discharged, a motor A actuated by the fluid under pressure in the air vessel, or a water wheel driven by the waste water, and a cam *s* which presses on a rod connected with the valve *i* and assists in regulating the time of opening and closing of the valve *i*. 8th. The construction of valve *m* in figure 1 and enlarged views in figures 2, 3, and 4 having a tightening ring *y* not attached to the valve but carried by the casing, and free to move through a small distance in a direction other than the direction of movement of the the valve, whereby, when such valve is moved to a position near to its seat, the said ring *y* is pressure existing in the apparatus. 9th. In hydraulic rams, the combination of a receiver *c* into which some of the water from the flow-pipe flows during the closing of the main valve *m*, a passage *h* through which air enters the receiver *c* and also escapes from the receiver *c* during the casing of the main valve, a valve *i* closing the passage *h* and a float *b*, a screw *q* by which the distance of the float *b* from the top of the receiver *c* is varied at will, a main valve *m* through which water from the receiver *c* and also water coming direct from the flow-pipe *f* is discharged, a valve rod *l* driven by a motor such as A actuated by the fluid under pressure in the air-vessel *a*, or by a water wheel driven by the waste water, and a cam *s* which presses on a rod connected with the valve *i* and assists in regulating the time of opening and closing of the valve *i*.

No. 26,428. Purifier for Grain, Middlings, etc. (*Epurateur pour les Grains, Gruaux, etc.*)

James Higginbottom and Orsini Stuart, Liverpool, Eng., 12th April, 1887 ; 5 years.

Claim,—1st. In a grain or middlings purifier, the combination of a sieve D having cross bars supporting the cloth, with a travelling brush J and support K K, the latter having notches cut out of it to allow of the brush passing said cross bars. 2nd. The combination of a sieve D through which an upward current of air is drawn, with a dust collecting chamber C placed above said sieve through which the air passes to the exit trunk by means of enterances and exits, each unitedly much smaller in cross sectional area than the cross section of the chamber C, whereby the cross sectional area of the current in passing through C expands goes slower and deposits a large part of its dust. 3rd. The chamber C placed in a dusty atmosphere, with limited access of that dusty atmosphere to it from above, and provided with a dust extracting device E and an exhaust A, both access and exhaust being of much smaller cross sectional area than the chamber itself, for the purposes described. 4th. The combination of the sieve D having an upward current of air passing through it, with chamber C above it narrow at bottom and broad at top, having a dust extracting device E and openings H to said current of air at each side at top, and an exhaust A at centre, whereby a dust extracting device is placed in the line of air current without impeding or unequalizing the draught over the surface of the sieve to any appreciable, extent. 5th. The combination of the chamber C placed in a dusty atmosphere, said chamber being broad at top and having sides sloping down to a conveyor E at bottom, in combination with enterfances or the air H, H at top pointing downward, and an exhaust A drawing upward, whereby the particles of dust entering the chamber are projected downward onto the worm, and the exhaust is taken from the more quiescent air at top. 6th. The combination of the chamber C, with a series of exhaust passages A, A, passing upward thereform and delivering into an air trunk provided with a suction apparatus, whereby a uniform exhaust is taken from the chamber throughout its area, substantially as described. 7th. In a purifier, the combination, with an air trunk M and air passages A, of the slides or valves B placed between each passage and the trunk, whereby suction from each passage can be exactly regulated, adjusted and equalised, substantially as described. 8th. In a purifier, the combination of an air trunk M, with a travelling band N N at bottom, whereby the dust deposited in the air trunk is carried to one end and can be extracted easily, substantially a described. 9th. In combination, with a purifier, a collecting chamber or chambers C, S et cetera, having a worm E T at the bottom of such chamber delivering the dust collected to the outside with the delivery into said chamber pointing downward to said worm, whereby the dust or impurities are projected into the worm, and are by the worm continuously carried to the outside so that the attendant can by inspecting the condition of the deposits at all times as certain the working of the machine. 10th. The combination of the sieve D, settling chambers C and worm E, with aspirator R A and worm T, for still further differentiating the dust extracted from the material in the screen. 11th. In combination with the screen D having an exhaust drawing the air from above it, the passages X and H and worm Q, where by any light dust still left on the screen is aspired away and the purified material carried off by conveyor Q.

No. 26,429. Shifting Thill for Sleighs.

(*Limonière Mobile pour Traineaux.*)

James G. Richardson, Lake City, Minn., U.S., 12th April, 1887 ; 5 years.

Claim.—1st. The combination, with the cross bars C and the thill, of the sliding coupling composed of the slides F arranged at a distance apart, and the rod *f* connecting them interposed between the bar and the thill, substantially as and for the purpose described. 2nd. The combination of the thill, the rod B connected therewith, the rod D adapted to be connected with the cutter or sleigh, and the sliding coupling uniting the rods, one of said rods having a rotary and longitudinal movement, and the other rod having a longitudinal movement only relative to the sliding coupling, substantially as and for the purpose set forth. 3rd. The combination of the bar C, the rod D connected therewith, the thill, the rod B secured thereto, the sliding coupling and the catch for holding the coupling in an adjusted position, substantially as described and for the purpose specified. 4th. The combination of the bar C, the rod D, the thill, the rods and the catches E and G diagonally opposite each other and secured to the bar and thill respectively, substantially as and for the purpose described.

