

chanism 157, connected to the posts, whereby the sections may be swung radially in opposite directions, all in combination substantially as described. 28th. The combination, with the saw and carriage arranged substantially as shown, of the circular supporting way 20, beneath the carriage, two movable sections 150, and 151, forming part of said way supported on hinged posts 152, and 155, beneath the carriage, and a rod 157, connecting one hinged post from one side of its pivot to the other post at the other side of its pivot, whereby the movable sections 150, and 151, may be expanded radially to the table but in opposite directions, substantially as described. 29th. The combination, with the rotating carriage and its saw, arranged, substantially as shown, of the circular way 20, beneath the carriage having a movable section 150, 151, a movable bar 160, outside the rotating carriage and connected to the movable section 150, 151, of the way 20, and a trip 170, on the carriage adapted to be thrown into position to displace the movable track section, as set forth. 30th. The rotating carriage and saw arranged, substantially as described, the way 20, beneath the carriage having a movable section 150, 151, the movable bar 160, outside the carriage connected to the movable section 150, the trip 170, on the carriage adapted to be thrown into position to engage the movable bar, and a stop 173, on the frame in position to throw the trip 170, out of operative position, substantially as described. 31st. The combination, with a rotary carriage and a horizontal saw, of a block supporting way constructed of two tracks 20, a section of each track 150, and 151, in advance of the saw made movable, and a catch 170, on the carriage in position to operate both tracks simultaneously as set forth. 32nd. The combination, with the rotating carriage and a plurality of saws arranged, substantially as described, of a way 20, beneath the carriage having a plurality of movable sections 150, and 151, and a trip 170, on the carriage adapted to be moved into position to actuate either movable section 150, 151, of the way 20, as set forth. 33rd. The combination, in a shingle sawing machine, of a plurality of saws on opposite sides of the machine, a rotating table pivoted between said saws and having bolt receptacles which move over the saws, a dog 8, for each bolt receptacle, an incline 15, operating radially of the machine to operate said dogs tilt-tables 21, for each saw, and inclines 22, operating radially to change the same, and a way 20, beneath the carriage having movable sections 150, and 151, arranged to be operated radially, and a pusher 170, on the carriage, all substantially as shown and described. 34th. The two saws arranged on vertical arbors at opposite sides of the machine, substantially as described, combined with a saw-dust spout 180, for one saw, open at its side and covering an arc of the saw, and the saw-dust spout 182, for the other saw presenting its open end toward said saw, the two spouts uniting and extending to the side of the machine, substantially as described. 35th. The combination, with a shingle sawing machine, of a saw arbor secured in a vertical position at the side thereof, a bracket 136, on the floor or support of the machine, a screw bolt 135, (fig. 1) connected to the bearing box 133, of the saw arbor and passing through said bracket 136, and set nuts 137, 138, on said bolt 135, in proximity to the bracket 136, substantially as described. 36th. The combination, with a rotary saw, of a saw-dust spout 182, having a movable section 223, in proximity to the saw, substantially as described. 37th. In a shingle sawing machine, the rotating carriage, the tilt-table 21, adjunctive shifting mechanism 76, substantially as described, by which the tilt-table may be shifted by the movement of the carriage, a lever 104, to throw said shifting mechanism into action, and a trip 101, connected to the shifter 104, and operating to discharge the same so that the tilt is automatically restored to its first position, as set forth. 38th. The combination, with the vertical saw-arbor having fixed collars, of a box 201, (fig. 13) fitting said collars and adjustable in a bridge-pot 200, and a mechanism for holding said box 208, and the arbor from rising. 39th. The vertical saw-arbor and its fixed rings, the box 201, fitting said rings inclosed in a bridge-pot 200, a fork 208, crossing said box above the rings, and mechanism 207, for pressing down the fork, substantially as described. 40th. The combination, with the vertical saw-arbor, having fixed rings, of a box 201, fitting said rings, a bridge-pot 200, in which said box is adjustably enclosed, a fork 208, crossing the dash-pot and bearing upon the arbor box, and a screw 207, by which the said fork may be depressed. 41st. The combination, with the rotating carriage, of a fixed gage 221, supported on the frame by which the time for changing the position of the tilt-table is indicated. 42nd. The combination, with the rotating carriage, a plurality of tilt-tables 21, and a plurality of saws, of a series of gages 221, and 220, supported on the frame for indicating the time to operate each tilt-table, substantially as described. 43rd. The combination, with the saw carriage, of a wooden block 230, furnishing a bearing for the same, and an oil retaining trough 231, in which said block is seated. 44th. The combination, with the rotary saw carriage, of lubricating blocks 230, supporting the rim of said carriage, a retaining trough 231, for each block, and an oil cup 232, communicating with the lower portion of the block, substantially as described. 45th. In combination, in a shingle sawing machine, a series of block receptacles grouped round a central axis, a movable dog 8, at the outer side of each block receptacle, and an arm 12, connected to the movable dog 8, and extending inward past the fixed dog 19. 46th. The combination, with a rotary carriage and horizontal saws, of a tilt-table 21, having a simultaneous transverse and longitudinal movement, substantially as described. 47th. In a shingle sawing machine, a tilt-table 21, a carriage and intermediate adjunctive mechanism by which the tilt-table 21, is shifted by the carriage movement, a catch 85, holding the table in its tilted position, and an abutting surface 87, in position to disengage said catch, so that the tilt-table will be automatically restored to position, substantially as described. 48th. In combination, with the saw carriage, a metallic guard depending below the dogs having a surface toward the saw of a greater width than the distance between the saw teeth. 49th. The combination of the tilt-table, the supports on the frame, and an intermediate movable piece 62, bearing on said supports, and table by the movement of which the height of the table may be adjusted, substantially as described. 50th. The combination, with the tilt-table having an inclined under surface, and a bearing piece 62, with upper inclined surface and the table supports, of an adjusting screw 65, whereby the position of the bearing piece is regulated, substantially as described. 51st. The combination, with the tilt-table and supports beneath the same, of an interposed ad-

