No. 861,171. PATENTED JULY 23, 1907.

D. GIRTMAN.

SHINGLE SAWING MACHINE.

APPLICATION FILED FEB. 15, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

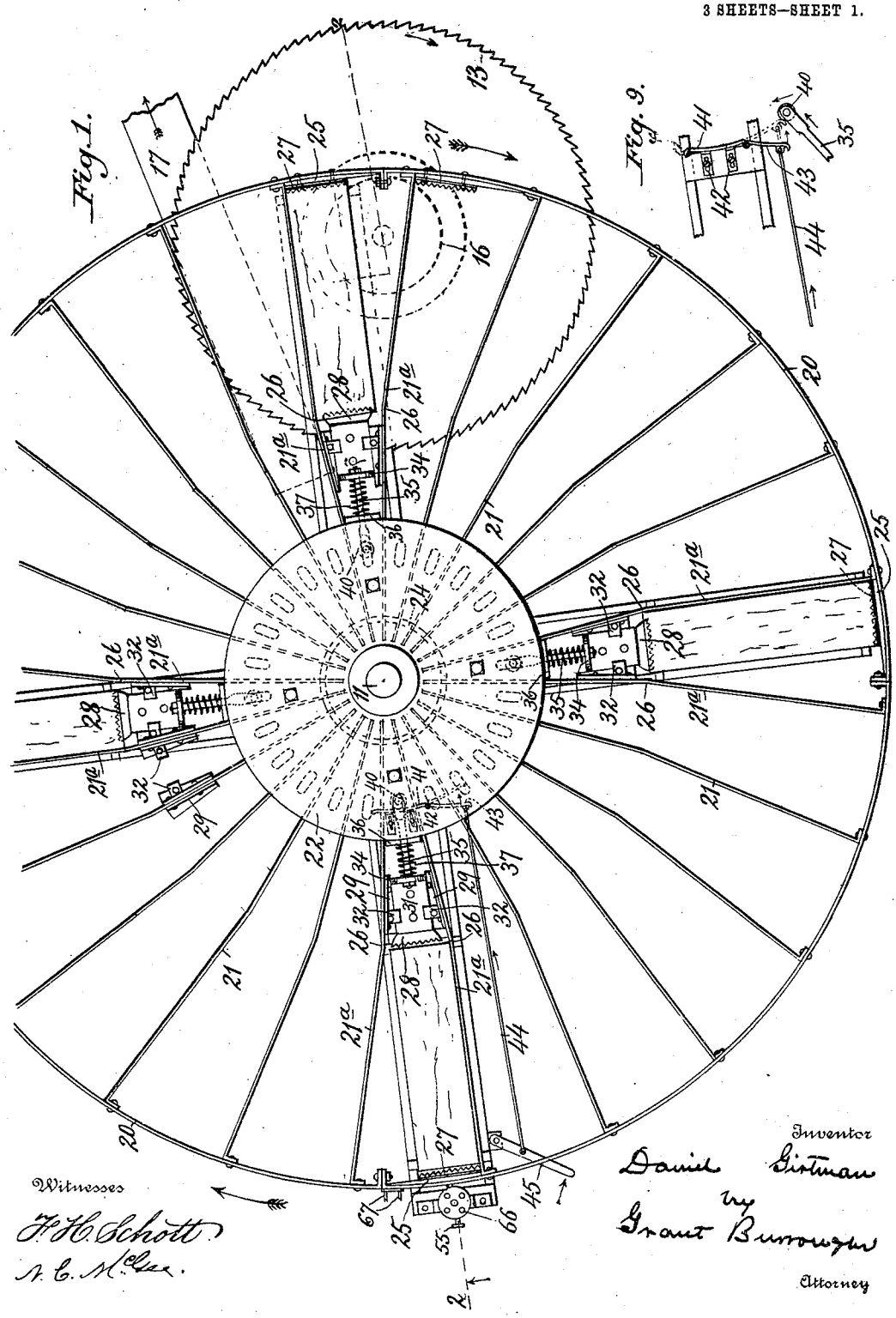


Fig. 9.

