

No. 670,602.

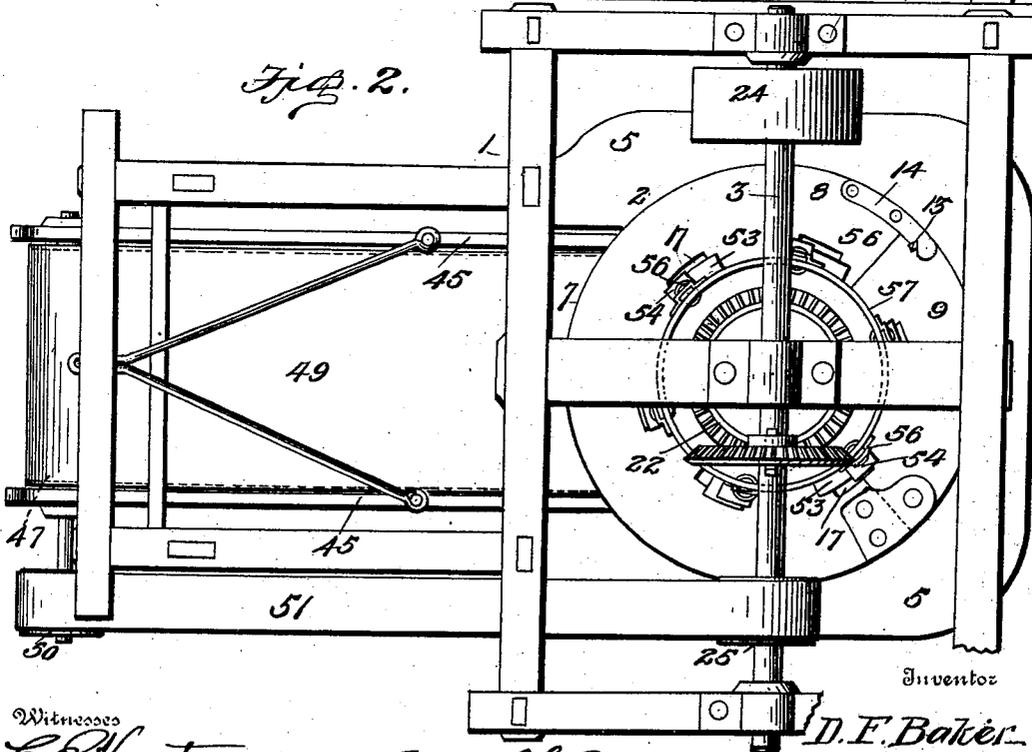
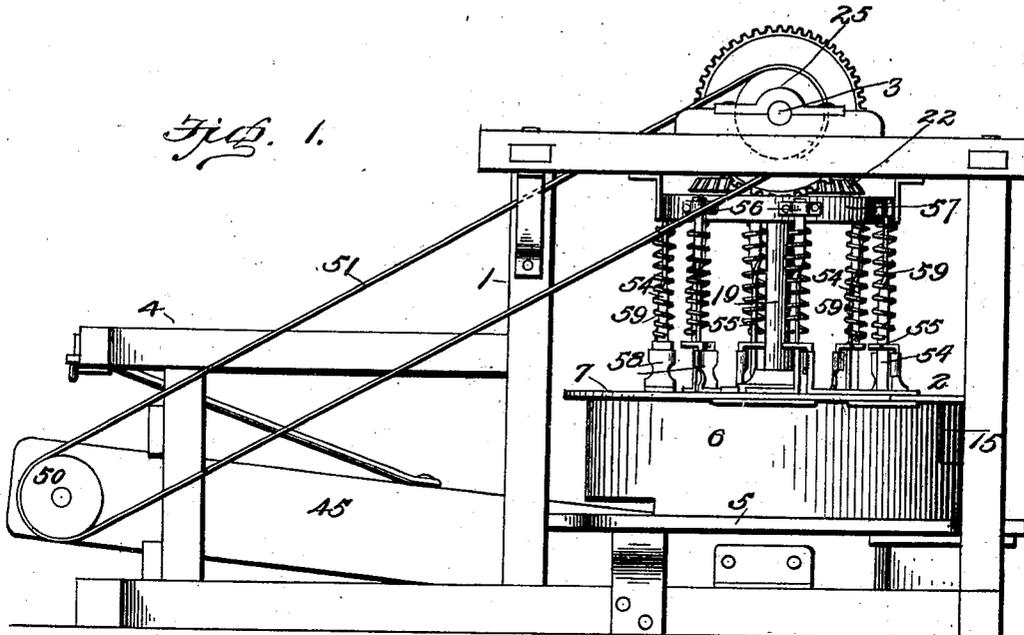
Patented Mar. 26, 1901.

