J. A. SLOAN.

BEVELING PLANING MACHINE.

APPLICATION FILED OCT. 1, 1917.

1,293,956.

Patented Feb. 11, 1919.

2 SHEETS—SHEET 1.

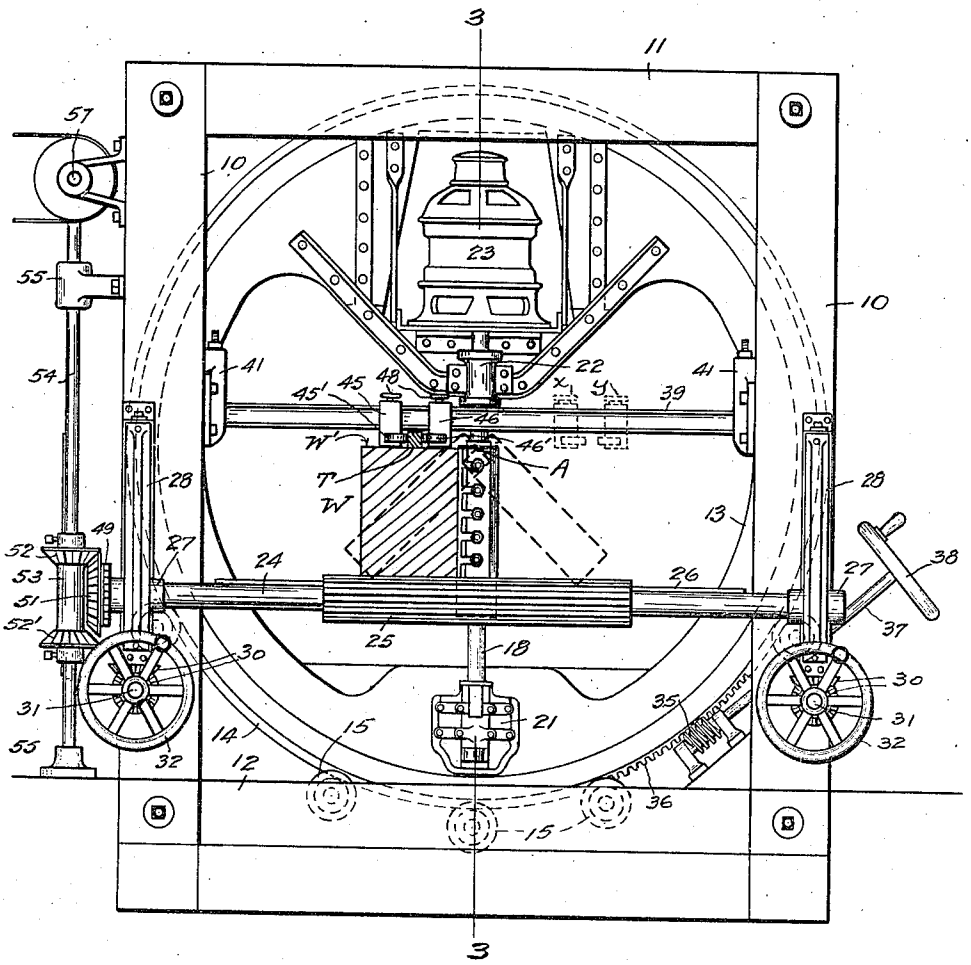


FIG. 1

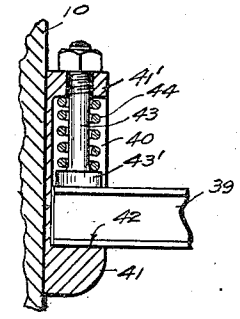


FIG. 4

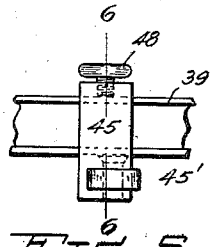


FIG. 5

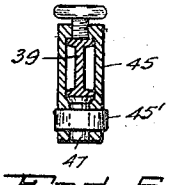


FIG. 6

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2 SHEETS—SHEET 2.

