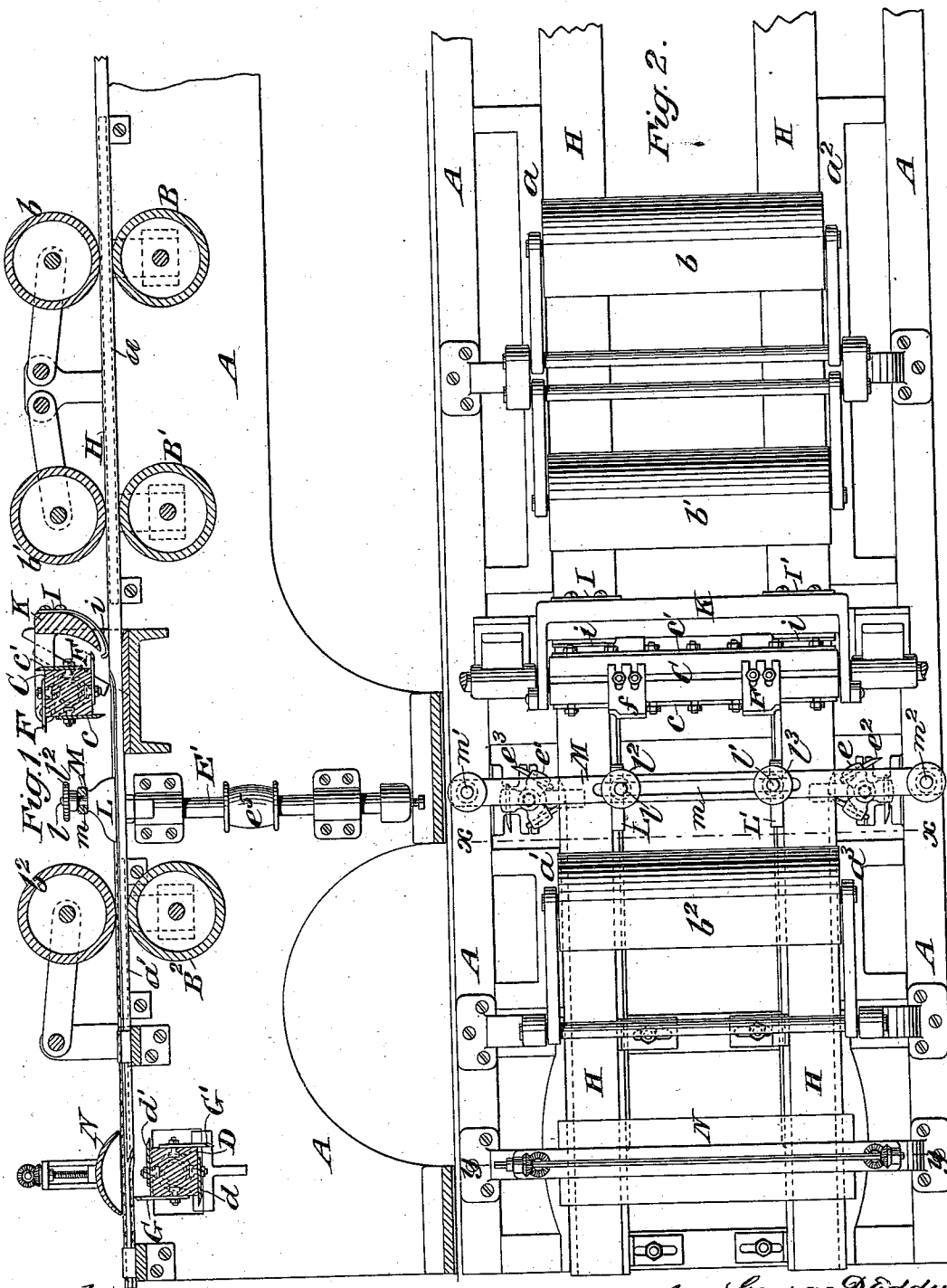


2 Sheets—Sheet 1.

No. 556,091.

Patented Mar. 10, 1896.



Witnesses:
O. Sundgren
George Barry.

