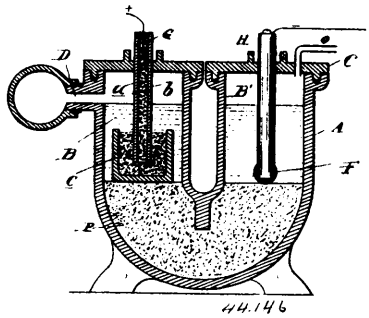
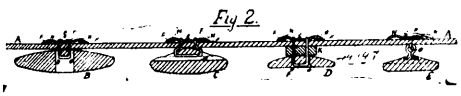
into and from the cathode compartments of the cells, connecting them in series to provide for a flow of the liquid through the com-




partments, substantially as described. 2nd. In an electrolytic apparatus, the combination, with an anode and cathode, contained in separate compartments, of a porous medium forming an electrolytic diaphragm between said compartments and composed wholly or partaly of the solid body of the salt to be electrolized in the solution contained in the compartments, substantially as described.

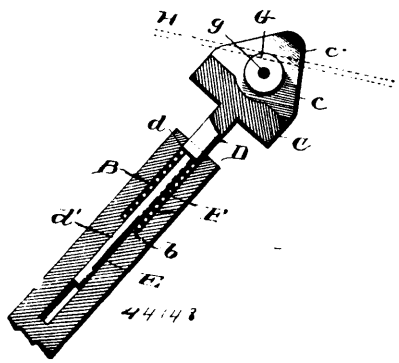
**No. 44,147. Fastener for Buttons.** (*Agrafe de boutons.*)




Salvanus Richards, Arnprior, Ontario, Canada, 2nd September, 1893: 6 years.

*Claim.*—1st. In a button fastener, the combination of a slotted and buckled disc, plate or washer G, having two small eyes in the centre, and a long common wire staple with pointed ends, substantially as set forth. 2nd. In a button fastener, the combination of a slotted, buckled and pierced disc, plate or washer G, a button having two or more central holes, or eyed shank, and a common long staple F, having pointed ends passing through the eyes or shank of said button and the eyes of the washer G, and having the ends turned and bent under said washer, substantially as set forth. 3rd. In a button fastener, the combination of the wire staple F, the rubber washer K, and the metal disc G, having the holes L, L, and the slot M, substantially as and for the purpose hereinbefore set forth.

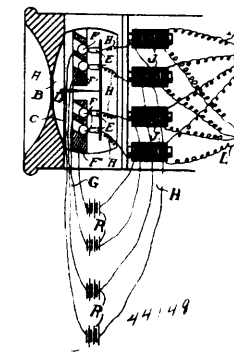
**No. 44,148. Trolley for Electric Railways.**
(*Trollée de chemin de fer électrique.*)




Ernest H. Jenkins, Daniel, Maryland, U.S.A., 2nd September, 1893; 6 years.

*Claim.*—1st. The combination with the pole having a socket, of the bracket having a shank to fit the same, and slotted longitudinally, the transverse pin, the spring arranged in the socket, and the trolley wheel journalled in the bracket, substantially as described. 2nd. The combination with the pole having a socket provided with an annular shoulder, of a bracket having a shank provided with an annular shoulder and slotted longitudinally near its lower end, the transverse pin, the coiled spring arranged between the annular shoulders, and the trolley wheel, substantially as shown and described. 3rd. The combination with the bracket having tapering wings bevelled on their inner faces and carried by a longitudinally movable shank, of the trolley wheel journalled between the said wings, substantially as shown and described.

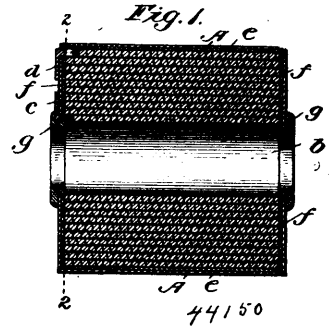
**No. 44,149. Telephone Transmitter.**
(*Transmetteur télephonique.*)




S. Lloyd Wiegand, Philadelphia, Pennsylvania, U.S.A., 2nd September, 1893; 6 years.

*Claim.*—1st. In a telephone transmitter, the combination, with a diaphragm having an electrode permanently connected so as to vibrate therewith, of a loosely mounted electrode resting normally against the first electrode and arranged to be propelled by vibrations of the diaphragm and its connected electrode toward the speaker and make variable contact during the ensuing reaction, substantially as set forth. 2nd. In a telephone transmitter, the combination, with a diaphragm and an electrode connected therewith, so as to vibrate with the diaphragm, of an electrode loosely mounted on an inclined supporting guide, said electrodes being constructed and arranged to diminish the contact by the movement of the diaphragm in a direction away from the speaker, substantially as set forth. 3rd. In a telephone transmitter, the combination, with a diaphragm and an electrode connected therewith, so as to vibrate with the diaphragm, of a spherical electrode loosely mounted and located between the diaphragm and the electrode connected therewith, substantially as set forth. 4th. In a telephone, the combination, with a diaphragm and an induction coil, of the two electrodes, one connected with the diaphragm and the other loosely mounted and acted by gravity, said electrodes being included in the primary circuit of the induction coil and arranged to be diminished in contact by the direct action of the diaphragm, and increased in contact after the reaction of the diaphragm, substantially as set forth.

**No. 44,150. Electro-magnetic Coil.**
(*Serpentin électro-magnétique.*)




Charles E. Lipe, Syracuse, New York, U.S.A., 2nd September, 1893; 18 years.

*Claim.*—1st. A practically solid coil of substantially rectangular naked wire having its individual convolutions and its layers of convolutions separated by layers of hard, insulating, fire-resisting material. 2nd. A practically solid coil of substantially rectangular wire, consisting of alternate layers of mica sheets and substantially rectangular wire wound one upon the other, and mica strips separating the individual convolutions. 3rd. The method of producing an electro-magnetic coil, whose convolutions shall be substantially rectangular in cross-section, which consists in making the wire from which the coil is wound of irregular quadri-lateral cross-section, as described, and coiling said wire upon the shorter side of said quadrilateral, substantially as described.

**No. 44,151. Furnace.** (*Fournaise.*)

Robert H. Yeomman, Omaha, Nebraska, U.S.A., 5th September, 1893; 6 years.

*Claim.*—1st. A furnace for heating air consisting of a crescent-shaped chamber holding heat, a heat passage below and located in the concave of the crescent of the said chamber, cold air inlets