

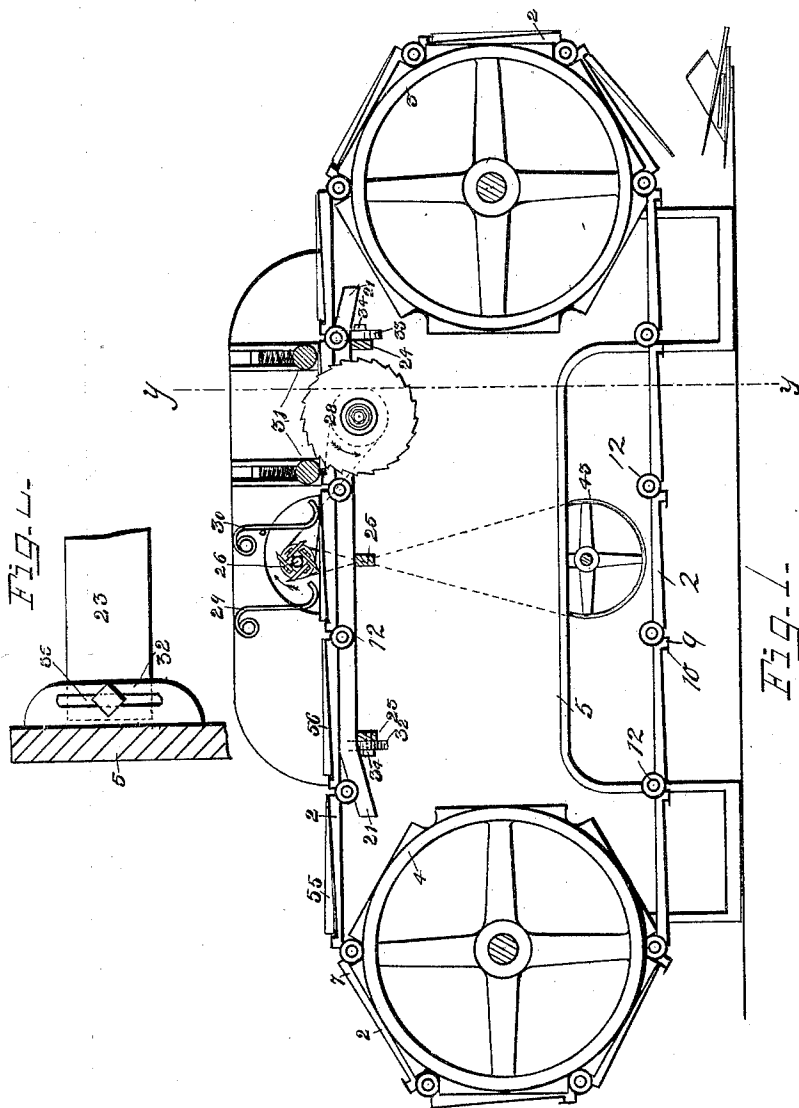
(No Model.)

4 Sheets—Sheet 1.

E. H. TROMANHAUSER.
SHINGLE PLANING AND SIZING MACHINE.

No. 465,005.

Patented Dec. 15, 1891.



Witnesses.

Chas. C. Van Dorn,
a. m. gashill

Inventor.

Edwin H. Tromanhauser.

By Paul J. Tromanhauser Attys.

(No Model.)

4 Sheets—Sheet 2.

E. H. TROMANHAUSER.
SHINGLE PLANING AND SIZING MACHINE.

No. 465,005.

Patented Dec. 15, 1891.

