$s1$, $s1$, for embracing the ends of fulcrum block D and securely retaining it in such position until released, all to operate automatically, substantially as and for the purpose specified.

No. 18,495. Railroad Switch.

(*Aiguille de Railroute.*)

The Standard Switch Company, (Assignee of Edward J. Beard and Howard V. Hinckley,) Topeka, Ks., U.S., 21st January, 1884; 15 years.

Claim.—1st. In a railroad switch stand, the depending flange F combined and arranged with the shaft O H, crank K L M, connecting rod X united to the switch rail by means of the pin Y and the bridle bar Z, substantially as and for the purpose hereinbefore described, so that the line of travel of the axis of the connecting pin Y, when produced, shall bisect a horizontal line drawn from the axis of the shaft G H, the axis of the depending portion L of the crank, when set in the centre one of its three working positions. 2nd. The combination of the shaft G H with the crank K L M, and the stand casting E with its projecting flange I, subtantially as and for the purpose hereinbefore set forth. 3rd. The connecting rod X with the eye of its crank end slotted at A^1 and connected with the switch rail by means of the pin Y on the bridle bar Z, the end of the rod extending beyond the pin Y and passing under the head of the switch rail B_I, as and for the purpose hereinbefore set forth. 4th. The perforated lug U in combination with the hand section R of the lever R Q, the pivot V and the upturned bifurcations F of the shoulder section Q, substantially as and for the purpose hereinbefore set forth. 5th. The vertical pivot pin Y on the bridle bar Z, in combination with the connecting rod X and switch rail B_I, substantially as and for the purpose hereinbefore set forth. 6th. The combination of the switch stand E, shaft G H, crank K L M, connecting rod X and switch rail B_I, all constructed and arranged, substantially as and for the purpose hereinbefore set forth.

No. 18,496. Hydro-Carbon Generator and Process for Mixing Hydro-Carbon Vapour and Superheated Steam. (*Générateur à Hydrocarbure et Procédé pour mêler la vapeur d'hydrocarbure et la vapeur surchauffée.*)

Richard B. Avary, Washington, D.C., and Dewitt Stearns, Albuguerque, N. M., 21st January, 1884; 5 years.

Claim.—1st. The above described process of mixing hydro-carbon vapours with superheated steam and jets of air preparatory to ignition, and then burning said mixture in connection with a regenerator of heated solid matter, substantially as and for the purposes set forth. 2nd. The combination of a hydro-carbon vapour pipe or generator and a superheated steam pipe, for the purpose of mixing said vapour and steam preparatory to ignition, substantially as set forth. 3rd. In blast furnaces, two or more base channels, from the outer to the interior of the furnace walls, containing a net work of corrugated columns or fire-brick, to aid and assist in the combustion of the vapour, superheated steam and air either separate or in combination, substantially as set forth. 4th. The combination of the regenerator L with the pipe, for supplying the mixture of superheated steam and hydro-carbon vapour, substantially as set forth. 5th. In devices for generating hydro-carbon vapours and gas, the combination, with a superheated steam pipe, of an oil pipe arranged therein and delivering thereinto, said oil pipe provided with a series of perforated diaphragms, substantially as and for the purpose specified. 6th. In a device for generating hydro-carbon vapours and gas, the combination, with a superheated steam pipe, of an oil pipe arranged therein and delivering thereinto, said oil pipe having a series of perforated diaphragms of gradually decreasing mesh, substantially as and for the purpose specified. 7th. In a device for generating hydro-carbon vapours and gas, the combination of a superheated steam pipe having one or more perforated diaphragms, and an oil pipe delivering into the superheated steam pipe, said oil pipe also provided with one or more perforated diaphragms, substantially as and for the purposes specified. 8th. In a device for generating hydro-carbon vapours and gas, the combination, with a superheated steam pipe having a series of perforated diaphragms of gradually decreasing mesh, of an oil pipe arranged therein and delivering thereinto, said oil pipe also having a series of perforated diaphragms of gradually decreasing mesh, substantially as and for the purposes specified. 9th. In a device for generating hydro-carbon vapours and gas, the combination, with a superheated steam pipe having one or more perforated diaphragms, of an oil pipe arranged within, and delivering into the superheated steam pipe, substantially as and for the purposes specified. 10th. In a device for generating hydro-carbon vapours and gas, the combination, with a superheated steam pipe, of an oil pipe arranged within, and delivering into the superheated steam pipe, and a branch pipe, which connects the superheated steam pipe with the oil pipe, substantially as and for the purposes specified. 11th. The combination, with a burner for hydro-carbon vapours and gas, of an air blast nozzle having a series of perforations or a gauze diaphragm, which divides the air blast into a series of fine jets, substantially as and for the purposes specified.

No. 18,497. Explosive Compound.

(*Composition Explosible.*)

The Rend Rock Powder Company, New Jersey, (Assignee of Silas R. Divine, Lock Sheldrake, N. Y.,) U. S., 21st January, 1884; 5 years.

Claim.—The herein described explosive compound composed of a solid ingredient consisting of chlorate of potash or its equivalent, and a liquid ingredient consisting of a fluid mixture of "dead-oil" or nitro-benzole, or their stated equivalents, or both, and nitro-glycerine, substantially in the proportions set forth, the said solid and liquid ingredients being mechanically united in the proportions named, as and for the purpose specified.

