sleeve or tube and passing through the lamp from top to bottom, substantially as herein shown and described. 2nd. The combination, with a lamp having a recess in the bottom, of a sleeve or tube on the wick-tube, and a wire extending from the said tube into the recess, in the bottom of the lamp, substantially as herein shown and described. 3rd. The combination, with a miner's lamp, of the tube D_1 extending from top to bottom, the wire D in the said tube, and the sleeve G secured to the upper end of the wire D, and adapted to slide on the wick-tube, substantially as herein shown and described. 4th. The combination, with a miner's lamp, of the tube D_1 extending from top to bottom, the wire D in the said tube, the sleeve G secured on the upper end of the wire and of the wick-tube B, having a flange B_1, provided with a notch a, for the tube D1, substantially as herein shown and described.

No. 18,466. Iron Kettle. (*Bouilloire.*)

Lewis R. Thomas, Biddeford, Me., U.S., 16th January, 1884; 5 years.

Claim.—The combination of the hereinbefore described kettle with a pot-hole of less diameter, the relation of the kettle flange to the stove-hole being such that the kettle is prevented from entering the hole, and at the same time provides a combustion chamber in the base of the kettle, above the surface of the stove, substantially as and for the purpose hereinbefore set forth.

No. 18,467. Apparatus for Warming Railway Cars and Buildings. (*Appareil de chauffage pour les chars de chemin de fer et les bâtiments.*)

John Q. C. Searle, Chicago, Ill., U.S., 16th January, 1884; 5 years.

Claim.—1st. The combination of fitting G, G_1, provided with diaphragms g, g_2 and orifices g_1, g_3, with the coil C and leading pipes D and E, and expansion chamber F_1 of a hot water warming apparatus for railway cars, when arranged and operating substantially as and for the purpose described. 2nd. The combination of fitting I, provided with a fixed diaphragm or tongue i, with the return pipes D_1 and E_1, and coil C of a hot water warming apparatus for railway cars, when arranged and operating substantially as and for the purpose described. 3rd. The combination of coil C, fittings G, G_1 and I, with the pipes D, D_1 and E, E_1, constituting the short and long circuits of a hot water warming apparatus for railway cars, when arranged and operating, substantially as and for the purpose described 4th. In hot water warming apparatus for railway cars, the combination of a coil as C, with the short circuit pipes as D, D_1, and the long circuit pipes as E, E_1, and an expansion chamber as F_1, whereby two separate systems of circulation are maintained by one heating coil, when arranged and operating in the manner substantially as described. 5th. The combination of fitting G_1 provided with a diaphragm g_2 and orifice g_3, with the coil C, expansion chamber F_1, pipes E, E_1 and the customary heat radiators under the car seats, to form a single circuit for the hot water in the warming apparatus of railway cars, when arranged and operating in the manner substantially as described. In combination with the heating and circulating devices of hot water warming apparatus of a railway coach, the feed pump H and stop cock h_5, when arranged and operating substantially as and for the purpose described.

No. 18,468. Gold and Silver Amalgamator.

(*Amalgamateur de l'or et de l'argent.*)

Thomas Walker, Philadelphia, Penn., U. S., 16th January, 1884; 5 years.

Claim.—1st. In the amalgamation of metals, the process of treating the ore in a continuously moving mass with the vapours of the mercury or amalgamating agent, continuously vaporizing the latter in the body of the retort containing the ore being treated, continuously re-condensing the residuary surplus of vapor within the said retort, by means of the incoming mass of cool ore, before the latter reaches the point where it is heated and continuously passing the mass of tailings and amalgam out of the apparatus, whereby the operation may be carried on without interruption, substantially as described. 2nd. In an amalgamator, the combination of the retort C, ore hopper D set above, and feeding to the upper end of the same, the said retort being plain and free from obstructions within, to permit a continuous flow of ore down and through the retort, the lower part of the latter being set in a heat chamber or space, the upper part projecting up through the top of said heat chamber so as to remain cool, whereby the descending ore at and near the top of the retort will be cool, to condense the mercurial vapors, and will be gradually heated as it descends, whereby the mercury may be vaporized below, substantially as described. 3rd. In an amalgamator, the process of continuously feeding ore to the retort, the retort being kept constantly full with a moving mass of ore and continuously discharging the same from the latter, whereby the ore is kept in constant motion and vaporizing mercury in said retort to saturate the mass of ore to amalgamate the precious metals contained in the same and condensing the residuary vapor above by the cooling effect of the incoming mass of fresh ore, and preventing the escape of any vapors with the mass being discharged, by condensing the same in a cooling chamber P connected with the retort, substantially as described. 4th. In an amalgamator, the ore hopper D and mercury supply basin F, provided with an automatic regulating mercury feed mechanism F_1, G, L, H, to supply the desired quantity of mercury to the ore moving down in the retort C, substantially as described. 5th. In an amalgamator, the ore hopper D and mercury supply basin F, provided with an automatic regulating mercury feed mechanism F_1, G, L, H, to supply the desired quantity of mercury to the ore moving down in the retort C and tube K, in said hopper D, to carry the mercury to the moving mass of ore, substantially as described. 6th. In combination with an amalgamator having a hopper D and retort C, the valve E having a curved face, as shown, of the form of a longitudinal part of the convex surface of a hollow cylinder to cut through and regulate the supply of ore from the hopper set within a cylindrical enlargement or shell, between the hopper D and retort C, so that the valves, when open, will turn into said enlargement so as to offer no obstruction to the moving mass of ore, substantially as described. 7th. In an amalgamator, the combination of the retort C and cooling chamber P, and located between the said retort and said chamber, the passageway or cylinder O_1 provided with the close fitting discharge screw S_1, to check the too rapid discharge of the heating ore into cooling chamber P, substantially as described. 8th. In an amalgamator, the combination of retort C and cooling chamber P, provided with stirring and delivering vanes T, T set at right angle, as shown, to drive the mass of ore to the outlet and, by separating and stirring the mass, bring all the particles into contact with the cooling walls, substantially as described.