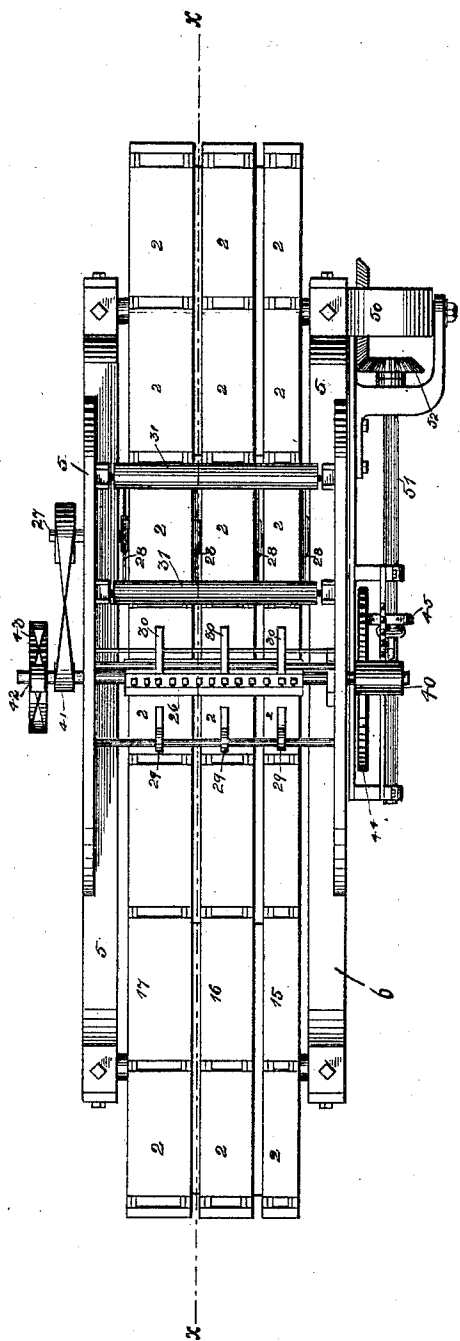


Fig. 2.

Witnesses.
Chas. E. Van Dorn.
a.m. Gaskill

Inventor
Edwin H. Tromanhauser.

By Paul & Merwin Att'ys.

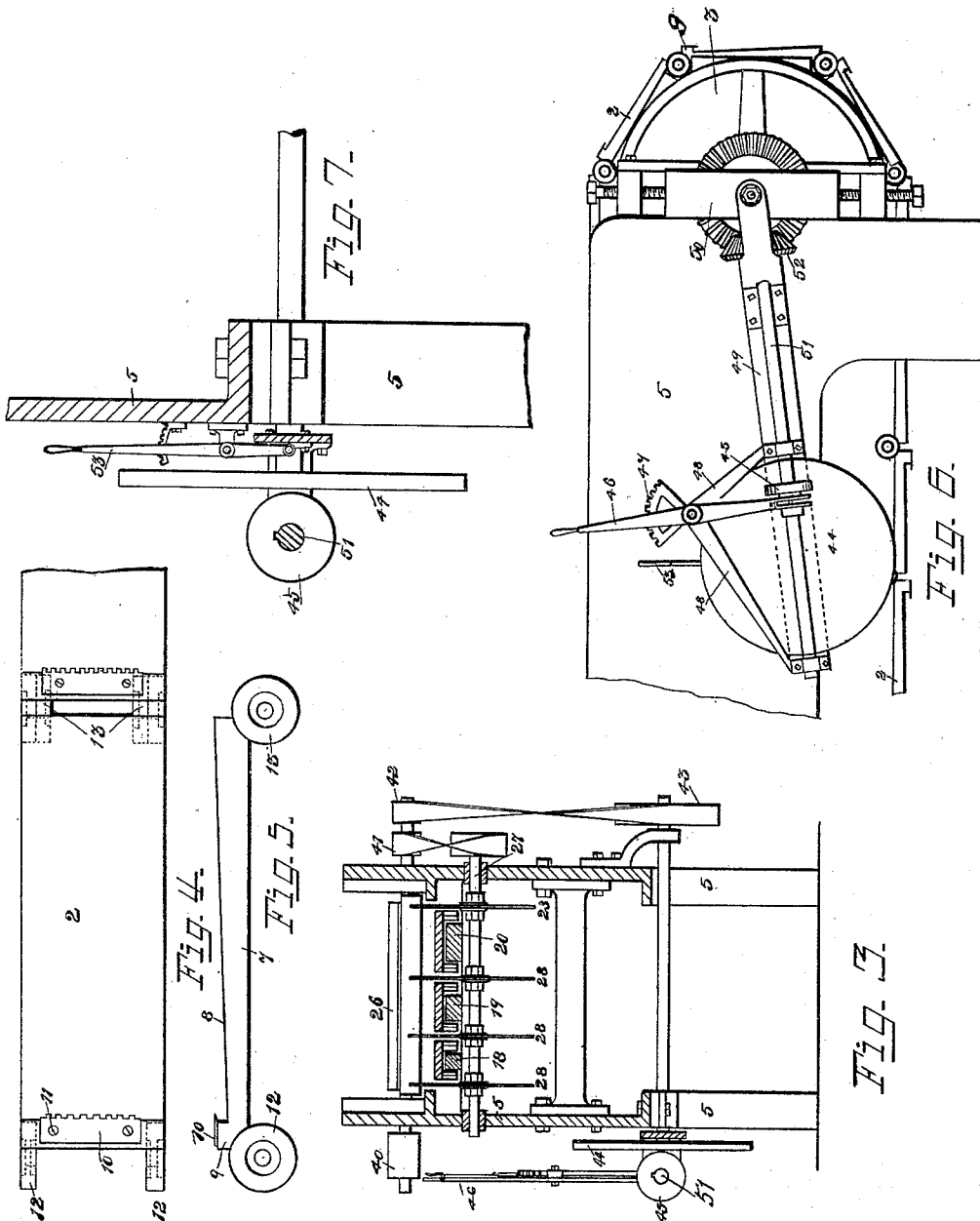
(No Model.)

