

the relay when the circuit closed by the transmitter is broken. 11th. The combination, in a system of transmission to and from a moving vehicle, of a transmitter for opening and closing the circuit from a polarized relay in a back contact circuit for the transmitter, a shunt or branch around the relay, and a circuit controller therefor governed by the transmitter, and serving to close a circuit around the relay at the instant of breaking off the generator circuit. 12th. The combination, in a system of railway telegraphing by induction, of a polarized relay or transmitter and a supplemental circuit closer and breaker having three points of closure, one controlling a shunt around the relay, and the other, a circuit through the relay and transmitter, as and for the purposes described. 13th. The combination, in a system of railway telegraphing substantially as described, of a polarized relay, a Morse key, a supplemental circuit closer playing between two contacts, one of which is on the key, and a third contact for said lever forming a portion of a shunt around the polarized relay.

### No. 23,804. Railroad Track Clearer.

(Grattoir pour Voie de Chemin de Fer.)

Charles C. Quinn, Fargo, Dak. U.S., 14th April, 1886; 5 years.

**Claim.**—1st. The combination of the main frame, the tunnel excavators secured diagonally across the frame at an angle to the line of the rails, and pivoted on bolts *a, a*, which are secured to the diagonal drop-hangers, said hangers being secured to the main frame with safety straps secured to the tunnel excavators, and the main frame, substantially as described. 2nd. In combination with the perpendicular flange cutters, the elbows *1, 1*, on the upper ends of the square bars, set-screws and set-nuts, lifting-chains, tumbling shaft, vertical rollers, and the connection-rod, substantially as described. 3rd. In combination with the automatic locking plate, the stop-bolt spring, and the stop eolt spring-box, substantially as described. 4th. In combination with the governor cylinder *D*, the steam or air cylinder *D*, the steam or air pipes, the follower-stem, the regulating diaphragm-stem, and the regulating spring, substantially as described. 5th. The tunnel excavators and flange-cutters, in combination with a common lever which simultaneously operates both excavators and flange-cutters, substantially as described. 6th. The main frame and the tunnel excavators, in combination with the safety-straps *E, E*, as set forth. 7th. The combination, with the perpendicular flange cutters, and the excavators, of the levers which connect them, and the locking device, substantially as described. 8th. In combination with the excavators, and the flange-cutters, the locking device consisting of the plate *H*, bolt *C*, spring *C*, and spring-box *C*, as set forth. 9th. In combination, the flange-cutters *A*, tread-clearer *O*, conical scoop *U*, and the perpendicular adjustable bar *I*, substantially as described. 10th. In combination, with a railroad track, the tunnel-shaped surface-clearers, adjustable as described. 11th. The combination in a railway track-clearer for cars, of a perpendicular flange-cutter, and tread-clearer, of a funnel-shaped excavator adjustable to cut above and below the faces of the rails, substantially as described. 12th. The combination of the flange-cutters, the tread-clearers vertically adjustable, the funnel-shaped excavators adapted to be lifted over switches, and an automatic lock, substantially as described. 13th. In a track-clearer, the overhanging deflector *U*, and perpendicular clearer, in combination with the vertically adjustable bar and a car, substantially as described. 14th. The combination, with a car, of a vertically independently adjustable excavating funnel suspended flexibly from a rock-shaft, substantially as described. 15th. The combination, in a railroad track clearer, of a truck frame which is laterally adjustable on its axles, substantially as described. 16th. The combination in a railway track clearer, of a curved surface deflector, a clearer and a broom, arranged to operate as described. 17th. A railway truck frame laterally adjustable on its axles, in combination with vertical frog, and side rail clearers, substantially as described.

### No. 23,805. Coal or Coal and Wood Cook Stove.

(Poêle de Cuisine à Charbon ou à Charbon et Bois.)

John S. Larko, Oshawa, Ont., 14th April, 1886; 5 years.

**Claim.**—1st. The combination, in a coal cook-stove, of the grate rest *I*, and oval grate *E*, substantially as and for the purpose hereinbefore set forth. 2nd. The toothed lower section of the fire pot *B*, and in combination therewith, the rotary grate *C*, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the lower sections of the fire pot *B*, with the four or more bricks *A* being made to fit together with spur and spur eyes *b b*, or their equivalents, substantially as and for the purpose hereinbefore set forth.

### No. 23,806. Machine for Making Matches.

(Machine pour Faire les Allumettes.)

George E. Norris and William E. Hogan, Troy, N.Y., U.S., 14th April, 1886; 15 years.

**Claim.**—1st. In a machine for making match splints, the rollers *R* and *R* formed with the parallel straight grooves *G* with coincident severing edges extended entirely across the faces thereof, and the flat guide-plate *P*, all combined to operate substantially as and for the purposes set forth. 2nd. In a machine for making match splints, the combination of the rollers *R* and *R*, connected by gears to rotate, as described, said rollers having grooves, and intermediate cutting edges arranged parallel to the axis, and the ring-form grooves *G*, *G* arranged in the cylindrical faces thereof circumferentially to their axis, and the fingers *d* and *d*, substantially as and for the purposes set forth. 3rd. The combination, with the rollers *R* and *R*, each having the grooves *G* with intermediate cutting edges, and the circumferential grooves *G*, *G*, said rollers being arranged to operate, substantially as described, of the fingers *d*, *d* and *d*, *d*, constructed to enter said circumferential grooves and extended rearwardly to produce the intermediate guide passage *U*, substantially as and for the purposes set forth. 4th. The combi-

