

W. J. Hatfield,

2 Sheets-Sheet 1.

Wood Molding Machine.

N^o 10,338.

Patented Dec. 20, 1853.

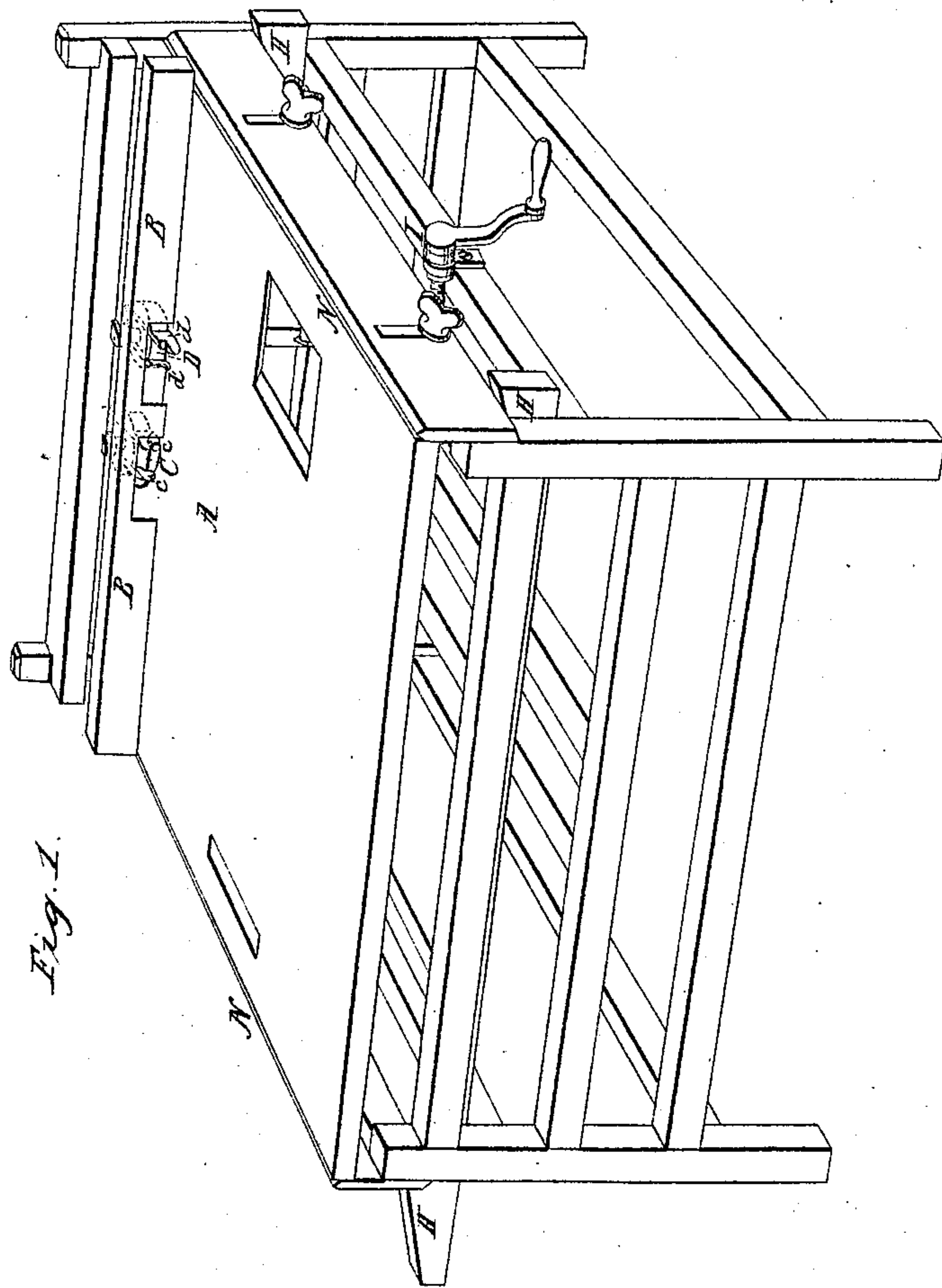


Fig. 1.

