Allen & Briggs,

Planing and Matching Machine,

No. 7,793, Patented Nov. 26, 1850.

Fig. 1

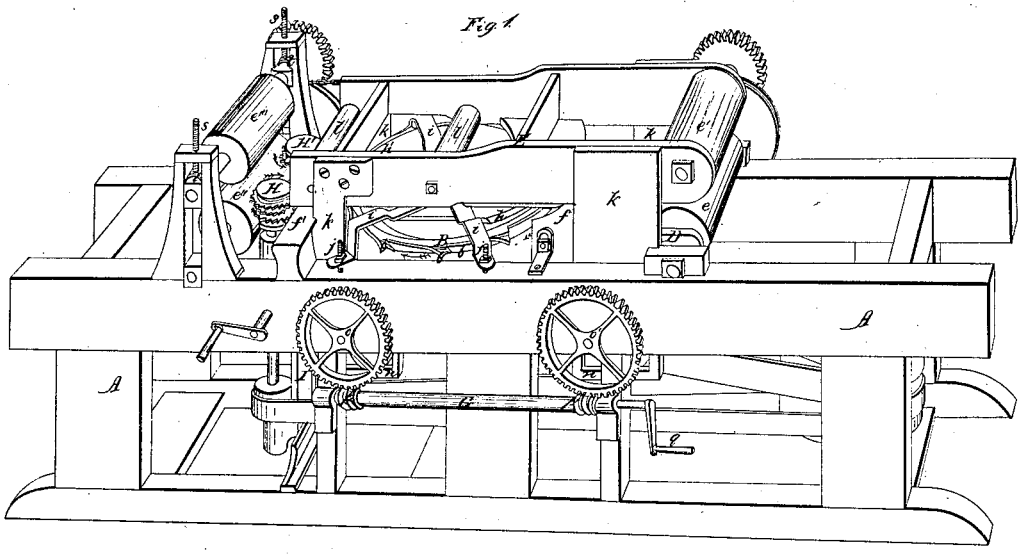

Fig. 2

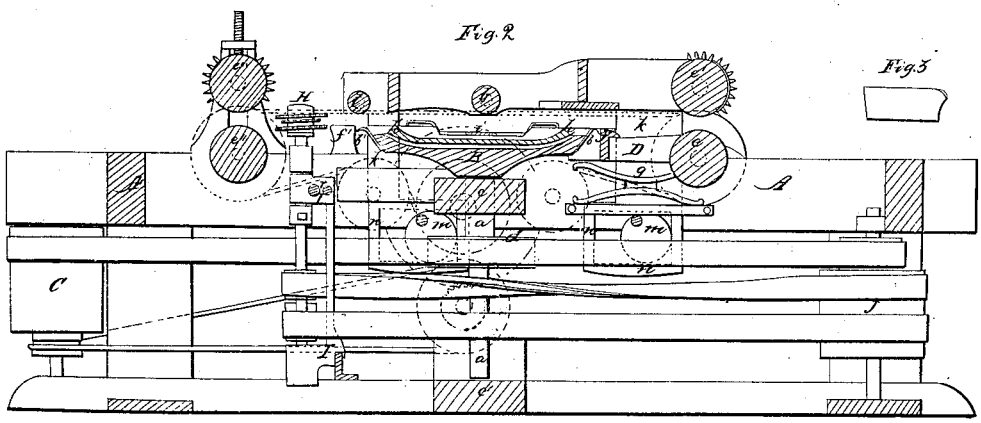

Fig. 3

UNITED STATES PATENT OFFICE.

ENOS G. ALLEN, OF BOSTON, MASSACHUSETTS, AND CHAS. BRIGGS, OF NEW BEDFORD, MASSACHUSETTS.

CUTTER FOR PLANING-MACHINES.

Specification of Letters Patent No. 7,793, dated November 26, 1850.

To all whom it may concern:

Be it known that we, ENOS G. ALLEN, of Boston, in the county of Suffolk and State of Massachusetts, and CHARLES BRIGGS, of New Bedford, in the county of Bristol and State aforesaid, have invented certain new useful Improvements in Planing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of our machine, Fig. 2 a longitudinal section of the same.

In our planing machine the lumber is reduced to a standard thickness and planed by shaving knives which act upon its lower face and which are secured to the periphery of a revolving conoidal wheel whose axis is perpendicular to the face of the board; the reduction to a standard breadth and the tonguing and grooving are effected by two sets of cutters, each composed of circular saws secured in an inclined position to their mandrels. The lumber is fed to the machine by adjustable feed rollers which adapt themselves to its varying thickness, and is held firmly at the point on which the knives are acting by self adjusting guards immediately in front and behind this point and by a fixed adjustable rest above the board.

