

*Claim.*—The construction of a woven wire base having a rigid frame, made in one or more parts with spiral springs mounted thereon and secured thereto, substantially as described.

**No. 17,195. Improvements in Electric Telephones.** (*Perfectionnements aux téléphones électriques.*)

James H. Robertson, Brooklyn, N. Y., U. S., 11th July, 1883; 5 years.

*Claim.*—1st. The combination, in an electric telephone transmitter, of the diaphragm A, the electrode C fixed to the diaphragm, the swinging electrode D attached to the armature H, and a magnet G, the poles of which are between the said diaphragm and armature, but not in contact with either, as described, whereby the electrode D is pressed into contact with the electrode C as and for the purpose specified. 2nd. The combination of the diaphragm A, to which is attached the electrode C, the swinging electrode D, attached to the armature H, the magnet G, the poles of which are between the said diaphragm and armature, but not in contact with either, and the keeper I placed and held adjustably on said magnet by magnetic attraction, as and for the purpose specified. 3rd. The combination of the diaphragm A to which is attached the electrode C, the swinging electrode D attached to the armature H, and the magnet G, the poles of which are between the said diaphragm and armature, said armature being constructed and arranged relatively to said magnet as described, whereby the magnet acts to draw the armature downward as well as towards the diaphragm, as and for the purpose described. 4th. The diaphragm A supported and secured in its place in a telephone, at separate joints only, by means of the rubber discs or studs *c c c c*, as and for the purpose described. 5th. The combination of the diaphragm A, the described electrode consisting of the pin C provided with the flange *p*, point *h* projecting from the said flange, and the elastic disk *e* interposed between said diaphragm and flange, and attached to both, and through an opening in which said disks the said point extends, as and for the purpose described.

**No. 17,196. Improvements in Grain Cutting Machines.** (*Perfectionnements aux machines à concasser les grains.*)

Hart E. Pryor, Joliet, Ill., U. S., 11th July, 1883; 5 years.

*Claim.*—1st. A carrier formed with longitudinal grooves *a* of suitable length for only one kernal of grain lengthwise, and with cross-grooves *e*, substantially as described. 2nd. A carrier formed with longitudinal grooves *a* of suitable length for only one kernal of grain, and with the cross-grooves *e*, in combination with cutters *c*, substantially as described.

**No. 17,197. Insulator for Electric Wires.** (*Isoloir des fils électriques.*)

Lawrence B. Gray, Boston, Mass., U. S., 11th July, 1883; 5 years.

*Claim.*—1st. An insulator for electric wires having a cavity provided with an annular projecting rib and a rectangular opening within the base, as and for the purposes set forth. 2nd. An insulator for electric wires having a cavity provided with an annular projection, and a square opening in the base connecting with a conical opening, as and for the purposes set forth. 3rd. A forked spring support adapted to be connected with the interior opening of an insulator, as described and for the purposes set forth. 4th. The combination of the insulator having an inwardly projecting rib, with the forked support having spring side-pieces, as set forth.

**No. 17,198. Improvements in Forming the Ends of Conducting or Terminal Wires for the Reception of the Carbon Filaments of Incandescent Electric Lamps and in Apparatus therefor.** (*Perfectionnements dans la formation des bouts des fils conducteurs ou terminaux pour la réception des boguettes de charbon des lampes électriques incandescentes, et aux appareils pour cet objet.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

*Claim.*—1st. Forming the ends of wires into sockets for the reception of the carbon filament of incandescent electric lamps by flattening and coiling, or twisting the flattened ends of the wire, as described. 2nd. The apparatus for flattening the terminal wires of incandescent electric lamps preparatory to coiling the said apparatus, consisting of the combination of the cam rollers *p p* formed as described, with means for actuating them, substantially as and for the purpose described and illustrated in Figures 1 and 2 of the drawings. 3rd. The apparatus for coiling or twisting the ends of wires of incandescent electric lamps into flat cylindrical or other shaped sockets for the reception of the carbon filament, the said apparatus consisting in the combination of the spindle *r* carried in a support and provided with a needle *r3*, and means for rotating it, and also with a catch piece *s* for retaining and releasing the wire, substantially as described and illustrated in Figures 7 8 and 10 of the drawings.

