No. 750,294. PATENTED JAN. 26, 1904.

N. J. MATTHIESEN.

WOOD SCRAPING AND SMOOTHING MACHINE.

APPLICATION FILED JAN. 27, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

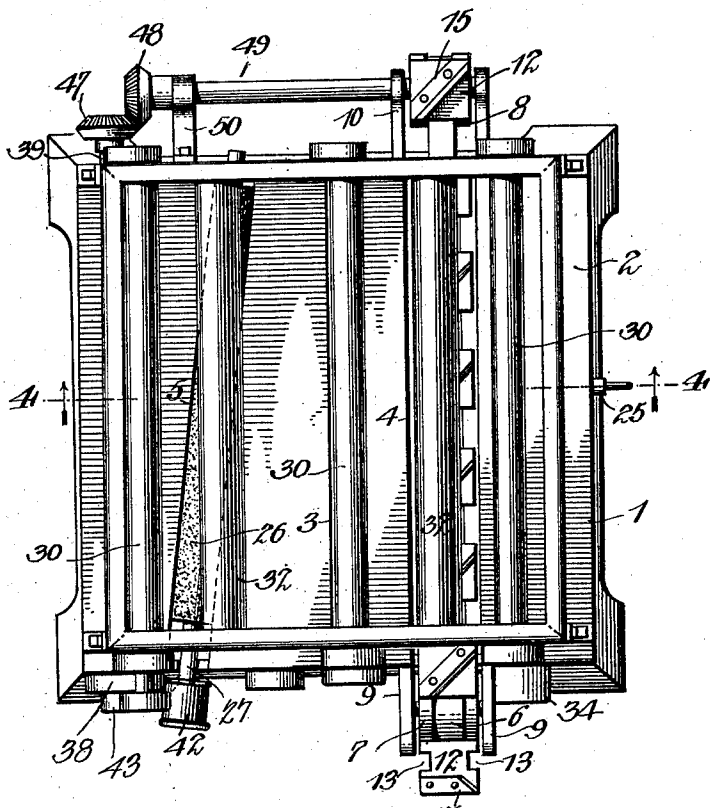
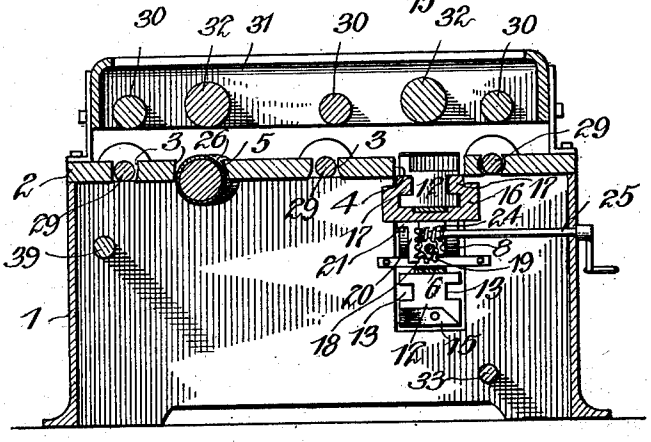


Fig. 4.



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WOOD SCRAPING AND SMOOTHING MACHINE.

APPLICATION FILED JAN. 27, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

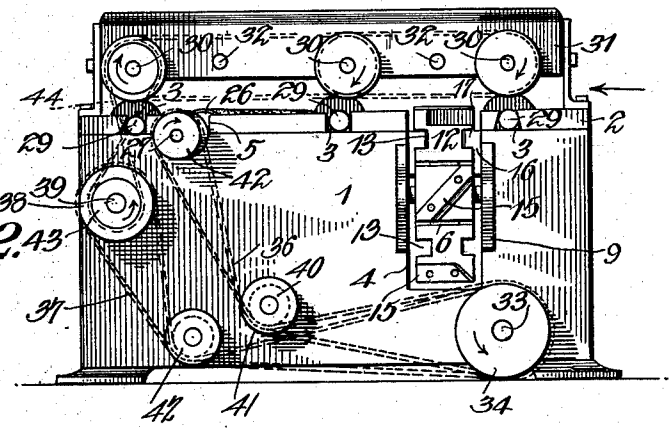


Fig. 3.

