slots in the beam, and embracing the parallel braces D_1, and clamps ing screws D_3 forclamping the said braces to the beam, substantially as described. 2nd. In a cultivator, the combination, with standard E_1 made adjustable about a vertical pivot, of a cultivator attachment, the upright arm of which is engaged therewith by a single horizontal bolt about which it may be tilted, the upper end of said arm provided with serrations adapted to engage corresponding serrations upon the standard E_1, substantially as and for the purposes described. 3rd. In a cultivator, the combination, with standards E_1, of a cultivator attachment having its upright arm engaged therewith, substantially as described, and carrying on its horizontal portion a concaved blade G, and side hoe R, substantially as described. 4th. In a cultivator, the combination, with a top-lifter H adjustably supported and adapted to travel just beneath the soil, of the soil-gauge K, vertically-adjustable blade K_1, leveler L located just beyond said gauge, half-hiller G, and clod-fender J, substantially as described. 5th. The combination, with a cultivator, of the raker attachment for raking the top of the row, the extremity of said raker adjustable forward and backward about its support, and the rake itself adjustable up or down at either end, substantially as and for the purposes described. 6th. The combination, with a cultivator, of the raker attachment and clod-scraper P, said scraper serving to deflect between the rows, clods, stalks, etc., that may be thrown aside by the rake, substantially as described. 7th. The combination, with a cultivator, of a potato-bug attachment, the same consisting of a bug-receptacle M, and deflecting and agitating arms M_1, M_2, substantially as described. 8th, The combination, with a cultivator, of a draft trace or chain secured to the cultivator near the rear end of its beam, so as to draw therefrom in a direct line, and loosely engaged to the forward end of the cultivator, and the trace or chain Q_2 engaging the forward end of the draft trace or chain, and having its other end secured to the forward end of the cultivator-beam, substantially as shown and for the purpose specified.

No. 31,062. Horse Release. (*Chasse-cheval.*)

Alonzo R. Brown and Justus Swanson, San Francisco, Cal., U.S., 8th April, 1889; 5 years.

Claim.—1st. As a new article of manufacture, the horse-release described composed of the bed or attaching plate A, the guide catch box B, with cover B_1, slot M, guide groove N, receiving notch C and the hinge bracket F, in combination, with the lock tongue G, the hinge or pivot H, the catch bolt C having the eye C_2, constructed substantially as and for the purposes set forth. 2nd. The combination, with the bed plate A having the hinge bracket F, and guide catch box B, the lock tongue G, and catch bolt C, constructed and operated substantially as and for the purposes set forth.

No. 31,063. System of Electric Distribution.

(*Système de distribution électrique.*)

The Thomson-Houston International Electric Company, Boston, (assignee of Edwin W. Rice, Jr., Lynn), Mass., U.S., 8th April, 1889; 5 years.

Claim.—1st. The herein described system of electrical distribution, comprising alternating current mains leading from a point of alternating current supply, one or more converters or transformers of the ordinary description connected to said mains, leading wires or mains connected with the secondaries of said converters, and one or more induction transfer coils connected across said leading wires, and having connected with them three or more sub-circuits or distributing wires, each two sub-circuits having a fraction of the transfer coil included between them, as and for the purpose described. 2nd. The herein described system of alternating current distribution, comprising alternating current mains leading from a suitable source of current supply, converters or transformers connected in multiple across said mains, leading wires or mains connected to the secondaries of said converters, induction transfer coils connected across said leading wires, and sub-circuits or distributing wires leading from and including a fraction of said transfer coils, said leading wires supplying current to still other transfer coils for the purpose of still further subdividing the potential, as and for the purpose described.

No. 31,064. Envelope Tablet. (*Porte-envelope.*)

Hiram Phillips and Simeon B. Kirtley, Columbia, Mo., U.S., 8th April, 1889; 5 years.

Claim.—1st. A package of envelopes, gummed and secured together at one edge forming an envelope tablet, substantially as shown and described. 2nd. An envelope-package consisting of the following elements, to wit: the envelopes provided at one edge with a gummed backing, and a stiff cover hinged thereto and freely moving thereon, and a thin cover hinged to the backing on the opposite side of the stiff cover passing around the bottom and front edge, and having a blotter attached to its edge so as to be freely moved thereon. 3rd. A package of envelopes gummed and secured at the rear edge to a backing *b*, and also at its front edge gummed and secured to a retaining-piece *b4*, whereby the package is held securely together in a very compact form. 4th. In combination, with a package of envelopes secured together at the front and rear, but so that each envelope can be easily separated from the pack, a hinged cover or piece adapted to be turned down in front and afford a hand rest when addressing thn envelope. 5th. An envelope-package provided with a wrapper to which it is attached at the front and rear edges, and whereby it is completely surrounded and protected from dust etc., at all points except at the side edges, substantially as described. 6th. The envelope-package provided with a hand-rest to aid in addressing the envelopes, and also with a blotter, substantially as described.

No. 31,065. Feed Regulator for Spinners.

(*Régulateur de l'alimentation des fileuses.*)

The Brantford Cordage Company, (assignee of George Ryan), Brantford, Ont., 8th April, 1889; 5 years.

