sisting of two sections, each provided with a semi circular bore for the piston and a connecting chamber for the piston disk, and furnished with abutment flanges in one or both sides and with flanges between the hub and abutment flanges through which are inserted bolts for securing the sections together, substantially as shown and described and for the purposes set forth. 35th. A cylinder for rotary engines consisting of two sections, each provided with a semi circular bore for the piston, a packing ring groove located on the inside of the bore and with flanges between the hub and bore for the insertion of bolts for securing the sections together, substantially as shown and described and for the purposes set forth. 36th. A cylinder for rotary engines consisting of sections provided with inter-locking lugs, substantially as shown and described and for the purposes set forth. 37th. A cylinder for rotary engines consiating of two sections provided with lugs or projections in their hub portions constructed to inter-lock and to allow the sections to be inter-changeable, substantially as shown and described and for the purposes set forth. 38th. A cylinder for rotary engines constructed in sections and provided with an annular bore for the piston and intervening space for the piston disk, the end of the section being grooved around the bore, said groove extending to the opposed sides of the space for the piston disk and provided with a series of pockets for the reception of springs for keeping the packing rings pressed outwardly against the revolving abutment, substantially as shown and described and for the purposes set forth. 39th. The combination with a rotary cut off valve, of a rotary valve seated upon the cut off valve, the adjacent faces of the two valves being constructed to form intervening steam spaces for balancing the rotary valve, substantially as shown and described and for the purpuoses set forth. 40th. The combination with a rotary valve provided with a steam space between its lower face and seat of a rotary governor valve seated on the rotary valve, the adjacent faces of the two valves being constructed to provide an intervening steam space, substantially as shown and described and for the purooses set forth. 41th. The combination with a rotary valve, of a rotary governor valve seated on the rotary valve, the adjacent faces of the two valves being recessed or grooved to provide an intervening steam space, and suitable devices for automatically actuating the governor valve, substantially as shown and described and for the purposes set forth. 42nd. The combination with a steam balanced rotary valve, of a steam balanced cut off valve, serving as a seat for the rotary valve and a steam balanced governor valve, seated on the upper face of the rotary valve, substantially as shown and described and for the purposes set forth. 43rd. The combination with the head of the valve cylinder having ports formed therein communicating with a steam pipe or passage leading to the engine cylinders, of a cut off valve seated on the inner face of the valve cylinder head, said cut off being constructed with outwardly projecting flanges or ribs which encircle the cut off valve and the parts formed therein, substantially as shown and described and for the purposes set forth. 44th. The valve cylinder head constructed with a steam passage cast on the outer portion of the oead, the ends of the steam passage extending through and forming steam ports on opposite side thereof, substantially as shown and described and for the purposes set forth. 45th. The cut off valve constructed with steam recesses or cavities on opposite sides of the ports and of substantially the same size and form as said ports, substantially as shown and described and for the purposes set forth. 46th. The combination with the rotary valve provided with through ports, of the cut off valves constructed with ports and with steam cavities or recesses on opposite sides of said ports, the construction being substantially as disclosed, whereby the rotary valve is balanced and steam cut off at any point of its rotation, substantially as shown and described, and for the purooses set forth. 47th. The combination with the rotary valve provided with radial grooves or steam passages and an inter steam chamber connecting said grooves or passages, of a governor valve provided with radial recesses or grooves closed at opposite ends, substantially as shown and described and for the purposes set forth. 48th. The combination with the rotary valve provided with a number of holes for the passage of steam through the valve and an annular groove on the opposite side with which said holes communicate, of the rotary governor valve having a grooved or recessed portion formed therein that registers with said annular groove, substantially as shown and described and for the purposes set forth. 49th. The combination with the governor valve of a worm gear connected therewith by pins and a worm engaging said gear, substantially as shown and described and for the purposes set forth. 50th. The combination with the governor valve provided with a hub, a worm gear mounted on said hub and attached to the governor valve by pins and a worm for actuating the valve, substantially as shown and described and for the purposes set forth. 51st. The combination with the governor valve provided with a hub, a step secured to the head of the valve cylinder and provided with a recess for receiving the hub of the valve, substantially as shown and described and for the purposes set forth. 52nd. The combination with the rotary valve having radial bearing surfaces on the back of the valve surrounding the ports therein, of a governor valve provided with radial grooves of less width than the width of the bearing surfaces at the ends of the steam ports in the rotary valve, substantially as shown and described and for the purposes set forth. 53rd. A rotary valve constructed with outwardly projecting flanges around its central openings and around its ports and on each end of the ports to form steam cavities or recesses on opposite sides of the ports and a steam chamber in the central portion of the valve, substantially as shown and described and for the purposes set forth. 54th. The combination with a rotary valve having a recess formed in its periphery, of a link and yoke secured within said recess by a screw and a rod secured to the yoke, substantially as shown and described and for the purposes set forth. 55th. The combination with the rotary valve and revolving shaft connected therewith by spline and feather, of the cut off valve and arbor or pivot extending through the cut off and entering the end of said shaft, substantially as shown and described and for the purposes set forth.

No. 17,485. Perpetual Calendars.

(Calendrier perpetuel.)

William F. Piercy, New Tacomo, W. T., U. S., August 13th, 1883; 5 years.

