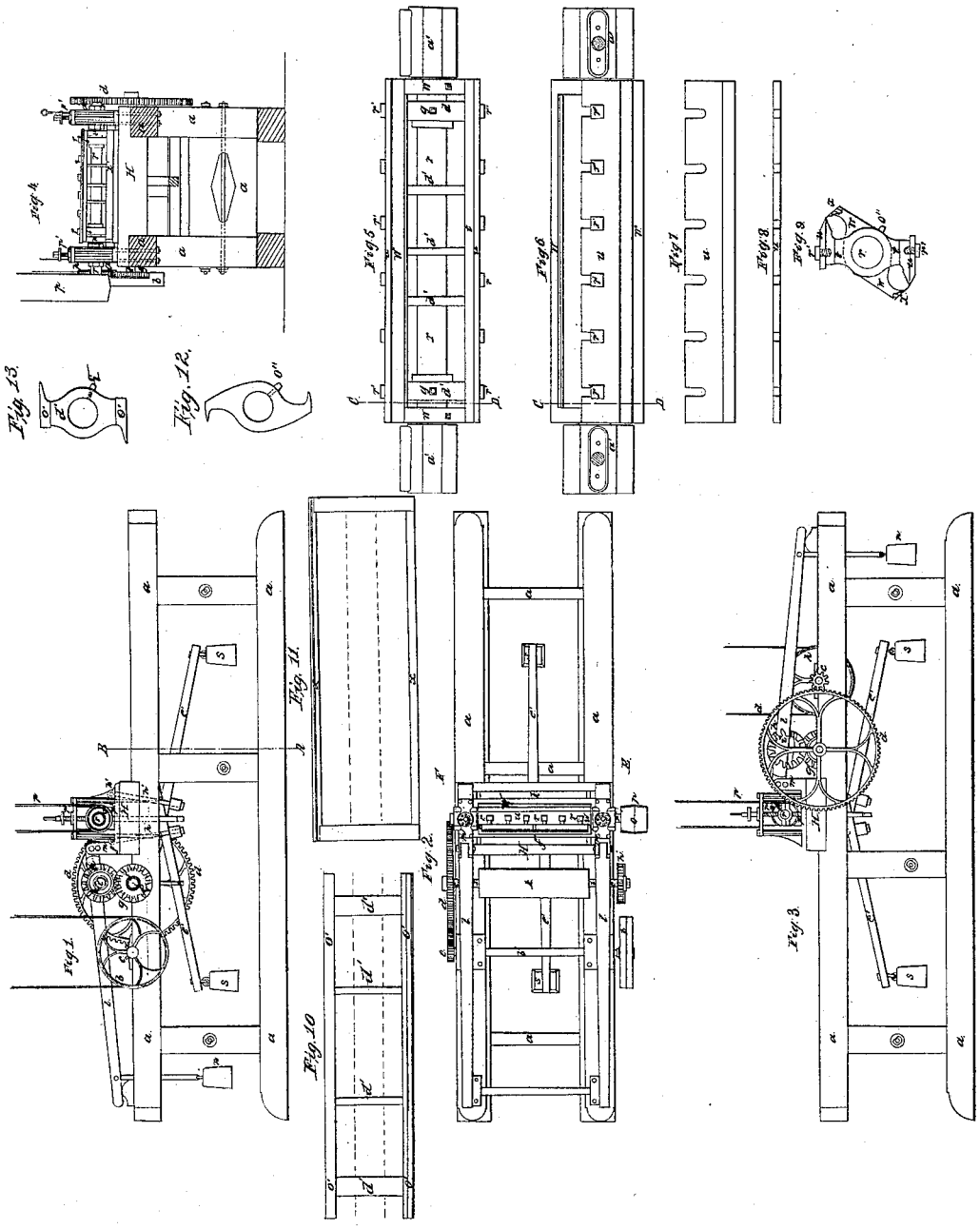
F. WALCOTT & J. H. HUTCHINSON.

MACHINE FOR PLANING LUMBER.

No. 1,244. Patented July 16, 1839.



UNITED STATES PATENT OFFICE.

FREEMAN WALCOTT AND JAS. H. HUTCHINSON, OF BOSTON, MASSACHUSETTS.