2 Sheets, Sheet 2.

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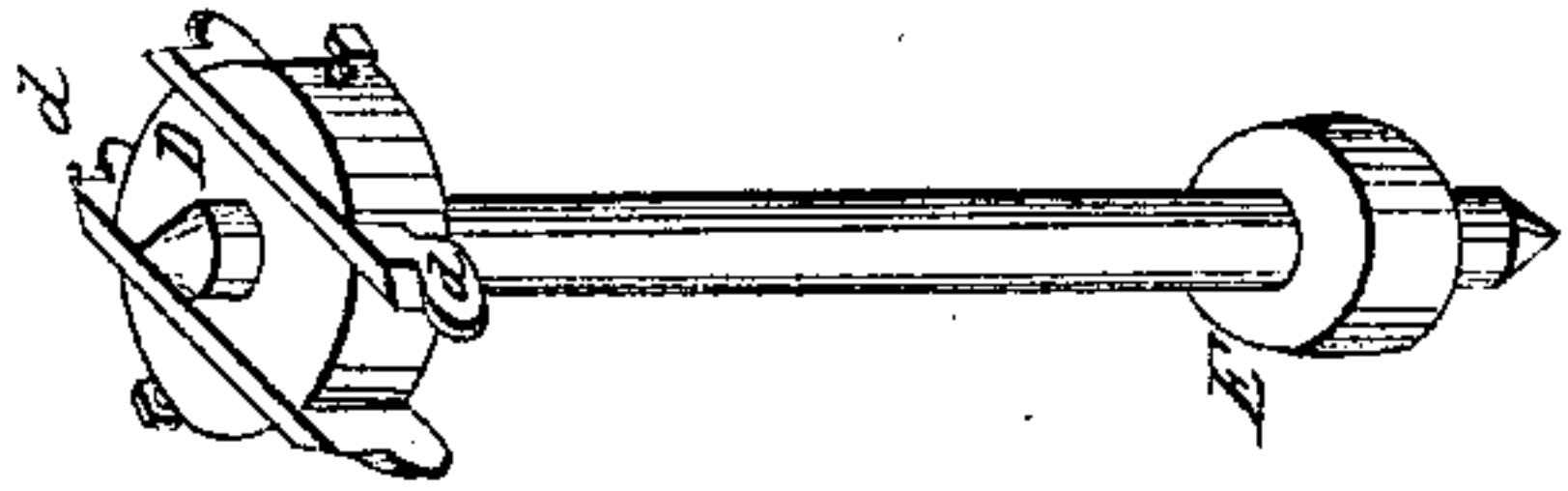


Fig. 3.

