

conducting steam from said tank, substantially as shown and described. 2nd. This combination of the boiler B, having an internal fire pot or furnace A, draining pipe A¹ and the circulation tubes C¹ and D¹, placed substantially as shown, with the tank U having the removable top V, with its opening C² and the cap G, branch pipe P¹, draining pipe U¹ and gauge cocks J¹, substantially as shown and described and for the purpose set forth.

No. 29,625. Shutter Bower.

(*Fermeture de persienne.*)

Henry W. Steiner, Easton, Penn., U. S., 1st August, 1888; 5 years.

Claim.—1st. A combined shutter bower and fastener, comprising a bar capable of being attached to one of a pair of shutters, and consisting of a single piece of wire bent in the middle to form a loop and twisted to form depressions or notches along its entire length, a cap adapted to fit over the end of the bar and prevent the wire from becoming untwisted, and a flexible wire catch designed to be attached to the other shutter and to receive the bar, substantially as described. 2nd. A shutter bower, comprising a bar adapted to be attached to one of a pair of shutters, and a catch adapted to be attached to the other shutter and engaging the bar, the said catch consisting of a flexible wire bent into a U-shape, and having its ends secured to the shutter, as set forth.

No. 29,626. Car Coupling. (*Attelage de chars.*)

Catherino A. Bond, Seneca, N. Y., U. S., 1st August, 1888; 5 years.

Claim.—The improved car coupling, comprising the drawhead having the longitudinal slots C, C¹ in its upper and lower sides, and the boss C² on its upper side at the rear end of the slot C, the said boss having its front side bevelled downwardly and outwardly, the lever arm having its rear end pivoted in said boss and similarly bevelled, and having its front end bifurcated and provided with the slots F¹ in the arms of the bifurcations, the coupling pin arranged in the slots C, C¹, and having its upper end projecting through the bifurcation of the lever arm, the pivot pin F² inserted through the slots F¹, and the coupling pin, and the arm G¹ journaled in the boss C² and having the crank arm G² secured to the lever arm in advance of its pivot, substantially as specified.

No. 29,627. Vent Plug for Steam Radiators.

(*Bouchon à orifice pour distributeurs de vapeur.*)

Edward P. Waggoner, Syracuse, N. Y., U. S., 1st August, 1888; 5 years.

Claim.—1st. The herein described vent plug for steam radiators, consisting of the combination of an automatic and a positive vent, arranged and located on the same stem, substantially as and for the purpose set forth. 2nd. The combination of the automatic vent plug A, with the positive vent plug B, substantially as and for the purpose set forth.

No. 29,628. Dumping Car. (*Char à bascule.*)

Benjamin F. Bean, Pawling, Penn., U. S., 1st August, 1888; 5 years.

Claim.—1st. In a dumping car, having a falling door or doors at the bottom, a tube or passage, substantially as described, adapted to permit the application of a rod or weight to drive the doors downward. 2nd. In a dumping car, the combination of the body, a hinged falling door at its bottom, and a vertical tube or passage extending from the top of the car downward and terminating directly over the door. 3rd. In a dumping car, the body, the hinged falling door at its bottom, the vertical tube or passage terminating immediately above the door, and the cap or cover for closing said passage, all combined as described.

No. 29,629. Steam Road Vehicle.

(*Voiture à vapeur routière.*)

James H. Iullard, Springfield, Mass., U. S., 1st August, 1888; 5 years.

