longitudinal motion. 3rd. A weighing apparatus or dynamometer constructed substantially as as herein described. with a beam 6, a pressure column 11 resting thereon, a case 3 moving relatively to the said beam and pressure column, and a lever 12 resisting or sustaining the load or pressure between the case 4 and column 11, and connected to the latter by a flexible fulcrum plate 13. 4th. In a weighing dynamometer, a load-attaching device 65 fixed to a moving cross-head 67, resting through the medium of a spring 68 on a cross-head 69 attached to the case 3, substantially as described. 5th. A weighing dynamometer, constructed substantially as herein set forth, with coupled load beams 2, 6, one or more load levers 12, 19, and a case 3 in which they work. 6th. In a weighing dynamometer, the combination of a casing 3 to which the load is applied, a suspension yoke 2, 5, 6, in which the case has limited vertical movement, one or more weight levers 12, 19, to balance and indicate the load and a stop 31, or 119, to limit the upward movement of the case when relieved of a load. 7th. A weighing dynamometer, constructed with a case 3, to which the load is applied, a suspension yoke 2, 5, 6, on which the case has limited vertical motion, a pressure column 11 sustained by the said yoke, a resisting lever 12 connected to the case 3 and pressure column 11 by flexible plate 15 and 13, and a weight lever 19 having greater angular motion than the lever 12 and connected to the said lever 12 and to the case 3 by flexible fulcrum plates 20 and 22, substantially as set forth. 8th. The combination, with the case 3, suspension yoke 2, 5, 6, pressure column 11, and levers 12 and 19, of an indicator rod 46 having much greater angular motion than the second lever 19. 9th. The combination, with the weight lever 19, of the flexible fixing plate 62, staying the said lever against horizontal motion, substantially as described. 10th. The combination of the shouldered weight rod 32, and stop post 34, substantially as and for the purposes set forth. 11th. A weighing dynamometer, constructed with a pocket 41 for disused weights to maintain uniformity in the weight of the apparatus, as described.

No. 20,509. Knitting Machine.

(Machine à Tricoter,)

Richard Schofield, George Davidson and John Penman, Paris, Ont., 4th November, 1884; 5 years.

Claim.—1st. In a knitting machine, a pivoted arm H arranged to support the thread E, and provided with an arm *b*, in combination with the thread D carried below an arm *b*, for supporting the arm H, substantially as and for the purpose specified. 2nd. The pivoted arm H, provided with a curved spring end *h*, with a forked end to receive the thread E, in combination with the thread D arranged to support the arm H, substantially as and for the purpose specified. 3rd. The arm H having at its end a hollow guide *i* through which the thread E passes, and a curved spring *h* extending from *i*, and having a forked end to hold the thread E, in combination with the thread D arranged to support the arm H, substantially as and for the purpose specified. 4th. A bracket F, provided with guide-holes *a* and *e* through which the thread D passes, in combination with the pivoted arm G arranged to support the thread D, and having the tail *e* to fit below the spring *f*. 5th. The pivoted arm G, arranged to support the thread D between the guiding-holes *a* and *e*, and having a tail *e*, in combination with the spring *f* arranged to come in contact with the tail *e*, substantially as and for the purpose specified. 6th. In a knitting machine, the bobbins B and C arranged to supply thread of the same colour, the combination of a device arranged to hold one thread out of action until the other thread breaks, substantially as and for the purpose specified.

No. 20,510. Washing Machine.

(Machine à Laver.)

Charles K. Buchanan and Albert R. Byington, Brantford, Ont. (assignee of Edgar S. Burnham, Buffalo, N. Y., U. S., 4th November, 1884; 5 years.

Claim.—The cylinder *a* having a rim *a1* commencing closely at the sides of the same and gradually curving outward, as specified, in combination with the piston-head *a6*, an open ring *e4*, the bottom, a rod *a2* and handle, a spring *e3*, adjustable collar *e7* and a detachable cover *e* projecting down and slightly inclining inward toward the sides of the cylinder *a*, substantially as and for the purposes specified.

No. 20,511. Tobacco Box. (*Boîte à Tabac.*)

Charles H. Scales and James R. Sillimin, Toronto, Ont., 4th November, 1884; 5 years.

Claim.—1st. A package for a tobacco box, butt, or caddie, composed of the sides E, D and F bound together by the flanged sheet metal caps C, substantially as and for the purpose specified. 2nd. A package for a tobacco box, butt, or caddie, composed of the sides E, D and E bound together by the flanged sheet metal caps C and the band G, substantially as and for the purpose specified. 3rd. A metal cap C having an annular hole cut out of its centre and flanges *p* formed around its edges, substantially as and for the purpose specified.

No. 20,512. Printing Machine.

(Machine à Imprimer.)

David T. Simpson, New York, N. Y., U. S., 4th November, 1884; 5 years.

Claim.—1st. Process for self-feeding printing machines from the web, or roll, by dividing and sub dividing the quantity of paper for the required number of sheets. Process: To print one or more impressions, miss one or more impressions (leaving blanks between), then or afterwards filling up the missed impressions, or blanks, 2nd. The adoption of the above process to flat form printing. 3rd. The combination of rollers C, with rollers C 5 which divides and subdivides the paper and throws the blanks down, substantially as described. 4th. The belt L, which measures off the length of paper required for the number of sheets wanted. 5th. The male catch upon the belt which drives the form, and the female catch attached to the carriage, for the purpose as set forth. 6th. The elevator which raises and depresses the form, substantially as described, and I do claim all of which my specifications set forth as original and invented by myself.

