

Claim.—1st. The manufacture of the compound material produced by combining the natural deposits of bitumen with the oil residue, or its equivalent, whether the compound be vulcanized, or used without being vulcanized. 2nd. The manufacture of insulated conductors for telegraphic or other purposes, by covering or coating the conducting wires with the compound prepared and vulcanized.

No. 15,396. Improvements on Dies for Shaping and Setting Springs. (*Perfectionnements aux étampes pour façonner et parer les ressorts.*)

Edward Spaulding, Brooklyn, N. Y., U.S., 31st August, 1882; for 5 years.

Claim.—1st. A pair of dies having the longitudinal concave and convex shape for longitudinally curving or shaping the plates or leaves of elliptic springs and also having transverse convex and concave faces for simultaneously producing said longitudinal curves and also the transverse concave convex shape. 2nd. A pair of dies having the longitudinal convex and concave shape for longitudinally curving or shaping the plates or leaves of elliptic springs, also the transverse convex and concave shape for transversely curving the plates, the arrangement being such that they produce the transverse concavity in the longitudinally convex side and the transverse convexity in the longitudinally concave side of the plates. 3rd. A pair of dies having the longitudinally convex and concave shape for longitudinally shaping and curving the plates or leaves of elliptic springs, also the transverse convex and concave shape for transversely curving said plates the transverse curvatures of both the dies being formed on one and the same radius, for making the plates thicker in the middle and diminishing in thickness therefrom to the edges. 4th. The method of reshaping and setting the hardened leaves or plates of elliptic springs consisting of subjecting them after being heated for drawing the temper and while hot to squeezing or swaging pressure in the dies employed for previously shaping them, the said pressure being continued till the heat is reduced to the normal temperature or thereabout. 5th. A pair of dies constructed with longitudinal and transverse curves for shaping the leaves of elliptic springs and also provided with the socket or recess D, and stud E for simultaneously shaping said leaves or plates and also forming the studs and indentations.

No. 15,397. Improvements on Hay Unloaders. (*Perfectionnements aux machines à décharger le foin.*)

Jacob M. Hendricks, Trenton, Ont., 31st August, 1882; for 5 years.

Claim.—1st. In combination with the rack of a farm wagon, two or more division pieces provided with pins or hooks at convenient heights, also slings composed of ropes or chains provided, with rings at each end. 2nd. In combination with a farm wagon loaded in sections separated by means of slings and division stakes the coupler C and a suitable hoisting arrangements. 3rd. The construction and arrangement of the coupler C consisting of a slotted bar, levers L L, link l, abutment T T, eye t, cord R' and rope or chain R2. 4th. The construction and arrangement of a single or double sling, consisting of a rope or chain R having a ring r at one end, and a ring or rings r1 capable of passing upon the locking lever L1 at the other end or ends. 5th. The method of loading hay, straw and similar produce in sections divided by slings placed ready for attachment to the lifting tackle. 6th. The method of handling hay, straw and similar produce in removing it to or from the barn or stack, in combination with a suitable hoisting arrangement. 7th. The combination of the rack of a farm wagon B b, division stakes D D, slings R r r1, coupler C and a convenient hoisting arrangement.

No. 15,398. Improvements in Coal Stoves. (*Perfectionnements dans les poêles à charbon.*)

Clarence Rathbone, Albany, (assignee of Charles A. Hamlin, Greenbush,) N. Y., U. S., 31st August, 1882; for 5 years.

Claim.—The combination, with a fuel magazine or feeder, of an agitable rear grate fixed in an inclined position directly beneath the said magazine, and a horizontal bottom grate or fire bed placed contiguously to the lower edge of the inclined rear grate, the said bottom grate being composed of two movable sections having their axes arranged in parallel lines, and both sections being adapted to move synchronously to cut by a positive movement the debris from the lower part of the fire and to support the superimposed fuel.

No. 15,399. Improvements 'on Electric Arc Lamps. (*Perfectionnements aux lampes électriques en arc.*)

William M. Thomas and Samuel W. Skinner, Cincinnati, Ohio, U.S., 31st August, 1882; for 5 years.