Claim.—1st. The combination of the three circular plates A B C pivoted in the center and provided with indicative terms and sectional lines to correspond, as described. 2nd. The plate C having slits D D and indicative terms, as shown in Fig. 2, in combination with the center plate B having figures and marks to show month of the year, number of days in the month, length of day time, length of night time, time of sun rise and time of sun set, substantially, as described. 3rd. The plate A with notch E bearing days of the week, as shown in Fig. 1, in combination with the center plate B having the days of the month arranged in circular series and adapted to show through the notch E in weekly sections, as described.

No. 17,486. Wheelbarrow. *(Brouette.)*

John Bean, Springfield, Ohio, U. S., August 13th, 1883; 5 years.

Claim.—1st. In a wheel barrow, the combination of a beam with a coupling, a supporting leg and an interposed pointed disk or bottom adapted to indent the beam when the leg is screwed well into the coupling, substantially as set forth. 2nd. In a wheelbarrow, a coupling provided with an upwardly extending projection adapted to receive the head board standard and an inwardly projecting lug adapted to be connected with the bottom-board, said lug being integral therewith, as shown and set forth. 3rd. In a wheel barrow, the side boards of the body adapted to extend down against the outside of the beams and provided with elastic clips adapted to embrace the inner sides of the beams, whereby the boards are secured in position against lateral displacement, substantially as set forth. 4th. In a wheel barrow, the combination with the beams and supporting legs of the V-shaped brace secured to the latter and adapted to prevent lateral shift and the diagonal braces secured to the forward end of the beams and passing through the legs, said diagonal braces being adapted to adjust the journals by means of tightening nuts substantially as set forth. 5th. In a wheelbarrow, the combination of the beam, the head-board brace and U-shaped journal having arm adapted to extend through the beam and brace and provided with nut, substantially as shown. 6th. In a wheel barrow, the combination of the couplings, the head- board standards suitably braced with the grooved head-board and lateral binding rod, substantially as described.

No. 17,487. Amalgamating Apparatus.

(Appareil à amalgamer.)

Alfred K. Huntington and Walter E. Koch, London, Eng., August 13th, 1883; 5 years.

Claim.—1st. In amalgamating apparatus consisting of a pan or vessel in which a vertical pipe revolves, the radial tapered branch pipes K, each made with a slit *k* opening from the branch in a direction opposite to that in which it revolves, in combination with the ejecting blade and rake M, substantially as herein described. 2nd. In amalgamating apparatus consisting of a pan or vessel in which a vertical pipe revolves, the radial tapered branch pipes K each made with a slit *k* opening from the branch in a direction opposite to that in which it revolves, in combination with the curved blade and rake P and slit *e*, substantially as herein described.

No. 17,488. Trip Mechanism for Harvester Rakes. *(Mecanisme à renverser les rateaux des moissonneuses.)*

William F. Burditt, St. John, N. B., August 13th, 1883; 5 years.

Claim.—1st. In a trip mechanism for harvester rakes, the combination with a rake cam and a rake head provided with a peripheral screw, of a counting slide, a regulating slide, a switch, a switch latch, means for connecting the switch latch and counting slide and means for adjusting the regulating slide, substantially as shown and described. 2nd. In a trip messenger for harvester rakes, the combination with the rake cam B, the switch C and its latch U, of the rake head G provided with the screw threads N, the toothed counting slide O the regulating slide W, the arm S, the connecting rod T and means, substantially as shown and described, for operating the regulating slide and the switch latch as set forth. 3rd. In a trip mechanism for harvester rakes the combination with the screw threads N and the switch latch U of the counting slide O having a number of teeth corresponding with the screw threads and a blank section below the lowest tooth, substantially as shown and described, whereby the slide is raised by the screw and then pushed back to trip the switch latch as set forth. 4th. In a trip mechanism for harveter rakes, the combination with the rake cam B, the switch C and its spring latch U, of the rake head G, the screw N, the toothed counting slide O, the regulating slide W, the arm S, the link T, the hand lever *e* and intermediate mechanism for operating the regulating slide and latch from said hand lever, substantially as shown and described. 5th. In a trip mechanism for harvester rakes, the combination with frame R, the slotted frame R1, the rods P Q and the counting slide pivoted to the rod P, of the regulating slide W sliding on the rod P and having rack teeth, the pinion X and means for operating said pinion, substantially as shown and described. 6th. In a trip mechanism for harvester rakes, the combination with the regulating slide W having rack teeth, the adjusting lever *c*, its pawl *e* and the locking bar *d*, of the pinion X, the rack bar Z and the bar *a*, substantially as shown and described, whereby the said adjusting lever, its pawl and lock bar are placed at a distance from the said regulating slide, as set forth. 7th. In a trip mechanism for harvester rakes, the combination with the counting slide O, the arm S, the connecting rod T and switch latch U, of the adjusting lever *c*, the pawl *e* having arm *f* and the connecting chain *g*, substantially as shown and described, whereby the switch latch and connecting slide can be drawn back to allow the latter to be adjusted, as set forth.

No. 17,489. Coal, Iron Ore and Merchandise Derrick. *(Grue à charbon, fer et marchandises.)*

William E. Ludlow, Sandusky, Ohio, U. S., August 13th, 1883; 5 years.

Claim.—1st. In a coal, iron ore and merchandise derrick, a drop catch having means, substantially as described, for raising and lowering it.