hook D, whereby the wire is securely held on the mandrel after the coil is formed. 4th. The post A^1 provided with the plate D^1 having formed therein the straight groove 1 and curved grooves 33, whereby the connecting portion of the double springs and the arm of the single spring are formed, having two semi-circles joined by a straight central section. 5th. The combination of the wire coiling mandrel provided with the hook c^1 guide *d* and the spring hook D, with the cutting device and with the guide and holder G^1.

No. 15,423. Improvements in Wire Rope Attachments. (*Perfectionnements des crochets de câbles en fil de fer.*)

William P. Healey, Somerville, Mass., U.S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of the nicked and socketed connection with the wire rope and with the holding metal, cast into the mouth of the socket, and within and about the rope. 2nd. The combination of the sister hook B provided with the bolt secured to it, with the socketed connection A having the eye *a*, with the sister hook C having the eye *g*.

No. 15,424. Machine for Cutting Railroad Rails for Frogs and Switches. (*Machine pour couper les rails des chemins de fer pour les rails de croisement et les aiguilles.*)

Frederic C, Weir, Cincinnati, Ohio, U. S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of a circular saw or cutting disk, a reciprocating rail-holding table and devices for adjusting said table more or less, out of a horizontal plane and securing it in adjusted position. 2nd. The combination of a circular saw, or cutting disk, a reciprocating rail-holding table, devices for adjusting the table more or less, out of a horizontal plane, and other devices for adjusting said table horizontally on a vertical axis. 3rd. The combination with the rail-holding table H having the oblique slots O O, and the graduations along said slots, of the adjustable clamps N N, whereby the rails are held centrally upon the table. 4th. The carriage H pivoted by the pivots I to the reciprocating carriage and rendered adjustable out of a horizontal plane by means of bolts I^1 working in slots *i*. 5th. The combination, with the table H and stocks F^1 F^1 to which it is pivoted, of the graduations j^1 on the table and the pointer J on one of the stocks. 6th. The combination, with the bed E provided with slots G and index finger K, of the bolt *g* and the plate F having the graduated scale at its end. 7th. The adjustable clamp S having its forward end raised, so as to rest upon the flanges of the rail and slotted at M to accommodate the web of the rail. 8th. In the rail cutting and tapering machine, the iron clamp *a* and clamp-block *b* secured to the rail at the terminal point of the kerf, for preventing the saw from running off at the end of the taper. 9th. In combination with the overhanging circular saw D and horizontally moving table H, the cross-cut bunk P and saddle S, and clamps R R for cross-cutting railroad rails.

No. 15,425. Improvements on Metallic Barbed Fences. (*Perfectionnements aux clôtures métalliques barbelés.*)

Thomas C. Hewitt, London, Ont., 8th September, 1882; for 5 years.

Claim.—The metallic fence strip A twisted spirally before being erected and at the same time that barbs B are formed thereon, and allowing said barbs to project from the surface on all sides.

No. 15,426. Improvements on Bed Bottoms. (*Perfectionnements aux sommiers des lits.*)

Jesse Bowen, Lancaster, Ohio, U.S., 8th September, 1882; (Re-issue of Patent No. 12,639.)

Claim.—1st. A spring consisting of a flexible slat, having bridges I I arranged upon its under side and upon opposite sides of its centre, and compressed springs *i i* arranged intermediate of said bridges and connected together and to slats near its end. 2nd. In a spring bed bottom, the combination of a series of flexible slats each having bridges I I arranged upon its under side and upon opposite sides of its centre, and compressed springs *i i* arranged intermediate of said bridges and connected together by rods *f* and to the slats, near their ends, by rods *d d*, and the transverse central suspended supporting bar G. 3rd. A series of flexible slats, having their ends placed over cross bars B and held down by cross bars D and each flexible slat provided with bridges I I, intermediate compressed springs *i i* double hooks *h* h^1, central connecting rod *f* and end connecting rods *d d*. 4th. A series of flexible slats, having their ends placed over cross bars B and held down by cross bars D, and each flexible slat provided with bridges I I, intermediate compressed springs *i i*, double hook *h* h^1, central connecting rods, *f* and end connecting rods *d d*, in combination with the transverse central suspended supporting bar G. 5th. In a series of flexible slats, having their ends placed over cross bars B and held down by cross bar D and each slat provided with bridges I I, intermediate compressed springs *i i*, double hooks *h* h^1, central connecting rod *f*, end connecting rods *d d* and devices for regulating the tension of the springs. 6th. A series of flexible slats and each slat provided with bridges I I, intermediate compressed springs *i i*, double hooks *h* h^1, central connecting rod *f* and end connecting rods *d d*, in combination with the transverse central suspended supporting bar G.

