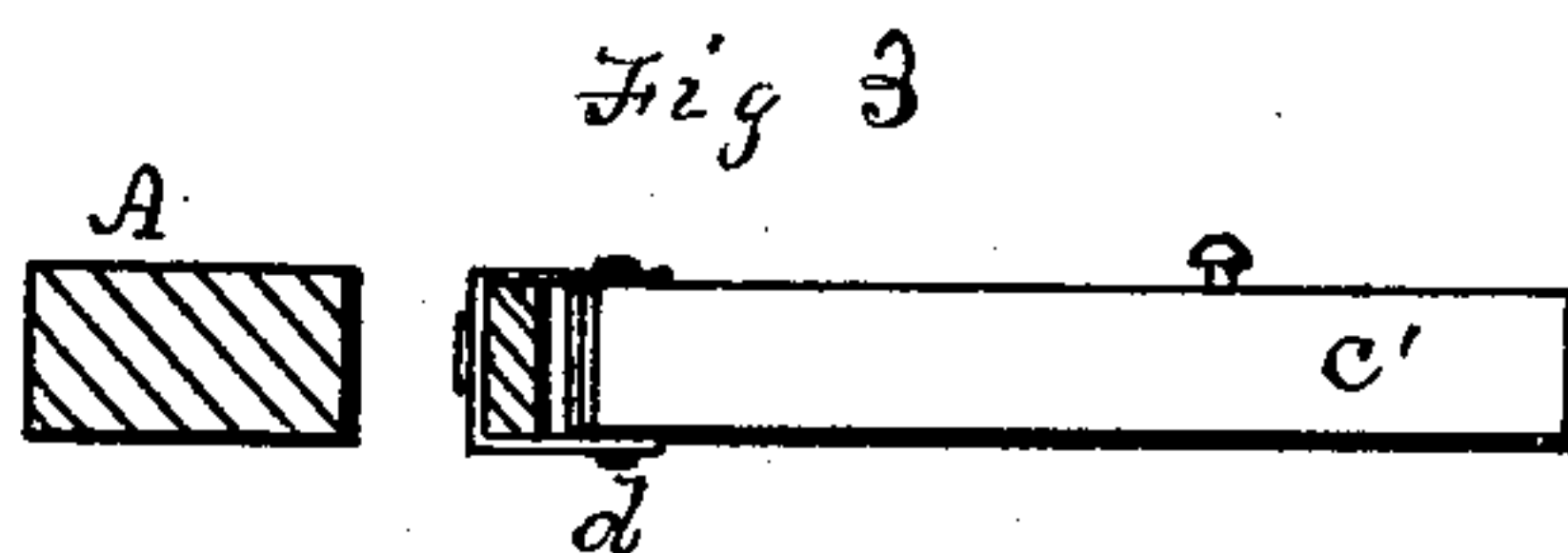
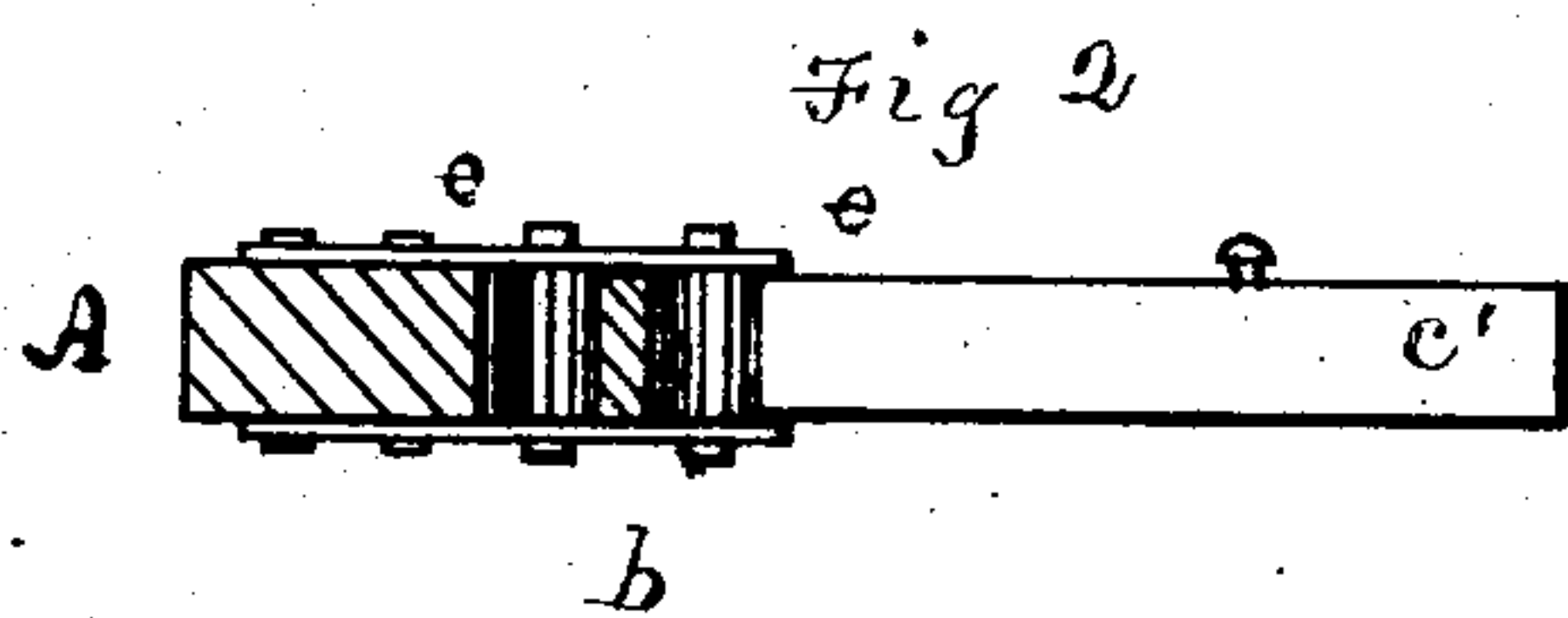
