

(No Model.)

2 Sheets—Sheet 1.

M. W. ATWOOD.

CENTER BOARD.

No. 313,796.

Patented Mar. 10, 1885.

Fig. 1.

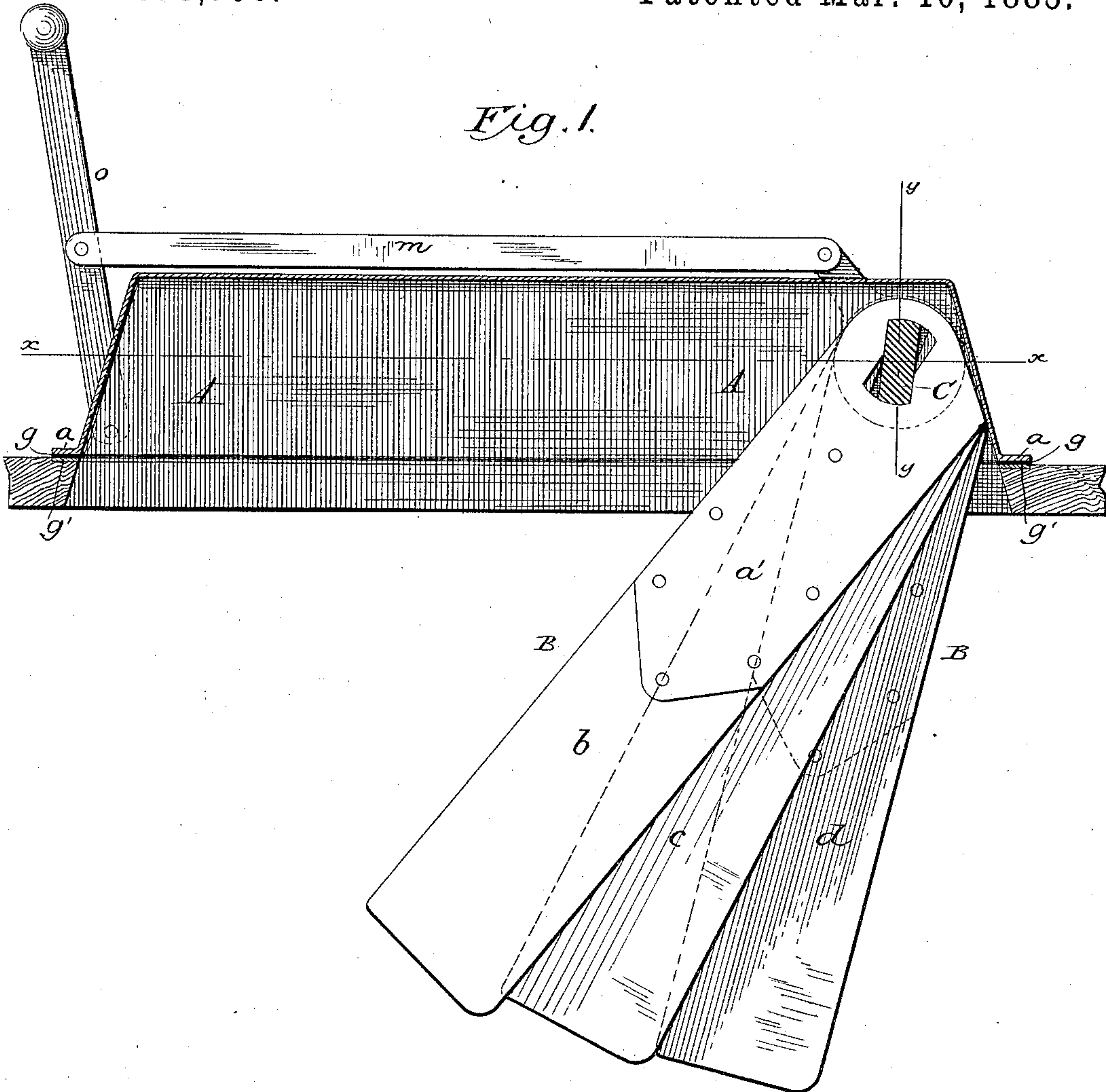
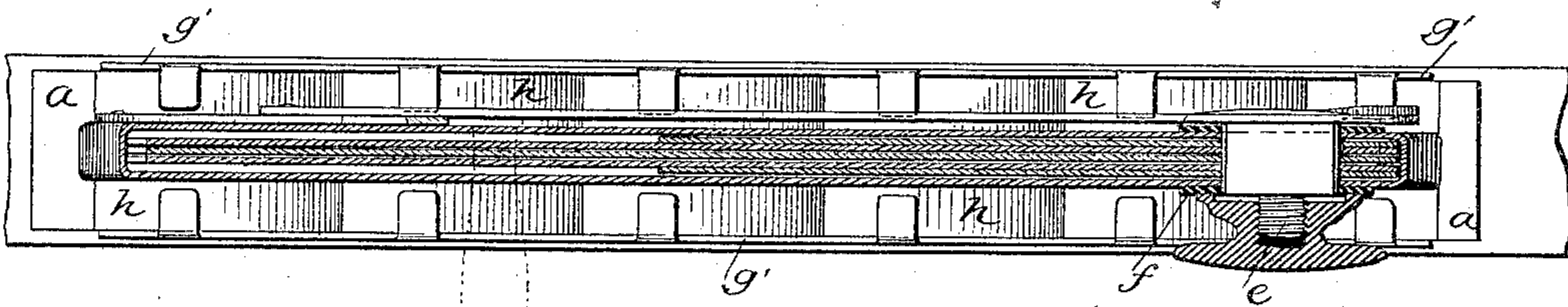


