

bow cut away below the cover and always radial to pivot-point, of second bow and rigid stay pivoted both to first and to second bow, all substantially as herein set forth. 2nd. The combination of the front bow A, second bow B and rigid stays C, hinged to plates a and b, on first and second bows, all as and for the purposes set forth. 3rd. In a buggy top, the combination, with the second bow and cut away first bow, and stay connecting same, of curved locking strip, with spring jaws passing through slot in stay, all as and for the purposes set forth.

No. 28,298. Feeder for Steam Boilers.

(*Alimentateur pour chaudières à vapeur*)

Josiah Austin, East Liberty, Ohio, U.S., 8th June, 1888; 5 years.

Claim.—1st. The combination, with standard B and pivoted frame C, of the chambers F, F₁, pipes H, H₁, I, I₁ and ports T, T₁, and diaphragms S, as and for the purpose set forth. 2nd. The combination, with pipes H, H₁, I, I₁, ports T, T₁, and diaphragms S, of the flexible tubes G, G₁ and chambers F, F₁, as and for the purpose set forth. 3rd. The combination, with pivoted chambers F, F₁, of the air chamber N, diaphragm G and jointed piston P, as and for the purpose set forth. 4th. In a steam boiler feeder, a balanced water chamber whose rising and falling prepare it for filling or feeding to the boiler, as and for the purpose set forth.

No. 29,299. Process of Transferring Phototypes to Lithographic Stones.

(*Procédé de transposition des phototypes sur les pierres lithographiques.*)

Otis Krobs, Pittsburg, Penn., U.S., 8th June, 1888; 5 years.

Claim.—The process of transferring phototypes to lithographic stones consisting in, first, taking a photograph of the object; second, printing the photographic image of the negative upon a plate which has been suitably prepared; third, taking an impression from the plate upon a sheet of paper which has been saturated with a solution of gelatine, chloride of calcium, glycerine, chromate of alum and water; and fourth, transferring the impression from the prepared paper to the lithographic stone, substantially as set forth.

No. 28,300. Improvements in Cars of all kinds having in, or on them, Racks for Hay or Course Food for Live Stock.

(*Châssis à bestiaux avec râteliers.*)

Hugh Baines, Brooklyn, N.Y., U.S., 8th June, 1888; 5 years.

Claim.—1st. In a live stock car having racks for hay, etc., a series of observation apertures of any desired shape, located in the roof proper of the car, as and for the purposes set forth. 2nd. In a live stock car, substantially as hereinbefore shown and described, a pair of longitudinal air chambers located in the upper part of the car, as and for the purposes set forth. 3rd. In a live stock car having racks for hay, etc., the combination of the air chambers in the upper part of the car, with observation apertures extending through and above the roof, and connecting with said air chambers, substantially as and for the purposes set forth. 4th. In a live stock car, the observation apertures constructed to form permanent ventilators in the roof of the car, substantially as shown and described. 5th. In a live stock car, the ventilating exhausts extending through and above the roof of the car, in combination with the removable caps, substantially as shown and described, whereby the shipper can utilize them as observation apertures, as set forth. 6th. In a live stock car, a series of ventilating exhausts provided with adjustable caps or covers, whereby the amount of the exhaust can be regulated or entirely shut off, as may be desired. 7th. In a live stock car, a series of ventilating exhausts extending vertically through the roof of the car, adjustable and removable caps, or covers, and retaining chains or straps H, substantially as shown and described. 8th. In a live stock car, the combination of the longitudinal air spaces, substantially as shown and described, with the wire gauze coverings, for the purposes set forth. 9th. In a live stock car, the combination, of the centrally located path or walk upon the roof of the car, the two series of observation apertures located upon both sides of the walk, and the raised guards outside extending along the top of the car, and outside of the observation apertures.

No. 29,301. Impact Tool.

(*Combinaison d'outils*)

John F. Clement, Philadelphia, Penn., U.S., 8th June, 1888; 5 years.

Claim.—1st. The combination, in an impact tool, of the ram cylinder and its ram, a pump and a pipe connecting said pump to the ram cylinder, said pipe having between the pump and the ram cylinder, a passage through which air can enter or leave the pipe, all substantially as specified. 2nd. The combination, in an impact tool, of the ram cylinder and its ram, a pump, a pipe connecting the pump and cylinder and having between the two a passage through which air can enter or leave the pipe, and means for regulating the effective inlet or discharge area of said passage, all substantially as specified. 3rd. The combination, in an impact tool, of the ram cylinder and ram, a double-acting pump and pipes, whereby communication is afforded between the opposite ends of the pump and corresponding ends of the ram cylinder, all substantially as specified. 4th. The combination of the cylinder and its ram, the movable stem and its lifting spring, and a stop screw independent of said spring and adjustable in a direction parallel with the line of movement of the stem so as to limit the lift of said stem by the spring, all substantially as specified. 5th. The combination of the ram cylinder and ram, a pump, a pipe connecting the pump and ram cylinder, and a valve having two ports, one providing a direct communication between the pipe and cylinder, and the other serving to direct the current, all substantially as specified. 6th. The combination of the ram cylinder and its ram, the pump, the two pipes, one communicating with one end of the cylinder and pump, and the other with the opposite ends thereof, a valve-chest connect-

ing the two pipes, and a valve having two ports, one forming a direct communication between one of the pipes and the cylinder, and the other providing a direct communication between the two pipes, all substantially as specified. 7th. The combination of a dental engine, the ram cylinder and its ram, the pump and a connecting pipe, a pump-carrier mounted on the post of the dental engine, a pump operating counter-shaft, and a belt, whereby said shaft is operated from the drive-wheel of the engine, all substantially as specified. 8th. The combination of a dental engine, its drive-wheel and tool-operating shaft, a pump structure mounted on the standard of the engine, and a driving belt having a detachable section, whereby it can be used either for driving the tool operating shaft of the engine or the operating shaft of the pump, all substantially as specified.