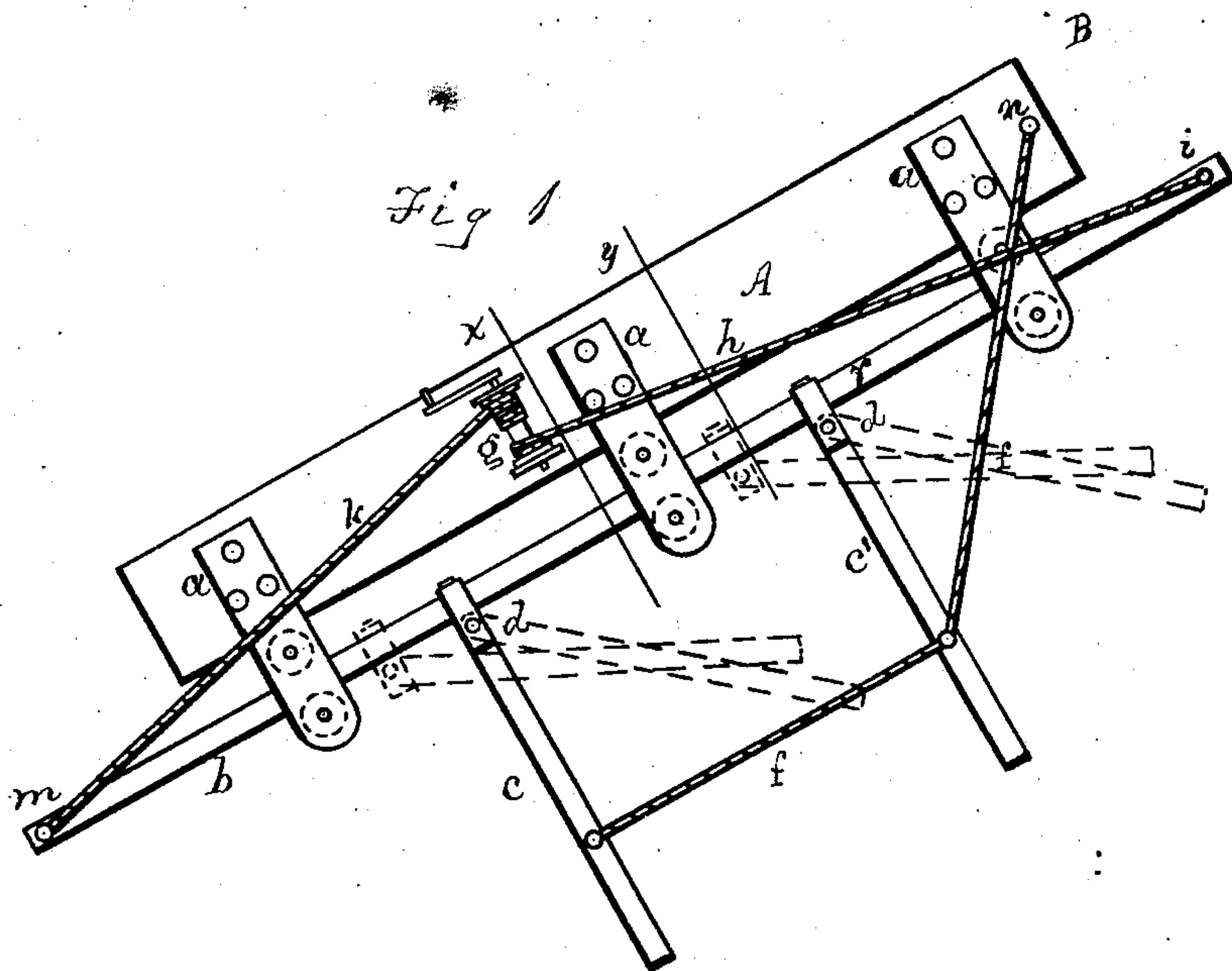