Fig. 2.



WITNESSES

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(No Model.)

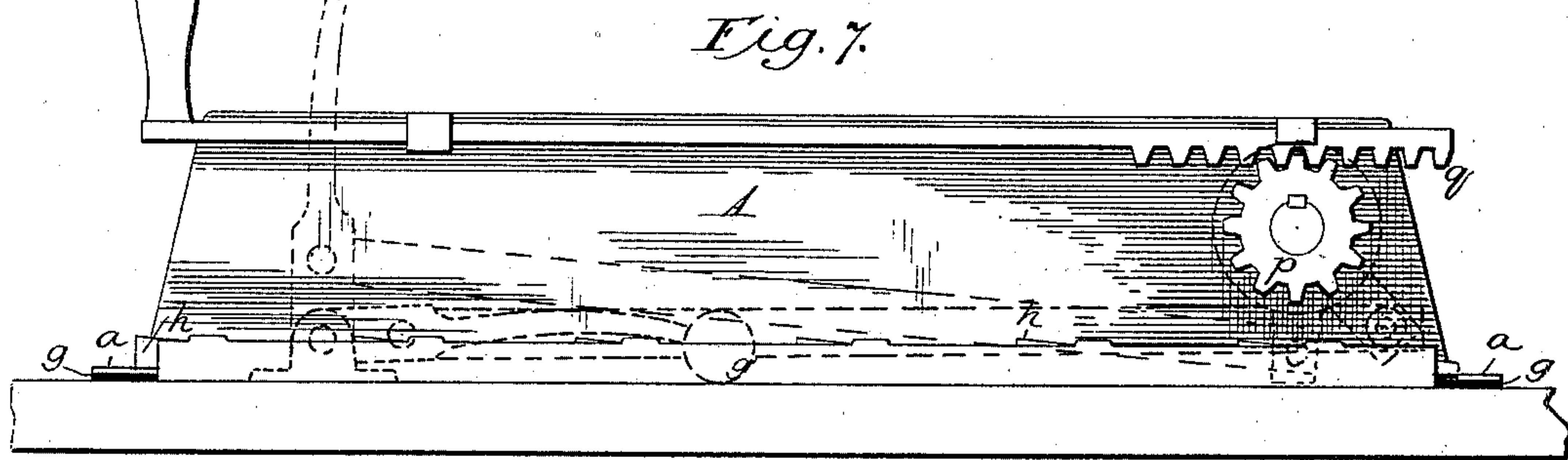
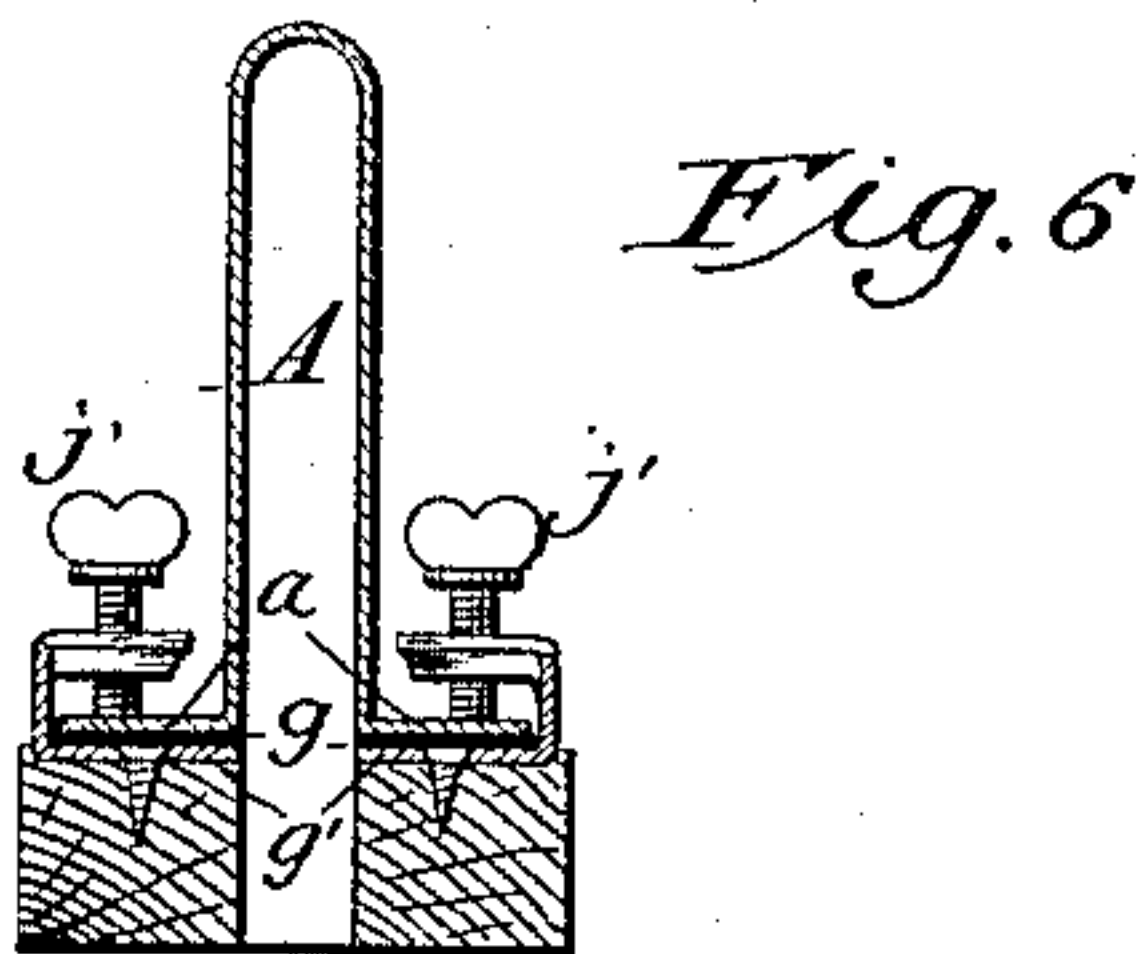
