(No Model.) 2 Sheets—Sheet 1.

J. A. SAUCIER.

PLANING MACHINE.

No. 396,513. Patented Jan. 22, 1889.

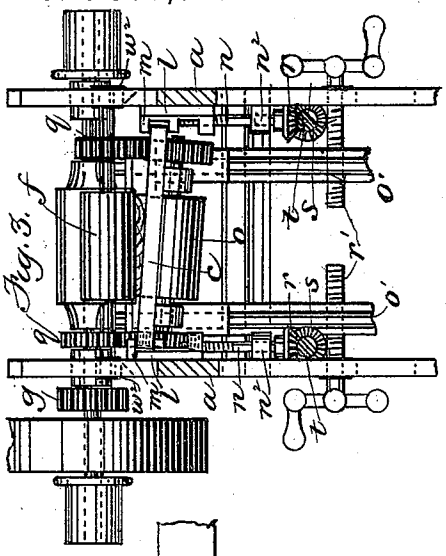


Fig. 3.

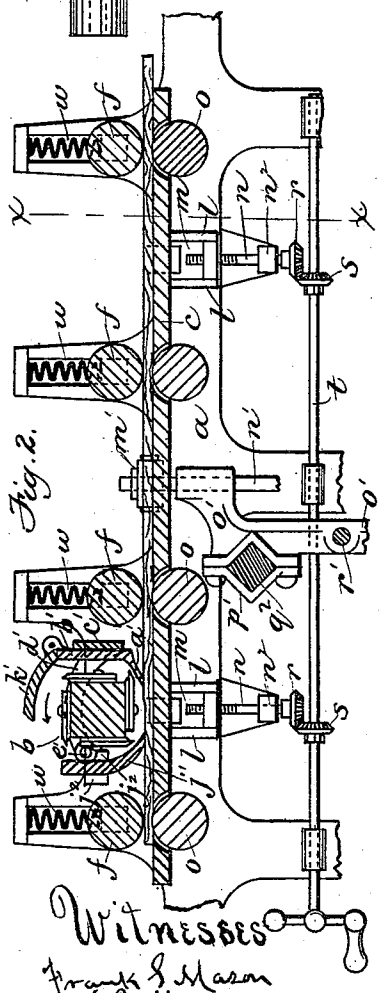


Fig. 2.