4 Sheets—Sheet 3.

E. H. TROMANHAUSER.
SHINGLE PLANING AND SIZING MACHINE.

No. 465,005.

Patented Dec. 15, 1891.



Witnesses.

Chas. E. Van Doren
A. M. Gaskill

Inventor.

Edwin H. Tromanhauser.

By Paul Smerwin Attys.

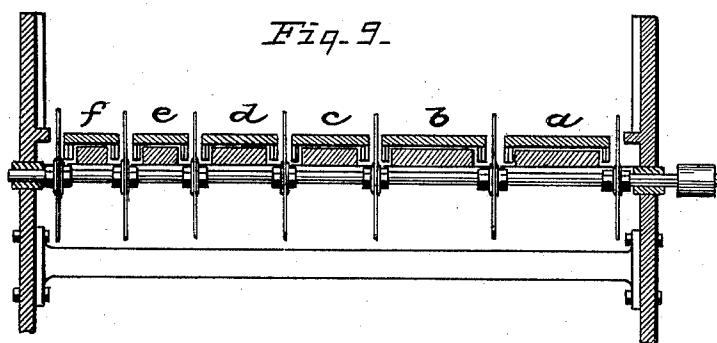
(No Model.)

4 Sheets—Sheet 4.

E. H. TROMANHAUSER.
SHINGLE PLANING AND SIZING MACHINE.

No. 465,005.

Patented Dec. 15, 1891.



Witnesses.

C. E. Van Doren.

C. Hawley.

Inventor

Edwin H. Tromanhauser.

By Paul J. Merriam
Attys.

UNITED STATES PATENT OFFICE.

EDWIN H. TROMANHAUSER, OF MINNEAPOLIS, MINNESOTA.

SHINGLE PLANING AND SIZING MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,005, dated December 15, 1891.

Application filed July 28, 1890. Serial No. 360,208. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. TROMANHAUSER, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Shingle Planing and Sizing Machines, of which the following is a specification.

My invention relates to combination planing and sizing machines; and its object is to provide means whereby the rough shingle-blanks may be rapidly, accurately, and cheaply planed and sized to specified dimensions by a single machine.

My invention consists in a combination planing and sizing machine provided with suitable revolving planer-knives, under which the rough shingle-blanks of varying dimensions both in width and thickness are carried by a suitable endless revolving conveyor-platform adapted to revolve upon suitable carrier-wheels after the manner of a link belt and sprocket-wheels. This moving platform is firmly and adjustably supported beneath the planer and is divided into a number of sections, each independent of the other, the width of each being determined by the varying widths of the shingles desired to be manufactured, several widths of shingles being made by the same machine. After passing under the planer the shingle-blank is cut up into several sections by suitable circular saws revolving between the several sections of the platform, the complete shingles being then taken from the machine and thrown into the various bins by the sorter or allowed to drop from the platform-links as they are carried beneath the carrier-wheel.

My invention consists, further, in various details of construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional side elevation of a shingle planing and sizing machine embodying my invention, the section being taken upon the line *x x* of Fig. 2. Fig. 2 is a plan view thereof. Fig. 3 is a sectional end elevation of my machine, as seen from the line *y y* of Fig. 1. Figs. 4 and 5 are detail views of the platform-links which make up the endless revolving platform. Fig. 6 is a detail view showing the construction of the

variable feed device shown in connection with the moving platform. Fig. 7 is a detail view showing the manner of disengaging the two disks of the variable feed. Fig. 8 is a detail.

Similar figures of reference are used upon like parts throughout the drawings.

