

Claim.—1st. A steam boiler having tubes C extending through the furnace and front and back connections therefor, the construction of such connection in two sheets D1 D2 strongly stayed across. 2nd. In a steam boiler having tubes C and connections therefor made in separate sheets D1 D2, the malleable cast-ring M expanded in, and adapted to form an easily finished face for steam-tight contact with the cover N. 3rd. In combination with the plates D1 D2 and tubes C, the malleable casting M M1 M2 expanded into both the sheets and strongly braced across the space adapted to serve for the purposes specified.

No. 15,793. Improvement on Steam Boilers.
(*Perfectionnement des chaudières à vapeur.*)

The Babcock and Wilcox Company, New York, (assignee of George H. Babcock, Plainfield, N.J., Stephen Wilcox and Nathaniel W. Pratt, Brooklyn, N.Y.,) U.S., 17th November, 1882; for 15 years.

Claim.—1st. In a steam boiler, the barrel having a cylindrical horizontal portion A and a tapered end A', in combination with a furnace at a lower level, and with pipes C and connections B D or their equivalents. 2nd. The barrel A A', dome A' and stays A3. 3rd. The sectional water legs B in combination with the barrel A A1 and connections, for insuring an efficient circulation of water. 4th. The water bridge G and suitable connections for supplying dense water thereto, in combination with inclined pipes C communicating therewith and with connections B D to a suitable barrel A A1. 5th. The hanging-bridge H and timbrels *es* *es*, in combination with the barrel A A1, tubes C and connections B D. 6th. In a steam boiler having tubes C extending through the furnace, the blow-pipe J having nozzles J2 and a controlling cock J1 arranged to direct strong blasts of steam through the spaces between the pipes C when required.

No. 15,794. Improvements on Flax Threshing Machines. (*Perfectionnements aux machines à battre le lin.*)

Lenard W. Robards, Newton, Ill., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of primary and secondary crushing rollers having elastic surfaces, with the adjustable pressure bars M, endless apron E, stripper and shaker D, and the drawing mechanism. 2nd. The combination of two sets of rollers formed with yielding surfaces, pressure bars M, stripper D, apron E, guide-board *g*, riddle G provided with teeth *f*, conveyor I, fan H, elevator J, platform K and the driving mechanism operating to separate the seed from the straw while moving. 3rd. The shaker and stripper D formed of diamond-shaped plates or metal arranged and secured across each other, in combination with the elastic rollers and driving machinery. 4th. The combination and arrangement of the two sets of adjustable flexible rollers, perforated apron extending from one set of rollers to the other, the stripper and shaker D, guide-board fan H and riddle G provided with outwardly inclined teeth *f* and its outer end.

No. 15,795. Improvement in Hay Racks.
(*Perfectionnement des râteliers à foin.*)

Albert G. Barton, Constantine, and Jacob H. Hahn, Detroit, Mich., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of spread rails A, bolster plates D and the connecting rails B Bt. 2nd. The combination of the side rails F F1, end cross rails H G, supporting cross braces N N1 Nt, raisers L and cross rails H1 R P.

No. 15,796. Improvements on Car Brakes.
(*Perfectionnements aux freins des chars.*)

William B. Guernsey, Norwich, N. Y., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of a double acting draw-bar brake and a reversal governor actuated by brake-shoes having permissible arcs of movement around their respective wheel axles, and causing the draw-bar to apply the braking pressure by a reverse movement, whether the cars are moving forward or backward. 2nd. The combination of the double acting draw-bar 2, transmitting lever 1, governing lever 5, secondary lever 8, pawl or dog 28, brake beams 15 16, shoes 17 18, and balancing arms and rods 19 20 21 22 23 24. 3rd. The combination, with a draw-bar brake, of a governor having brake bars and shoes adapted to be carried around with wheels through limited arcs, for the purpose of determining the direction of motion of the draw-bar, by which the braking pressure shall be applied, and provided with one or more springs or weights tending to keep the said brake shoes on one, or the other side of their centre of permitted motion. 4th. The combination of the draw-bar 2, levers 1 and 5, connecting rods or chains 6 7, dog 28, and pivoted arm 26 connecting said dog with the brake beam attachment, whereby the movement of the dog 28, out of engagement with the lever 5 caused by reversal or direction of wheel friction, shall be accompanied by a pull on the said lever, moving it out of re-engagement with the dog on the same side. 5th. A double acting draw-bar brake, in combination with a reversal governor, actuated by friction on the tread of the wheels and determining, by reversal of the rotation of the wheels, the direction of strain on draw-bar, which shall apply the braking pressure. 6th. In a double acting draw-bar brake, the combination of a transmitting lever and a reversing device governed by a change in wheel rotation, whereby an inward thrust of the draw-bar when the car is moving forward, or a pull on the draw-bar when the car is moving backward, is caused to actuate said transmitting lever in one and the same direction. 7th. The combination, with the transmitting lever 8 and the governing lever 5, of a dog or pawl 28 and reversing device acting by a change in rotation of the wheels from either direction to the other, to throw said dog or pawl out of its normal position and restore it thereto. 8th. The combination of a main or transmitting lever, a governing lever, a pawl or dog for controlling the latter, and an actuating lever pivoted to the dog in line with the fulcrum of the main lever, so that the movement of the main lever may not affect the position of the pawl or dog relatively thereto. 9th. The combination, with a draw-bar brake of an escapement controlling and determining the action of the draw-bar on the brakes, when such escapement is operated automatically and by each change in direction of wheel rotation.