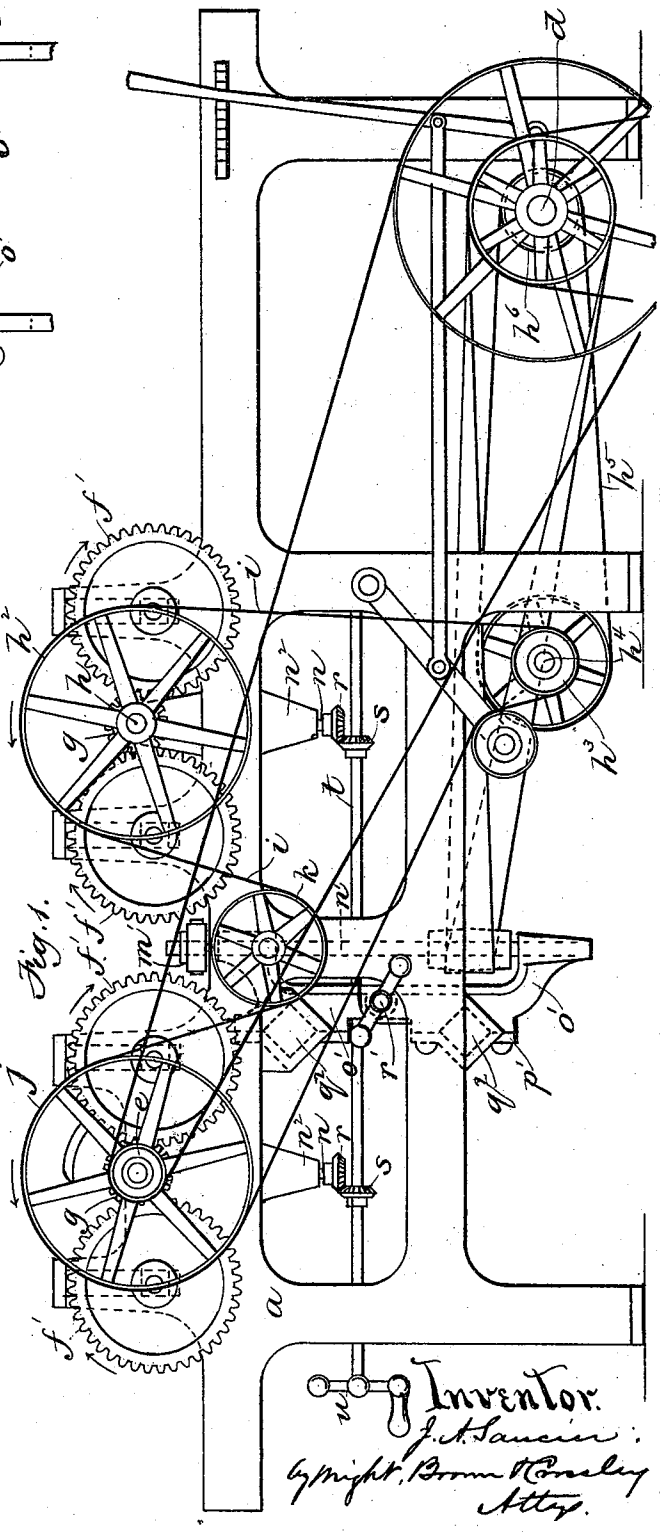


Fig. 1.

Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

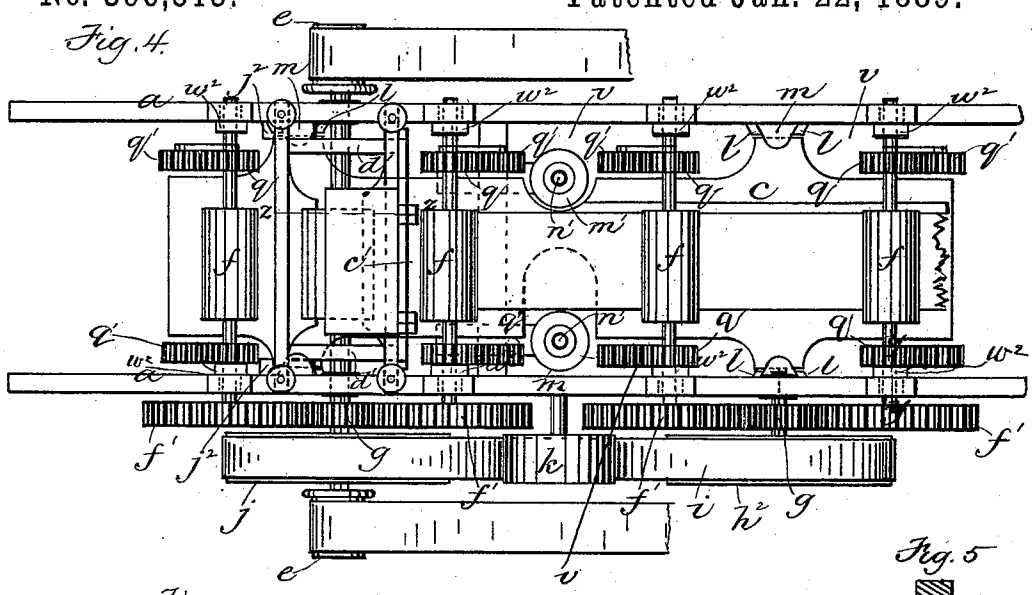


Fig. 6.

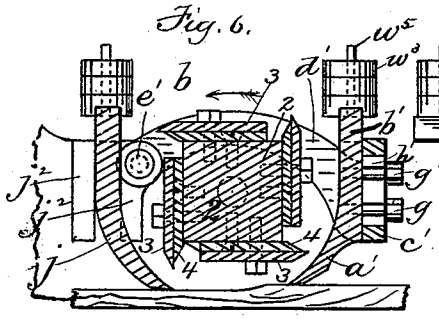


Fig. 7.

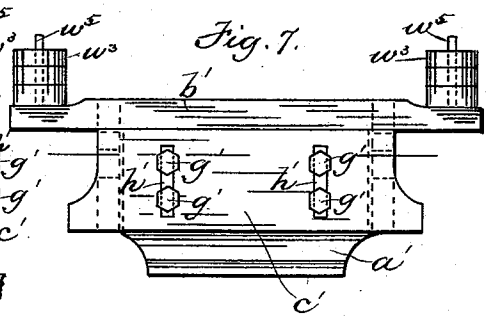


Fig. 5

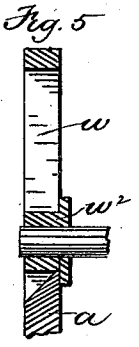
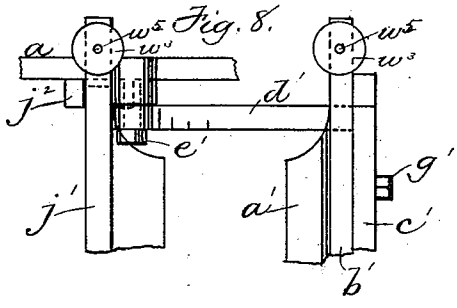


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEPH A. SAUCIER, OF HOLLAND, VERMONT.

PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 396,513, dated January 22, 1889.

Application filed January 20, 1887. Renewed June 23, 1888. Serial No. 278,033. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. SAUCIER, of Holland, in the county of Orleans and State of Vermont, have invented certain new and useful Improvements in Planing-Machines, of which the following is a specification.

This invention has for its object to provide certain improvements in planing-machines, whereby their operation is rendered more effective and certain objections heretofore existing are removed; and my invention consists in the several improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved machine. Fig. 2 represents a longitudinal vertical section of a portion of the same. Fig. 3 represents a vertical section on the plane of line *x x*, Fig. 2, looking toward the left. Fig. 4 represents a plan view. Fig. 5 represents a section on line *y y*, Fig. 4. Fig. 6 represents a section on line *z z*, Fig. 4. Fig. 7 represents a front view of the pressure-bar shown in section in Fig. 6. Fig. 8 represents a plan view of parts of the pressure-bars in front and at the rear of the cutter-head.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a* represent the side pieces of the supporting-frame, the same being suitably supported and braced by tie-rods or cross-bars in any well-known or suitable manner.

b represents the cutter-head, which is mounted to rotate in suitable bearings in the frame *a*, and is formed to dress the upper surface of a clapboard or other article passed under it over the bed or table *c*, said cutter-head being driven by belts from a shaft, *d*, running on pulleys *e e* on the shaft of the cutter-head.

f f f f represent feed-rolls journaled in boxes adapted to slide in vertical guides or slots in the frame-pieces *a a*, said rolls being arranged to bear on the stock supported by the table and positively rotated by any suitable means, so as to feed the stock to the cutter-head. I have here shown the shafts of the feed-rolls *f* provided with gears *f'*, which mesh with pinions *g g*—one on the shaft of the cutter-head and the other on a shaft, *h*, which is driven by a belt, *i*, running over a pulley, *j*, on the shaft of the cutter-head, and over a pulley, h^2, on the shaft *h*, and also over an idle-pulley, *k*. The belt *i* is driven by a pulley, h^3, on a shaft, h^4, which is driven by a belt, h^5, receiving motion from a pulley, h^6, on the shaft *d*.

On the inner sides of the frame-pieces *a* are formed sets of vertical dovetail guides *l l*, between which are fitted vertical slides *m*, having lugs which engage the edges of the work-supporting bed or table *c*, as shown in Figs. 3 and 4. The slides *m* are supported and rendered vertically adjustable by screws *n n*, journaled to rotate without moving vertically in sockets $n^2 n^2$ on the frame-pieces *a a*, and working in tapped lugs on the slides *m*, so that either edge of the table may be raised or lowered independently. The table may be thus inclined at any desired angle relatively to the axis of the cutter-head *b* and held by the screws at any angle to which it may be adjusted.

o o represent lower feed-rolls mounted in bearings attached to the bed or table *c*. Said rolls project partly through slots in said bed, their upper surfaces being slightly above that of the bed. The shafts of the lower feed-rolls are provided with gears which receive motion from gears *q* on the shafts of the upper feed-rolls through suitable intermediate gears, *q'*, Fig. 4, arranged to permit the described adjustments of the table *c*.

It will be seen that the bed or table and the lower feed-rollers are adjusted by the screws *n* and slides *m*, the lower feed-rolls being thus adapted to be set at any desired angle to the upper feed-rolls, so as to conform to the surfaces of clapboards of any desired taper, and are also adapted to be raised or lowered at both ends, so as to accommodate the feed-rolls to clapboards of any desired thickness.

I prefer to adjust all the slides supporting each side of the table simultaneously, and to this end I provide the lower ends of the screws with bevel-gears *r* and engage therewith similar gears, *s*, on shafts *t*, journaled in bearings attached to the frame, said shafts having cranks or handles *u* at their ends, whereby they may be conveniently rotated.

The edges of the table *c* are recessed or cut away, so as to form spaces or openings *v*, Fig.

4, between said edges and the frame sides for the escape of chips and shavings from the table. These spaces or openings enable the operator to conveniently clear the table of such débris without liability of forcing it into the gearing and into the slots or guides w, in which the boxes w^2 of the upper feed-rolls work. To prevent the lodgment of chips and shavings on the lower ends of said slots or guides, I make said lower ends inclined, as shown in Fig. 5, so that anything getting into said slots or guides under said boxes will slide off from the inclined lower ends. I thus avoid interference with the full downward movement of the boxes and the upper feed-rolls, which might be caused by the lodgment of chips and shavings on the lower ends of said slots or guides if said ends were level.