MACHINE FOR PLANING LUMBER.

Specification of Letters Patent No. 1,244, dated July 16, 1839.

To all whom it may concern:

Be it known that we, FREEMAN WALCOTT, of East Cambridge, in the county of Middlesex and State of Massachusetts, and JAMES H. HUTCHINSON, of the city of Boston, in the county of Suffolk and State aforesaid, have invented a new and useful Improvement on Machines for Planing Boards, Plank, Joists, and other Stuffs; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents an elevation of one side of the machine. Fig. 2 a top view. Fig. 3 an elevation of the other side of the machine. Fig. 4 a transverse section on the line A, B, as denoted in Fig. 1. Fig. 5, a front view of the "double iron rotary plane" in combination with the "throat or mouth piece." Fig. 6, a top view of the same. Fig. 9 a transverse section of the same. Figs. 7 and 8 represent the plan and elevation of the cutters. Fig. 10, an elevation of the cutter frame. Fig. 11, an elevation of the throat or mouth piece. Fig. 12 an end view of the same. Fig. 13 an end view of the cutter frame.

a, *a*, *a*, *a*, Figs. 1, 2, 3 and 4, is the frame work of the machine into which the various parts of the machinery are placed.

b' Fig. 2 is the driving shaft upon which at one end the pulley *b* is fixed to which the power is applied to set the feeding gear in motion. The small pinion *c*, Figs. 1, 2 and 3, is fixed at the other end of the shaft *b'* and engages with the large cog wheel *d*. The cog wheel *d* is fixed upon one end of the shaft *e*, seen in Figs. 1, 2 and 3. Upon the other end of the shaft *e* is fixed a flange pinion *g*, Figs. 3 and 4, which engages immediately above it a similar pinion *h*. The flange pinion *h*, is fixed at one end of the shaft *i*, Figs. 1, 2 and 3. The shafts *e* and *i* support two iron feed rollers *f* and *k*. The shaft *i* upon which the flange pinion *h*, and the feed roller *k*, are fixed, revolves in boxes *i'* placed in the levers *l*, *l*, as shown in Fig. 3. The levers *l*, *l*, are hung at one end in the upright supports *m*, *m*, Figs. 1, 2 and 3; at the other end of the levers *l*, *l*, weights are placed *n*, *n*, Figs. 1 and 3. The board to be planed is placed between the feed rollers *f* and *k*, and by the motion of the machinery above described made to move toward the planing gear. The weights hung at the end of the levers *l*, *l*, are for the purpose of confining the upper feed roller *k* to the board as it passes through the machine, and to secure the engagement of the flange pinions *g* and *h*, as above described.

We now proceed to describe the construction and operation of the planing gear.

r Figs. 1, 2, 3, 4, 5 and 9 is the driving shaft of the planing gear; motion is given to it by the pulley *o* fixed at one end of it, and acted upon by the belt *p*, Figs. 1, 2, 3 and 4. The shaft *r*, supports and carries the double iron rotary plane and the throat or mouth piece seen in Figs. 5, 6 and 9; Fig. 4 also represents this arrangement.

The double iron rotary plane, a section of which is shown in Fig. 9, consists of a cutter frame *t*, *t*, (and of which Fig. 10 is an elevation), and two cutters *u*, *u*, Figs. 5, 6, 7, 8, and 9. The cutter frame, Figs. 10 and 13, is of cast iron, and the outer parts *o'*, *o'* we denominate the cap irons. The cap irons are of a necessary length and the inner part is chamfered off as seen in the Figs. 9 and 13. There are four or any necessary number of short supports *d'*, *d'*, Figs. 10 and 13, through which the shaft *r* passes when the cutter frame is fixed in the machine. The two outer supports are cast thicker than the others and the ends of the cap irons project beyond them. The cutter frame is cast in one piece excepting one of the outer supports *d'*, which is cast separate for reasons hereinafter given.

The cutters *u*, *u*, Figs. 6 and 7, are formed of plates of iron, the cutting edge tempered with steel. Slots are cut in the back part of the cutters, through which the screws *r'*, *r'* that confine them to the cap irons, pass. These slots also admit of the cutters being moved forward or backward upon the cap iron, thus obtaining a fine or coarse cutting edge as may be required. This arrangement of the cutters and cap irons (the inner parts of which are chamfered as above described forms what carpenters call a "double iron."