No. 26,430. Car-Coupler. (*Attelage de Chars*)

Engebret K. Opheim, LaCrosse, Wis., U.S., 12th April, 1887 ; 5 years.

Claim.—1st. In a car coupler, the combination, with the draw-bar, of a block pivoted thereto and capable of horizontally movement thereupon, and a coupling hook pivoted in said block and movable vertically in relation thereto. 2nd. In a car-coupler, the combination of a draw bar, a horizontally movable block secured thereto, a vertically movable hook secured to said block, and springs connecting the movable block and the draw bar. 3rd. In a car coupler, the combination of a draw-bar, a horizontally movable block, a vertically movable hook secured to said block, a spring connecting the hook and the block and springs connecting the draw bar and block. 4th. In combination, with draw bar A having lugs *d* on each side, block B provided with arm D and lugs, *c*, *e*, a vertical pivot pin or bolt C a coupling bolt E provided with a lug *f*, a horizontal pivot F connecting the hook E and the arms D, a spring H between the lugs *e*. *f* and springs G between the lugs *c*, *d*, all arrange l substantially as shown.

No. 26,431. Dust Catcher. (*Arrête-poussière,*)

William Comerford and James Comerford, Rathdrum, Ireland, 12th April, 1887 ; 5 years.

Claim.—1st. A dust-catcher or apparatus for filtering air charged with stive dust or other light particles, the filtering portion of which is composed of grain, or seeds, or of coarsely ground or comminuted material, supported between or upon perforated reticulated or otherwise apertured surfaces, giving passage to the air without permitting the escape of the filtering material, as described and shown. 2nd. A dust-catcher or apparatus for filtering air charged with stive dust or other light particles from wheat cleaning flour, grinding, purifying or dressing machinery, the filtering portion of which apparatus is composed of a layer of grain, or small wheat, or crushed corn, or bran, supported between or upon perforated reticulated or otherwise, apertured surfaces giving passage to the air without permitting the escape of the filtering material, as described. 3rd. A dust-catcher or apparatus for filtering air charged with stive dust or other light particles, wherein the filtering medium is composed of granular or of coarsely ground or comminuted material, supported by perforated, reticulated or otherwise apertured surfaces giving passage to the air without permitting the escape of the filtering material, in combination with means of mechanically withdrawing and renewing the filtering medium, substantially as described. 4th. A dust-catcher or apparatus for filtering air charged with stive dust or other light particles, constructed of a closed chest or chamber having its walls made double and perforated, reticulated, or otherwise apertured, and the intervening space filled with granular, or with coarsely ground or comminuted material, as herein specified, in combination with means whereby the said material is permitted to travel downwards by its own gravity, for the purpose of withdrawing and replacing the foul material, substantially as shown and described. 5th. A dust-catcher or apparatus for filtering air charged with stive dust or light particles, constructed of a closed chest or chamber having its longitudinal side walls made double, and perforated, reticulated, or otherwise apertured, and the intervening space filled with granular or with coarsely ground or comminuted material, and being closed at bottom by fluted rollers situated within the main chamber and receiving intermittent rotary motion, for the purpose of discharging portions of the material into the main chamber, and having an air passage communicating with the interior of the chest, and provided with a screw conveyor for supplying fresh material to the upper part of the filtering walls, and a second conveyor for removing the foul material from the lower part of the chest, the said rollers and conveyors being operated by mechanism, all as herein described and illustrated in the drawings.

No. 26,432. Boiler Water Alarm.

(*Indicateur d'eau.*)

Francis R. Stevenson, Erie, Penn., U.S., 12th April, 1887; 5 years.

Claim—1st. In a water-alarm for boilers, the combination, substantially as set forth, of a float, a flexible chain or cord connected with said float, which passes over sheaves and attaches to a weight, so that said weight will move counter to said float in a parallel vertical plane, a steam escape chamber, a valve regulating admission to said chamber, and a lever for moving said valve which is arranged with relation to said float, chain and weight, in a manner substantially as shown, whereby the said lever may be moved by the action of said parts to open said valve when the said float is unduly elevated or depressed. 2nd. In a water-alarm for steam boilers, the combination, substantially as shown, of a shell or case A connected with the boiler by a pipe extending from the top of said case to the steam-space of the boiler, and a pipe extending from the lower part of said case to a point below the low-water line of the boiler, a steam-escape chamber within said case and having its inlet controlled by a valve, and its outlet extending through the wall of said case, a lever for moving said valve, and a float for operating said lever when the said float is unduly elevated or depressed. 3rd. In a water-alarm for steam boilers, the combination, substantially as set forth, of the shell or case A connected with the boiler, as commonly, the steam-escape chamber E having its exit through the wall of the main case, and its entrance controlled by the puppet-valve F, the lever D for moving said valve, the float B, the cross-beam C having sheaves *c*, *c* thereon, the weight *b* and the chain B1 connecting said weight and float and passing through slots d_1, d_1 in said lever D and over said sheaves *c*, *c* in said beam C.

No. 26,433. Shop Front. (*Devanture de magasin.*)

John Gooch, Brompton Road, Eng., 12th April, 1887 ; 5 years.

Claim.—1st. Constructing shop fronts with a part or parts thereof movable, relatively to the other part or to one another, as hereinbefore described. 2nd. The method of guiding and supporting the part of the shop front, to be moved by means of a guided wheel or rolling