

Snyder & Cook.
Paddle Wheel.

N^o 13,199.

Patented Mar. 8, 1859.

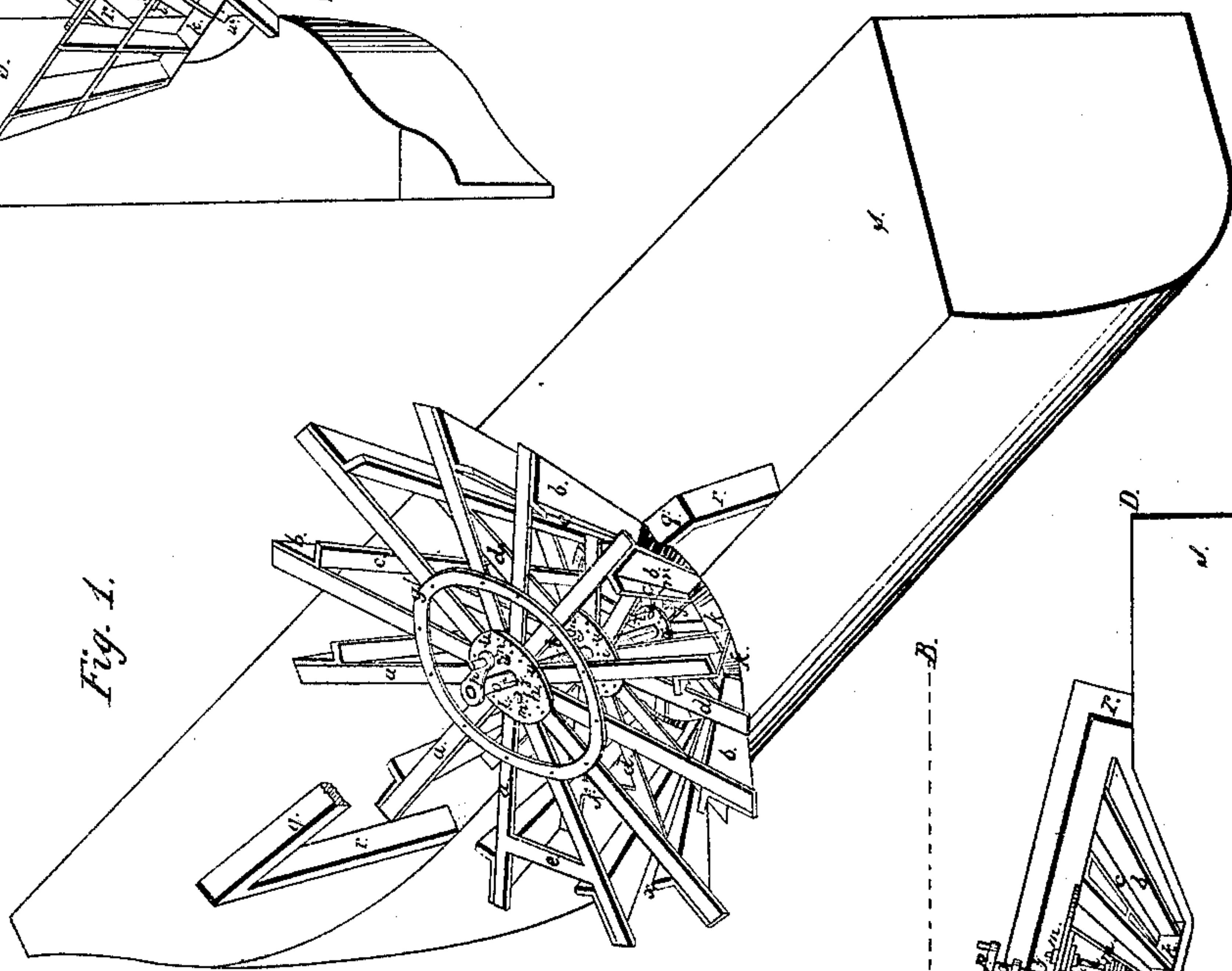