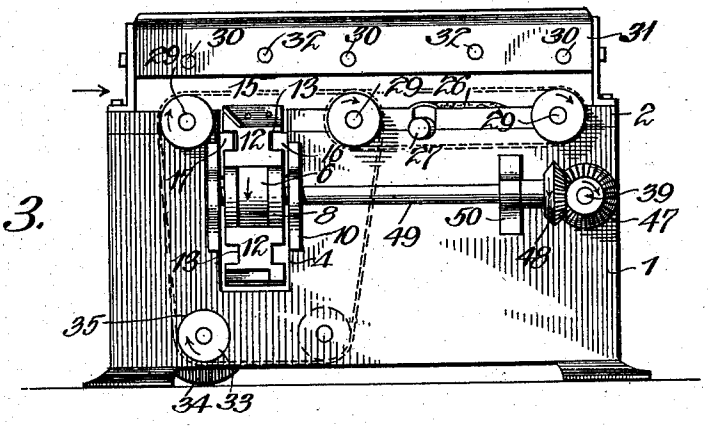
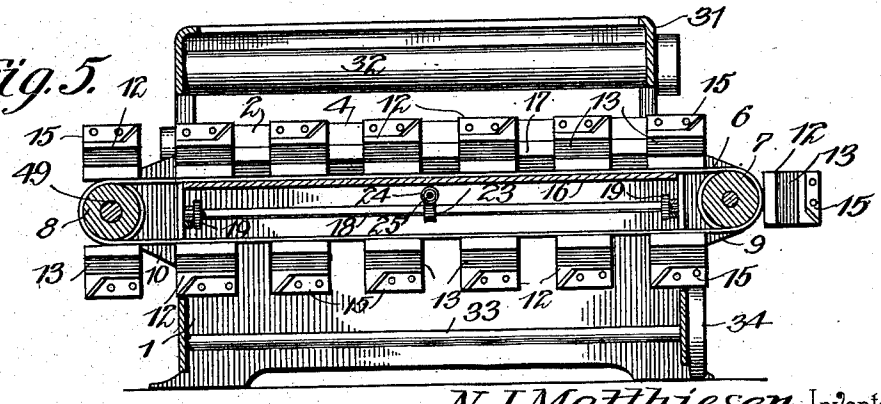


Fig. 5.



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No. 750,294. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

NICKELS J. MATTHIESEN, OF CLINTON, IOWA.

WOOD SCRAPING AND SMOOTHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,294, dated January 26, 1904.

Application filed January 27, 1903. Serial No. 140,773. (No model.)

To all whom it may concern:

Be it known that I, NICKELS J. MATTHIESEN, a citizen of the United States, residing at Clinton, in the county of Clinton and State of Iowa, have invented a new and useful Wood Scraping and Smoothing Machine, of which the following is a specification.

My invention relates to machines for scraping and smoothing flat surfaces of wood, such as door-frames, window-frames, and all kinds of panel-work; and it consists, broadly speaking, of an endless carrier to which are secured a plurality of blocks bearing scraping-cutters and a sandpaper-carrying roll, together with a suitable supporting-frame, driving means, and feed mechanisms for said scraping-cutters and sand-roll.

The object of my invention is to provide a machine of simple construction and thoroughly-efficient action in which are combined a series of scraping devices mounted on an endless chain and sandpapering devices, together with means for driving the said scraping and sandpapering devices, and improved means for adjusting the elements of the machine for operating upon material of varying thicknesses and for varying the force of contact of the scraping and sandpapering devices with the material.

In order to fully explain my invention, attention is directed to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a machine constructed after my invention. Fig. 2 is an end view taken from the left of Fig. 1. Fig. 3 is an end view taken from the right of Fig. 1. Fig. 4 is a transverse vertical section along the line 4 4 in Fig. 1, and Fig. 5 is a longitudinal vertical section through the endless chain and cutters.

In the above-mentioned figures similar parts are indicated by the same characters of reference throughout.

The supporting-frame of my machine (indicated at 1) is of common form and has at the top a feed-bed 2, through which extend longitudinally a series of openings 3 3 3 for feed-rollers suitably mounted in the supporting-frame 1, and a wider channel 4, through which travels the endless chain carrying the scraping-cutters. Arranged obliquely between the rearmost feed-roll and that next in front of it is an opening 5, in which the sandpaper-roll rotates. The endless carrier 6 is supported upon pulleys 7 and 8, whose axles rest in bearings afforded by brackets 9 9 and 10 10, projecting from the ends of the supporting-frame. Attached to the endless carrier at short intervals are scraper-carrying blocks 12, each of which is grooved on either side at 13 for the passage of a guide member, to be more fully described hereinafter. The scrapers 15 are mounted obliquely upon the blocks in the manner shown and may be secured thereto in any convenient way.

To insure the proper contact of the scraping-cutters 15 with the work as it advances over the feed-bed 2, a channel for the travel of said blocks is provided at 16, as best shown in Figs. 4 and 5. This channel or trough 16 is provided at the bottom with a passage-way for the endless carrier 6 and has a guiding-rib 17 at either side to engage with the grooves 13 in the sides of the scraper-carrying blocks. By means of the ribs on the sides of the guide-channel and the corresponding grooves in the scraper-blocks any sidewise yielding or vertical movement of the blocks is prevented and the movement of the blocks is accurately determined. In order to compensate for the wear on the scraper-blades, the guide-channel is made vertically adjustable by means of the shaft 18, having at either end a pinion 19, engaging with a rack 20 upon the supporting-standard 21 of the guide-channel. These supporting-standards 21 have vertical movement in ways 22, provided at either end of the machine. Motion is imparted to the shaft 18 by means of a worm-gear 23 at the middle of said shaft, the said worm-gear being operated by means of a hand-wheel 24 on the cross-shaft 25.

