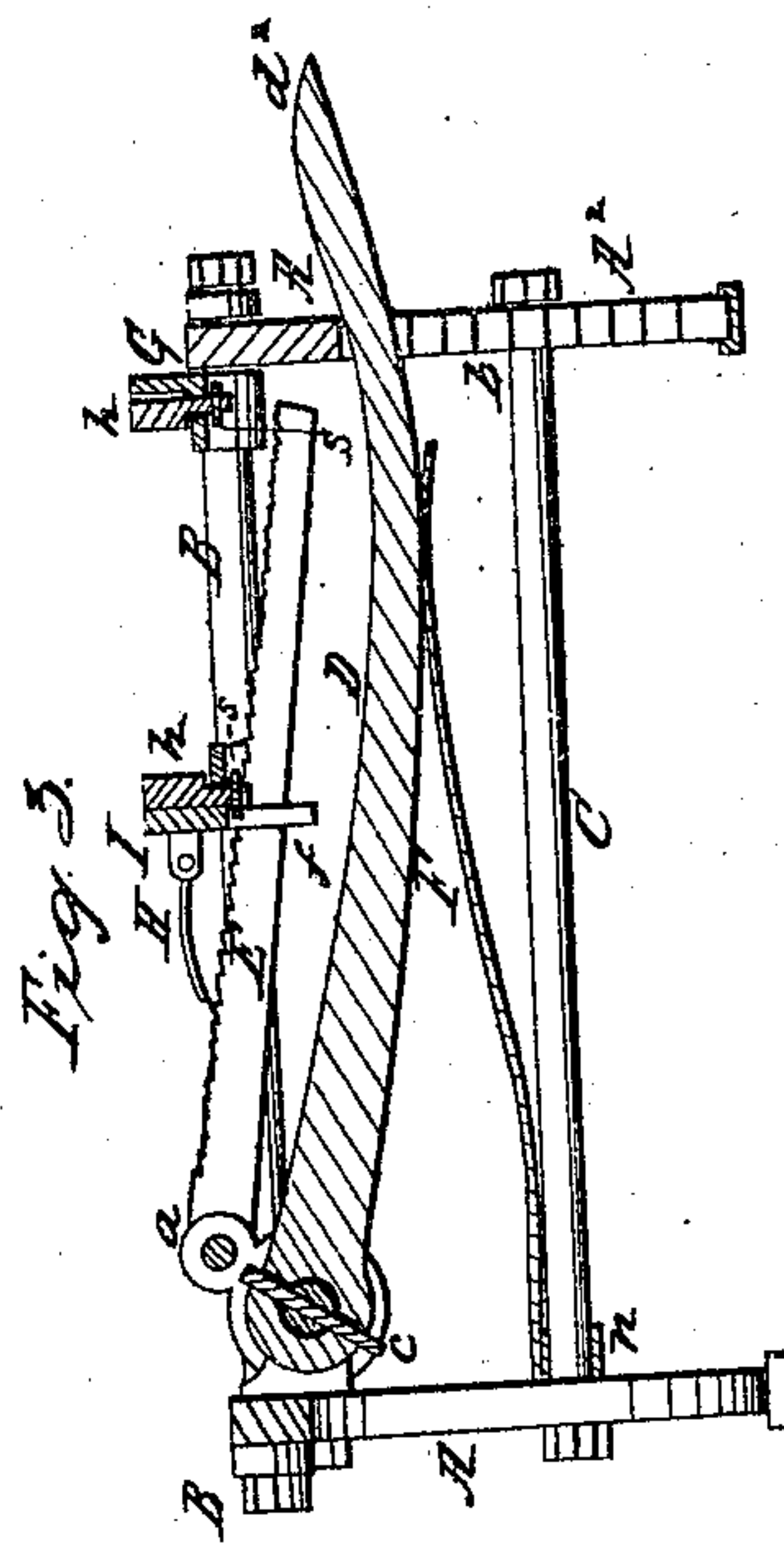
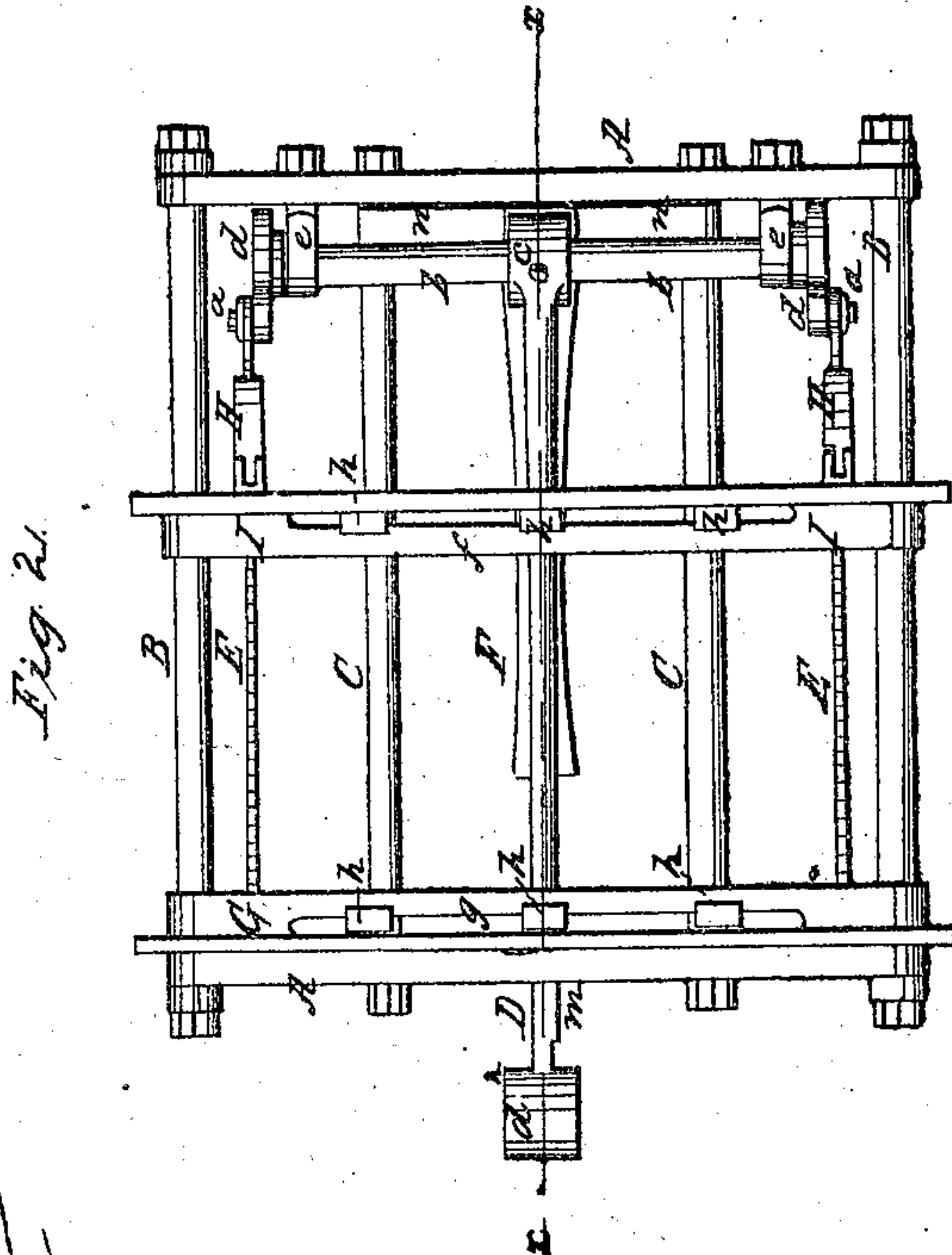
