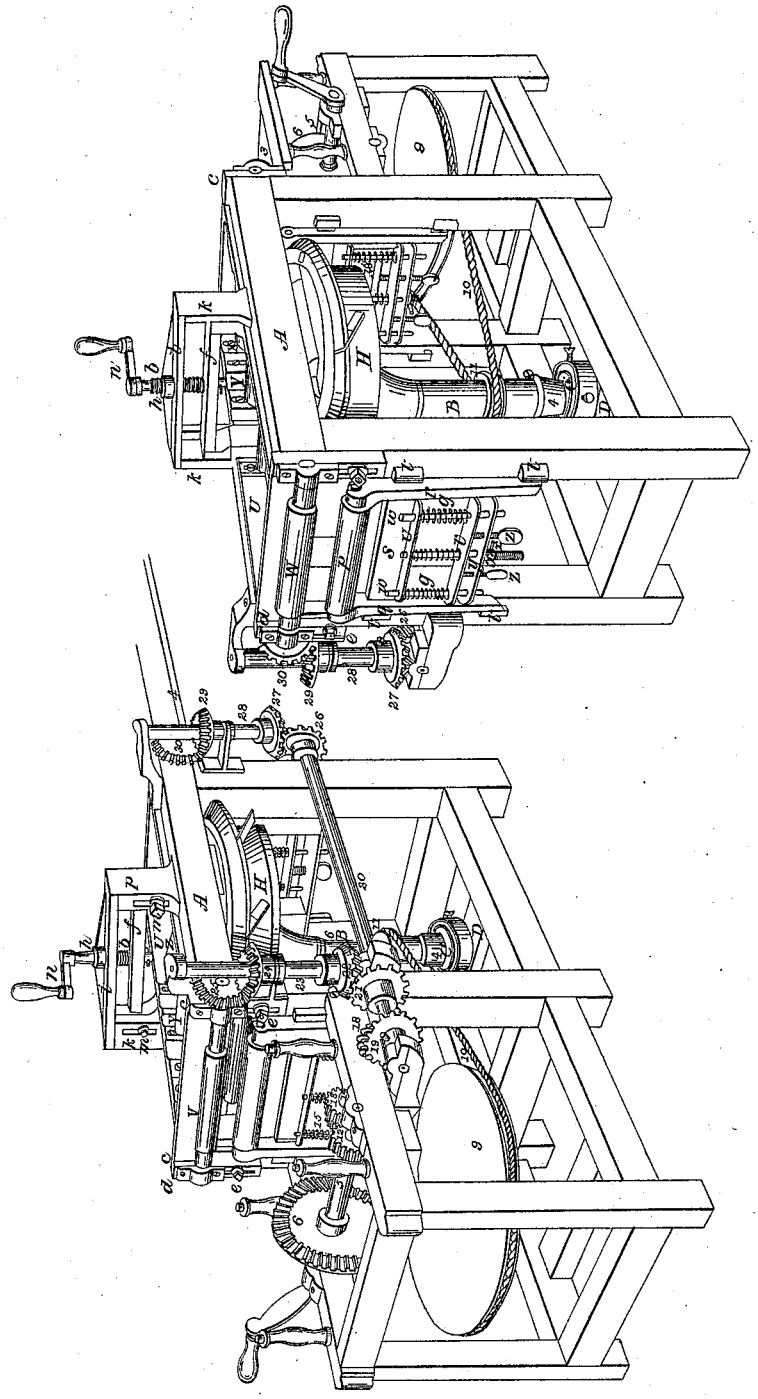
2 Sheets, Sheet 1.

S. Whitney,

Wood Planing Machine.

No. 223. Patented June 3, 1837.



