Oct. 12, 1954 J. S. GIFFORD ET AL 2,691,394

WOOD SURFACING MACHINE

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Fig. 1

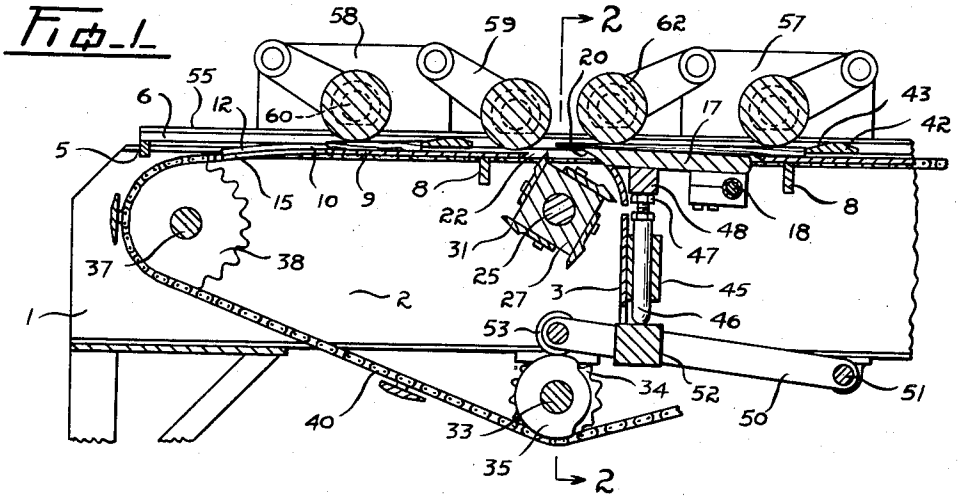


Fig. 3

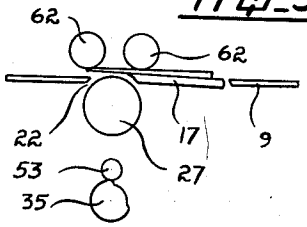


Fig. 4

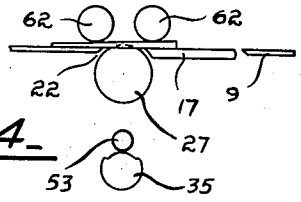


Fig. 2

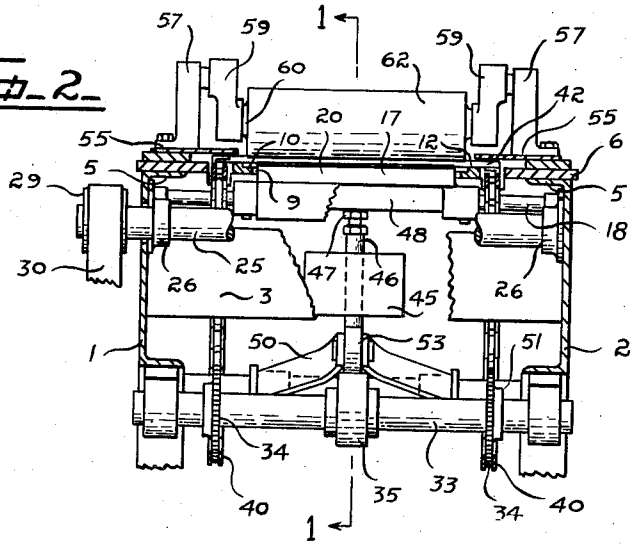
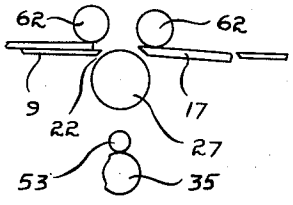


Fig. 5



INVENTORS

JAMES S. GIFFORD

HERBERT C. HANSELL

Ernest E. Carver

ATTORNEY

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WOOD SURFACING MACHINE

James S. Gifford and Herbert C. Hansell, New Westminster, British Columbia, Canada, assignors to Webb-Gifford Ltd., New Westminster, British Columbia, Canada

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1 Claim. (Cl. 144—13)

1

Our invention relates to improvements in wood surfacing machines which are particularly adapted for use in scribing parallel grooves on the exposure surface of shingles.

The grooving of the exposure surface of a shingle has always presented serious problems which hitherto have never been entirely overcome and one particular difficulty has been to hold the thin tip of the shingle firmly under or upon a plane surface to avoid one or more of the cutter knives hitting the tip or leading edge at some portion of its length and partially or wholly destroying the shingle. Another difficulty was to so hold said tip that every groove cutting tooth of the knife would penetrate the shingle to its predetermined depth at the same time.

The present invention contemplates means for overcoming the above named difficulties and the objects are to provide means whereby the shingle will be clamped at the tip and at a point beyond the cutter head before the grooving process commences and also to provide means whereby the leading end or tip of the shingle will be raised above the cutting line of the cutter head until said shingle reaches the point at which the grooving was designed to start. A further object is to provide a device whereby the shingle or other work when in engagement with the cutter head, is held in a perfectly horizontal straight line extending parallel to said cutter head, so that the upper surfaces of the ribs formed incidentally to the grooving process will lie in a true plane. A still further object is to provide means whereby the butt or thick end of the shingle will be held down tight to the bed of the machine as the end of a cut takes place.

Referring to the accompanying drawings:

Figure 1 is a longitudinal sectional view of the invention taken on the line 1—1 of Figure 2.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1.

