

having their longitudinal arms loosely connected to the headblock and rear axle, and the coiled springs surrounding said bars, having their inner ends secured to the sill frame, and their outer ends secured to arms outstanding from collars rigidly fixed to said bars F, substantially as specified. 2nd. In a vehicle gear, the combination of the frame A, the bars F journaled in bearings secured to said frame, and provided with outstanding arms / having their ends loosely connected to the head block and rear axle respectively, the coiled springs H having their inner ends secured to the lower surfaces of the frame A, and the collars G secured on the bars and provided with the outwardly standing arms g, having the perforations  $\rho$ 1, through which the outer ends of the corresponding springs pass, substantially as specified. 3rd. The combination, with the rectangular sill-frame A, having the transverse rails B, and the journal blocks /3 secured to the lower surfaces of the side sills  $\alpha$ , of the transverse bars F having the journals /2 thereon, and squared or made angular at the inner sides of said journals, the collars G having squared or angular openings to fit on the squared portions of said bars F and not turn thereon, and the springs H secured at their inner ends to the bars or rails B, and having their outer ends inserted in perforations  $\rho$ 1 in the arms g of said collars. 4th. The combination, with the rectangular sill-frame A, the bearing blocks /3, the head block c and the rear axle C, of the clips D attached to the head block and front axle, and provided with the transverse eyes d, the metal loops E, the transverse bars F, having the arms / provided at their ends with the transverse eyes f, the collars G having the perforated arms g and the coiled springs H, all constructed and arranged substantially as and for the purpose described.

### No. 32,208. Lubricator. (*Graisneur.*)

Benjamin A. Burgess, William D. Edy, James N. Edy and David Rutherford, London, Ont., 9th September, 1889; 5 years.

*Claim.*—1st. The combination of oil cup R, having partition R3, and stem S, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of tube T, body B, body C, valve V, and tube T1, substantially as and for the purpose hereinbefore set forth. 3rd. The combination, of the oil cup R, having partition R3, stem S, tube T, body B, body C, valve V, tube T1, and brace A, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the oil cup R, hollow stem S, tube T, body B, body C, valve V, tube T1, brace A, brackets B1, B2, valve V2, and glass tube U, substantially as and for the purpose hereinbefore set forth. 5th. The combination of the oil cup R, having partition R3, stem S, tube T, body B, body C, valve V, tube T1, brace A, brackets B1, B2, valve V2, and glass tube U, substantially as and for the purpose hereinbefore set forth.

### No. 32,209. Busk or Dress Stay.

(*Busc de corset.*)

William H. Williamson, Toronto, Ont., 9th September, 1889; 5 years.

*Claim.*—As a new article of manufacture, a metal busk or dress stay, hermetically sealed within a stockinette covering, lined with soft rubber, substantially as and for the purpose specified.

### No. 32,210. Disintegrating Fibres and Manufacturing Paper Pulp. (*Broyage des fibres et fabrication du papier.*)

Henry Blackman, New York, N.Y., U.S., 9th September, 1889; 5 years.

*Claim.*—1st. The improvements in the art of disintegrating fibrous substances, which consists in charging them with fluid under pressure and at a high temperature, and forcing them in a reduced stream into a partial vacuum, whereby the expansion of the fluid when liberated in the vacuum disrupts the fibres. 2nd. The improvement in the art of disintegrating fibrous substances, which consists in softening the fibres by digesting them in a closed vessel, charging the softened fibres with fluid under pressure and at a high temperature and forcing them through a contracted nozzle or inlet into a partial vacuum, whereby the expansion of the fluid when liberated in the vacuum disrupts the fibres. 3rd. The improvement in the art of disintegrating fibrous substances, which consists in softening the fibres by chemical treatment, charging the softened fibres with fluid under pressure and at a high temperature, and forcing them through a contracted nozzle or inlet into a partial vacuum. 4th. The improvement in the art of disintegrating fibrous substances, which consists in softening the same by treatment with liquid in a closed digester, charging the softened fibres with liquid under pressure, and at a high temperature, and forcing the fibres and liquid through a contracted nozzle or inlet into a vacuum chamber. 5th. The improvement in the art of disintegrating fibrous substances, which consists in charging the fibres with fluid under pressure and at a high temperature, forcing them through a contracted nozzle or inlet into a vacuum chamber, and continually drawing off the contents of said chamber at a rate sufficient to prevent the accumulation of a pressure therein. 6th. The improvement in the art of disintegrating fibrous substances, which consists in forcing the same with liquid under heat and pressure through a contracted nozzle or inlet into a vacuum chamber, condensing the steam therein, and drawing off the contents of said chamber at a rate sufficient to maintain a partial vacuum therein. 7th. The improvement in the manufacture of paper pulp, which consists in first softening a fibrous substance by treatment with liquid, then disrupting the fibres by liberating them under heat and pressure in a closed chamber, and then forcing the fibres with water through an extended passage containing agitating obstructions, whereby the fibres are separated. 8th. The improvement in the manufacture of paper-pulp, which consists in first softening a fibrous substance by treatment with liquid, then disrupting the fibres by liberating them under heat and pressure in a closed chamber, and subsequently separating the heavier particles by precipitation from the fluid pulp. 9th. The improvement in the manufacture of paper-pulp, which

