limekiln having tapering cupolas separated by a wall of masonry, arched furnace openings arranged on opposite sides of each cupola at the base thereof, furnaces disconnectedly set within the arched furnaces, openings with their back walls forming the walls of the cupolas between the arched openings, stacks mounted on the cupolas and separated by a hollow partition wall, and having feed-holes in the bases of the stacks, inclined bottoms to the cupolas extended across the same, and having air-chambers under them, and terminating in a step arranged across the draw-hole, and draw-holes in the end of the kiln having floors on a level with the bottom of the steps of the inclined kiln-bottom, substantially as described. 3rd. A double limekiln having tapering cupolas separated by a wall of masonry extended from the bottom to the top thereof, said cupolas *being lined on all sides with fire brick from their bases to a line* above complete combustion, and from thence lined with common bricks to the top, said lining of common bricks being bound to the outer walls of the kiln, and set with a square space between them and the main wall, a packing of incombustible and non-conducting material arranged in said space, and tapering stacks of less exterior area than the top of the cupola mounted on top thereof, and having a hollow partition wall between them and provided with feed-holes at their bases, substantially as described. 4th. The double limekiln herein described, consisting of tapering cupolas separated by a partition wall, and having arched furnace openings at their base and on opposite sides of each cupola, and draw-holes in each end of the kiln, and inclined bottoms extending entirely across the bottom of the cupola and terminating in a step arranged across the draw-holes, and having air chambers beneath them, linings of fire-brick in said cupolas extending from the base to above complete combustion, and linings of common bricks above the fire-bricks to the top of the cupola, said lining of common bricks being set with a space between them and the main walls of the kiln, stacks mounted on the cupolas and separated by a hollow partition wall, and furnaces disconnectedly set in the arched furnace openings of the kiln, with their back walls to form the walls of the cupolas between the arched furnace-openings substantially as described.

No. 25,082. Metallic Hip Shingle.

(Bardeau Métallique à Arête.)

William H. Prentice, Toledo, Ohio, U.S., 6th October, 1886; 5 years.

Claim.—1st. The metallic corner bindings for shingled hip roofs, flanged at C to fit over the shingles, substantially as described. 2nd. The corner bindings for shingled hip roofs, having the sides B to bear against the upper sides of the shingles forming the angles, and the flanges C to bear against the lower ends of the shingles, substantially as described. 3rd. The corner bindings for shingled hip roofs having the sides B to bear against the upper or outer sides of the shingles forming the angles, the flanges C to bear against the undersides of the shingles at their lower ends, substantially as described.

No. 25,083. Process for Treating Broom Corn. (*Procédé de Traitement de la Houque.*)

John W. Booth, Wayne, Mich., U.S., 6th October, 1886; 5 years.

Claim.—1st. The process herein described of permanently colouring broom corn, for the purposes set forth. 2nd. The process herein described of colouring and bleaching broom corn, substantially as set forth.

No. 25,084. Seat Spring for Road Sulkies.

(Ressort de Siège de Désobligeante.)

John R. Hawkey, Parkhill, Ont., 6th October, 1886; 5 years.

Claim.—In combination, with the seat A and cross-bars *c*, *c*, of a road sulky, a pair of springs *B*, *B*, constructed shown and described, the lower ends being attached by clips to said cross-bars, and the upper ends carrying the seat, substantially as shown and described.

No. 25,085. Hot Air Furnace.

(Calorifère à Air.)

Miron H. Jacobs, Syracuse, N.Y., U.S., 6th October, 1886; 5 years.

Claim.—1st. The combination, with a heating furnace having a dome above the fire pot and an interior shield T, of the tubular spiral radiator opening into the lower part of the dome within the shield by a proper duct. 2nd. The combination, with a heating furnace having a dome above the fire pot, of the tubular spiral radiator opening into the dome and provided with couplings and clean-out openings. 3rd. The combination, of the tubular spiral radiator E cast in sections, and provided with couplings, and clean-out openings W cast therein and connected to the dome C by a duct G provided with clean-out openings. 4th The combination, with a heating furnace, of a dome above the fire-pot, having a duct G with a clean-out opening cast therein. 5th The combination, of a heating furnace, fire-pot C, dome D, duct G, radiator E cast in section and provided with proper couplings and clean-out openings W, and the shield T, all substantially as shown and described and as and for the purpose set forth.

No. 25,086. Dumping Car. (*Char à Bascule.*)

Stephen W. Cook and Henry Summers, Bozoman, T. M., U.S., 6th October, 1886; 5 years.

Claim.—1st. In a dumping-car, the truck-frame A, the axles B and C, the wheels B1 and C1, the hinged frame D, the friction rollers E1 and the pin E, in combination with the bed-plate F having an incline F2, the disk F1, the car-frame G1 and the car-body G, substantially as shown and described. 2nd. In a dumping-car, the truck-frame A consisting of the side beams A1, the end cross-beams A2 and the bed-plate A3, the pin E, the friction rollers E1 and the keepers E2, in combination with the car bed-plate F having an incline F2, the disk F1, the car-frame G1 hinged to the bed-plate F, the car-body G and the handle I, substantially as shown and described. 3rd. In a dumping-car, the truck-frame A consisting of the side beams A1, the end cross-beam A2 and the bed-plate A3, in combination with the axles B attached to the side beams A1, wheels B1, the hinged frame D, the axle C and the wheels C1, substantially as shown and described. 4th. In a dumping-car, the truck-frame A, the axles B and C, the wheels B1 and C1 and the hinged frame D, in combination with the guide D1, the brake shoes K1, the bars K2, the cams L1, the bars L and the lever L2, substantially as shown and described. 5th. In a dumping-car, the truck-frame A, the pin E, the friction-rollers E1 and the keepers E2, in combination with the bed-plate F having an incline F2, the disk F1, the car-frame G1 consisting of the side beams G2, the end cross-beams G3 and the centre beam G4 hinged to the bed-plate F, the car-body G, the hinged door H and the locking-rod H1, substantially as shown and described.

