J. Carhart,

Wood Molding Machine.

No. 15,061. Patented June 10, 1856.

Fig. 2.

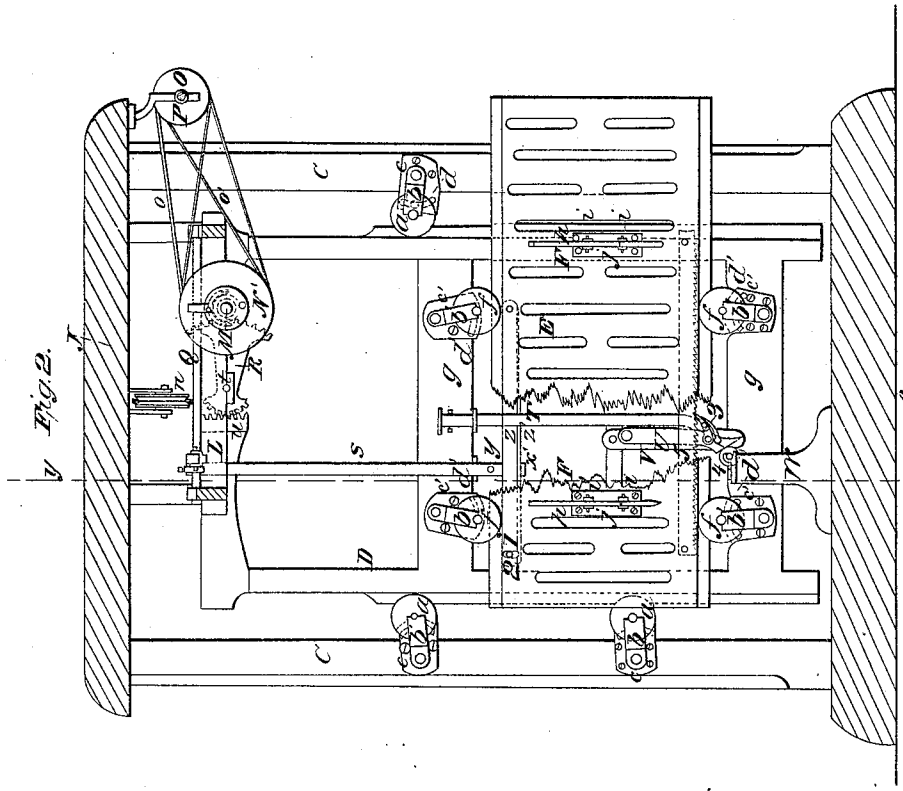


Fig. 3.

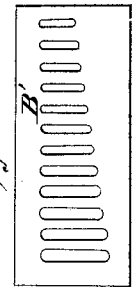
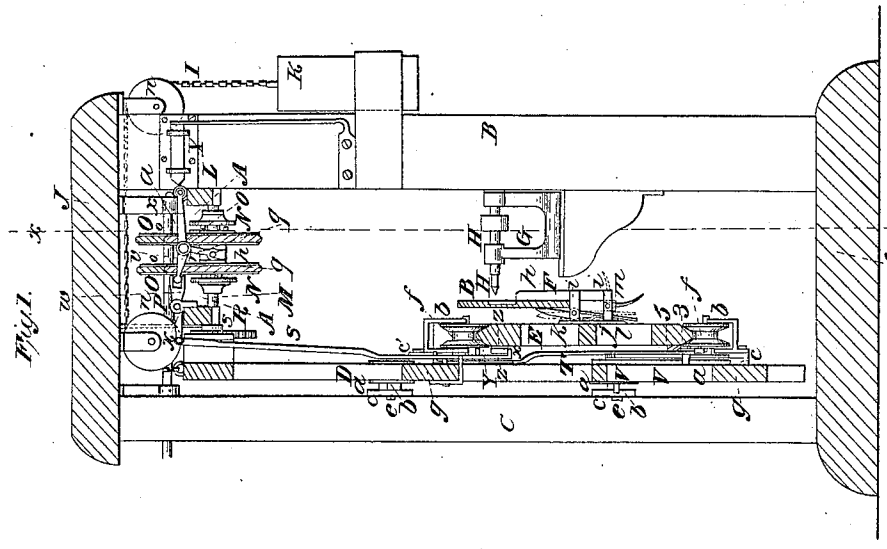


Fig. 1.