Sheer-Rudder for Booms.

Patented March 2, 1875.



Witnesses.
C. J. West
A. W. Bond.

Levi W. Powell

Inventor

UNITED STATES PATENT OFFICE.

LEVI W. POND, OF EAU CLAIRE, WISCONSIN, ASSIGNOR OF ONE-HALF HIS
RIGHT TO EAU CLAIRE LUMBER COMPANY, OF SAME PLACE.

IMPROVEMENT IN SHEER-RUDDERS FOR BOOMS.

Specification forming part of Letters Patent No. **160,347**, dated March 2, 1875; application filed
July 13, 1874.

CASE A.

To all whom it may concern:

Be it known that I, LEVI W. POND, of Eau Claire, county of Eau Claire, Wisconsin, have invented a new and useful Improvement in Sheer-Rudder Booms, of which the following is a full description, reference being had to the accompanying drawings.

Figure 1 is a plan; Fig. 2, a section at *x*; Fig. 3, a section at *y*.

This invention consists in connecting a movable bar with the boom, to which bar are hinged the wings or rudders, which operate the boom, the position of the bar and wings being changed by moving the bar longitudinally by means of ropes and a windlass secured to the main boom.

In the drawings, A is the boom, or a section thereof, the upper end of which is to be secured to a pier or post, B, as usual. *b* is a movable bar, made of wood. It may be twelve inches wide and four inches thick. It is loosely connected with the boom A by means of straps *a*, secured to the boom. These straps project beyond the edge of the boom, and in these projecting ends are two rods or pins, between which the bar *b* passes. To allow it to move more freely friction-rollers *e e* may be placed upon the rods or pins. *c c'* are wings or rudders, hinged at *d* to the bar *b*. *f* is a rope or chain, secured to the several rudders and to the boom at *n*, the rudders being parallel to each other.

Upon the boom A is a windlass, *g*, to which two ropes are connected. The outer end of one of these ropes *h* is secured to the bar *b* at *i*, or it might be secured at *r* just above the rudder *c'*; the other rope, *k*, is, at its outer end, secured to the bar *b* at *m*. By means of these ropes *h k* and the windlass, the position of the bar *b* and the rudders can be changed.

As represented in Fig. 1, the boom is thrown out into the stream, and the rudders are in the proper position to throw it out and hold it there; or, if the boom should strike the shore, or the bar strike, the bar may be quickly thrown out into the stream, which will bring the rudders in proper position to hold the boom from the shore.

If the rope *k* be wound upon the windlass *g*, the bar *b* will be drawn up, relaxing the rope *f* between the rudder *c'* and *n*, and the rudders will swing around nearly parallel with the boom, and the boom, by the action of the current, will be swung around near the shore.

By winding up the rope *h* on the windlass the bar *b* will be drawn down, and the rudders brought into the position represented by dotted lines, and then the action of the current upon the rudders will assist in bringing the boom to the shore. This feature will be found desirable when it is important to open the boom rapidly.

I have shown only one section of a boom; but as many parts A and *b* may be used as may be required, the same being properly secured to each other at the ends.

The rope *f* only serves the purpose of holding the rudders in position, and a rod or rods might be used instead of this rope; or a brace running from each rudder to the boom might be used instead of *f*; but the construction shown is the best.

When two or more sections are used in constructing the boom, the angle at which it stands with the shore will be less than is shown in Fig. 1; and when it is desired to have the boom opened by the direct action of the current on the rudders, the bar must be carried down so that the rudders will stand at an angle with the current less than a right angle.

The bar *b* might be operated by means of a rack secured to the bar, and a pinion secured to the boom A.

What I claim as new, and desire to secure by Letters Patent, is as follows:

The combination of the boom A, movable bar *b*, and rudders *c c'* with suitable operating devices, substantially as and for the purposes specified.

LEVI W. POND.

Witnesses:

E. A. WEST,
O. W. BOND.