D. F. BAKER.
SHINGLE MACHINE.

(Application filed Aug. 16, 1900.)

(No Model.)

4 Sheets—Sheet 1.



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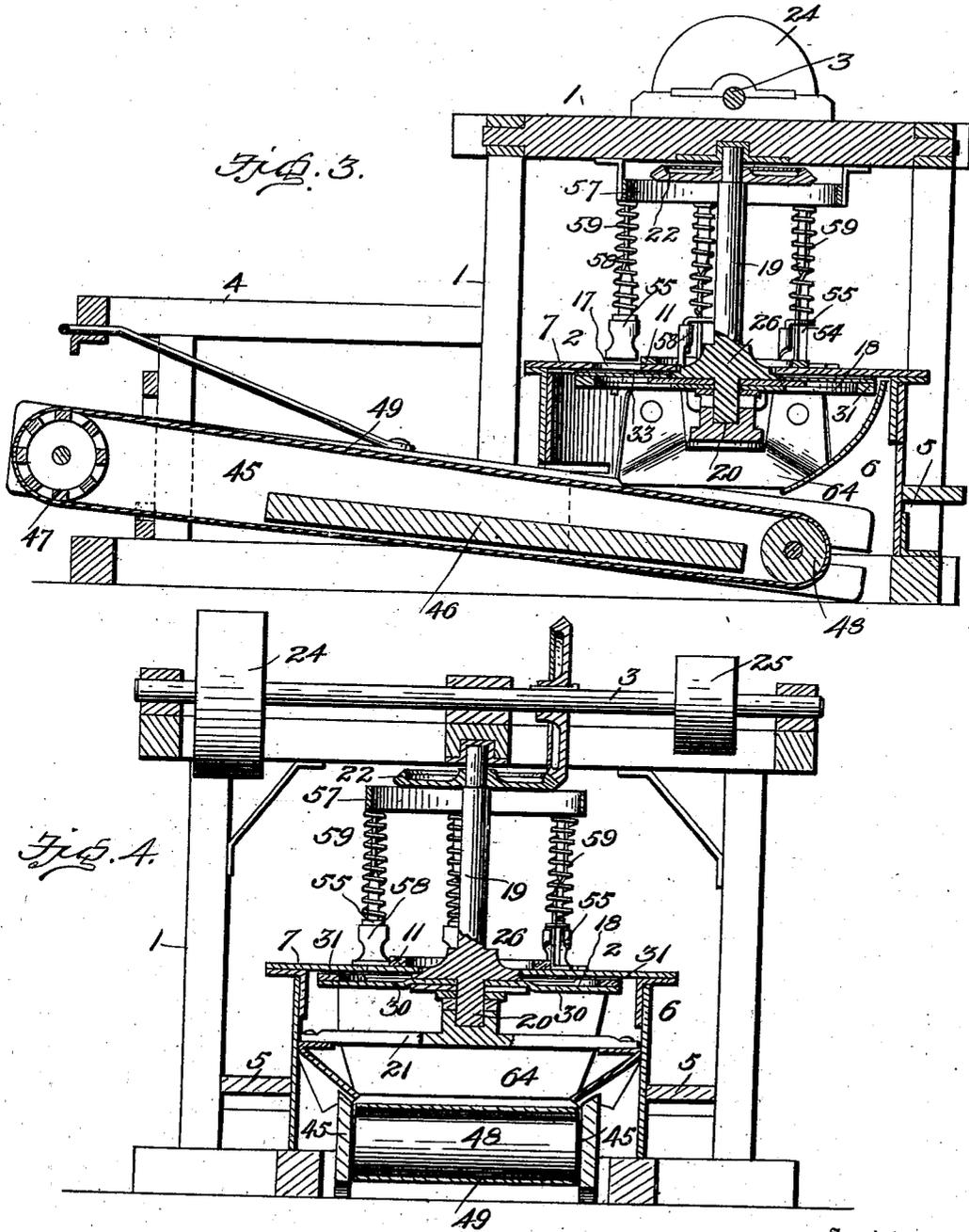
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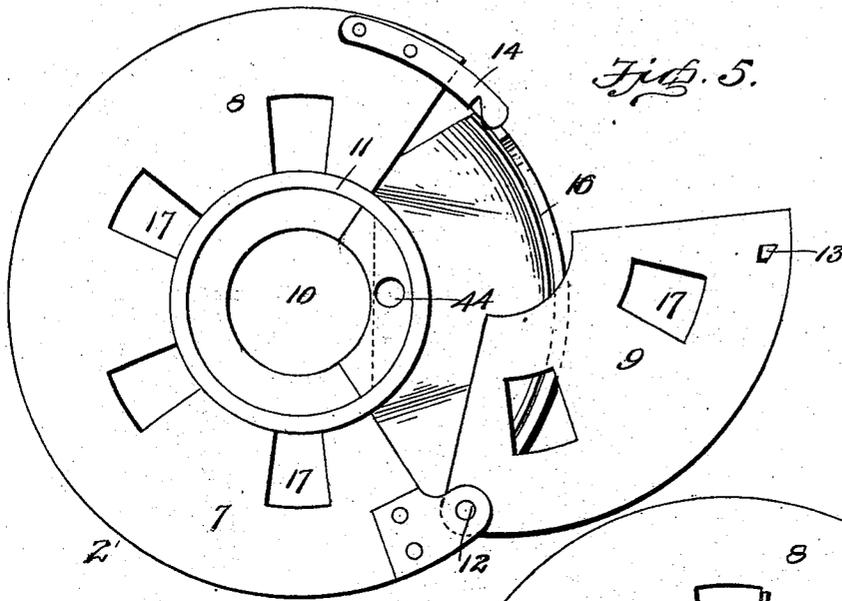


