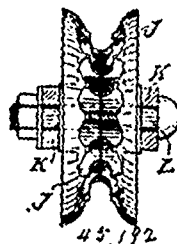


side bars together and forming journals  $E^{11}$  for the counter-shaft  $W^4$ , as and for the purpose specified. 15th. The combination with the casting  $G^1$ , counter-shaft  $W^4$  supported in bearings  $G^{11}$ , sprocket-pinion  $G^2$  provided with a groove  $n^4$  in its hub designed to engage with the pins  $m^4$ , spiral spring  $W^5$  located upon a shaft  $W^4$  between the opposite end of the hub and bearing  $G^{11}$ , of the rod  $W^4$ , the ring end of which fits into a groove in the elongated portion of the hub, which rod is designed to engage with the slanting end  $Q^2$  of the cover  $Q^1$ , which is secured to the casting  $G$ , as and for the purpose specified. 16th. The combination with the gear-wheel  $y^2$ , spring-trip dog  $y^4$  secured to the same, sprocket-wheel  $Y^6$ , driven as specified and provided with rollers  $y^6$ , lever  $Y^7$  pivoted at 8, on the lever 4, and having the projection 9 designed to engage with the projection  $y^7$  of the trip-dog  $y^4$ , roller 6, on the inner end of the lever 4, cam 2, on the knotted gear-wheel  $y^3$ , boss 10, formed on the end of the lever  $Y^7$ , and extending into the slotted end 7, of the lever 4, rod 12, hooked into the end of the lever  $Y^7$ , and extending through the lateral projection 11, of the lever 4, and provided with a spring 13, and nut 14, link 15, arm 16, on the forward end of the rod 17, and compressor trip arm 18, on an arm at the opposite end of the rod 17, arranged as and for the purpose specified. 17th. The combination with the gear-wheel  $y^2$ , spring-trip-dog  $y^4$ , secured to the same, sprocket-wheel  $Y^6$ , driven as specified, and provided with rollers  $y^6$ , lever  $Y^7$ , pivoted at 8, on the lever 4, and having the projection 9, designed to engage with the projection  $y^7$  of the trip-dog  $y^4$ , roller 6, on the inner end of the lever 4, cam 2, on the knotted gear-wheel  $y^3$ , boss 10, formed on the end of the lever  $Y^7$ , and extending into the slotted end 7, of the lever 4, rod 12, hooked into the end of the lever  $Y^7$ , and extending through the lateral projection 11, of the lever 4, and provided with a spring 13, and nut 14, link 15, arm 16, on the forward end of the rod 17, compressor trip arm 18, on an arm at the opposite end of the rod 17, and the spring 13, designed to press against the arm 16, as and for the purpose specified. 18th. The combination with the knotted gear driven as specified, and connected by the rod 21, to the arm  $P^3$ , on the end of the needle shaft  $P^2$ , of the block 27, provided with a lug 27, extending under the needle  $P^4$ , held in guide-ways, and supported by a spring plunger in such guide-ways, which are attached to or form part of the frame, as and for the purpose specified. 19th. The combination with the main driving-wheel and axle  $W$ , provided with pinions  $r$ , engaging with the teeth of the elevating rack  $O^2$ , of the ratchet-wheel  $V^4$ , arm  $V$ , supported on the axle  $W$ , pivoted spring-dog  $V^2$ , engaging with the ratchet-wheel  $V^4$ , block  $V^3$ , supporting the opposite end of the arm  $V$ , held in guide-ways and supported by the spring  $r^2$ , within the loop  $V^1$ , which is secured to the angle-bar  $H$ , and side bar  $E^1$ , as and for the purpose specified. 20th. The combination with the main driving-wheel and axle  $W$ , provided with pinions  $r$ , engaging with the teeth of the elevating rack  $O^2$ , of the ratchet-wheel  $V^4$ , arm  $V^7$ , supported on the axle  $W$ , pivoted spring-dog  $V$ , engaging with the ratchet-wheel  $V^4$ , block  $V^3$ , supporting the opposite end of the arm  $V$ , held in guide-ways and supported by the spring  $r^2$ , within the loop  $V^1$ , which is secured to the angle-bar  $H$ , and side bar  $E^1$ , and means whereby the spring-dog  $V^2$ , is released from the ratchet-wheel  $V^4$ , as and for the purpose specified. 21st. The combination with the main driving-wheel and axle  $W$ , provided with pinions  $r$ , engaging with the teeth of the elevating rack  $O^2$ , of the ratchet-wheel  $V^4$ , arm  $V$ , supported on the axle  $W$ , pivoted spring-dog  $V^2$ , engaging with the ratchet-wheel  $V^4$ , block  $V^3$ , supporting the opposite end of the arm  $V$ , held in guide-ways and supported by the spring  $r^2$ , within the loop  $V^1$ , which is secured to the angle-bar  $H$ , and side bar  $E^1$ , and the rod  $V^2$  connected at the inner end to the dog  $V^2$ , and at the other to the foot crank  $V^5$ , as and for the purposes specified. 22nd. The combination with the main driving-wheel and axle  $W$ , provided with pinions  $r$ , engaging with the teeth of the elevating rack  $O^2$ , of the ratchet-wheel  $V^4$ , arm  $V$  supported on the axle  $W$ , pivoted spring-dog  $V^2$ , spring supported block  $V^3$  on which the outer end of the arm  $V$  rests, means for releasing the dog and the lever arm  $W^1$ , provided with a tooth  $r^1$ , as and for the purpose specified. 23rd. The combination with the reel standard  $M$ , supported on the legs  $m$ ,  $m$ , which are journaled on the spindle  $I$ , having bearings on the bracket  $L$ , and the angle-bar  $H$ , of the rod  $T$  pivoted at its lower end and provided with a quadrant end extending through a notch in the bar  $T^1$ , the spring plunger  $T^1$  provided with a handle  $T^1$ , and arranged to be engaged with the notches of the quadrant, as and for the purpose specified. 24th. In combination the counter-shaft supported in bearings and driven as specified, and having a bevel pinion secured at the inner end of the bevel gear-wheel  $X^1$ , journaled in the bracket  $M^1$ , secured to the angle-bar  $H$ , and connected by the universal joint  $X^2$  to the square rod  $X^4$ , which extends through a corresponding hole made in the pinion  $X^6$ , which is journaled in the end of the bracket  $X$ , supported on the reel shaft  $U^{11}$ , which is suitably journaled at the top of the reel standard  $M$ , as specified, and is provided with a gear-wheel  $U^4$ , which meshes with the gear-wheel  $X^4$ , as and for the purpose specified. 25th. The combination with the bracket  $P^2$  supported upon the pipe  $O^1$ , and rod  $o^1$ , and carrying the binding mechanism, as specified, of the square shaft  $Y^1$  supported at the forward end in the bearing box secured to the side bar  $P^1$ , and at the rear secured in the sleeve journal having bearings at the upper end of the bracket  $F$ , and the sprocket-wheel  $Y^{11}$  having an annular groove made in the hub into which extends the fork  $p^{11}$ , forming part of the bracket  $P^2$ , as and for the purpose specified. 26th. The combination with the