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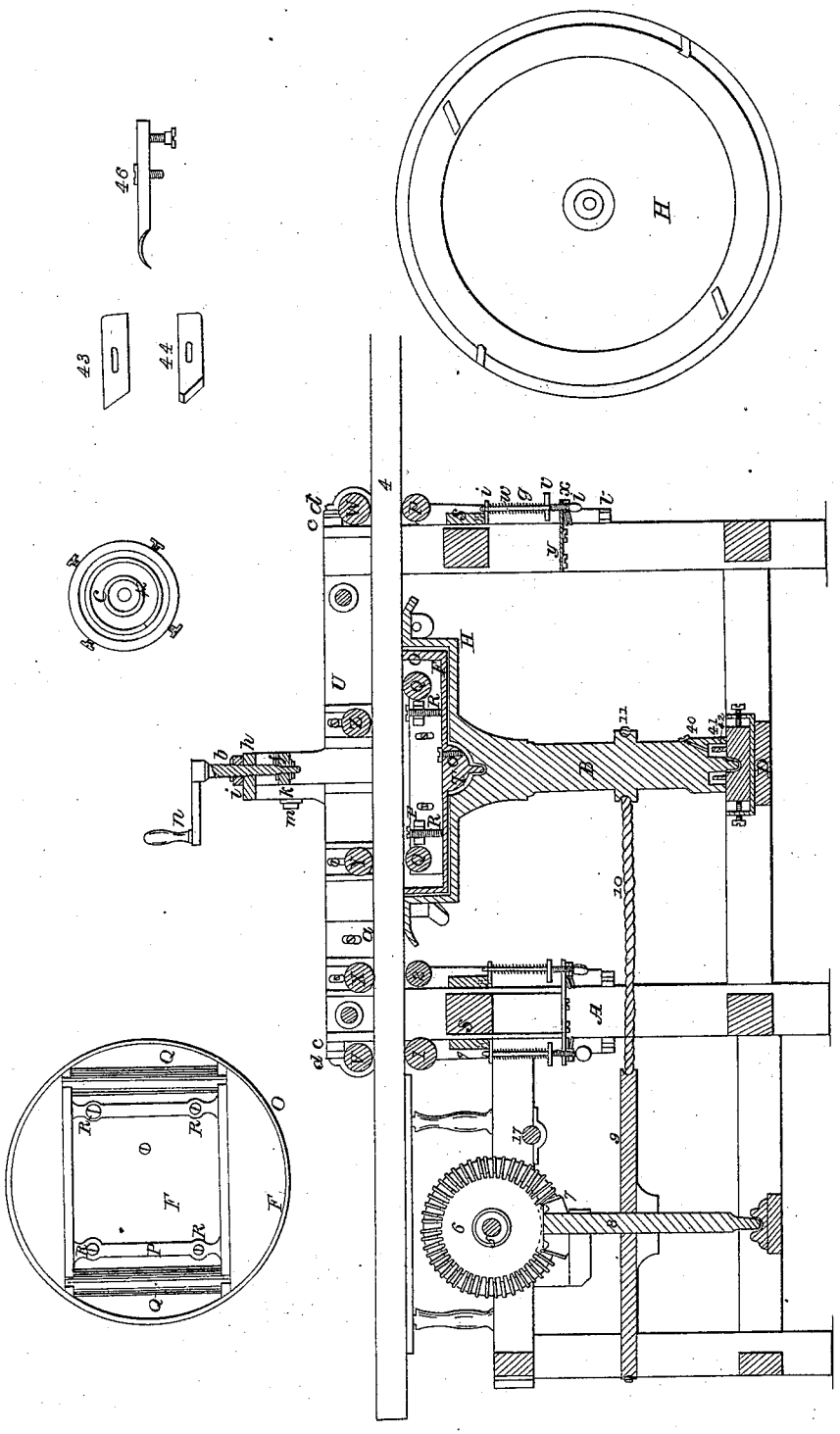

UNITED STATES PATENT OFFICE.

SAMUEL WHITNEY, OF DUNSTABLE, NEW HAMPSHIRE.

MACHINE FOR PLANING BOARDS, &c.

Specification of Letters Patent No. 223, dated June 3, 1837.

To all whom it may concern:

Be it known that I, SAMUEL WHITNEY, of Dunstable, in the county of Hillsboro and State of New Hampshire, have invented a new and useful Improvement in the Useful Arts, being a Machine for Planing Boards, called "Whitney's Improved Planing-Machine", which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

My invention consists in a combination, arrangement, and adaptation of certain well known mechanical principles, such as wheels, axles, pulleys, screws, springs, rollers, bands, cutters, slides, cog-wheels, &c. producing a machine for planing boards by drawing the board endwise between rollers which feed and guide it through the machine, while at the same time it is planed on its under side by a horizontal wheel of cutters and plane irons, turning horizontally with great velocity and cutting obliquely across the grain of the wood; the whole being geared together and operated by the driving power applied to the main shaft, which power may be steam, water, horse, or other power; the axles of the feed and guide rollers being so arranged in slides adjusted by springs and screws that the machine can readily be adapted for planing plank of any thickness and reducing the same to a uniform size; the whole being made of metal, or of wood and metal combined.

