brought to react upon the water, the engine can be set lower in the boat, while the size of the wheel, compared with those of the present construction, will be greatly diminished, and still have the same effective action. The object of the invention is also to combine with the aforesaid advantages uniformity of motion, regularity, and no trembling.

For this purpose my invention consists in the peculiar arrangement and form of floats hereinafter described and represented.

To enable those skilled in the art to fully understand my invention I will proceed to describe its construction and operation.

The wheel consists of four plates of suitable sheet metal, say boiler iron, which, previously to being riveted together, are cut out in a peculiar shape (represented by Fig. 3), viz: a square sheet of metal of a suitable size is laid off by drawing diagonal lines *a a*, from corner to corner then by drawing two lines, *b b*, at right angles so as to intersect each other at the center, *c*. The water line is then determined, and marked off on the diagonal lines, *a a*, measuring from the center to the points, *d d d d;* lines are then drawn from *b*, *b*, *b*, *b*, to the points *d d d d*, and the angular pieces described by the line *a d b*, are cut out. This plate will now serve as a pattern for three other plates of the same size and shape. Two of such plates, A B, are now riveted together at the points, *e e e e*, and along the radial lines *a b*, at *f*, *f*, *f*. The angles, *a*, *b*, and *d*, are then bent over, as shown by Fig. 2, and also those of the side plates, C D, and brought together and riveted at *b*, *b*, *b*, *b*. The paddle shaft, E, is then passed through the center of the wheel thus formed, and secured to the plates by collars, and clamped in the usual manner; and the wheel is mounted in its bearings, and, if necessary, housed in, if for a side wheel, with paddle boxes, according to the present plan for oridnary side propellers.

In order to understand the action of this wheel in the water I will refer to Fig. 1, in which figure one of the floats or paddles is shown just leaving the water while the one succeeding it is acting with its full effective force upon the water. The water is struck by the floats or paddles, and at first a very gentle reaction takes place, then as the paddle sinks into the water its action is gradually increased until the paddle reaches the lowest point, and when it begins to rise the water flows over behind and between the floats as fast as it is acted upon by the water on the curved sides forming the float. These sides taper up to the water-line of the wheel, and at this point loose their effective power, and the water flows freely off behind the floats or paddles as they reach a horizontal line. The concussion on entering the water is in this manner greatly reduced, and as the action of the paddles upon the water decreases after they have expended their effective force there will be very little, if any, water lifted.

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

The form and construction of the within described and represented paddle wheel.

HENRY B. FAY.

Witnesses:
S. H. WALES,
J. W. COOMBS.