

of pulleys and the like, the guideway F transverse to the axis of rotation, and the scribing bar mounted to move on the table v, in a guideway parallel with said axis, combined with the carriage P, mounted to move on said guideway F transverse to the axis of rotation, and the tool-stock H fitted to move on the carriage P in the plane of, and parallel with, said axis. 2nd. The reciprocating tool-stock H provided with the cog-track n, and the hand-wheel p provided with the pinion q, combined with the worm-gear r on the shaft of said pinion, and the worm-rever h mounted on the movable plate u, substantially as set forth. 3rd. In a boring and turning machine, a mandrel, a tool-carriage adapted to move in a direction transverse to the axis of revolution of the mandrel, and a scribing stock having movement parallel with said axis of revolution, combined with a scribing-blade adjustable on said stock, toward or away from said axis of revolution, for the purpose set forth. 4th. A machine for turning pulley-rims, boring the hubs, and the like, comprising a bed-plate A, two pillars B and C, relatively adjustable on said bed-plate, the pillar B being provided with a mandrel, rotating scroll-plate and face-plate f, provided with bars h, radially adjustable thereon and controlled by said scroll-plate, and jaws E adjustable on said bars, and the pillar C being provided with a transverse guideway F and a swivelling carriage, and a tool-stock adapted to move thereon toward or away from the face-plate, as set forth. 5th. The face-plate f combined with the scroll-plate D, the radial bars h, in engagement with said plate and radially adjustable in guides on said face-plate, and the jaws E adjustable on said bars, whereby, with a small and uniform radial movement of said bars, the chuck may be adapted to receive and hold blanks of various sizes and other central or eccentric.

No. 28,623. Rotary Shuttle for Sewing Machines. (*Natette rotative pour machines à coudre.*)

The White Sewing Machine Company, (assignee of L. Arce Porter), Cleveland, Ohio, U.S., 3rd March, 1888; 5 years.

Claim.—1st. In a sewing machine, the combination, with a driving-shaft and revolving shuttle having a recess or opening therein, of a reciprocating steady-pin located within the driver-shaft and adapted to enter the opening in the shuttle mechanism for reciprocating the steady-pin, substantially as set forth. 2nd. In a sewing machine, the combination, with a driving-shaft having a reciprocating steady-pin located therein, a revolving shuttle having a recess therein, of an arm attached to the steady-pin, the end of the arm being adapted to enter the recess of the shuttle, said arm having a bevelled or inclined surface adapted to advance the shuttle by engaging the latter, substantially as set forth.

No. 28,624. Hammock. (*Hamac*)

Mary A. J. Fuller, (assignee of Thomas Fuller), Trenton, Ont., 5th March, 1888; 5 years.

Claim.—The combination of the various lengths of ornamental slats A, having the two poles d, d' at each end, with a single strand of metal rope B or B', passed or laced through these holes d, d', substantially as and for the purposes hereinbefore set forth.

No. 28,625. Soil Pulverizer. (*Brise-molle.*)

Robert B. Lillie, Montpelier, Vt., U.S., 5th March, 1888; 5 years.

Claim.—1st. The combination, with the main axle and a rotary shaft secured in the arms of a sleeve loosely mounted on the axle, of a set of bent toothed disks removably secured on the rotary shaft adapted to saw the soil, substantially as set forth. 2nd. The combination, with the main axle and a rotary shaft secured in the arms of a sleeve loosely mounted on the axle, of a set of claw teeth attached to the said sleeve and loosely mounted on the rotary shaft, and a set of toothed disks secured on the rotary shaft alternately with the claw teeth, substantially as set forth. 3rd. The combination, with the main axle and a shaft secured in the arms of a sleeve loosely mounted on the axle, of the stationary teeth secured loosely on the rotary shaft, the rotary teeth secured rigidly on the rotary shaft, and the system of multiplying gear connecting the axle and the rotary shaft, substantially as set forth. 4th. The combination, with the armed sleeve loosely mounted on the axle, the rotary shaft journaled in the arms, the claw teeth secured to the sleeve and loosely mounted on the rotary shaft, of the multiplying gear, the axle and rotary shaft, and the rocking box adapted to closely house the gear, substantially as set forth. 5th. The combination with the sleeve loosely mounted on the axle and having arms, the swinging rotary shaft journaled in the arms and carrying the toothed disks, and the axle to which the swinging rotary shaft is secured, of the ground wheels loosely mounted on the axle, the ratchet wheels and spring actuated dogs for locking the ground wheels to the axle, and the angle lever for elevating and depressing the rotary shaft and toothed disks, substantially as set forth.

No. 28,626. Steam Generator.

(*Générateur de vapeur.*)

Thomas F. Morrin, Jersey, N.J., U.S., 5th March, 1888; 5 years.