The main frame, marked A in the annexed drawings, consists of six posts, two longitudinal sills, three cross sills, four longitudinal plates, and three cross plates of timber of a suitable size, all mortised and tenoned together; two of the end posts are made shorter than the others so as to make the end of the frame where the boards are introduced of less height than the end at which they are discharged. This main frame when completed will be about ten or twelve feet long, four feet wide at one end and three feet high at the other end; these dimensions and proportions, however, may be varied to suit the views of the constructor.

A vertical shaft B, is placed about the center of the highest part of the frame, having its lower end tapered to a point, and turning in an oil cup C, placed in an outside cup fastened on a bridge-tree D, raised or lowered by screws, between the two longitudinal sills of the frame and adjusted by horizontal screws, the oil being admitted through the aperture (40) in the side of the shaft, the upper end of which shaft is made concave to admit a steel point E, made in the shape of an inverted cone, projecting from the center of a circular iron plate F, fastened permanently to the frame, by means of which steel point the upper end of the shaft is kept in a vertical position, oil being introduced into the concavity of the shaft through an aperture G.

The lower end of the vertical shaft is made with a circular collar (41) which passes over a circular neck (42) on the oil cup for preventing dust entering therein.

A revolving circular hollow iron wheel H, with a horizontal rim to receive the cutters and plane irons (43) is slipped upon this shaft and made fast by keys or screws. Oblique oblong apertures are made in the rim to admit the cutters or plane irons which are placed at an angle of about 35 degrees and fastened by screws in that position to the wheel. These cutters are for planing the board.

Duck bill cutters 46 may be placed on the edge of the wheel in a vertical position for cutting away the rough of the board. Other cutters (44) beveled on the cutting edge for cutting away the rough of the board are placed at an angle of about 35 degrees on the edge of the wheel and fastened by screws, said cutters being regulated to any required angle by means of screws. The cutting edge is placed at an angle of about 35 degrees with the plane of the wheel. The permanently fastened circular iron plate F before mentioned has a rim O, by which it is fastened by screws to hangings from the plates of the frame upon which circular plate and within the rim is placed a rectangular movable iron frame P, containing two rollers Q, Q, which frame and rollers are raised and lowered at pleasure by means of four screws R, passing vertically through said frame and bearing upon the circular plate. There are also four other screws passing horizontally through the sides of the frame into the hangings to prevent it from canting or getting out of its proper position. These rollers are for sustaining the board at a proper distance from the wheel of cutters, or the edges of the plane irons.

From the under side of the circular permanent plate projects an iron hub, T, about an inch in length to support the steel point before mentioned, which is passed through the same;—and through the plate and hub is drilled a round aperture, G, to admit the oil to the cavity of the upper end of the shaft; which aperture is to be closed by a screw or stopper.

A movable cast iron roller frame, U, containing the drawing rollers, V W, and guide rollers, X Y Z,—guide plate, *a*, &c., is made to rise and fall within the main frame by means of a screw, *b*, so as to adapt the machine for planing thick or thin boards at pleasure. This frame is cast about the length of the highest part of the main frame, and as wide from outside to outside as the width of the main frame, inside; having a projection, *c*, at each of its angles, and another projection, *d*, at right angles to this to admit the two drawing rollers, V W, and to allow of slots being made therein to slide up or down over a screw pin, *e*, inserted into the posts of the frame, for confining it, when raised, to its proper position.

Across the center of the roller frame is a bar, *f*, having attached loosely to the center of it by collars and pins the end of the screw, *b;* which screw passes through a female screw, *h*, in another cross bar, *i*, supported by two standards, *k*, resting on the plates of the main frame; in which standards are cut grains or grooves for the guides of the roller frame to slide up and down in the same. There are also slots, *l*, cut in the standards to admit screw bolts *m*, inserted into the guides of the roller frame to slide up and down therein. The screw before mentioned suspends the roller frame and is for raising or lowering it—being turned by a crank, *n*, by hand.

The gudgeons of the holding rollers turn in slides in mortises in the sides of the roller frame; which slides are fastened securely by screws at any height required. The ends of the guide plate are also fastened to slides moving up and down in mortises in the sides of the roller frame, regulated and secured by screws. The front holding roller is placed a little in advance of the front supporting roller and the second holding roller a little in the rear of the second supporting roller.