Witnesses

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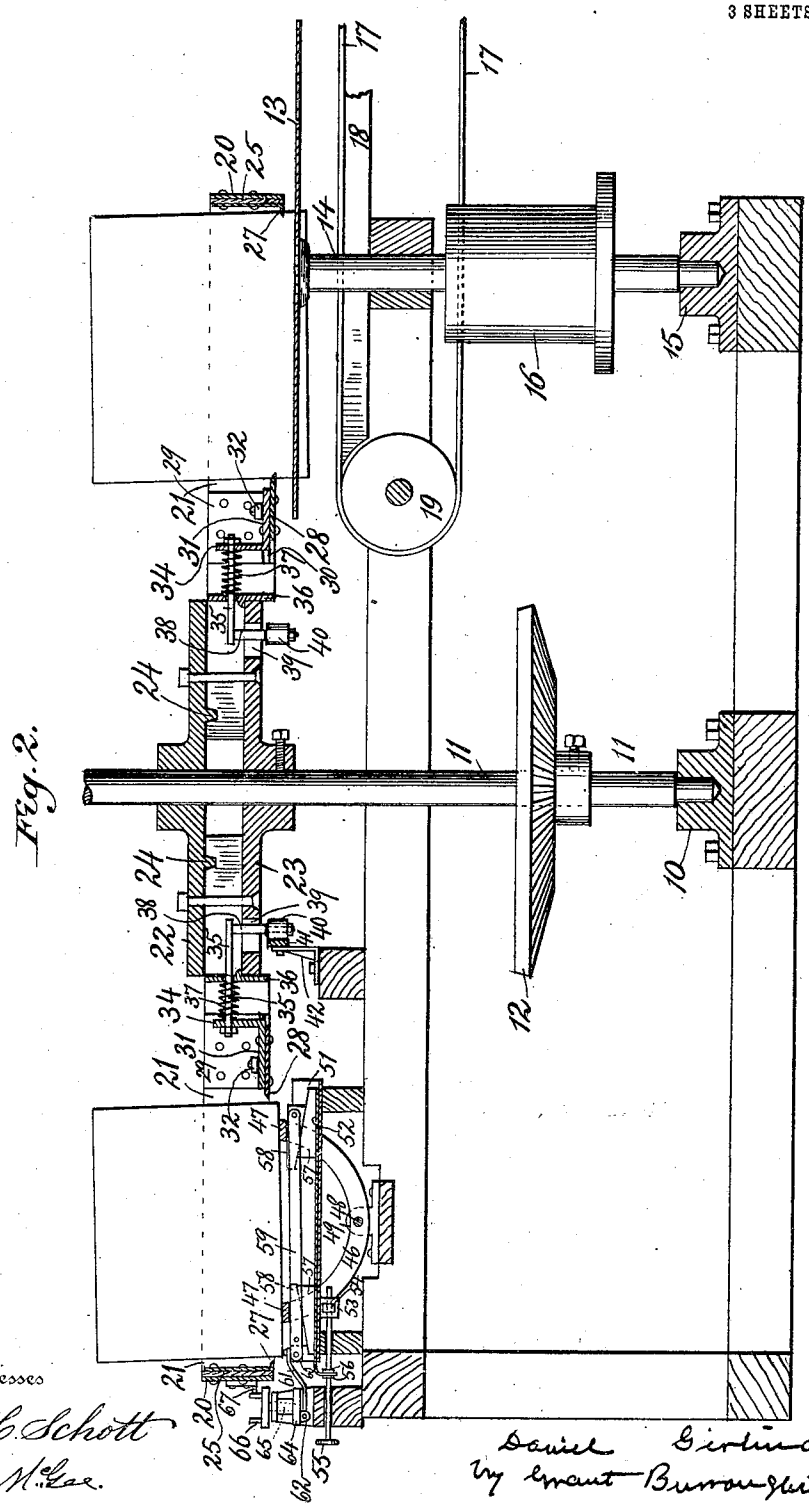
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

