May 4, 1948. R. A. WILDE 2,440,994

SHINGLE FINISHING MACHINE

Filed Feb. 28, 1945 3 Sheets-Sheet 1

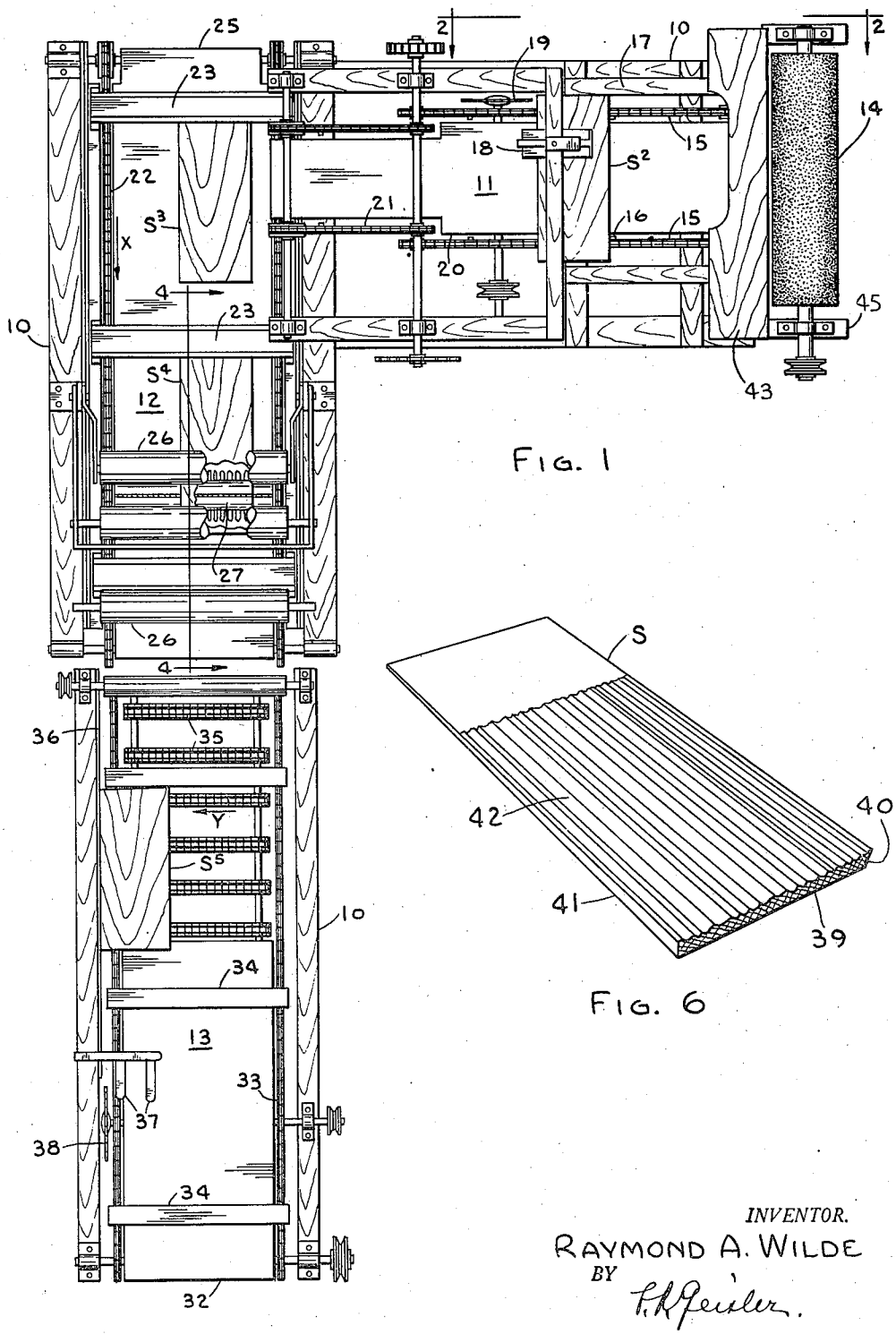


FIG. 1

FIG. 6

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