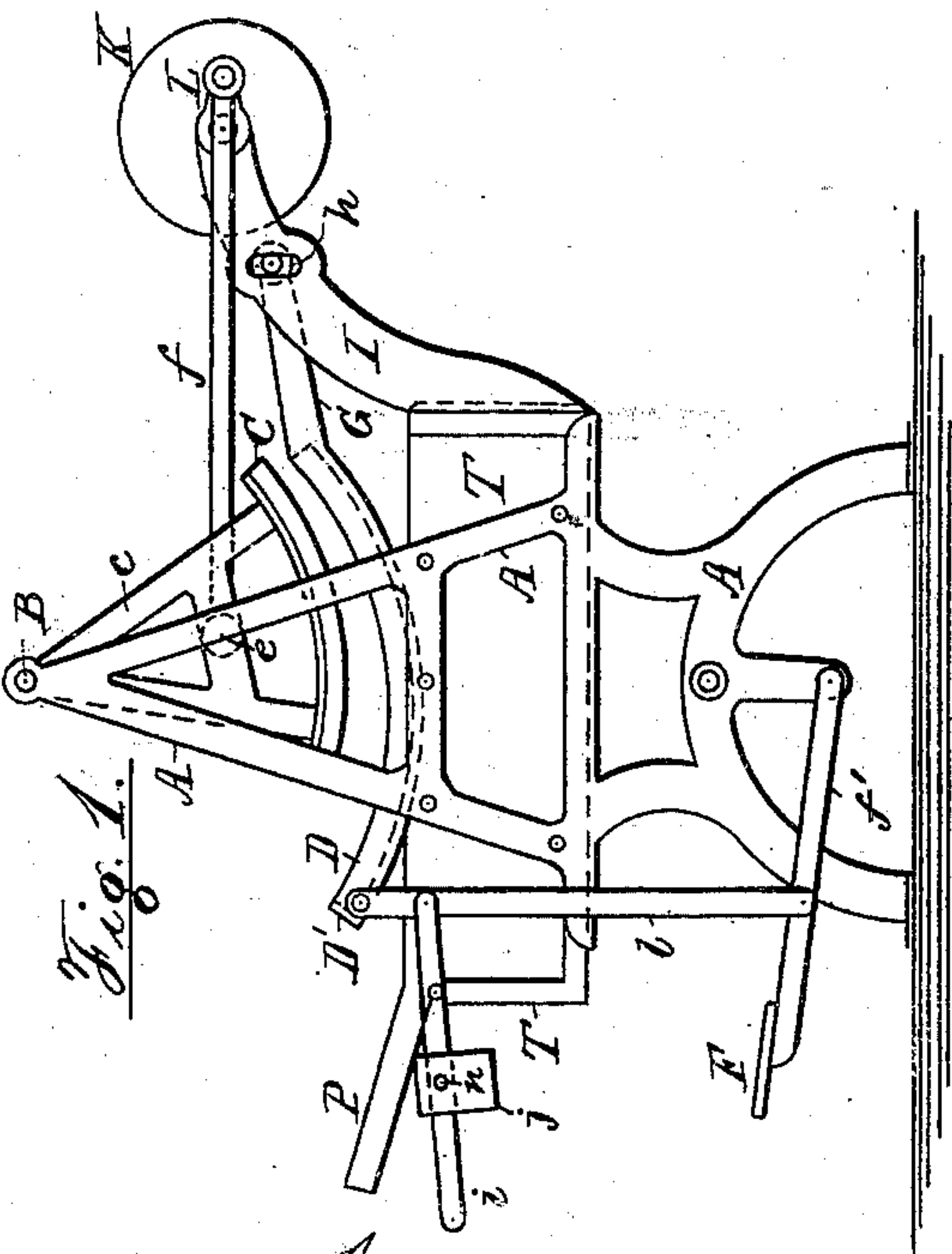
