

coils of a magneto-electric machine, by placing the coils of part of the magnets in a shunt circuit, and the remainder in the main circuit, either in receiving or transmitting machines. 16th. The means of adjusting the relative electro-magnetic force of the shunt and main circuit, that is to say, 1st. by arranging the exciting coils in either the shunt or main circuit, so as to be connected up for either quantity or intensity; 2nd. by varying the relative number of the coils in the shunt and main circuits; 3rd. by removable sections of the armatures, and 4th. by the use of different commutators for different sections of the armature coils, that is to say; by any or all of these means. 17th. The main circuit of the armature coils, combined with a shunt circuit passing through any or all of the magnet coils when the relative resistance of the shunt and main circuit can be adjusted. 18th. The movable brush or other means of breaking the circuit of the armatures when combined with the shunt circuit in the magnet coils for the purpose of an electrical break. 19th. The conducting wire composed of an alloy of steel and aluminum, with and without additional silver. 20th. The heat radiators introduced in the circuit in places of great resistance. 21st. The earth plates 32 or coils 33 provided with discharging points.

No. 12,827. Perpetual Tension Propelling Belt. (*Courroie de mise en mouvement à tension perpétuelle.*)

Alonzo S. Gear, New York, U. S., 19th May, 1881; for 5 years.

Claim.—1st. The described belt or cord, made from suitably coiled wire. 2nd. As a new article of manufacture, the belt or cord consisting of coiled wire provided with suitable end connections.

No. 12,828. Improvements on Fire Extinguishers. (*Perfectionnements aux extincteurs d'incendies.*)

John B. Logan and Abner Greenleaf, Baltimore, Md., U. S., 19th May 1881; for 5 years.

Claim.—1st. The combination of the platform *e* supported upon journals *d* and carrying a fire extinguishing apparatus with the spindles *f*, clamps or jaws *g* and adjusting screw *i*. 2nd. A pipe *N* supported in a sleeve *l* and capable of revolution therein, in combination with the non-rotating connection in conducting the water to said pipe from the engine or hydrants. 3rd. A pipe *N* supported in a sleeve *C* and capable of rotation therein, in combination with the gear *o* and worm *p*. 4th. The pipe *N* in combination with the brace *l* and one or more arms *r r* forming the truss *T*. 5th. A pipe *N* receiving water under pressure at its base and delivering it at an elevation, said pipe being movable upon a vertical axis the combination with said pipe of a truss *T* attached thereto, upon the side toward which the water is delivered and rotating therewith. 6th. The combination of the flexible section *X* with the curved and concave formers *5* or *6*. 7th. A rigid pipe having a flexible section *X*, the combination, with said section, of supporting devices adapted to pursue a true curve in said section, when the same is drawn down. 8th. In combination with the tube *N* having a flexible or adjustable section *X*, nozzle *y* and valve or stop cock *10*, the cord *z* with its stop or check *16*, and appropriate guides or pulleys.

No. 12,829. Improvements on Steam Hammers. (*Perfectionnements aux marteaux à vapeur.*)

James Watt, Watertown, Mass., U. S., 19th May, 1881; for 5 years.

Claim.—1st. In a steam hammer, a valve stem, adapted to be struck and moved by a tappet arm, and mechanism between it and the piston to give the said tappet arm a respiratory motion, the said tappet arm being provided with varying surfaces to engage the valve stem at an earlier or later period of the stroke of the piston and a shifting handle under control of the operator, to enable the faces to engage the valve stem at an earlier or later period of the stroke of the piston, and a shifting handle under control of the operator, to enable the tappet arm to be moved to bring the proper portion of its surface in position to engage the valve stem to give the desired length of stroke. 2nd. In a steam hammer, the valve and valve seat provided with exhaust and induction ports, when the bridge between the exhaust port and induction port, leading to the lower part of the cylinder is made wider than the bridge between the exhaust port and induction port leading to the upper part of the cylinder, to cause the said induction port leading to the lower part of the cylinder to be opened when the hammer in its down stroke meets a piece of material of maximum thickness, and to prevent the exhaust port from being uncovered when the hammer is working on material of minimum thickness to, thereby, enable the hammer to be used on material of different thicknesses without adjustment. 3rd. In a steam tilt hammer, the hammer arm socket provided with a curved guiding shoulder for the piston rod head, and a pin secured to the hammer arm socket combined with the piston rod head, provided with a plane surface to rest against, and be guided by the said guiding shoulder and adapted to engage to said pin and move it and the hammer arm, and at the same time, allow free transverse movement of the pin in the said piston rod head. 4th. The hammer arm and its connected curved guiding surface combined with the piston rod head, and the pin *O*, having free transverse movement therein, and connected with the hammer arm at a distance of about one-half the average amplitude of vibration of the said pin below the axis of the hammer arm to, thereby, reduce the transverse movement of the pin in the piston rod head to a minimum. 5th. The valve and valve stem, slotted longitudinally and a tappet arm and its shifting lever, the end of the tappet arm entering the slot in the valve stem and being of different widths at different distances from its extremity, combined with a pin carried by the hammer arm to enter a slot in the said tappet arm, and impart to it a reciprocatory motion.

No. 12,830. Improvements in Automatic Telegraphy. (*Perfectionnements dans la télégraphie automatique.*)

William A. Leggo, New York, U. S., 19th May, 1881; for 5 years.

Claim.—1st. The method of automatic transmission, which consists in causing the ordinary manipulations of a key to be recorded in insulating and conducting spaces, upon a suitable surface, and then using the record so made to automatically control the transmitting circuit. 2nd. The combina-

tion, with one transmitting surface, of two sets of gearing, one adapted to give the surface a much greater speed of movement than the other, and means for changing from one to the other. 3rd. In combination, in an apparatus for preparing messages for telegraphic transmission, a conducting surface, a pen adapted to normally ink the surface thereof, and devices arranged to lift the pen from the surface when it is desired to indicate thereon signals for transmission.

