

the wash-box and having passages on its side or sides, and a hinged door or doors adapted in one position to cover said screen, and in the other position to close said side passage or passages, substantially as described. 5th. The combination of a rotary paddle wheel *e f* and a semi-circular wash-box B having rounded perforated bottom, said box B or its bottom constructed and adapted to oscillate around its axis, substantially as described.

No. 17,110. Metallurgical Gas Furnace.

(*Fourneau métallurgique à gaz.*)

William W. Waplington, Halifax, N.S., 2nd July, 1883; 5 years.

Claim.—1st. In a metallurgical gas furnace, the working chamber D provided on each side with the flues E C, and valves V V also on each side, constructed and connected as described, whereby a movement of the same in one direction opens the induction-ports of the flues, and a movement in the opposite direction closes the induction-ports and opens the port of eduction-flue F, in combination with the gas producing chamber A arranged under said working-chamber, flues B B and air chambers I, substantially as described. 2nd. The working-chamber D provided on each side with the flues E C, valves V V arranged on each side as set forth, rack bars *a* and cog-gears G in combination with gas-producing chamber A arranged under the working-chamber, gas-flues B, air chamber I and spent-gas flues F, substantially as described. 3rd. The working-chamber D provided with the flues E C, alternately closing and opening valves V V I, rack-bars *a* and cog-gears G, in combination with the gas-producing chamber A arranged under the working-chamber, gas-pipes B, air-chambers I and spent-gas tubes F adapted to receive said valves, substantially as described and for the purpose set forth.

No. 17,111. Improvements in Oil Lamps.

(*Perfectionnements aux lampes à double courant d'air.*)

Samuel Maxim, Wayne, Me., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with an oil lamp, of an oil catching attachment consisting of the flange *c* extending from the lower end of the tube *a* and fastened to the inside of the shell of oil vessel, the flange *h* extending horizontally from the upper edge of the tube *a*, tube *i* projecting upward from the outer edge of the flange *h*, and tube *n* having the stepped flange *o*, substantially as and for the purpose set forth. 2nd. The tube *a* extended into the oil chamber, and the flange *c* connected to the said inner extension of the tube and to the inner surface of the oil chamber *b* forming chamber *d* within the oil chamber or vessel, the shell of the chamber *b* being provided with a passage *e* leading to the chamber *d*, and the flange or bottom *c* of the latter having a passage *f* leading to the oil chamber, said passages being arranged on opposite sides of the tube *a*, substantially as and for the purpose set forth. 3rd. The combination of the tube *a* attached to the oil holder *b* and having flange *o*, with the tube *i* having flange *h* and vertical tubular extension *i*, said flange *o* forming with the collar *k*, the annular recess *p*, and said flanges *o* and *h* having passages *q* and *l*, substantially as described. 4th. The combination of the tube *n* attached to the oil chamber or vessel *b* and having at its upper end the stepped flange *o*, with the tube *a* of the oil chamber or vessel, said tube *a* being extended into the oil vessel or chamber and having at its upper end the horizontal flange *h*, flange *c* connecting the lower end of the tube *a* to the oil vessel, and tube *i* extending from the outer edge of the flange *h* upwardly, said combination of parts constituting the recess *p* and chamber *m* and *d*, said recess communicating with the chamber *m* by a passage *q*, and the latter chamber with the chamber *m* by a passage *l*, substantially as and for the purpose described.

No. 17,112. Improvements in Harvester Binders.

(*Perfectionnements aux lieuses des moissonneuses.*)

David Maxwell, Alexander Turnbull and Robert Turnbull, Paris, Ont., 2nd July, 1883; 5 years.

Claim.—1st. A harvester binder in which the grain table is rigidly fastened to the main frame of the machine, and the main driving wheel is journaled in front of the cutter bar, the axle of the wheel supporting the frame and grain table as specified. 2nd. In a harvester binder in which the grain table is rigidly fastened to the main frame behind the axle of the main driving wheel, the knotting mechanism carried on the frame of the machine at a point behind the driving wheel, in combination with driving mechanism situated in front of the said driving wheel, substantially as and for the purpose specified. 3rd. In a harvester binder in which the knoter is situated behind the driving wheel, and the mechanism for driving the knoter is situated in front of the driving wheel, a tube or pipe arranged to carry and form bearings for the knoter shaft, in combination with brackets rigidly fastened to the main frame of the machine and carrying the tube which is rigidly fastened to the said bracket, substantially as and for the purpose specified. 4th. In a harvester binder having a hollow shaft journaled at right angles to the main axle and driving motion from the main driving wheel, a spindle journaled within the hollow shaft and having the needle attached to one of its ends, in combination with mechanism arranged to impart the required movement to the needle shaft. 5th. In a harvester binder having a shaft journaled at right angles to the main axle and driving motion from the main driving wheel, a spur wheel fastened to the shaft and meshing with a pinion fastened to a shaft suitably connected to the cutter bar, and conveyors for the purpose of imparting movement to the same. 6th. In a harvester binder having a shaft journaled at right angles to the main axle and deriving motion from the main driving wheel, a sprocket wheel keyed to the said shaft and connected by a chain to a sprocket wheel journaled on the knoter shaft, in combination with an arm fastened to the knoter-shaft and having pivoted to it a dog arranged to engage with a ratchet wheel on the face of the sprocket wheel, for the purpose of connecting the sprocket wheel to the knoter shaft. 7th. In a harvester binder in which the knoter shaft is connected to the driving wheel by a spring dog, which is held out of gear by a pin in a sliding bar and acting against the end of the