As will be seen by the drawings, the revolving platform is made up of the endless chain of short platforms or links 2, adapted to rotate over suitable carrier sprocket wheels or drums 3 and 4, provided in suitable adjustable bearings at the ends of the upright sides 5 and 6 of the machine. These links 2 are of the pattern shown in Figs. 4 and 5, consisting of the plate 7, having the inclined upper face 8, as shown, and provided with the shoulder or foot 9, extending upwardly and bearing the notched steel retaining-strip 10, the screws of which are countersunk into the plates, so as to be flush with the surfaces thereof. Suitable lugs 12 and 13 are provided upon the opposite ends of the links 2, the adjoining lugs of the several links being connected by suitable rivets or bolts, the heads of which are flush with both surfaces of the lugs. The platform composed of the several links 2 is divided longitudinally, as shown, into the endless-link-chain sections 15, 16, and 17, each longitudinal section being supported and guided by a bed-plate 18, 19, or 20, respectively. These bed-plates are preferably provided with the downwardly-turned ends 21, serving to guide the links onto the plates, and are in turn rigidly supported between the sides 5 and 6 by suitable cross-bars or tie-beams 23 and 24 and a suitable stationary support 25, placed midway between the ends of said plates. The planer 26 is adapted to rotate rapidly in the direction of the arrow, and is belted directly to the pulley on the end of the saw-arbor 27, which carries the several saws 28, projecting up between the said sections of the platform, as shown, and adapted to cut the wide shingle-blanks into different determined widths. The spring presser-feet 29 and 30 are adapted to prevent lifting the shingles from the platform by the revolving planer-knives. Suitable spring-rollers 31 are provided upon either side of, or between the circular saws 28, and are adapted to prevent the shingles from flying out of the saws as they are passing between the same. It is de-

sirable to plane only the thick butt-ends of the shingle-blank. Hence the arrangement is such that the knives of the planer engage the shingle upon the platform only after the thin half of the shingle has passed beneath the same, the remaining portion being then planed down to the desired thickness. The pitch or tilt of the platform-links as they pass under the planer is made readily adjustable, so that the thickness or length of the butt-end of the shingle may be determined or changed at will. The easy adjustment of the platform, and therewith the regulation of the thickness of the shingle, is attained by means of the adjustable connections between the ears or lugs 32 and 33, two of which are provided at either end of the plates supporting the platform-links. The tie-beams 23 and 24 are cut off so as to just fit in between the sides of the machine, and are provided with threaded openings into which the bolts 34 are adapted to be screwed. These bolts pass through upright slots 35 in the ears 32 and 33 and may therefore be adjusted in a higher or lower position, as desired. The bolts then being tightened up clamp the tie-beams 23 and 24 against the stationary connection to support the platform-bed firmly in position. The platform bed or plates are free to move over the upper edge of the central tie-beam 25 and tilt thereon as a fulcrum. The bearings of the wheels 3 and 4 are preferably made vertically adjustable, for when the tilt of the platform plates or bed is altered it becomes necessary, or at least desirable, to raise or lower the notched wheels 3 and 4, in order that the strain upon the link-platform may be as even as possible and in order to avoid any tendency toward raising the links from the bed-plates.

As shown, the main pulley 40, over which the main driving-belt passes, is provided on the end of the planer-shaft. Upon the other end of this planer-shaft are provided the small pulley 41, over which the twisted belt which runs the saw-arbor 27 passes, and the small pulley 42, over which a belt passes to connect the same with the large pulley-wheel 43 below the same and which is adapted to operate the large wheel 44 of the variable-speed device. This variable-speed device may be constructed as shown in Figs. 2, 6, and 7, and consists in the small friction-pulley 45, adapted to press firmly against the outer surface of the wheel or disk 44 to be revolved thereby and adapted to be moved back and forth between the center and circumference of said disk 44 by a suitable lever 46, whereby the speed of the pulley 45 is controlled at will, the speed thereof being lessened as it is moved in toward the center and increased as the friction-wheel 45 nears the edge of the large drive-wheel 44. The lever 46 is adapted to be locked in position by a suitable device 47, which is supported by the branch arms 48, secured upon the beam 49, which is in turn pivoted upon the strap 50, secured upon the adjustable bearing of

the sprocket-wheel 3, serving to drive the moving platform. The pulley 45 is movably keyed upon the shaft 51, which operates through a bearing on the beam 49 and carries the smaller wheel 52 of the miter-gear adapted to turn the notched wheel 3. In order that the feed of the machine may be quickly stopped, I preferably provide means consisting in the adjustable lever 53, secured to the beam 49, which in turn supports the bearing for the shaft 51, whereby the engagement between the small pulley 45 and the large disk 44 may be broken by moving out the small pulley 45 into the position shown in Fig. 7.