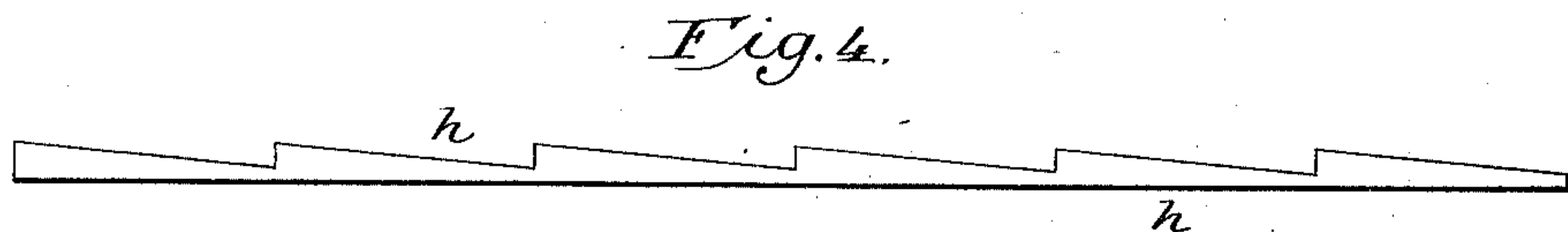
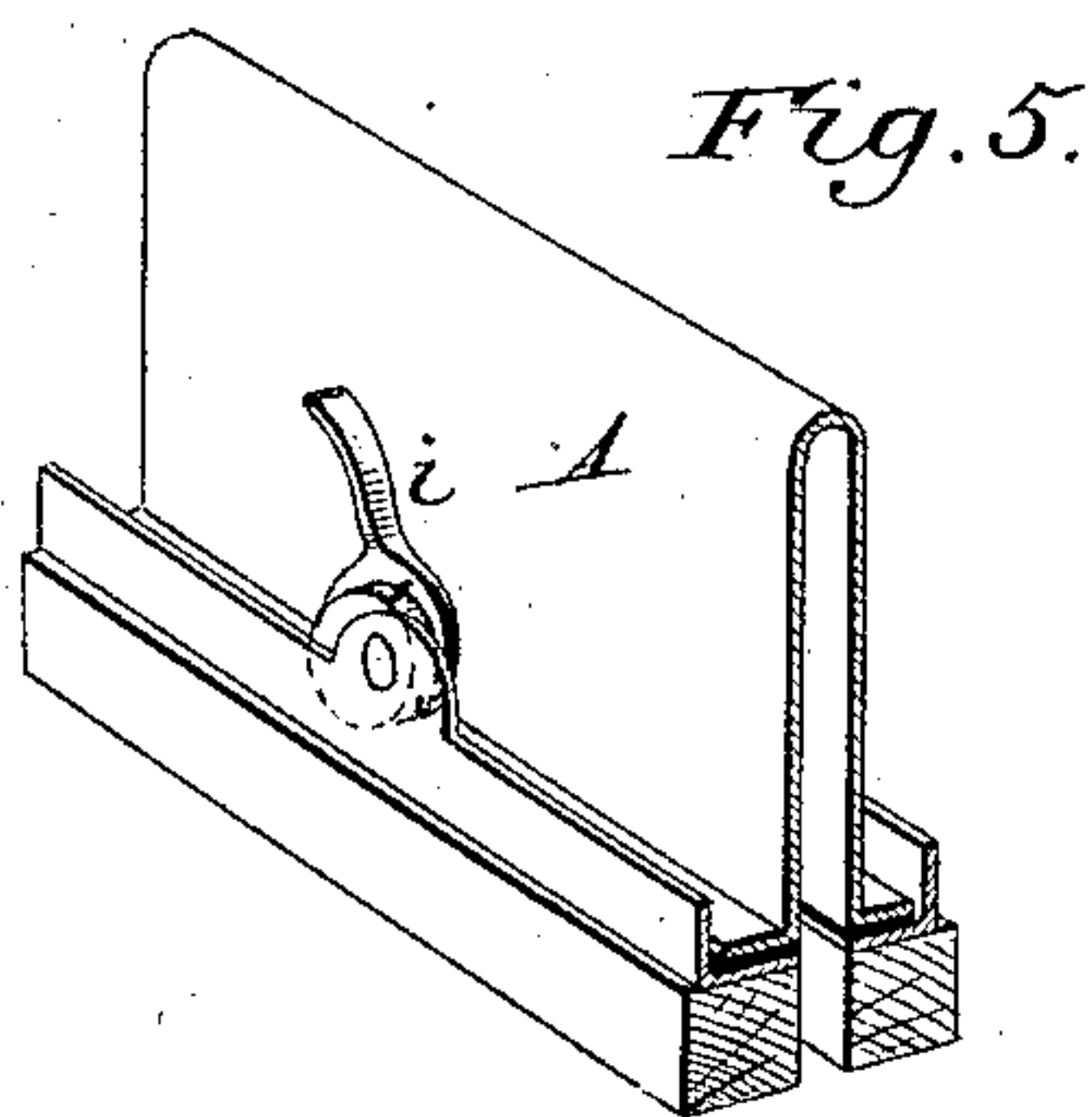