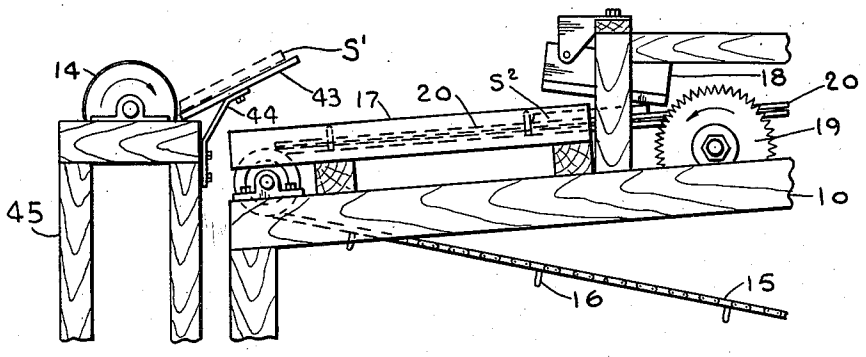


FIG. 2

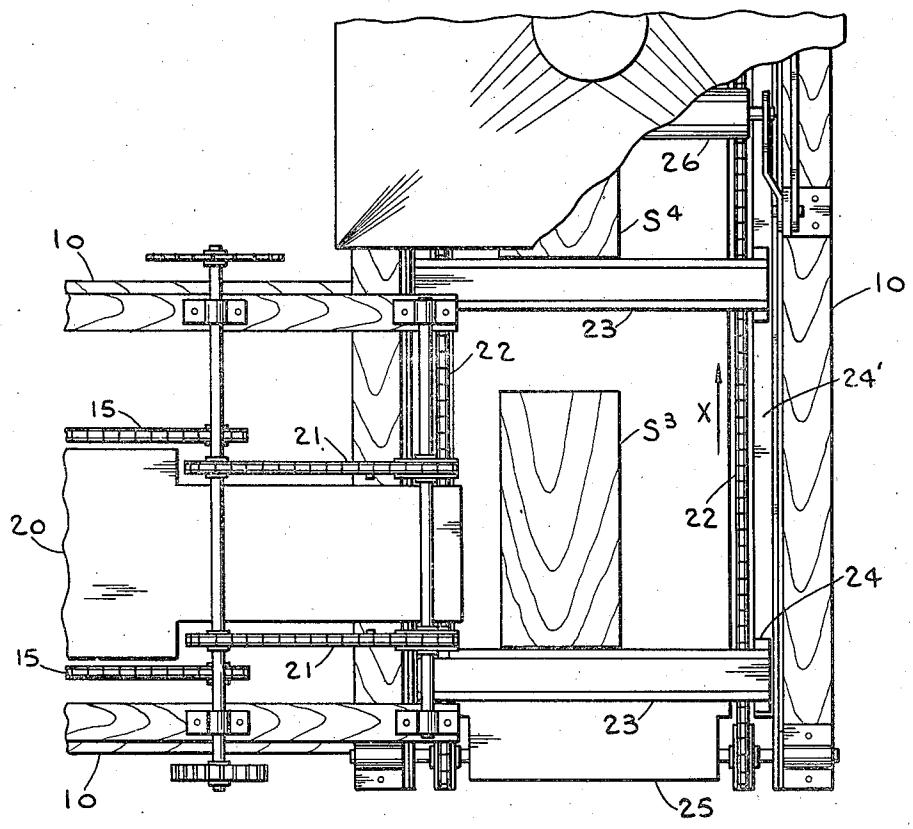


FIG. 3

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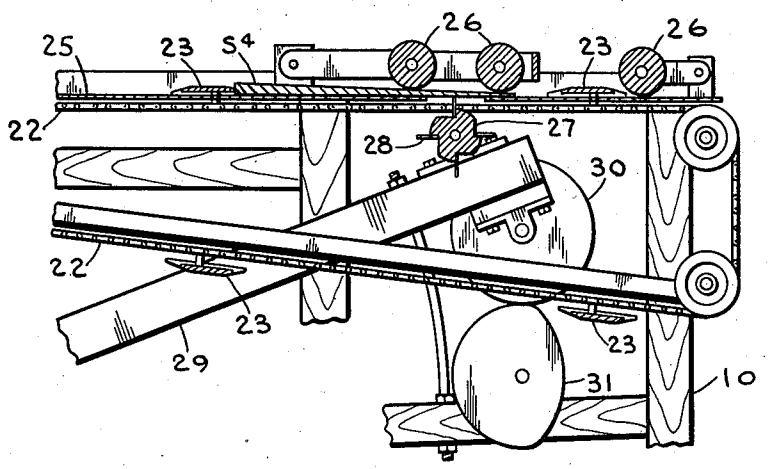