Claim.—1st. In a steam generator, the generator chamber constructed with substantially plane front and back plates, and with a partition c extending up to the water line, with communication above between the two parts of said chamber, and the compound generating tubes mounted in said chamber and extending across the combustion chamber over the fire bed, substantially as set forth. 2nd. In a steam generator, the combination, with the front and side plates of the combustion chamber, of the generator chamber B forming one wall of said chamber, and the compound generating tubes mounted at one end in said chamber B, and at the other end in the opposite plate of the combustion chamber, said tubes having suitable apertures within the generator chamber for the ingress and egress of water, substantially as set forth. 3rd. In a steam generator, the combination, with the generator chamber B, of substantially the form shown and provided with a partition c, of the generating tubes mounted

therein and comprising each an exterior tube I, with opening h and A arranged on opposite sides of the partition c, and the inner tube or conduit i arranged in tube I, substantially as set forth. 4th. In a steam generator, the arrangement, in the combustion chamber, of the headers M and M', communicating with the generator chamber B, as shown, and connected by the numerous upright tubes N, the said headers and tubes being set close to the respective walls of the combustion chamber, as shown and described. 5th. In a steam generator, the generator chamber B divided below the water-line into two chambers B₁ and B₂ by a partition, and having a deflector or baffle k arranged over the chamber B₂, in combination with the generating tubes mounted in said chamber, substantially as represented in the accompanying drawings. 6th. In a steam generator, the combination, with the generator chamber and the generating tubes mounted therein, of the compound drying tubes for the steam, mounted in said chamber above said generating tubes, each of said drying tubes comprising an exterior tube, as J, and an inner tube, as n, all arranged substantially as described and shown. 7th. In a steam generator, the generator chamber, as B, provided with a partition and with tubular stays, as r, extending across said chamber and opening into the fire-box at one end, and said stays provided with plugs or stoppers r', substantially as set forth. 8th. In a steam generator, the combination, with the generating chamber having partitions v in it below the steam-dome K, which form chambers, of the several tiers of drying tubes mounted in said generator chamber, as shown, whereby the steam will be compelled to pass in succession through the several tiers of tubes, as set forth. 9th. In a steam generator, the header, as P, for the generating tubes, constructed in the form of a shallow partitioned box with an aperture in each cell for the reception of air, whereby communication between the tubes is prevented when the cap of the header is screwed on, as set forth.

No. 28,627. Rivet. (*Rivet.*)

The Standard Groove Rivet Company, Boston, (assignee of Léon O. Dion, Natick, Mass., U.S., 5th March, 1888; 5 years.

Claim.—A solid and headed rivet having an annular groove formed in the body portion thereof, and the point end provided with a conical hole, as set forth.

No. 28,628. Corset. (*Corset.*)

Martha E. Lunn, Elgin, Ill., U.S., 5th March, 1888; 5 years.

Claim.—The herein described improvement in corsets consisting in a breast piece vertically separated from the adjacent sections of the corset, from and above the lowest point where the expansion of the breast begins, and having an elliptical shape and two or more series of eyelets arranged in lateral lines, which eyelets are to be connected and disconnected with the hooks placed on the adjacent parts of the body of the corset and near the edges thereof, by which means the breast pieces are readily and conveniently adjustable to the comfort and wish of the wearer, combined with the wings D, D, extending from the adjacent portions outward over the breast pieces, substantially as described.

No. 28,629. Composition Metal.

(*Métal composé.*)

Halvor Berglin, Minneapolis, Minn., U.S., 6th March, 1888; 5 years.

Claim.—The composition hereinbefore described consisting of copper, tin, zinc, nickel and antimony, in substantially the proportions hereinbefore specified.

No. 28,630. Drilling Machine.

(*Machine à percer.*)

Amos Whitney Hartford, Conn., U.S., 6th March, 1888; 5 years.

Claim.—1st. The combination, in a drilling machine, of a laterally swinging head carrying two revolving and sliding spindles, a lever pivotedly mounted on said head, whereby the head may be swung laterally on its pivot, and connecting gearing, substantially as described, whereby the spindles are both operated from said lever, all substantially as set forth. 2nd. The combination, in a drilling machine, of a vice holding the piece to be drilled in a fixed position, a laterally movable head carrying two revolving and sliding spindles, a lever connected to actuate said spindles and serving at the same time to shift said head, and a lock or detent temporarily holding the head at one or the other end of its stroke, all substantially as set forth. 3rd. The combination, in a drilling machine head, of spindle C D, sleeves E, F, gear G and a handle, as described, constructed to operate said gear substantially as set forth. 4th. The combination, with the head H and lock-plate L, of the sliding sleeve E carrying the spindle, bolt 28 sliding in said head and fitting into said plate, a spring acting on the bolt, and arm 45 adjustably fixed on said bolt and operated in one direction from said sleeve, all substantially as set forth. 5th. The combination, in a drilling machine of the class specified, and with a spindle-head swinging on a pivot, of two pulleys provided spindles carried by said head above said pivot, driving pulleys below said pivot, and belts connecting each of said driving pulleys with the corresponding spindle pulleys, the whole being organized and arranged to tighten either belt on shafting, the spindle driven thereby from its idle to its working position, as shown and described. 6th. The combination, with the vice base and with slides 8 and 9 sliding thereon, of the right-and-left screw 7, the externally threaded sleeve 11 and the clamp 12 on said base, the sleeve being adjustable longitudinally by the turning of it in said clamp, and the screw being journaled in said sleeve, substantially as described.

No. 28,631. Grain Scourer. (*Nettoyeur des grains.*)

Thomas Williamson, Petrolia, Ont., 6th March, 1888; 5 years.

Claim.—1st. In a grain scourer, the arms G₁, G₂, G₃, shaped substantially as shown, as a means of attaching the carriers E at the required angles to the revolving disks C, said arms being provided with