Claim.—1st. An adjustably-supported nipper held in position to receive the sliver by a spring of suitable tension, in combination with levers arranged to connect the adjustable nipper with the driving mechanism of the sliver feed roller, in such a manner that the movement of the nipper shall instantly stop the motion of the sliver feed, substantially as and for the purpose specified. 2nd. The nipper L supported by the pivoted bar M, and held in position by the spring T, in combination with the pivoted lever K, arranged to connect the nipper to the bell-crank J, which is connected to the adjustable clutch I, substantially as and for the purpose specified. 3rd. The nipper L supported by the pivoted bar M and held in position by the spring T, the pivoted lever K arranged to connect the nipper to the bell-crank J which is connected to the adjustable clutch I, in combination with the lever H, the bevelled flange *a* on the clutch I, the pawl F pivoted on the pulley E, and the ratchet-wheel G, all arranged substantially as and for the purpose specified. 4th. The nipper L supported by the pivoted bar M, and held in position by the spring T, the stops O adjustably held to the spindle P, the pivoted lever K arranged to connect the nipper to the bell-crank J which is connected to the adjustable clutch I, in combination with the lever H, the bevelled flange *a* on the clutch I, the pawl F pivoted on the pulley E, and the ratchet-wheel G, all arranged substantially as and for the purpose specified.

No. 31,066. Electric Battery. (*Pile électrique.*)

The Potter-Compton Electric Company, New York, N.Y., (assignee of James Serson, Boston, Mass.), U.S., 8th April, 1889; 5 years.

Claim—1st. In an electric battery of the character described, the combination of a containing jar, a porous cup supported on legs within said jar, two detachable foraminous cylinders within said cup, and a porous jar within said cylinder, substantially as and for the purpose set forth. 2nd. In an electric battery, the combination of a containing jar, a porous cup supported on legs within said jar, a gutter for the zinc pole disposed on legs around said cup, two foraminous cylinders within said cup, a porous cup within the inner cylinder, and a porous cup within said inner cup, all being arranged to operate, substantially as described. 3rd. In an electric battery, the combination of a containing jar provided with a cover, a porous cup in said jar provided with legs, a gutter surrounding said jar and containing mercury, said gutter having legs, a zinc cylinder in said gutter, an acid solution for said zinc, a perforated cylinder in said cup, broken carbon between said cup and cylinder, a perforated cylinder within said first cylinder, a carbon plate between said perforated cylinders, a porous cup within the inner cylinder surrounded with bi-chromate of potash and containing sulphuric acid, and a porous cup immersed in said acid and containing nitric acid, substantially as and for the purpose set forth. 4th. In an electric battery, the containing jar A, in combination with the porous cup D having legs *f*, and the detachable foraminous cylinders H, K within said jars, for separating the carbon from the excitanta, substantially as described. 5th. In an electric battery, the containing jar A, in combination with the cup D having legs *f*, the perforated cylinder H K, and the porous cups P, R, all being arranged substantially as described. 6th. In an electric battery, the gutter C provided with legs *g* and adapted to contain free mercury, in combination with the zinc cylinder M and containing jar A, substantially as described. 7th. In an electric battery, the containing jar A and porous cup D disposed therein on legs *f*, in combination with the detachable perforated cylinders H, K within said jar, and the carbon cylinders M disposed between said cylinders and provided with the arms *l*, *m*, substantially as described. 8th. In an electric battery, the combination of the jar A having the cover B, the cup P provided with legs *f*, the gutter C having legs *g* and disposed around said cup, the zinc cylinder E in said gutter, the perforated cylinders H, K, the carbon plate M between said cylinders and provided with arms *l*, *m*, the porous cup P within the cylinder K, and the cup R within the cup P, substantially as described. 9th. In an electric battery, the combination of the jar A provided with the cover B, the cup D having legs *f*, the gutter C containing free mercury and having legs *g*, the zinc M in said mercury, an acid solution for said zinc, the cylinders H, K in said cup, the carbon M between said cylinders and having arms *l*, *m*, broken carbon between the outer cylinder and said cup, the porous cup P surrounded by bi-chromate of potash, and the cup R surrounded by sulphuric acid and containing nitric acid, all being arranged to operate substantially as described.

No. 31,067. Telegraphic Relay.

(*Relais télégraphique.*)

The American Semaphore Company (assignee of Frederick Stitzel and Charles Weindel), Louisville., Ky., U. S., 8th April, 1889; 5 years.

Claim.—1st. In a relay, the combination, with a stationary magnet and a pivoted lever, of a weight on said lever at one side of its fulcrum, and an electro-magnetic armature on the opposite side of said fulcrum, and having its pole in a plane with the pole of the stationary magnet, substantially as set forth. 2nd. In a relay, the combination, with an electro-magnet and a pivoted lever, of an adjustable weight on said lever at one side of its fulcrum, and an electro-magnetic armature carried by the lever at the opposite side of its fulcrum, substantially as set forth.

No. 31,068. Refrigerator. (*Garde-manger.*)

The Trotter Refrigerator Company, Newark (assignee of Charles W. Trotter, Rochester), N.Y., U.S., 8th April, 1889: 5 years.

Claim.—1st. In a refrigerator, the combination, with a provision chamber, a chamber for containing the cooling medium and air-circulating passages between said chambers, of a door affording access to the chamber containing the cooling medium, and a door or partition forming when in normal position one of the walls of said chamber, and when open projecting across and closing one of the circulating passages, substantially as described. 2nd. In a refrigerator, the combination, with a provision chamber, a chamber for containing the cooling medium and air-circulating passages between said chambers, of a door affording access to the chambers containing the cooling medium, and a door or partition hinged on horizontal pivots forming when in normal position one of the walls of the chamber containing the cooling medium, and, when turned down, constituting a projecting support for the ice, and closing one of the air-circulating flues, substantially as described.