consists in first softening a fibrous substance by treatment with liquid, then disrupting the fibres by liberating them under heat and pressure in a closed chamber, and finally washing the pulp through screens to remove the coarser particles. 10th. The improvement in the manufacture of paper-pulp, which consists of the following succession of steps: first, softening the fibrous substance by treatment with liquid; second, disrupting the fibres by liberating them under heat and pressure in a closed chamber; third, forcing the fibres with water through an extended passage containing agitating obstructions; fourth, separating the heavier foreign particles by precipitation; and fifth, separating the coarser particles by washing through screens. 11th. An apparatus for disintegrating fibrous substances, consisting of the combination of a digester, a vacuum chamber, an outlet passage from the digester to said chamber, and a valve in said passage, substantially as set forth. 12th. The combination of a digester, a vacuum chamber, an outlet passage from the digester to said chamber, a valve in said passage, and an exhausting apparatus connected to said chamber, and adapted to maintain a vacuum therein, substantially as set forth. 13th. The combination of a digester, a vacuum chamber, an outlet passage from the digester to said chamber, a valve in said passage, and a condenser arranged and adapted to condense the steam in said chamber, substantially as set forth. 14th. The combination of a digester, a vacuum chamber, an outlet valve to the digester, a discharge pipe or passage leading thence to said chamber, and a steam jet pipe or injector in said passage, substantially as set forth. 15th. The combination of a digester, a vacuum chamber, an outlet passage from said digester to said chamber, a contracted nozzle terminating said passage and entering said chamber, and a pump with its exhaust connected to said chamber, substantially as set forth. 16th. The combination of a digester, a vacuum chamber, a valved passage connecting them, a pump connected to said chamber, and a coil of pipe through which the pulp and water are discharged and in which the fibres are subjected to agitation, as described. 17th. The coil of pipe for agitating the fibres having within the same helices of metal, in combination with a pump to force the pulp through the coil and helices, substantially as set forth. 18th. In a pulp-making apparatus, a separator for precipitating heavy particles consisting of a succession of vessels provided with alternate downwardly-projecting partitions under which the liquid must flow, and dams over which it must flow, substantially as set forth. 19th. The combination of the pump, the agitating-coil, and the separator for precipitating the heavier particles receiving the pulp as it leaves said coil, substantially as set forth. 20th. In a pulp-making apparatus, a screenin' device for separating coarse particles, consisting of one or more fine screens over which the pulp is flowed, with sprinklers arranged to shower water thereon, and an endless travelling apron receiving the pulp as it passes through said screen and adapted to drain it of water, substantially as set forth.

### No. 32,211. Oil Tank. (*Caisse à huile.*)

Elmer N. Bachelder and Fred E. Lovejoy, Portland, Me., U.S., 9th September, 1889; 5 years.

*Claim.*—1st. The combination, with a reservoir, of a scale beam fulcrumed below the reservoir, a weighing tank supported upon one arm of the scale beam, a catch pivoted upon the extremity of the other arm of the scale beam, a weight carrier engaging with the said latch, means for tripping the latch, and a connection between the reservoir and the weighing tank, substantially as shown and described. 2nd. The combination, with a reservoir, and a scale beam fulcrumed below the said reservoir, a latch pivoted upon the outer extremity of the longer arm of the said beam, and a weight carrier supported by said latch, of a tank attached to the other arm of the scale beam, provided with a valved opening in its bottom, and a valve connection between the reservoir and the weighing tank, and means substantially as shown and described for tripping the pivoted latch, as and for the purpose specified. 3rd. The combination, with a reservoir, a scale beam fulcrumed below the same, having its longer arm provided at the extremity with an essentially hook-shaped pivoted latch, and a weight carrier notched to receive one end of the said latch, of a tank supported upon the short arm of the weighing beam, provided with an outlet aperture in its bottom, a valve adapted to close the said outlet aperture, having a jointed stem hinged to the lower surface of the reservoir, a trip post or stud held horizontally above the latch of the scale beam, an outlet tube extending from the reservoir into the weighing tank, a valve adapted to close the lower end of the said outlet tube, and a connection, substantially as shown and described, between the weighing tank and the said valve of the outlet tube, all combined for operation as and for the purpose specified. 4th. The combination, with a reservoir, a scale beam fulcrumed beneath the same, having an essentially hook-shaped latch pivoted to the outer extremity of the longer arm, a weight carrier provided with a notch in its vertical rod capable of engagement with the inner end of the latch, and a trip piston stud horizontally supported above the outer end of the said latch, of a tank supported upon the shorter arm of the scale beam, provided with an outlet aperture in its bottom, a valve adapted to close said outlet aperture, provided with a jointed stem hinged to the under surface of the reservoir, an outlet tube projected from the reservoir and extending downward within the tank, a valve capable of closing the lower end of the said outlet tube, a lever fulcrumed upon the top of the reservoir, a stem connecting one end of the lever, and the valve of the reservoir outlet tube, and a pitman pivoted to the other end of the lever, and hinged to the bottom of the weighing tank, all combined for operation substantially as shown and described.

### No. 32,212. Flexible Driving Shaft.

(*Arbre de couche flexible.*)

Frederick Y. Wolsley, Sydney, N.S.W., 9th September, 1889; 5 years.

*Claim.*—1st. A flexible driving shaft consisting of a core of suitable cord or rope, in combination with a spiral wire, and an outer flexible casing, substantially as described. 2nd. The manufacture and use of the improved flexible driving shaft hereinbefore described and illustrated in Fig. 1 of the accompanying drawing.