

main and a side rail section, the ends of said sections bevelled to form an oblique joint with the rails, a case to hold said plate having grooves and flanges, friction rollers between said plate and case, and a switch mechanism, substantially as described. 2nd. The tongued plate, provided with the main and side rail sections and friction rollers, in combination with the case to hold the said plate, and provided with the flanges and grooves, substantially as and for the purpose described. 3rd. The tongued plate, provided with the rail sections and friction rollers, in combination with the grooved case provided with corrugations, substantially as and for the purpose described.

No. 33,556. Safety Vault and like Structures. (*Coffre-fort et autres choses semblables.*)

George S. Clark, Philadelphia, Penn., U. S., 4th February, 1890: 5 years.

Claim.—1st. The combination of a vault or analogous structure, having a raised sill or obstruction, and a depression beyond the same, with a movable floor or filling piece covering said depression fitting to said sill or obstruction, substantially as specified. 2nd. The combination of a vault or analogous structure, having a raised sill or obstruction, and a sunken door pit beyond the same, with a movable floor or filling piece covering said pit and fitting snugly to the sill or obstruction and to the open door, substantially as specified. 3rd. The combination of a vault or analogous structure, having inner and outer doorways, with raised sills or obstructions, and one or more intervening vestibules, with a movable floor or filling piece extending from the inner to the outer sill or obstruction, whereby the floor of the vestibule is flush with that of the vault, substantially as specified. 4th. The combination of a vault or analogous structure, having inner and outer doorways with raised sills or obstructions, one or more intervening vestibules, and a door pit beyond the outer sill or obstruction with movable floors or filling pieces applied to said door pit and vestibule or vestibules forming a passage way flush with the tops of the sills or obstructions, substantially as specified.

No. 33,557. Wind-Mill. (*Moulin à vent.*)

Roderick A. McLennan, Walkerton, Ont., 4th February, 1890; 5 years.

Claim.—In a wind-mill, the combination, with the main shaft A, the bearing B for the wind wheel shaft and the wind vane F, of the hinge D, the stop E therefor, the compound hinge L, M and the stop collars I and K, all formed and arranged to operate substantially as shown and described.

No. 33,558. Apparatus for Extinguishing Fire. (*Appareil-extincteur d'incendie.*)

George Dickson, Toronto, and David A. Jones, Beeton, Ont., 4th February, 1890; 5 years.

Claim.—1st. The combination, with a pipe or vessel through which water flows under pressure, of a receptacle containing liquified anhydrous carbon, dioxide or nitrogen, and so connected to the water pipe or vessel that the flowing water may be impregnated with the fire-extinguishing gas, as specified. 2nd. A strong receptacle, containing liquified anhydrous carbon di-oxide or nitrogen, in combination with a strong receptacle containing water and suitably connected with the anhydrous carbon di-oxide receptacle, the said water receptacle being provided with means by which the gas impregnated water may be discharged as required. 3rd. A strong receptacle A, containing liquified anhydrous carbon di-oxide or nitrogen, a water receptacle B connected to the receptacle A by a pipe C, which extends from the receptacle A to a point at or near the bottom of the receptacle B, in combination with a suitable discharging pipe provided with a stop-cock.

No. 33,559. Keeper for the Loose Ends of Straps. (*Garde pour les bouts libres des courroies.*)

Henry Sherman, Luotter, Kan., U.S., 4th February, 1890; 5 years.

Claim.—The herein described keeper for the free ends of straps, comprising the base plate a provided at its sides with laterally-extending perforated ears B, side plates a' and a top plate a'', said base and top plates being provided with openings or recesses, substantially as and for the purpose described.

No. 33,560. Sash Fastener. (*Arrête-croisée.*)

Curtis H. Hodgkins, Northeast Harbor, Me., U. S., 4th February, 1890; 5 years.

Claim.—1st. In a sash holder, the combination of the non-rotatable rod B depending vertically from the lintel of a window, and provided with the notches b and the catches E, each composed of the casing E' attached to the top rail of one of the sashes, and provided with the opening e' for the rod B, a transverse opening e'' and the lifting handle a', the pivoted lever E' having the detent or pawl a, and the coiled spring c, substantially as specified. 2nd. In a sash holder, the combination of the notched rod depending from the lintel, the casing E having a spring catch attached and provided with the integral arm E', and the sleeve G secured to the upper rail of one of the sashes to receive the arm E', substantially as and for the purpose specified.

No. 33,561. Water Heater. (*Calorifère à eau.*)

George R. Prowse, Montreal, Que., 4th February, 1890; 5 years.

