helices ... cores and magnet H, 6th. The transmitter A1, provided with a thin metallic plate or plates, with roughened surface, in combination with the diaphragm, and electric circuit passing through such plates, 7th The combination, with the tympan arranged to respond to the human voice, of two or more contact points operated by such tympan and the electric circuits, whereby the current passing upon the line is pulsated in unison with the vibrations of the tympan, and its volume proportionately increased or decreased; 8th. The combination, with the resonant case and tympan, of two or more contact points, and rheostats adjusted to regulate the strength of the electric pulsations passing upon the line; 9th The combination, with the diaphram and resonant tube, of an electro-magnet and a spring armature *m b*, that is supported at both ends, 10th In an acoustic telegraph apparatus, the combination of two stationary electrodes immersed in two cells, a conducting fluid in said cells, and a fluid connection between such cells, and mechanism actuated by a sound vibrating body for varying the dimensions of such liquid connection, and the conductivity of the same, 11th The combination, with the acoustic telegraph and diaphragm, of a roller that receives a revolving motion, and contains an electrolytic material, and a spring or presser connected with the diaphragm, and resting upon the roller, 12th. The combination in an acoustic telegraph, of a moving surface containing electrolytic material, a diaphragm, a presser or spring extending from the diaphragm, and resting on such surface, a screw through a fixed support, acting upon the presser to vary or adjust the friction between the moving surface and the presser, 13th The combination with the moving surface containing electrolytic material, and the electric connections thereof, a case enclosing the said moving surface to exclude atmospheric influence, 14th. The roller a_{11} revolved by power, and the presser g_{11} and diaphragm d_{11}, in combination with the receptacle n_{11} for liquid, and the transfer roller r_{11}, 15th The arrangement of local circuit magnetic call telephone receiver, telephone transmitter, switch and line connections, whereby the call and the receiving instruments are in the line circuit, and the local battery is also put upon the line

No. 9923. Improvements on Telephones.

(*Perfectionnements aux telephones.*)

Thomas A Edison, Menlo Park, N J, U S., 1st May, 1879, for 5 years.

Claim.—1st. The combination of transmitter A, coils D E, switch C, polarized relay E, bell H, battery K and circuits; 2nd. In combination with a telephonic and the primary circuit of an induction coil, the bottom of lamp black carbon placed in the primary circuit; 3rd. In combination with a receiving telephone instrument having a diaphragm and electro-magnet, a swinging lever placed with its moving end in contact with the receiving diaphragm, and a switch or key for increasing the electric current, and operating the lever as a sound or call upon the diaphragm, 4th In combination with the telephone transmitter B^1 and receiver A_1, the induction coil C_1 D_1, battery Q_1, local circuit, switch s_1 and circuit connections, 5th In combination with the main line circuit, local circuit, and the telephonic instrument, the induction coil composed of two wires, the largest of which is surrounded by a finer insulated wire wound helically, the two being then wound into a helix to form the induction coil; 6th. The combination, with an induction coil, of a diaphragm that is acted upon by such induction coil, and gives out sonorous vibrations, 7th. In combination with the balanced circuits, a telephonic instrument included in one circuit, and acting to vary the electric condition of the line by the resistance that is controlled by the sound vibrations, 8th. A transmitting telephone containing a variable resistance in the electric circuit, and a body acting by inertia, to vary the resistance in proportion to the sound vibrations, 9th. Transmitting signals, that can be received on a telephone, in a closed circuit containing a permanent current, by reversing the position therein of an electro-magnet, or similar inductor; 10th A Morse apparatus and a telephonic receiver operated independently of each other in combination with keys and means for transmitting signal waves of different forms; 11th The method of compensating in one circuit for inducted currents from adjacent circuits, consisting in setting up a re-actionary induction by an induction coil connected with the adjacent circuit or circuits.

No. 9924. Improvements on Elevated Railways. (*Perfectionnements aux railroutes aériens.*)

Cornelius Donkersley, New York, U. S., 1st May, 1879, for 5 years.

Claim.—1st. The stretcher B, formed of corrugated metallic plate supported at intervals upon suitable bearing surfaces *a*, in combination with longitudinal side bars or braces C secured to the said plate; 2nd. The standard A, having a recess or opening at its upper end to form the central surface *a* and the side post a_1, in combination with the corrugated stretcher B and the longitudinal side braces C, 3rd The continuous plank D, with or without a non-conducting covering, in combination with the corrugated stretcher B, and the longitudinal side braces C, to form a bed for supporting the grooved rail E upon the said stretcher, and to reduce the noise; 4th. The rail E, provided with one or more V grooves *e*, having bottom channels e^1, in combination with the drive wheel F, having circumferential annular V, shaped webs *f* provided with flattened faces f^1, 5th. The single grooved rail E, having central bottom channelled V-groove *e*, and bevelled outer edges e^2, 6th A single rail elevated railway track, formed by the combination, with a single grooved rail, of a severally grooved rail, to increase traction on an ascending grade; 7th. In an elevated single rail railway, the combination of the bevelled safety rails I, and the bevelled smooth-faced side wheels G, supported by bearings H attached directly or indirectly to the body or frame of car or locomotive; 8th. The relief spring *h*, in combination with the shaft *g*, wheel and bearing G H and the bevelled safety rail I.

No. 9925. Improvements on Ploughs.

(*Perfectionnements aux charrues.*)

John Clayton, Clayton, Minn., U. S., 1st May, 1879, for 5 years.

