

(No Model.)

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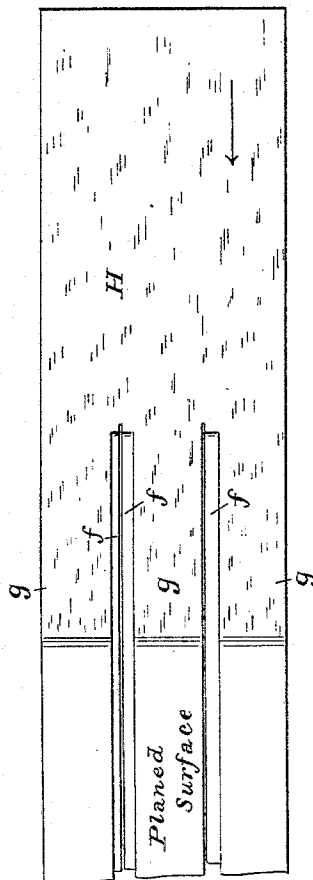
J. B. MAHAFFEY.

PLANING AND MATCHING MACHINE.

No. 321,377.

Patented June 30, 1885.

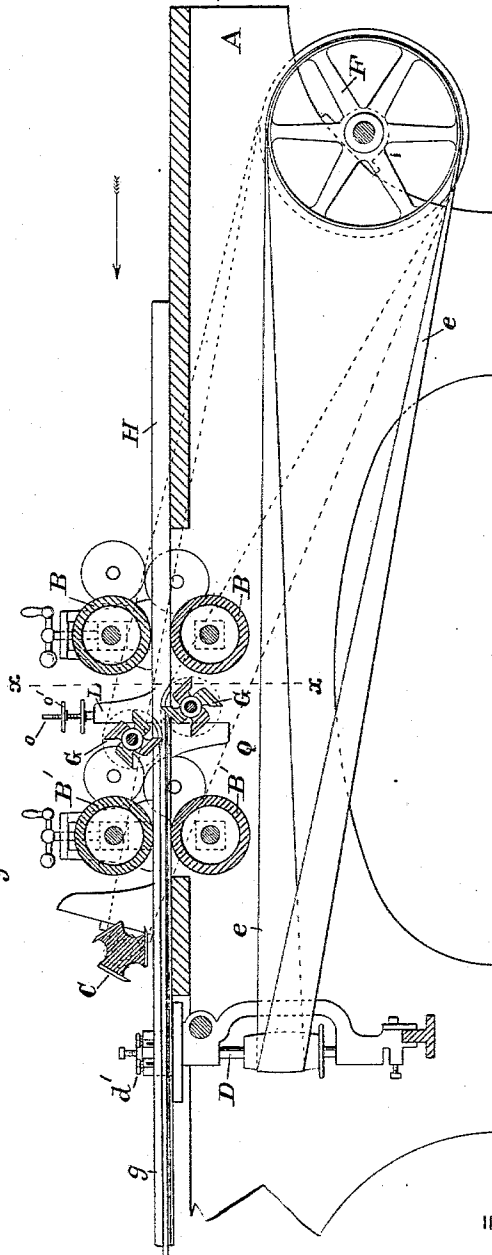
Fig. 7.



WITNESSES:

Edward A. Osce,
John E. Morris

Fig. 1.



INVENTOR:

Gas. B. Mahaffey
By Chas B. Mann
Attorney.

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2 Sheets—Sheet 2.

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Fig. 3.

