

a hook having a bar or diaphragm connecting the point of the hook with the end bar, substantially as described, and at its opposite end with an open end bar. 2nd. A link provided at one end with a hook having a bar or diaphragm, substantially as described, and at its opposite end with an open end bar in connection with a transverse bar intermediate the hook and end bar, and rigidly connecting the side bars of the links.

**No. 17,137. Process for Manufacturing Fish Meal.** (*Procédé de fabrication de la farine de poisson.*)

Catheart Thomson, (co-inventor with Frederic B. Nichols,) Halifax, N.S., 2nd July, 1883; 5 years.

*Claim.*—The process of manufacturing fish meal from dried fish, which consists in, first, heading and splitting the fish, then in removing the back bone, the washing and drying, then chopping, grinding and bolting through sieves, substantially as specified.

**No. 17,138. Improvements in Swivel Hooks.** (*Perfectionnements aux crochets à tournants.*)

Charles Dutton and Hiram Merrill, (assignees of John H. Huntress,) Jamesville, Wis., U.S., 2nd July, 1883; 5 years.

*Claim.*—1st. The combination, with an eye, of a hook eccentrically pivoted to said eye, substantially as set forth. 2nd. The combination, with an eye formed at its lower edge with a circumferential shoulder cut away at one side, of a hook eccentrically swivelled to said eye, substantially as set forth.

**No. 17,139. Improvements in Harrows.** (*Perfectionnements dans les hersees.*)

Benjamin F. Rix, Kalamazoo, Mich., U.S., 2nd July, 1883; 5 years.

*Claim.*—1st. The combination, with the tooth support and tooth, of a clip consisting of the loop, which surrounds the tooth, and tooth support provided with the curved extensions catching under the hinging-eye of said support, all substantially as described. 2nd. The tooth having a portion of the bow above the working end concaved from the rear, with the front edge of the convex face thereof describing a straight plane, substantially as set forth.

**No. 17,140. Commercial Oxides of Lead, etc.** (*Oxides de plomb, etc., commerciaux.*)

George T. Lewis, Philadelphia, Pa., U.S., 2nd July, 1883; for 5 years.

*Claim.*—1st. The process of manufacturing commercial oxides of lead by subjecting lead fumes to the joint action of carbonate of soda or caustic soda and heat, by wasting in a furnace, substantially as set forth. 2nd. The process of manufacturing commercial oxides of lead by subjecting lead fumes to the action of carbonate of soda or caustic soda, by boiling them together and afterwards heating the resulting carbonate of lead or hydrated oxide of lead in a furnace, substantially as set forth. 3rd. The purification of lead fumes containing sulphuret of lead by addition of bleaching powder, before or during the boiling with carbonate of soda or caustic soda, substantially as set forth. 4th. The process of manufacturing commercial oxides of lead by subjecting fumes from complex lead and zinc ores to the action of sulphuric acid, and afterwards removing the zinc thus made soluble, add then boiling the insoluble sulphate of lead with a solution of carbonate of soda or caustic soda, and wasting the produced carbonate of lead or hydrated oxide of lead in a furnace, substantially as set forth.

**No. 17,141. Improvements in Levels.** (*Perfectionnements dans les niveaux.*)

James Macdonald, New York, N.Y., U.S., 2nd July, 1883; for 5 years.

*Claim.*—1st. The combination, in a levelling instrument, of the tubular standards, each provided with a transparent graduated scale and flexible tube connecting the standards at the lower ends, substantially as and for the purpose described. 2nd. Combination of the tubular standards each provided with a transparent graduated scale, the flexible tube connecting the standard at the lower ends, and the vent valves arranged at the upper ends of the standards, substantially as and for the purpose described. 3rd. The combination of the tubular standards, each provided with a graduated transparent scale, the flexible tube connecting the standards at the lower ends, and the cut-off valves arranged at the lower ends of the standards, substantially as and for the purpose described. 4th. The combination of the tubular standards, each provided with a transparent graduated scale, the flexible tube connecting the standards at the lower ends, and the vent valves and cut-off valves arranged at the upper and lower ends respectively of the standards and connected together to be operated simultaneously, substantially as and for the purpose described. 5th. The combination of the tubular standards, each provided with a transparent graduated scale, the flexible tubes connecting the standards at the lower ends, the vent valves and cut-off valves arranged at the upper and lower ends respectively of the standards and connected together for their simultaneous operation, and the closing spring common to both valves, substantially as and for the purpose described. 6th. The combination, substantially as set forth, in the standard of a levelling instrument, of the outer stationary tube A, the slotted vertically the base B supporting the stationary tube and having a laterally projecting arm L, the vent and cut-off valves E, E' arranged in the upper end of the stationary tube and the base respectively, the rotating tube C connecting the valves and slotted vertically to correspond with the outer tube, and the inner transparent tube D held between the valves and marked with a graduated scale opposite to the slot of the valve of the connecting tube, substantially as shown and described. 7th. The combination, substantially as set forth, of the outer stationary tube A, the base B, the valves E, E', the cap H of the vent valve, the valve closing spring O, the valve connecting tube C and the inner transparent tube D, for the purpose specified. 8th. The combination, substantially as set forth, of the

outer stationary tube A, the base B, the inner transparent tube D, the vent and cut-off valves E, E', the flat valve P and the valve connecting tube C, for the purpose specified. 9th. The combination, with a tubular standard having the laterally projecting arms L grooved or threaded externally, of the flexible tube M and the interior lightening ferrule K, for the purpose specified.

**No. 17,142. Improvements in Pulverizing Machines.** (*Perfectionnements aux moulins à pulvériser.*)

Ryerson D. Gates, Chicago, Ill., U. S., 2nd July, 1883; 15 years.

