

within the said coupling-nut and engaged at its ends by said coupling-pieces, being laterally removable from between said coupling-pieces without separating them, the said chamber consisting of two parts, one provided with an inwardly projecting valve-seat and the other with a central valve-guide, and a valve enclosed within said parts and co-operating with said valve-seat and guide, substantially as described. 2nd. The combination of a pair of coupling-pieces and a co-operating coupling-nut, with an independent removable chamber engaged at its ends by said coupling-pieces and enclosed within the said coupling-nut, the said chamber being composed of a main part *e* having an internal valve-seat, and a valve guiding part *e'* composed of a ring *e*, an open frame *e'*, a valve guide *e'*, and a portion fitting within the said main portion *e*, substantially as and for the purpose set forth.

No. 31,849. Apparatus for Regulating Current or Potential in Secondary of Transformers. (*Appareil pour régler le courant ou potentiel dans les piles secondaires.*)

The Thomson-Houston International Electric Company, Boston, (assignee of Elihu Thomson, Lynn), Mass., U.S., 1st August, 1889; 5 years.

Claim.—1st. An induction-coil or transformer having a partial magnetic shunt of determinate capacity for the magnetism threading the coils, whereby the potential of the secondary current may be automatically lowered on an increase of such current, as and for the purpose described. 2nd. In an induction-coil or transformer, a partially-closed magnetic circuit consisting of polar extensions or magnetic carriers from the parts of the core between the primary and secondary brought into close proximity, as and for the purpose described. 3rd. The combination, with an induction-coil or transformer having a magnetic shunt, of a conductor suspended or movable in the shunting lines of force, as and for the purpose described. 4th. The combination, with constant potential mains of a transformer, a secondary for said transformer, feeding translating devices in series, and a magnetic shunt for the transformer having a definite or determinate capacity such as described, proper for limiting the currents in the secondary so as to keep or tend to keep the same of constant amount, as and for the purpose described. 5th. The combination, with an iron core threading two alternating-current coils of magnetic carriers or extensions for said core brought into close proximity and forming a magnetic shunt variable in amount automatically by the increase or decrease of current in one of said coils, as described. 6th. The combination, with two alternating-current coils placed in inductive relation upon a suitable core, of a magnetic shunt for the magnetism threading said coils, and of definite or determinate strength increasing automatically with an increase of current in the coil. 7th. The combination, with two alternating-current coils wound on different parts of the same core, of iron masses tending to form a magnetic shunt for the portions of core between the coils, and adjustable for the purpose of determining the amount of the magnetic shunting. 8th. The combination, with constant potential mains, of a transformer having its primary fed therefrom, a secondary on a different portion of core, and a partial magnetic shunt for the portion of core between the coils. 9th. The combination, with the primary, of two secondaries connected in series and applied to different parts of the same core, one near to and the other more remote from the primary, and a partial magnetic shunt for the core, as and for the purpose described. 10th. The combination, with two alternating current mains, of transformers having a variable resistance in their secondaries, and partial magnetic shunts for the portion of cores threading the secondaries, as and for the purpose described. 11th. A system of distribution for arc lighting, comprising constant potential mains, transformers in multiple on said mains, arc-light circuits connected to the secondaries, and potential regulators consisting of partially-closed magnetic circuits set up by the currents of either or both of said coils. 12th. The combination, with primary and secondary alternating circuits in inductive relation, of an iron core forming a seat of alternating magnetism developed by one of said circuits, and having extensions brought into close proximity to form a partially-closed magnetic circuit of determinate amount variable automatically with the currents flowing. 13th. The combination, with primary and secondary alternating-current circuits in inductive relation, of an iron core forming the seat of alternating magnetism, developed by the current in the secondary and extensions from said core brought into proximity to form a partially closed magnetic circuit of definite or determinate amount. 14th. The combination, with an alternating current main, of a transformer having a variable resistance in its secondary, and a core which forms the seat of magnetism developed by the secondary currents, and is provided with extensions brought into proximity to form a partially-closed magnetic circuit of determinate amount, as and for the purpose described. 15th. The combination, with an induction coil or converter, of a partially-closed magnetic circuit excited by the current in each or either of the electric circuits, and a conducting-plate normally suspended in a gap in such magnetic circuit, as and for the purpose described. 16th. The combination, with an induction-coil or converter, of magnetic carriers such as iron-core extensions from a core, excited by the current which flows in one of the coils of the converter, and means for adjusting the magnetic resistance between the parts of the core partially shunted by said carriers or extensions, as and for the purpose described. 17th. An induction coil or converter having an endless iron-core or magnetic circuit on which the primary and secondary coils are disposed at different points, and having parts or extensions of said core brought into determinate magnetic inductive proximity to form a partially-closed magnetic circuit of definite capacity, independent of the closed magnetic circuit over the iron core and through the coils. 18th. An induction coil or converter having primary and secondary conductors wound on different parts of the core, and having parts of said core brought into proximity but separated by a magnetic shunting-space of definite or determinate capacity, as described, proper for keeping the current in the secondary approximately constant when the primary is supplied from a constant potential source.