Inventor { George D. Eddy
by attorneys
Brown & Neal

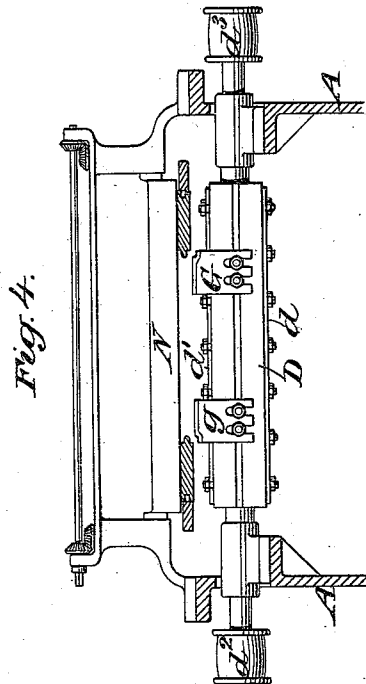
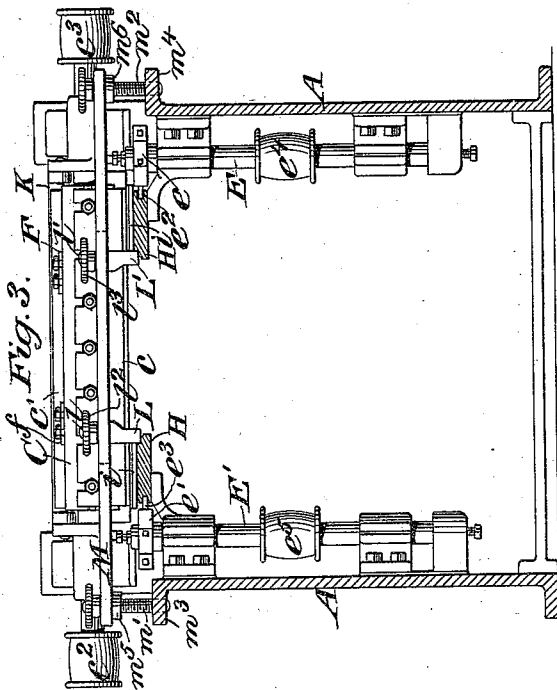
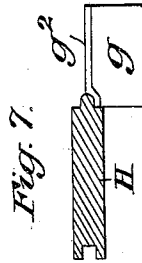
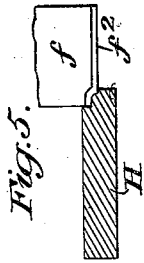
(No Model.)

2 Sheets—Sheet 2.

G. D. EDDY.
PLANING MACHINE.

No. 556,091.

Patented Mar. 10, 1896.



Witnesses:
C. Sundgren
George Barry

Inventor:
George D. Eddy
by attorneys
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UNITED STATES PATENT OFFICE.

GEORGE D. EDDY, OF BROOKLYN, NEW YORK.

PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 556,091, dated March 10, 1896.

Application filed June 4, 1895. Serial No. 551,611. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. EDDY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Planing-Machines, of which the following is a specification.

My invention relates to an improvement in planing-machines which are provided with cutters for tonguing and grooving the boards as they are fed along the table in engagement with the surfacing-cutters.

My invention more particularly contemplates a structure which will admit of tonguing and grooving a plurality of narrow boards as they are passed simultaneously beneath the surfacing-knives, thereby utilizing a greater extent of surfacing-cutter and materially increasing the output of a given machine within a given length of time.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in vertical longitudinal section of so much of a planing-machine as is essential to the presentation of my present invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical transverse section on line $x x$ of Fig. 2. Fig. 4 is a vertical transverse section on line $y y$ of Fig. 2; and Figs. 5, 6, and 7 represent the cutting positions, respectively, of the top cutter, the side cutter, and the bottom cutter for forming the tongue and groove on the board.

The bed-frame of the machine is represented by A. It is provided with lower feed-rolls, $B B' B^2$, and upper feed-rolls, $b b' b^2$, of any well known or approved structure and arrangement for feeding the boards along the table into engagement with the several cutters.

The surfacing-cutter head is denoted by C and is provided with the ordinary or any suitable surfacing-cutters $c c'$ fixed thereto and extending across the table in position to plane the surface of boards of varying widths within the capacity of the machine. The cutter-head C is driven by means of band-pulleys $c^2 c^3$ from a suitable source of power. (Not shown.) In a similar manner the cutter-head D for planing the under side of the board is provided with surfacing-knives $d d'$ and is

driven by means of pulleys $d^2 d^3$ from a suitable source of power. (Not shown.)

Upon the opposite sides of the machine, in the present instance intermediate of the upper and lower surfacing-cutters, vertical spindles E and E' are mounted, carrying cutter-heads $e e'$ provided with cutters $e^2 e^3$ for forming the grooves in the edges of the boards for receiving the tongue of an adjacent board when put in use, as is common in matched lumber. The spindles E E' are provided with band-pulleys $e^4 e^5$, by which they are driven from a suitable source of power. (Not shown.)

