

on by the rakes, an automatically operated bundle carrier G; 7th. In combination with an automatic grain binding device, capable of lifting and binding grain previously deposited upon the ground by a reaper and sheaf carrier G, an automatic sheaf mover R, the whole forming attachments to said reaper. 8th. In combination with a self-raking reaper, an automatic binding device capable of being tilted laterally so as to be kept parallel with the surface of the ground over which it moves. 9th. In combination with a self-raking reaper, a combined lifting and binding device constructed and arranged to be vertically adjusted at different distances from the ground; 10th. The combination with a reaper of a series of bars L secured to a rotating shaft b, together forming a device by means of which cut grain deposited upon the ground may be lifted therefrom with suitable driving mechanism for the same. 11th. In combination with a reaper, an automatic binding device capable of binding grain deposited upon the ground that may be disengaged from its driving mechanism. 12th. In combination with a reaper an automatic binding device constructed to operate as described, that may be thrown out of or into gear by the driver by means of a ton lever G, 13th. In combination with a reaper, an automatic lifting device capable of raising cut grain deposited upon the ground, constructed and operated to continuously rake or comb the swath. 14th. A reaper provided with an automatic binding device that may be detached from said reaper conveniently when the same is used for a mower. 15th. In combination with an automatic grain binder and lifting device capable of raising and binding grain deposited upon the ground, a supporting frame H for said binder and lifting device. 16th. The combination in a grain harvester of an automatic binding and lifting device, and frame H with levers S, with which to adjust the said lifting and binding device with reference to the ground. 17th. In combination with the adjusting levers S and frame H, a steadying bar T connected with the frame H by a ball joint, 18th. An attachment to a reaper, an automatic grain lifter and binder that may be regulated by the driver at will, so as to control the amount of grain taken up and bound in a sheaf. 19th. In combination with a grain lifter, the gear e, sprocket K, provided with the rocking pin m, fixed cams n and y and gauge-c d, 20th. The combination of the gears e and a, cams y and n, sprocket K and shaft d with supporting pieces l and b, 21st. In combination with the pin k up and binder, the shaft d with the gears a and e provided with pins r and the detent springs u. 22nd. An automatic binding arm of a grain binding harvester, provided with coogs or teeth, with which to rotate a wire twister at each descent of the arm. 23rd. The fork of jaws n, provided with slots to receive the journals of the spool i for the purpose of allowing a free vertical adjustment of the same, in combination with said spool and cylinder c, 24th. In combination with the spool i, cylinder c and fork n, a pivoted roller holder o for the wire hung so as to be capable of freely turning toward either end of the spool as the wire is drawn therefrom; 25th. In combination with a binder arm, cord carrier q and drum c, operated by the carrier q by means of a cord f, a gravity adjusting spool i for the band material; 26th. In combination with a grain binding arm and shaft g, a cord carrier q, cord f, drum c and fork n. 27th. An attachment to an automatic grain binder consisting of a spool i, drum c and roller holder o constructed to cause the strand of wire passing from the spool to the binder arm to pass between said roller and drum. 28th. An automatic grain binding attachment to a reaper, the combination of a rotating wire twister a, and tucking wheel b with suitable driving mechanism for the same. 29th. The cutting blade z projecting from the tucking wheel b acting in concert with the wire twister a, to sever the wire. 30th. A hook wire twister head a, provided with a ledge z having a notch or hook z, for the purpose of catching and binding the spool end of the wire after the same has been severed. 31st. In combination with a rotating twister a, a grain binder, a rotating part b provided with groups c, m, n of projecting blades caused to enter successively into cavity of the head, the blades forming the groups increasing in length from front to last; 32nd. In combination with a toothed binding arm O and supporting pieces I, a grain binder or pointed shaft g, and tucker b, shaft p and twister a, and connecting gears k, j and h; 33rd. As a part of a grain binder, a pulley or roller j for the wire to pass over, having its ends resting in recesses. 34th. The combination of the roller j, plate d, pin u and block holding said parts.

**No. 9551. Machine for Forming Boot and Shoe Stiffeners.** (*Machine à former les contre-forts des chaussures.*)

Louis Côté, St. Hyacinthe, Que., 13th January, 1879, (Extension of Patent No. 3036), for 5 years.

**No. 9552. Machine for Forming Boot and Shoe Stiffeners.** (*Machine à former les contre-forts des chaussures.*)

Louis Côté, St. Hyacinthe, Que., 14th January, 1879, (Extension of Patent No. 3036) for 5 years.

**No. 9553. Improvements in the Manufacture of Articles of Felt.** (*Perfectionnements dans la fabrication des objets en feutre.*)

Henry A. House and Dwight Wheeler, Bridgeport, Ct., U. S., 14th January, 1879, for 5 years.

Claim.—1st. The blocking and stretching the material by automatic mechanism, 2nd. Stretching and blocking the material, while under the influence of a surrounding fluid hot, until the body is formed and set and then cold; 3rd. Subjecting the body, while being stretched, to the action of a surrounding hot fluid and then displacing said fluid by cold air, 4th. The combination with a closed chamber containing the body stretching and forming mechanism, of a steam pipe and a pump or its equivalent whereby steam may be quickly introduced into and withdrawn from said chamber. 5th. The combination with the crown and rim forming blocks, of grippers and appliances whereby said blocks and grippers are operated to draw the brim over the rim block and the crown is forced inward. 6th. The combination with the blocks and grippers, of a cord or band and appliances for tightening the same after the brim has been drawn over the blocks; 7th. The combination of the arms H H, blocks and cord i carried by one set of arms. 8th. The arms H having blades h, in combination with the slotted arms I and block supporting appliances, and with operating devices. 9th. The casing A provided with passages for admitting and discharging the fluids and enclosing the appliances, for automatically holding and stretching the body of the blocks.

