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SHINGLE SHAKE MACHINE

Filed Feb. 11, 1925

2 Sheets-Sheet 1

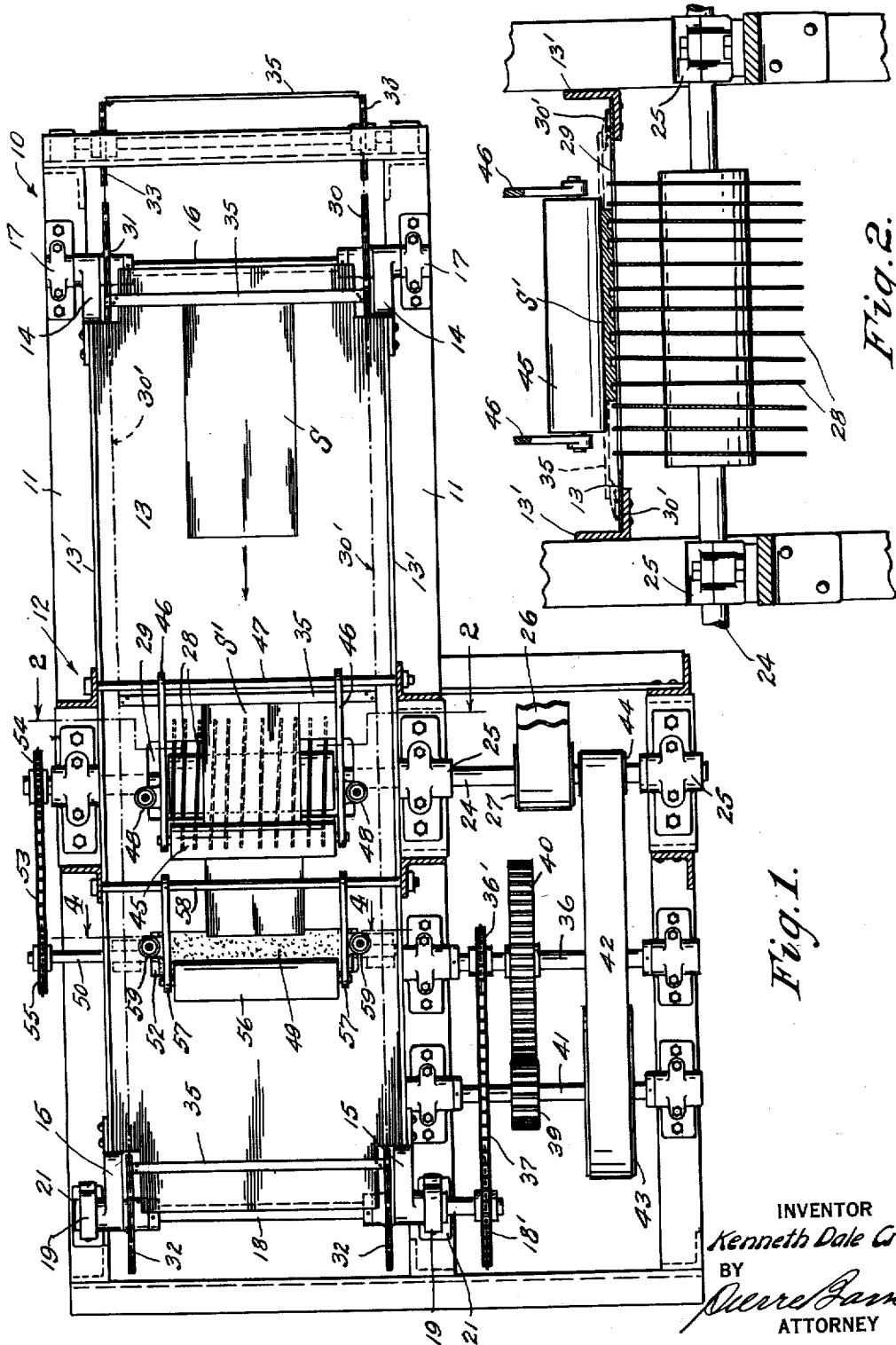


Fig. 1.

Fig. 2.