justable piece 62, whereby the height of the table above its supports may be regulated, as set forth. 52nd. In a shingle sawing machine, the combination, with the tilt-table, the opposite sides of the bolt bearing surfaces of which are rigid with relation to each other, the said table having a vibratory motion from a central longitudinal axis 55, of independent butt-controlling devices 72, and independent point-controlling devices 74, located on each side of the axis of the tilt-table, substantially as set forth. 53rd. In a shingle sawing machine, the combination, with a carriage adapted to support a shingle bolt, and gripping dogs attached thereto, of adjustable bolt holding or pushing blocks 17, secured in sockets at the side of the carriage, and adapted to be adjusted toward and away from the saw, substantially as set forth. 54th. In a shingle sawing machine, in combination, with a shingle bolt carriage provided with bolt holding dogs, of a vertically adjustable block 17, secured to the sides of the carriage at a point between the dogs, and adapted to force the bolt into engagement with the saw, substantially as set forth. 55th. In a shingle sawing machine, the combination, with a shingle bolt carriage provided with bolt holding dogs of vertically moving blocks 17, secured to the side of the carriage at a point between the dogs and adapted to force the bolt into engagement with the saw, substantially as set forth. 56th. In a shingle sawing machine, the combination, with a bolt supporting carriage and dogs adapted to grip the ends of the bolts, of auxiliary dogs at the sides of the carriage adapted to grip the block when the latter is too thin to be gripped by the end dogs, substantially as set forth.

No. 36,264. Heater and Purifier for the Feed Water of Steam Boilers. (*Réchauffeur et épurateur de l'eau d'alimentation.*)

Benjamin Franklin Field, Chicago, Illinois, U.S.A., 1st April, 1891; 5 years.

Claim.—1st. The combination, with a steam boiler, of a conduit 1, located within the boiler, connected to the feed water pipe, and having one or more discharge pipes or orifices within the boiler above the water line and communicating with the steam space, said conduit being provided with a series of internal tubes or plates arranged within and extending longitudinally thereof, substantially as described. 2nd. The combination, with a steam boiler, and a conduit 1, located within the boiler and connected at one end to the feed-pipe, and provided with a discharge pipe at the opposite end projecting into the steam space, of a series of plates or open tubes arranged longitudinally of and within the said conduit and held separated to form passages for the water; substantially as described. 3rd. The combination in a steam boiler and with the conduit 1, therein, a series of corrugated tubes open at the ends, supported one within another and arranged longitudinally of and within the said conduit; substantially as described. 4th. The combination, with a steam boiler, of a feed water heater and purifier, such as described, the same comprising a conduit 1, located within the boiler and provided with a discharge orifice above the water line, and a series of perforated tubes or plates arranged one within another and extending longitudinally of the conduit; substantially as described. 5th. In a feed water heater and purifier for boilers, the combination, with a conduit 1, provided with internal plates or tubes having openings therethrough, of retarding plates or abutments as at 3 arranged between said plates or tubes; substantially as described. 6th. The combination to form a feed-water heater and purifier, such as described, of a conduit 1, located within a boiler and provided with internal tubes arranged at intervals, in the length of the conduit, with retarding plates occupying the lower portion of the conduit and arranged in the spaces between contiguous groups of internal tubes, substantially as described. 7th. A feed-water heater and purifier such as described, for application within a boiler, composed of a series of sections united together to form a continuous conduit, the sections being provided with a series of shorter perforated tubes held separated and removed from the ends of the sections to form settling chambers therein, and an inclined-faced plate or abutment 3, located in the induction end of the section; substantially as described. 8th. In combination, with a locomotive boiler, a feed-water heater and purifier 1, suspended by adjustable supports at opposite ends upon the stay rods and dry pipe yoke, substantially as described. 9th. In combination, with a boiler, a feed-water heater and purifier suspended above the flues upon adjustable and removable supports, indirectly connected to the shell of the boiler above the flues; substantially as described. 10th. In combination, with a locomotive boiler, a conduit 1, extending longitudinally of the boiler above the flues and supported at each end within the boiler, and an independent adjustable support for the discharge end of the conduit; substantially as described. 11th. In combination, with a locomotive boiler, such as described, a feed-water heater suspended above the flues and provided with a removable clamp or clumps applied to its rear end and extending above the crown bars, said extension being connected to the crown bars to prevent longitudinal movement of the heater; substantially as described. 12th. In combination, with a locomotive boiler, such as described, a feed-water heater located wholly within the boiler and above the flues, connections intermediate the heater; and check-valve casings on opposite sides of the boiler for placing both feed-water pipes in communication with the heater, and a pipe provided with a valve connected to one of the check-valve casings above the check-valve through which steam is discharged while blowing off to clear the heater; substantially as described.

No. 36,265. Manufacture of Lace Boots and Shoes. (*Fabrication de chaussure lacée.*)

Lionel Bertie Legge, Bridgetown, Nova Scotia, Canada, 1st April, 1891; 5 years.

Claim.—1st. A shoe upper, shaped to fit a foot and composed of a single piece, substantially as described. 2nd. A shoe upper, com-