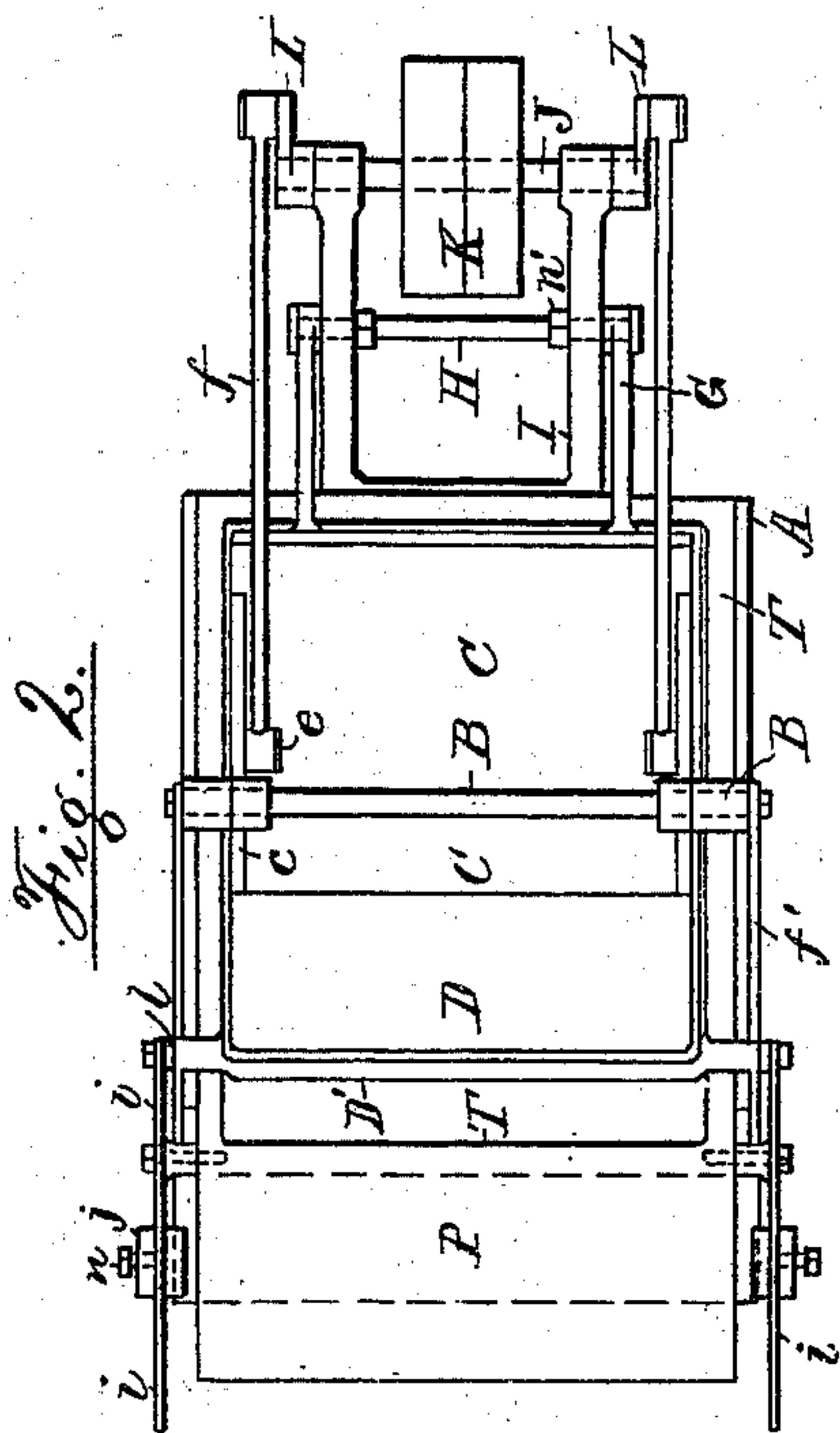
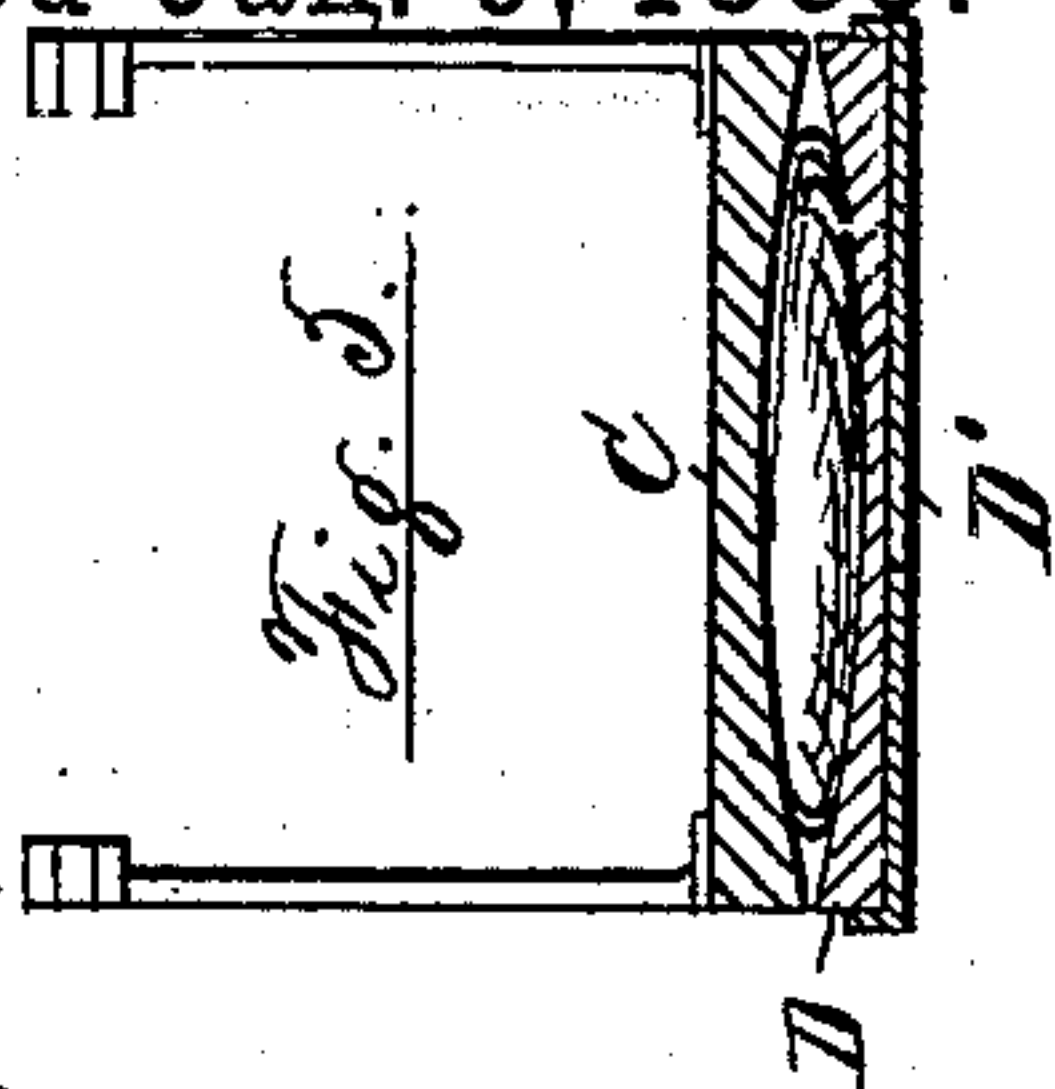