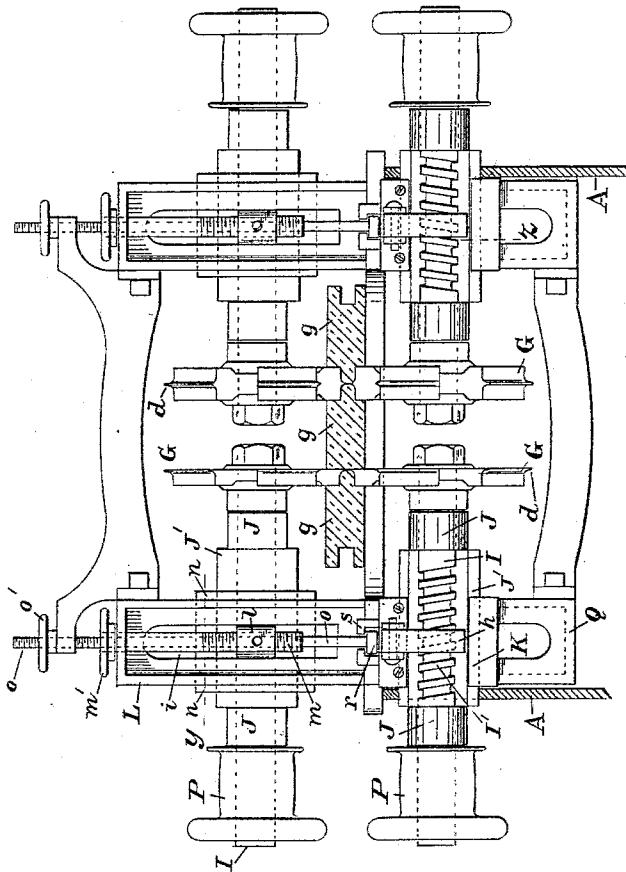


Fig. 2.

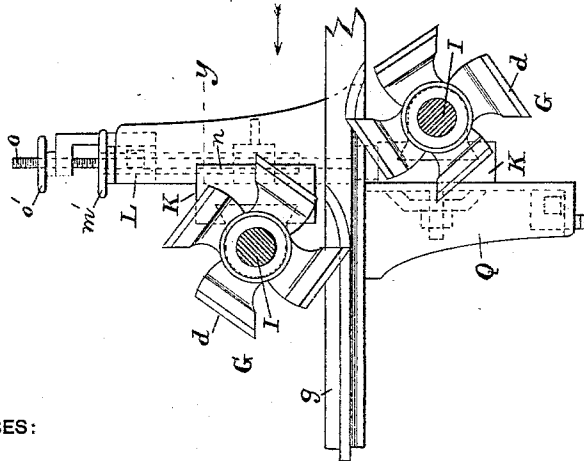


Fig. 6.

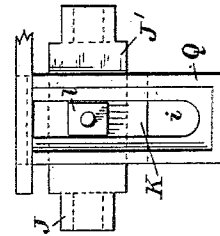


Fig. 5.

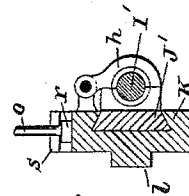
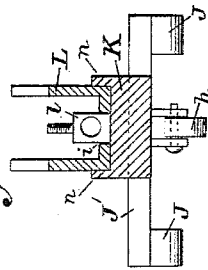


Fig. 4.



WITNESSES:

Edward A. Osce,
John E. Morris.

INVENTOR:

Gas. B. Mahaffey
By Chas B. Mann
Attorney.

UNITED STATES PATENT OFFICE.

JAMES B. MAHAFFEY, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO HENRY A. GABLE, OF SAME PLACE.

PLANING AND MATCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 321,377, dated June 30, 1885.

Application filed February 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. MAHAFFEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Planing and Matching Machines, of which the following is a specification.

My invention relates to certain improvements in machines for planing, tonguing, and grooving boards at one operation.

The drawings herewith illustrate the invention.

Figure 1 represents a longitudinal vertical section of a machine embodying my improvements. Fig. 2 is a side view, same as in Fig. 1, but larger scale, of the upper and lower tongue-cutters. Fig. 3 is a vertical cross-section of the machine on the line *x x*, Fig. 1. Fig. 4 is a horizontal cross-section of the standard which supports the bearing of the upper tongue-cutter, taken on line *y*. Fig. 5 is a vertical section of the bearing of the lower tongue-cutter on the line *z*, Fig. 3. Fig. 6 is an elevation of the bearing of the lower tongue-cutter, showing the side reverse to that seen in Fig. 3. Fig. 7 is a view of a rough board partly tongued and partly surface-planed.

The letter A designates the frame of the machine; B B, the first pair of feed-rollers, and B' B' the second pair of feed-rollers. The surface-planer is marked C. At any suitable or convenient point may be placed the usual upright shafts, D, which carry the grooving-cutters *d'*. These are driven by a belt, *e*, from the drive-pulley F. All these parts are of usual construction.

An object of my invention is to provide for first forming the tongues and separating the boards, and subsequently to surface or plane the boards, as shown in Fig. 7, by which the edges of the planed surface will be sharp and smooth.

My tongue-cutters G are each provided with dividing or separating flanges *d*, and are placed immediately after the first pair of feed-rollers B, and before the surface-planer C, in which position they will take effect on the rough board H first and form the tongues *f*, and also separate or part the several narrow pieces *g* into which the rough board has been cut.

After the tongues have been formed, the surface-planer C dresses the surface of the narrow pieces *g*, as shown in Figs. 1 and 7. I work four tongue-cutters, G, as shown in Fig. 3, and provide for the independent adjustment of each of these and their shafts both laterally and vertically. By this means the width of the narrow pieces *g* may be easily changed and the cutter-shafts may be adjusted to suit thick or thin stock, and also to suit the lessened size of the cutters, measuring from the cutting-edge to the axis, as they are reduced by wear.