The cutter-head C is further provided with two sets of tongue-forming cutters which are secured to the head so as to be adjusted longitudinally of the head into different positions to suit the different widths of boards to be, for the time being, operated upon. The members of one of these sets of cutters are denoted by F F' and the other set by $f f'$. They are set with their cutting-edges in advance of the cutting-edge of the surfacing-cutters and are so shaped as to cut the shoulder at the base of the tongue and about one-half of the tongue itself, as clearly indicated in Fig. 5. That portion of the edge of the cutter which cuts the deepest and which is denoted in Fig. 5 by f^2 is extended a considerable distance so as to reduce the edge of the board where the tongue is about to be formed, whatever be the width of the board, within reasonable limits. This is important where boards are liable to vary somewhat in width and yet are classified under a certain width and also where there is a variation in the width of a given board. The board represented in Fig. 5 in cross-section is denoted by H and the cutter operating upon it is denoted by f .

In like manner two sets of cutters—the members of one set being denoted by G G' and the members of the other set by $g g'$ —are secured to the cutter-head D in such a manner as to be adjusted longitudinally of the cutter-head to accommodate themselves to different widths of boards, and their cutting-edges are so formed as to cut the lower shoulder adjacent to the tongue and also a little more than one-half of the tongue, so as to completely cut away any portion of the edge of the board

which may have been left projecting from the tongue after the upper set of cutters have operated upon it. The position of the lower cutter with respect to the tongue is clearly
5 shown in Fig. 7, where the cutter is represented by g , its farthest projecting edge by g^3 and the board by H.

The position of the groove-cutter with respect to the board is shown in Fig. 6, where
10 the cutter is denoted by e^3 and the board, as before, by H. This figure also shows the condition in which the partially-cut tongue of the board is left after the upper cutter has acted upon it.

15 For the purposes of holding different boards of varying thicknesses or of the same thickness snugly down to the table as they approach the surfacing upper tongue-cutting cutters I provide independent flat spring-
20 plates, (denoted respectively by I I',) which are secured to a weighted or spring-pressed bar K with their free ends i in position to yieldingly rest upon the boards and thereby adjust themselves independently of one another to
25 the varying thickness, when such shall occur.

For holding the boards snugly against the side guards $a a' a^2 a^3$ as they pass into engagement with the groove-cutters at the edge I provide guide-feet L L', having stems $l l'$,
30 which extend upwardly through an elongated slot m in a cross-bar M fixed to the sides of the table or bed-frame A. The stems $l l'$ are screw-threaded and provided with clamping-nuts $l^2 l^3$ for the purpose of locking the guide-
35 feet L L' to the bar M in different adjustments transversely of the machine to suit the positions of the tongues of different widths of boards. The bar M is made vertically adjustable as a whole by means of screws $m' m^2$,
40 which extend through its ends into engagement with sockets $m^3 m^4$ in the sides of the frame, nuts $m^5 m^6$ being provided on the screws $m' m^2$ underneath the bar M. It is intended that the guide-feet L L' shall abut
45 against the shoulder at the upper side of the tongue and travel along on the upper side of the tongue of the board, so that their position will not be required to vary with the varying width of the board, but may at all times be
50 made to conform exactly to the position of

the upper tongue-cutter with respect to the grooved edge of the board.

A top guide N of any well-known or approved form is provided for holding the boards in engagement with the lower surfacing and
55 tongue cutters.

In operation two boards may be simultaneously fed to the cutters with their edges to be grooved in contact with the guides $a a^3$, and as they pass into engagement with the surfacing and upper tongue cutters they will be
60 thereby forced snugly into contact with the guides at the side edges until they reach the guide-feet L L', when they will be securely held in contact with the side guides while
65 grooves are being cut in their edges, and as they pass along over the under surfacing and tongue cutters the cutting of the tongues will be completed. The machine is thus made to
70 simultaneously operate upon a plurality of boards at the same time, and if need be the boards upon one side may be of different width from those upon the other, so that two orders for different widths of stuff can be
75 simultaneously executed.

What I claim is—

The combination with the permanent side guides at the opposite sides of the machine-bed, side cutters in position to engage the edges of boards held against the side guides, 80
upper tongue-cutters mounted in independent adjustment laterally of the machine and under tongue-cutters in independent adjustment laterally of the machine and in a different vertical transverse plane from that in
85 which the upper tongue-cutters are located, of guide-feet adapted to engage the shoulders at the bases of the partial tongues cut by the upper cutters and located intermediate of the vertical planes of the upper and lower tongue-
90 cutters, a vertically-adjustable bar forming a support for the said guide-feet and means for adjusting the said guide-feet longitudinally of said bar and hence laterally of the machine, substantially as set forth.

GEORGE D. EDDY.

Witnesses:

FREDK. HAYNES,
IRENE B. DECKER.