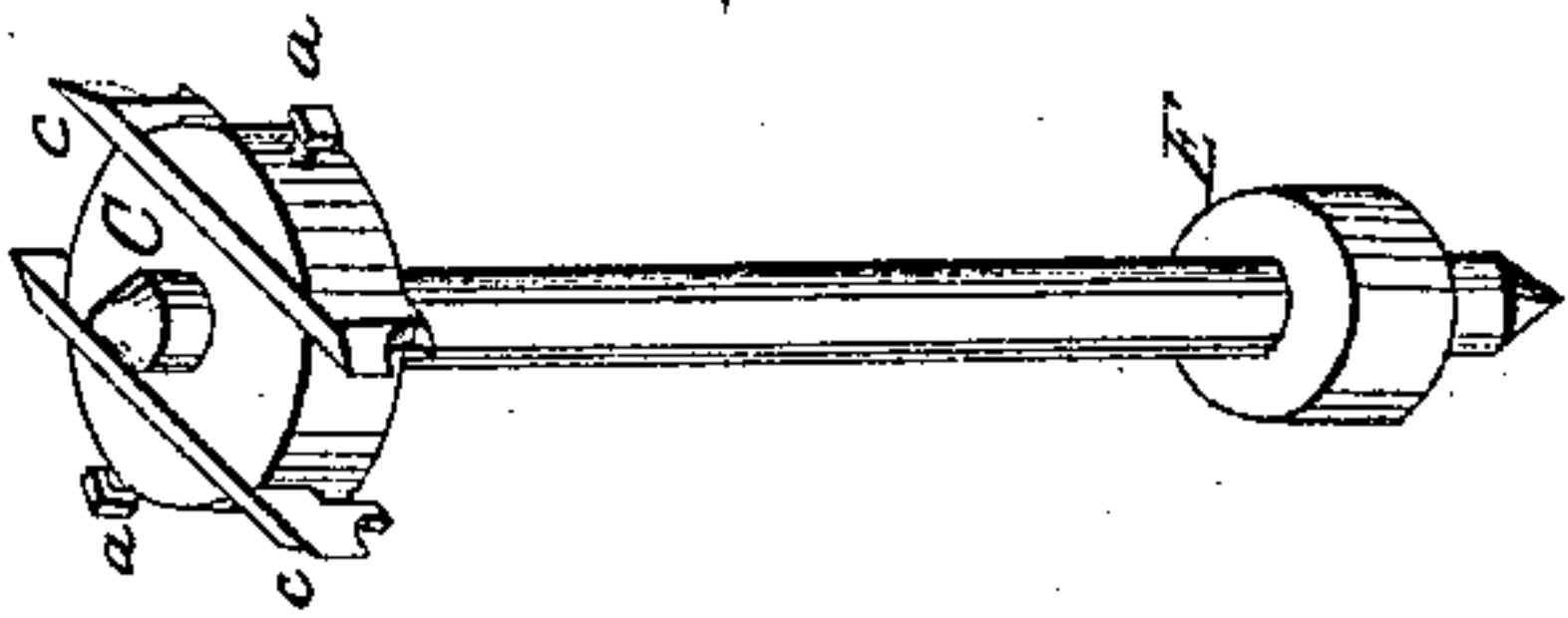


Fig. 5.

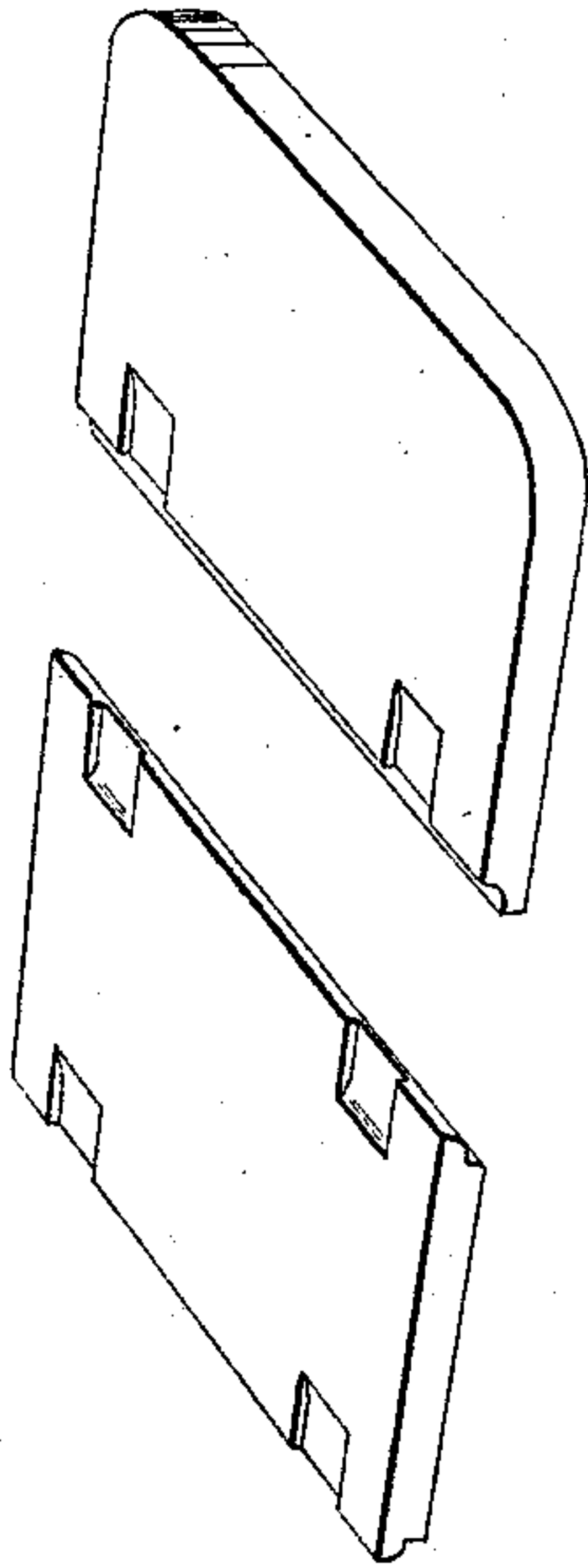


Fig. 2.