No. 29,302. Damper for Upright Piano.

(*Etaffoir de piano droit*)

Joseph Horrburger, Paris, France, 8th June, 1888; 5 years.

Claim.—The combination of cushioned damper head c with the round screw-threaded stud f, received within a screw-threaded mortise of said head and provided with a transverse perforation and with the set-screw g, substantially as specified.

No. 29,303. Printing upon Oil Baize, Leather, Cloth, etc.

(*Impression sur baize, cuir, toile cirée, etc.*)

Norval W. Helme, Richard Stockdale and Robert N. Helme, Lancaster, Eng., 8th June, 1888; 5 years.

Claim.—The improvements, substantially as hereinbefore described, for producing a pattern in several colors upon a woven fabric rendered non-absorbent, or only slightly absorbent, and of the nature of oil cloths or imitation leather cloths, by printing in oil or varnish colors with engraved copper or other rollers in connection with a plain cylindrical bed, roller or rollers.

No. 29,304. Dyeing Apparatus.

(*Appareil de teinturerie.*)

Urban Weldon, Cohoes, N.Y., U.S., 8th June, 1888; 5 years.

Claim.—1st. In a dyeing apparatus, the combination, with a dipping wheel rotary in a dye-vat and provided with radial partitions, of pockets formed in the partitions approximately semi-circular in cross-sectional form, and having their inner side wall at its point of junction with a partition approximately right angular thereto, substantially as described and for the purpose set forth. 2nd. In a dyeing apparatus, a dipping wheel or cylinder rotary in a dye-vat, consisting of two heads provided with bearings and connected by a hub, radial partitions and longitudinal pockets, said partitions consisting of rows of pins or rods projecting radially from the hub to the several pockets at points about half way between the hub and periphery of the wheel, the pockets consisting of rounded rods extending longitudinally from head to head of the wheel, and having a cross-sectional arrangement approximately in the form of a semi-circle, the inside wall of the respective pockets at its point of junction with the rows of radially projecting pins being approximately right angular to said pins, substantially as described and for the purpose set forth. 3rd. In a dyeing apparatus, the combination, with a rotary dipping wheel or cylinder having radial partitions, of wheel supporting dye-vat provided with a bottom semi-circular in cross-section, and having a channel or groove formed at the lower part of the inner side of the bottom, and a steam supply-pipe located in said groove and opening into the vat, substantially as and for the purpose set forth.

No. 29,305. Sulky Harrow.

(*Herse à siège.*)

William Hewitt, London, Ont., 8th June, 1888; 5 years.

Claim.—1st. A sulky harrow formed in three sections a₁, a₂, a₃, and the wheels D, D, placed within the body of the harrow between said sections, in combination with the brackets C, C, formed with slots C₁, C₁, frame H and axle B, substantially as and for the purpose set forth. 2nd. A sulky harrow formed in three sections, and the wheels D, D, placed in the body of the harrow between said sections, in combination with the handles F, F, secured to the outer section a₁, substantially as and for the purpose set forth. 3rd. A sulky harrow formed in three sections, and the wheels D, D, placed in the body of the harrow between said sections, in combination with the handles F formed with eyes f₁, and the hooks G, substantially as and for the purpose set forth. 4th. A sulky harrow formed in three sections, and the wheels D, D, placed within the body of the harrow between said sections, in combination with a bearing n₃, formed with a slot n₄, frame H, axle B and tongue N, substantially as and for the purpose set forth. 5th. A sulky harrow formed in three sections, and the wheels D, D, placed within the body of the harrow between said sections, in combination with a bearing n₃ formed with a slot n₄, tongue N, and pin n₂ passing through pin holes in said bearing and tongue, frame H and axle B, substantially as and for the purpose set forth. 6th. In a harrow in which the wheels are within the body of the harrow, the connecting rod R, in combination with the equalizing bar S and frame H, as and for the purpose set forth. 7th. In a harrow in which the wheels are within the body of the harrow, the connecting rod R, in combination with the double tree V and frame H, as and for the purpose set forth. 8th. In a sulky harrow formed in three sections, and the wheels D, D, placed within the body of the harrow between said sections, the brackets C, C, formed with slots C₁, C₁, and axle B, in combination with the lever L, oog segment L and connecting rod K, substantially as and for the purpose set forth.

No. 29,306. Rotary Churn.

(*Baratte Rotative.*)

Thomas D. Brook, London, Ont., 9th June, 1888; 5 years.

Claim.—1st. The combination of the churn body A, having an approximately semi-elliptical cross section, and the rotary dasher C,