The cutter-head is composed of the head 2, rectangular in cross-section, and the cutters 3, attached to the sides of the head. Between the cutters and the head are interposed metal strips or plates 4, which extend nearly but not entirely to the cutting-edges of the cutters and are beveled or inclined on their edges, as best shown in Fig. 6. These plates come in contact with and curl or deflect the shavings as they are being separated from the stock by the cutters, and facilitate the operation of the cutter-head by preventing the shavings from striking and breaking against the head, and also prevent the cutters from raising slivers from the stock, the inclined edges of the plates causing the shavings to curl, and thus slide off from the cutter-head.

a' represents a pressure-bar, which is formed to bear on the surface of the stock just in front of the line along which the cutters act thereon. Said bar is formed on a plate, b', which is adapted to slide vertically on a bar, c', which is attached to arms d' d', pivoted at e' to the frame. The bar c', with the plate b' and pressure-bar a', is adapted to rise and fall by the swinging movement of the arms d' on their pivots, thus accommodating the pressure-bar to the thickness of the stock on which it bears. The pressure-bar is also adapted to move independently at one or both ends, the plate b', on which it is formed, being provided with bolts g', which pass through slots h', which keep said plate in contact with the bar c', the plate b' being permitted to slide vertically on said bar and bolts. Either end of the pressure-bar can therefore rise and fall. The pressure-bar is thus enabled to conform to variations in the taper of the clapboards being planed.

j' represents a pressure-bar located just behind the cutter-head and composed of a plate the ends of which slide in guides j^2 j^2 on the frame, the lower portion of the plate being curved and thus caused to project partly under the cutter-head. The bar j' is adapted to rise and fall by its sliding movement in the guides j^2 and bears with a yielding pressure on the stock. I prefer to provide the pressure-bars a' j' with devices such as studs w^5, adapted to hold removable weights w^3, so that the pressure of said bars on the work may be increased or diminished.

k' represents a hood or casing placed over the cutter-head to prevent scattering of chips, &c., from the cutters. Said hood may communicate with a trunk leading to an exhaust-fan or blower, whereby the lighter shavings, dust, &c., may be removed from the machine.

m' m' represent edge-cutters or jointers, which are mounted on vertical spindles n' and arranged to trim the edges of a piece of stock passing over the table c. Said spindles are journaled in bearings formed on arms o', which are provided with clamps p', adapted to grasp polygonal bars q^2, rigidly attached to the frame and extending crosswise thereof. By loosening said clamps the arms o' and the spindles and cutters supported thereby may be moved along the bars q^2 to vary the distance between the edge-cutters, and thus adapt them to any desired width of stock. When the parts are adjusted, they may be secured in the positions to which they have been adjusted by tightening the clamps p' on the bar q^2. The cutters may be adjusted by screw-shafts r', journaled in bearings on the frame and engaged with correspondingly-threaded sockets in the arms o'. The rotation of either of said shafts causes the arm o' engaged therewith to move toward and from the other arm, as will be readily seen.

I do not limit myself to the precise details of construction herein shown and described, but may modify the same in various particulars without departing from the spirit of my invention as defined by the following claims.

The machine may be used not only for planing clapboards and like articles of varying thickness, (which is the function for which it is chiefly intended,) but also for planing articles of uniform thickness—such as blind-slats, siding, and small boards for various purposes—and for forming moldings or beads on any desired part of the surface of the stock.

I claim—

1. In a planing-machine, the combination, with a cutter-head revolving in a constant plane, and a series of upper feed-rolls and gear-wheels, of a table supported adjustably at both its side edges, a series of lower feed-rolls journaled in bearings secured to said table, and gear-wheels on the shafts of said feed-rolls, all constructed and arranged so that the table, lower feed-rolls, and gearing may be inclined from the horizontal in either direction, substantially as set forth.

2. In a planing-machine, the combination, with the main frame, upper feed-rolls and gearing supported thereby, and vertically-adjustable slides m, of a table having its op-

posite edges supported by said slides, and a series of lower feed-rolls and gear-wheels supported by and below said table, whereby the table, lower driving-gearing, and lower feed-rolls may be inclined in either direction from the horizontal by the vertical movement of the slides *m* upon one side, substantially as described and shown.

3. In a planing-machine, the frame having the slots or guides for the sliding boxes of the feed-rolls, the lower ends of said slots being inclined, as and for the purpose specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of January, 1887.

JOSEPH A. SAUCIER.

Witnesses:
C. F. BROWN,
A. D. HARRISON.