No. 18,498. Telephone Transmitter.

(*Transmetteur de Téléphone.*)

Seth E. Beedy and John J. Linscott, Farmington, Me., U. S., 21st January, 1884; 5 years.

Claim.—1st. The combination, with the wooden or metallic diaphragm, of the two carbons, one mounted upon the central part thereof, and another supported by an arm G attached to the box, said arm having a bent end d, and a set screw H bearing against the end d, whereby the said carbon may be adjusted towards the diaphragm, substantially as described. 2nd. The combination, with the hinged door carrying the mouth piece, of the separate diaphragm covering the whole face of the box, the carbon mounted thereon, the second carbon mounted on a spring arm, and a set screw bearing against the bent end of said arm, substantially as and for the purpose set forth.

No. 18,499. Car Axle Lubricator.

(*Boîte à Graisse de Char.*)

Thomas R. Gordon, Brooklyn, N. Y., (Assignee of Lyman D. Howard and Albert Chance, Philadelphia, Penn.,) U.S., 21st January, 1884; 5 years.

Claim.—In a lubricator for car axles, the combination of an open frame composed of end pieces united by traverses, and provided with depending lugs, a coiled spring having its upper coil attached to said lugs, and a wiper roller journalled in said lugs, substantiallv as and for the purpose set forth.

No. 18,500. Sewing Machine.

(*Machine à Coudre.*)

The Williams Manufacturing Company, (Assignee of Charles W. Davis,) Montreal, Que., 21st January, 1884; 5 years.

Claim.—1st. In a sewing machine, the combination of the shuttle lever and push rod, and the pivoted lever K, operated independently from the driving shaft and connected to the push rod. 2nd. The combination of the driving shaft and the pendent lever G, with the incline H and sliding bar O. 3rd. The combination of the pendent lever, the incline H, having the pin, the bar O, the arm P and the screw Q. 4th. The combination of the pendent lever G, having the friction roller, the incline H and the lever K, having roller K, with peripheral grooves. 5th. The combination, with the lever K and with the pendent lever and connecting devices for giving said lever a horizontal oscillating movement, of the slotted link M, the set screw and the push bolt F. 6th. The combination, in a sewing machine, of the vertical reciprocating lever G, operated from the driving shaft and provided at its lower end, with roller g^2, working on inclined plane H, with the horizontal vibrating lever K, mounted on the same axis as shuttle lever D, and provided with grooved roller k, impinging on vertical lever G, at back end, and attached to adjustable link M, connecting with feed devices at front end, said lever K being controlled by roller support L and acted upon by push spring N, the whole being capable of adjustment to regulate length of stitch by means of shaft O, operated through arm P, by regulating screw Q, substantially as described. 7th. The self-threading device R R_1 R_2, formed of one piece of metal, of substantially the shape shewn, in combination with the take-up lever S.

No. 18,501. Smoke Consumer for Locomotives, and Stationary Boilers and Engines. (*Appareil Fumivore pour les Locomotives, et les Chaudières et machines fixes.*)

Henry A. Spear, Charlestown, Albion P. Wight, jr., North Adams, and Frank Brownell, Boston, Mass., U. S., 21st January, 1884; 5 years.

Claim.—1st. In combination with a boiler, the convex or bell front A, its damper B and means for operating the same, and the pipe D connecting the chamber a_1, formed by the front, with the fire-box or ash-pan, as and for the purpose described. 2nd. In combination with the bell front A and with its damper B, and rod C for operating it, the fan blowers E and F, and their pipes G_1 and G D, leading to the ash pan, all as and for the purpose set forth. 3rd. In combination with the blowers E, F, pipes G_1 and G D, and the ash pan, the slide bottom of such pan arranged to be operated by a system of levers L, L, as set forth. 4th. The described method of and means for introducing a jet of steam into the return pipe to mingle with the smoke and superheat it, for the purposes described, said means consisting of a pipe L leading from the boiler to a pipe D, which leads from the front of the boiler to the ash pan or fire pot. 5th. The exhaust pipe C, as described, extending from the base of the exhaust 7 to, or within the smoke stack, for the purpose set forth. 6th. The perforated air pipe 9 around the inside of the door, through which cool air is supplied to the fire, and through which pipe air is forced, for the purpose set forth, combined with a blower pipe G and a steam actuated blower. 7th. In a locomotive, stationary engine or boiler, the grate 13 made as described, that is, inclining at both of its sides away from the sides of the fire box, and admitting the air through such sides, for the purpose set forth. 8th. The double arch in the fire box, consisting of the two overlapping arches or parts 15, 16, placed at the back and front end of the box, and with a space or passage between them, and with or without the hollow stay bolts in this space, all as set forth.

No. 18,502. Skate. (*Patin.*)

George R. Marble, Boston, (Assignee of John A. Dodge, Somerville,) Mass., U. S., 21st January, 1884; 5 years.

Claim.—1st. In combination with a skate runner having a heel plate B, heel clamp C and a screw-threaded bar g, the screw nut s connected to said heel clamp for operation, substantially as described. 2nd. In combination with a skate runner, side clamping jaws F and G, arranged one in advance of the other, to slide across the skate runner, and each provided with a pin y to engage with circular cam slots w, x,