reel standard  $M$  journaled at the bottom, as specified, and provided with an upwardly extending  $M^{11}$ , in which is journaled one end of the frame  $U$ , and in the other end of which is journaled the reel shaft  $U^{11}$ , and means whereby the rearward end of the frame  $U$  is raised and lowered, as and for the purpose specified. 27th. The combination with the reel standard  $M$  journaled at the bottom, as specified, and provided with an upwardly extending arm  $M^{11}$ , in which is journaled one end of the frame  $U$ , and in the other end of which is journaled the reel shaft  $U^{11}$ , of the frame  $U$  having a forward extension  $u$ , upon which is secured the lever  $u^1$ , which is provided with the ratchet toothed quadrant  $U^1$  secured to one of the arms  $m^{11}$ , as and for the purpose specified. 28th. In a binder, the combination with the frame supported at one side by the main driving-wheel, as specified, of the grain-wheel  $B$  supported upon the lever 33, the forward end of which is pivoted vertically between the bosses  $28^{11}$ , forming part of the standard 28, which is attached and braced in position at the forward end of the grain table, as and for the purpose specified. 29th. In a binder, the combination with the frame supported at one side by the main driving-wheel, as specified, of the lever 33 pivoted between the bosses  $28^{11}$ , forming part of the standard 28, and provided with a spring plunger 34, bar 35, having the quadrant 37 affixed thereto, and pivoted at its forward end on the bolt 36 passing through the enlarged end 32, of the lever 33, and having secured to its rear end the bearing 39, in which the grain-wheel  $B$  is journaled, as and for the purpose specified.

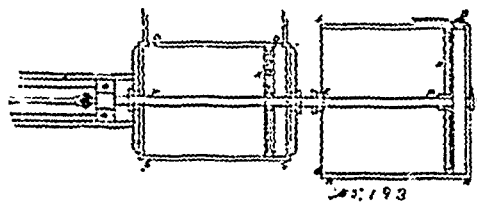
#### No. 45,192. Trolley-wheel. (*Roue de Trollee.*)

John W. Clark, Menands, New York, U.S.A.,  
30th January, 1894; 6 years.



**Claim.**—1st. A trolley-wheel, consisting of a hub  $B$ , a series of arms  $D$ , radiating from said hub, and each having an ice-breaking shoulder  $H$ , formed on its inner face, two annular ribs  $E$ , formed on the outer extremities of said arms, and a groove  $G$ , formed at the base of said arms, said grooves being fitted to receive and form a close electrical contact with a trolley wire, and the spaces between said arms, being carried into and longitudinally across the periphery of said hub, for the purpose of forming ice-breakers at the bottom of the groove  $G$ , as herein specified.

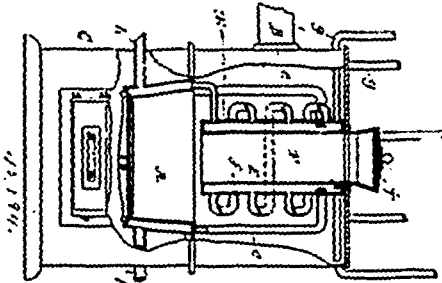
#### No. 45,193. Engine. (*Machine à vapeur.*)



John D. Gregory, Bertha, Manitoba, Canada, 30th January, 1894;  
6 years.

**Claim.**—The air cylinder, in combination with the steam cylinder as hereinbefore described.

#### No. 45,194. Heater. (*Calorifere.*)



Robert Donaldson, Montreal, Quebec, Canada, 30th January, 1894;  
6 years.

**Claim.**—1st. A hot water heater, containing water chambers and having a central self-feeding passage for fuel, for the purpose set forth. 2nd. A hot water heater, containing water chambers and having a self-feeding fuel passage extending from the top thereof to the fire-pot section, for the purpose set forth. 3rd. A hot water heater, having a self-feeding fuel passage formed by a water-jacketed section carried above the fire-pot, for the purpose set forth. 4th.