Fig. 5.

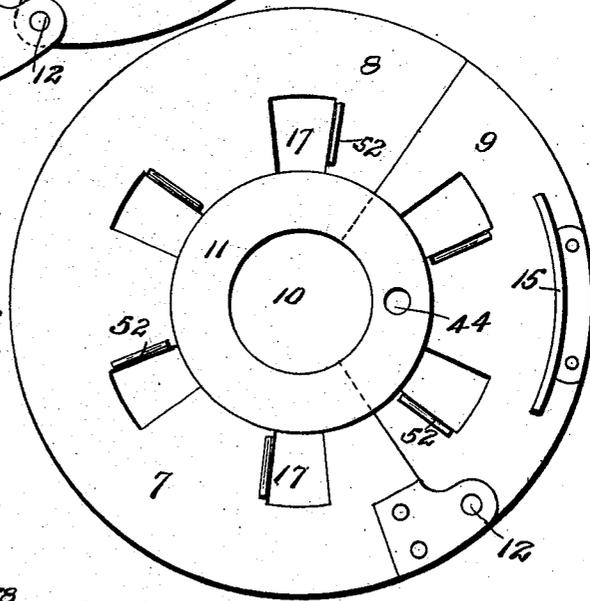


Fig. 6.

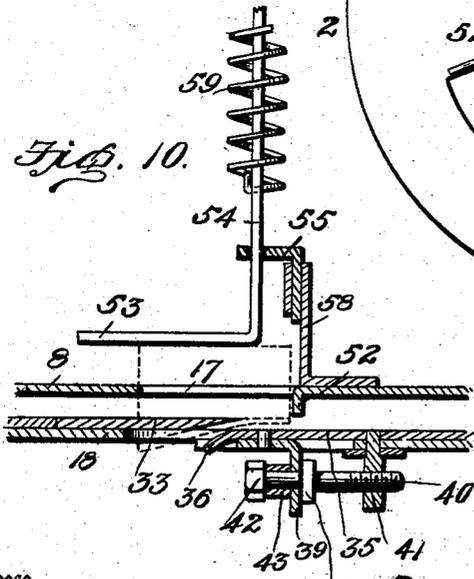


Fig. 10.

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