Claim.—1st. An arc electric lamp in series having a fixed helix in a main circuit that includes the electrodes, a helix of high resistance surrounding said fixed helix in a circuit derived from said main circuit and attached to the positive electrode, and a simultaneously movable core common to both helices, whereby the feed and position

of the electrode are controlled and equal action maintained throughout the series by the joint action of two opposing electric forces. 2nd. A stationary helix in the circuit which includes the electrodes, in combination with a surrounding movable helix in a circuit derived from the said main circuit and a simultaneously movable core common to both of said helices and adapted and arranged to be lifted by electric influence from the stationary helix and to be subject to depression by repulsion upon the attached differential helix which surrounds said main helix so as to maintain uniform arc lengths throughout the series. 3rd. A stationary helix in a circuit which includes the arc in combination with a shifting positive electrode, to which are attached a suction core which occupies an axial position within said helix and is attracted upward thereby, and an overflow helix of high resistance that encircles said stationary helix and is in a circuit derived therefrom and, when energized, acts in mechanical opposition thereto in proportion to the overflow. 4th. The combination of a stationary helix in communication with the positive rheophore and the following members attached to and moving with the positive electrode to wit: a sliding conductor upon a bared track on said helix's periphery, an interior suction core and an exterior concentric differential shunt. 5th. A shifting conductor which is rigidly attached to and which travels with the consuming electrode upon a longitudinal bared track, on the exterior periphery of a stationary helix, said conductor together with the portions of said helix thus brought into circuit constituting the electrical communication from the generator to said electrode so as to shift the said helix's magnetic field and to maintain a practically constant magnetic equipoise to the said electrode there being also attached to said shunt a counterpoise and a suction core and differential overflow coil which are concentric with and respectively interior and exterior to said helix. 6th. A shifting conductor which is rigidly attached to and travels with the consuming electrode upon a longitudinal bared track on the periphery of the prime helix and which constitutes the electrical communication from the generator to the said electrode so as to shift the helix's magnetic field and to maintain a practically constant magnetic equipoise to the said electrode, in combination with a similarly attached and travelling suction core and a differential coil that surrounds said helix, and is so wound with a wire of higher resistance than the normal arc and so connected with line beyond it as to direct the overflow and to counteract the core suction in proportion to such overflow. 7th. The combination, with a stationary helix C, conveying current through bared track c on said helix exterior periphery and thence through a shifting conductor U T S to the electrode, the following members attached to said conductor to wit: a central armature or suction core, the positive electrode N and a coil d of higher resistance than that of the normal arc concentric with an exterior to the stationary helix and electrically connecting said conductor with line beyond the arc so as to divert the overflow, and so wound as to be repelled by said stationary helix in proportion to the overflow energy. 8th. The combination, with stationary helix C, having electrical connection above with the positive rheophore and below through bared track c in its exterior periphery and shifting conductor U T S with the positive electrode the following members attached to and travelling with said electrode to wit: a suction core interior to and attracted by said helix and a longitudinally guided differential coil d that surrounds said helix and has at or near its mid-length, slots b which receives the wheels U of said conductor.

No. 15,400. Improvements on Machines for Quarrying Slate. (*Perfectionnements aux machines à tirer l'ardoise.*)

Adam R. Reese, Phillipsburg, N. J., and John J. Detwiller, Easton, Penn., U. S., 31st August, 1882; for 5 years.

Claim.—1st. An open frame supported on adjustable legs and supporting a reciprocating saw carriage having end pieces d d which clasp the said frame, and its actuating mechanism provided with revolving saws or cutters. 2nd. The combination, with the open frame A, of the screw threaded legs C C, collars C1 C1, cross beams C2 C2, screw rods C3 C3 and set screws b b whereby said frame may be adjusted with the surface of the rock. 3rd. The combination, with the frame A and beams C2, of the screw threaded rod C3, whereby said frame and its supported parts are raised or lowered. 4th. The combination, with the adjustable frame A, of the sliding carriage D having end pieces d d and carrying saws E E, which have a forward and polary movement and are adapted to cut upward against the rock, whereby the machine shall be held more firmly to the rock and prevented from rising. 5th. The combination, with the frame A, of the sliding saw carriage D, carrying rotary saws E E and gear wheel E2 and shaft F1 provided with pinions F F and racks G G. 6th. The combination, with the frame A and sliding carriage D carrying saws E E, shaft E1 and gear wheel E2, of the revolving shaft H, carrying sliding gear wheel H1, whereby the saws are moved. 7th. The combination, with the frame A and saw carriage D provided with sprocket wheel R, of the revolving shaft P1 provided with sprocket wheel P2, guide pulley Q1 and endless chain Q, whereby said saw carriage is moved reciprocally backward and forward. 8th. The combination, with the frame A having attached racks G G, and sliding saw carriage D provided with shaft and pinions F F E, of the movable rack sections G1 G1. 9th. The combination, with the frame A and the stays T, of the angle plates T1 pivoted to said stays, and the wedges T2, whereby the machines may be adjusted and stayed in position.