No. 15,797. Improvements in the Method of, and Apparatus for Extracting Gold and Silver from their Ores by the Combined Action of Electricity and Mercury. (*Perfectionnements dans la méthode et les appareils pour extraire l'or et l'argent de leurs minerais par l'action combinée de l'électricité et du mercure.*)

Richard Barker, London, Eng. 21st November, 1882; for 5 years

Claim.—1st. The method of extracting gold and silver from their ores by the combined action of electricity and mercury. 2nd. The construction, or use of apparatus for the purpose of extracting gold and silver from their ores. 3rd. The combination of the riffles with the various mechanical and electrical appliances. 4th. The construction or use of revolving electrodes (anodes.)

No. 15,798. Improvements in the Method of, and Machines for Mining Coal, (*Perfectionnements dans la méthode et les machines pour extraire le charbon.*)

John Du Bois, Du Bois, Penn., U.S., 21st November, 1882; for 5 years.

Claim.—1st. The method of undermining coal consisting in, first, boring a hole to the full depth, and subsequently extending a channel laterally from said hole by a succession of rectilinear cuts. 2nd. As an improvement in the art of undermining coal, first, sinking a hole to the depth to which it is to be undermined, and afterward extending a channel from said hole by a succession of straight cuts in lines parallel or substantially parallel therewith. 3rd. The improvement in the art of mining coal consisting in, first, boring a hole into the face of the coal, and subsequently extending a channel laterally therefrom by a succession of cuts in line therewith, the first cut being adjacent to the hole and the others progressing successively therefrom, as the channel is advanced. 4th. In a manual tool for mining coal, the combination of a guide, a reciprocating chisel and a ram for operating the chisel. 5th. The combination of a guide, a sliding chisel, a sliding ram and a handle for operating the ram extending backward therefrom. 6th. The combination, in a hand coal mining machine, of an adjustable guide, a sliding chisel adapted for projection beyond the guide, a weight at the rear of the chisel and a handle, or equivalent device for operating the chisel. 7th. The combination, in a hand mining machine, of a sliding chisel, a sliding ram, a device connecting said parts, but permitting a limited independent motion, and an operating handle. 8th. In combination with the sliding chisel and ram, the connecting device adapted to engage automatically. 9th. In a hand machine for mining coal, the combination of a sliding chisel, a sliding ram and a connecting device which permits the ram to recede from the chisel before acting to withdraw the same, whereby the chisel is jarred, or driven out of the coal. 10th. The combination of the guide, the chisel, the ram and its handle, and the spring hook or catch. 11th. The combination of the guide, the ram and the supporting wheel recessed within the ram. 12th. In combination with the reciprocating chisel, the folding clearer attached thereto. 13th. The combination of the guide, the ram, the chisel and readily detachable connection between the guide and chisel.

No. 15,799. Improvements in Carriage Springs. (*Perfectionnements dans les ressorts des voitures.*)

August J. L. Jantz, Berlin, Ont., 21st November, 1882; for 5 years.

Claim.—The combination of the close coiled wire springs B B and the body bearer A.

No. 15,800. Improvements on Boats and Methods for constructing the Same. (*Perfectionnements aux bateaux et aux modes de les construire.*)

Edward G. Durant, Racine, Wis., U. S., 21st November, 1882; for 5 years.

Claim.—1st. As a new article of manufacture, a wooden boat having its hull or skin composed of uncut unbroken sheets, pressed and set firmly in form, each sheet composed of two or more veneers cemented together with their grain diversified. 2nd. The boat consisting of two longitudinal halves, both joined to the keelson and each joined to a gunwale stripe, said halves being each composed of two or more veneers cemented permanently together and moulded without being cut or incised, into the required form. 3rd. As a new article, a half hull for the boat composed of two or more veneers glued or connected together, and bent and set so as to remain without being held in the proper form for use. 4th. The method of constructing hulls, or part of hulls, consisting in placing two or more wooden veneers with diversified grain one upon another, coating the adjacent surfaces with adhesive material and subjecting them, before the material sets or hardens, to the action of dies of the shape of the boat, whereby the individual veneers are bent, set and united one to another in such manner as to produce a strong and elastic body. 5th. The method of constructing boats, or sections of boats, of laminated material, consisting in coating the laminae with adhesive material, placing them one upon another and subjecting them to immediate and long continued pressure between shaping dies. 6th. The method of preventing the rupture of veneer sheets in pressing the same, in curved moulds, consisting in applying narrow strips of fibrous material thereto transversely of the grain. 7th. A boat having its hull composed of laminae of wood and narrow intermediate strips of fibrous material. 8th. The combination of the laminated hull having the rabbetted gunwale and the covering strip, or bead. 9th. The combination, with the hull having the smooth, interior removable self-sustaining grating. 10th. A veneer boat constructed as described.