J. Sheldon,

Wood Planing Machine.

No. 4,941. Patented Jan. 26, 1847.

Fig 1

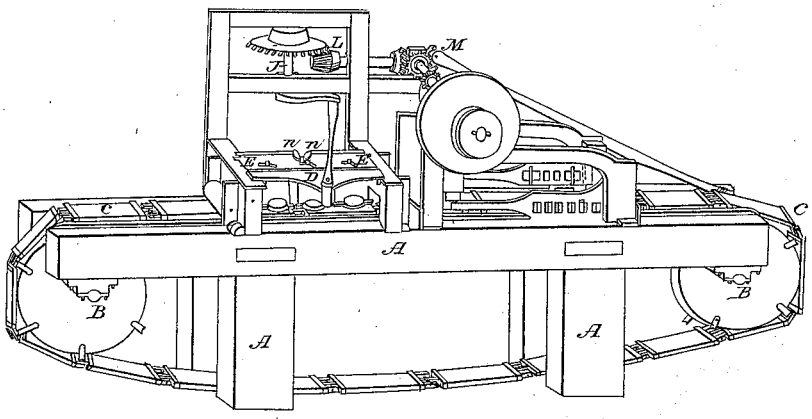


Fig 2

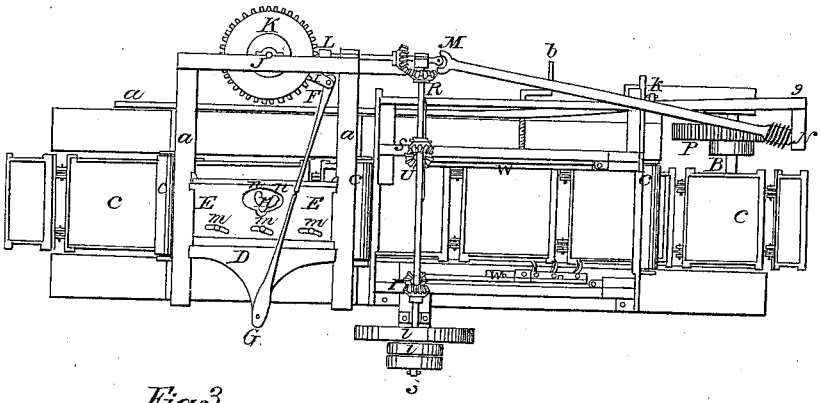


Fig 3

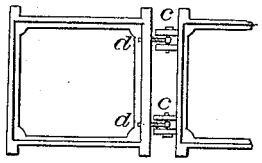


Fig 4

Fig 5

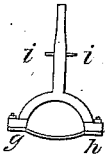
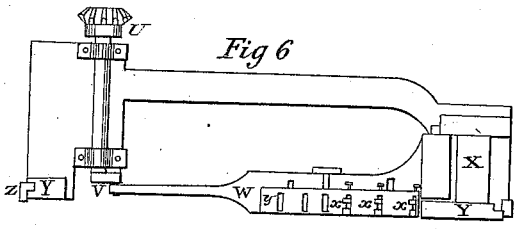


Fig 6



UNITED STATES PATENT OFFICE.

JOB SHELDON, OF NEW HAVEN, CONNECTICUT.

PLANING-MACHINE.

Specification of Letters Patent No. 4,941, dated January 26, 1847.

To all whom it may concern:

Be it known that I, JOB SHELDON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Machine for Planing Planks and Boards; and I do hereby declare that the following is a full 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, is a perspective view; Fig. 2 a plan or vertical view; Fig. 3 a section of the endless chain which constitutes the carriage; Fig. 4 a representation of the under side of the planing cutters; Fig. 5 a single cutter attached to a branch lever, and Fig. 6 a section showing a longitudinal elevation of the tonguing machinery.