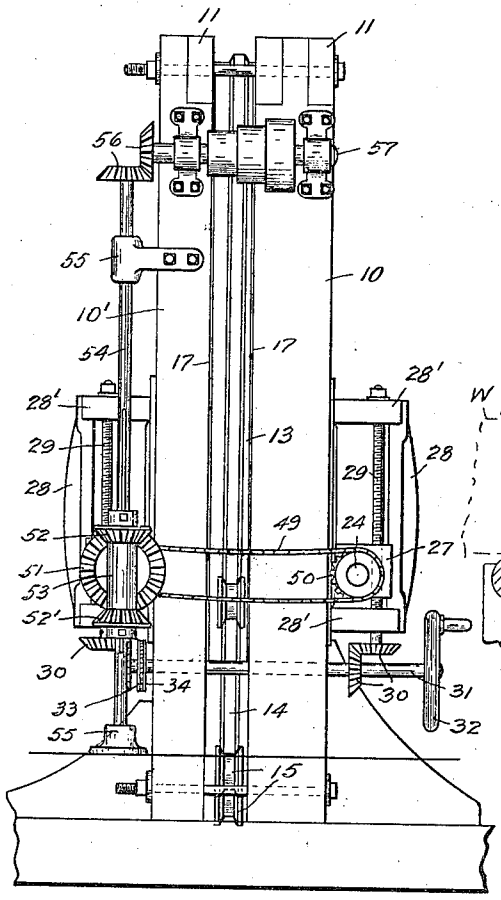


Fig. 2

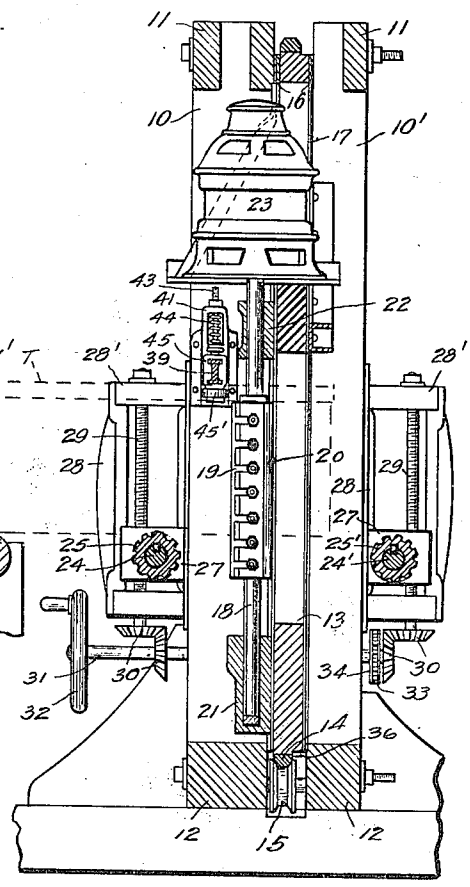


Fig. 3

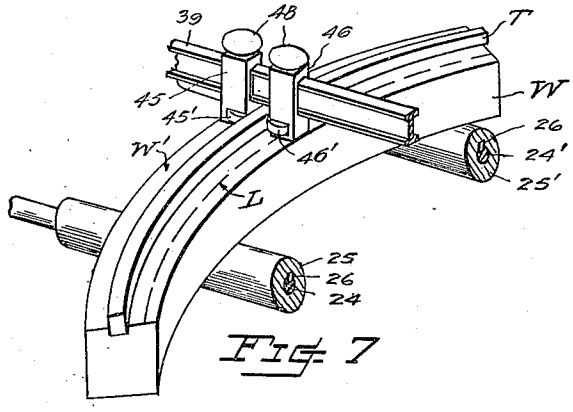


Fig. 7

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JOSEPH A. SLOAN, OF SEATTLE, WASHINGTON.

BEVELING PLANING-MACHINE.

1,293,956. Specification of Letters Patent. Patented Feb. 11, 1919.

Application filed October 1, 1917. Serial No. 194,106.

To all whom it may concern:

Be it known that I, JOSEPH A. SLOAN, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Beveling Planing-Machines, of which the following is a specification.

This invention relates to that class of machinery in which a side head is employed for dressing a side face of a piece of wood to a gage line and to selected vertical bevels.

The object of my invention is the perfecting of machines of this character whereby the work is positively guided in lateral directions during its progressive travel in the machine and while the planer head is being manually adjusted into vertical and inclined positions to afford a predetermined winding surface such as requisite in forming ship timbers.

The invention consists in the novel construction, arrangement and combination of parts, as will be hereinafter described and claimed.

In the accompanying drawings,—

Figure 1 is a front elevational view of a wood planing machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal vertical section taken substantially through 3—3 of Fig. 1. Fig. 4 is a detail sectional view illustrating the preferred manner of connecting the guide support to the machine frame. Fig. 5 is a fragmentary front elevational view of said support and a guide mounted thereon. Fig. 6 is a sectional view through 6—6 of Fig. 5, the guide roller being shown in elevation. Fig. 7 is a perspective view showing a timber to which a gage batten is applied, mounted upon the machine rollers and the devices coöperating with said batten by which the work is guided in its forward travel.

The machine frame comprises front and rear members, respectively formed of upright posts 10 and 10^1 connected from their upper and lower ends by beams 11 and 12. Rotatable between said beam members is a circular frame 13 having a peripheral track element 14 engaging in grooved supporting rollers 15 and held in upright position by means of annular face plates 16 provided on frame 13 and operating against wearing plates 17 provided upon the respective frame members.