Claim.—1st. The head block A having a hole formed through its upper part, to receive a plough beam and grooves, and slots formed in its lower part, and provided with the plate C and screw D for clamping the plough beam, with the bolts G and the bearings H for the wheel shafts or axles; 2nd The combination of the side brackets N with the side bars or rods of the head block A and with the plough beam B.

No. 9926. Manufacture of Hydrogen Gas.

(*Production du gaz hydrogène.*)

John A. Stephan, Worcester, England, 1st May 1879, for 5 years.

Claim.—1st Vapourizing the sewage, or sewage deposit, decomposing the steam whereof by hot metallic surfaces ... ing the resulting hydrogen gas with carbonic acid gas by passing the ... metal carbonates and finally converting the carbonic oxide, and at the same time enriching the gas by passing the same through heated hydrocarbons

No. 9927. Improvements on Fire-Escapes.

(*Perfectionnements aux sauveteurs d'incendie.*)

Edward M Ball, Stanstead, Que., 1st May, 1879, for 5 years.

Claim.—1st. The threaded spool *b*, in combination with the sliding disc *c*, and mechanism for operating them upon their shaft and frictional bearing surface *d*, 2nd. The threaded spool *b* having flange *e*, in combination with the spring *f* lenticular disc *c* and frictional bearing surface *d*, 3rd. The spool *a*, in combination with the threaded spool *b*, lenticular sliding disc *c* and mechanism for operating them upon their shaft and frictional bearing surface *d*, 4th. The combination of the spring *h*, gearing *i u*, pulleys *a b*, lenticular sliding disc *c* frictional bearing surface *d* and spring *f*.

No 9928. Barrel Hoop Cutting Machine.

(*Machine pour couper les cercles.*)

William D. Johnson, Elmore, Ohio, U. S., 1st May, 1879 for 5 years.

Claim.—1st. The reciprocating angular knife E, gauge bar G connected to and acting in concert with said knife, in combination with the vibrating table K, pitman M and eccentric L constructed and arranged to operate conjointly 2nd The ratchet wheel and pawl *c f* gearing N O, eccentric L and pitman, arranged in relation to, and in combination with the table K; 3rd The combination of the cam E, lever A, links S, arms Q ratchet wheel and pawl *c f*, gearing N O, eccentric L, pitman M and table K.

No. 9929. Improvements on Boiler Injectors.

(*Perfectionnements aux injecteurs des chaudières.*)

William Sellers. (Assignee of George R. Buckman), Philadelphia, Pa., U.S., 1st May, 1879, for 5 years.

Claim.—1st. An air chamber in communication with the water supply pipe, in combination with an air chamber in communication with the overflow chamber. 2nd In combination an injector case which supports the nozzles of a self-adjusting injector in position, a water chamber, an air chamber in connection therewith, and an air chamber in connection with the over-flow chamber.

No. 9930. Work Table Implement.

(*Auxiliaire de table à ouvrage.*)

Edwin S Heath, Clintonville, Pa., U S., 1st May, 1879, for 5 years.

Claim.—1st. The paper weight A, 2nd. The combination, with the paper weight A, of the pin cushion B and scissors sharpener D. 3rd The mode of application of the tape line C and glass-cutter wheel E.

No. 9931. Improvements in Milk Cans.

(*Perfectionnements aux bidons à lait.*)

Thomas S Evans and John M Nunns, Kingsey, Que., 1st May, 1879, for 5 years.

Claim.—An inclined apron, extending partially across the can, which allows the cream to rise readily from the body of milk below at the same time that it permits of the cream being easily drawn off from the upper part of the can, without coming in contact with the sediment at the bottom the can.

No. 9932. Improvements in Gas Governors.

(*Perfectionnements aux régulateurs à gaz.*)

Miles Lees, Providence, R. I., U. S., 1st May, 1879, for 5 years

Claim.—1st. In a gas pressure governor, the combination, with the annular mercury channel, of the dome d provided with a contracted central aperture provided with the guard *e*, 2nd The combination, in a gas pressure governor, with the valve *b*, diaphragm *c* and valve stem *f*, of the spring *g* and adjustable thumb-screw *h* arranged to regulate the pressure; 3rd. The combination, with the diaphragm, valve and valve stem, of the disk K and cord *l*, provided with the weights *m* arranged to regulate the weight of the diaphragm; 4th The combination, with the annular mercury chamber provided with the dome d, of the dome *o* provided with the neck *p*, 5th. The combination, with the valve and diaphragm of a gas pressure regulator, of an annular mercury cup made of glass, or protected by an enamel arranged to be inserted or removed, 6th. The combination, with a regulating valve, of a reliefe valve arranged to relieve any sudden pressure.

No. 9933. Improvements on Invalids' Rests.

(*Perfectionnements aux appui-malades.*)

Cyprien Fortin, Beauharnois, Que., 1st May, 1879, for 5 years.

Claim.—The combination of the reclining frame A A with the sliding frame B B C C and the action of the clamp screw F, and the bands G in shortening, lengthening and holding in place the sliding frame B B C C, as well as the action of the supports E F and the cross-bar H joining them.

No. 9934. Improvement on Stove Linings.

(*Perfectionnement aux doublures des poêles.*)

Robert D Sandiland, Lyons, Iowa, U. S, 1st May, 1879, for 5 years.

Claim.—In an adjustable stove back lining, the inclined lots D D.