A strong frame A A A, about ten feet long and four feet wide, supports the planing machinery, and to the ends of the beams of this frame, are attached boxes or bearings which support two axle-shafts, one at each end; and on each axle is mounted a pair of spider-wheels B B, the arms of which support an endless chain C C. Each link of this chain is two feet square, being made of cast iron, open in the center, and with a rabbet for the insertion of a square piece of plank, as shown in Fig. 3. These links of the endless chain are connected to each other by hinge-joints (*c* Fig. 3) and the center part of each hinge consists of a screw *d*, which is inserted in one end of the link, while the head of the screw forms part of the hinge joint; that by means of these screws, the chain may be extended or contracted as occasion may require. This chain passes over the frame, lengthwise, and serves as a carriage for carrying the boards through the machine, and under the planing cutters. A horizontal vibrating frame D, to which the planing cutters are attached, is made to vibrate transversely to the carriage and the board which is being planed; the frame being guided by the grooved cross-bars *a a*. Three cutters (*e e e* Fig. 4) are each attached by screws to the bottoms of the branches of a vertical lever, (*f g h* Fig. 5) which lever is connected to the vibrating frame by a fulcrum pivot (*i i* Fig. 5) and by a slight oscillation on the pivots, the position of the cutters are changed so as to bring each edge of each cutter alternately to the work, to the surface of the board which is being planed. To the vibrating frame is attached a horizontal plate E E, called the changer, and the three vertical levers extend upward through this changer, and appear at *m m m* Fig. 2, and near the centers of three oblique slots or apertures, which are so formed and arranged that when the changer is made to slide forward or backward, the positions of the levers, and of the cutters are changed by the obliquity of the slots. This motion of the changer is produced by means of a small arm which projects to the front from a short vertical shaft H, from the head of which project two horizontal arms or horns *n n*, each of which is driven alternately, to the right or left by a vertical pin *o*, which projects downward from the shackle-bar F G; and by this movement of the arms, a slight motion of the changing plate is produced, whereby the position of the cutters is changed at the termination of each movement of the vibrating frame. The shackle-bar F G is connected to, and driven by the crank I, which is attached to the bottom of the vertical shaft J on which is mounted a horizontal gear-wheel K. This wheel is driven by the pinion L on the horizontal shaft L M, which terminates in a universal joint M, from which an inclined shaft M N extends to its bearing at N, near which point there is a screw-thread formed upon this shaft, which takes to the teeth of a screw-wheel, P, Fig. 2, which is mounted on the axle of the spider-wheels; so that by the motion of the screw, the endless-chain carriage is put in motion. The pivot of the screw shaft at N has its bearing in a lateral projection from the end of a long horizontal lever *d q* Fig. 2. By means of this lever, which is supported by a fulcrum pivot *k*, the screw N is occasionally disconnected from the screw-wheel P. The shaft L M is driven by the pinion R on the horizontal shaft R S, which is driven by a belt applied to the pulley U. On this shaft are two pinions *r s*, and these turn two other pinions mounted on two vertical shafts *u v*, Fig. 2, to the bottom of each of which, is attached a short crank, which puts in motion a shackle-bar to which are attached a series of cutters, arranged for tonguing and grooving the edges of the boards or planks as they pass through the machine.

The section or portion of machinery which is employed in operating the tongue

and groove cutters, is represented in Fig. 6, in which U V is the vertical shaft, pinion and crank, W, a shackle-bar frame, to which is attached a cutter-holder *y*, in which are secured one or more cutters *x x x*. The shackle-bar frame is connected by hinge joints to a sliding gate X which is guided by a groove at the top and bottom. The frame work which supports the tonguing machinery, is connected to two lateral slides Y Y at the bottom, and the slides are supported and conducted by two grooved guides Z Z, attached to the main frame. This arrangement for the lateral movement of this frame and machinery, is for the purpose of accommodating the tongue cutters to boards of different widths. The frame and machinery for groove cutting are of the same construction, but this frame is stationary.

The pinion S Fig. 2, which communicates motion to the tonguing machinery, is constructed to slide occasionally on the shaft; and a plate ascends from the movable frame and the head thereof is connected to this pinion by entering a deep groove therein, so that when the frame is moved forward or backward, the pinion is made to slide on the shaft, and is thus kept in contact with the vertical pinion; and the frame is adjusted by means of a crank-screw *b*.

Two or more rollers *c c c* are mounted on pivots, and extend across the chain carriage, for the purpose of holding the boards steady while being planed.

Each of the vertical branch levers, is inclosed between two planks or other timbers, which prevent them from oscillating too far. One, two or three cutters may be used, as occasion may require.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the two edged horizontal planing cutters, with the vibrating frame, forked lever and the connecting rod F, constructed and operating substantially as herein described.

JOB SHELDON.

Witnesses:
P. R. LAW,
R. FITZGERALD.