*Claim.*—1st. A roller pulverizing machine comprising a plurality of pulverizing rollers with journals carrying gear wheels, a circular roller enclosing case having inlet and outlet passages and outside bracket supports for the journal bearings of said rollers, suitable chutes, sieves or conductors, a screen and elevator, a driving gear shaft and gears for simultaneously and together operating the rollers, screen and elevators, and mechanism for adjusting a portion of the rollers away from or toward the other portion, all substantially as and for the purpose described. 2nd. In a grinding or pulverizing machine, the combination, with a surrounding enclosing case provided with supply and discharge passages, of a revolving screen  $\beta$  having its periphery formed of a suitable screening material and a pair of crushing rollers arranged within the revolving screen and out of contact with the screening surface, substantially as and for the purpose described. 3rd. In combination with a pair of crushing rollers D D<sub>1</sub>, the frames A A<sub>1</sub>, the bearing E<sub>1</sub> and means for adjusting the same on said frame, the bearing E, means for adjustably securing the same upon the bearing E<sub>1</sub>, the frame F enclosing the two bearings, the spring  $\gamma$ , nut  $\gamma^2$  and adjusting screw G, substantially as and for the purpose described. 4th. The revolving cylindrical screen  $\beta$  provided with elevating partitions  $\beta_1$ , and the escape passages  $\beta_2$ , in combination with a pair of crushing rollers arranged within the screen  $\beta$  and acting to crush the substances independent of any crushing action by any portion of the cylindrical screen, substantially as described. 5th. The combination of the revolving screen  $\beta$ , two pairs of crushing rollers D D<sub>1</sub> D<sub>2</sub> with a guide sieve for conducting ground substances from the one pair of rollers to the other, substantially as described. 6th. The combination of the revolving screen  $\beta$  and three pairs of crushing rollers D D<sub>1</sub> D<sub>2</sub> D<sub>3</sub> with a guide sieve which conducts substances from the first to the second pair of rollers, and a guide sieve which conducts substances from the second to the third pair of rollers, the finished substances being screened by the joint action of the sieves and revolving screen  $\beta$ , substantially as described. 7th. The combination of the revolving screen  $\beta$ , crushing rollers D D<sub>1</sub> and guide sieves H H<sub>2</sub> substantially as and for the purpose described. 8th. The combination of the distributing chute H<sub>1</sub> with the upper sieve H and the upper pair of rollers D D<sub>1</sub>, substantially as and for the purpose described. 9th. A revolving screen  $\beta$  having flanges  $\beta^0$  and friction rollers  $\mu$ , in combination with an outer enclosing case A, A<sub>1</sub> provided with guard flanges  $\alpha$ , a supply passage or hopper K and a discharge passage  $\alpha_1$ , substantially as described. 10th. The combination of the revolving screen  $\beta$ , four pairs of crushing rollers D D<sub>1</sub> D<sub>2</sub> D<sub>3</sub>, guide sieves H H<sub>2</sub>, a central shaft and gearing for revolving the rollers of the respective pairs in the proper directions, substantially as described. 11th. The combination of an outer case, four pairs of crushing rollers D D<sub>1</sub> D<sub>2</sub> D<sub>3</sub>, the driving gear C and adjustable bearings outside the case, with a revolving elevating screen  $\beta$  within the case and surrounding the crushing rollers, and suitable gearing for imparting motion to the respective pairs of rollers and to the screen, substantially as described.

**No. 17,143. Improvements in Harvesters.** (*Perfectionnements dans les moissonneuses.*)

John P. Manny, Rockford, Ill., U. S., 2nd July, 1883; 15 years.

*Claim.*—1st. The combination, in a two-wheeled harvester, of the following elements: a floating finger beam, a main frame arranged between the main wheels, a crank shaft mounted on said frame, a gear and sprocket wheel arranged in suitable bearings at the side of the crank shaft and on the same side of the main axle as said shaft, and a chain connecting such sprocket wheel with a driving sprocket wheel arranged between the main wheels, either on the axle or on one of the said wheels, the parts in their combination being arranged to operate substantially as described. 2nd. The combination of the following elements: a main frame arranged between the main wheels, a crank shaft mounted on said frame, a gear and sprocket wheel arranged in suitable bearings at the side of the crank shaft and on the same side of the main axle as said shaft, and a chain connecting such sprocket wheel with a driving sprocket wheel arranged between the main wheels either on the axle or on one of the said wheels, the parts in their combination being arranged to operate substantially as described. 3rd. The combination of the crank shaft, a bevel gear and a chain wheel for driving such shaft, all mounted on a single supporting box in the main frame, substantially as described. 4th. In combination with the crank shaft and the bevel gear and sprocket wheel for driving such shaft, all mounted on a single supporting box on the main frame, a flexible connection with the main axle or a main driving wheel, substantially as described. 5th. The combination of the crank shaft and a bevel gear and chain wheel mounted on bearings at the side thereof, and between the crank head and the bevel pinion on said shaft. 6th. The combination of a box mounted on the main frame and constituting a support for the crank shaft and for the chain wheel, and bevel gear for operating the crank shaft, and a coupling frame hinged at one end to such box.

**No. 17,144. Improvements in Harvesters.** (*Perfectionnements dans les moissonneuses.*)

John P. Manny, Rockford, Ill., U. S., 2nd July, 1883; 15 years.

*Claim.*—1st. The combination, in a two-wheeled harvester, of a secondary shaft mounted on the main frame and extending beyond the plane of the driving wheel on the side next the cutters, and a sprocket wheel and bevel gear supported on such secondary shaft and driven by a chain connection with a sprocket wheel on the main axle, between the main wheels, substantially as shown and described. 2nd.