The sandpaper-carrying roll 26 has an axle 27 journaled in the supporting-frame of the machine. The roll 26 is arranged obliquely with reference to the line of travel of the scraping-cutters, as already stated, in order

to remove more effectively any scratches which may be left upon the surface of the wood by the scraping-cutters.

The means for feeding work over the scraping and smoothing mechanisms consists of feed-rolls 29, mounted in the openings 3 in the feed-bed, and correspondingly-placed feed-rolls 30, supported in a frame 31 above the feed-bed and susceptible of vertical adjustment by means of any convenient form of mechanism to permit the feeding of material of varying thicknesses. Mounted in the frame 31 over the scraping-cutters 15 and the sand-roll 26 are idle rolls 32, which prevent any yielding of the material worked upon which might take place owing to its elasticity.

Motion is imparted to the various operating mechanisms of the machine from a main shaft 33, supported near the bottom of the main frame and carrying pulleys 34 and 35. The pulley 34 is made of sufficient width to carry a belt 36 for imparting motion to the sand-roll and a belt 37, which transmits motion to a counter-shaft 39 through a pulley 38, mounted thereon. The belt 36 passes over idler-pulleys 40, provided with flanges 41 to prevent lateral slipping of the belt thereon, and a similar pulley 42 on the axle of the sand-roll 26. On the left end of the counter-shaft 39 is provided a pulley 43, over which travels a belt 44 for imparting motion to one of the feed-rolls 30, and from this feed-roll motion is transmitted by means of belts and pulleys arranged in the ordinary manner to the other feed-rolls 30. Motion is imparted to the feed-rolls 29 by means of the belts and pulleys arranged as shown in Fig. 3. At the right end of the shaft 39 is a beveled gear 47, which engages with a similar gear 48 at the end of a short shaft 49, which forms an axle for the pulley 8, and is supported at one end in bearings in the brackets 10 10 and at the other in a bracket 50.

In using my improved scraping and smoothing machine motion is imparted to the main driving-shaft from any suitable source of power and thence through the various connecting devices above described to the feed-rolls, the traveling chain carrying the scraper-blocks, and to the sand-roll. The wood to be smoothed is introduced at the front of the machine between the feed-rolls and is carried backward over the rapidly-moving scrapers, thence to the sand-roll, and finally out between the feed-rolls at the rear of the machine. In this operation one side will have been dressed to the desired state of smoothness, and if it is desired to dress the other side also the operation must be repeated.

The mode of securing the scrapers to the scraper-blocks as well as the manner of securing the sandpaper to the sand-roll may be of any approved kind. No specific means for doing either has been described in detail, and no claim will be laid to any such means.

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

1. The combination in a machine of the class described, of a supporting-frame, a feed-bed mounted on said frame and having transverse openings therein, feed-rolls mounted in openings in said bed, an endless belt traveling below said bed, means for imparting movement to said belt, a plurality of scraper-blocks mounted on said belt, each of said blocks having on the face thereof a rib disposed obliquely to the line of travel of the blocks and having the forward surface thereof inclined rearwardly, and a plurality of scraping-cutters mounted upon the ribs upon said scraper-blocks.

2. The combination in a machine of the class described of a supporting-frame, feed mechanisms carried by said frame, an endless chain disposed transversely of said supporting-frame, scraper-blocks mounted on said chain, scraping-carriers secured to said blocks, guiding means for said blocks comprising a trough having a rib on each side extending longitudinally thereof and engaging corresponding grooves on said blocks, and means for adjusting the height of said trough, said adjusting means comprising a shaft disposed transversely of the main frame and having a gear at each end, rack-bars extending downward from said trough and meshing with said gears, and a worm-gear intermediate the ends of said shaft, and a counter-shaft connected with the shaft carrying the gears by means of said worm-gear, substantially as described.

3. The combination in a machine of the class described, of a supporting-frame having a feed-bed provided with transverse openings, an endless belt traveling beneath said bed near the forward portion of the machine, a plurality of scraper-blocks mounted on said belt and traveling in an opening in said bed, a sand-roll mounted in an opening in said bed near the rear thereof, a main driving-shaft rotatably mounted in said frame beneath said belt, a counter-shaft at the rear of said frame, a second counter-shaft at one side of said frame, bevel-gearing connecting said counter-shafts, a pulley on the last-named counter-shaft over which the scraper-carrying belt travels, a pulley on the first-mentioned counter-shaft, a pulley on the sand-roll, a plurality of pulleys on the main driving-shaft, and belts extending from the pulleys on the main driving-shaft to the pulley on the first-mentioned counter-shaft and to the pulley on the sand-roll, whereby motion is imparted to the sand-roll and to said counter-shaft.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

NICKELS J. MATTHIESEN.

Witnesses:

CHARLES F. CURTIS,

GEORGE W. ALLEN.