At the discharging end of the machine is a roller, *p*, placed immediately below one of the drawing rollers, whose gudgeons turn in slots in the upper ends of two parallel pieces, *q r*,—connected together by a cross piece, *s*, forming a vertical frame which slides up and down, as required, between metallic studs, *t*, fastened to the posts of the main frame, having triangular grooves cut therein, in which corresponding triangular studs from the frame slide to allow any required thickness of planed board to pass through between the rollers—the roller is sustained by having a plate of iron, *u*, projecting from the face of the sliding frame and placing another plate, *v*, parallel to this a short distance below the same, and then placing spiral springs, *g g*, between them, having rods of iron, *w w*, passing through the center thereof to keep them in place—the center rod having a pin inserted through its upper end above the upper plate, with a nut *x* screwed on its lower end below—the permanent plate *y* projecting from the main frame to keep the roller from rising—the power of the springs is increased by contracting them by means of two thumb screws, *z z*, passing through the lower plate and bearing on the under side of the middle plate so as to raise the same, which thus contracts the spiral springs.

There are two other rollers, numbers 1 and 2, arranged and operated in a similar manner to that just described. One placed below the front drawing roller and the other placed below the first holding roller next to it, supported against the sides of the two center posts of the main frame.

A platform 3 is placed in front of the first drawing roller to receive the board to be planed. Another platform, 4, is placed in the rear of the rear drawing roller upon which the planed board is delivered.

The gearing consists of a horizontal shaft, 5, lying across the lower part of the frame, upon which is a bevel wheel, 6, working into another bevel wheel, 7, on the end of a vertical shaft, 8, on which is a large horizontal band wheel, 9, around which passes a band, 10 leading to a small horizontal pulley, 11, on the shaft of the cutter wheel before described for driving the same. On the horizontal shaft is a small cog wheel, 12, which works into a cog wheel, 13, on the end of a cylindrical stud, 14, fastened permanently to the side of the main frame, on which stud turns another cog wheel, 15, fastened to the one just mentioned, side by side; which cog wheel works into another cog wheel, 16, fastened on an horizontal axle, 17, extending across the frame and beyond one side thereof sufficiently far to receive a bevel wheel, 18, which works into another bevel wheel, 19, on the end of a line shaft, 20, on which shaft is fastened another bevel wheel, 21, working into a bevel wheel, 22, on a vertical shaft, 23, which has also another bevel wheel, 24, working into the bevel wheel, 25, on the end of the first drawing roller, for drawing in the board. At the other end of the line shaft is a bevel wheel, 26, working into a bevel wheel, 27, on a vertical shaft, 28, which turns another bevel wheel, 29, working into a bevel wheel,

30, on the end of the rear drawing roller for drawing the board through the machine.

The power is applied to the first mentioned horizontal shaft.

The cog wheel No. 15 may have its place supplied, at pleasure, by a larger or smaller cog wheel in order to decrease or increase the motion of the feeding part of the machine.

The bevel wheels move loosely up and down on the shafts, being prevented from turning by a rib or projection on each of the shafts which fits into a notch on the inside of the hub of the bevel wheel, each bevel wheel being supported on an arm from the roller frame having a semi-circular bail embracing the limb of the bevel wheel and fitting loosely in a channel or groove cut therein, so that when the roller frame is raised the bevel wheels likewise rise with it and consequently always remain in gear with the bevel wheel on the drawing rollers.

Operation: The machine being set in motion the board to be planed is laid lengthwise upon the receiving platform. One end is introduced between the front drawing roller and front supporting roller, and is drawn forward between the other supporting rollers, bearing rollers, and bearing plate, and when the end of the board arrives under the bearing plate it is met by the side cutters and followed by the planing irons, the one cutting away the rough of the board and the other planing it, the cutting being performed obliquely across the grain, the board continuing to advance until entirely planed, when it is discharged at the other end of the machine and delivered completely planed upon the platform. This is followed by another board which is reduced and planed in a similar manner, the whole operation requiring only two men or boys, the one to introduce the rough boards and the other to remove the planed ones, the whole machine being operated at the same time by the power applied at the main axle, as before described.

To set the machine for dressing thick or thin plank it is only necessary to regulate the set screws in the manner before described. The other side of the board is planed in a similar manner.

What I the said SAMUEL WHITNEY claim as my invention and which I desire to secure by Letters Patent consists—

1. In constructing the horizontal cutter wheel with a hollow top for admitting the circular plate.

2. The circular plate combined and arranged in the manner before described.

3. The rectangular frame of supporting rollers within the rim of the circular plate, combined and arranged in the manner before described.

4. The rectangular frame of holding and drawing rollers in combination with the other parts of the machine, raised and lowered by the screw and crank.

5. The method of adjusting the several supporting rollers under the drawing rollers by means of the spiral springs and screws in the manner before described.

SAMUEL WHITNEY.

Witnesses:
WM. P. ELLIOT,
WM. BISHOP.