I will now describe the operation of my machine, first stating that when the shingles are first sawed out of the short lengths of timber they are left in the shape of broad flat rough blanks having a tapering edge. It is now desired to cut this shingle-blank into suitable widths and to plane down that portion of the shingle which is exposed to the weather, so that at the butt-end of the shingle the edges will present the appearance of lying nearly parallel or perhaps slanting in a direction opposite to the original taper of the shingle. I will assume that the machine is in operation. The wide blanks are now placed upon the links in front of the planer 26 in the position of the blanks 55 and 56, the butt-ends being placed against the notched retaining-strip 10, as shown. As the platform is moved ahead the shingles or blanks are carried through under the presser-feet 29 and the planer-knives. The planer-knives do not strike the thin edge of the shingle, which first passes under the planer, and danger of the shingles being broken up by the same being thus avoided; but as the last six or eight inches of the butt-end of the shingle are passing through the planer strikes the same and planes down the butt to the desired thickness, the presser-foot 30 meantime holding down the forward end of the shingle. The platform-link upon which the shingle lies being moved forward, the shingle is brought under the nearest roller 31 and drawn through the saws 28, which split up the blank into the desired widths. The shingles are prevented from being thrown out by the saws by the outer presser-roller 31 in front of the same, which holds the shingle down after it has passed from under the first roller 31. The several complete shingles are now carried over the end of the machine, and, as the links are carried around the wheel 3, fall off upon the floor or into a suitable receptacle. Instead of allowing the shingles to merely fall from the machine, it is usual to have a man standing at the back end of the machine to pick off the shingles as they come through the saws and throw them into suitable bins allotted to the several sizes of shingles. It is seen that a rough shingle-blank of width slightly greater than the width of the narrow section of the platform could be as easily trimmed and planed as one of the full width

of the machine. The blank in that case is merely placed upon the narrow section, the edge being placed so as to just be cut by the outside side saw, while the other waste edge would be trimmed down by the next saw. A machine of the size shown and described could easily be fed with great rapidity by a single man, who would place the blanks upon the platform in such a way as to make the least waste possible. For instance, if a blank were just wide enough to form two shingles of the width of the two widest sections of the platform, the operator would place the blank upon those sections rather than place it upon the two smaller sections.

As shown in Fig. 9, I prefer in practice to arrange a greater number of linked platform-sections than I have shown in the preceding figures, and I arrange the sections in groups of two or more having the same width. This arrangement is clearly illustrated in Fig. 9, where the sections *a b* and *c d* and *e f* are respectively of equal widths, each being supported by a suitable longitudinal bar, as hereinbefore described. The circular saws are arranged to operate between the several sections. The advantage of this construction is that whereas a blank is often too narrow to make two shingles of the *c* and *b* widths it is wide enough to make two shingles of the *c* and *d* width. Again, a blank not quite wide enough to make two shingles of the *a* and *b* width may be used on the sections *b e f*, thereby making three good though narrow-dimensioned shingles.

It is obvious that gig-saws or band-saws might be employed in place of the circular saws; but I preferably employ the latter as most convenient and inexpensive. It is further obvious that in the practical construction of my machine various detail modifications would readily suggest themselves to one skilled in the art, and I therefore do not confine myself to the specific construction shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, in a shingle planing and sizing machine, of a planer with saws operating in connection therewith and a series of individual shingle platform-links constituting an endless rotating platform, each adapted to carry a shingle-blank beneath said planer and between said saws, substantially as described.

2. The combination, in a planing and sawing machine, of a planer with saws, an endless moving platform formed of a number of individual platform-links, each adapted to receive and carry a shingle-blank and adapted to rotate upon notched driving and carrying wheels, with means for rotating said wheels and said planer and saws, substantially as described.

3. The combination of the endless conveyer-platform made up of platform-links, each of

a length somewhat greater than the length of a shingle, with sprocket-wheels upon which said platform is adapted to rotate, a fixed support for said conveyer-platform located between the sprocket-wheels and adapted to guide said platform, a revolving planer, and saws operating at the edges of the platform to trim the edges of the shingles placed thereon, all substantially as and for the purposes described.

4. The combination, with the circular saws, of a revolving planer, sprocket-wheels, a linked endless platform made up of shingle-length links and adapted to rotate upon said sprocket-wheels, said platform being divided into a number of endless sections, each adapted to operate in connection with the other upon said sprocket wheels or drums, said endless sections being separated slightly and said saws being adapted to operate between the same, and means for supporting said endless platform firmly in position as it revolves under said planer and between said saws, substantially as described.