UNITED STATES PATENT OFFICE.

JEREMIAH CARHART, OF NEW YORK, N. Y.

MACHINE FOR MANUFACTURING REED-BOARDS FOR MELODEONS.

Specification of Letters Patent No. 15,061, dated June 10, 1856.

To all whom it may concern:

Be it known that I, JEREMIAH CARHART, of the city, county, and State of New York, have invented a new and improved machine for grooving reed-boards for melodeons and for other purposes where boards are required to be cut with a series of grooves or slots in them; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section of my improvement, (*y*), (*y*), Fig. 2, showing the plane of section. Fig. 2, is also a vertical section of ditto, (*x*), (*x*), Fig. 1, showing the plane of section. Fig. 3, is a face view of a reed board.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists: 1st, in the employment or use of two frames connected together, one of which has a reciprocating motion communicated to it in a peculiar way, and the other has a lateral feed motion given it so that the reed board, which is attached to the laterally-moving frame, will be properly slotted or grooved, as will be presently shown and described; 2nd, my invention consists in the peculiar form or construction of the dogs by which the reed board is attached to its frame.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a base or platform on which three uprights B, C, C, are placed and D, is a sash or frame which is fitted and works between rollers (*a*), attached to the uprights C, C. The rollers (*a*), are fitted in small frames (*b*), which are pivoted to plates (*c*). The plates (*c*), have segment slots (*d*) cut through them, through which slots set screws (*e*) pass into the frame (*b*) see Fig. 2. The rollers (*a*) have V-shaped grooves made in their peripheries and the outer edges of the side pieces of the frame D, are beveled in a corresponding form to fit in the V-shaped grooves in the rollers (*a*).

From the above description, it will be seen that the rollers (*a*), may at any time be snugly adjusted to the frame D, so that said frame may be operated without any unnecessary lateral play and at the same time with but little friction.

E, represents a frame which is fitted and works between rollers (*f*) attached to cross pieces (*g*), (*g*) of the frame D. The rollers (*f*) are arranged precisely similar to the rollers (*a*), on the uprights C, C, the rollers (*f*) being fitted in frames (*b'*), pivoted to plates (*c'*), and said plates having segment or curved slots (*d'*) in them through which set screws (*e'*) pass into the frames (*b'*). The frame E is allowed to work or slide horizontally on the frame D.

To one side of the frame E, there are attached two dogs F, F. The construction of these dogs is shown in Fig. 1. An upright metal bar (*h*), is secured to two horizontal bars (*i*), (*i*), which are attached to a plate (*j*), secured to the frame E, by screws. To the upper bar (*i*), there is pivoted a jaw (*k*) against the lower end of which a spring (*l*) bears, said spring keeping the upper end of the jaw back against the frame E. To the lower bar (*i*), there is attached or pivoted a cam (*m*), which bears against the lower end of the jaw (*k*). By turning the cam (*m*) the upper end of the jaw (*k*) is forced toward the bar (*h*) and the reed board or other article to be operated upon is secured between the upper ends of the jaw (*k*) and bar (*h*).

To the upright B, there is attached a head G, in which an arbor or mandrel H, is fitted. A cutter is placed in the outer end of the arbor or mandrel.

To the upper end of the frame D, there is attached a chain or cord I, which passes over pulleys (*n*), (*n*), attached to a top plate J, on the uprights B, C, C. This chain or cord has a counterpoise K, attached to it.

To the upper part of the upright B, there is permanently attached a horizontal frame L. This frame is directly underneath the top plate J. In the frame L, there is placed a shaft M, which has two pulleys N, N', placed loosely upon it. These pulleys have belts (*o*), (*o'*) passing around them, said belts also passing around pulleys O, O, on a driving shaft P. The belt (*o'*) which passes around the pulley N', is a cross belt and the pulleys N, N', consequently rotate in reverse directions. Between the two pulleys N, N', there is a collar (*p*), which is connected with hubs or flanches (*g*) at the centers of the pulleys. This collar has an arm (*r*) attached to it, said arm being connected to a shaft Q, which is placed longitudinally in the frame L. On the shaft M,

there are attached two bosses A′, to which the pulleys N, N, are alternately connected and disconnected by pins which are attached to said pulleys and fit in holes in the bosses.