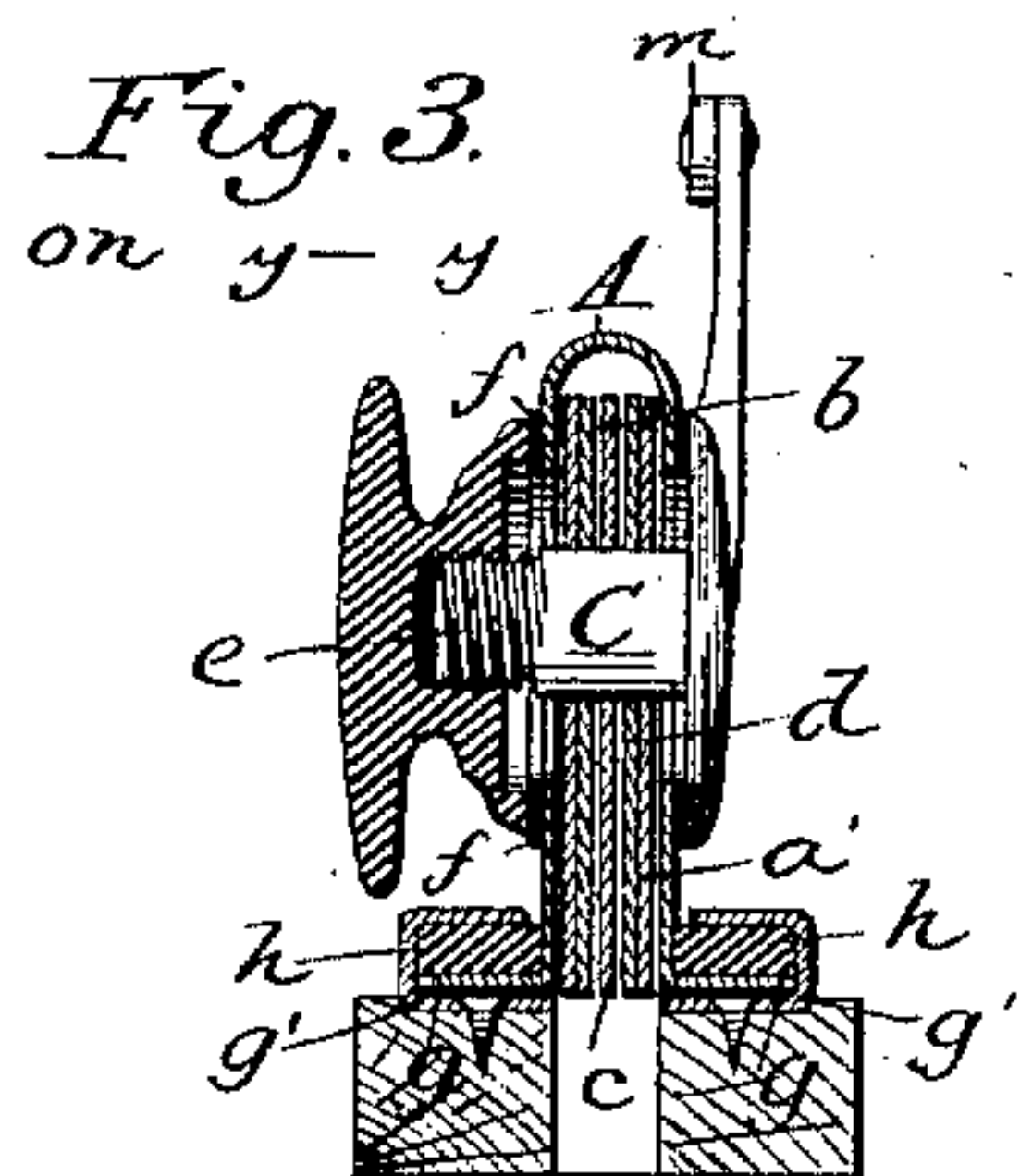
2 Sheets—Sheet 2.