dog, in combination with a wiper or cam fastened to the compressor-shaft and arranged to move the sliding bar so as to carry the pin past the dog, for the purpose of permitting the dog to engage with the ratchet wheel. 8th. In a harvester binder in which the compressors are located behind the main wheel, and the mechanism for imparting movement to the compressors is located in front of the said wheel, the combination of a steel compressor-shaft small enough in diameter to permit sufficient torsion spring to accommodate the action of the grain on the compressors. 9th. In a harvester binder, the combination of a counter shaft journaled on the main frame in front of the driving wheel, parallel with the axle of the main wheel, and deriving motion from the movement of the main driving wheel. 10th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel and deriving motion from the movement of the driving wheel, the combination of a sprocket or other wheel fastened to the counter shaft and provided with connecting mechanism for imparting the movement of the counter-shaft to the reel. 11th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel and deriving motion from the movement of the driving wheel, a shaft journaled on the main frame at right angles to the axle, and deriving motion from the shaft, in combination with connecting mechanism for conveying motion from the shaft to the cutters, knotters and conveyors. 12th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel, and a butter frame pivoted on the grain table at a point near the heel and level with the cutter-bar, the combination of driving mechanism arranged to transmit the motion of the counter shaft to the butter, substantially as and for the purpose specified. 13th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel and deriving motion from the movement of the driving wheel, a reel standard journaled on the counter-shaft, in combination with a pivoted hand lever connected to the reel standard, substantially as and for the purpose specified. 14th. In a harvester in which the falling grain is carried away at right angles to the cutter-bar and past the heel thereof, the combination of a butter frame carrying a travelling apron or chain and pivoted to the grain table at a point near the heel and level with the cutter-bar, substantially as and for the purpose specified. 15th. In a harvester binder in which the cutter-bar is situated behind the axle of the driving wheel, an arm pivoted at one end to the frame of the grain table, and at the other to the cutter-bar, in combination with a pitman connected at one end to a crank shaft deriving motion from the driving wheel, and at the other to the arm at a point between the cutter-bar and pivot point of the arm. 16th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, a sprocket wheel fastened to shaft deriving movement from the motion of the main wheel and designed to carry the travelling chain nearest to the cutter-bar, in combination with a shaft journaled below the table near the grain wheel and having fastened to its sprocket wheels for carrying all the travelling chains, the chain nearest to the cutter-bar conveying motion to the sprocket wheel shaft, the sprocket wheels on it transmitting motion to the other respective chains. 17th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains supported on sprocket wheels, below the level of the table, two sprocket wheel shafts having their axes on the same centre line but separated to permit the passage of the needle, the said sprocket shafts being driven by the travelling shaft for operating the packers. 18th. In a needle of a harvester binder unprovided with the ordinary fixed curved back, a curved rod pivoted at one end to the back of the needle, and at the other to a swinging link pivoted to a fixed point between the centre of the needle shaft and the point of the needle, when the needle is in the position of rest. 19th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, and in which the table between the chains near the binding mechanism is hinged, a lever pivoted below the table and with one of its ends arranged to come in contact with the same and with a curved end formed on its opposite end, in combination with a projection formed on the hub of the needle bar and arranged to come in contact with the curved end of the lever, for the purpose of tilting the same and raising the hinged table. 20th. In a harvester binder in which the main frame and grain table are rigidly fastened together and are pivoted on the main axle, a tongue pivoted on the main frame in front of the axle and extending behind the pivot point, in combination with a lever pivoted on the main frame and arranged to act on the inner end of the tongue for the purpose of tilting the table. 21st. In a harvester binder in which the main frame and grain table are fastened rigidly together and pivoted on the main driving axle, a grain table framed to support the travelling chain mechanism, in combination with a light extension forming part of the grain table, but not designed to carry any part of the working mechanism, substantially as and for the purpose specified. 22nd. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, clips attached to the grain table and fitting over the travelling chain, in combination with angular brackets fixed to the grain table, one opposite to each clip, so as to keep the travelling chain under the clips and at the same time carry the chain over them.

No. 17,113. Improvements in Traction Wheels.

(*Perfectionnements aux roues de traction.*)

Joseph Enright, San Jose, Cal., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the inwardly projected flange K, removable clamps C having their ends bent inward and arranged on the side of the wheel opposite to the flange K, the rubber blocks *a* placed on the periphery of the wheel, and the shields B having their ends bent outward, fitting under the flange K and under the inwardly projected end of the clamps C, substantially as and for the purpose set forth. 2nd. The combination of the peripheral plate provided with a series of transverse radially-projected partitions, a series of elastic blocks fitting between the adjacent partitions, a shield placed over and covering the elastic blocks, and means for holding the shield adjustably in place, substantially as set forth. 3rd. The combination, with the series of elastic blocks arranged around and transversely to the surface of the wheel, and means for holding the elastic blocks in place, of a series of partitions arranged transversely to the face of the wheel and projected outward between the adjacent blocks and