**No. 17,199. Improvements in the Manufacture of Stems Containing the Conducting or Terminal Wires of Incandescent Electric Lamps.** (*Perfectionnements dans la fabrication des tiges contenant les fils conducteurs ou terminaux des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

*Claim.*—1st. Forming stems for the bulbs or globes of incandescent

electric lamps and imbedding wires (with or without terminal loops formed thereon) in them by pressure in a mould, substantially as described. 2nd. The moulds for forming stems for the bulbs or globes of incandescent electric lamps and securing the terminal wires therein, substantially as described and illustrated in the drawings. 3rd. In forming stems for the bulbs or globes of incandescent electric lamps, insulating portions of the mould and during moulding passing an electric current through the wires to be imbedded in the stems, as and for the purpose described.

**No. 17,200. Apparatus for Cutting and Bending the Conducting or Terminal Wires of Incandescent Electric Lamps.** (*Appareil pour couper et plier les fils conducteurs ou terminaux des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

*Claim.*—1st. In apparatus for bending wires for incandescent electric lamps, the combination of the recessed bed plate *a* and bending piece *f* adapted for bending wire of one thickness and length, or wires of different thickness and different lengths, and forming loops of different widths or formation, substantially as described and illustrated in the drawings. 2nd. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of a cutter lever *c* and bending piece *f* suited for bending wire of one thickness and length, or wires of different thicknesses and different lengths and formation, or loops of different widths, the said parts operating together upon a recessed bed plate *a*, substantially as described and illustrated in the drawings. 3rd. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of the cutter lever *c* and bending piece *f* with a recessed bed plate and a stop *b*, to effect the cutting and bending of wire of one thickness and length, or wires of different thicknesses and different lengths, or different widths and formation of loop, substantially as described and illustrated in the drawings. 4th. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of the cutter lever *c*, bending piece *f*, spindle *d*, recessed bed plate rests *q* and stop *r*, for cutting and bending wire of one thickness and length, or wires of different thicknesses and different lengths, or different widths and formation of loop, substantially as described and illustrated in the said Figures 1 and 2, of the drawings.

**No. 17,201. Apparatus for Forming in the Conducting or Terminal Wires of Electric Lamps, Loops or eyes for the Attachment of the Outer Conductors.** (*Appareil pour former les anneaux ou yeux pour assujétir les conducteurs extérieurs des fils conducteurs ou terminaux des lampes électriques.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

*Claim.*—The described apparatus for forming loops or eyes in the terminal wires for incandescent electric lamps, the essential feature of which apparatus is the combination of the spindles *r2* is capable of partial rotation and recessed or slotted, or otherwise formed for the reception of the ends of the wire to be bent into loops or eyes (with stops *h2*) (or the stops *h2 h3*), substantially as described and illustrated in the drawings.

**No. 17,202. Bulbs for Incandescent Electric Lamps.** (*Globes des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

*Claim.*—Producing bulbs for incandescent electric lamps by blowing and rotation in moulds, substantially as described.

**No. 17,203. Improvements on Rock Drills.** (*Perfectionnements aux forets de mine.*)

George M. Derby, Astoria, N. Y., U. S., 1883; 5 years.

*Claim.*—1st. A tubular rock-drill having its bit or cutting edge composed of wedge-shaped teeth, the cutting edges of which are wider than their bases, so arranged that lines joining their outer edges shall form a polygon and having recesses, substantially as described, between said teeth and extending above their bases for the escape of debris. 2nd. The combination, substantially as set forth, of a tubular rock drill, a tubular shank rigidly secured to said drill, mechanism for giving a positive to-and-fro motion to said drill, means, substantially such as described, for supplying air, steam or water through the interior of said shank and drill to the bit of the drill, and a bit or cutting edge to said drill composed of wedge-shaped teeth, the cutting edges of which are wider than their bases, so arranged that lines joining their outer edges shall form a polygon, and having recesses between said teeth and extending above their bases for the escape of debris. 3rd. The combination, with the tubular rock-drill constructed substantially in the manner described, of a tubular shank to which said drill is attached, mechanism for communicating a positive to-and-fro motion to said drill, and a stream of air, steam or water forced through said drill, tubular support and bit.

**No. 17,204. Improvements in Pencil Fasteners.** (*Perfectionnements aux porte-crayons.*)

Joseph F. Webster, New Bedford, Mass., U. S., 11th July, 1883; 5 years.

*Claim.*—The improved fastening attachment for pencils and other like articles, composed of a tubular band adapted to enclose the pencil and a spring jaw or lever supported by said band, adapted to bear