with a feather x, as described; 4th. The mandrel a, either constructed with the slot b, or with the groove c, as described, 5th. The combination and arrangement of pulley V, V, C, and y, as specified.

No. 3976. JOHANN NOSSIAN, Sztrazsa, Hungary, 26th October, 1874, for 5 years: "Process of Making Rock Candy." (Procédé de fabrication du sucre candi.)

Claim.—1st. The process of reducing the syrup to proper consistency for the manufacture of candy by evaporating the same at a temperature of 80 Reaumur in a vacuum, 2nd. In combination with an ordinary vacuum pan, the improved testing device by means of which the syrup may be tested from time to time during the process of evaporation; 3rd. The method of testing and determining the consistency of the syrup during the process of evaporation, by drawing a portion of it from the vacuum pan, into a testing tube, where it may be tested by means of an acrometer or hygrometer, as set forth.

No. 3977. JOHANN NOSSIAN, Sztrazsa, Hungary, 26th October, 1874, for 5 years: "Process of Clarifying Sugar." (Procédé de clarification du sucre.)

Claim.—1st The improved process of purifying sugar by first packing the same in moulds and draining and drying until it is formed into blocks and then subjecting the blocks removed from the moulds to the action of the steam in a centrifugal machine; 2nd. The segmental moulds G, arranged around the inside of the revolving wire cylinder and provided with apertures at the top and open bottom.

No. 3978.—WILLIAM TUCKER, Fiskedale, Mass., U. S., 29th October, 1874, for 5 years: "Machine for Twisting Augers and Auger-Bits." (Machine à tordre les hélices et les méches de tarrières.)

Claim.—1st. An oscillating hollow twisting shaft T, driven with long stokes from a rotary main shaft S, by means of a sliding rack R, and a pinion P_2; 2nd. In combination with an oscillating hollow-shaft T, for twisting bits and augers, the stationary crimp die I, and the reciprocating crimp die I^2, arranged in line with the axis of the shaft and operating together to hold or to hold and straighten the bit or auger, said reciprocating die serving also to alternately clamp, and loosen the bit or auger, and said stationary die operating as a half nut for feeding the loosened bit or auger during the backward movements of the twisting shaft; 3rd. The combination of the hand lever V, the cam C, on the driving shaft and retracting-springs s for projecting and retracting the holding and straightening dies I^2 respectively in the manner set forth; 4th. The hand wheel H, applied to the rotary driving shaft S, carrying the crank arm or disk D, and cam C, in combination with the oscillating twisting shaft T, operated by said crank, the reciprocating holding and straightening die I^2, projected by said cam, and the driving-pulley P, and fly wheel F, attached to the driving shaft by clutch L so as to be disconnected at will, for setting the twisting shaft and die by hand, to receive the blank, and to discharge the twisted bit or auger.

No. 3979 LEWIS F. BAILEY, Maitland, N. S., 26th October, 1874, for 5 years: "Potato-digger." (Extracteur à patates.)

Claim.—1st. The combination of an elevating apron E, forward, and a tail riddle K, having a longitudinal shaking motion rearward of the ground wheels C, C, both within a frame A, mounted on the axle B, as set forth; 2nd. The combination of cylindrical roller D, having teeth L, cog-wheel M, M, wheel N, pinion O, and pitman P, with the frame A, and axle B, for operating the apron E, and riddle frame K, simultaneously by the ground wheel C, as set forth.

No. 3980. JOHN W. HANMORE, Newburgh, N. Y., U. S., 26th October, 1874, for 5 years: "Improvements in Steam Boiler Jackets." (Perfectionnements aux chemises des chaudières à vapeur.)

Claim.—The triple covering or filling B, C, D, combined and arranged as described.

No. 3981. JOHN PLUMMER, London, Ont., 26th October, 1874, for 5 years: "Improvements on Spoke-lathes." (Perfectionnements aux tours à rais de roues.)

Claim.—The triangular iron block C, having the three iron weights H, H_1, H_2, hinged thereto in combination with the reel A, of a spoke lathe using three centres as set forth.