The cutter G which forms the tongue in the board, and the dividing-flange *d* which separates two adjoining tongues, are both solid or integral with the same head. It will be seen several tongue-cutters with flanges are united to one head. These several cutters being solid with the same head and of the same length, avoids all trouble of adjustment.

The upper tongue-cutter G is mounted on the inner end of a shaft, I, turning in two bearings, J, fixed on a plate, J', which fits in a horizontal slide, K. The shaft I is screw-threaded, as at I', between the two bearings J, and a half-nut, *h*, is hinged above the slide, and may be turned down so as to take over the screw-threaded part of the shaft. When thus placed, the lateral adjustment of the shaft and tongue-cutter is effected by merely turning the shaft, whereby its screw part, acting on the half-nut *h*, will cause the plate J' to move laterally in its slide K. The standard L has a vertical slot, *i*, and the horizontal slide K has a lug, *l*, which fits in the vertical slot, and said lug is tapped in the vertical direction and screw-threaded to admit the passage of a screw, *m*, provided on top with a hand-piece, *m'*, whereby the slide K, the plate and bearings J, the shaft I, and tongue-cutter G may be vertically adjusted. The slide has on two opposite sides a back flange, *n*, which fits on the side of the standard L, and thereby the slide and bearing are kept steady. In the present instance the screw *m*, which vertically adjusts the upper tongue-cutter, is tubular, for the passage of another screw, *o*, which raises and depresses the lower tongue-cutter. A pulley, P, is mounted at the outer end of the

shaft I, and a belt, indicated in Fig. 1 by broken lines, passes over this pulley and over the drive-pulley F.

The lower tongue-cutter is mounted on a shaft in bearings laterally adjustable in a slide, and the slide is vertically adjustable on a hanger, Q, just as above described, except that the screw *o* is operated by a nut, *o'*, and has at its lower end a head, *r*, which has position in a socket or between two lugs, *s*. In other respects the description of the upper device above given answers for the lower one.

These descriptions of parts for adjusting the upper and lower tongue-cutters on one side of the machine are also applicable to those on the otherside. It will be noticed that both tongue-cutters—the upper and lower one—on one side of the machine, are adjusted vertically by means of screws which project above the frame, thereby obviating the inconvenience arising when the vertical adjustment of the lower cutter is effected by means located below the table.

The location of the upper and lower tongue-cutter here shown—that is, the one nearly over or near by the other—insures the formation of a more perfect tongue than where the one cutter is remote from the other.

Only one surface planer, C, is here shown; but two may be used, one for each surface.

As the tongue-cutters are on a different shaft from that which carries the surface-planer, the adjustment of the latter does not disturb the former; and from the fact that the rough board has the tongue formed first and the surface planed afterward, the edges of the finished boards will be sharp and smooth. Thus, by the arrangement of the feed-rollers, tongue-cutters, and surface-planer in the order named, a superior product results.

This machine produces from a single board two or three tongued and divided boards for floor and ceiling, and will also plane and groove them.

The particular tongue-cutter here shown is

described and claimed in another application for a patent which will issue on same date as this.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for dividing a board into two or three pieces and forming tongues on and surface-planing each piece, the herein-described construction, consisting of a suitable frame, A, a surface-planer, C, mounted on the frame, the first feed-rollers B, also mounted on the frame in front of the surface-planer, and upper and lower shafts, I, each carrying a head having a tongue-cutter, G, provided with a dividing-flange, *d*, said shafts and cutters having position between the surface-planer and said first feed-rollers, whereby the rough board first is divided into pieces having tongues, and then the pieces are surface-planed, as set forth.

2. The combination of the frame A, a vertically-adjustable horizontal slide, K, on each of two opposite sides of the frame, shafts I, each turning in bearings fitted in said slides, a tongue-cutter and divider-head mounted on the inner end of each of said shafts, and a surface-planer, C, mounted on a separate shaft, as and for the purpose set forth.

3. In a machine for tonguing and dividing boards, the combination of a horizontal slide, K, which is vertically adjustable, a plate having bearings J and fitted in the horizontal slide, a shaft, I, turning in said bearings, carrying a tongue-cutter and having a screw-thread, a movable half-nut, *h*, to take over the screw-thread of the shaft, and a vertical adjusting-screw connected with the horizontal slide, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES B. MAHAFFEY.

Witnesses:

JOHN E. MORRIS,
JNO. T. MADDOX.