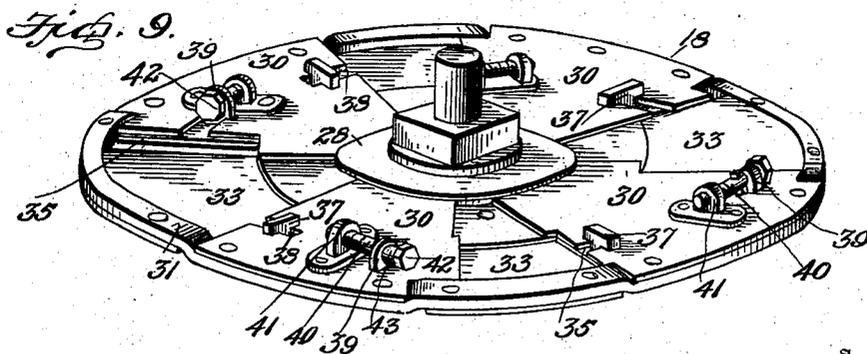
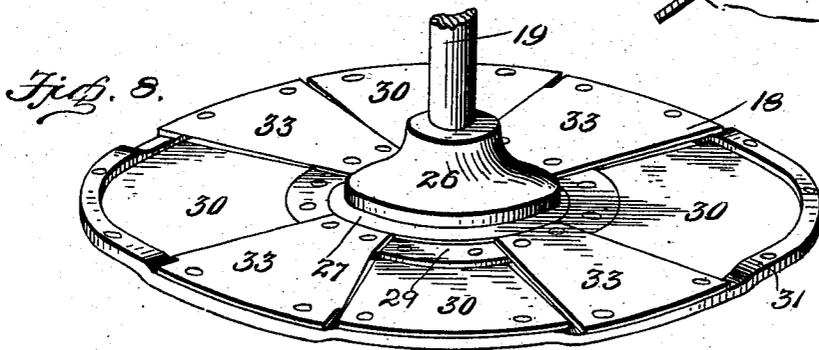
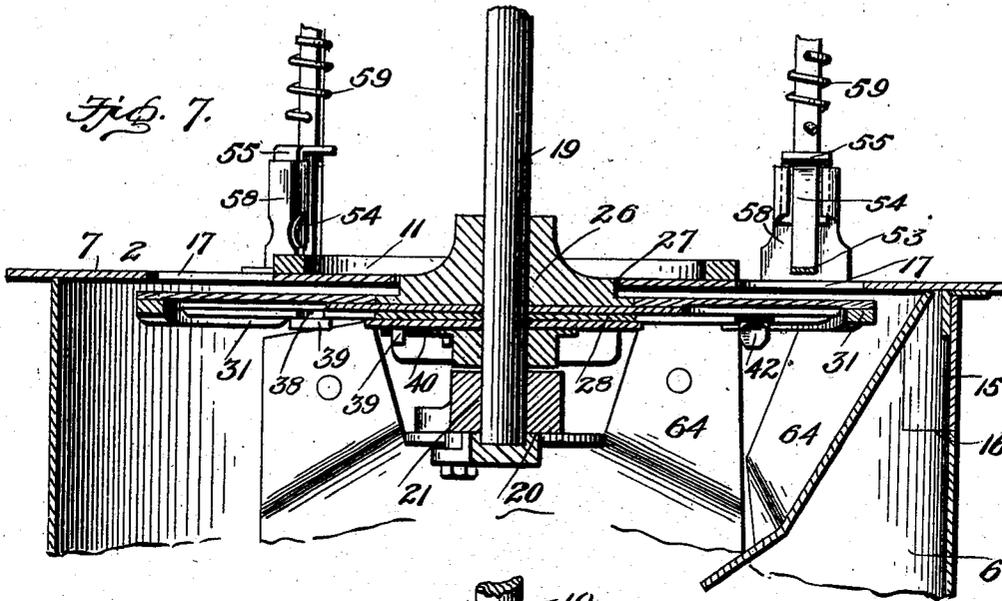
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