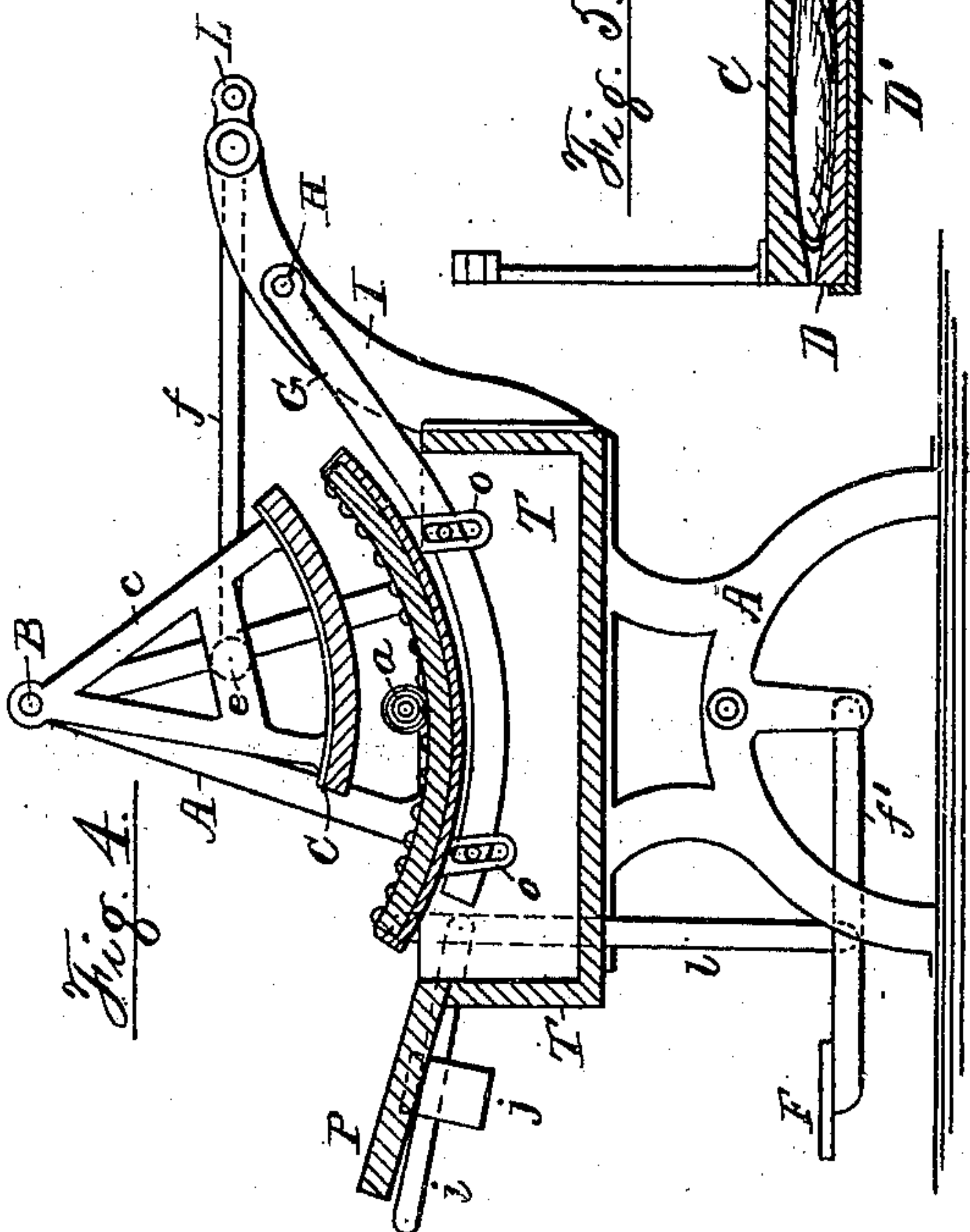