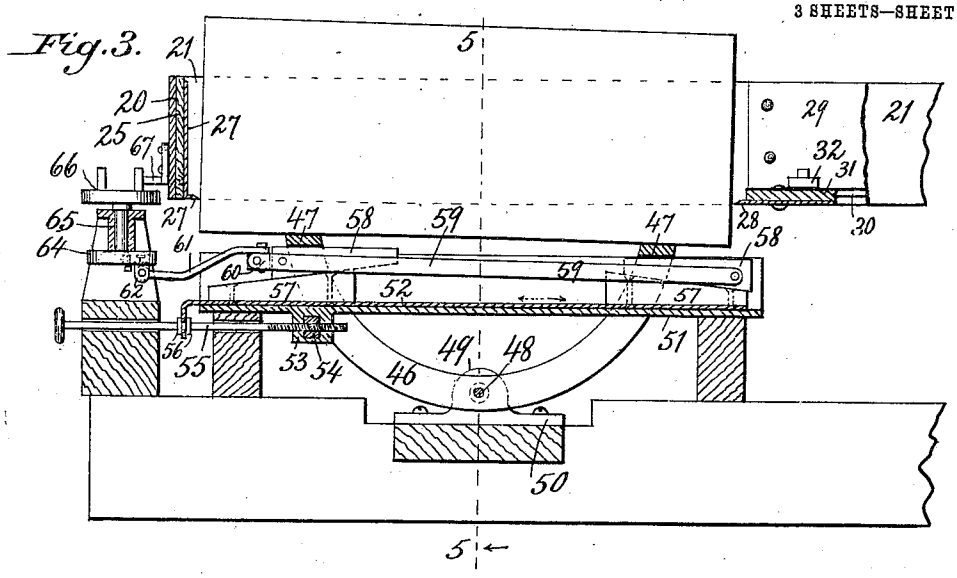


Fig. 4.

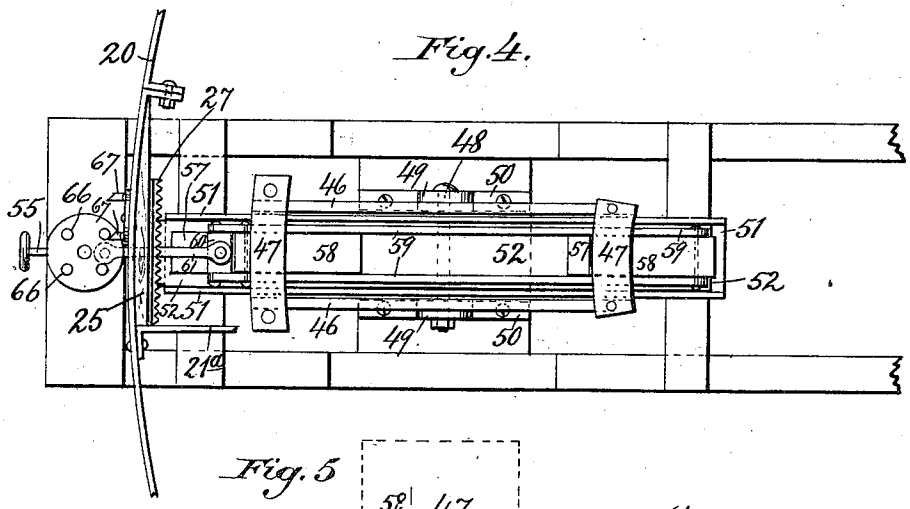


Fig. 5

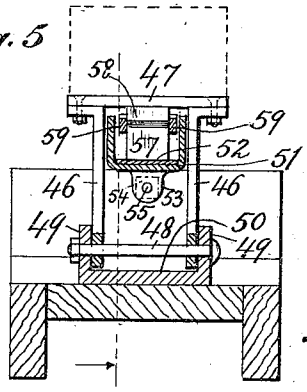


Fig. 6.



Fig. 8.

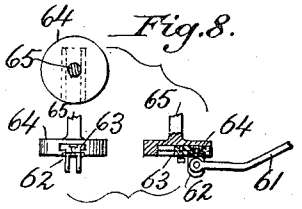
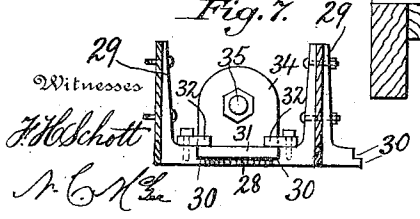


Fig. 7.



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UNITED STATES PATENT OFFICE.

