

The Canadian Patent Office

RECORD




Vol. IX.—No. 7.

JULY, 1881.

{ Price in Canada \$2.00 per An
 { United States - \$2.50 “

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INVENTIONS PATENTED.

No. 12,663. Improvements on Road Scrapers.

(*Perfectionnements aux ebourneurs.*)

George S. Agee, Mint Hill, Mo., U. S., 20th April, 1881; for 10 years.

Claim.—1st. The carriage A B C, the scraper D, the arched bar E, the keepers F having rollers *g*, the bent and slotted guide standard H having rollers I, the connecting rod J, the lever K having spring lever pawl N, and the catch plate M, for raising, lowering and holding the scraper, the gear segments R S, the lever T having spring lever pawl U, and the catch plate V, for tilting and holding the scraper. 2nd. The combination, with the carriage A B C, and the scraper D, of the arched bar E, the keepers F having rollers G, and the bent and slotted guide standards H having rollers I, whereby the scraper is adjustably connected with the carriage. 3rd. The combination, with the carriage A B C, the scraper D and the arched bar E, of the connecting rod J, the lever K having spring lever pawl N, and the catch plate M, whereby the scraper can be raised, lowered and supported. 4th. The combination, with the scraper D and the arched bar E, of the gear segments R S, the lever T having spring lever pawl U, and the catch plate V, whereby the scraper can be tilted and supported. 5th. The combination, with the scraper to the arched bar E and the gear segments R S, of the shield W, whereby the gear segments R S are protected from the dirt. 6th. The combination, with the carriage A B C, the scraper D, the arched bar E, the lever T and the gear segment S, of the bar Y having gear segment Z and carrying one or more ploughs *a b* whereby the dirt can be loosened and the ploughs tilted.

No. 12,664. Improvements on Traction Engines. (*Perfectionnements aux machines de traction.*)

John H. Elward, Stillwater, Min., U. S., 23rd April, 1881; for 15 years.

Claim.—1st. The combination, with the traction wheel B, the engine shaft N and mechanism for transmitting power to said wheel from said shaft, of the stationary cone attached to said engine shaft, the sliding cone supported loosely upon said shaft, and the gear wheel attached to said sliding cone, whereby the engine shaft can be rotated while entirely disengaged from the gears. 2nd. The combination, with the boiler, the traction wheels, the chains and stationary gears P P₂, of the bracket P₁ secured directly to the boiler, and the sliding mechanism composed of the chain wheel, the inner sliding wheel, and the outer sliding wheel secured rigidly together concentrically. 3rd. In a traction engine, the combination, with the chain wheel Q, the shaft thereof, and mechanism arranged to rotate said wheel, of a sliding support for said shaft, and a rotating support through which the shaft passes eccentrically. 4th. The combination, with the chain wheel Q, and the gearing mechanism which rotates it, of the sliding chain wheel shaft, the cam disk *q*, the segment gear Q₃, the rack engaging with said segment gear, and a sliding support for the shaft of the chain wheel. 5th. The combination, with the engine and the traction wheels mounted independently of each other, of the counter shaft B₂ mounted beneath the engine, parallel to the axis of the driving wheels, the independently rotated gear wheels on said counter shaft, which engage with the ground wheels respectively, and the friction clutches to connect the counter shaft with the gear wheels thereon, either independently of each other or simultaneously. 6th. The combination of the following elements, viz.: An engine ground traction wheels mechanism connecting the engine shaft with the traction wheels, and adapted to drive said wheels in one direction at a high rate of speed, and in the opposite direction at a slow rate of speed, and mechanism adapted to reverse the direction of rotation of the engine. 7th. The combination, with the traction engine, of a ground wheel provided with isolated projecting ribs inclined alternately in opposite directions and arranged to leave open spaces in each side of the wheel, between the adjacent ends of the ribs of each consecutive pair. 8th. The combination of the following elements, whereby power may be applied to the trac-