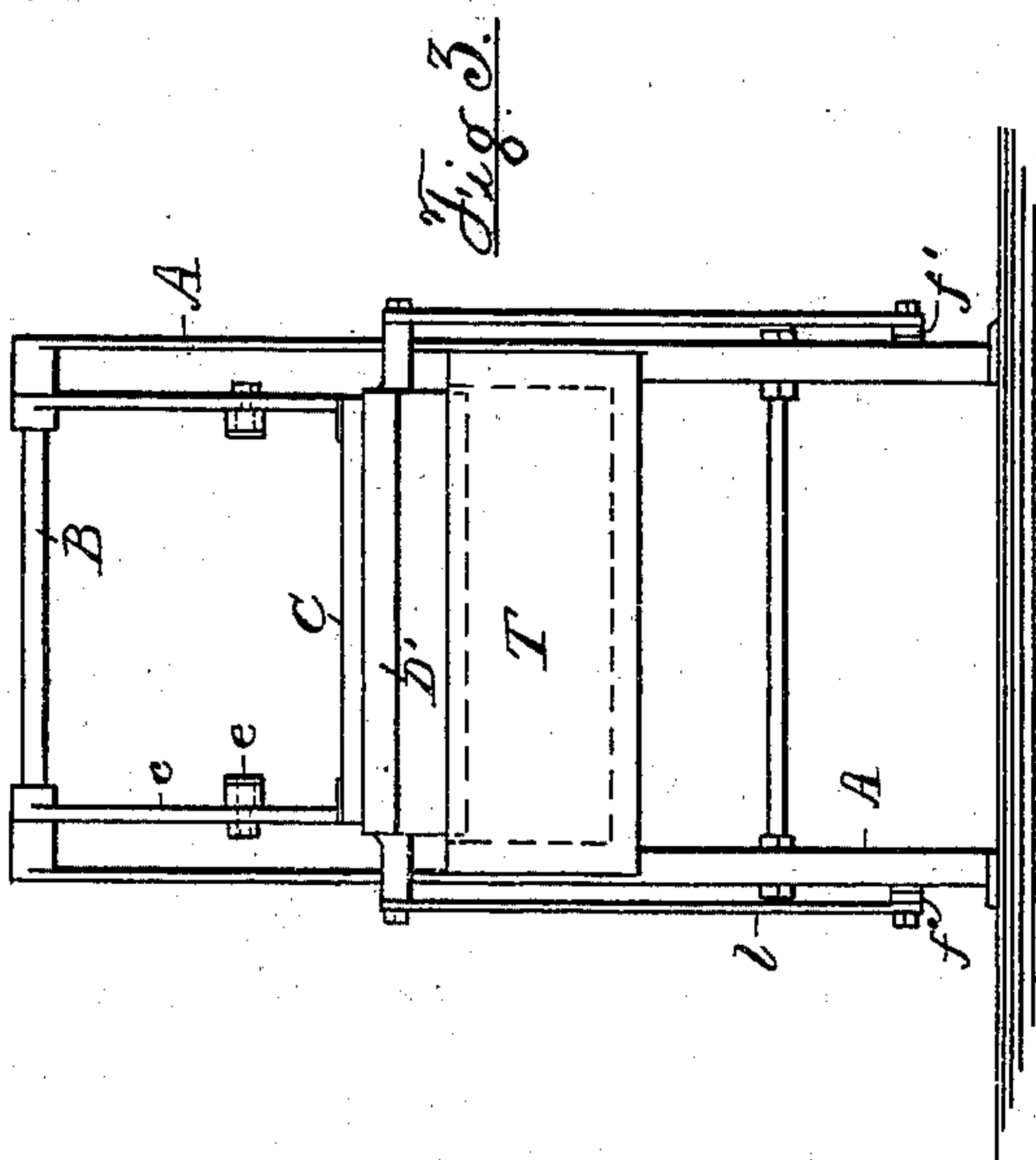