DAVID F. BAKER, OF MOUNT TABOR, OREGON.

SHINGLE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,602, dated March 26, 1901.

Application filed August 16, 1900. Serial No. 27,042. (No model.)

To all whom it may concern:

Be it known that I, DAVID F. BAKER, a citizen of the United States, residing at Mount Tabor, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Shingle-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in shingle-machines; and it consists in certain novel features of construction, combination, and arrangement of parts, as will be herein-after more fully described, and particularly pointed out in the appended claims.

The invention has for its object to provide a machine which is simple in construction, effective in operation, and adapted to perform its work continuously and rapidly and with a minimum waste of material and to thereby reduce the cost of production.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a shingle-machine embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal section. Fig. 4 is a cross-section taken through the frame and operating mechanism on the line of the cutter-shaft. Fig. 5 is a top plan view of the casing, showing the hinged door or section swung open. Fig. 6 is a bottom plan view thereof. Fig. 7 is a sectional view of the same on an enlarged scale. Fig. 8 is a top perspective view of the cutter head or wheel. Fig. 9 is a bottom perspective view of the same. Fig. 10 is a detail sectional view through one of the knives and the adjustable presser-plate co-acting therewith.

Referring now more particularly to the drawings, in which like reference characters designate corresponding parts throughout the several views, the numeral 1 represents the frame of the machine, which may be of any preferred size, form, and construction suitable for the purpose; 2, the casing inclosing the cutting mechanism of the machine; 3, the drive-shaft; 4, the feeder or carrier frame, in which is mounted the endless conveyer which carries the completed shingles to the point of deposit, and 5 the platform extending par-

tially around the base of the casing and on which the operator stands in feeding the shingle-blocks to the cutting mechanism.

The casing comprises an annular drum or curb 6, which is supported at the front and in the bottom portion of the frame 1 and is closed at the top by a cover 7, which may be removed whenever desired for dismantling, repairing, or replacing the parts of the cutting mechanism. This cover comprises in its construction a fixed section 8 and a hinged or pivoted section 9 and is in the form of a disk having a central opening 10 and reinforced at top and bottom by rings or bands 11. The pivoted section 9 is hinged or pivoted near its outer end, as at 12, to one of the ends of the fixed section and is adapted to be swung outwardly and radially therefrom and to slide at its inner end between said rings or bands 11, whereby it is held firmly from vertical displacement when closed. The free end of the pivoted section carries a locking lug or projection 13, which is adapted to engage a spring-catch 14, secured to the meeting end of the fixed section to hold the said pivoted section closed. By slightly depressing the free edge of the pivoted section said section may be released from engagement with the spring-catch and swung outwardly, as shown in Fig. 5. Said section thus acts in the capacity of a door whereby access may be obtained to the interior of the casing to enable the parts of the cutting mechanism to be sharpened, adjusted, and removed whenever occasion requires. The said hinged section 9 of the cover also carries a segmental depending flap 15, which is adapted to close a correspondingly-shaped opening 16 in the front of the drum or curb 6, by which access may be had to the bottom of the casing beneath the cutter mechanism to adjust the presser-plate coacting with the knives, the lower bearing of the drive-shaft, and to insert and remove the detachable guard or deflector, as will appear more fully hereinafter. The cover is provided with a series of openings 17, arranged concentrically with the central opening 10 therein and serving as the inlets or feed-apertures through which the shingle-blocks are fed to the cutting mechanism in the manner hereinafter fully described.