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WITNESSES

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UNITED STATES PATENT OFFICE.

MONTRAVILLE W. ATWOOD, OF CLAYTON, NEW YORK.

CENTER-BOARD.

SPECIFICATION forming part of Letters Patent No. 313,796, dated March 10, 1885.

Application filed May 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, MONTRAVILLE W. ATWOOD, of Clayton, in the county of Jefferson and State of New York, have invented certain
5 Improvements in Center-Boards, of which the following is a specification.

My invention relates to that class of folding center-boards which consist of a series of vertically-swinging leaves or sections arranged to
10 fold side by side within a well or casing, and is designed more especially as an improvement upon the center-board for which Reissued Letters Patent of the United States No. 10,105 were granted to me on the 9th day of
15 May, 1882.

The principal objects of the present invention are to give the center-board increased stiffness in proportion to its strength, to admit of the board and well being instantly disconnected and removed from the boat, and to provide
20 for conveniently operating the board from the rear end of the well.

Referring to the accompanying drawings, Figure 1 represents a longitudinal vertical section through my improved center-board applied to a boat, the board being in its operative position. Fig. 2 is a horizontal section of the same on the line *x x*. Fig. 3 is a cross-section on the line *y y* of Fig. 1, showing the different devices for securing the well in place. Fig. 4 is a side elevation of one of the wedges employed for confining the well. Fig. 5 is a perspective view showing an eccentric for the same purpose. Fig. 6 is a
30 cross-section showing screws applied to secure the well. Fig. 7 is a side elevation showing a modified construction of the devices for operating the board.

In proceeding to construct my center-board
40 I first provide a well, A, composed of sheet or thin cast metal, closed except in the bottom, where it is provided with a slit or passage extended upward therein to admit the several sections of the board.

B represents the center-board proper, consisting of sheet metal leaves or plates *b*, *c*, and *d*, all mounted on a pivot-bolt, C, extended transversely through the upper forward corner of the well. The openings in the respect-
50 ive sections of the board are made of such form as to admit of their descending one below another in the manner represented in the draw-

ings, so that they will jointly present an extended surface below the boat. The pivot-bolt C is flattened on its sides and the open- 55 ings in the respective leaves made of such form as to admit of their rocking about the bolt independently of each other to a limited extent. On turning the bolt in one direction the leaves will be permitted to descend to the operative positions represented in Fig. 1; but on turning it in the opposite direction it will have the effect of causing the leaves to close together side by side and to rise within the well. The descent of the sections may be limited by beveling or cutting away the forward ends in such manner that they will encounter the forward side of the well, as represented in Fig. 1, the different sections being beveled or cut away on different lines, whereby the different sections are held in the different positions shown. If preferred, other means may be provided for maintaining the sections in their operative positions.

It will be observed that the pivot-bolt is located at the upper forward corner of the well and of the leaves, this particular location of the bolt being advantageous in that it permits the employment in a well of given length of a board having a greater surface than could otherwise be used. This is a feature of importance in many cases, many boats having their
80 thwarts so located, or being otherwise so constructed, as to necessitate the employment of a well of comparatively short length, which, but for the arrangement represented in the drawings would necessitate the use of a center-board smaller than demanded by the size of the hull.

For the purpose of giving to the sections of the board the necessary degree of stiffness without rendering them of objectionable weight, as well as to prevent their after ends from binding on the sides of the well in the act of closing them into the same when subjected to lateral strain, I provide the two outside sections, *b* and *d*, each with a re-enforcing or stiffening plate at the forward ends. This stiffening-plate *a'* is of a form corresponding with the outline of the blade or section, and extends backward thereon half its length, or thereabout. It is secured to the blade by means of rivets, as shown, or other suitable fastening devices.

For the purpose of rendering the joint around the ends of the pivot-bolt water-tight, I provide the bolt at one end with an enlarged head and seat an elastic packing therein between the head and the outside of the well. The opposite end of the pivot is provided with a threaded neck or screw, *e*, applied thereto. An elastic washer, *f*, encircling the bolt, is applied between this nut and the side of the well, so that in tightening the nut the packing is drawn to the side of the well and leakage is thus prevented. The tightening of the nut also has the effect of compressing the sides of the well against the sections of the board as well as of forcing the sections against each other. In this manner sufficient friction is produced to maintain the sections in any position in which they may be placed, while at the same time they are permitted to swing backward in the event of their encountering any serious obstruction when in an operative position.