In the drawing A A′ is the frame of the machine to which the other portions are attached; A being the front end or that at which the lumber is entered, and A′ the hinder end or that at which the planed lumber is discharged; it is formed in this instance of timber suitably framed and braced. The conoidal wheel, B to the conical periphery of which the shaving knives *b* are secured in endless succession, is mounted upon a vertical shaft *a* which is supported in suitable boxes in two cross-bars *c*, *c*′, of the frame; it is put in motion from the driving drum C at one extremity of the frame by a belt encircling a belt pulley *d* secured to its shaft, and is thus turned in the direction indicated by the arrows in the figures. The cutting edges of the shaving knives, one of which is represented in Fig. 3, from a continuous shaving edge; and are curved downward as they recede from the center of the conoidal wheel; as they revolve in the direction indicated by the arrows, that part of their edge nearest the center of the conoidal wheel first meets the board and finishes the surface reduced by the curved portion of the preceding knife. Immediately in front of the conoidal wheel is a movable frame D which supports the lower one *e* of the front pair of feed rollers and a curved guard *f* which is concentric with the circle described by the revolving knives. This frame is supported on springs *g*, which pressing the feed roller and guard against the under face of the lumber, allow them to accommodate themselves to its varying thickness. A pair of concentric guards *h*, *h*′, are supported within the dishing face of the conoidal wheel by cross braces *i* which may be either rigid or elastic and which can be adjusted by screws *j* to set them accurately to the knives. A guard *f*′ is also secured to the main frame behind the conoidal wheel. An adjustable frame E, is supported above the conoidal or planing wheel by four standards *k*; this frame supports the upper one *e*′ of the front pair of feed rolls and also two turning beds or rests *l l* which acting with the guards beneath the lumber hold it firmly during the action of the knives. The frame is raised or lowered to set the turning beds and feed roller at the proper distance above the plane in which the knives revolve by four eccentrics *m* which are secured in pairs to two horizontal transverse shafts; the eccentrics each act upon a square strap *n* secured to the lower extremity of each upright standard; the eccentrics are all of equal size and are secured in the same positions to their respective shafts so that as the shafts are turned the whole frame is equally raised or depressed. The eccentric shafts are prolonged through the sides of the main frame and their projecting extremities are fitted with a pair of equal sized screw-wheels *o o*′ which are operated by two equal worms *p*, *p*′ secured to the same horizontal shaft G which is also furnished with a crank *q* or a hand wheel by which it can be turned to turn the eccentrics.

The tonguing and grooving cutters H, H′, are placed behind the last fixed guard. These are each composed of three circular saws secured to their mandrels in an inclined position, the grooving cutter H′ is composed of a circular saw intervening between two of smaller diameter which dress the edge of the board above and below the

groove formed by the intermediate saw. The tonguing cutter H is composed of a circular saw intervening between two of larger size which form the sides of the tongue while the intermediate saw dresses its edge. The mandrel of each cutter is supported in boxes attached to an upright frame I and each is fitted with a belt pulley; they are driven in opposite directions as indicated by the arrows in the drawing by belts (one of which is crossed) from a drum J on a counter shaft which is put in motion by a belt from a drum on the driving shaft. One of the cutter frames is fixed, the other is movable and can be set by a screw r at any required distance from the fixed one to adapt the machine to dressing lumber of different widths.

A second pair of feed rollers e'', e''' is fitted to the hinder extremity of the main frame, the lower one of these or that one against which the planed side of the lumber rests is fixed, and the uppermost portion of its barrel is in the same plane with the upper surface of the last guard f'. The upper feed roller or that which acts upon the unplaned surface of the lumber is adjustable by set screws s to adapt it to the different thicknesses of the planed lumber, it is also pressed against the unplaned surface by springs t inserted between its boxes and the lower extremities of the set screws, and which allow it to rise or fall to accommodate itself to the inequalities of the unplaned surface. The lower feed rolls have belt pulleys secured to their shafts which are put in motion by a chain or belt from a pulley (represented in red lines in Fig. 2) at the back of the main frame. The latter has a cog wheel (also represented in red lines) secured to it which is driven by a pinion which receives motion from the driving shaft through a cord or belt encircling pulleys on the respective pulley and driving shafts. The upper feed rolls are put in motion from the lower ones by star gearing secured to their several shafts.

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

Arranging a series of shaving knives in continuous succession upon the periphery of a conoidal wheel whereby a continuous serrated shaving instrument is produced whose uninterrupted action by preventing jarring produces a smoother surface.

In testimony whereof we have hereto subscribed our names.

ENOS G. ALLEN.
CHARLES BRIGGS.

Witnesses:
ADAM MACKIE,
WM. H. DE WOLF.