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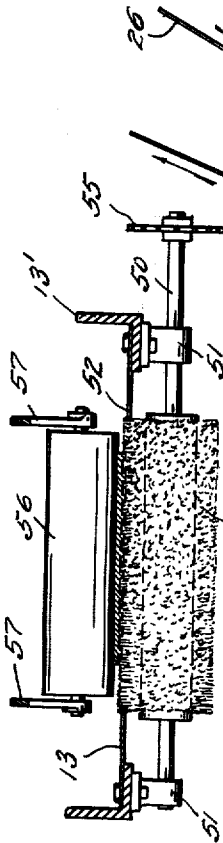
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UNITED STATES PATENT OFFICE

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SHINGLE-SHAKE MACHINE

Application filed February 11, 1925. Serial No. 8,415.

This invention relates to a machine for treating or surfacing shingles to produce what is conventionally known as "shake-shingles."

Shingles of this character differ from the ordinary shingles of commerce by the provision of longitudinally disposed corrugations, composed of alternating ridges and grooves in the shingle portions which are designed to be exposed to the weather.

The object of the invention is the provision of a machine which is to transform ordinary shingles into shake-shingles.

More specific objects and advantages of the invention will appear in the following description.

The invention consists in the novel construction, adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawings,—

Figure 1 is a plan view, partly in horizontal section, of a machine embodying the invention in its form now preferred by me. Fig. 2 is a vertical transverse section taken substantially on line 2—2 of Fig. 1. Fig. 3 is a side elevational view of the machine shown in Fig. 1, parts being broken away and parts being shown in vertical longitudinal section. Fig. 4 is a vertical transverse section on line 4—4 of Fig. 1. Fig. 5 is a perspective view of an example of shake-shingle produced according to the present invention.

For convenience of explanation in the following specification, a shake-shingle will hereinafter be designated as a "shake", to distinguish the same from the ordinary shingle, which will be designated as "shingle", such shingle consisting of a body having plane upper and lower surfaces which converge from one end, the "butt" to the other end, or "point" of the shingle. To make such a shingle into a shake, the same is grooved as at A in the top, see Fig. 5, to afford a plurality of ridges B extending about three-fourths the length of the shingle from its butt C, the other portion of the shake remaining with a plane upper surface D.

In carrying out the invention, I provide a

machine having a rigid frame 10 of any known or suitable construction, having, preferably, longitudinally disposed rail elements and with a part 12 extending above the said rails at approximately the mid-length of the machine.

13 represents a movable table disposed longitudinally of the frame which may advantageously be constructed of a thin metal plate with reinforcing side bars 13¹ and provided at its front and rear ends with leg elements 14 and 15. The lower ends of the front legs 14 are apertured to receive a transversely arranged shaft 16 which is journaled in bearing boxes 17 secured to the frame rails 11 and constituting a pivotal support for the front end of the table.

Journaled in the rear legs 15 is a shaft 18 having mounted thereon cams 19 which bear upon rollers 20 mounted in chairs 21 rigid with the frame.

As shown in Fig. 3, a cam 19 is provided with a substantially cylindrical body from which extends radially a projection 21, the lengths of the peripheral surfaces 23 and 23¹ of said body and projection, circumferentially of the cam, being in about the proportion of three to one.

24 represents an arbor journaled in boxes 25 of the frame and is rotated as by means of a power driven belt 26 passing about an arbor pulley 27. Mounted upon said arbor is a gang of saw blades 28 disposed in inclined directions with respect to the arbor axis so as to produce erratic or wobbling movements when the saws are rotated with the arbor; the saws, for clearness of illustration, are shown much less in number than actually used. The table 13 is provided with an opening 29 permitting the saw blades to extend through the same and protrude a short distance above the table when the latter is in its lowermost position as represented in Figs. 2 and 3. 30 represents endless feed chains passing about sprocket wheels 31 and 32 mounted upon the respective shafts 16 and 18, said wheels being arranged to provide leads 30¹ to travel above the table 13. As shown, said chains also pass about guide

wheels 33 operating upon a shaft 34 at the front end of the machine.

Said chains are coupled one with the other by means of cleats 35 having their leading 5 faces disposed at distances apart equal to the effective, or chain-pitch, circumferences of the sprocket wheels 31 by which the chains are driven.

As illustrated, the shaft 18, which carries the cams 19 and the feed chain driving wheels 32, is rotated from a shaft 36 by means of an endless chain 37 passing about sprocket wheels 18¹ and 36¹ on the respective shafts; the shaft 36 is driven by means of 15 spur gears 39 and 40 from a shaft 41 which, in turn, is driven from the arbor 24 as by means of a belt 42 passing about pulleys 43 and 44 upon the shaft 36 and arbor, respectively. 45 represents a presser roller 20 having its axle journaled in vertically swinging arms 46 which are pivotally connected as by means of a rod 47 to the frame part 12.