No. 12,831. Improvements in Anti-Friction Axle Boxes. (*Perfectionnements aux boîtes des roues à anti-friction.*)

William Miller, Fort Wayne, Ind., U. S., 19th May, 1881; for 5 years.

Claim.—1st. The axle thimble *A* having grooves *a* provided with ridges *a*, and flanged shoulder *C*, and half-collar *c*, provided with bearings for the journals of the anti friction rollers *B*. 2nd. The combination, with the thimble *A* having oil cup *G* and groove *g*, shoulders *C*, *E*, collar *c*, ribs *b* and grooves *a* of the anti-friction rollers *B*, and the sleeve *D* having shoulders *d*. 3rd. The combination, with the grooved thimble *A* and anti friction rollers *B*, of the recessed and shouldered sleeve *D* secured by the notched pin *F*.

No. 12,832. Improvements on Telegraphy. (*Perfectionnements dans la télégraphie.*)

Orazio Lugo, New York, U. S. A., 19th May, 1881; for 15 years.

Claim.—A compound electric conductor consisting of two or more parallel insulated conductors constituting a helix and united in pairs at their extremities, to complete one or more metallic circuits, with parallel insulated conductors disposed symmetrically about the longitudinal axis of the helix, also united in pairs at their extremities to complete an additional independent metallic circuit.

No. 12,833. Improvements in Bailing Presses. (*Perfectionnements aux presses d'emballage.*)

Elouild Duplessis, St. John, Que., 18th May, 1881; for 5 years.

Claim.—1st. A horizontal press completely open on the top and with movable cover. 2nd. In combination with the press framed as described, the cover *P* made in two parts. 3rd. In a horizontal hay press, the combination, with the follower, of the toggle composed of the lever *E* and arms and leaders *H* carried on spindle *I*, the whole being operated positively in either direction by ropes *N* *O*. 4th. The pivot spindle or fulcrum *I*, carried in bearing *K*, holding the ends of side braces *L*. 5th. The combination, with the horizontal press, of a smaller press box, slipped therein and operated by the same mechanism. 6th. The press-box *S*, with movable cover held in place by vertical stays butting against clamp *O*. 7th. The braces *G* *G* serving to hold the follower block *C* in a square and upright position, when moving either forward or backward. 8th. The combination, with the lever *E* and the truss *E'*, of the shoe *F* carrying sheave *f* and having attached to it end of operating rope.

No. 12,834. Improvements on Shingle Machines. (*Perfectionnements aux machines à bardeau.*)

François X. Bertrand, St. Hyacinthe, Que., 19th May, 1881; for 5 years.

Claim.—La roue *D* munie de la roue ou roulette *E* tournant sur son essieu *F* et fixé par vis ou ses équivalents à la dite roue *D*, et les équivalents de la dite roue *D*, ceux de la dite roue ou roulette *E* tournant sur un essieu *F* ou leurs équivalents. La combinaison de la dite roue *D* avec la roue ou roulette *E* sur son essieu, ou leurs équivalents. La combinaison de la dite roue *D* avec la roue ou roulette *E* sur son essieu *F* avec le dit excentrique ou came *C*, ou leurs équivalents, et la combinaison de la dite roue *D* avec la roue ou roulette *E* sur son essieu *F* avec le dit excentrique ou came *C*, et du dit excentrique avec le trapeau *n* *B* *n* ou leurs équivalents.

No. 12,835. Improvements on Feed Water Heaters. (*Perfectionnements aux chauffeurs de l'eau d'alimentation.*)

George S. Strong, Philadelphia, Pa., U. S. A., 13th May, 1881; for 5 years.

Claim.—1st. A feed water heater in which are combined the following elements, namely: first, a chamber containing steam heated tubes; second, a filtering medium suitably confined, and third, mechanism whereby the feed water is forced into the lower portion of the said heating chamber upward through the same and through the said filtering medium. 2nd. The combination, in a feed water heater, of a heating chamber containing steam heated tubes, a filtering partition, and a chamber above the same, with a pipe forming a communication between the top of this upper chamber and the lower portion of the lower chamber, and with mechanism whereby a continuous circulation of water from the upper chamber to the lower chamber is maintained through the said pipe. 3rd. The combination, in a heater, of the pipe *H* communicating with the top of the said heater, the injector chest *I* communicating with the said pipe, and with the heating chamber, and the nozzle *K* communicating with the feed pipe. 4th. The combination of a live steam heater with feed water apparatus heated by exhaust steam. 5th. The combination, in a feed water heating apparatus, of a filter with a live steam heater. 6th. The combination, in a feed water heater, of a system of pipes heated by exhaust steam, a filter and a live steam heater interposed between the said pipes and filter. 7th. The combination, in a feed water heater, of the outer shell or casing *A*, and the external and internal tubes, with a base cast in one piece and inclosing the inlet chamber *E* and outlet chamber *F*. 8th. The combination of a steam boiler, a feed water heater having a filter, a valved blow off pipe, and a pipe *Y* affording communication between the interior of the heater and the steam space of the boiler, whereby live steam may be caused to flow backwards through the filter for cleansing the latter.

No. 12,836. Improvements on Flexible Iron Harrows. (*Perfectionnements aux herse en fer flexible.*)

Edward Pinder, Orono, Ont., 19th May, 1881; for 5 years.

Claim.—1st. An iron harrow composed of frame sections *A* *F* hinged