cam 25 secured thereto between the members of said arm, substantially as and for the purpose set forth. 7th. In a plough, substantially as described, the combination, with landward wheel and its cranked axle having a bearing on its spindle for a suitable box, a box mounted thereon, a longitudinal bar connected with said box, and forming at one extremity and normally above said spindle, a support for the seat, and at its forward end having a movable connection with the plough, substantially as and for the purpose set forth. 8th. In a plough, substantially as described, the combination, with the cranked axle of the landward wheel, of a longitudinal bar pivotally mounted on the spindle of said axle, and forming a support for the seat at the rear end and above said spindle, the slotted tilting arm supporting the forward wheel, and the traveller mounted on the forward lateral extension of said bar and within said slot, substantially as and for the purpose set forth. 9th. In a plough, substantially as described, the combination of a longitudinal seat-supporting bar, having a pivotal connection with the spindle of the rear axle, and a movable connection with the tilting support of the forward wheel, and a longitudinally-adjustable foot-rest, substantially as described. 10th. In a plough, the herein described mounting for the wheels, consisting of the spindle 31, the bolt 42 connecting the spindle with the axle-arm, the leather washers 45 and 46 to exclude dirt and retain oil, and the cavity 47 near the end of the hub (which in the case of the inclined wheel is the higher) adapted to hold packing for the retention of oil, substantially as described.

No. 30,909. Tubular Guide Drill.

(*Guide-foret tubulaire.*)

James T. Connelly, Huntington, W. V., U.S., 8th March, 1889; 5 years.

Claim.—1st. The tubular drill-guide, substantially as described. 2nd. The combination of the tubular drill-guide, having its bore extending its entire length, with a drill having its stem passing therethrough, so as to work and be guided therein, substantially as described. 3rd. The combination of the tubular drill-guide, its jam-nut and the drill passing through said guide, substantially as described.

No. 30,910. Straw Cutter. (*Coupe-paille.*)

Albert La Marsh, Dundas, Ont., 8th March, 1889; 5 years.

Claim.—In a straw-cutter, the combination, with a fly-wheel and cutter-bar, of a cutting knife C having its edge formed somewhat sickle-shaped or arched, to cut from the heel outwards and from the point inwards, at the same time finishing the cut near the centre of the cutting edge, substantially as and for the purpose specified.

No. 30,911. Coupling for Gas and Electric Light Fixtures. (*Joint de garnitures de lumière à gaz et électrique.*)

Reinhold Herman, Crafton, Penn., U.S., 8th March, 1889; 15 years.

Claim.—1st. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and a beariag ball formed of insulating material arranged between said nipples, substantially as set forth. 2nd. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, a bearing ball formed of insulating material interposed between said nipples, and bolts for adjusting the nipples in proper relation to each other, substantially as set forth. 3rd. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and perforated bearing ball formed of insulating material arranged between said nipples, substantially as set forth. 4th. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and an angularly-perforated bearing ball formed of insulating material arranged between said nipples, substantially as set forth.

No. 30,912. Treating Sparkling and Effervescent Beverages. (*Traitement des boissons mousseuses et effervescentes.*)

Freiderich A. Reihlen, Stuttgard, Germany, 8th March, 1889; 5 years.

Claim.—1st. The combination of the double-walled generating vessel A, the elevated double-walled transmitting vessel E, the elevated shipping vessel F, the double-walled charging vessel G, a carbonic acid conduit H extending from the generating vessel past the transmitting, shipping and charging vessels, and returned to the generating vessel, branch tubes connecting the conduit respectively with the inner and outer walls of the vessel, a pipe B connecting the inner walls of the generating and transmitting vessel, a pipe *o* connecting the inner wall of the transmitting with the shipping vessel a pipe *i* descending from the shipping to the charging vessels a feed pipe R leading from the lower portion of the inner wall of the charging vessel to the inner wall of the generating vessel, a force pump in said feed pipe between the charging and generating vessels for drawing the liquid from the charging vessel, forcing it into the generating vessel, and lifting it to the transmitting vessel, and a valve Z in the feed pipe between the force pump and the generating vessel, substantially as described. 2nd. The combination of the double-walled generating vessel A, a double-walled transmitting vessel E elevated above the same, a pipe-connection between the inner walls of said vessels a branch U in said pipe connection containing a manometer, a pipe *o* for connecting the transmitting vessel to an elevated shipping vessel, a double-walled charging vessel G below the transmitting vessel and adjacent to the generating vessel, a tube *i* for connecting the inner wall of the charging vessel with the inner wall of the shipping vessel, a branch *f* on said tube containing a manometer, a carbonic acid conduit H extending from the generating vessel, passing the transmitting and charging vessels, having branches to connect with the outer walls of the transmitting and charging vessels, and returning to the generating vessels, a branch V on the conduit containing a manometer, a branch *g* for connecting the conduit with the outer walls of the charging vessel, with the outer wall of the shipping vessel and connected with a manometer W_2, a feed-pipe R connecting the inner walls of the charging and generating vessels, and a pump *n* in said feed-pipe for forcing the liquid from the charging vessel into the generating vessel, and upward into the transmitting vessel, substantially as described.

