combination of the elastic bands arranged at each side of said screens, and having their opposite ends secured to said rigid end bars respectively; 3rd. The elastic extensible screen having the rigid end bars provided with the recesses covered by the slotted plates adapted to engage with T-headed studs.

No. 10,880. Improvements on Fog Horns.

(Perfectionnements aux signaux de brume.)

Adolph Jaeger, Bremerhaven, Germany, 26th January, 1880; for 5 years.

Claim.—1st. A fog horn operated by means of steam generated by the heat of a galley stove, or range, of a vessel; 2nd. The resonant diaphragm *g* in combination with the sound producing device.

No. 10,881. Improvements in Gates. *(Perfectionnements aux barrières.)*

John S. Henshaw, Goshen, Ky., U. S., 26th January, 1880; for 5 years.

Claim.—1st. The combination, with a swinging gate, of the cords *l* or *m*, or both, extending through guiding eyes in fixed posts, in advance of the gate on one side thereof, to the opposite side of the gate, where the said cord or cords extend downwardly to and connect with the upper front corner of the gate, together with the loose playing upper hinge *s t* and inclined interlocking lower hinge *a e*; 2nd. The combination, with a swinging gate, of the movable latch *g*, operating lever *k* and connection *i*, with the actuating cords *l* or *m*, or both, connecting with said lever in a downwardly inclined direction from the supporting posts.

No. 10,882. Improvements on Grain Weighing and Registering Machines.

(Perfectionnements aux peseurs-compteurs à grain.)

William H. Allen, New York, U. S., 26th January, 1880; for 5 years.

Claim—1st. The oscillating box M made with a stationary partition N and hinged bottom valves O, in combination with the stationary rods P, so that the machine may be adjusted to receive and discharge grain by the oscillations of the said box M; 2nd. The combination, with the frames or bars J carrying the box M, of the rods P and hinged bottom valves O, so that the said bottom valves may be locked and unlocked by the oscillations of the box M.

No. 10,883. Improvements in Bending and Shaping Machines. *(Perfectionnements aux machines à plier et former.)*

John B. Armstrong, (Assignee of Augustus R. Woodyatt), Guelph, Ont. 26th January, 1880; for 5 years.

Claim.—1st. The combination of an intermittently moving head provided with wipers, with a bed plate provided with pivoted and fixed bending and shaping blocks; 2nd. A slotted bed plate provided with pivoted and fixed blocks and a movable head provided with wipers, said slot and blocks being formed to correspond with the shape of the article to be produced, and adapted, in connection with said wipers, to bend and shape blanks; 3rd. The moving head E provided with the stud pins *e*, in combination with the bed plate provided with the slot B. said pins and slot being shaped to correspond to the form of the article produced in the machine; 4th. In combination with the pivoted bending and shaping blocks and the bed plate of machine, the springs G.

No. 10,884. Improvements on Waggon Gears.

(Perfectionnements aux trains des wagons.)

Benjamin C. Shaw and John V. Cook, Indianapolis, Ind., U. S., 26th January, 1880; for 10 years.

Claim.—1st. The metallic block E provided with side flanges X X and a central downward projecting part E^2 having a round hole E_3 extending through the same longitudinally from end to end; 2nd. The metallic block F, provided with side flanges X X, and a central downward projecting part E^2, having a round hole E_3 extending through the same longitudinally, from end to end, combined with the round rod F and bar H.

No. 10,885. Improvements on Middlings Purifiers. *Perfectionnements aux épurateurs des gruaux.)*

John Russell and George P. Funkhouser, Plattsburgh, Mo., U. S., 28th January, 1880; for 5 years.

Claim.—1st. A middlings purifier adapted to be operated without a fan, the same consisting in combination with a frame provided with sieves placed one above the other and devices which support the frame in the open atmosphere, of means which vibrate said sieve frame longitudinally, and automatic valve mechanism which control the currents of air passing lengthwise through said sieve frame; 2nd. The combination, with a series of sieves and springs which support them in the open atmosphere, of actuating mechanism which shakes the sieves longitudinally, and valve mechanism which regulates the air current thus produced through the machine; 3rd. The combination, with the sieves and the inclines located beneath their head ends, of the valve openings provided with automatic inwardly opening valves and respectively registering with the air passages formed by said incline; 4th. The combination, with the sieves, inclines and valve openings provided with valves, of the doors which permit more or less air to enter such valve openings, and adjusting mechanism which maintains said doors in desired position; 5th. The combination, with the swinging or reciprocating frame upheld or supported by suitable springs and having the hanger attached thereto, of the rotary adjustable face plate provided with means for its adjustable adjustment to the pitman; 6th. The combination, with the swinging or reciprocating frame and the hanger secured thereto in a laterally adjustable manner, of the rotary adjustable face plate pivoted to the hanger, said face plate provided with one or more perforated lugs and set screws, for securing the face plate to the pitman in any desired longitudinal adjustment; 7th. The combination, with the swinging or reciprocating frame or receptacle upheld or supported by suitable springs and having the hanger attached thereto, of the pivoted face plate provided with arc-shaped slots and set-screws or clamps, for securing said face plate in any desired rotary adjustment, said face plate also provided with perforated lugs and set screws, for securing the plate to the pitman in any desired longitudinal adjustment.