Claim.—1st. A steam-propelled road vehicle, consisting of a frame substantially as described, an axle having suitable bearings in said frame, and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a condenser, substantially as described, located in one or both of said tanks, connected with and receiving the exhaust steam from the engine and from said air pump, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, and a series of fuel-injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 2nd. A steam-propelled road vehicle, consisting of a frame, substantially as described, an axle having suitable bearings in said frame and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, and a series of fuel

injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 3rd. In a steam-propelled road vehicle, a boiler and a furnace, substantially as described, a steam engine connected with said boiler and with the axle of the vehicle, a steam-actuated air pump connected by a suitable steam pipe with said boiler, a valve 73 connected in said air pump, steam pipe to automatically close the steam passage in the latter, one or more water tanks, a suitable feed-pump, substantially as described, connected with one or both of said tanks and with said boiler, a liquid-fuel tank supported near said furnace having therein one or more perforated diaphragms 42, and connected with said air pump by a suitable pipe, whereby air is forced into said fuel tank, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 5th. In a steam road vehicle, a boiler and a furnace, substantially as described, a steam engine connected with said boiler and with the axle of the vehicle, an air pump connected by a suitable steam pipe with said boiler, a valve 73 connected in said air pump, steam pipe to automatically close and open the steam passage in the latter, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, whereby air is forced into said fuel tank, a valve, substantially as described, connected in the pipe between the air pump and the fuel tank, and actuated by the air pressure in said tank, having its end entering transversely the passage in the steam pipe at the air pump to restrict said passage, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel into said furnace. 6th. A steam-propelled road vehicle, consisting of a frame, substantially as described, an axle having suitable bearings in said frame, and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, a fuel-lighting lamp, substantially as described, supplying a flame within said furnace, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 7th. In combination, the water tank 16, the boiler, the feed pump 49 connected with said tank and with the feed pipe leading to said boiler, the valve 55 connected in said feed pipe, the float 57 connected with said valve, the case 58 enclosing said float, a steam pipe connecting said case with the boiler, a pass-pipe 61 connected between the suction pipe of said pump and tank, and a spring-actuated valve 62 located in said pass-pipe, substantially as set forth. 8th. The steering bar 10 having pins 91 therein, the support 81, the spring-actuated eye-bolt 87 having a central pivotal connection with said bar, the plate 86 secured to said support under said bar and having the sockets 2, 2¹ in its edge, the yoke 83 having curved slots therein in which said pins 91 engage, the steering post 82 having one end connected to said yoke, a tubular support 93 through which said post passes, a handle-bar connected by a universal joint to said post, the wheels 5 hung on the reciprocally rotating hollow posts 6, the latter having the arms 8 thereon, and the rods 9 connecting said arms with said steering bar, combined and operating substantially as set forth. 9th. In combination, a furnace, substantially as described, the boiler 26 consisting of the hollow head 27 and a series of tubes connected by one end to said head, the furnace 11 enclosing said boiler, the liquid-fuel tank 13 located under the latter having a series of injector and atomizing tubes connected therewith to inject the liquid fuel into said furnace, the bed 30 interposed between the boiler and the fuel tank, a road vehicle, substantially as described, a steam engine attached to said boiler and connected with the axle of the said vehicle, an air pump to force air into said fuel tank, suitable water tanks and a feed pump to force water from the latter into said boiler.

No. 29,630. Brake Shoe. (*Sabot de frein.*)

George Sanderson, (assignee of Samuel Hatt), Montreal, Que., 2nd August, 1888; 5 years.

Claim.—1st. As an improved article of manufacture, a brake-shoe having a marginal portion of chilled or hard metal, and a central portion of soft metal, substantially as described. 2nd. The combination in a brake-shoe of the hard marginal portion E, which does not extend quite to the face of the shoe, with a central soft portion F, the whole substantially as described for the purposes set forth.

No. 29,631. Brake-Shoe. (*Sabot de frein.*)

George Sanderson, (assignee of Samuel Hatt), Montreal, Que., 2nd August, 1888; 5 years.

Claim.—1st. As an improved article of manufacture, a brake-shoe consisting of a body of ordinary or soft cast iron provided with a groove, and a separate core of chilled iron cast within said groove within said body, the whole substantially as described. 2nd. The combination of the body A, cast with a dovetailed groove E, with a core F cast within said groove F, the whole substantially as described.