DANIEL GIRTMAN, OF HAZLEHURST, GEORGIA.

SHINGLE-SAWING MACHINE.

No. 861,171. Specification of Letters Patent. Patented July 23, 1907.

Application filed February 15, 1904. Serial No. 193,644.

To all whom it may concern:

Be it known that I, DANIEL GIRTMAN, a citizen of the United States, and a resident of Hazlehurst, Georgia, have invented certain new and useful Improvements in Shingle-Sawing Machines, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to improvements in shingle machines of that description in which the bolts are placed in a rotatable carrier which presents them successively to the saw, the inclination of the bolts being changed after each cut by a tilting table coöperating with the rotatable carrier.

It consists in the novel construction, combination, and arrangement of parts such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the drawings, in which similar reference characters designate corresponding parts, Figure 1 is plan view of a machine embodying the invention. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is an enlarged detail sectional view showing the tilting table and its operative mechanism. Fig. 4 is a plan view of the same. Fig. 5 is a sectional view on the line 5—5 of Fig. 3. Fig. 6 is a detail view showing the pins for moving the tilting table. Fig. 7 is a detail view showing the movable dog. Fig. 8 is a detail view showing the swivel connection between the link for moving the wedge blocks and the rotatable disk for reciprocating them. Fig. 9 is a detail view of the cam mechanism for operating the movable dog.

The frame of the machine may be of any construction suitable in the premises. A pillow block 10 is secured on one of the lower members of the frame and in it is journaled the lower end of the vertical shaft 11, which may have its upper end journaled in any suitable bearing. This shaft is rotated by the bevel gear 12 to which motion is imparted by a miter gear driven by any suitable mechanism. The shaft rotates the carrier mounted on its upper end for holding the bolts from which the shingles are cut. In its general construction this carrier is somewhat in the form of a wheel.

To one side of the machine and beneath the carrier is the saw 13 on the arbor 14 journaled at its lower end in the pillow block 15 secured on the lower member of the frame of the machine and journaled at its upper end in a bearing in an upper member of the frame. On the arbor for rotating the same is the pulley 16 adapted to be driven by the usual belt. Beneath the saw is an endless carrier for conveying the shingles from the machine. It consists of the belt 17 passing over the table 18 located beneath the saw in a position to receive the shingles as they are severed from the bolts. The belt passes over the pulley 19 and leads from the machine to a place outside of the latter and is provided with any suitable mechanism for driving the same.

The rotatable carrier consists of the sheet metal rim 20 formed of sections bolted together, the sheet metal spokes 21 bolted at their outer ends to the inner face of the rim, and the hub securing the inner ends of the spokes and supporting the carrier on the shaft 11. The hub consists of the upper and lower metal plates 22 and 23, respectively, clamped together by bolts passing through them. On the inner face of the upper plate 22 is the annular flange 24 engaging with the spokes recessed to receive it for holding them in their proper positions in the hub. There are twenty four of these spokes and in the intervals between them are the mechanisms for holding the bolts and presenting them to the saw. As the bolt holding mechanisms are alike, a description of one will suffice for all. (Only four of these mechanisms are shown in Fig. 1 of the drawings.)

Against the inner face of the rim 20, between two adjacent spokes, 21^a, for an instance, is placed the block 25 with a flat face and a rounded back to fit the curvature of the rim. One of the spokes, as at 26, is bent so that its outer end beyond the bend will be at right angles to the face of the block 25 so that the angle formed by the two will receive the rectangular corner of the bolt. Secured to the face of the block 25 is the fixed dog 27 having a serrated edge for engaging with the end of the bolt. The dog is flush with the lower edges of the rim and spoke and opposite to it is the movable dog 28 mounted between the inner ends of the spokes. Secured to the spokes are the brackets 29 having guide-ways 30 in which is held the movable plate 31 by the cleats 32. To the under side of the plate 31 is attached the dog 28 with its serrated edge extending towards the edge of the fixed dog 27 and flush with the lower edges of the adjacent spokes. The two dogs operate to hold the bolt in the rotatable carrier.

