outwardly-springing arms provided with out-turned ends, said ends being passed through said flaring coils, and said arms resting against the inclined faces thereof, and a yoke connected to said lever, substantially as described. 3rd. An attaching-wire for bottle-stopper fasteners, consisting of a ring-shaped band having bent or hooked ends, and provided at diametrically-opposite points with integral coils, projecting diagonally downward and outward from the horizontal plane of the ring at approximate right angles thereto, substantially as set forth. 4th. The combination, in a stopper-fastener, of a binding-wire or yoke provided with bends, as described, a stopper hinged to said yoke between said bends, and provided on one side of said yoke with an upright ear, and on the other side thereof with studs which assist in preventing an undue turning of the stopper on the yoke, substantially as described. 6th. The improved bottle-stopper herein described, the same consisting of the attaching-wire E having the coils *d*, the lever D having the coils *h*, the binding-wire or yoke C having the coils *l*, the stopple B and the tie-wire *b*, constructed, combined and arranged to operate substantially as described. 6th. A bottle-stopper proper composed of a metallic cap comprising an upper disk, a lower disk of smaller diameter than the upper disk, and a neck connecting said disks, in combination with an elastic disk-shaped cover inclosing the lower portion of said cap, said cover being provided with an inward flange which contracts around the upper disk, substantially as set forth.

No. 25,913. Veterinary Incisor Cutter.

(*Cisailles de Vétérinaire pour Incisives.*)

Charles E. Sayre and Thomas E. Drake, (assignee of Emery P. Smith, Chicago, Ill., U.S., 3rd February, 1887; 5 years.

Claim—The combination, in a horse incisor cutter, of arm A having head *a* and shoulder *a1*, with arm B, having head *b* and cutting edge or scraper *b1*, all substantially as described and for the purpose set forth.

No. 25,914. Veterinary Molar Cutter.

(*Cisailles de Vétérinaire pour Molaires.*)

Charles E. Sayre and Thomas E. Drake, (assignee of Emery P. Smith), Chicago, Ill., U.S., 3rd February, 1887; 5 years.

Claim.—In a molar-cutter for horses, the combination of arm A having shoulders or bevelled edges *b*, *b1*, and bevelled thereon, and shoulder *d* with flat surface *e*, with arm B having like shoulders *b*, *b1*, bevelled edge and shoulder *d* with surface *e*, all substantially as described and for the purpose set forth.

No. 25,915. Machine for Sorting Tracks.

(*Machine pour Assortir la Broquette*)

John F. Kingwill, Chicago, Ill., U.S., 3rd February, 1887; 5 years.

Claim.—1st. A tack-sorting machine consisting of an elevated delivery-chute, a lower receiving-box, and an intermediate riddle composed of bars arranged to be agitated. 2nd. In a tack-sorting machine, a riddle composed of thin parallel and diverging bars. 3rd. In a tack-sorting machine, a riddle consisting of thin parallel and diverging inclined bars. 4th. In a tack-sorting machine, a riddle consisting of a series of thin inclined parallel and diverging bars which gradually increase in diameter. 5th. In a tack-sorting machine, a riddle consisting of a series of inclined ways which gradually diverge and increase in diameter towards their lower ends.

No. 25,916. Telephone. (*Téléphone.*)

William J. Morton, New York, N. Y., U. S., 3rd February, 1887; 5 years.

Claim.—1st. In an instrument for transmitting or receiving sound, speech, or signals, the combination, with a coil included in an electric circuit, of a magnetized steel plate or magnet serving solely in and of itself as a diaphragm for the instrument, substantially in the manner and for the purpose herein set forth. 2nd. The combination, in an electrical circuit, of two or more telephonic instruments, each consisting of a steel-plate or disc permanently magnetized to constitute independently and in itself a complete magnet, and a wire coil placed in inductive proximity thereto and included in the circuit, said permanent magnet serving as the metallic diaphragm of the instrument, substantially in the manner as set forth. 3rd. The combination, in a telephonic instrument, of a steel-diaphragm constituting independently in itself, a complete permanent magnet with an annular re-inforcing magnet and a wire coil, substantially in the manner and for the purpose herein set forth.

No. 25,917. Flame Deflector for Upright Boilers. (*Déflecteur de Flamme pour Chaudières Verticales.*)

Edward S. T. Kennedy, New York, N. Y., U. S., 4th February, 1887; 5 years.

Claim.—1st. The combination, with a boiler constructed with a vertical cylinder and tubes radiating therefrom, of a segmental or annular deflector adapted and arranged to deflect the products of combustion from one part of the combustion chamber to another, substantially as herein shown and described. 2nd. As a means for protecting from excessive heat the exposed ends of the radiating water tubes of a vertical boiler, of the character substantially as herein shown and described, and for controlling the direction of the products of combustion within the combustion chamber, a horizontal segmental or annular deflector arranged in place by being laid on some of the tubes, as set forth. 3rd. As a means for protecting from excessive heat, the exposed ends of the radiating water tubes of a vertical boiler of the character substantially as herein shown and described, and for controlling the direction of the current of the products of combustion within the combustion chamber, a segmental or annular deflector suspended horizontally from certain of the tubes as herein shown and described. 4th. As a means for protecting from excessive heat the exposed ends of the radiating water tubes of a vertical boiler of the character substantially as herein shown and described, and for controlling the direction of the current of the products of combustion within the combustion chamber, a horizontal segmental or annular deflector rivetted to the boiler cylinder, as set forth. 5th. As a means for protecting from excessive heat the exposed ends of the radiating water tubes of a vertical boiler, and for controlling the direction of the current of the products of combustion within the combustion chamber, a horizontal segmental or annular deflector rivetted to the boiler jacket, as set forth. 6th. The combination, with a boiler constructed with a vertical cylinder having water tubes radiating therefrom, and a water jacket surrounding said boiler, of a horizontal segmental or annular hollow metal deflector arranged on the inside of said jacket and communicating with the water space thereof, substantially as and for the purposes herein set forth. 7th. As a means for protecting from excessive heat, the exposed ends of the radiating water tubes of a vertical boiler, and for directing the current of the products of combustion within the combustion chamber, a segmental or annular brick deflector, as *o*, built into or against the boiler, jacket, and extending toward the boiler cylinder, substantially as herein set forth.