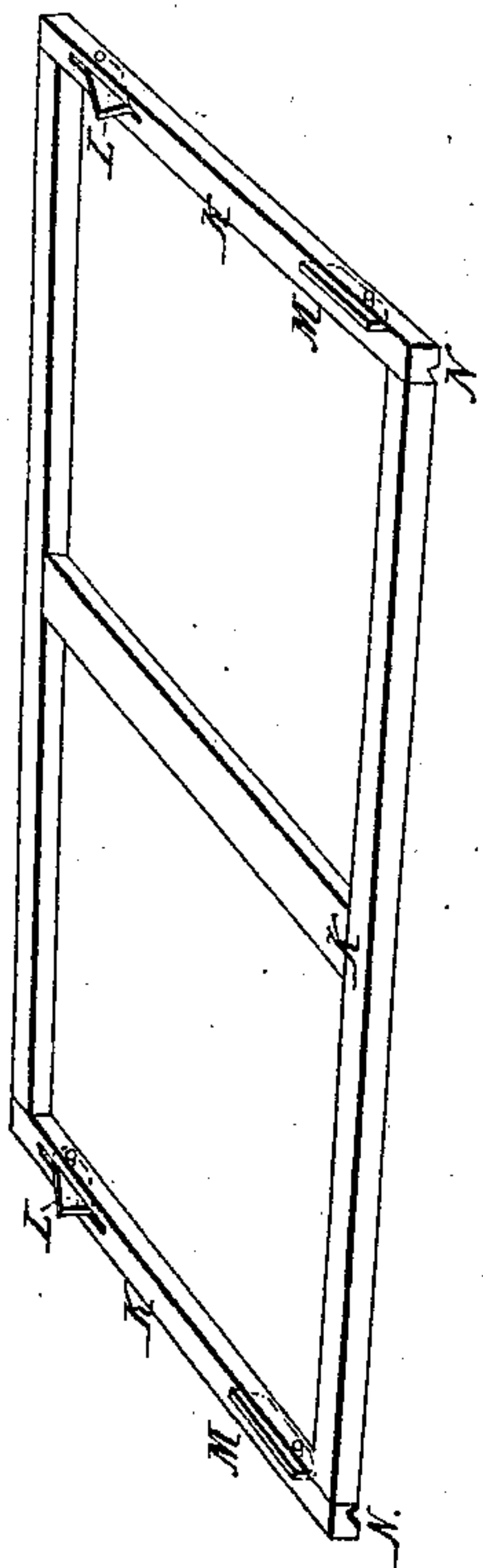
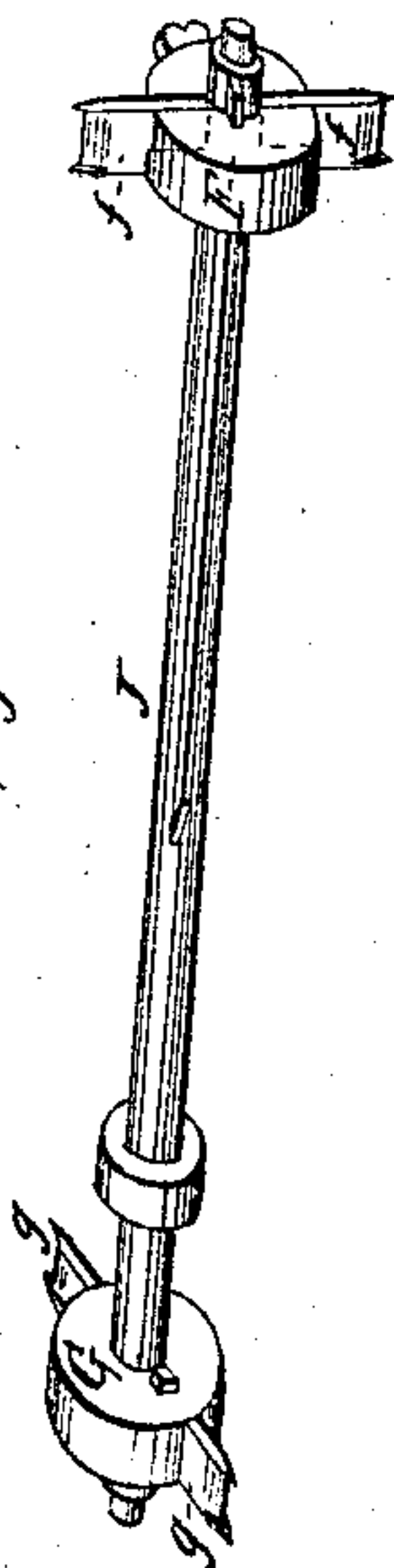


Fig. 4.



UNITED STATES PATENT OFFICE.