Mechanism is provided for reciprocating the movable dog relatively to the fixed dog at certain intervals to release the bolt to permit the adjustment of the latter preparatory to the action of the saw. On the inner end of the plate 31 is the vertical flange 34 to which is attached the outer end of the rod 35. The inner end of the latter passes through the plate 36 secured to the periphery of the hub of the carrier. On the rod 35 and interposed between the flange 34 and the plate 36 is the coiled spring 37 normally pressing the dog outwardly. On the inner end of the rod is the arm 38 projecting downwardly through the slot 39 in the plate 23 and carrying at its lower end the roller 40. Located in the path of travel of the roller is the cam

41 for engaging with the same to move the dog against the action of the spring 37. This cam is supported by the brackets 42 adjustable on the frame of the machine (Fig. 9). By adjusting the cam relatively to the path of travel of the roller the movement of the dog can be regulated to accommodate bolts of different lengths. The position of the cam is such as to move the dog when the bolt held by it is over the tilting table hereinafter to be described. To one end of the cam is hinged the supplemental cam 43 connected by the rod 44 with the lever 45. By means of the latter and the connecting rod the supplemental cam can be moved by the operator to engage with the roller 40 to move the dog 28 when it is desired to release a bolt so that it can be removed from the carrier.

A tilting table is provided for adjusting the bolts in the rotatable carrier so that they will be properly presented to the saw. This table is mounted in the machine on the side opposite to that in which the saw is placed. It consists of the segmental supports 46 connected at their ends by the curved cross pieces 47 and is pivoted by the bolt 48 passing through the segmental supports intermediate of their ends and the lugs 49 of the plate 50 secured to a member of the frame of the machine. It is located immediately beneath the rotatable carrier and its position is such that when a bolt passes above the same, the cam 41 operates the movable dog 28 to release the bolt and to permit the latter to drop onto the table. After the bolt is dropped and its position regulated by the table, as the carrier moves along the dog is released and through the action of its spring the bolt is again caught between the two dogs and carried to the saw.

Mechanism is provided for oscillating the tilting table to alternately incline the bolt in opposite directions so that the thicker ends of the shingles will be cut alternately from opposite ends of the bolt. Between the segmental supports 46 is the fixed guide-way 51 extending lengthwise of the table and in it is the adjustable plate 52. On the under side of the guide-way is the lug 53 in which the nut 54 is held against rotation. A rod 55 is screw-threaded at its inner end and turned into the said nut and has its outer end projecting to the exterior of the machine and provided with a hand-wheel whereby it can be rotated. On the rod is the collar 56 having an annular groove with which engages the downwardly turned end of the plate 52. By rotating the rod 55 the plate 52 can be adjusted longitudinally in the guide-way 51. On opposite ends of the plate 52 are the blocks 57 having their upper faces inclined and forming bearing surfaces. These bearing surfaces slope downwardly from the inner ends of the blocks toward their outer ends. On these bearing surfaces are the movable blocks 58 connected by the straps 59 pivoted to their opposite sides. These movable blocks bear against the under sides of the curved cross pieces 47 of the tilting table. Their under sides are inclined oppositely to the upper faces of the lower blocks on which they move, so that when the blocks are relatively moved a wedging action will be produced beneath each end of the tilting table. As the wedging actions are opposite, when the upper blocks are reciprocated the tilting table will be oscillated.

The mechanism for moving the upper blocks 58 back and forth is operated by means on the rotatable carrier so that the blocks will be moved in one direction at one rotation of the carrier and in the opposite direction at the succeeding rotation, so that during the first rotation the thicker end of the shingle will be cut from one end of the bolt and during the second rotation such end of the next shingle will be cut from the opposite end of the bolt. Between the outer ends of the straps 59, which are extended for the purpose, is pivoted the bar 60 and intermediate of the ends of the latter is attached the inner end of the link 61. The outer end of the link is connected by the swivel 62 with the block 63 radially adjustable in the disk 64 on the lower end of the vertical shaft 65 journaled in a suitable bearing in the frame of the machine. On the upper end of the shaft 65 is the lantern-gear 66 with which engage the beveled pins 67 projecting from the periphery of the rotatable carrier. As these pins pass they successively engage with the teeth of the lantern-gear and turn the disk half way around. This semi-rotation of the disk, through the link connection, moves the blocks 58 in one direction, as shown in Fig. 2 for an instance, which is outwardly. Owing to the wedging action of the blocks, one end of the table, the inner one in this instance, will be raised and the other end correspondingly lowered. When the pins again engage with the lantern-gear and complete the rotation of the disk, the blocks will be moved in the opposite direction, as shown in Figs. 3 and 4, and the table will be tilted in the opposite direction. By adjusting the block 63 radially in the disk 64, the throw of the link 61 can be regulated so that the blocks will be moved more or less to give greater or less play to the table. By means of the movable plate 52 in the guide-way 51 the lower blocks 57 can be adjusted to regulate the set of the upper movable blocks. By changing the tilting movement of the table, the positions in which the bolt will be held in the rotatable carrier and presented to the saw can be varied so that shingles of different shapes can be cut and the machine adapted to bolts of different dimensions.