The cutter head or wheel 18 is arranged upon the lower end of a vertical shaft 19, journaled at its lower end in an adjustable bearing 20, carried by a bridgetree 21, extending across the drum or curb 6 transversely of the machine. The upper end of the shaft 19 is journaled in the upper portion of the frame and carries a beveled gear 22, which meshes with a corresponding gear on the drive-shaft 3, whereby rotary motion is communicated to the cutter-head. The drive-shaft also carries a drive-pulley 24, whereby motion from a suitable engine or motor may be communicated thereto, and a belt-pulley 25, which communicates motion to the endless conveyer through connections hereinafter described.

The cutter head or wheel comprises a central hub 26 and upper and lower disks 27 and 28, said hub being adapted to close the opening 10 in the cover 7, as shown. Attached to these disks through the medium of a head 29 and a series of spaced radial plates or sections 30 is an annular rim 31, forming therewith a skeleton frame having a series of radial openings disposed alternately with the said radial sections 30 and located between the same. The rim is depressed at intervals around its circumference in line with the said openings, and to these depressed portions of the rim are connected the outer ends of the cutting-blades 33, the inner ends of which are secured to the head 29, and these cutting-blades are arranged above said openings in the skeleton frame. The upper surfaces of the cutting-blades are thus disposed flush with the upper surface of the rim 31 and above the plane of the spaced radial plates or sections 30.

Each presser-plate is provided with a downturned or curved end 36, which extends beneath the cutting edge of the blade cooperating therewith, leaving just enough space for the shingle to pass through between the two and serving to prevent breaking and splitting of the shingles as the knives or cutting-blades pass through the block. The presser-plates are adjustably mounted, each being provided adjacent to one end with a T-shaped head or guide-lug 37, which is adapted to slide within a slot 38 in one end of the cooperating plate or section 30 and carries at its opposite end, just in rear of the said downturned portion 36, an ear 39, in which is mounted an adjusting screw or bolt 40, the threaded shank of which operates within a threaded eye 41 upon the corresponding end of the radial plate 30. The screw is provided with one or more heads 42, whereby it may be turned in one direction or the other to adjust the presser-plate, and a split-washer or lock-nut 43 is located between one of said heads and the ear 39 to prevent casual turning of the screw. By means of the screw or bolt the curved or downturned end 36 of the presser-plate may be adjusted as desired to hold the shingle with greater or less force against the bottom

of the knife, so as to support it and prevent it from breaking or splitting while the knife is completing the cut. The inner ends of the knives or cutting-blades may be secured to the head 29 by rivets or screws, as preferred, and to permit access thereto a hole 44 is formed in the bottom ring or band 11 of the cover 7, which is adapted to be exposed when the hinged section 9 of said cover is swung outwardly, as will be readily understood.

The presser-plates slope or incline alternately in reverse directions, so as to reverse the thick end of every other shingle and adapt the shingle-blocks held by the presser-feet of the clamps to tip endwise transversely in harmony with the opposite inclination of the downturned ends of the presser-plates. In other words, the downturned ends of the presser-plates cooperating with the knives having the outwardly-extending diagonal cutting edges are inclined downwardly from the heads 28 28 to the rim 31, so that the spaces or openings between them decrease in width or depth outwardly, the thick ends of the shingles thus being formed toward the heads 28 28, while the downturned ends of the presser-plates cooperating with the knives having the inwardly-extending diagonal cutting edges incline or slope in the reverse direction, so as to form the thick ends of the shingles at their outer ends or adjacent to the rim 31. By this means the resistance is equalized, the cutter-head more perfectly balanced, and the operation of cutting through the shingle-blocks rendered easier.

