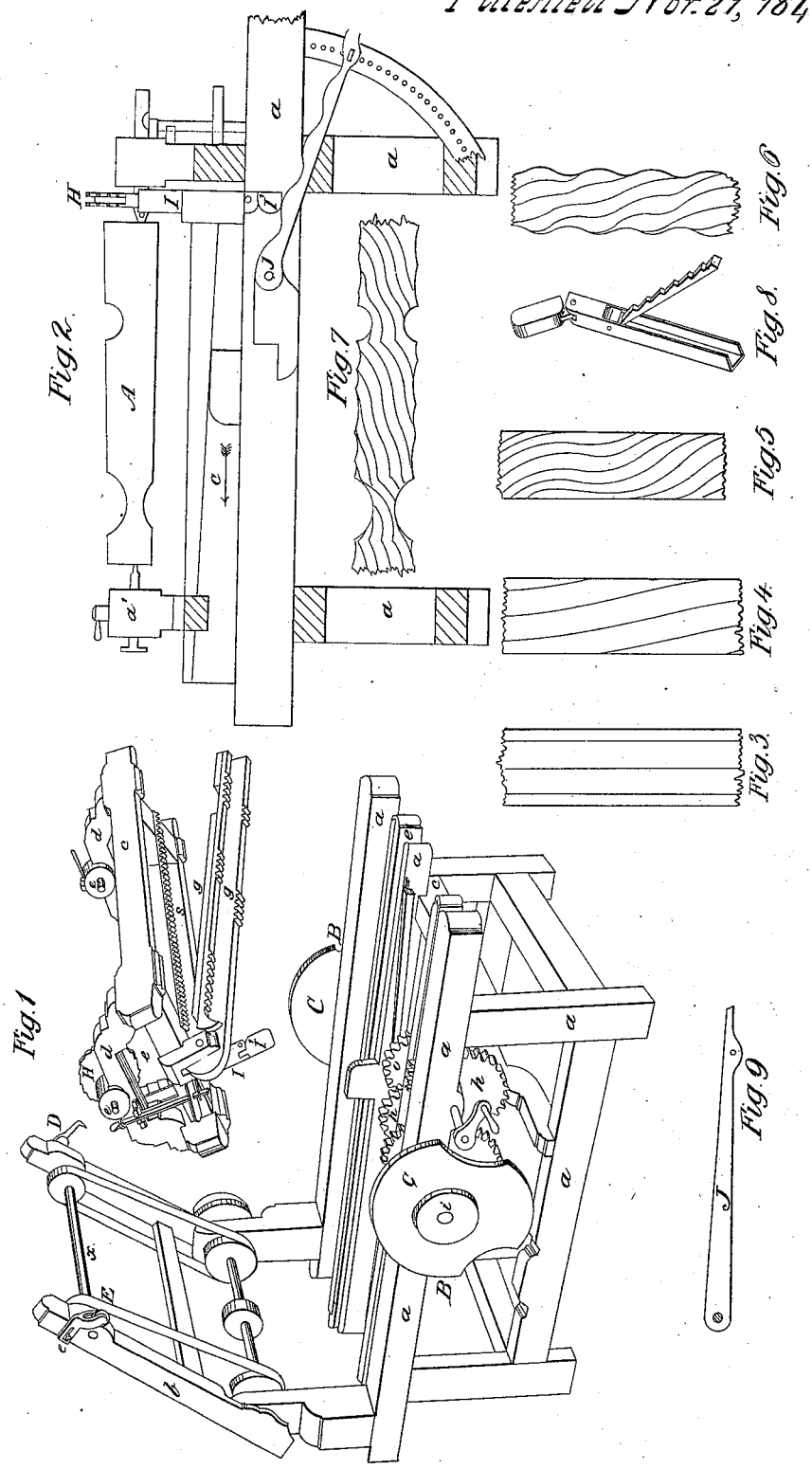
Goodman & Gibbs,

Wood Molding Machine.

No. 5,927. Patented Nov. 21, 1848.



UNITED STATES PATENT OFFICE.

A. GOODMAN, OF DANA, AND WILLIAM GIBBS, OF PRESCOTT, MASSACHUSETTS.

PLANING IRREGULAR FORMS.

Specification of Letters Patent No. 5,927, dated November 21, 1848.

To all whom it may concern:

Be it known that we, ALLEN GOODMAN, of Dana, in the county of Worcester and State of Massachusetts, and WILLIAM GIBBS, of Prescott, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Planing Machinery, of which the following is a full, clear, and exact description, reference being had to the annexed drawings of the same making part of this specification, in which—

Figure 1 is a perspective view, the carriage being raised up from the ways on which it slides; Fig. 2 is a longitudinal sectional view; Figs. 3, 4, 5, 6, and 7 are representations of pieces of wood planed by this machine which are respectively eight sided, the sides being straight, sinuous, and spiral; Fig. 8 is a view of the ratch detached from the machine; Fig. 9 is a view of one modification of the inclined plane detached from the machine also.

The same letters indicate the same parts in all the figures.

The nature of our invention and improvement consists, in forming cams or revolving guides, to govern a revolving cutter mounted in a swing frame, whereby wood may be planed of a great variety of shapes in a smooth and regular manner.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation. The frame (*a*) cog wheels, pulleys, shafts, swing frame (*b*) with its cutter wheel (*x*) carriage (*c*) with its puppets (*d*), mandrels (*e*) and racks (*g*) are all common mechanical contrivances which have heretofore been used in planing machines and therefore do not require a particular description. The system of cog wheels *h h h* with the rack *g* are employed when the machine is operated by hand, but when it is self-acting the other system marked *o o o o* with the racks *s s* are employed, by means of the latter the machine is fed with great regularity and certainty and the position of the piece of wood being operated upon is from time to time changed as circumstances require.