The throat or mouth piece of which Fig. 11 is an elevation, Fig. 12 an end view, (a section is seen in Fig. 9, and denoted by *w* in the other figures) is of cast iron with two ends, (of the form shown in Fig. 12,) through which the shaft *r* passes. The two outer parts *x*, *x*, are of the same length as the cap irons and cutters. Their shape is

shown in Fig. 9, in which is represented a transverse section of the mouth piece as above described. The outer parts are circular and the inner are hollowed so as to form proper edges, which, when the mouth piece is fitted to the plane are brought near the edges of the cutters.

When placed in the machine in connection with the double iron rotary plane, the ends of the throat or mouth piece lie without the two outer supports d' d' of the cutter frame, as shown in Figs. 4, 5 and 6. This arrangement of the throat or mouth piece to the cutter frame is effected by placing one end of the throat or mouth piece over, or out side one end of the cutter frame, while the other end of the throat or mouth piece passes between the cap irons at the other end of the cutter frame; (the support d' being left out at this end to admit of this as before mentioned) the ends of the cap irons and the ends of the throat or mouth piece being of the same length, are then made to coincide, and also the holes through the several supports of the cutter frame and those of the ends of the throat or mouth piece; the separate support of the cutter frame is then placed in its proper place between the cap irons and secured by screws. The cutter frame and throat or mouth piece are then placed upon the shaft r. The cutter frame is secured to the shaft r by set screws g passing through the supports d' d'. The cutters u, u, are then placed upon the cap irons o' o', and when the cutting edge is regulated are screwed down. The edges of the throat or mouth piece are then set to a proper distance from the edges of the cutters, and secured by set screws passing through the ends of the throat or mouth piece as shown in Figs. 9 and 12, o''.

The shaft r revolves in movable boxes a', Fig. 3, and they are raised or lowered as occasion requires by the screws p' p'. By raising or lowering the boxes a' the thickness to which the board or stuff is to be finished or planed, is regulated; as by these means the edges of the cutters are made to cut to any required depth in the stuff as it passes under them.

The object of the throat or mouthpiece in combination with the double iron rotary plane is to facilitate the throwing off of the shavings as they are cut from the stuff, and also to regulate the finish of the stuff whether a coarse or fine finish. The cutters as they are placed forward or back upon the cap irons present a coarse or fine cutting edge as before mentioned, while the edges of the throat or mouthpiece are placed nearer to or farther from the cutting edges. For a fine finish, the edges of the mouthpiece and the cutting edges are placed very near together and for a coarse finish placed farther apart. In either position they are secured by the set screws o'' as before described.

In order to confine the stuff steadily upon the bed piece H and under the double iron rotary plane there are two small rollers f', k', Figs. 1, 2 and 4, placed one on each side of the planing gear. The board or stuff passes under these rollers. The rollers f', k' revolve in boxes at the ends of the rods h' h' and are kept down upon the board or stuff by means of the weights s s placed upon the levers e' e'. The rods h' h' are connected with the levers e' e' as shown in Fig. 1.

The board or stuff to be planed is placed between the feed rollers f, k and by their motion made to pass forward under the small roller f' to the planing gear. As it passes under the planing gear which is in motion, the two cutting edges of the double iron rotary plane are presented to its surface in rapid succession, planing or cutting down the board to the thickness required. The thickness to which the board or stuff is to be planed or finished may be regulated when the machine is in motion by raising or depressing the boxes a' in which the shaft r revolves, as before described.

The double iron rotary plane may be made to revolve with any degree of rapidity required; the ordinary speed is about 3,500 revolutions per minute. The speed of the feeding gear is about 18 revolutions per minute for this rate of the planing gear. The speed of both planing and feeding gear is regulated by any of the usual modes.

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

The combination of the double iron rotary plane with the throat or mouthpiece Figs. 11 and 12 constructed and operating as herein described.

FREEMAN WALCOTT.
JAMES H. HUTCHINSON.

Witnesses:
CALVIN BROWN,
JOSEPH C. HOWARD.