No. 3982. GEORGE J. WARDWELL, Rutland, Vt., 26th October, 1874, for 5 years: "Oscillating Steam Engine." (Machine à vapeur oscillante.)

Claim.—1st. The combination of a reciprocating and circularly vibrating piston having steam ports with an oscillating engine cylinder having passages as described, 2nd The device consisting of a guide rod, a slide, and a coupling pin for vibrating a piston (having steam ports as described) within an oscillating cylinder having passages as described, 3rd. The combination of the connecting strap or box made of two halves, with the crank shaft and piston rod of the engine as set forth.

No. 3983. CHARLES V. MITCHELL, Pickering, Ont., 26th October, 1874, for 5 years: "Machinery for Unloading Roots, &c." (Appareil pour décharger les légumes, etc.)

Claim.—The peculiar combination and application of the racks B, B, and C, within the two additional side pieces A, A, so as to form a temporary bottom to the waggon box, &c., in manner and form described.

No. 3984. LOUIS A. DESSAULLES, (Assignee of H. H. d'Abrigeon,) Montreal, Que., 28th October, 1874, for 5 years. "Mill-stone Equilibrating Apparatus." (Appareil à équilibrer les meules de moulins.)

Reclame.—1o. L'appareil B, pour équilibrer les meules de moulin au moyen du poids mobile F; 2o L'appareil modifié B_1, construit tel qu'indiqué avec un pied H, un support D_1, et un poids F_1, pour les fins décrites.

Claim.—1st The apparatus B, to equilibrate mill stones by means of a moveable weight F; 2nd. The improved apparatus B_1, constructed as described, with a foot H, a support D_1, and a weight F_1, for the purpose described.

No. 3985. JAMES G. SCOTT, St. Thomas, Que 28th October, 1874, for 5 years: "Car-brake Self-acting Coupler." (Ajustage automatique des freins de wagons.)

Claim.—The coupling head A, the prong a^1, the recess a_1, in combination with the head B, constructed and operating as set forth.

No. 3986. DAVID L. NEWCOMB, Kenton, Ohio, U. S., 28th October, 1874, for 5 year "Well-boring Apparatus." (Appareil à cer les puits.)

Claim.—1st A setter for lowering and adjusting the lining of wells, composed of the cross-head L, and side pieces N, provided with hook O, and used in the manner set forth; 2nd Securing the pod of the auger to the shafting E, by four spiders E, fixed to the ring C; 3rd. A well boring auger composed of the two side pieces A, A^1, connected to the upper ring C, and to the lower notched disc B, having the inclined cutting lip D; 4th The shaft coupling formed by rectangularly notching the ends G, and application of a sliding ferrule H, to the joint, as described; 5th. The hinged coupling formed by the combination of the ring K, pins J, and attaching jaws I, 6th The combination of the rings S, bar T, and bevelled top poles R, for supporting the derrick; 7th. The double lever brakes U, connected by rod or chain W, pivoted to the derrick frame and arranged to operate against the windlass shaft, for braking the same.

No. 3987. JAMES H. COWHERD, and FREDERICK COWHERD, Brantford, Ont., 28th October, 1874, for 5 years: "Improvement on Eaves-Trough and Machines for making the same." (Perfectionnement des dalles de toitures et aux machines pour les fabriquer.)

Claim.—1st. A combined eaves-trough machine in which the frame or bed A, external formers I, J, K, thumb screws L, steel rod D, with its grooves E, in combination with the internal formers M, N, O, and back flap B, are attached, arranged, and operated as set forth; 2nd. The rivetting of the sheets together of which the eaves-trough is composed in addition to the ordinary mode of soldering, either before or after the sheets are pressed into the desired form as set forth.

No. 3988. CYRUS KINNEY, Dereham, Ont., 28th October, 1874, for 5 years: "Automatic Sash-Holder and Fastener." (Arrête-croisée automatique.)

Claim.—The metal strips A, A^1, constructed as shewn and moving freely on the screws B, B^1, with the catches E, E^1 E^2 E^3, when attached to the sash and sash stop as set forth.