ing the drill head K, and the core-lifter R, having the retaining devices T, substantially as described. 2nd. In a core drill, the drill head K, comprising cutters L, formed and arranged as described. 3rd. The cutter heads for core drills comprising the cutters L, in combination with the band or ring N, substantially as and for the purpose described. 4th. The combination, in a core drill, of the tube A, the cutter head K, and the core-lifter R, substantially as described. 5th. The combination, in a core drill, of the tube A, having the drill head K, the core-lifter R, and the yoke E, substantially as described. 6th. The combination, in a core drill, of the tube A having the drill-head K, the yoke E, having the arms G and the pin D, substantially as described. 7th. The combination, in a core drill, of the tube A, having the drill head K, and the core-lifter R, having the springs T, substantially as described.

No. 30,081. Apparatus for Raising and Lowering Ships' Boats. (*Appareil pour hisser et descendre les canots des navires.*)

Ferdinand A. L. de Gruyter, Amsterdam, Holland, 2nd November, 1888; 5 years.

Claim.—1st. In apparatus for raising and lowering ship's boats, the combination of a tackle block, a screw-threaded rod and a correspondingly threaded nut, through which said rod works for the purpose specified. 2nd. In apparatus for raising and lowering ship's boats, the combination, of a davit lowering tackle, a screw-threaded rod and a correspondingly formed nut through which said rod extends, and in relation to which said rod is adapted to be turned, substantially as herein described for the purpose specified. 3rd. In apparatus for raising and lowering ship's boats, the combination of a davit lowering tackle, a rod formed with right and left handed screw threads, and correspondingly formed nuts arranged thereon, said rod being adapted to be turned relatively to said nuts, substantially as described for the purpose specified. 4th. In apparatus for raising and lowering ship's boats, the combination, with a davit and lowering tackle, of a screw-threaded rod adapted to be turned about its axis, and a correspondingly threaded nut, or nuts, prevented from turning relatively to said rod, and through which said rod works, substantially as described for the purpose specified. 5th. In apparatus for raising and lowering ship's boats, the combination of a davit, pulley blocks adapted to lower a boat, and suspended from said davit and screw gearing, comprising a screw-threaded rod and a correspondingly formed nut thereon, said rod being adapted to be turned relatively to said nut, substantially as described for the purpose specified. 6th. In apparatus for raising and lowering ship's boats, the combination, of a davit lowering tackle suspended from said davit, a rod S, formed with right and left handed screw threads, a lever for rotating the said rod, and nuts 4 4, adapted to word on said rod, but prevented from turning with reference thereto, one of said nuts being connected to said lowering tackle, and the other being adapted to be connected with a boat to be raised or lowered.

No. 30,082. Improvements on the Purification of Water Sullage and Sewage and on Apparatus therefor, which Improvements and Apparatus are applicable to other Sanitary purposes. (*Perfectionnements dans la purification des eaux sales et les égouts et aux appareils pour cet objet, lesquels perfectionnements et appareils sont applicables a d'autres fins sanitaires.*)

Francis R. Conder, Guildford, Eng., 2nd November, 1888; 5 years.

Claim.—1st. The improved sanitary process for the purification of water, sullage and sewage, substantially as hereinbefore described. 2nd. The manufacture of artificially prepared mixture, or solution, or mixtures, or solutions of iron, which is, and are maintained at the required strength, by combining solid or liquid animal or vegetable, organic matter with sulphate of iron, or other suitable iron compounds, in the form of a compound mixture or solution, or mixtures or solutions, substantially in the manner and for the purposes hereinbefore described. 3rd. The employment of such compound mixture or solution, or mixtures or solutions, for the purification of water and for other sanitary and curative purposes, substantially in the manner hereinbefore described. 4th. The improved sanitary apparatus, consisting of a tapered and perforated container, in combination with a tank or cistern, furnished with inlet and outlet pipes, all substantially as hereinbefore described. 5th. The improved sanitary apparatus for household use, known as a ferrometer, substantially as hereinbefore described, and shown at Fig. 3 and 4 of the accompanying drawings, for carrying out my improved sanitary process.

No. 30,083. Improvements in Making Hinge Leaves. (*Perfectionnements dans la fabrication des bandes des pentures.*)

William H. Hart, New Britain, Conn., U.S., 2nd November, 1888, 5 years.

Claim.—1st. The herein described method of forming hinge leaves, which consists, first, of cutting out a blank, wide enough for two or more pairs of hinge leaves, then dividing the blank through the middle and rolling its wings into knuckles, or *vice versa*, finally severing the blank, having the rolled knuckles into separate hinge leaves, substantially as described and for the purpose specified. 2nd. In forming hinge leaves from blanks, wide enough for two or more pairs, that improvement which consists of punching and countersinking the screw holes, while the blanks are thus wide and afterwards severing the said blanks into individual hinge leaves, substantially as described and for the purpose specified.