If it is required to take a rough block of wood and plane it into the form of a spiral sinuous sided column (Fig. 7); the first step preparatory to doing so is to take a piece of thin board and make one of its edges to correspond in form and size with the outline of one of the sides of the column in a line taken longitudinally through its center, the board being at least one-half the diameter of the piece required to be planed; the piece thus formed is now placed in the carriage between the centers, as shown at A Fig. 2, and the swing frame (*b*) is lowered until the cutter wheel (*x*) rests upon the edge of the pattern. Two pieces of board B B Fig. 1 (represented by dotted lines) must now be placed upon the ends of the main driving shaft (*i*) and secured there by screws in such a manner as to be removable. The scribes D (Fig. 1) must now be adjusted upon the swing frame so that their points will penetrate the sides of the wooden disks (B) deep enough to make a scratch or line when either of them are moved. The cutter wheel is now supposed to be at one end of the pattern (A) and the driving belt of the same on the loose pulley so that the wheel will turn with but little friction. The operator now lays hold of the winch and turns it which turns the disks (B) and at the same time slides the carriage to the opposite end of the machine the cutter wheel rolling over the pattern following all its sinuosities and raising and lowering the swing frame with its scriber in a manner corresponding thereto the scriber marking or scratching on the sides of the disks the figure of a cam, which if made to govern the swing frame would cause the machine to cut out of a suitable block a figure whose side would accurately coincide in its configuration with the side of the pattern (A) as is obvious from a consideration of the fact that this is but the reverse of the operation of scribing or shaping the cam C. As soon as the cams have thus been scribed out, the disks are taken off the shaft and all that part of them which lies outside of the scribe or outline of the cam is removed and they are then replaced in their former position; the scribes (D) are now removed from the swing frame and the adjustable friction rollers (E) put in their places; the lower extremity of these pulleys should be placed at the same distance from the swing frame that the scribe was, provided the piece to be planed is required to be made of the same size as the piece from which the pattern was taken, but if the piece being operated upon is required to be made smaller or larger than the model, the friction wheels must be

placed nearer to or farther from the frame according to the circumstances of the case. and when properly adjusted are held by the clamp screws (*e'*) which pass through the slots in the hangers.

The pattern (A) is removed from the carriage and the rough block to be planed put in its place, the carriage is then moved along until the cutters are beyond the end of the piece being operated on, the friction wheels (E) resting on the edges of the cams (C) the cutter wheel (*x*) is now by means of a belt or otherwise caused to revolve rapidly, the carriage *c* being at the same time moved along beneath it, presenting the piece throughout its entire length to the action of the cutters which will plane one side of the same smooth even and of the desired form, the carriage is now drawn back again and the rough piece turned on its axis 45° to present the next side of the octagon to be planed, and thus alternate planing of one side, and turning the block for the next side to be planed, is continued until the column is completed which will then be of the form represented in Fig. 7.

For the purpose of holding the block firmly while its sides are being planed and also for the purpose of turning it from one side to the other the ratchet wheel (H) is mounted upon the mandrel (*e*) and has on its face a number of points upon which the piece to be planed is driven; the wheel has also near its periphery a series of holes arranged at equal distances apart and corresponding in number with the number of sides it is required to plane upon the column to be dressed; into these holes a dog is fitted, which, by suitable mechanism is withdrawn from them, when it is required to turn the wheel and block, but kept in the holes to hold the block from turning while the sides of a straight piece are being planed; the rachet (I) takes into the wheel (H) and as the carriage is moved in the direction of the arrow Fig. 2 before the cutters begin to act the ratchet which rests upon the inclined plane (J) is caused to ascend and in ascending turns the wheel now it is obvious that upon the height which the one end of the inclined plane is placed above the other depends the amount of vertical motion communicated to the ratchet, and the angular motion round its own center communicated to the wheel, therefore, the height of the plane is such as will move the ratchet wheel 90° 60° or 45° as the piece to be planed is four, six, or eight sided; for the purpose of more readily adjusting the inclined plane it is hung on a joint pin, and held by a clamp screw. If it is required to make the sides of the column spiral as in Fig. 4 the ratch must be so arranged as to be ascending the inclined plane and turning the block simultaneously with the action of the cutters upon same. If the sides of the column are required to be sinuous as in Figs. 5, 6, and 7, the form of the inclined plane must correspond thereto, such for instance as the one represented in Fig. 2. The lower end I′ of the ratch (I) is jointed in such a manner as will admit of its turning freely while traversing the inclined plane in one direction, but will not turn when moving in the opposite direction, this arrangement, prevents the ratch being raised while the carriage is being drawn back.

By means of this machine the columns for center-tables, legs for piano-fortes and other regular and irregular prismatic forms for ornamental and other purposes, can be planed with the utmost degree of accuracy, and with nearly the same facility and speed with which common rectangular forms are planed in the ordinary planing machines.

We do not claim as of our invention the dressing of regular or irregular shapes by using models of the thing required for governing the cutters as that has heretofore been done by others; but

What we do claim as our invention and desire to secure by Letters Patent is—

The combination of the vibrating cutter frame with the cams herein described, the jointed ratch, and adjustable straight or curved inclined planes, for the purpose of planing irregular spiral sided forms.

In testimony whereof we have hereunto signed our names in presence of two subscribing witnesses this 18th day of March 1848.

ALLEN GOODMAN.
WILLIAM GIBBS.

Witnesses:
BENJAMIN F. VAUGHAN,
JOSEPH P. VAUGHAN.