5. The combination of a revolving planer with saws, an endless conveyer-platform made up of links of a length equal to the shingle-blanks, means for supporting and rotating said conveyer, said conveyer being divided into a number of endless sections, said sections being arranged in pairs of equal widths, and saws adapted to operate between said endless sections and at the outer edges of the platform, whereby shingle-blanks may be planed and sawed to given dimensions, substantially as described.

6. The combination, with the revolving planer, of the revolving circular saws, the endless link-platform adapted to revolve upon sprocket wheels or drums, said platform being divided into longitudinal sections making up narrower endless platforms, said saws being adapted to operate between said longitudinal sections and at the outer edges thereof, the adjustable bed plate or plates adapted to support the said platforms in position beneath said planer, means for vertically adjusting the bearings of said sprocket wheels or drums, and means whereby the speed of said moving endless platform may be regulated, substantially as described.

7. The combination, in a planing and sawing machine adapted for the manufacture of dimension-shingles, of the revolving planer with the circular saws, the revolving endless platform adapted to rotate upon the sprocket wheels or drums, said platform being divided into longitudinal sections made up of links, the bed-plates adapted to guide and support the several longitudinal sections of said platforms, and means for tilting said bed-plates to adjust the angle at which said links shall pass under said planer, said links being provided with upwardly-projecting feet or lugs provided with retaining-plates adapted to engage the shingles, pressers adapted to hold the shingle upon the platform while passing

through the planer and saws, means for rotating said sprocket-wheels, saws, and planer, and means whereby the speed of said revolving platform may be regulated, substantially as and for the purpose described.

8. The combination, in a shingle-planing machine, of the revolving planer, with the solid movable shingle-platform link of a length greater than that of a shingle-blank, said link provided with the upwardly-projecting foot or lug, the retaining-points on the said lug and adapted to engage the butt-end of the shingle, the supporting-table for said link, and means whereby said link may be drawn through under said planer and afterward returned to its original position, whereby the planing down of the weather portion of the shingle is accomplished, substantially as described.

9. The combination, in a planing and sizing machine for shingles, of a planing-cylinder, with an endless conveyer-platform provided beneath the same, said platform divided into a number of endless sections composed of links of a predetermined width, said links consisting each of a solid length adapted to receive a shingle and having a taper recess wherein the shingle is held with its top substantially on a level or tilted slightly forward, and retaining-strips adapted to engage the butt-end of the shingle, saws projecting up between said sections, and means for driving said planer, saws, and platform, whereby an originally wide and rough shingle-blank of irregular dimensions may be planed down to a determined thickness across its butt-end and cut up into a number of shingles of specified widths, substantially as and for the purpose specified.

10. The combination, in an endless conveyer for a shingle-machine, of the solid links of a length equal or greater than a shingle, with the taper recesses therein, the foot, provided on each link, the retaining-plates thereon, and the pivot-ears, and

means for securing adjoining ears together, substantially as described.

11. The combination, in a shingle planing and sizing machine, of the endless link-conveyer platform made up of links, each provided with a tapered recess adapted to hold a shingle, with the adjustable bed-bars pivotally supported on the frame, cross-bars thereof to the frame, substantially as described, and for the purpose specified.

12. The combination, in a shingle planing and sizing machine, of the sprockets, wheels or drums, with vertically-adjustable bearings therefor, the endless link-platform made up of links, provided with a tapered recess adapted to hold a shingle, supporting bed-bars thereof, said bars being adjustable to change inclination of said links, a planer and saws, pressers provided in connection therewith, and means for driving said parts, substantially as described.

13. The combination, in a shingle planing and sizing machine, of the endless link-platform sections, each provided with a tapered recess adapted to hold a shingle, with the saws and the planer, the said sections being of varying widths, and said saws being provided to work at the edges thereof, whereby the greatest number of shingles are cut from a given blank or blanks, substantially as described.

14. The combination, in a shingle planing and sizing machine, of the saws, with the planer, the endless platform-sections being arranged in pairs of equal widths, different pairs being of different widths, substantially as described, and for the purpose specified.

In testimony whereof I have hereunto set my hand this 19th day of July, 1890.

EDWIN H. TROMANHAUSER.

In presence of—

BESSIE BOOTH,

C. G. HAWLEY.