nation of the guide passage *U* adapted to receive match splints, the guide-way *C* having the concave surface *C* arranged at the rear end of guide passage *U*, the rollers *I*, and the endless belt *B*, constructed and arranged to operate, substantially in the manner as and for the purposes set forth. 5th. The combination of the guide passage *U* adapted to receive match splints, the guide-way *C* made with the concave surface *C*, and arranged at the rear end of said guide passage *U*, the roller *I* arranged to turn within said concave, substantially as described, the endless belt *B* arranged to be operated by the roller *I*, and to run on a return pulley, the wheel *D*, and the belt *B* adapted to run on the latter, and a return pulley, said belts being arranged with reference to each other and said concave guide, substantially as and for the purposes set forth. 6th. The combination of the endless belt *B* and *B*, arranged to be operated, substantially as described, the dipping tank *T* made with the slot *n*, and the dipping wheel *d* arranged to be rotated in said tank relatively to the downward movements of said belts, substantially as described. 7th. The combination of the splint-delivery passage *U*, the guide-way *C* made with the concave surface *C*, the roller *I* adapted to rotate in the latter, substantially as described, the wheel *D*, the pulleys *N*, *N*, *N*, and the belts *B* and *B*, substantially as and for the purposes set forth. 8th. The combination of the tank *T* made with the side slot *n*, and the roller *d* adapted to rotate in said tank with reference to said slot, substantially as and for the purposes set forth. 9th. In a machine for dipping match splints, that are held between two belts, the combination, with a tank adapted to be heated, and contain match composition, of a roller made with a groove in its cylindrical face, circumferentially to its axis, and said roller constructed to be rotated with its lower surface where the latter will be immersed in composition contained within the tank, substantially in the manner as shown and described. 10th. In a machine for dipping match splints that are held between two belts, the combination, with a tank or receptacle that is adapted to be heated, and to contain match composition, of a roller made with a groove in its cylindrical face circumferentially to its axis, said roller being constructed to rotate with its lower surface immersed in match composition where within the tank, and a scraper adapted to remove from the cylindrical face of the roller, the adhering composition, excepting that portion of the latter which is within the groove, substantially in the manner as and for the purposes set forth. 11th. In a mechanism for dipping matches, the combination of two endless belts, provided with pulleys that bring them together one above the other, adapted to intermediately contain match splints, and to run on a set of intermediate pulleys, and return pulleys that separate said belts at the end of their stretch to free the matches, substantially in the manner as shown and described. 12th. In a mechanism for dipping matches, the combination of two endless belts provided with pulleys that bring them together one above the other, to grasp the splints, a dipping tank, and wheel with the latter rotated so as to come in contact with adjacent ends of the splints, being moved by the belts, and pulleys to separate the belts to free the matches, substantially as shown and described.

### No. 23,807. Machine for Crushing Quartz Rock.

(Machine à Broyer le Quartz.)

Jool B. Low, San Francisco, Cal., U.S., 14th April, 1886; 5 years.

**Claim.**—1st. The ore-crushing machine herein described, consisting essentially of the casing *A*, supported by and revolving with the shaft *C*, lining plates *D*, crushing ball *H* and vertical annular screw *G*, arranged and operating substantially as herein set forth. 2nd. The adjustable feeding device herein described, consisting essentially of the hopper *O*, casing *P*, spout *P*, plate *Q*, lever *R*, shaft *S*, arms *W* and pins *v*, lever *U* and hooks *X, X*, and cam *V* secured on shaft *C*, arranged and operating substantially as herein set forth. 3rd. The crushing ball, herein described, consisting essentially of the interior perforated ball *H*, outer shell sections *h, h*, rods *i* and wedges *i, i*, substantially as herein set forth.

### No. 23,808. Process of Oxydizing Linseed Oil, etc.

(Procédé d'Oxydation de l'Huile de Lin, etc.)

John W. Hoard and Frederick R. Hoard, Providence, R.I., U.S., 14th April, 1886; 5 years.

**Claim.**—The process of oxidizing linseed oil and other liquids, by passing and repassing the same by the agency of a blast of air through an atomizer within the vessel containing the liquid under treatment, substantially as above set forth.

### No. 23,809. Mechanical Traverse Table.

(Table de Point Mécanique.)

William D. Patterson, Victoria, B.C., 14th April, 1886; 5 years.

**Claim.**—1st. A mechanical traverse table, consisting of an arc laid off in degrees and fractions, a swinging radial arm playing over said arc laid off in chains and fractions, a scale of chains and fractions laid off on a line forming a side radius of said arc, and a slide moving at right angles with said radius and laid off in chains and fractions, substantially as herein described. 2nd. A mechanical traverse table, consisting of the rectangular frame *A*, having its side or sides graduated, as described, the arc *C* within it, and graduated, as described, the pivoted swinging radial graduated arm *D* playing over said arc, and the graduated slide-bar *E* moving on and at true right angles with the sides of the frame and over the radial arm and arc, substantially as herein described. 3rd. A mechanical traverse table, comprising the rectangular frame *A*, having its side or sides graduated, as described, and provided on one side with a raised track, and on the other with a longitudinal rest, the arc *C* within the frame and graduated, as described, the swinging radial graduated arm *D* pivoted to the frame and playing over said arc, said arm having at one end a sight aperture, and at the other a set screw for clamping it, the journal of said screw being back of the pivot-point of the arm, and the graduated slide-bar *E* mounted and adapted to be adjusted and fixed on the track and rest on the sides of the frame, and to move at true right angles therewith and over the radial arm and gra-