FIG. 4

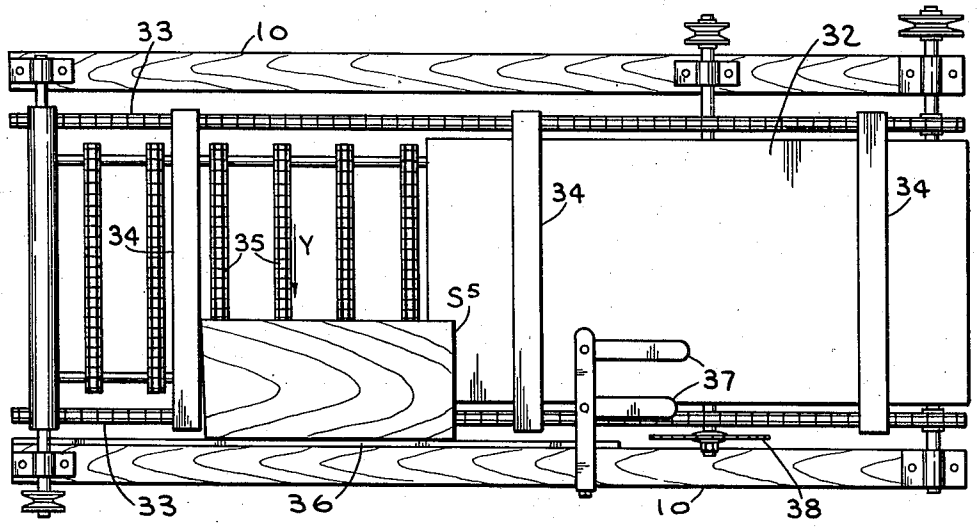


FIG. 5

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SHINGLE FINISHING MACHINE

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Application February 28, 1945, Serial No. 580,205

6 Claims. (Cl. 144—13)

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This invention relates in general to shingles of various sizes and types, and, in particular, to imitation shake shingles in which a portion of the outer face of the shingle is surfaced or grooved to imitate hand-split shakes.

It is desirable in all shingles, but especially with imitation shake shingles, to have the two side edges of the shingle parallel and to have these edges perpendicular to, or forming right angles with, the shingle butt. When the edges are not parallel, or if either or both edges are not perpendicular to the butt, the proper laying of the shingles on the wall or roof surface is not only more difficult but the resulting wedge-shaped cracks between the shingles detract from the general appearance, and this is particularly true when the exposed surface of the shingles is grooved to imitate shakes.

Various types of machines are in use for grooving the exposed surface of shingles. However, I have found that even shingles which are surfaced to imitate shake shingles frequently have lateral edges which are not parallel or which are not perpendicular to the butt. Since shingles are of various widths the trimming of the side edges presents somewhat of a problem. This trimming can be done by employing a cutter head which is manually adjusted for each shingle according to the width of the shingle, but I do not regard this as the most satisfactory solution of the problem.

An object of this invention is to provide an improved shingle finishing machine in which the side edges and butt of the shingle will be properly trimmed without manual adjustment of any part of the machine being required, regardless of the width or size of the shingle, thus making possible a considerable saving in time and labor.

Another object of this invention is to provide an improved machine of the type above indicated in which the trimming and surfacing will be done automatically and with a minimum of waste.

I have found that if the two edges of the shingle are not only parallel and perpendicular to the butt, but that if one of the edges is also formed with a slight, inwardly-sloping bevel, such a bevel edge enables the shingles to be set closer together at the sides, with less likelihood of any bulging or buckling occurring as a result of slight lateral expansion of the shingles under certain weather conditions. In other words, the beveled edge more readily permits a slight compression along that edge of the shingle under such conditions. On the other hand, having the shingles

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tight together at their lateral edges improves the appearance of the shingled surface and facilitates the staining or painting of such surface.