No. 31,850. Combined Anvil and Vise.

(*Enclume et étau combinés.*)

William G. Avery, (assignee of John P. Holt), Cleveland, Ohio, U.S., 1st August, 1889; 5 years.

Claim.—1st. The combination, with anvil having longitudinal chambers and internal ribs, substantially as indicated, of vise having an arm adapted to enter such chamber above the said ribs, said arm having recesses adapted to engage and interlock with the ribs of the anvil when the vise is depressed to its normal position in the anvil, substantially as set forth. 2nd. The combination, with anvil and vise, the anvil having chambers and ribs, and the vise having arms adapted to engage such ribs, substantially as indicated, of lip or shoulder of the vise, said lip or shoulder being adapted to engage the top of the anvil to support the vise in its normal or locked position, substantially as set forth. 3rd. The combination, with anvil and vise, substantially as indicated, of shoulders on the base of the anvil for embracing the contiguous jaws of the vise, substantially as set forth. 4th. The combination, with anvil and vise, the anvil having chamber and internal ribs, and the vise having an arm adapted to enter such chamber and engage such ribs, of key inserted in lateral holes in the anvil, said key bearing upon the arm of the vise when the latter is in its depressed or locked position, substantially as set forth.

No. 31,851. Combination Tool.

(*Outil à combinaison.*)

Franklin L. Downend, Charles F. Mott, Halifax, N.S., and John O. Hibbard, Cincinnati, Ohio, U.S., 1st August, 1889; 5 years.

Claim.—A combination tool comprising a hammer or hatchet A having a spike F, and skeleton handle B having a partition C, and claw termination K integrally cast, the cutter D sliding within the handle and provided with an adjusting and clamping screw F, and the cork-screw G located in the lower division of the handle, as set forth.

No. 31,852. Hydraulic Excavating.

(*Creusage hydraulique.*)

Daniel B. Long, Buffalo, (co-inventor with David N. Long), Williams-ville, N.Y., U.S., 1st August, 1889; 5 years.

Claim.—The herein described method of excavating for ditches, canals, or other purposes, consisting in excavating the soil by hydraulic erosion by causing the water to flow over a dam upon and over a portion of the soil until removed, and moving the dam up stream and securing it until another similar portion of soil is removed, which operation is repeated until the desired excavation is made, substantially as described.

No. 31,853. Horse Shield. (*Housse de cheval.*)

Frank W. Floyd and George A. Foster, (assignees of Nelson E. Springsteen), Detroit, Mich., U.S., 1st August, 1889; 5 years.

Claim.—1st. The shield A interiorly provided with spurs and having a water outlet, in combination with the strap B secured to the rear end thereof, and adapted to embrace the tail of the animal, the back-strap D, the strap F secured to the front of said shield and connected with the collar E which is connected to said back-strap, and the loin-straps G, the straps D, B and G, all being fastened together at C, substantially as and for the purposes described. 2nd. The shield A interiorly provided with spurs having a lining of patent leather and having a water-outlet, in combination with the strap B secured to the rear end thereof, and adapted to embrace the tail of the animal, the back-strap D, the strap F secured to the front of said shield, and connected with the collar E which is connected to said back-strap and the loin-straps G, the straps D, B and G all being fastened at C, substantially as described.

No. 31,854. Holdback for Vehicle Thills.

(*Ragot de limonière.*)

Morris E. Burt, Lowville, and Noel E. Jones, Harrisburgh, N.Y., U.S., 1st August, 1889; 5 years.

Claim.—As an improved article of manufacture, the herein described hold-back for vehicle thills, the same consisting of the plate *a* having the chamber or recess *b* upon its side, as shown, the hook integral with said plate, the spring within said chamber or recess, and the tongue pivoted within an enlargement on said plate, and having a bearing at its lower end on said spring, substantially as described and for the purpose specified.

No. 31,855. Lasting Machine.

(*Machine à enformer.*)

Alfred Dolge, New York, (assignee of John W. Millet, Dolgeville), N.Y., U.S., 1st August, 1889; 5 years.

Claim.—1st. In a lasting-machine, the combination of a support carrying a last, a series of swinging levers having friction shoes to press the upper inward upon the insole, arms *o* for swinging the levers, and a reciprocating flange E for actuating said arms, substantially as described. 2nd. In a lasting-machine, the combination, with a last support, of a series of swinging levers *r* carrying friction shoes, arms *o* for swinging the levers, a movable flange E for actuating the arms, and a rotary cam for operating the flange, substantially as described. 3rd. In a lasting-machine, the combination, with a last and mechanism for lasting the upper, of a yielding last-supporting spindle F, and a sleeve L secured directly to the spindle and adjustable along the same, and having a last toe support pivoted to said sleeve, substantially as described. 4th. In a lasting-machine, the combination, with a last and mechanism for lasting the upper, of a yielding last-supporting spindle F, and a sleeve L secured directly to the spindle