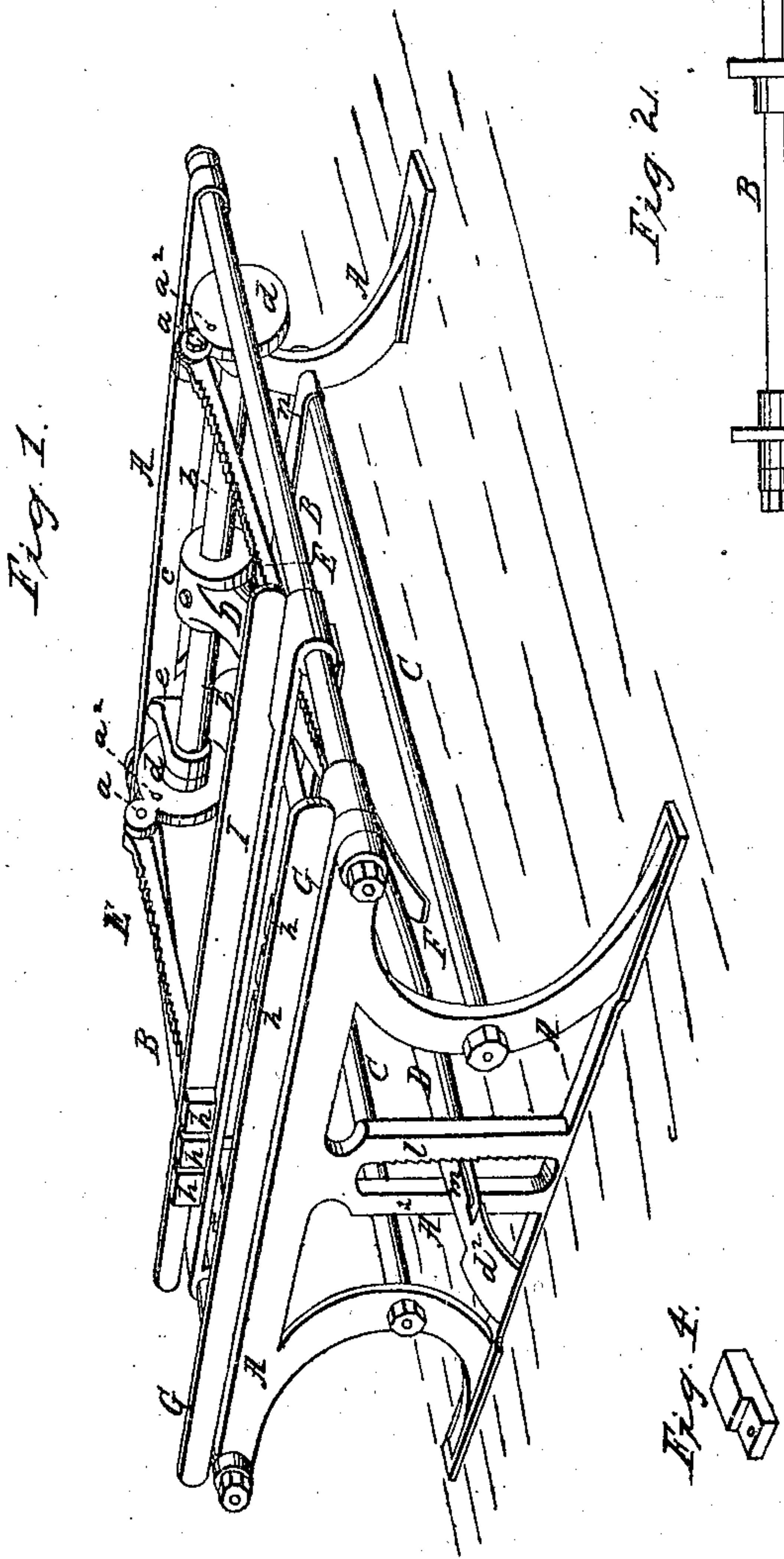