Figures 3, 4 and 5 are diagrammatic views showing the progression of a shingle across the cutter head.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates a frame having side members 2 and a transverse member 3. The side members 2 are preferably of channel section having upper flanges 5 to support horizontal longitudinally extending side plates 6. The side plates 6 are connected together at predetermined intervals of their length by transversely

2

extending rails 8, which in turn support a bed 9 and a pair of spaced rails 10. The rails 10 serve as side members for the bed and are provided with an upstanding rib 12. The rails 10 are downwardly turned as at 15 at each end, the purpose of which will hereinafter appear.

Intermediate the length of the bed 9 is a heavy flap 17 of the same width as the bed and which is hingedly mounted at one end upon a transverse shaft 18. The flap 17 is bevelled on its underside as at 20 at its free end and a transverse gap 22 is defined between said free end and the adjacent length of bed 9.

Mounted upon a driven shaft 25 in immovably supported bearings 26 carried by the side members 2 is a cutter head 27 which is driven through a pulley 29 by a drive belt 30. The mounting of the shaft 25 and the cutter head 27 is such that each of the knives 31 will project above the upper surface of the bed to the maximum depth of the desired surfacing cut and when the knives are provided with serrated or undulating cutting projections, which are commonly used in grooving shingles, the projections, not shown, will extend above the bed level to cut the desired grooves in the shingles fed along the bed. A transverse shaft 33 is mounted below the shaft 25 and is fitted with a pair of sprockets 34 through which it is driven and is also fitted with a central cam 35. A pair of idler shafts 37 are journalled at opposite ends of the frame, one only being shown. These shafts are fitted with pairs of sprockets 38 and one of said shafts is driven from an appropriate source of power. A pair of chains 40 extend around the sprockets 34 and 38. These chains are trained lengthwise along the frame substantially at the level of the bed 9 and are transversely connected by flights 42, each having a bevelled top wall 43. The forward edge of each flight is adapted to engage a shingle above the depth of the cut of the cutter head 27 to drive said shingle along the bed and said flights are adapted to pass freely over the knives 31 of the cutter head when cutting at maximum depth. The flights are adapted to be drawn forwardly upon the rails 10 and since the ends 15 of said rails are downwardly turned towards the pitch line of the sprockets 38, said flights will be held down in firm contact with said rails by the pull of the chains 40 irrespective of the normal downward thrust upon said flights as they pass under any press rolls.

A vertical guide 45 is mounted upon the transverse member 3 in which a plunger 46 is slidably

mounted. This plunger is provided at its upper end with an adjustable head 47 which is adapted to engage the underside of a rib 48 extending transversely of the flap 17. A lever structure 50 is swingingly mounted from a transverse shaft 51 and is provided with a seat 52 intermediate its length and a roller 53 at its free end. The seat 52 engages the lower end of the plunger 46 and the roller 53 rides upon the periphery of the cam 35.

Mounted on the side plates 6 are elongated cover plates 55 which extend inwardly over the chains 40 and over the ends of the flights 42 connected to said chains. On the cover plates 55 pairs of vertical brackets 57 and 58 are secured between which pairs of cranks 59 are rockingly mounted and each pair of cranks non-rotatably supports a press roll shaft 60 upon which a heavy press roll 62 is freely journalled. In order that one roller supported from the brackets 57 and one roller supported from the brackets 58 should be disposed as closely as possible to the end edges of the gap 22, the press rolls hung from the brackets 57 are disposed forwardly of the pivotal point of their cranks and the press rolls hung from the brackets 58 are disposed rearwardly of the pivotal point of their cranks. The right hand press roll supported from the brackets 58 is adapted to bear upon the bed 9 immediately beyond the gap 22 and to be in contact with the upper surface of a shingle before said shingle is engaged by any of the knives of the cutter head.

In operation, the cutter head which is preferably driven from a separate source of power from that driving the chains 40 and the parts driven thereby, is set in motion and the shafts 37 are also set in motion. Shingles are placed one by one onto the bed 9 in front of a flight 42 so that each shingle is moved to the left, see Figure 1, along the bed and onto the flap. The cam position as shown in Figure 1 shows the flap just prior to it being lowered to horizontal position following the movement of a shingle tip beyond the gap and beyond the leading press roll of the bracket 58. The cam position as in Figure 3, shows the tip of the shingle abutting the press roll to the left of the gap slightly above the bed level and the flap about to drop to horizontal or bed level. By the time that the flap reaches bed level the shingle at a predetermined distance

from its tip will be pressed into contact with the cutter head as shown in Figure 4 and grooving will continue to the butt end of said shingle. During this grooving movement the shingle will be pressed down tightly along both edges of the gap ensuring clean cut straight grooves and an exceedingly smooth finish to the weather face of said shingle. As soon as the butt of the shingle has passed the gap, the cam will cause the flap to rise again to carry the tip of the next following shingle beyond the axis of the cutter head and lower it into contact with the knives when it reaches its proper position for the grooving to commence. It will be appreciated that the weight of the press roll upon a shingle when said shingle is being projected beyond the inclined free edge of the flap will straighten out any natural deviation of the shingle tip from a straight line and ensure that it is properly engaged and depressed down to the bed beyond the gap 22, so that there can be no tendency of any part of the tip to dip into the gap or for the knives to make an irregular penetration into the shingle at the commencement of the grooving cut.

What we claim as our invention is:

A wood working machine comprising a bed, means for moving work pieces progressively along the bed to be surfaced on their underside, said bed having a hinged flap normally lying in the plane of the bed, part of said bed and the free edge of the flap defining a gap, a rotary cutter head having knives and being mounted to project their cutting edges upwardly through the gap, a cam operated in timed relation with the work piece moving means for raising and lowering the flap above and downwardly to the plane of the bed, and means for pressing the leading edge of the work piece downwardly onto the bed immediately following its projection beyond the gap.

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