To one end of the shaft M, there is attached a pinion (*s*). This pinion gears into a segment R, which works on a shaft or rod (*t*) in the frame L. The opposite end of the segment is also geared and works in a rack (*u*) which is on the upper part of the frame D.

The end of the shaft Q opposite the end to which the arm (*r*) is attached has an arm (*v*) attached to it. The outer end of the arm (*v*) passes into a recess made in the end of a lever (*w*) which works on a pivot (*x′*) on the frame L. The opposite end of the lever (*w*) is attached to a vertical bar S, the lower end of which is hooked or bent as shown at (*x*) and a pin (*y*) is also attached to it a short distance above the hook (*x′*). To the frame E, there is attached a horizontal bar (*z*) and a similar bar (*z′*) is pivoted to one end of the bar (*z*), the bar (*z′*) having a slot (1) in its outer end, through which a set screw (2) passes, see Fig. 2.

T is a bar, the upper end of which is attached to the upper cross piece (9) of the frame D. The lower end of this bar is attached to a pawl (3) which is pivoted to a bar U, attached by a pivot to a bar V, which is secured to the lower cross piece (*g*) of the frame D. The lower end of the bar U, is beveled or cut obliquely and bears against a friction roller (4) attached to a projection, W, on the base A. The pawl (3) gears into a rack (5) on the lower part of the frame E.

X, is a spring top which bears against an arm (a^{x}) on the shaft Q and prevents the said shaft from turning or moving casually.

The operation is as follows. The reed board, shown in Figs. 1, and 3, and designated by B′, is placed between the bars (*h*) and the jaws (*k*) and the jaws are forced against the board by turning the cams (*m*). By this means of dogging or securing the reed board to the frame E, the face of the board is always brought at right angles with the cutter, H, however taper the board may be, or thicker at one end than at the other. Motion is given the driving shaft P, in any proper manner, and a reciprocating motion is communicated to the frame D, by means of the pulleys N, N′, pinion (*s*) and segment R, a reverse motion being given the shaft M on which the pulleys N, N′, are placed by means of the arm (*r*) which throws said pulleys alternately in and out of gear with the bosses A′ on the shaft M in consequence of the bar S, which is actuated at the termination of each stroke of the frame D, by the bars (*z*), (*z′*), which strike against the pin (*y*) and hook (*x′*) at the lower end of the bar S, and turn the shaft Q, which has, in consequence, a rocking motion. The length of the vibration of the frame D, may be gradually diminished at each stroke by placing the bar (*z′*) obliquely with the bar (*z*). This, of course, allows a smaller degree of play between the pin (*y*) and hook (*x′*) as the frame E is fed along and produces the effect stated.

The frame E, is fed a certain distance laterally by means of the pawl (3) which acts against the rack (5), the bar U and pawl (3) being actuated in consequence of the lower and beveled end of the bar U, bearing against the roller (4).

By this invention the cutter H, will cut a series of parallel grooves in the reed boards and the grooves will be of varying lengths or gradually increasing or diminishing in length from one end of the board to the other. The machine is automatic or self-acting, requiring no adjustment from the time the board is secured in the dogs F, till it is taken out in a finished state.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,

1. The means whereby the reciprocating motion, with variable stroke, is communicated to the frame D, viz:—The segment R, which gears into the rack (*u*) on the frame D, and into the pinion (*s*) on the shaft M, the pulleys N, N′, on the shaft M, and the shaft Q, in the frame L, actuated by the bar S, and the bars (*z*), (*z′*), on the frame E, by which the pulleys N, N′, are alternately connected and disconnected with the shaft M, substantially as described.

2. I claim the dogs F, F, constructed substantially as shown for the purpose specified.

3. I claim giving the lateral feed motion to the frame E, by means of the rack (5) and pawl (3), when said pawl is actuated by the bars T, U, and roller (4) arranged substantially as shown and described.

J. CARHART.

Witnesses:
WM. TUSCH,
JAMES F. BUCKLEY.