No. 18,469. Iron Chain Ladder and Fire-Escape. (*Échelle et appareil de sauvetage en chaîne de fer.*)

Richard Christie, Truro, N. S., 16th January, 1884; 5 years.

Claim.—1st. In a fire-escape, the combination of the chains or cables A and the rounds B into a ladder to be used on buildings as a fire-escape, substantially as herein shown and described, and for the purpose set forth. 2nd. In a fire-escape, the combination, with the chain ladder A B, of the guide plate D, the car F, the rod or bar H connecting the plate D and the car, the pulley K and the rope or chain J, substantially as herein shown and described, and for the purpose set forth. 3rd. In a fire-escape, the combination, with the chain ladder A B, of the guide plate D, the car F, the rod or bar H connecting the plate D and the car, the pulley K, to rope or chain J and the winch or analogous device L, substantially as herein shown and described, and for the purpose set forth. 4th. In a fire-escape, the combination, with the chain ladder A B, of the guide plate D, the car F connected therewith, the pulley K, the rope or chain J, the hinged platform N on the car, and the chains O, substantially as herein shown and described, and for the purpose set forth. 5th. In a fire-escape, the combination, with the chain ladder A B, of the guide plate D, the car F connected therewith, the pulley K, the rope or chain J, the hinged platform N on the car, the chains O and the pivoted frame P, substantially as herein shown and described, and for the purpose set forth. 6th. In a fire-escape, the combination, with the chain ladder A B, of the winch C, the car F, the pulley K, the rope or chain J and the winch L, substantially as herein shown and described and for the purpose set forth.

No. 18,470. Electric Safety Switch and Cut-Out. (*Commutateur et interrupteur électriques de sûreté.*)

Charles G. Perkins, New York, N. Y., U. S., 19th January, 1884; 5 years.

Claim.—1st. In combination with controlling mechanism of an electric switch having four poles and automatic cut-out, the cylindrical box a, notch g, swivel pin d, spring blades b, b_1, b_2, b_3, screws c, c_1, c_2, c_3, clasping springs e, e and cut-out wires z, substantially as shown and described. 2nd. In combination with the circuit closer and breaker of an electric switch and automatic cut-out, the circular block m, flat spring n and projection n_1, in combination with the upright projection n_2, handle o and cover k, substantially as shown and described. 3rd. The combination, substantially as shown and described, the cylindrical box a, swivel pin d, spring blades b, b_1, b_2, b_3, screw c, c_1, c_2, c_3, clasping springs e, e_1, cut-out wire f, block h_1, aperture h, metallic plates i, i_1, i_2, i_3, circular block m, flat spring n, projection n_1, handle o and cover k, all forming a complete safety switch with four poles and automatic cut-out.

No. 18,471. Incandescent Electric Lamp for Electroliers. (*Lampe Electrique Incandescente pour les Electroliers.*)

Charles G. Perkins, New York, N. Y., U. S., 19th January, 1884; 5 years.

Claim.—1st. In an incandescent lamp, having mineral wool held within the neck of the globe. 2nd. In combination with an electric incandescent lamp, the mineral wood c, discs d d_1, plaster of Paris plug e, cylindrical metallic projection f, bevelled edges f_1, metallic screw g and the electrical conductors i i_1, the whole arranged within the neck b, substantially as shown and described. 3rd. In combination with an electric incandescent lamp, the mineral wool c, discs d d_1, plaster of Paris plug e, cylindrical metallic projection f, bevelled edge f_1, metallic screw g and the electrical conductors i i_1, the whole arranged within the neck b, substantially as shown and described. 4th. In combination with an electric incandescent lamp-holder, the case k, bevelled projections k_1, provided with a metallic sleeve k'' and bead m, forming a part of the circuit connections of the lamp, substantially as shown and described. 5th. In combination with an incandescent lamp, the disc n fastened to the glass base l by the metallic sleeve l'', straddle screw-nut n_1 fastened to said disc n, the flat metallic spring o, p, provided with depressions o', p', for holding the leading in wires into position and making a perfect electrical contact therewith, the upright p_1 integral with the flat spring p, and having a depression near its upper end corresponding and engaging with the bead m of the metallic sleeve k'' mounted on the case k, substantially as shown and described.

No. 18,472. Apparatus for Treating Incandescents. (*Appareil de traitement des Incandescents.*)

Charles G. Perkins, New York, N. Y., U. S., 19th January, 1884; 5 years.

Claim.—1st. In a device for producing hydro-carbon vapors from heavy oils, an oil reservoir A with an extending pipe B, in combination with a glass tube D having thereon the enlargement F and F_1, soft rubber pouches L, K and the pipe L, connected with a pipe leading into a chamber, wherein carbon filaments are placed for final treatment, substantially as shown and described. 2nd. In a device for producing hydro-carbon vapors, an oil reservoir provided with an