The free ends of said arms are urged 25 downwardly by means of springs 48 to cause the presser roller to hold against the table a shingle, such as S¹, which is passing through the cutting region of the saws.

49 represents a rotary brush, shown as 30 mounted upon a shaft 50 which is journaled in boxes 51 depending from the table 13 and extending through an opening 52 provided in the latter to the rear of the opening 29.

As shown, the brush is driven from the 35 saw arbor by an endless belt or chain 53 passing about wheels 54 and 55 upon the arbor and shaft 50, respectively.

The function of said brush is to remove 40 saw dust, and loose fibrous material from the underside of the shakes and, to ensure their being acted upon by the brush when traveling over the same, I provide above the brush a presser roller 56.

This roller has its axle journaled in arms 45 57 which are pivotally connected by means of a rod 58 to the frame part 12 and is urged downwardly upon the work by means of springs 59.

In each rotation of the cams, the table is 50 alternately elevated thereby and returned by gravitation into a position in which the saws are capable of operating upon shingles, said cams act in timed relation or synchronously with the feed chains 30 in a manner 55 that a shingle will be operated upon by the saws to produce a shake of the character shown in Fig. 5.

More particularly, the operator places a 60 shingle, as represented by S in Fig. 1, upon the table 13 and thereupon is conveyed point end in front by a feed-chain cleat 35 in the direction indicated by arrows α under the presser rollers 45 and 56 successively.

As the leading, or point, end of the shingle

travels over the saws the latter are ineffective because, at that time, the table is elevated by the action of the cams.

In the further progress of the shingle, the cams turn to permit the table to lower, 70 whereupon the shingle, as denoted by S¹, is brought within the orbit of the saw-teeth resulting in the shingle being fashioned thereby into a shake as shown in Fig. 5.

The invention will, it is thought, be understood from the foregoing. 75

While I have illustrated and described the preferred embodiment of the invention, I do not wish to be understood as confining myself thereto except as limited by the scope 80 of the appended claims.

What I claim, is:—

1. In a device for converting ordinary shingles into shake shingles, a rotary grooving device for removing a portion of one 85 face of an ordinary shingle to convert it into a shake shingle, a conveyor for successively advancing a plurality of shingles past said rotary device while maintaining one surface of the shingle substantially parallel to the 90 line of shingle travel, and means for intermittently moving the conveyor and said rotary device relatively to each other while a shingle is disposed therebetween whereby to regulate the depth of cut. 95

2. In a device for converting ordinary shingles into shake shingles, grooving means, means for feeding ordinary shingles, means to elevate the point end of a shingle out of cutting relation with said grooving means 100 and subsequently to regulate the shingle to have its under-surface grooved by said grooving means to convert the ordinary shingle into a shake shingle.

3. In a machine for converting ordinary 105 shingles into shake shingles, a rotary grooving device for removing a portion of one face of an ordinary shingle in order to convert it into a shake shingle, means for conveying a shingle point end forward across the operating field of said device, and means 110 for relatively moving the device and the shingle so that the shingle is out of the operating field as its point end portion passes the rotary device and for relatively moving 115 the device and the shingle so that the shingle is in the cutting field after a chosen portion of the shingle has passed the rotary device, whereby only the butt end portion of the shingle will be acted upon by the rotary 120 device.

4. In a machine for converting ordinary tapered shingles into shake shingles, a rotary grooving cutter revolving about a fixed axis, means for successively advancing a plurality 125 of ordinary shingles above said rotary cutter while maintaining the lower surface of the shingle substantially parallel to the line of shingle travel, and means for raising the shingle out of the cutting field as its point 130

portion passes above the rotary cutter and subsequently lowering the shingle into the cutting field when the point portion has passed above the cutter axis, whereby the rotary cutter will groove only the butt end portions of the shingles and each groove will be of uniform depth in a longitudinal direction for the greater portion of its length, and the ordinary shingle will be caused to resemble a natural shake shingle.

5. In a machine for grooving shingles, cutting means consisting of a series of saws each having peripheral cutting teeth, said saws being disposed in various inclinations but approximately parallel, and means for conveying ordinary shingles past said cutter, which cutter converts such shingles into shake shingles.

6. In a machine for grooving shingles, a cutter consisting of a gang of saws each having peripheral cutting teeth, said saws being disposed in variously inclined degrees so as to produce wobbling movements, and means for conveying shingles past said cutter.