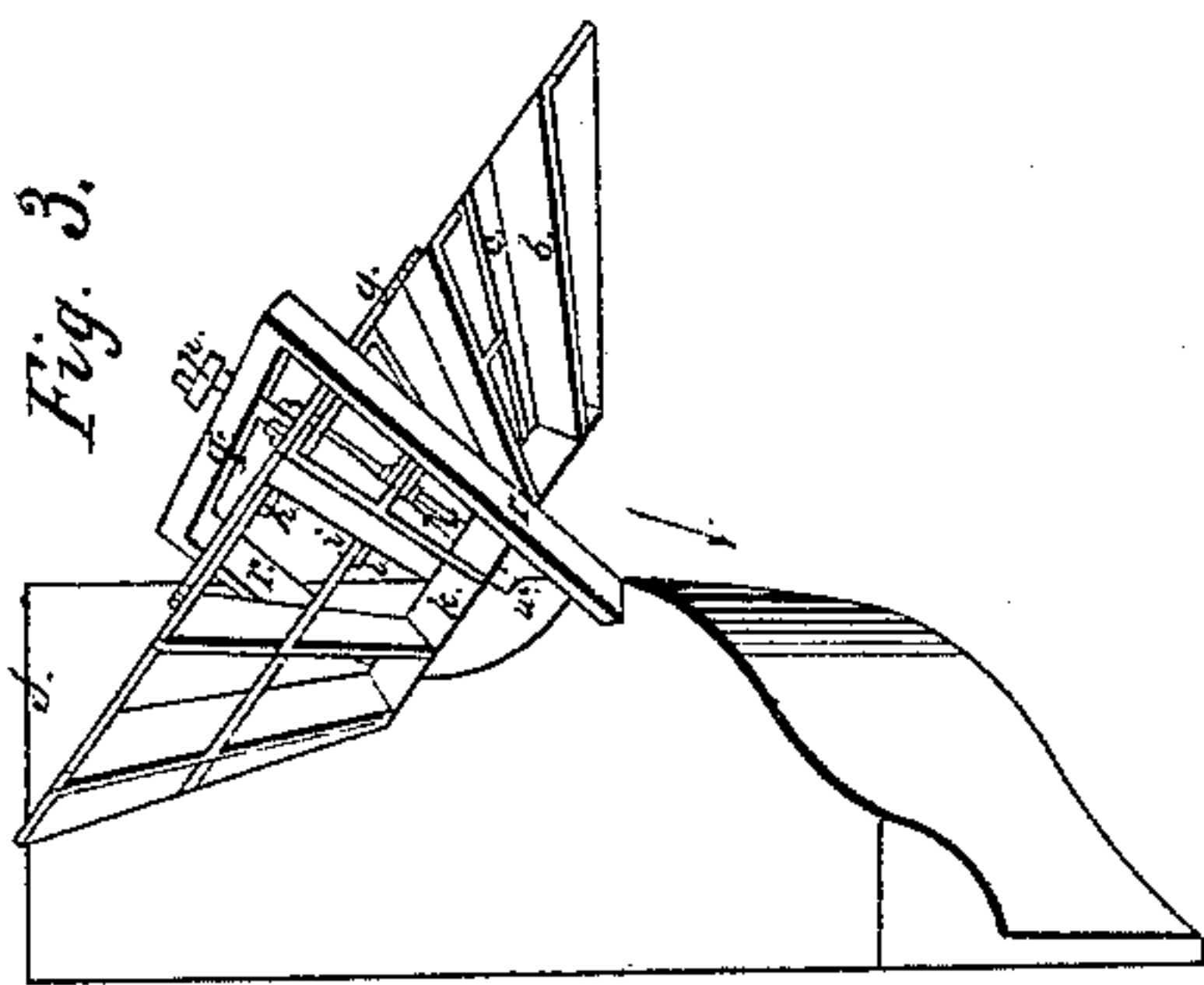
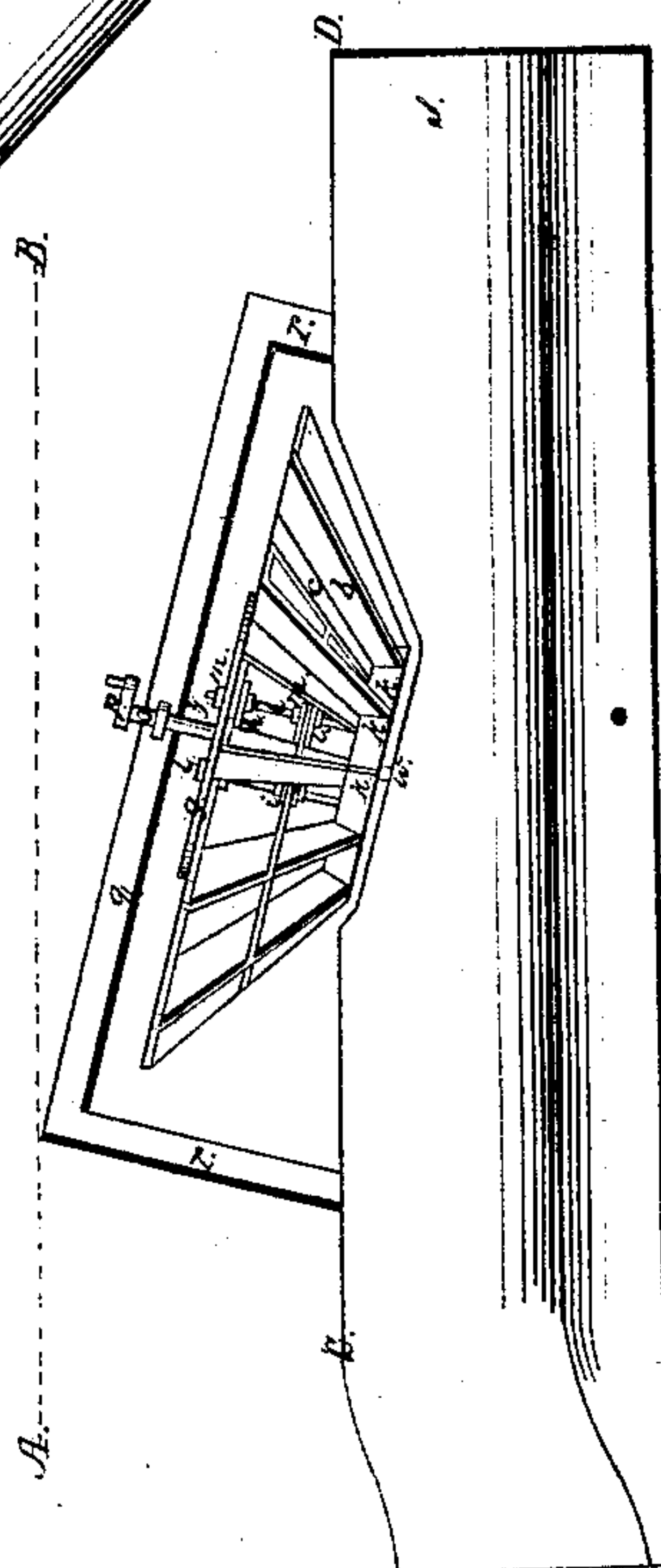