No. 30,084. Improvements in Securing Sanitary Earthen Closets to floors of apartments. (*Perfectionnements dans l'ajustage des sièges d'aisance à la terre sèche aux planchers des appartements.*)

Robert F. Elliott, Kingston, Ont., 2nd November, 1888; 5 years.

Claim.—1st. The combination of a metallic ring in two parts A, A, with convex and concave projections B B, C C, to form a lock when united, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the separate parts of the metallic ring connected by projecting convex and concave lugs B B, C C, which forms a solid lock on each side at the base of the ring, and a solid joint in the curved or elevated portion of the ring H, H, substantially as and for the purpose hereinbefore set forth.

No. 30,085. Tobacco Pipe and Art of Manufacturing the Same. (*Pipe de fumeur et art de la fabriquer.*)

August Ruth, St. Louis, Mo., U.S., 2nd November, 1888; 5 years.

Claim.—The improvement in the art of manufacturing corn cob pipes, consisting in first treating the cob to render it pliable, and subsequently compressing it, to form the pipe bowl.

No. 30,086. Cartridge Shell.

(*Etui de cartouche.*)

Gershom M. Peters, Cincinnati, Ohio, U. S., 2nd November, 1888; 5 years.

Claim.—1st. A cartridge, the sides of which are cut and indented, to leave inwardly projecting holding pieces, the said pieces being indented in such manner that when pressed inward their inner faces are convex, the shell being entirely cut away at the bottom of said holding pieces, which are forced inward, so that their edges press against the wad or ball. 2nd. A cartridge, the sides of which are indented and cut to leave inwardly projecting holding pieces, each separate holding piece having an arc-shaped base, as and for the purpose set forth.

No. 30,087. Device or Apparatus for Burning Hydro-Carbon or other Oils. (*Appareil à brûler les hydrocarbures et autres huiles.*)

Lasslo Chandor, St. Petersburg, Russia, 2nd November, 1888; 5 years.

Claim.—1st. In a candlestick or apparatus for burning hydro-carbons, the combination of the small tube I, with the reservoirs A, A_1, for the purpose set forth. 2nd. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the reservoir A, air tube and the match box holder H substantially for the purpose described. 3rd. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the reservoirs A, A_1 and burner B, with the tube K, outer tube L_2 and wick sheath L_1, for the lower flame M, substantially as and for the purpose set forth. 4th. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the burner B, tubes K and L_2, and wick sheath L_1 with tray F and gallery D, substantially as and for the purpose set forth and shown. 5th. In a candlestick or apparatus for burning hydro-carbon or other oil, the combination of the burner B and tray F, with the mantle C widened at its lower end, and the perforated mantle C_1, C_2 attached to the inner part of the said tray, substantially as set forth. 6th. In a candlestick or apparatus for burning hydro-carbon or other oils, the combination of the reservoirs A, A_1, burner B, tray F, gallery D, mantle C, C_1, C_2, and chimney E and air-tube I, substantially as and for the purpose set forth and shown. 7th. The combination of the several parts as a whole to constitute my improved candlestick or apparatus for burning hydro carbon and other oils, so as to operate substantially for the purpose set forth in the foregoing specification and as shown on the accompanying drawings.

No. 30,088. Hand Truck. (*Camion à bras.*)

John J. Hahn and Irvin J. Maggard, Oxford, Kan., U.S., 2nd November, 1888, 5 years.

Claim.—1st. In a truck, the combination of the main frame, the sliding frame and the handles, pivoted to the main frame, substantially as and for the purpose specified. 2nd. In a truck, the combination of the main frame, the sliding frame confined in ways on the main frame, and extension handles pivoted to the main frame and carrying a windlass, connected with the sliding frame, whereby the same is raised or lowered, substantially as described. 3rd. The combination, with the main frame and the sliding frame, of extension handles, pivoted to the main frame, and pivoted folding braces connected with the main frame and extension handles, as set forth. 4th. In a truck, the combination, with a frame and cross-piece, of a rod carried by said cross-piece between the side bars of the frame, and a hook mounted on said rod to freely slide on the same, and provided at its free end with one or more hooks to engage the chime of a barrel, substantially as described. 5th. The combination, with the main frame and extension handles of the herein described dog, pivoted in a section of the extension handles, and adapted to removably hold the handles extended, substantially as described. 6th. The combination of the main frame, the sliding frame operating in longitudinal ways in the upper side of the main frame, the windlass shaft and the herein described system of power multiplying pulleys, mounted on the sliding frame, and the main frame and the ropes or cords secured at one end to the sliding frame and operating over said pulleys and secured at their opposite ends to the windlass, substantially as described. 7th. A truck, provided with the extension handles formed in sections of each handle, being pivoted to the side bars of the truck, substantially as described. 8th. In a truck, the combina-