(No Model.)

R. DRAKE.
HAT FELTING MACHINE.

No. 270,292.

Patented Jan. 9, 1883.



Attest:

W. F. Crane.

Walter M. Crane Jr.

Inventor.

R. Drake, per

Thos. S. Crane Atty.

UNITED STATES PATENT OFFICE.

ROBERT DRAKE, OF NEWARK, NEW JERSEY.

HAT-FELTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,292, dated January 9, 1883.

Application filed June 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT DRAKE, a citizen of the United States, residing in the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat-Felting Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in hat-sizing machines constructed with a concave bed and an oscillating convex presser; and it consists in the combinations of mechanism, herein set forth and claimed, for operating such a bed and presser more advantageously.

20 In the drawings annexed, Figure 1 is a side elevation of a machine constructed with my improvements. Fig. 2 is a plan of the same. Fig. 3 is a front view of the same, and Fig. 4 is a longitudinal section thereof. Fig. 5 is a transverse section of the presser and bed, showing the application of the same to the ordinary roll of hat-felts.

25 A is an iron frame, formed with a fulcrum, B, at the top for the presser C, and with a fulcrum, E, at the bottom for the treadle F.

30 D is the bed, constructed of wooden slats supported by a cast-iron plate, D', having ribs or flanges *d* formed around its edges to retain the bed D in place. T is the tank. The plate D' is provided with arms G, extending from its rear edge to the fulcrum-rod H, the latter being secured across the rear of the frame A by brackets I, which also carry at their farther extremities the driving-shaft J.

K are driving-pulleys applied to the shaft, and L are cranks secured to the opposite ends of the shaft upon the same side of its axis.

40 The presser C is pivoted to the fulcrum B by radial arms *c*, and a pin, *e*, is secured between the arms at each side to receive a connection, *f*, which is pinned at its farther end to the crank L. The rotation of the cranks thus oscillates the presser back and forth above the bed, and as the fulcrum B is stationary the bed itself is made adjustable to and from the presser, so as to vary the pressure of the latter upon the felts. To effect such a movement and produce
50 any degree of pressure at pleasure, I pivot a lever, *i*, at each side of the tank at the front, ex-

tending them along the ends of a plank, P, secured to the front edge of the tank. Each lever is provided with an adjustable weight, *j*, and is connected by a link, *l*, to the front part of the bed, the plate D' being provided with pins *p* for such purpose. The weights are secured in place by set-screws *n*, and operate to press the bed upward against the presser with the desired force. The links *l* are extended downward until they meet the levers *f'* of the treadle F, to which they are pivoted by bolts. A downward pressure upon the treadle acts in opposition to the weights *j*, and serves to lower the bed when required to introduce or
65 remove the roll of felts *a*.