No. 25,087. Band Saw Machine.

(Scierie à Lame Sans Fin.)

David K. Allington, East Saginaw, Mich., U. S., 6th October, 1886: 5 years.

Claim.—1st. In a band-saw machine, the combination of a base-plate supporting columns B and C, upper and lower saw-wheel journalled therein, an endless saw carried on said wheels, and means for adjusting the upper wheel to regulate the tension of the saw, substantially as described 2nd. In a band-saw machine, the combination of two supporting columns fastened to a base plate, and adjustable bracket having vertical movement on said columns, and means for securing and adjusting said bracket thereto, substantially as described. 3rd. In a band-saw machine, the combination of supporting columns B and C secured to a base-plate, upper and lower band wheels, the lower wheel journalled in column B, the upper wheel having adjustable bearings in a bracket secured to both columns, and the mechanism for adjusting the same, substantially as described. 4th. In a band-saw machine, the combination of two supporting columns, upper and lower saw-wheels, an adjustable bracket supporting the upper wheel on a shaft having bearings therein, which bracket is secured to both of said columns, whereby uniform and steady movement is given to said wheel, sliding plates in each of said columns for supporting said bracket, and means for adjustably securing the same, substantially as described. 5th. In a band-saw machine, the combination of the supporting columns B and C resting on and secured to a base-plate, band-wheels *m* and *m*, band-wheel *m* being carried on shaft *o* having suitable bearings, band-wheel *m1* being carried on shaft *n* having three bearings in bracket D, one on the outside of the wheel and the other two nearly opposite the supporting colums B and C, whereby uniform motion is given to said wheel, the endless saw and adjusting and operating mechanism, substantially as described. 6th. In a band-saw machine, the combination of the base supporting two columns B and C, upper and lower band-wheels, the lower band-wheel being carried on a shaft having three bearings, one on the base, one on the lower portion of column B, and one on a bracket rigidly suspended from the column B, the *upper band-wheel being carried on a shaft having three journal*-bearings upon a bracket adjustably supported on both columns, and means for operating the same, substantially as and for the purposes set forth. 7th. In a band-saw machine, the combination of the base-plate A, supporting-columns B and C, cap *g*, adjustable bracket D, sliding plates *g* and *h*, band-wheels *m* and *m1*, endless saw R, brackets E and F, guide-arms P, *f* and P1 and mechanism for adjusting and operating the same, substantially as described.

No. 25,088. Band Saw Guide.

(Guide-Scie Sans Fin.)

David K. Allington, East Saginaw, Mich., U. S., 6th October, 1886; 5 years.

Claim.—1st. In a band-sawing machine, the combination of a supporting-column, a pair of saw-wheels carrying an endless band-saw, and a pair of guide-wheels in contact with and revolved by the saw, such guide-wheels extending beyond the main saw-wheels, so as to deflect the saw from the perpendicular, substantially as and for the purposes set forth. 2nd. In a band-sawing machine, the combination of a supporting column carrying saw-wheels, and an endless saw, and upper and lower guide-arms carrying adjustable guide-wheels, such guide-wheels projecting beyond a vertical line drawn tangent to the main saw-wheels, one of the guide-arms being vertically adjustable on the column, substantially as and for the purposes set forth. 3rd. In a band-sawing machine, the combination of a supporting column, upper and lower saw-wheels carrying an endless band-saw, and upper and lower guide-arms carrying guide-wheels in contact with the saw, such guide-wheels being movable toward and from the column, substantially as described and for the purposes set forth. 4th. In a band-sawing machine, the combination, with a supporting column and with saw-wheels carrying an endless band-saw, of guide-arms and guide-wheels journalled therein, such guide-wheels being adjustable toward and from the column, and also adjustable horizontally relatively to the plane of the guide-arms, substantially as described and for the purposes set forth. 5th. The combination, with the guide-arms I, D1, having the horizontal plate *c*, of the sliding plate *d*, the plate *e* having a partial rotary motion, and *supporting the guide-wheels, and means for forcing the plate d outward from* the column and holding it there, substantially as described, 6th. The combination of the guide-arms D, D1, the sliding plate *d*, the plate *e* carrying the guide-wheels and having a partial rotation, the arm *s* feathered on the shaft B, so as to be turned to engage with the plate *d*, to control the backward movement thereof and the vertical shaft B, substantially as described. 7th. In a band-sawing machine, a saw-guide consisting of an arm adjustable to and from a supporting column, a friction wheel *m* mounted in the outer end of the saw-arm, and means for adjusting the said friction-wheel *m* with relation to the saw to set it to a true line of its cut, substantially as described. 8th. In a band-sawing machine, a lower guide-arm supported on a supporting column and having a vertical movement only, a friction-wheel *m1* mounted in the outer extended portion, said friction-wheel being adjustable in a semicircular groove, whereby the saw running over the wheel will be adjusted to a true line of its cut, substantially as described.