No. 25,918. Method of Manufacturing Steel Eye Bars. (*Mode de Fabrication les Barres à Oeillet en Acier.*)

Robert W. Smith, Toledo, Ohio, U.S., 4th February, 1887; 15 years.

Claim.—1st. The improved method of manufacturing steel eye-bars, herein described, which consists in applying a reinforce plate of wrought iron to the end of a steel bar, heating it to a degree for perfect welding, and then forging it into forms by the use of dies, as set forth. 2nd. As an improved article of manufacture, a steel eye bar reinforced by wrought iron, forged and spread around the neck and bolt hole, substantially as set forth. 3rd. In a steel eye bar, the combination of the steel bar A, the wrought iron plate B and the reinforce scraps C, substantially as set forth.

No. 25,919. Grain Binder. (*Lieuse à Grain.*)

Andrew Stark, Chicago, Ill., U.S., 4th February, 1887: 15 years.

Claim.—1st. In combination with the cord looper and its actuating mechanism, the cord holder ring encircling said looper, and having cord-receiving apertures or notches, and mechanism which revolves the ring about the looper the distance between consecutive apertures at each revolution of the looper, substantially as set forth. 2nd. In combination, substantially as hereinbefore set forth, the cord-looper and the cord-holder ring encircling said looper, and having cord-receiving apertures and mechanism which revolves the ring and the looper in opposite directions. 3rd. In combination, substantially as hereinbefore set forth, the cord-looper and its pinion, the cogged cord-holder ring and the pinion which drives it, the shaft of said pinion and the pinion thereon through which it receives motion, and the knotter-actuating wheel, having on the same face the gear segments which actuate the cord looper and the cord-holder ring, whereby the cord-holder ring and the cord-looper are revolved in opposite directions. 4th. In combination, substantially as hereinbefore set forth, the needle, the cord-looper, and the cord-holder ring encircling the latter and the path of the former. 5th. In combination, substantially as hereinbefore set forth, the needle and the cord-looper, and the cord-holder ring encircling the latter, and the path of the former and inclined obliquely to said path. 6th. In combination, substantially as hereinbefore set forth, the cord-looper, the cord-holder ring encircling the looper, and the needle entering the ring on the side toward the bundle and passing obliquely through it. 7th. In combination with the needle and the knotter-actuating wheel, having their axes in the same plane, the cord-looper having its axes oblique to that plane, substantially as set forth. 8th. In combination with the needle, and the knotter-actuating wheel having their axes in the same plane, the cord-looper having its axes oblique to that plane and in a common plane with the axes of the knotter-actuating wheel, and the cord-holder ring encircling the cord-looper, the intersection of its plane of rotation with the plane of the needle's vibration being substantially at right angles to the plane of the axis of the cord-looper and knotter-actuating wheel, substantially as set forth. 9th. In combination with the needle and the knotter-actuating wheel, having their axes in the same plane, the cord-looper having its axes oblique to that plane, and the cord-holder ring encircling the cord-looper in a plane at right angles to the axles of the latter, substantially as set forth. 10th. In combination with the revolving cord-holder ring, and the cord clamp co-operating therewith to hold the cord and their sustaining frame, the cord-cutter fixed to the frame having its cutting-edge within the ring, substantially as set forth. 11th. In combination, substantially as set forth, the revolving cord-holder ring and the cord clamp co-operating therewith, the cord-looper revolved within the ring and the cord-cutter having its cutting edge within the ring. 12th. The knotter-frame, having bearings for the shaft of the knotter-actuating wheel and for the cord-looper shaft, and provided with ledges for the cord-holder ring bearings located in a circle surrounding the axial line through the cord-looper shaft bearings, substantially as set forth. 13th. The knotter-frame, having the bearings for the shaft of the knotter-actuating wheel and for the shaft of the cord-looper, and provided with ledges to afford bearings for the cord holder ring located in a circle surrounding the axial line of the cord-looper shaft bearings, said frame being made in two parts, each having one or more of said ledges, the ledges in each part being contained within 18th° of the circle of the ring, substantially as set forth. 14th. The knotter-frame, having the bearings for the shaft of the knotter-actuating wheel, and for the shaft of the cord-looper, and provided with ledges to afford bearings for the cord-holder ring located in a circle surrounding the axial line of the looper-shaft bearings, the interval between consecutive ledges being in no case greater than 180, substantially as set forth. 15th. The knotter-frame, having the ledges to afford bearings for the cord-holder ring, with their bearing shoulders protruding inside said ring, the ring journalled upon and encircling said shoulders, and having the exterior gear rim, and the