inclined roof C. 4th. The combination of the inclined plane A, conveyer or conveyers B, roof C, engine E and suitable connecting mechanism. 5th. The combination of the inclined plane A, conveyer or conveyers B, and roof C provided with suitable side boards *a a*. 6th. The combination of the inclined plane A, conveyers B, roof C and engine E supplied with steam from the boiler of the locomotive, under the control of the engineer. 7th. An inclined plane, one or more conveyers, an inclined roof and an engine, the whole being so constructed and arranged as to be applied to the pilot of a locomotive.

No. 11,708. Improvements on Cross Cut Saw Handles. (*Perfectionnements aux bras des scies de travers.*)

Jerome C. Dietrich, Galt, Ont., 3rd. September, 1880; for 5 years.

Claim. 1st. The arm F having holes G H transversely one to the other and provided with a socket E 2nd. The combination of the thimble J with the arm F, tang B and thumb screw C.

No. 11,709. Improvements on Pipe Tongs. (*Perfectionnements aux mordaches à tuyaux.*)

Charles H. Lovrien, Erie, Pa., U. S., 3rd. September, 1880; for 5 years.

Claim. 1st. The combination, with the part A having a hook thereon, of a part B having a recess therein, and a many sided bit seated in said recess. 2nd. The combination, with the part A having a hook thereon, of part B having a wing B_1 for embracing said part A at the point where said parts are pivoted together. 3rd. The combination, with the parts A having a hook thereon, of a part B having a recess therein and a many sided bit T seated in said recess, and pin D for retaining said bit in said recess. 4th. The opening K through the head or hook of the part A, when said part is made of malleableized cast metal, whereby said hook or head, may be more perfectly malleableized. 5th. A pipe tongs wherein the parts A and B are made adjustable so as to adapt said tongs to various sized pipes by means of a slot S, and set screw C operating upon the fulcrum pin wherein said slot, the application therein of a pivot pin P, having a square space p_1. 6th. The combination of the following elements, the part A having a hook slot S and set screw C, the part B having a recess R, bit T seated within said recess, and a wing l_1 for embracing the part A, and a pivot pin P having two round and one square bearing. 7th. The combination with the recess R and bit T, of the lug *b* in the bottom of said recess.

No. 11,710. Improvements in Mop Wringers. (*Perfectionnements aux essoreuses à torchons.*)

Arthur L. Burtis and George W. Wearer, Lockport, N. Y., U. S., 3rd. September, 1880; for 5 years.

Claim. The combination of the pail A provided with roller J, a bail D pivoted at the lower end to the pail, and arms F F carrying a roller H, and connected at the upper ends to the bail.

No. 11,711. Improvements on Machines for Assorting Leather. (*Perfectionnements aux machines à assortir le cuir.*)

Haldey P. Fairfield, West Medford, Mass., U. S., 3rd. September, 1880; for 5 years.

Claim. 1st. The lower roller *c* and the upper roller set as described with relation to the lower roller, to leave a tapering space, combined with a series of boxes or receptacles at the rear of said rollers. 2nd. The lower roller *c* combined with the upper roller, and its guard shell *k*. 3rd. The lower roller *c*, upper roller and guard shell combined with the struts of braces, to prevent the upper roller springing. 4th. The table *a* and upper and lower rollers adjusted with relation to each other, to leave a tapering space between them, in the direction of the length of the rollers, combined with a series of boxes or receptacles at the discharging side of the rollers.

No. 11,712. Improvements on Steam Engines. (*Perfectionnements aux machines à vapeur.*)

George H. Babcock, Plainfield, N. J., and Stephen Wilcox, Brooklyn, N. Y., (Co-inventors with Nathaniel W. Pratt, Brooklyn, N. Y.,) U.S., 6th September, 1880; for 15 years.