No. 30,913. Railway Crossing.

(*Passage de chemin de fer.*)

James Cumming and Margaret Cumming, Buffalo, N. Y., U. S., 8th March, 1889; 5 years.

Claim.—1st. In railway crossings, the series of removable frog-sections, each having base plates crossing one another in depressions, as described, with the rail of one section overlapping the joints of the base plates of the adjoining sections, substantially as and for the object specified. 2nd. In railway-crossings, a series of frogs, consisting each of a base plate A, having centrally a depression *a*, a base-plate A_1, intersecting said base-plate at said depression, the running and guard rails riveted to said base-plates, the bridge-pieces located at the intersection of said rails, the cushion underneath and the stops for said bridge-pieces constructed and combined in the manner as and for the object stated. 3rd. In combination, with the intersecting rails of a crossing or switch frog, a bridge piece, substantially as described, having the rubber cushion and the end stops, as and for the purpose indicated. 4th. In railway crossings, a series of removable frogs, each having the rails of one overlapping the adjoining edges of the opposite base-plate, said rails being riveted to their respective base-plates, and secured to the rails of the adjoining frogs, by fish-plates and bolts, as described.

No. 30,914. Electric Stop Valve.

(*Soupape de retenue électrique.*)

Robert Wellens, Joseph Wellens and Hugh Ferguson, Pittsburg Penn., U.S., 8th March, 1889; 5 years.

Claim.—1st. The combination, with an oscillating valve and its case, having arms D_2 and plate D, of a valve stem extending from the valve to the plate D, and having a weighted arm attached, a notched disk connected to and operated by the valve stem, an armature provided with a tooth for engaging the notch of the disk and an electro-magnet for operating the armature, the said armature and electro-magnet being supported upon plate D, substantially as and for the purpose described. 2nd. The combination, with the steam valve and its weighted arm, of the diminishing gear E, E_1, the notched disk E_2, the toothed armature and its electro-magnet, substantially as and for the purpose described. 3rd. The combination of the valve chamber, having ports a^1 and a^2, the valve C, with stem C_1, the detachable head D_1 with arms D_2 and plate D, the toothed segment E, pinion E_1 and notched disk E_2, the toothed armature G and the electro-magnet, substantially as and for the purpose described.

No. 30,915. Feed Water Purifier.

(*Epurateur de l'eau d'alimentation.*)

The Smith Feed Water Heater and Purifier Company, St. Louis, Mo., (assignee of William J. Smith, Chicago, Ill.) U.S., 8th March, 1889; 5 years.

Claim.—1st. A feed water purifier for boilers, consisting of tubes 8, 8, horizontally arranged within said boiler at each side thereof, brackets 9 having curved parts 10 and bolts 11 for supporting said tubes from the shell of the boiler and holding them in place, pipes for connecting said tubes with pump or injector connections, the connections between said pipes and tubes being wholly within the boiler. 2nd. The combination, with a feed water purifier, of a suction pipe connecting the bottom of the boiler with said feed water purifier, whereby, when the purifier is blown off, the sediment deposited in said boiler will be drawn out by said pipe. 3rd. The combination, with a feed water purifier, of a suction pipe connecting the bottom of the boiler with said feed water purifier, and a valve in said pipe, whereby the feed water is prevented from passing through said pipe, and the sediment is drawn off by said pipe when blowing off the purifier. 4th. The combination, with a feed water purifier, located wholly within the boiler, having a diaphragm intermediate of it provided with holes 13, of a pipe 25 projecting in said purifier below said diaphragm, beyond the holes 13, its other end being open, or provided with holes arranged at or near the bottom of the boiler, and a valve in said pipe for preventing the feed-water from entering the boiler by way of said pipe.

No. 30,916. Inside Guard for Electric Light Globes. (*Garde intérieur pour globes de lumière électrique.*)

Robert M. Gardiner, Hamilton, and William Hibborn, Ayr, Ont., 8th March, 1889; 5 years.

Claim.—1st. In combination with an electric lamp and globe, a guard of any desired form and material placed near the bottom of the globe, for catching melted copper from the carbons that would otherwise fall on the globe, and keeping the bottom of the globe cool. 2nd. In combination with an electric lamp and globe, of a guard F placed inside the globe and provided with openings to fit the lamp, and a rim *e* on the outer edge and around the openings *a*, *d*, *c*, as shown or otherwise substantially as and for the purpose specified.

No. 30,917. Grain Binding Harvester.

(*Moissonneuse-lieuse.*)

Nichols Harvester Company, (assignee of Marion L. Nichols), New York, N.Y., U.S., 8th March, 1889; 5 years.

Claim.—1st. A harvester frame, in combination with two or more