It will be observed in Figs. 1 and 4 that the curved surfaces of the bed and presser are not parallel, and that in the latter figure, wherein the bed is shown depressed for the removal of
70 a felt-roll, the divergence of the surfaces is greater than in Fig. 1. This adjustment of the bed is produced by the use of a pivoted support, as at H, and can be varied at pleasure by raising or lowering the fulcrum-rod in the slots *h* in the brackets I. The object of this construction is to effect an alternate light and easy pressure upon the felt-roll, as is customary in sizing a bundle of hats by hand, in which operation the workman leans forward and
80 throws weight upon the palms of his hands as he rolls the felts from him, but lifts off a great part of the pressure upon the backward movement to permit the felts to change their position slightly in the roll. This movement has
85 always been considered very advantageous, and is secured in my machine by the formation of a tapering channel, as shown in Figs. 1 and 4, in which the felts are rolled back and forth, being pressed harder and harder as they
90 approach the rear of the bed, and unrolling or expanding slightly as they roll toward the front.

The location of the fulcrum H in the rear and a little above the level of the bed also
95 causes the bed to incline toward the front as it is opened to remove the rolls, thus affording a free entrance to the hat-felts and preventing them from readily falling out at the rear of the bed.

The inclination of the bed may be varied by changing the location of the rod H in the slots
100

h, in which it may be clamped by nuts *n'*; or the arms G may be made separate from the plate D' and extended beneath it, so that the latter may be secured to the arms at any desired angle by means of slotted lugs *o*, as shown in Fig. 4.

To secure an equal pressure upon the convex body of an ordinary hat-felt roll I make both presser C and bed D concave transversely upon their opposed faces, thus forming a cavity exactly adapted to fit the roll and press upon it equably, as shown in the transverse section of the bed and presser in Fig. 5. This construction secures a more efficient operation of the presser upon the felt-roll, and facilitates the completion of the felting operation, as in the case of rollers made concave for a like purpose.

The bed and presser may be made smooth, as shown in Figs. 1 and 5, or ribbed with wood or india-rubber strips, as shown in Fig. 4. As such strips are common in all kinds of felting-machines, I do not claim the same herein, nor the rubbing of hat-felts between a convex presser and concave bed of the kind herein described.

I am aware that such means of pressing and rolling hat-felts have been used before, and have been provided with mechanism for adjusting the bed or presser. I do not, therefore, claim the same broadly; but, having devised the special means herein shown for improving the operation of those parts heretofore known, I have claimed the same as new.

In the machines heretofore devised with a rocking presser—as No. 78,863, of July 14, 1868; No. 111,935, of February 21, 1871; No. 15,627, of August 26, 1856; No. 104,424, of June 21, 1870, and others—the bed and presser were used in some adjustable manner, and I therefore disclaim such patents entirely, and all features they may possess in common with mine, my invention and claims relating solely to the new attachments I have devised for facilitating the use of the parts already known.

I am also aware that it is not new to use concave surfaces for operating upon the convex body of a roll of hat-felts, as the same is

shown in a different form of mechanism from mine in United States Patents No. 249,440, and Reissue No. 9,683, and I do not therefore claim the same, except so far as the combination of such surfaces with the curved bed D and presser C is new, in the same sense that any new combination may contain an element previously known or claimed.

By the use of the adjustable weights *k* the pressure upon the hat-felts may be varied in any desired degree, and the machine is thus perfectly suited to do the lightest kind of work—as the hardening of new felts—and the harder operations—as scalding and second sizing.

I therefore claim my invention for any of these purposes in the following manner:

1. In combination with the oscillating presser C, the bed D, supported by pivoted arms G and weighted levers *i j*, and suitable mechanism—as frame A and crank-shaft and cranks J L—for operating the presser, substantially as shown and described.

2. The means for operating the bed D under the presser C in the manner described, consisting of the arms G, pivoted to the frame of the machine, the weighted levers *i j*, and the treadle F, levers *f*, and links *l*, the whole arranged and connected substantially as shown and described.

3. The combination of the oscillating presser C, concaved transversely, with the bed D, pivoted by arms to the frame, as described, and concaved transversely, as well as in the direction of the presser's motion, substantially as and for the purpose described.

4. The combination, with the vibrating presser C, of the bed D, having arms G, supported upon pivots H, the latter being adjustably mounted, as in slots *h h*, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT DRAKE.

Witnesses:

THOS. S. CRANE,

W. F. D. CRANE.