Claim.—1st. A compound engine having the independent steam and exhaust valves of the two cylinders connected together and worked by a single operating means. 2nd. The combination, with a steam engine having separate steam, and exhaust valves, of the eccentric E_2, links *g h* and separate link blocks G and H, with their trains of connections. 3rd. A steam engine having independent sets of mechanism for adjusting the degree of expansion, to the levers G_{13} H_{13} combined and arranged relatively to each other and to the valve operating mechanism. 4th. The dog G_{17} having a projection G*, in combination with the dog H_{17} having the shelf H,* and the levers G_{13} H_{13}, notched bar or bars a_3 and the trains of mechanism for separately operating the same and exhaust valves. 5th. The vertical air pump J, having the slender plunger 16 operating with a long stroke working a pump having a large longitudinal area, and adapted to give a large area of water surface, or effective piston, with a small amount of throw. 6th. The pipes K_1 K_2, separator M and internal hanging curtain M_3, combined and adapted to serve between an engine and boiler. 7th. The pipes L_1 L_2 in combination with the lower chamber of the separator *m* having the hanging curtain M_6, and with the cylinders B C of a compound engine. 8th. The coiled pipe P in combination with the separator M, horizontal partition M_1, pipes K_1 K_2, curtain M_3, pipes L_1 L_2 and curtain M_6, with provisions for discharging the water from both the upper and lower parts of the separator M. 9th. The separator M having the horizontal partition M_1, pipes K_1 K_2 L_1 L_2, curtains M_3 M_6, shield Q, and one or more feed pipes R. 10th. A boiler having a furnace T_1 T_2, and tubes W above it, the mid-feather *t* between the two portions of the furnace and the space *w* between the corresponding sets of tubes. 11th. The circulating pipes Z Z, in combination with the shell T and tubes W. 12th. The combination of the internal furnace T_1 T_2, mid-feather *t*, up-take T_3, tubes W, space *w* and circulating plates Z Z.

No. 11,713. Improvements on Palace and Sleeping Cars. (*Perfectionnements aux chars palais et dortoirs.*)

Thomas Clarke, Truro, N. S., 6th September, 1880; for 5 years.

Claim. 1st. In a sleeping car, the sliding slat screen partitions E E N N for separating respectively the upper and lower berths from the middle aisle or common passage way. 2nd. The vertically adjustable partitions D provided with sliding slat screens E. 3rd. The longitudinal grooved bars F forming ways for the upper sliding slat screens or partitions E. 4th. In a railway car-seat, the hinged back-frame G G_1 G having reversible upholstered back H, hinged and swinging within the frame. 5th. The car-seat or couch composed of the stationary frame or box K, hinged cover Q, sliding extension frame L having hinged reversible seat M, rigid back *a* and hinged back frame G G_1 G provided with the hinged reversible back H. 6th. In a railway car, the combination, with the seats having rigid back frames *a*, hinged back frames G G_1 G and sliding extensions L, of the slat screen N interposed between the rigid back-frames *a* and hinged frame G G_1 G. 7th. The combination, with the seat supporters or frames C and rigid partitions *a a*, of the sliding partition D provided with the flanged top or head *d*, and adjustable slat screen E. 8th. In a railway car, the combination of the rigid side or wall A, longitudinal bar F parallel to the wall, seat-frames or supports C having rigid partitions *a a*, and sliding partition D provided with the flanged top or head piece *d* having lock-bolts or fastening devices *i i*. 9th. In a railway car, the combination of the partitions *a a* having ledges *g g*, sliding partition D, having slat-screen E and provided with fastening devices for locking it in its extended position, hinged frame G G_1 G carrying the hinged reversible seat backs H and grooved or channelled on one side, to receive the lower end of the adjustable slat-screen E, when these and frames G G_1 G are in their extended position. 10th. In combination with the hinged and grooved arms G, the sliding slat-screen E, sliding in the upper grooves or channels, and hinged brace-rods I fitting into and concealed by the lower grooves or channels, when the frames of which said arms form part are turned down. 11th. In a sleeping car, the combination, with the transverse partitions *a a* separating the sections end-wise, of the hinged upper berth sections, composed of hinged frames G G_1 G G G_1 G provided with hinged reversible bottoms H H and devices for locking said bottoms in place, within their respective frames, with locking devices, for fastening their outer meeting ends to the side of the car with the inner lock-bolt *l* and with hinged brace-rods I, adapted to be stepped and locked into sockets in the lower arm-rests *c c*. 12th. The combination, with the upper berth, of a section of an extensible and adjustable slat-screen adapted to enclose the lower berth and support the frame or frames forming the bottom of the upper berth. 13th. In a sleeping car section, an upper berth formed of the seat backs G H G H hinged above the seats and adapted to be turned up and connected by suitable fastening devices, to form the complete berth. 14th. The combination, with the hinged seat-backs G H G H, of the hinged brace-rods or supports I I. 15th. In a parlor or drawing-room car, seats or couches composed of respectively, a seat and a back-frame having hinged and reversible seats and backs.