W. I. HATFIELD, OF DAYTON, OHIO.

MACHINE FOR JOINTING TABLE-TOPS.

Specification of Letters Patent No. 10,338, dated December 20, 1853.

To all whom it may concern:

Be it known that I, W. I. HATFIELD, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Jointing and Hinging Leaf-Tables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my improved machine for jointing and hinging tables; and Fig. 2 a similar view of the sliding frame used in cutting the recesses for the hinges, detached; Fig. 3 represents views in perspective of the rotary jointing cutters, detached; Fig. 4, a view in perspective of the rotary hanging cutters, detached; and Fig. 5 a view in perspective of the underside of a table top and leaf in part in illustration of the nature of the work to be done.

In the construction of those tables which have flat or hinged leaves that may be raised to form an extension of the top of the table, or lowered to contract the same, as convenience suggests, much labor and difficulty has been involved, in jointing and hinging tables; that is in cutting the recesses for the hinges and so shaping the edges of the top and leaves, that when the latter are raised they form a smooth continuation of the top of the table, and when lowered do not leave a gap or opening at the joint. In thus jointing and hinging tables by hand, it has heretofore been a slow and difficult operation and involved the necessity of employing the most skilful workmen, owing to the great accuracy required in the workmanship. The liability of the hand plane to deviate from its proper line of travel and to cut at irregular depths into the wood, and the frequent reversion in the motion of the plane requisite to adapt the cut to the varied directions of the grain of the wood, all tend to render the joint irregular. A like difficulty has also existed in forming the recesses for the hinges, which should be of equal depth and at the same distances apart in the leaves and top of the table, so that the leaves when hung and extended lie flush with the top, both as regards its upper surface and the side edges thereof. The skill requisite and time consumed, in thus jointing and hinging tables constitute a large

item in the cost of making, and it seldom happens, even when much care has been bestowed upon these operations, that the workmanship is as perfect as is desirable it should be, and it has long been a desideratum to joint and hinge tables automatically in such manner that accuracy will be insured, the specified operations expedited and the usual skilled labor dispensed with; to accomplish this desideratum is the object of my invention.

In the machine represented in the accompanying drawings, the top or leaf of the table to be jointed is fed along or over a bed (A) with its edge to be dressed bearing against a guide strip (B) through which rotary cutters (C and D) project that joint the edges of the top and leaves as they are passed in succession over the bed. These rotary cutters turn horizontally and are designed to be driven by pulleys (E) on their axes by bands in such manner that the motion may readily be reversed; they are hung so that they may be driven back at pleasure within the front of the guide strip (B) to form the cut, as one cutter (C or D) only is designed to operate at a time. One cutter (c) is employed for dressing or jointing the edges of the top of the table and the cutters (c and c) therein are made of inverse cavetto and straight edged configuration at their extremities for the purpose of cutting the required molding along the edges of the top; these cutters (c and c) are fitted in the cutter head on either side of the axis parallel, or thereabout, to one another, and are of similar configuration at their several ends which project beyond the periphery of the cutter head, through slots in which the cutters are so fitted, that they may be moved endwise for the purpose of setting two of the opposite cutting extremities of the two cutters more distant from the center of the cutter head than the other two cutting edges, so that the cutters which lie face to face may be arranged to cut in pairs, that is at the one end only of either cutter according to the set of the cutters in reverse directions through the cutter head, the direction of which set is regulated to suit the direction in which the cutter head rotates and the direction in which the board being dressed is fed.

The cutters (c and c) when properly adjusted may be fixed by clamp screws (a).