W. R. AXE.  
CLAMPING APPARATUS.

No. 31,145.

Patented Jan. 22, 1861.



Witnesses:  
Joseph Brittan  
Richard W. Rogers.

Inventor.  
 Wm. R. Aye.



# UNITED STATES PATENT OFFICE.

WILLIAM R. AXE, OF BELOIT, WISCONSIN.

## CLAMPING-MACHINE FOR CARPENTERS.

Specification of Letters Patent No. 31,145, dated January 22, 1861.

*To all whom it may concern:*

Be it known that I, WILLIAM R. AXE, of Beloit, in the county of Rock, in the State of Wisconsin, have invented certain new and  
5 useful Improvements in Clamping-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.  
10

My invention relates to certain new and useful improvements in clamping apparatuses, employed principally by carpenters and cabinet makers, in putting work together. And my invention consists in the  
15 employment of two, or more ratchet bars, operated by a rock shaft having a crank pin at either end (to which said ratchet bars are hung) in combination with the movable, clamping jaw and a suitable spring treadle  
20 for moving the rock shaft, the whole constructed and operating as will be hereinafter fully described. And my invention further consists in the employment, in connection with the clamping jaws, of adjustable dogs, or bearing blocks, as hereinafter explained.  
25

To enable those skilled in the art to fully comprehend my invention and make and  
30 use the same I will proceed to describe the construction and operation of the same referring by letters to the accompanying drawings forming part of this specification and in which—

35 Figure 1, is a perspective view of one of my improved machines. Fig. 2, is a top view of the same. Fig. 3, is a vertical section at the line  $x, x$ , of Fig. 2, and Fig. 4, is a perspective view of one of the adjustable  
40 bearing blocks.

In the different views the same part of the apparatus is indicated by the same letter.

45 A, A, are two vertical stands or frame pieces which I propose to make of cast iron (they can be made of wood), and which are connected by two upper rods B, B, and two lower and smaller rods, C, C, all of said rods being secured at their ends to the said stands, or frame pieces A, A, by means of screw  
50 threads thereon, and suitable nuts. The rods, B, B, not only serve as the frame work of the machine but also constitute the ways on which is hung and slides the reciprocating carriage, or moving clamp jaw I.