An additional object of this invention accordingly is to provide a shingle finishing machine in which at least one of the edges of the shingle can be given a slight inwardly-sloping bevel.

A further object is to provide a finishing machine which will be simple to construct and easy and inexpensive to operate and maintain.

These objects and other advantages I attain by combining and arranging simple elements in a machine in a manner hereinafter briefly described with reference to the accompanying drawings.

In the drawings:

Fig. 1 is a diagrammatic plan view of the entire shingle finishing machine;

Fig. 2 is a fragmentary front elevation of the first portion of my machine, including the means for finishing one edge and the butt, the portion shown in elevation being indicated by the line 2—2 in Fig. 1;

Fig. 3 is a fragmentary plan view of the intermediate portion of my machine in which portion the surfacing of the shingle face takes place;

Fig. 4 is a fragmentary sectional side elevation of the surfacing mechanism taken on line 4—4 of Fig. 1;

Fig. 5 is a diagrammatic plan view of the last portion of my machine in which the trimming of the other side edge takes place; and

Fig. 6 is a perspective view of a shingle finished in accordance with my invention.

The frame support for the various parts of the machine is indicated in general by the reference character 10. The entire machine may be considered as divided into three parts; the first part, indicated at 11 in Fig. 1, including means for finishing one edge of the shingle and means for trimming the butt at right angle to the finished edge; the second part, indicated at 12, including the shingle surfacing mechanism; and the third part, indicated at 13, including the means for trimming the other side edge of the shingle.

A sanding drum or roll 14 (Figs. 1 and 2) is located at the beginning end of the machine. The drum 14 has its surface covered with sandpaper or with other suitable abrasive surfacing and is rotated rapidly by suitable means (not shown) in clockwise direction as viewed in Fig. 2. A rest 43, mounted on a pair of brackets 44, attached to the sanding drum frame 45 (Fig. 2), is used for supporting the shingle at the start of the finishing operation. The operator takes a shingle from the pile and places it on the rest 43,

holding it for a moment with one edge pressed against the sanding drum in the position indicated by the broken lines S' in Fig. 2. The holding of the shingle in this position against the sanding roll causes the edge against the roll to be given a bevel. Such a beveled edge is shown in the finished shingle S of Fig. 6 at **40**, and will be referred to later.

With one edge of the shingle finished by the sanding roll **14** the operator then drops the shingle on to a pair of endless conveyor chains **15** (Figs. 1 and 2) with the butt or thick end of the shingle against the guide **17**. No further handling of the shingle is required by the operator and the finishing of the shingle proceeds automatically. The conveyor chains are driven in unison by suitable means (not shown) and carry equally spaced lugs **16** which engage the finished edge of the shingle, moving the shingle forward in the machine, that is to say, from right to left, as viewed in Fig. 1 and from left to right, as viewed in Fig. 2. The shingle is moved over the top deck **20** of the first part of the machine.

The next step in the finishing of the shingle is to trim the butt so that it will be exactly perpendicular to the first finished edge. For this purpose a rotary saw **19** is provided which is secured to a shaft and which shaft is suitably and adjustably mounted so that the saw kerf will be exactly perpendicular to the finished edge. The saw **19** is rotated rapidly in the direction indicated by the arrow in Fig. 2 by suitable means (not shown). The shingle occupies the position indicated at S^2 in Figs 1 and 2 prior to having the butt trimmed. For holding the shingle down firmly on the conveyor chains **15** and deck **20** with its edge against a pair of lugs **16**, as it is moved against and past the butt-trimming saw **19**, I provide one or more weights or bars **18** having the rear end pivotally supported and the front end free to rest on the deck or moving shingle.

After the butt of the shingle has been trimmed by the saw **19** the shingle continues on its way and is engaged by a pair of endless transfer chains **21** (Figs. 1 and 3) which slide the shingle rapidly onto the deck **25** of the second part of the machine. The shingle will now be in the position shown at S^3 in Figs. 1 and 3. The surfacing of the face of the shingle is performed in this part of the machine.

