No. 36,606. Nut Lock. (*Arrête-écrou.*)

Augustus Gross, Sydney, New South Wales, Australia, 14th May, 1891; 5 years.

Claim.—The device for locking nuts on bolts, consisting of a key formed with an enlarged or bulbous end, in combination, with a corresponding longitudinal groove or key-way formed in the bolt, the key being made of sufficient length to allow it to be turned over the nut, and thereby secure and retain the nut in position, as herein specified.

No. 36,607. Fire Box for Heating Boilers.

(Boîte à feu pour chaudierès de calorifere.)

The Hogan Engineering Company, New York, (assignees of J. J. Hogan, Brooklyn), both in State of New York, U.S.A., 14th May, 1891; 5 years.

Claim.—1st. In a boiler having a number of hollow sections superposed one upon another, an annular hollow ring or section around the fire pot provided with an external water inlet, an annular vertical partition opposed to such inlet and forming inner and outer water channels within the ring or section, an aperture in the partition for the passage of the water to the inner channel, and one or more apertures conducting the water upward from such inner channel to the water sections above, as and for the purpose set forth. 2nd. The combination, in a boiler, of a fire box section consisting in a hollow water ring with external inlet, a dome section consisting in a hollow water ring and central chamber U, connected by radial water tubes T, and nozzles *l*, and *m*, upon the respective sections, connecting the same together, as and for the purpose set forth. 3rd. The combination, in a boiler, of a fire box section consisting in a hollow water ring provided with the internal partition d^1, with notch d^8, therein, and with the water inlet d^4, the dome section consisting in the hollow water ring with the internal partition e^1, and having the central chamber U, connected with the ring by sloping water tubes T, and nozzles *l*, and *m*, for connecting the two sections together, substantially as herein set forth. 4th. A fire pot having a sectional lining consisting in the series of fire bricks and provided with apertures extending outward through the wall of the fire pot behind the several bricks of the series, to permit their removal and insertion, substantially as herein set forth. 5th. A fire pot consisting in upper and lower plates connected by vertical bars with intermediate spaces extending to the outside of the fire pot and covers applied to the spaces to retain the firebricks, within the pot, substantially as herein set forth. 6th. A fire pot having apertures extended outward through the same for the removal of the fire brick, and covers formed with outer plates *f*, and divided inner plates *h*, connected with the outer plates by ribs *i*, as and for the purpose set forth.

No. 36,608. Compound Boiler.

(*Chaudière composée.*)

The Hogan Engineering Company, New York, assignees of John J. Hogan, Brooklyn, both in State of New York, U.S.A., 14th May, 1891; 5 years.

Claim.—1st. A compound boiler, consisting in a fire box section and a reservoir section, a water connection between the upper parts of such sections, a water connection between the lower parts of the sections, a water outlet from the reservoir section, and a water inlet to the fire box section, the whole arranged and operated substantially as herein set forth. 2nd. A compound boiler, consisting in a fire box section and a reservoir section, a pipe connecting the centres of the two sections, a water connection between the lower parts of the two sections, a water outlet from the reservoir, and a water inlet o the fire box section, the whole arranged and operated substantially as herein set forth. 3rd. In a boiler, the combination, with a perforated crown plate *a*, of the water ring *c*, and reservoir *d*, connected therewith by central pipe *b*, water connections between the lower parts of the ring and of the crown plate, the casing *f*, having smoke outlet *i*, and the ring having the smoke passage c^1, extending from the inner pocket *e*, to the smoke space *g*, between the ring and the casing, substantially as set forth. 4th. In a boiler, the combination, with the perforated crown plate *a*, of the tapered water ring *c*, having smoke passage c^1, and reservoir *d*, united with the centre of the crown plate by pipe *b*, water connections between the lower parts of the ring and the crown plate, and the casing *f*, having the smoke outlet *i*, and forming the smoke space *g*, about the ring, and the combustion chamber *h* between the ring and the crown plate, the whole arranged and operated, substantially as set forth. 5th. In a boiler, the combination, with the perforated crown plate *a*, of the tapered water ring c and reservoir *d*, connected with the crown plate by central pipe *b*, the water ring being provided with the pocket *e*, and passage c^1, the casing *f*, having smoke outlet *i*, and forming the smoke space *g*, and combustion chamber *h*, pipes connecting the lower parts of the ring with the crown plate, and the annular plate *o* closing the bottom of the space *g*, the whole arranged and operated, substantially as herein set forth. 6th. In a boiler, the combination, with the perforated crown plate *a*, having water leg a^1, of the tapered water ring *c* and reservoir *d*, connected with the crown plate by central pipe *b*, projected upward into the reservoir, as described, the casing *f*, having smoke outlet *i*, and forming the smoke space *g* and combustion chamber *h*, and the pipes *k*, extended outside the casing and connecting the lower parts of the water ring and the water leg, and the ring having the pocket *e* and the smoke passage c^1, extending from the pocket *e* to the smoke space *g* within the casing, opposite to the smoke outlet *i*, the whole arranged and operated, substantially as herein set forth.