Disposed diametrically of the frame 13 is the arbor 18 of a side cutter head 19 carrying knives 20. As shown in Figs. 1 and 3, the lower end of said arbor is journaled in the foot bearing 21 while its upper end extends through the journal box 22.

23 represents an electric motor whose armature shaft may be connected directly to the aforesaid arbor or through the medium of gearing.

Extending across the machine in front and to the rear of the machine frame are horizontally disposed shafts 24 and 24^1 upon which are mounted feed rollers 25 and 25^1, said feed rollers being arranged for axial movements by splines 26 provided on the respective shafts. Said shafts are journaled adjacent to their ends in bearing boxes 27, said bearing boxes being movable vertically in guides 28 provided on the adjacent of said frame members.

For adjustably moving the feed roller shafts I provide upright screw threaded spindles 29 rotatable in bearings formed or provided in the guide bracket pieces 28^1 and engaging in threaded holes formed in the bearing boxes 27. The screw spindles 29 at each side of the machine are rotated by means of miter gears 30 from longitudinal shafts 31 through the agency of hand wheels 32. The shafts 31 are, however, connected to operate in unison by means of a sprocket chain 33 passing about sprocket wheels, such as 34, provided on the shaft, whereby the feed rollers may be raised or lowered from either side of the machine.

Circular frame 13 is rotatably moved for regulating the inclination of the cutter head 19 by means of a worm 35 taking in a rack 36 provided on the referred to frame. The worm 35 is mounted on an operating shaft 37 and rotated through the instrumentality of a hand wheel 38.

39 represents a bar extending transversely across the machine in substantially parallel relation to the plane of the feed rollers 25. The ends of the bar 39 extend into recesses 40 of guide brackets 41 rigidly secured to the frame members 10 and, as shown in Fig. 4, are yieldingly held upon the bottom 42 of the respective bracket recesses by means of thrust pins 43 which are each urged downwardly by a helical spring 44 interposed between the head 43^1 of the thrust pin and the bracket part 41^1.

Slidable upon bar 39 are blocks 45 and

46 respectively carrying below the bar opposing rollers 45^1 and 46^1 rotatable upon vertical axles 47. 48 represent set screws provided in said blocks for securing the same in adjustable positions through the bar 39.

The feed roller shafts 24 and 24^1 are operatively connected to rotate in unison by means of the endless chain 49 passing about sprocket wheels such as 50 mounted upon the respective shafts.

On the end of one of the feed roller shafts is a beveled toothed gear 51 engageable from diametrically opposite sides with either of the pinions 52 or 52^1, said pinions being rigidly connected to or integral with a sleeve 53 which is splined to a vertical shaft 54. This shaft is journaled in boxes 55 and driven by means of gearing 56 from a power-driven counter shaft 57.

The operation of the invention may be explained as follows:—

The work as, for example, a curved piece of timber W shown in Fig. 7, has secured thereto, as by means of nails or screws, a flexible strip T, hereinafter designated as a templet, disposed in parallel relation with and at a definite distance from the cutting line L upon the upper surface. The work is then placed upon the feed rollers 25 and 25^1 and the latter elevated by actuating the screw spindles 29, as before explained, until the top surface W^1 of the work is brought up to contact with the bottom ends of blocks 45 and 46, said bottom ends being disposed in a horizontal plane extending through the axis of the rotary frame 13, or nearly so, said axis being represented in Fig. 1 by letter A. Said blocks are thereupon adjusted to have the peripheries of the respective rollers 45^1 and 46^1 engage the opposite sides of the templet T.

The operator then manipulates the hand wheel 38 to effect, by means of worm 35 and rack 36, a rotary movement of the frame 13 for the purpose of regulating the inclination of the planer head 19 to correspond with the bevel at which the adjacent face of the work is to be cut. The motor 23 is then energized to rotate the head and the feed rollers put in motion will cause the work to be advanced and progressively dress the side of the same.

Oftentimes, as in surfacing ship timbers, the bevels will vary throughout the length of the piece, and to which end the cutter head is inclined more or less during the progress of the work by manipulating the hand wheel 38.

After the work has been properly surfaced on one side by passing through the machine in one direction, it may be surfaced on its opposite side by returning upon the other side of the head. To meet such conditions, the blocks 45 and 46 should be shifted into dotted line positions indicated by *x* and *y* in Fig. 1, and the rotation of the feed rollers reversed by utilizing the pinion 52 or 52^1 which was previously unoccupied. Of course, but one side of the machine need be used, if desired, but it will be readily understood that it is advantageous with heavy timbers to return the work from the back end through the machine rather than carrying it around and introducing it into the machine from the front end in a reverse position.