By this arrangement of the cutters both edges of the top may be dressed with the grain of the wood so as to give a clean cut or finish to the joint, and whenever it becomes necessary the cutters may be reversed to cut in different directions to dress wood of reverse grain by suitably setting the cutters as described. One side or edge of the top is fed over the bed (A) and then reversing the set and motion of the cutters when returning the top over the bed in the opposite direction for the purpose of dressing its opposite edge, the cut of which will by this arrangement be with the grain of the wood. The top being thus jointed the cutter head (C) is thrown back and the other cutter head (D) brought forward so as to cause its cutters (*d* and *d*) to protrude through the guide strip for the purpose of jointing the edges of the leaves which are fed over the bed (A) in a similar manner to that described for jointing the edges of the top; these cutters (*d* and *d*) are double and capable of being reversed similarly to the cutters (*c* and *c*) of the other cutter head, in order that they may cut with the grain of the wood; the configuration of the cutting extremities of these cutters (*d*) differs from that of the other cutters in being convex where they are curved in order to cut on the edge of the leaf to form the counterpart of the edge of the top to fit and joint against the latter as represented in Fig. 5; otherwise these cutters (*d* and *d*) do not differ in their construction, arrangement and operation from the other cutters already described. If desirable duplicate cutter heads may be arranged at the extremities of a lever pivoted in the middle for reversing expeditiously the direction of the cut, the one cutter head having its cutters set to cut in an opposite direction to the cutters of the other head, so that by throwing one cutter head into action and the other out, the cut may be changed to suit the direction of the grain of the wood. The leaves and top of the table being thus jointed it is afterward necessary to form the recesses or seats for the hinges on their under face; this is effected by rotary cutter heads (F and G) mounted on a shaft (J), the cutters (*f* and *g*) of which travel through openings in the bed (A) that is attached to the frame of the machine in such a manner that it may be raised or lowered as required so that upon elevating the bed, the hinging cutters (*f* and *g*) will be below the upper surface of the bed, and consequently offer no obstruction to the top or leaves, when sliding on and along the bed for the purpose of being jointed, but by lowering the bed when required to hinge the top and leaves, it causes the hinging cutters (*f* and *g*) to project above the upper surface of the bed, in order that they may cut to the proper depth.

The devices for raising and lowering the bed may consist of an under frame having wedge shaped projections (H) which according as they are moved in one direction, or the other by means of a screw (I) raise and lower the bed as required.

The cutters (*f* and *g*), of which there may be any desired number projecting from the periphery of the cutter heads are of peculiar construction, so as to cut, when rotating, in either direction, the motion of the shaft (J) upon which the cutter heads are mounted being made reversible, in any suitable manner. The form of these cutters is that of a wedge, beveled on both sides to a sharp cutting outer edge, with two spurs, one on each side, which cut somewhat deeper into the wood than the face edge or body of the cutter, thus insuring a clean finish to the sides of the hinge recess. The top or leaf to be hinged is fed up to these rotary cutters on a sliding frame (K) which fits on transverse ways (N) across either end of the bed; this frame has stops (L and M) arranged in pairs on either side, these stops are hinged so as to shut down into the frame. In hinging a leaf, the bed (A) is lowered until the cutters (*f* and *g*) project sufficiently above the surface to cut the required depth for the hinge seat; the frame (K) is then placed on its ways on the bed and the stops farthest from the guide strip (B) raised; the leaf is then put upon the frame with its jointed edge bearing against the raised stops, and the leaf pushed forward toward the guide strip which will bring it into contact with the cutters, so as to make the necessary incisions to form the hinge seats in the under face of the leaf. The cutters are made to move in an opposite direction to that in which the leaf is fed. As the cutters thus operating cut from the edge of the leaf backward the required length of the hinge recess, there will be no tendency to rag or tear the joint at the mouth of the recess. In cutting the hinge seats in the top of a table, the operation is the same as that already described for cutting the recesses in the leaves, but as the top requires to be hinged on both sides of its lower face, it is placed upon the sliding frame (K) between the stops (L or M) and made first to bear against the outer pair of stops, while the frame is pushed toward the guide strip to produce a similar action of the cutters to that described in forming the recesses in the leaves; the one side of the top being thus hinged, the opposite parallel edge or side is afterward hinged in a similar manner by reversing the action of the cutters and feeding the said opposite edge against the cutters in a reverse direction to that previously specified, the inner pair of wings, or stops being raised for the edge of the stop to bear against. Any suitable contrivance

in the way of a gage may be adopted for regulating the stroke of the sliding carrying frame to the length of hinge recess required. One of the cutter heads (F) should be fitted
5 on its shaft in such manner that it may be adjusted nearer or farther from the other head (G) to adapt it to hinging tables of different sizes.

From this description it will be apparent
10 that great accuracy is insured both in jointing and hinging, and another great advantage is, that little or no skill is required in the performance of the work, and the several operations are perfected so much more ex-
15 peditiously.

What I claim as my invention, and desire to secure by Letters Patent, is—

The method herein described of jointing and hinging tables by means of rotary cutters arranged and operating substantially 20 as specified, whereby time and labor are economized and greater accuracy is insured as set forth.

In testimony whereof, I have hereunto subscribed my name.

W. I. HATFIELD.

Witnesses:

P. H. WATSON,
PETER HANNAY.