55 The stationary jaw, G, is arranged and secured on the bars, B, B, close to one of the

stands A, which may be properly designated the front side of the machine, to the rear frame piece, A, bolted two stands,  $e, e$ , in which is hung and takes its bearings, a  
60 rock shaft,  $b$ . On each end of said shaft is keyed a face plate,  $d$ , provided with a crank pin,  $a$ , on which is hung one end of the ratchet bar, which induces the motion of the clamping jaw I. The ratchet bars E, E,  
65 are pivoted at one end to the said crank pins,  $a, a$ , and slide freely in vertical slots, or supporting bearings, in the projecting portions,  $f$ , of the jaw, I.

To the rear side of jaw, I, and immediately  
70 over the ratchet bars, are hung on pivots two ratchet pawls H, H, which bite, or catch into the said bars, E, E. The rock shaft,  $b$ , is operated by means of a treadle, or foot lever, D, which is fastened at its rear end to  
75 the center of said shaft by means of a keying pin,  $c$ , and which is provided at its forward end with a tread, or foot piece,  $d^2$ ,—this treadle, D, vibrates at its forward end vertically in a slot formed in the portion A<sup>2</sup>  
80 of the front frame piece, A, on one side said slot is a ratchet,  $l$ , into which bites a knife edge,  $m$ , formed on one side of lever, D, (as will be presently explained).

F, is a spring which is fastened at one  
85 end to a cross piece,  $n$ , secured to the rear ends of bars,  $e, e$ , and which has its other end resting against, the under side of lever, D, and continually pressing said lever, D,  
90 upward.

$f$  and  $g$ , are longitudinal slots cut, respectively in the moving and stationary clamping jaws, I and G, the object of said slots, is to accommodate the adjustable dogs  $h$ ,  
95 (the form of these dogs is clearly shown in the drawing and is not material to my invention) which slide freely along in said slots, and are retained therein by a pin,  $s$ , passing through the lower portion, and below the under side of the clamping jaw.  
100

It will be observed that in each of the face plates,  $d$ , is an auxiliary crank pin hole,  $a^2$ , the object of this additional hole,  $a^2$ , is to admit of shifting the crank pins,  $a$ , to increase or diminish the leverage of lever D,  
105 on the ratchet bars, and the length of motion of said bars relatively to a given extent of motion in the lever, D.

The operation of my improved apparatus will be understood from a brief explanation  
110 after what has been hereinbefore recited. The work to be clamped (for instance a



very heavy panel door) is placed upon and between the stationary and movable clamping jaws, I and G, the jaw, I, having been placed at a proper distance from jaw, G, and the bearing blocks, *h*, are then adjusted to such positions as to bear against the sides of the door, at points between the places where the tenons will protrude. The operator then throws down the ratchet pawls H into bite with the ratchets E and placing his foot on plate, *d*<sup>2</sup>, of lever, D, depresses said lever, whereby the shaft, *b*, is rocked in its bearings and the crank pins, *a*, are made to force the bars, E, forward, which bars being locked, in one direction to the clamping jaw, I, by pawls, H, carry the said jaw, I, forward or toward the jaw, G, thus tightly clamping the work between two jaws, G and I. As the lever, D, is depressed by the foot of the operator, causing the work to be clamped up, the knife edge, *m*, catches into the teeth of ratchet, *l*, and holds the lever from rising and thus the work is retained in a clamped condition until released by the operator.

It will be observed that by the construction of the machine as described, with ratchet bars, E, arranged with and operating the moving clamp, I, as set forth, the said moving clamp, I, may be readily moved, or set to any point and will at every point

have its pawls, H, come into gear with the actuating ratchets, while the lever, D, is most conveniently retained by ratchet, *l*, which is so arranged with the lever that the motion of the operator's foot both depresses and locks the said lever.

By the employment of the adjustable blocks, *n*, arranged and retained in the clamping jaws as described a perfect and reliable means is afforded as bearings for the work, without the danger of "clamping up" on the protruding ends of tenons.

Having explained the construction and operation of my improved clamping apparatus, what I claim as new and desire to secure by Letters Patent is—

The employment of the ratchet bars E, E, in combination with the rock shaft, *b*, actuated by a suitable lever and the clamping jaws, I and G, the former being provided with suitable pawls, for engagement with the bars, E, and the whole arranged and operating as hereinbefore described for the purposes set forth.

In testimony whereof I have hereunto set my hand and affixed my seal this 22nd day of November 1860.

WILLIAM R. AXE. [L. S.]

Witnesses:

JOSEPH BRITTAN,  
RICHARD W. ROGERS.