From the foregoing description, it will be noted that the work is positively moved in a lateral direction through the agency of a templet operating between two guide blocks rigid with the machine frame. Under such conditions, the feed rollers 25—25^1 are moved axially on the shafts.

By the provision of spring-pressed means for holding down the bar 39, to which guide blocks 45 and 46 are secured, the latter are capable of yielding to accommodate themselves to any unevenness in the upper or lower surfaces of the work, or where the same are out of parallel with each other.

What I claim is—

1. In a beveling planing machine, including a stationary frame, a circular frame rotatably mounted on said stationary frame, a cutter head carried by said circular frame, work-feeding means mounted on said stationary frame and vertically adjustable with relation thereto, a flexible templet strip adapted to be secured upon the work, and laterally adjustable templet-engaging guides supported by said stationary frame whereby the work supported by the work-feeding means may be properly cut.

2. In a beveling planing machine, in combination, a cutter head arranged for angular adjustment about an axis longitudinal of the machine, and a vertically adjustable roll feeding means arranged to feed the work in opposite directions at opposite sides of said head.

3. In a beveling planing machine the combination with a stationary frame and a movable frame, of a side head supported by said movable frame, a roll feed means comprising vertically adjustable rollers supported by said stationary frame, means to drive said rollers to effect the feeding of the work in either directions at opposite sides of said head.

4. In a beveling planing machine, a side cutter head, a roll-feed comprising power-driven shafts arranged transversely of the machine, rollers splined for axial movements to the respective shafts, a flexible templet adapted to be secured to the upper surface of the work, and means adjustable transversely of the machine and coacting with said templet to effect axial movements of the rollers to guide the work in its travel through the machine.

5. In a beveling planer, the combination with the machine frame, a cutter head supported thereby, work-feeding devices adjustably supported by said machine frame, a templet adapted to be secured to the work, a horizontal bar connected to said frame for limited vertical movements, means to yieldingly hold said bar at its lowermost position, and laterally adjustable means carried by said bar and coacting with said templet for guiding the work as it is carried by said feeding devices.

6. In a beveling planing machine, the combination with a machine frame, and a cutter head, of a frame in which said cutter head is journaled, said frame being rotatably mounted in the machine frame, a means for driving said cutter head carried by the rotary frame, means for adjustably rotating the latter, and vertically adjustable power-driven feed rolls arranged to effect the travel of the work at selected elevations along either side of said cutter head.

7. In a beveling planing machine, the combination with the machine frame, a circular frame rotatably mounted in the machine frame, a side head, driving mechanism for said head carried by the rotatable frame, of a power-driven work-supporting and feeding means adjustably mounted on the machine frame, a flexible templet adapted to be secured to the work, and means connected with the machine frame and coacting with said templet to cause the work to be positively moved toward said side head when the work is fed by the supporting means therefor.

8. In a beveling planing machine, the combination with the machine frame, a frame rotatably mounted therein, a side head, driving mechanism therefor carried by the rotatable frame, and power-driven work-supporting and feeding means provided on the machine frame, of a flexible templet adapted to be secured to the work, and means yieldably connected with the machine frame for vertical movements and coacting with said templet to cause the work to be positively moved toward said side head when the work is fed by the supporting means therefor.

9. A machine of the class described comprising a main frame, a circular frame rotatably mounted on said main frame, means for rotating said circular frame, a shaft extended transversely across the front and rear of said main frame, means securing said shafts to said main frame for vertical adjustment, work-feed rollers mounted for axial movement on said shafts, a cutter carried by said circular frame, means for driving said cutter, and work-engaging guides yieldably supported by said main frame.

10. In a beveling planing machine, the combination with the machine frame, a frame rotatably mounted therein, a side head, driving mechanism therefor carried by the rotatable frame, and power-driven work-supporting and feeding means provided on the machine frame, of a flexible templet adapted to be secured to the work, and means connected with the machine frame and coacting with said templet to cause the work to be positively moved both toward and from said side head when the work is fed by the supporting means therefor.

11. In a beveling planing machine, the combination with the machine frame, a frame rotatably mounted therein, a side head, driving mechanism therefor carried by the rotatable frame, and vertically adjustable power-driven work-supporting and feeding means provided on the machine frame, of a flexible templet adapted to be secured to the work, and means connected with the machine frame for vertical movements and coacting with said templet to cause the work to be positively moved both toward and from said side head when the work is fed by the supporting means therefor.

Signed at Anacortes, Washington, this 25th day of September, 1917.

JOSEPH A. SLOAN.

Witnesses:
J. F. LYONS,
BEN DRIFTMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."