No. 36,609. Apparatus for Promoting Circulation in Boilers. (*Appareil pour aider la circulation dans les chaudières.*)

The Hogan Engineering Company, New York, assignees of John J. Hogan, Brooklyn, N.Y., U.S.A., 14th May, 1891; 5 years.

Claim.—1st. In a boiler, the combination, with a central water passage extended vertically within the boiler for the upward movement of the fluid, of one or more water conductors exterior to the water space of the boiler and connected therewith at its upper and lower parts and exposed to a lower temperature than the contents of such water space, substantially as herein set forth. 2nd. In a boiler comprising a series of water sections separated by intermediate smoke chambers, the combination, with a water passage extending vertically within the boiler through the centres of the water sections, of one or more water conductors exterior to the water space of the boiler, and connected therewith at its upper and lower parts, and also to the intermediate water sections, substantially as herein set forth. 3rd. In a boiler, the combination, with one or more water passages extending vertically within the boiler, of one or more water conductors exterior to the water space of the boiler, connections at intervals between the external conductors and the water space of the boiler, and deflectors projected downward in such connections to prevent the upward movement of fluid from the water space to the conductors, substantially as herein set forth. 4th. In a cast iron sectional boiler having two or more horizontal sections connected with intermediate combustion chambers and having vertical gas or smoke passages extending through the sections, the combination, with the several sections, of water circulating passages connected together at the margin of the sections, and central nozzles formed upon the sections and adapted when pressed together to form a tight joint and an uninterrupted vertical channel for the water in the centre of the boiler, substantially as herein set forth. 5th. In a boiler comprising a series of water sections separated by intermediate smoke chambers, the combination, with a water passage extending vertically within the boiler through the centres of the water sections, of one or more water conductors exterior to the water space of the boiler, connections or water passages between the external conductors and the water sections, and deflectors projected downward in such connections to prevent the upward movement of the fluid from the water space to the conductors, substantially as herein set forth. 6th. In a cast iron boiler, the combination of a series of horizontal water sections having one or more vertical passages connecting the same for the internal upward movement of the fluid, and each section being provided with exterior lugs connected by thimbles, and the water connection between the section and the interior of such lug leading downwardly, as and for the purpose set forth. 7th. In a cast iron boiler, the combination, with a series of horizontal water sections having apertures through them for the passage of smoke, and one or more vertical water passages connecting the said sections for the upward movement of the fluid, of a hollow ring projected downward from the margin of each section, and water connections between such depending rings for the downward movement of the fluid, as and for the purpose set forth. 8th. In a cast iron boiler, the combination of a series of water sections perforated with vertical smoke apertures, and provided at the centre with nozzles to form a vertical water passage, the sections having external hollow lugs connected in a series by means of thimbles, and being provided with guards *w* within the margins of the sections adjacent to such lugs, to prevent the direct passage of the fluid to the thimbles, substantially as herein set forth. 9th. The combination, in a boiler, of a series of water sections having domed or sloping tops, with water connections forming a continuous passage through the centres of the sections, and vertical water conductors exterior to the sections with passages leading downwardly from each section into such exterior conductors, substantially as herein set forth. 10th. A vertical boiler having transverse water channels with intermediate smoke spaces, a water jacket exterior to and connected with such transverse channels, and two or more vertical water connections independent of the water jacket to provide for an upward and downward circulation within the boiler and outside of such water jacket, substantially as herein set forth. 11th. A vertical boiler having hollow horizontal water sections separated by smoke spaces and perforated for the passage of the smoke, a water jacket connected with the edge of each section and inclosing the same and the smoke space, a vertical water connection between the sections inside the water jacket, and one or more vertical water connections between the sections external to the same, as and for the purpose set forth.

No. 36,610. Mud-Guard for Vehicle Wheels.

(*Garde-crotte pour roues de voiture.*)

Alfred Bouillou, Rimouski, Quebec, Canada, 14th May, 1891; 5 years.

Resumé.—1o. Dans un garde boue pour voiture de toute sorte, une garde semie cerculaire en forme de u renversé recouvrant complétement la gente de la partie supérieure d'une roue et retenue en position au moyen de tiges fixées à l'essieu tel que decrit et pour les fins mentionnées. 2o. Un garde boue composé du demi cercle A, en forme de u renversé et fixé à l'essieu au moyen des tiges B, B, bifurgées et de la plaque E, et des écrous F, telqu' indiqués.

No. 36,611. Tubular Lantern.

(*Lanterne tubulaire.*)

William Henry Rodden, Toronto, Ontario, Canada, 14th May, 1891; 5 years.

Claim.—1st. In a tubular lantern, the circular sweep or outwardly rounded elbow bend formed on the tube, as described, substantially in the manner and for the purpose specified. 2nd. In a tubular lantern, the seamless bottom oil bowl, with offset or shoulder formed