The operation of the machine is as follows: As the dogs 27 and 28 pass over the tilt table, they are separated by the cam 41 operating on the movable dog through the intervening mechanism. After the separation of the dogs, which will occur when they are immediately above the tilt table, the bolt is placed upon the table with a corner registering with the angle formed by the block 25 and the adjacent spoke 21^a. The bolt so placed will insure its proper position in the carrier. As the latter continues to move the roller 40 moves off the cam 41 and releases the movable dog 28 and the latter is forced by its spring 37 into the end of the bolt adjacent to it, and the opposite end of the bolt is forced against the fixed dog 27. The tilt table having been previously moved by its operating mechanism to give the required inclination to the bolt, the latter will be held in such position by the dogs. As the carrier continues to rotate, the bolt will be presented to the saw and a shingle cut from its under side. As there is but little space between a preceding bolt and a succeeding one, the action of the saw is almost continuous as it commences to act upon the second bolt before it ceases to act upon the first one. Consequently the rotatable carrier can be moved at a comparatively slow rate of speed and thereby a cleaner cut of the saw obtained,

for if the speed should be comparatively fast, the shingles would be split off the bolt before the completion of the cut and corner-spurs would thereby be formed, which would affect the quality of the product.

Before the bolt again reaches the tilt table, the latter will have been inclined in the opposite direction through the action of the wedging blocks. When the bolt again reaches the tilt table, it will be deposited thereon by the withdrawal of the movable dog 28 through the action of the cam mechanism. As the table has been tilted to the direction opposite its previous position, the bolt will also be oppositely inclined so that when it is again presented to the saw the next shingle will be cut with its thicker end from the end of the bolt opposite to that from which the preceding shingle had its thicker end cut. By alternately cutting the bolt in this way it will be completely utilized. If for any reason it should be desirable to withdraw a bolt from the machine, it can be done by pressing on the lever 45 to move the auxiliary cam 43 into position to engage with the roller 40 to separate the dogs to release the bolt.

While the herein described mechanism is the preferred embodiment of the device, yet it can be departed from to a considerable extend and still be within the scope of the claims.

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

1. In a machine for sawing shingles, a rotatable bolt carrier, a fixed dog on said carrier, a movable dog on said carrier and spring-pressed towards said fixed dog, an adjustable bracket located adjacent to the path of travel of said movable dog, a main cam on said bracket to force said movable dog away from said fixed dog, an auxiliary cam hinged to said main cam, and means for moving said auxiliary cam to engage with said movable dog.

2. In a machine for sawing shingles, a rotatable bolt carrier comprising a hub, spokes radiating from said hub and a rim connecting the ends of said spokes; a fixed dog secured between the outer ends of two adjacent spokes of said carrier, brackets having guide-ways secured to the opposite faces of said spokes near the inner ends of the latter, a dog movable in said guide-ways, a plate secured to the periphery of said hub between the inner ends of said spokes, a rod connected with said dog and passing through said plate, a spring on said rod pressing said movable dog outwardly, a roll on said rod, adjustable brackets, a main cam on said adjustable brackets for engaging with said roll to force said movable dog inwardly against the action of said spring, an auxiliary cam hinged to said main cam, and means for moving said auxiliary cam to engage with said roll.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DANIEL GIRTMAN.

Witnesses:
J. G. PACE,
G. D. WILSON.