No. 11,714. Improvements on Grain Binders. (*Perfectionnements aux lieuses à grain.*)

George F. Green, Kalamazoo, Mich., U. S., 6th September, 1880; for 15 years.

Claim.—1st. The yielding fingers *o* projecting from the rock shaft P and combined with mechanism for tripping the lock which arrests the motion of the binding devices, whereby the grain is received from the elevator, and the bundle is seized. 2nd. The revolving separator G, whereby the stream is arrested, combined with a lock to hold said separator, and yielding fingers or apron to release said lock, when a certain quantity of grain has accumulated. 3rd. The revolving separator G mounted at its middle upon the shaft F so that each end may, during its revolution, enter the receptacle, and combined with a hinged arm N, whereby said separator is arrested, with one end in said receptacle in position to arrest the stream of grain, an automatic mechanism to raise said lock and release said separator. 4th. The yielding fingers *o* combined with the hinged arm N which arrests the revolving separator, provided with an adjustable stop Q, whereby said arm may be adjusted for release with a greater or less elevation of said fingers as desired. 5th. The hinged lock arm N provided with the tension spring *v* and adjusting screw *c*, whereby the resistance of said arm may be regulated at will. 6th. An automatic binding mechanism connected by suitable gearing with the elevation roller, or rollers, whereby said binder is actuated by the motion of said elevator. 7th. The elevator roller C provided at one end with the gear E in mesh with the gear K on the counter shaft J, which is provided with a gear I combined with the mutilated gear H on the end of the separator shaft F, whereby when said separator is at rest said gear I revolves freely in the mutilated part of gear H, and goes into mesh with said gear H only after the release of said separator and its forward movement by the weight of grain resting upon it. 8th. The separator shaft F provided at one end with the wheel L having the studs *a*, combined with the lever M and clutch *b*, whereby the elevator roller is caused to engage with the pinion D and main binder wheel Y. 9th. The divider G composed of two similar plates set upon the shaft F at a distance from each other, combined with mechanism whereby the proximate end of said plates will be brought together while passing through the stream of grain and separated laterally immediately thereafter. 10th. The separator G composed of two similar plates, one fixed upon the shaft F perpendicular to the axis thereof, and the other mounted upon the said shaft at a distance with a transverse joint combined with a stationary cam B, whereby the proximate ends of said plates are brought together, as they pass through the stream of grain, and separated laterally immediately thereafter. 11th. A separator composed essentially of two parts capable of lateral separation, combined with mechanism whereby said parts are brought together while passing into and through the stream of grain and separated laterally immediately thereafter, to open a clear path for the cord carrier. 12th. The wheel W provided with the cam groove *n*, one part whereof is concentric to the axis and the remainder a long ellipse combined with the vibrating rack F provided with stud *r*, to engage with said cam and the rotating barrel L, whereby the knotter is actuated. 13th. The ejector arm r^1 mounted upon the shaft T and provided with a joint, which permits said arm to bend forward and pass any obstructing matter in its retreat. 14th. In an automatic binder, a band securing mechanism located above the receptacle, so as to be easily guarded against obstruction by straw and dust, combined with a band carrying arm moving upward from