Fig. 2.



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UNITED STATES PATENT OFFICE.

SIMON P. SNYDER AND GEORGE W. COOK, OF MINNEAPOLIS, MINNESOTA.

IMPROVED PROPELLER.

Specification forming part of Letters Patent No. 23,199, dated March 8, 1859.

To all whom it may concern:

Be it known that we, SIMON P. SNYDER and GEORGE W. COOK, of the city of Minneapolis, Hennepin county, State of Minnesota, have invented a new Propeller; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

The accompanying drawings represent one-half of the hull of a boat with one paddle-wheel.

Figure 1 represents a perspective view; Fig. 2, a side view, and Fig. 3 an end view of the paddle-wheel.

The propeller-shaft *o* inclines toward the bow *s* of the boat, as will be seen in Fig. 2, and it also inclines from the side of the boat, as will be seen in Fig. 3, and has one bearing at *w*, near the edge of the deck, and another bearing in the frame *r q r*, which extends from the deck upward.

The paddles *b* are conically arranged around the shaft *o*, so that the lines of the paddles if prolonged would meet in a point in the mathematical axis of the shaft *o* some distance below the lower bearing *w* of said shaft. The width of each paddle is made to diminish from the outer end toward the said apex of the cone, and each paddle is provided with a float or cap *c*, which is nearly, although not exactly, at right angles with the paddle, so that the edge *y*, where the paddle and float meet, is a little farther distant from the center line of the cone than the outer edge *x* of said float. The paddles are attached to three sets of arms *a d j*, radiating from the shaft *o*. Each of these sets of arms is fastened between two central brace-plates *h h*, *i i*, and *n n* by means of two bolts *u* for each arm. The outer set of arms *a* are also fastened to another brace-ring *g*. The arms *a* of the outer set, as well as those *d* of the middle set, may be connected near their outer ends by braces *e f*, two of which braces are represented in Fig. 1. The three sets of brace-plates *h h*, *i i*, and *n n* are fastened together by screw-rods *l l* and nuts *m*. The brace-plates *h h* and *n n* have central holes just large enough to fit the shaft, so that they may be free to

move up and down on the shaft, while the central set of brace-plates *i i* fit a screw-thread cut on the shaft between the outer and inner set of brace-plates *h h* and *n n*. The central hole of the brace-plates *h h* is notched, so as to fit one or two keys *z*, which keys serve to fasten the brace-plates to the shaft after they have been set at the desired height above the lower bearing *w* of the shaft by means of turning the system of brace-plates, and, in fact, the whole propeller around the shaft. By so turning the propeller around the shaft the screw-thread on the shaft will cause the middle brace-plates *i i* and with them the whole propeller to move from or toward the end of the shaft, and when the propeller has been thus adjusted to the draft of the boat the propeller may be keyed to the shaft by means of the keys *z* above mentioned. The space between the inner ends of the paddles is boxed up, as seen at *k k*. The crank *p*, attached to the outer end of the shaft, is to be worked by the engine.

The object of the above-described arrangement is that the motion of each paddle through the water shall be similar to that of an oar.

It will be seen that each paddle strikes the water nearly perpendicularly and deviates but little from this perpendicular position during the whole way through the water. Thus the paddle is almost entirely prevented from lifting water when passing out of it or pressing upon it when entering it.

The paddle in the latter part of its way through the water has a tendency to drive the current of the water from the wheel in the direction of the arrow in Fig. 3 under the slope of the hull and toward the stern of the boat, thereby serving to buoy up and force the boat forward.

The caps *c* serve to prevent a portion of the water from escaping over the paddles.

When desired, the whole space between the inner edges of each two paddles (which is now partially covered by the caps *c*) may be boxed up by pieces of proper shape to fit the openings, so as to increase the tendency of the propeller to buoy up the boat, and thus help her over sand-bars and similar obstructions.

The boxing up of the spaces between the inner ends of the paddles by means of pieces *k k* prevents the water from escaping be-

tween the paddles toward the hull of the boat.

A great advantage in the above arrangement of a propeller consists in the great ease with which it can be raised or lowered by means of the screw-thread and keys. Thus it can always be adjusted to the draft of the boat, which is constantly changing with a river-boat as she discharges or takes in freight. It will be observed that this adjustment can be made while the shaft, crank, and engine remain altogether undisturbed. This is a great advantage over the old paddle-wheel, which does not admit of any such adjustments.

Another advantage of the above-described propeller is that, being inclined, it does not obstruct the upper deck as the old paddle-wheel does. It is confined to the space between the upper and lower decks, as will be seen from Fig. 2, where the lines A B and C D represent the upper and lower decks, respectively. Guards are to be placed on the lower deck around the propeller.

It will be understood that two such propellers are to be used for one boat, one on each side.

What we claim as new, and desire to secure by Letters Patent, is—

1. The arrangement and construction of a propeller, substantially as shown and described.

2. Inclining the shaft of a propeller in relation to the boat in two directions, as above set forth.

3. The combination of a screw-thread on the propeller-shaft with a screw-thread in the brace-plates forming the hub of the propeller, and with keys for the purpose of adjusting and fastening the wheel on the shaft, the whole being arranged as above set forth.

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