In applying my board to a boat the latter is provided with a vertical slot or opening through the keel of sufficient size to permit the descent of the blades. The well is applied within the boat over and around the slot or opening and secured firmly in position. The lower edge of the well is provided with an outwardly-extending flange, *a*, seated upon rubber or other elastic packing, *g*, which is applied thereunder between it and the keel. Pressure devices of any suitable character are applied to force the flange downward upon the packing and thus maintain a tight joint between the well and the boat and exclude water from the latter.

In many boats, particularly in canoes employed for touring purposes, it is desirable that the entire center-board may be readily disconnected at will in order that the boat may be occupied at night for sleeping purposes. To this end I provide means whereby the well may be quickly confined or released at the pleasure of the operator. These devices, which may be variously modified, I have represented in several forms.

In Figs. 1 and 3 the plates *g'* are secured within the bottom of the boat, preferably to the keel, and provided with fingers or lugs overlying the flange at the foot of the well. The bars *h*, having a series of inclined or wedge-like surfaces thereon, as represented in Fig. 4, are introduced between the flange of the well and the fingers of the stationary plates, and being driven endwise they have the effect of forcing the flange down firmly on the bottom of the boat or of the packing when the latter is used. When it is required to remove the well, it is only necessary to drive the bar *h* in a backward direction, the effect being to release the well so that it may be quickly withdrawn from the boat.

In Fig. 5 eccentric-levers *i* are substituted for the wedges *a*, these levers being pivoted to the fixed plates *g'* and arranged to act in a downward direction on the flanges of the well.

In Fig. 6 the fastening devices consist of thumb-screws *j'*, inserted through the fixed plates *g'*, and acting in a downward direction through the flange of the well.

It will be observed that each and all of the devices enumerated serve to confine the well tightly in position, but admit of its being quickly released when desired.

In order that the center-board may yield in the event of its encountering obstructions, it is necessary that it should be pivoted at the forward end. In many boats the occupant is compelled to sit at a point in rear of the well, which frequently renders it difficult, if not impossible, to reach the pivot-bolt in order to raise or lower the board. I propose, therefore, to connect with the pivot-bolt operating devices extending backward within reach of the boatman. A simple device for the purpose is that represented in Fig. 1, consisting of a reach-bar, *m*, jointed at the forward extremity to a crank-arm on the end of a pivot-bolt and jointed at the rear extremity to a hand-lever, *o*, the lower end of which is pivoted to the side of the well or to a fixed support on the bottom of the boat.

It will be observed that by moving this lever motion is transmitted to the pivot-bolt, thus enabling the operator at the rear of the well to operate the board from the front. In place of the reach-bar and the crank above described, a pinion, *p*, may be applied to one end of the pivot-bolt, and a rack-bar, *q*, extended backward therefrom, with a handle on one end in position to be conveniently operated. The essence of the invention in this regard consists in combining with the center-board pivoted at the rear end an operating device extending thence backward, and it will be manifest to the skilled mechanic that the details of construction may be variously modified without departing from the limits of the invention.

Having thus described my invention, what I claim is—

1. In combination with the well, the center-board consisting of the sheet-metal sections *b*, *c*, and *d*, the outer sections, *b* *d*, being provided at the forward end with re-enforcing plates *a'* applied to the outer side, whereby the sections are permitted to close readily within the well.

2. In combination with the vertically-swinging center-board pivoted at its forward end, the operating-lever located at the rear end of the board, and the operating devices, substantially such as described and shown, connecting the lever with the forward end of the board.

3. The combination of the well, the center-board, the pivot adapted to actuate the board and provided with an extending arm, the reach-bar jointed to said arm and extending backward, and the hand-lever located adjacent to the rear end of the well and jointed to the reach-bar, as described.

4. In combination with the well, the series

of center-board sections mounted on a horizontal pivot at the forward end of said well, the forward ends of the respective sections being beveled at different angles, as described, 5 whereby they are adapted to descend one below another.

5. In combination with the flanged well, the boat, the plate fixed within the boat and pro-

vided with lips overhanging the flange, and wedges inserted between the lips and flange, 10 substantially as described.

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Witnesses:

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