**No. 9554. System of Metallic Lettering for Stone and Marble.** (*Lettres métalliques pour la pierre et le marbre.*)

Thomas Johnson, Toronto, Ont., 14th January, 1879, for 5 years.

Claim.—The securing of metallic letters in marble or stone or other material, with dovetails e d e f which secures the letter I as shown in the drawings.

**No. 9555. Improvements on Grain Drying Kilns.** (*Perfectionnements aux fours à sécher le grain.*)

Charles Boynton, Chicago, Ill., U. S., 14th January, 1879, for 5 years.

Claim.—1st. The combination of one or more furnaces S S and C combined with the air chamber U, main flue E and its branches F F, nipple L L and deflector K, 2nd. The two part drying room T T, two part hopper L L, two part flue E F F, cold air drafts J J, cut off D and valves S S C, whereby the drying process is continued in one room while the other is being emptied, 3rd. The trays m consisting of the frames n n, transverse bearers C, longitudinal bearers f f and wire cloth attached to the frames.

**No. 9556. Improvements on Blueing Packages.** (*Perfectionnements aux paquets de pierre bleue.*)

Henry Sawyer, Chelsea, Mass., U. S., 14th January, 1879, for 5 years.

Claim.—1st. A box containing two or more packages of granulated or powdered blueing and a bottle, the contents of each package and the capacity of the bottle being relatively such that the bottle filled with water and the contents of a package constitute a package of liquid blueing of due strength ready for use. 2nd. The package for producing liquid blueing set forth, composed of a bottle and two or more boxes of powdered or granulated blueing, the boxes having mouths adapted to fit into that of the bottle, the capacity of the bottle and the contents of each of the boxes being such as to make, when the latter is combined with a bottle full of water, a bottle of liquid blueing all enclosed in one box.

**No. 9557. Improvements on Cheese Presses.** (*Perfectionnements aux presses à fromage.*)

William R. Hayden, Ashfield, Ont., 14th January, 1879, for 5 years.

Claim.—The combination of ropes E, pulleys F, reel H with weight G.

**No. 9558. Improvements in Hot Water Radiators.** (*Perfectionnements aux tuyaux à distribution de vapeur.*)

Donald McPhie, Hamilton, Ont., 14th January, 1879, for 5 years.

Claim.—A hot water radiator for heating apartments, constructed as shown and provided with a partition F the same being placed across the chamber A, or longitudinally, or the equivalent thereof.

**No. 9559. Improvements on Water Filters.** (*Perfectionnements aux filtres à eau.*)

William R. Campbell, Montreal, Que., 14th January, 1879, for 5 years.

Claim.—The combination of the ends C C, provided with regular bore threads, and which is reversible, and the nozzle B, washers G G, perforated gauze F F and the charcoal z placed between two perforated gauze F F.

**No. 9560. Improvements on Mowing Machines.** (*Perfectionnements aux faucheuses.*)

William A. Kirby and David M. Osborn, Auburn, N. Y., U. S., 14th January, 1879 (extension of Patent No. 3144), for 5 years.

**No. 9561. Improvements on Mowing Machines.** (*Perfectionnements aux faucheuses.*)

William A. Kirby and David M. Osborn, Auburn, N. Y., U. S., 14th January, 1879 (extension of Patent No. 3144), for 5 years.

**No. 9562. Improvements on Lighters and Extinguishers.** (*Perfectionnements aux allumeurs-étouffoirs.*)

George P. Ganster, Re ding, Pa., U. S., 21st January, 1879, for 5 years.

Claim.—1st. A clock mechanism having suitable provisions for turning on and off the flow of gas at the proper periods, connected directly to a motor operated by a continuous flow of gas to a subordinate burner. 2nd. The independent pipes or conduits a a, one for the small continuous flame and the other for the strong periodic flame, in combination with a motor B arranged to be operated by the gas which supplies the small continuous flame. 3rd. The small orifice or contraction j, in the passage, supplying gas to the small continuous flame, in combination with the taper extension J, beyond it, arranged to allow the latter to serve as the burner for the small flame; 4th. The cams g h and arms g h, connected so that the adjustment of the one ensures the corresponding adjustment of the other; 5th. The employment, in combination with the operating cam h and adjusting h, of the ring h, loosely enclosing the cam h and allowing the latter to be adjusted within the former and secured by the pinching screw k or its equivalent. 6th. The year wheel U and connection V, in combination with the arms g h, cams g h and suitable clock mechanism M adapted to automatically induce the required changes in the periods of commencing and discontinuing the illumination. 7th. The clearing probe b, having an end-wise movement in the small burner B, in combination with suitable operating mechanism and with the main burner. 8th. The clearer or probe b, automatically moved at intervals as specified, in combination with a gas burner B having a small orifice adapted to maintain a continuous flame for the ignition of gas in a large burner. 9th. In combination with the probe b and suitable connections to a withdrawing spring C, the quick moving piece G actuated as specified and adapted to communicate its blow to the probe b and induce a quick reciprocation. 10th. The wheel M, arm G and operating spring J, in combination with the probe b and its spring i, actuating lever