A pair of endless conveyor chains **22** (Figs. 1, 3 and 4), are connected at equally spaced intervals to conveyor bars **23**. These conveyor bars **23** extend a short distance at each end beyond the conveyor chains **22** and rest on shoe supports **24** (Fig. 3) which slide along tracks **24'** at either side of the deck **25**. A conveyor bar **23** engages the butt end of the shingle and moves the shingle in the direction indicated by the arrow *x* in Fig. 3.

As the shingle moves into the position indicated at S^4 in Figs. 1, 3 and 4, it passes under weighted rollers **26** which hold the shingle down while the bottom face is being subjected to a surfacing treatment or grooving. This grooving or surfacing is performed by a rotary cutter head **27**, which carries a plurality of profile knives **28** (Fig. 4). The cutter head **27** is rotated rapidly (in counter clockwise direction as viewed in Fig. 4) by suitable means (not shown) and is rotatably supported on a pivotally mounted oscillating frame **29**. When the frame **29** is in the raised position shown in Fig. 4 the profile knives extend up through an open space in the deck **25** and engage the face of the shingle as the shingle is moved past the open space. The upper free end of the frame **29** is provided with rollers **30**, which in turn ride on cam rollers **31**. This surfacing mechanism is similar to that described in U. S. Letters Patent No. 1,944,631, issued January 28, 1934, to G. A. Bergstrom and entitled "Shingle facing machine."

The cam rollers **31** are rotated in synchronism with the driving of the conveyor chains **22** by suitable means (not shown) so that the frame **29** will be in raised position only during the time the portion of the shingle which is to be grooved or faced is passing above the cutter head and then will be immediately lowered.

After the bottom face of the shingle has been grooved the shingle is delivered to the third part of the machine for the trimming of the other side edge. The shingle, after passing under the last roller **26**, drops onto the positioning chains **35** (Figs. 1 and 5). These positioning chains **35** are a series of parallel mounted endless chains, driven in unison transversely in the direction indicated by the arrow *y* and thus move the shingle, which is now indicated at S^5, against the side guide **36**. At the same time a conveyor bar **34**, connected to a pair of endless conveyor chains **33**, moves the shingle along from left to right (as viewed in Fig. 5). When the shingle is moved beyond the positioning chains **35** it is pushed under a pair of spring members **37** which keep the butt end of the shingle firmly against the engaging conveyor bar **34**. In this position the shingle moves past the rotating side trimming saw **38** which is so set as to trim the side of the shingle in a line perpendicular to the conveyor bars **34** and thus perpendicular to the shingle butt.

The finishing of the shingle has now been completed since both side edges are perpendicular to the butt, with one edge beveled, and the face of the shingle has been grooved. The conveyor bar **34** pushes the finished shingle off the end of the deck **32** whence the shingles are delivered to a suitable container or carrier to be subsequently bundled or stained.

In Fig. 6 I show a shingle S which has been finished in my machine. The two edges **40** and **41** are both perpendicular to the plane of the butt **39**. That portion of the face of the shingle which will be exposed to view on the building wall has been grooved as shown at **42**. When each shingle is finished with an edge having the inwardly sloping bevel shown at **40**, the shingles may be laid with their lateral edges closer together. Should the shingles have a tendency to expand to a slight degree laterally, under extreme weather conditions, the beveled edge will submit to slight compression and thus minimize any possibility of buckling or warping of the shingles as a result of lateral compression.

It will be apparent from the foregoing description of the operation of my machine that shingles of various widths will all be finished in the same manner. Unlike other finishing machines in present use, no adjustments are necessary for shingles of different widths. Furthermore, after the first operation of holding the shingle with one edge against the sanding drum, no further handling of the shingle is required by the operator. The trimming of the butt, the grooving of the face, and the trimming of the opposite side follow automatically, thus making possible economy in time and labor. In addition, due to the fact that no positioning of saws or

trimmers is required for different widths of shingles the amount of waste in trimming the edges and butt of each shingle is reduced to a minimum and is not dependent upon the amount of skill exercised by the operator. In fact, the operation of my machine requires practically no skill or training on the part of the operator.

Many variations could of course be made in the details of construction of my machine and in the individual parts of the same within the scope of my invention. The machine which I have illustrated and described briefly is one which I have found to be very satisfactory in actual use. However, it is not my intention to limit my invention otherwise than as set forth in the claims.