The conveyer-frame 4 extends into the lower portion of the drum or curb 6 and thence upwardly and rearwardly to a point just beyond the rear end of the frame 1, where the shingles are deposited. This frame consists of parallel side pieces 45 and a central transverse division-board 46. In the ends of this frame are mounted drums or rollers 47 and 48, which impart motion to an endless apron or conveyer 49, extending therearound and above and below said division-board 46, as shown. Upon one end of the shaft carrying the drum or roller 47 is mounted a belt-pulley 50, which is connected with the belt-pulley 25 on the drive-shaft 3 through the medium of a belt 51, whereby motion is derived from said drive-shaft to operate the endless conveyer or apron. The upper stretch of the apron passes through the base portion of the drum or curb 6 and beneath the cutter-head, and the shingles as they are formed drop thereon and are conveyed from the curb to the rear end of the machine, where they are deposited upon the floor or ground or upon another endless conveyer, if desired, for transportation to any part of the building in which the machine is located.

The shingle-blocks are fed to the cutter-head through the openings 17 by the operator standing upon the platform 5, and to retain the blocks in position and feed them to said openings the following mechanism is

provided: The blocks are held from movement in one direction while the cutting blades or knives are severing the shingle-blanks therefrom by stops 52, projecting downwardly at one side of each opening 17, and the block is yieldingly held in place while the cutting operation is being performed by a presser-foot 53, carried by a vertical movable presser-bar 54, mounted at its lower end in a bearing-plate 55 and at its upper end in a loop 56, carried by a guide ring or band 57, secured to the upper portion of the frame, a series of said guide-loops being provided around the band for the entire series of presser-bars. The bearing-plate 55 consists of a right-angular guide having its horizontal portion formed with an opening in which the presser-bar is slidably fitted and its vertical portion adjustably mounted in a standard or upright 58, mounted on the cover 7, adjacent each opening 17. A spiral spring 59 encompasses each presser-bar between the bearing-plate 55 and the loop 56 and normally serves to hold the presser-foot 53 pressed downwardly, so as to cause it to bear upon the shingle-block inserted within the opening 17 and retain said block from upward movement as the knife is passing therethrough.

Guards or deflectors 64 (three in number) are arranged within the drum or curb 6, upon opposite sides and at the rear, to guide the shingles onto the endless conveyer and prevent them from working down at the sides and interfering with the operation of the conveyer. The front guard or deflector is removably mounted and may be detached and withdrawn through the opening 16 and hinged section 9 of the cover whenever it is desired to get access to the bottom of the drum and conveyer.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of the apparatus will be apparent, and it will be

seen that the process of cutting out the shingles is continuous and may be rapidly effected with a minimum amount of waste on account of breakage and that therefore a maximum amount of shingles may be manufactured within a minimum period of time and the cost of production thereby materially reduced.

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

1. In a shingle-machine, the combination of a frame, a casing arranged at one end of the frame and provided with a series of feed-openings and a door for obtaining access thereto, a vertical shaft extending upwardly from the casing and carrying at its lower end within the casing a rotary cutter-head, a drive-shaft arranged above the vertical shaft and in gear therewith, and a conveyer extending exteriorly and adapted to convey therefrom the shingles falling thereon from the cutter-head, substantially as set forth.

2. In a shingle-machine, the combination of a frame, a casing arranged at one end of the frame and provided with a top or cover having a series of feed-openings and a door and also provided in its side with a door, a vertical shaft extending upwardly from the casing and carrying at its lower end within the casing a rotary cutter-head, a drive-shaft arranged above the vertical shaft and in gear therewith, a conveyer extending exteriorly and adapted to convey from the casing the shingles falling thereon from the cutter-head, and deflectors in said casing to guide the shingles to the conveyer, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID F. BAKER.

Witnesses.

F. L. FIELDS,
JESS ROBINSON.