No. 20,513. Car Platform. (*Plateforme de Char.*)

Samuel M Beery, Omaha, Neb., U.S., 4th November, 1884; 5 years.

Claim.—1st. A sliding platform F, placed upon rods and pressed outward by springs, substantially as described. 2nd. The combination, with the sliding platforms F, rods G, springs H and parallel bars D, of the parallel bars E, arranged substantially as and for the purpose set forth. 3rd. The rods G, formed with the round portions *g*, shoulders *g1* and flat portions *g2*, by which latter they are secured to the cross-timbers C, substantially as described. 4th. The sliding platforms F, provided at their adjacent edges with the friction balls *e*, substantially as and for the purposes set forth. 5th. The rods G attached to the frame of the platform, in combination with the sliding platform F and curved fulcrum bars *b*, substantially as described.

No. 20,514. Necktie Supporter.

(Ganse de Cravate.)

Benjamin B. Scully, Lynn., Mass., U.S., 4th November, 1884; 5 years.

Claim.—1st. The body *a* of a necktie supporter, having the inturned ends *p* arranged to form an open loop to sustain the overlaying collar of the wearer, substantially as specified. 2nd. The combination, with the body *a*, formed with openings *p*, of securing pins *d* formed with bend *m*, loop *l* and pointed end *n*, and arranged to be secured to said body, substantially as specified. 2nd. In combination, with body *a*, the attaching loop *e* formed of elastic wires bent centrally, as at *i1*, and also as at *h*, *h*, to form four parts or members *g* parallel, or nearly so, and with said central part *i1* and ends *j*, *j*, bent hoop-like and secured in position, substantially as specified. 4th. In a necktie supporter, the combination of body *a*, the stud engaging loop *e* and the eyelet *v* inserted in said body, and engaging the loop at its centre *i* to secure the same to said body, substantially as specified. 5th. In combination, with body *a* of a necktie supporter, a projection 5 extending therefrom to engage the collar stud, substantially as specified 6th. In a necktie supporter, the combination of body *a* having hook or loop 3, the neck band 2 and its loop 6 adapted to be engaged by said hook, substantially as specified.

No. 20,515. Spring Hinge for Doors.

(Penture à Ressort pour Portes.)

John S. Stevens and Charles G. Major, Battersea, Eng., 4th November, 1884; 5 years.

Claim.—1st. In a double or single action spring hinge for doors, the combination of the spring, with an opposing liquid check, substantially as described and for the purposes set forth. 2nd. In a double or single action spring hinge for doors, the combination of the spring J, with the piston I and piston rod E, operating in a cylinder or dash-pot F against an opposing liquid check, substantially as described and for the purposes set forth. 3rd. In a double or single action hinge for doors, the combination of the spring J, with a piston I and piston rod E operating in a cylinder or dash pot F, and an exterior bank B to contain a liquid to surround and enter the cylinder or dash-pot F, so as to form a liquid check to the spring, substantially as described and for the purposes set forth. 4th. In a double or single action spring hinge, against which fluid is used as a check, a door having a heel spindle A pivoting in and passing through a floor hole, and a crank or cam, in combination with and operating a piston I and piston rod E antagonized by a spring J, substantially as described and for the purposes set forth. 5th. In a double action spring hinge, against which fluid is used as a check, piston rods E, E operating alternately into cylinders or dash-pots F, F, in combination with pistons I having a sleeve into which the piston rod E slides, whereby one of the piston rods is enabled to travel into its cylinder without moving the piston, while the other makes its exit from the other cylinder, substantially as described and for the purposes set forth. 6th. In a double or single action spring hinge for doors operated above or below the floor line, the combination of the door pivot A and a variable notch, crank or cam with, and operating a piston rod E, piston I and spring J, whereby the mechanical effect of the spring is diminished as its elastic force is increased, as described and set forth. 7th. In a double or single spring hinge for doors operated above or below the floor line, the combination of the adjusting lock, nuts or set screws *d*, *d* on the pistons E, the variable crank or cam and the door pivot A, whereby the door may be set accurately to its proper position, as set forth 8th. In a single action spring hinge against which fluid is used as a check for double action doors, the combination of a single fixed cylinder or dash-pot F, spring J, piston I, piston rod E with a double-ended variable motion crank or cam and the door pivot A, substantially as described and for the purposes set forth. 9th. In a single action spring hinge, against which fluid is used as a check for double action doors, the combination of a single oscillating cylinder F, rearward connection rods *l l*, double end crank or cam C, and door pivot A, with spring J, piston I and piston rod E externally pivoted on the fixed point G, substantially as described and for the purposes set forth. 10th. In a single action spring hinge, against which fluid is used as a check for double action doors, the combination of a single cylinder oscillating upon a fixed point G, having a spring J, piston I and piston rod E, having a cross-head with connecting rods *l*, *l* pivotally attached to the ends of the cross-head, a double-end crank or cam C and door pivot A, substantially as described and set forth. 11th. In a double or single action spring hinge, against which liquid is used as a check, the combination of the door pivot A and pinion C having projections on its periphery, with the interacting link chain E, piston J, spring J and cylinder F, substantially as described and for the purposes set forth.

No. 20,516. Waggon. (*Wagon.*)

Benjamin C. Seaton, Tullahoma, Ten., U. S., 7th November, 1884; 5 years.

Claim.—1st. The combination of the front axle having the castings secured on top at its ends, and provided on their inner faces with vertical tongues, the front bolster having the end-plates provided with vertical grooves receiving said tongues, springs interposed between