No. 10,886. Improvements on Pulp Machines.

(Perfectionnements aux machines à pâte à papier.)

Robert B. McPherson, (Assignee of William H. Howell), Thorold, Ont., 28th January, 1880; for 5 years.

Claim.—1st. The combination of the stones B E, the hopper C, feed water pipes D D, gear I, spindle F and bearing J; 2nd. The combination of the stones B E, the hopper C, feed water pipes D D, gear I, spindle F, bearing J and the feed K^1.

No. 10,887. Improvements on Valves. *(Perfectionnements aux soupapes.)*

Benjamin N. Stuart and George A. Fuxbury, (Assignees of James W. Gear), Haverhill, Mass., U. S., 28th January, 1880; for 5 years.

Claim.—1st. The chamber A having inlet B and outlets C, in combination with the screw threaded valve stem D^1 having annular shoulder d^2, headed screw *d* and removable conical sleeve D.

No. 10,888. Process for Manufacturing and Purifying Sulphate of Alumina and Alum. *(Procédé pour fabriquer et purifier le sulfate d'alumine et l'alun.)*

William Chadwick, Thomas Chadwick and James Chadwick, Manchester, and Josiah W. Kynaston, Liverpool, Eng., 28th January, 1880; for 5 years.

Claim.—1st. The use of arsenious or oxalic acid in the manufacture of sulphate of alumina or alum from minerals containing iron, so as to obtain a product nearly pure from iron; 2nd. The process of making sulphate of alumina or alum cake commercially pure, namely, treating bauxite, or other alumina or hydrate of alumina soluble in sulphuric acid, with sulphuric acid and arsenious acid neutralizing with carbonate of lime until the iron is precipitated, and then separating the arsenic by sulphurated hydrogen; 3rd. The mode of separating iron from alum, or sulphate of alumina in solution, by treating the solution with arsenious acid neutralizing the carbonate of lime until the iron is precipitated, and then precipitating the remaining arsenic by sulphurated hydrogen; 4th. The process of making chemically pure sulphate of alumina, or alum cake, by treating bauxite, or other alumina or hydrate of alumina soluble in sulphuric acid, with sulphuric acid and arsenious acid neutralizing with carbonate of lime until most of the iron is precipitated, and then treating with ferrocyanide of calcium and sulphurated hydrogen successively; 5th. The purification of alum, or sulphate of alumina, from iron, by treating the aluminous solution with arsenious acid, carbonate of lime, ferrocyanide of calcium and sulphurated hydrogen successively; 6th. In the manufacture or purification of sulphate of alumina, alum cake or alum, the use of arsenious acid and carbonate of lime, conjointly, for the purification of iron; 7th. The mode of regenerating the ferrocyanide of calcium from the precipitate, for fresh use, by boiling the Prussian blue precipitate with milk of lime and separating the precipitated matter; 8th. The mode of purifying bauxite, hydrated alumina and other aluminous materials by means of oxalic acid and sufficient hydro-chloric acid, to neutralize the lime for the purpose of making sulphate of alumina or alum.

No. 10,889. Improvement in Portable Engines. *(Perfectionnements aux machines portatives.)*

Jonathan Hall and Cleon M. Lane, Keene, N. H., U.S., 28th January, 1880; for 5 years.

Claim.—The combination of the standards A D, journals *a b*, axle *c*, crank *d*, connecting rod *e* and cylinder B and guard C.

No. 10,890. Improvements in Portable Boilers. *(Perfectionnements aux chaudières portatives.)*

Jonathan Hall and Cleon M. Lane, Keene, N. H., U.S., 28th January, 1880; for 5 years.

Claim.—The combination of the fire-box A, the front *b*, back rest C, side connections *i*, smoke stack base D and cradle E with the steam boiler B.

No. 10,891. Improvements on Lawn Rakes.

(Perfectionnements aux râteaux à gazon.)

Theodore D. Davis, Syracuse, N. Y., U. S., (Assignee of Joseph R. Smith, Brockville, Ont.,) 31st January, 1880; for 5 years.

Claim.—1st. In combination with the rake head composed of two or more pieces, the teeth B and the fastening devices for clamping the teeth and the extensions thereof in the rake head, and the handle D extending over the hood; 2nd. A series of teeth formed of a single piece of wire; 3rd. The end E serving as a runner and guard; 4th. The teeth B and projections or extensions forming hood C made of a single piece of wire; 5th. The combination of teeth B, guards and runners E and hood C; 6th. In combination with head A, a wire tooth, bent, tapering to an oval point, and the extension thereof above the rake head.

No. 10,892. Improvements in Archery. *(Perfectionnements dans la fabrication des arcs.)*

George L. Thorne, Buffalo, (Assignee of William H. Wright, Rochester), N. Y., U. S.,31st January, 1880; for 5 years.

Claim.—1st. A separable bow consisting of a centre piece and two spring pieces removably affixed to said centre piece; 2nd. The separable bow consisting of the metallic centre piece A having an opening for the passage of the arrow, and the detachable spring pieces C; 3rd. In an archery bow,