Claim.—1st. The combination, in a water heater, of a casing g, having tubes b, m and n, also having diaphragm k and inlets and outlets, with the combustion chamber and revertible or down-take flue

of a furnace, the whole substantially as described. 2nd. The combination, in a water heater, of a casing divided into two parts, as described, and arranged to form the fire-bridge wall of a furnace having a combustion chamber and revertible flue, and said casing being provided with tubes extending in the combustion chamber and revertible flue of the furnace, and with inner tubes by which the water in the back of the fire bridge wall casing is enabled to pass from the back to the front thereof, with a furnace and said combustion chamber and revertible flue, the whole substantially as described. 3rd. The combination, in a water heater, of the casing g, having diaphragm k and tubes l and n, by which the water is enabled to pass from the part i of the casing g into the tubes l, and return by them to the front part of the casing g, the whole substantially as described.

No. 33,562. Method of and Apparatus for Burning Coal and other Fuel in Furnaces. (*Mode de combustion du charbon et autre combustible et appareil pour cet objet.*)

Edward Fales, Philadelphia, Penn., U.S. 4th February, 1890; 5 years.

Claim.—1st. The method, herein described, for burning fuel in furnaces for steam boilers and other purposes, which consists in storing and feeding the fuel in a vertical chamber, having grated side openings supporting from lateral displacement the burning fuel, and the fuel to be burned on a bed or bank of ashes in the lower portion of the furnace igniting the fuel lying between the grated side openings and drawing off the products of combustion at right angles to the vertical body of the furnace, as set forth. 2nd. A grateless furnace for steam boilers and other purposes, consisting of a vertical chamber in which the fuel being burned is supported by a bed of ashes in the lower portion of a vertical chamber, as set forth. 3rd. A grateless furnace for steam boilers and other purposes, consisting of a vertical chamber in which the fuel being burned and the fuel to be burned is supported by a bed of ashes in the lower portion of the vertical chamber. 4th. A grateless furnace for steam boilers and other purposes, consisting of a vertical chamber, in which the fuel is fed by gravity, the air to support combustion being at right angles to the travel of the fuel through an opening in the side of a vertical chamber, as set forth. 5th. In a gravity feeding furnace for steam boilers and other purposes, the main body A provided with grated openings in front and rear sides thereof, one of said openings communicating with the space below the boilers, and the other being provided with an adjustable door for regulating the amount of air admitted to the fire. 6th. In a gravity feeding furnace, the main body A provided with the openings in the front and rear sides thereof, the front opening being larger than the rear opening, as and for the purpose set forth. 7th. In a furnace, of the character described, the grated openings in the vertical walls thereof, in combination with the spaces A outside of the grated openings, whereby the ashes falling through the side bars will pass down into the ash chamber.

No. 33,563. Compound for the Scrubbing Surfaces of Wash Boards, etc. (*Composition pour les surfaces de lavage des planches à savonner, etc.*)

James R. Cluxton, London, Ohio, U.S., 4th February, 1890; 5 years.

Claim.—The herein described compound, consisting of powdered fire-clay, spanish white, litharge, powdered or granulated wood, gum shellac, pitch and a solvent oil, mixed and incorporated, substantially in the manner and for the purpose set forth.

No. 33,564. Position and Range Finder.

(*Télé-mètre.*)

Bradley A. Fiske, New York, N.Y., U.S., 4th February, 1890; 5 years.

Claim.—1st. The apparatus for finding the range and position of a distant object, operating and arranged substantially as hereinbefore described, and as follows, to wit: first, by directing two alidade arms K, L, moving over arcs G, H, of conducting material, in line with said object; second, placing two pointers or arms K' L', moving over arcs G', H', of conducting material, located at a distant station, and similarly disposed with reference to a base line at the same angle as said arms K, L, and thereby establishing an electrical balance in each of two circuits, one circuit including the arcs G, G', arms K, K', a battery and an indicating apparatus, the other circuit including the arcs H, H', arms L, L', a battery and an indicating apparatus; third, noting the point of intersection of the lines of direction of the arms K', L'. 2nd. The apparatus for finding the range and position of a distant object with reference to a predetermined point, operated and arranged substantially as hereinbefore described, and as follows, to wit: first, by directing two alidade arms K, L, moving over arcs G, H, of conducting material, in line with said object; second, placing two pointers or arms K' L', moving over arcs G', H', of conducting material, located at a distant station and similarly disposed with reference to a base line at the same angle as said arms K, L, and thereby establishing an electrical balance in each of two circuits, one circuit including the arcs G, G', arms K, K', a battery and an indicating apparatus, the other circuit including the arcs H, H', arms L, L', a battery and an indicating apparatus; third, noting the point of intersection of the lines of direction of the arms K', L' on a chart a, b, c, d, representing on a reduced scale; fourth, determining on said chart the distance and bearing of said point of intersection from said predetermined point. 3rd. The apparatus for finding the range and position of a distant object with reference to a predetermined point, operated and arranged substantially as hereinbefore described, and as follows, to wit: first, by directing two alidade arms K, L, moving over arcs G, H, of conducting material, in line with said ob-