tion wheels, independently of each other, viz.: A boiler traction wheels B B₁, friction clutches for imparting power to said wheels, sliding yokes attached to the friction clutches, levers *a a* pivoted to said yokes, and a rigid depending bracket *a* secured to the boiler. 9th. The combination, with the cylinder, the steam chest, and the boiler of an intermediate steam receptacle, several intermediate pipes connecting said steam receptacle with the boiler and separate valves for the pipes respectively to close them. 10th. The combination, with the cylinder, the steam chest or boiler and an intermediate steam receptacle, of a receiving pipe which conveys the steam from said receptacle to the steam chest, and communicates with the receptacle at two or more points. 11th. The combination, with the cylinder, the steam chest, the boiler, an intermediate steam receptacle and a receiving pipe communicating with the intermediate steam receptacle at two or more points, of separate valves arranged to close the entrances of said pipes independently of each other. 12th. The combination, with the cylinder, the steam chest, the boiler and a governor having a reciprocating stem, of the levers *l* loosely connected to the stem of the governor, and arranged to close the steam passage. 13th. The combination of the exhaust pipe, whereby the water of condensation can be withdrawn after it has entered the exhaust pipe. 14th. The combination, with the cylinder, the water receptacle H, the exhaust pipe V and the smoke stack which receives exhaust steam pipe, of the downwardly turned detachable spark pipe H arranged to be attached to the upper end of the stack. 15th. The combination, with the boiler, of the main flue situated at one side of the central vertical line of the boiler, and the return flues arranged above and on both sides of said fire flue. 16th. The combination of the fire flue, the return flues *a*, the front smoke box F, the tight ash vessel F₁, and the rotating door F₂ arranged to close the opening left by withdrawing the ash box. 17th. The combination, with the boiler, the smoke stack and the smoke chamber at the end of the boiler, beneath the smoke stack, of the ash box E and the walls *d* arranged to make a tight passage, whereby refuse may escape without interfering with the draft of the boiler. 18th. The combination, with the boiler and the fire box situated within the boiler, of the ash box E situated outside of the boiler and provided with the inclined ends and with the doors *e e* hinged at their upper sides to automatically close the box. 19th. The combination of the following elements, viz.: the steam dome and drum, the inverted cone *l*, the perforated diaphragm *l* and the boiler having the apertures *i* beneath the cone *l* and arranged to permit both the passage of steam and the return of condensed water. 20th. The combination of the boiler, the fire flue situated within the boiler, and the bridge wall when arranged to have its central vertical lines at one side of the central vertical line of the fire flue. 21st. The combination, with one or more supporting and turning wheels arranged to have their axis inclined to the central longitudinal line of the engine, and two opposite supporting and driving wheels, of a friction clutch, whereby the engine may be put into full motion before connecting it with the driving wheels, and a compensating gearing mechanism, whereby said motion may be imparted to both the driving wheels equally. 22nd. In combination with the fire place and grate of a boiler furnace, the horizontal feeding trough W having an automatically closing door hinged to the bottom of the trough, to serve as a guide for the fuel. 23rd. In combination with the furnace and the extended feed trough, the extensible apron composed of the plates W₅ and W₆ attached to the outer end of the trough. 24th. In combination with the boiler furnace and the grate, the bracket C secured to the furnace wall, and the bridge wall supported loosely upon said brackets. 25th. In combination with the boiler furnace, the grate and the bridge wall, the support C₁. 26th. In combination with the boiler furnace and the bridge wall, the door C₂ composed of two or more parts hinged together. 27th. The combination, with the smoke returning chamber, of the perforated guard, arranged to surround said chamber. 28th. The combination, with the furnace, the return flues and the smoke box, at the front end of said furnace, of a tight ash vessel constructed to permanently hold a body of water beneath said smoke box for quenching cinders, and adapted to be removed entirely from the boiler, and a door arranged to close entirely the opening left by withdrawing said box.

No. 12,665. Telegraph Cable. (*Câble télégraphique.*)

Edouard Berthoud, Cortaillod, and François Borel, Boudry, Switzerland, 23rd April, 1881; for 15 years.

Claim.—1st. The method of manufacturing telegraph cables by drawing out compound ingots consisting of the conducting wire or wires, the insulating material, and the metallic sheathing. 2nd. As a new article of manufacture, a telegraph cable formed by drawing out compound ingots consisting of the conducting wires, the insulating material, and the metallic sheathing. 3rd. As a new article of manufacture, a compound telegraph