7. In a machine for grooving shingles, a shaft, a plurality of cutters unevenly spaced axially on said shaft, peripheral teeth on said cutters each moving in an orbit in a plane at an acute angle to the axis of the shaft, whereby each tooth has lateral movement with respect to a plane at right angles to the shaft and passing at the center of the cutter, and means for conveying shingles past the cutters, said cutters being disposed in slightly non-parallel relation so as to produce a pleasing degree of non-uniformity on the weather face of the shingle.

8. In a machine for converting ordinary shingles into shake ordinary shingles, means for conveying the shingles in a path, a rotary grooving cutter having its axis transverse to said path and adapted to convert said shingles into shake shingles, means for causing a relative movement between the cutter axis and the path of the shingles, said last mentioned means being so timed with respect to the shingle conveying means that the butt end portions only of the shingles will be acted upon by the cutter.

9. The device of claim 8 in which the rotary cutter consists of a gang of circular saws.

10. In a machine for converting ordinary shingles into shake shingles, an arbor, a gang of saws having peripheral cutting teeth mounted on said arbor, means for conveying the shingles in a path substantially tangent to the orbits of the saw teeth, and means for causing a periodic approach, intersecting, and separation of the paths of the shingles and of the peripheral cutting teeth of the saws, said last mentioned means being so timed with respect to the shingle conveying means that the butt end portions

only of the shingles will be acted upon by the saws.

11. The device of claim 10 in which the saws are unevenly spaced axially upon the arbor.

12. The device of claim 10 in which the saws are disposed in inclined directions so as to produce wobbling movements.

13. The device of claim 10 in which the saws are irregularly spaced axially and are disposed in various inclined directions.

14. A shingle grooving machine comprising in combination with a frame, a grooving cutter rotatable on an axis transverse to the frame, and adapted to produce a shake shingle, a table hinged to the frame on a transverse axis spaced from the axis of the cutter, means for moving shingles over the table past the cutter, and means for raising and lowering the table, said last named means being so timed with respect to said conveying means that the butt end portions only of the shingles will be acted upon by said cutter.

15. A shingle grooving machine comprising in combination with a frame, a cutter rotatable on an axis transverse to the frame consisting of a series of circular saws each inclined to the axis of rotation, said cutter being of a form to convert ordinary shingles into shake shingles, a table hinged to the frame on transverse axis longitudinally offset from the axis of the cutters, and means for raising and lowering the table, said last named means being so timed with respect to said conveying means that the butt end portions only of the shingles will be acted upon by the circular saws.

16. A shingle grooving machine comprising in combination with a frame, a grooving cutter rotatable on an axis transverse to the frame, said cutter being of a type to convert an ordinary shingle into a shake shingle, a table above said cutter hinged to the frame on a transverse axis longitudinally offset from the axis of the cutter, said table having an opening therein through which the cutter projects when the table is lowered, means for moving shingles singly over the table and means for raising and lowering the table, said last named means being so timed with respect to said conveying means that the tip end portions of the shingles will pass over said opening while the table is raised and the remainder of the shingle will pass over the opening while the table is lowered, whereby the butt end portions only of the shingles will be grooved by the cutter.

17. In a shingle shake machine, a frame, an apertured table having one end pivoted thereto, a cam carried by the other end of the table adapted to be rotated for effecting a vertical movement thereof, a power driven arbor rotatably carried by the frame, a

plurality of disk saws mounted thereon, in spaced relation adapted to extend through the aperture in the bottom of the table and arranged diagonal to axis of said arbor, the space between the disk saws being greater than the diagonal pitch thereof, an endless conveyor for conveying the shingle above the aperture formed in the table and into the path of the disk saws, spring means for holding the shingle in close proximity to the disk saws including rollers carried by pivotal arms and a coil spring pressing each arm downwardly and having their ends pressing against the frame and the pivoted arms.

Signed at Whites, Washington, this 14th day of January, 1925.

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DISCLAIMER

1,820,445.—*Kenneth Dale Craft*, Whites, Wash. SHINGLE-SHAKE MACHINE. Patent dated August 25, 1931. Disclaimer filed June 24, 1935, by the assignee, *Fitite Cedar Shake Co.*

Hereby enters this disclaimer to that part of the specification, page 1, lines 84, 85, and 86 which is in the following words, to wit:
"so as to produce erratic or wobbling movements when the saws are rotated with the arbor."

[*Official Gazette August 20, 1935.*]

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