I claim:

1. In a shingle finishing machine, a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one edge perpendicular to the plane of said saw, shingle positioning means, a side guide for the shingle, said positioning means moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other side edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, a conveyor bar for engaging the butt end of the shingle and for moving the shingle lengthwise along said guide and past said side trimming saw, the butt-engaging portion of said conveyor bar being perpendicular to the plane of said side trimming saw, and means for holding the shingle with its butt end firmly against said conveyor bar while the shingle is being moved by said bar past said side trimming saw to cause said other side edge of the shingle to be trimmed perpendicular to the butt end, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

2. In a shingle finishing machine, a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one side edge perpendicular to the plane of said saw, shingle positioning chains, a side guide for the shingle, said positioning chains moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other side edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, a conveyor bar engaging the butt end of the shingle and for moving the shingle lengthwise along said guide and past said side trimming saw, the butt-engaging portion of said conveyor bar being perpendicular to the plane of said side trimming saw, and means for holding the shingle with its butt end firmly against said conveyor bar while the shingle is being moved by said bar past said side trimming saw to cause said other side edge of the shingle to be trimmed perpendicular to the butt end, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

3. In a shingle finishing machine, a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one side edge perpendicular to the plane of said saw, a surface grooving device, means for conveying the shingle lengthwise through said surface grooving device, shingle positioning means located beyond said surface grooving device, a side guide for the shingle, said positioning means moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other said edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, a conveyor bar for engaging the butt end of the shingle and for moving the shingle lengthwise along said guide and past said side trimming saw, the butt-engaging portion of said conveyor bar being perpendicular to the plane of said side trimming saw, and means for holding the shingle with its butt end firmly against said conveyor bar while the shingle is being moved by said bar past said side trimming saw to cause said other side edge of the shingle to be trimmed perpendicular to the butt end, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

4. A shingle finishing machine of the character described including a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one side edge perpendicular to the plane of said saw, a surface grooving device, means for conveying the shingle lengthwise through said surface grooving device, shingle positioning means located beyond said surface grooving device, a side guide for the shingle, said positioning means moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other side edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, a conveyor bar for engaging the butt end of the shingle and for moving the shingle lengthwise along said guide and past said side trimming saw, the butt-engaging portion of said conveyor bar being perpendicular to the plane of said side trimming saw, and means for holding the shingle with its butt end firmly against said conveyor bar while the shingle is being moved by said bar past said side trimming saw to cause said other side edge of the shingle to be trimmed perpendicular to the butt end, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

5. A shingle finishing machine including a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one side edge perpendicular to the plane of said saw, shingle positioning means, a side guide for the shingle, said positioning means moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other side edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, means for moving the shingle lengthwise along said guide and past said side trimming saw, and means for holding the shingle positioned with its butt end perpendicular to the plane of said side trimming saw while the shingle is being moved past said side trimming saw, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

6. A shingle finishing machine of the character described comprising a butt-trimming saw, means for moving the shingle sideways against and beyond said saw and for holding the shingle with one side edge perpendicular to the plane of said saw, a surface grooving device, means for conveying the shingle lengthwise through said surface grooving device, shingle positioning chains located beyond said surface grooving device, a side guide for the shingle, said positioning

chains moving transversely to said guide and having engaging elements operating to move the shingle sideways until its other side edge contacts said side guide, a side trimming saw located beyond but on the same side as said side guide, means for moving the shingle lengthwise along said guide and past said side trimming saw, and means for holding the shingle positioned with its butt end perpendicular to the plane of said side trimming saw while the shingle is being moved past said side trimming saw, whereby the finished shingle will have both side edges perpendicular to the butt regardless of the width of the shingle.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
661,552	Rich	Nov. 13, 1900
1,394,014	Holt	Oct. 18, 1921
1,731,452	Clark	Oct. 15, 1929
1,944,631	Bergstrom	Jan. 23, 1934
2,031,385	Peterman et al.	Feb. 18, 1936
2,207,782	Carlson	July 16, 1940
2,252,112	Bailey	Aug. 12, 1941
2,273,653	Melby	Feb. 17, 1942