No. 15,427. Improvements on Knitting Machines. (*Perfectionnements aux machines à tricoter.*)

The Universal Knitting Machine Company, (Assignee of George Bickell, jr.,) Toronto, Ont., 8th September, 1882; for 15 years.

Claim.—1st. An eccentric parallel motion, or regulator A^1 for regulating the stitch, as attached to cam cylinder A and composed of the following parts: upright arm *a*, centre stud a^1, arms a^2 a^2, short arms a^3 a^3, eccentric cams *f f*. 2nd. An automatic reversible cam *e* for opening and closing the race-way of the needles. 3rd. A latch *b* for securing the gate B in position. 4th. A spring *c* placed on the under edge of cam cylinder A for securing the regulator A^1 in any required position. 5th. A hinged feed post D placed on upper edge cam cylinder A, constructed to fold backwards and with a spring *d* for pressing forward the upper portion to its normal position. 6th. A stationary fender G attached to dial cap G^1 constructed so as to obviate its being removed at the termination, from time to time, of the ribbing process. 7th. A forked bracket arm H^1 or dial post as constructed with two arms, which slide into the sockets in bracket H attached to cam cylinder A, for supporting spool carrier H^2 for up and down stripe. 8th. A spool carrier, so constructed as to set into dial post by means of two arms, also to support the ordinary yarn carrier, while the machine is at work in the process of striping, in combination with tension and take up attachment S. 9th. A combined yarn fender I and feeder *i*, for up and down work.

No. 15,428. Improvements on Locomotive Ash Pans. (*Perfectionnement aux cendriers des locomotives.*)

James Ritchie and William H. D. Newth, Detroit, Mich., U. S., 8th September, 1882; for 5 years.

Claim.—In a locomotive ash pan having front and rear draft doors, the rear door being slotted, the combination of said slotted rear door A *e* with the rods C, the slats B having central journals *b* and forwardly projecting lugs *c*, and the pins *d*.

No. 15,429. Improvements on Rope Serving Machines. (*Perfectionnements aux machines à fourrer les cables.*)

John H. Nute and Alexander F. Downie, New Glasgow, N, S., 8th September, 1882; for 5 years.

Claim.—The combination of the tubular stem 1, hub 7 and rectangular spool frame 15, all subdivided to admit the rope. 2nd. The two part stem 1 hinged together and provided with handle 4 and driving wheel 5, in combination with a two part hub 7 provided with a halved gear wheel 8 and rotating on the end of the stem to carry the spool frame 15. 3rd. The two part hollow hub 7 having a halved gear wheel 8 and a rock shaft 10 provided with feeding hook 9, in combination with a two part hollow stem 1 and a spool frame 15 carrying a tension bar 24 and a spool provided with a brake tension. 4th. The two part spool frame 15 having removable connection with hub 7 and provided with tension bar 24, spool 19 and a brake tension. 5th. The two part hollow hub 7 provided with an index or scale and feed hook 9 on a diametrical rock shaft 10 provided with a pointer 13 for indicating and adjusting the feed, in combination with a subdivided hollow stem 1 and subdivided spool frame 15. 6th. The spool frame 15 provided with a removable two part portion 16, carrying a removable bushing 17 having a bore adapted to suit the size of the rope to be served. 7th. The two part stem 1 provided with a removable bushing 27 to suit the size of the rope to be served.

No. 15,430. Improvements on Car Heaters. (*Perfectionnements aux caloriféres des chars.*)

Blanchard Chamberlain, Joseph H. Wilson, Robert Lamb, Harry E. Palmer and George H. Palmer, Bellefontaine, Ohio, U. S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of the fire chamber 1, casings 2 4 and a coil 11 passing through the annular flue chamber between the fire chamber 1 and casing 2, for the purpose of heating air. 2nd The combination, of the fire chamber 1, inner and outer casings 2 and 4 forming a hot air chamber between them and the hood 13 forming the entrance to the discharge pipe 12 and placed over the top 3 of the casing 2, so as to compel the discharged air to pass in contact with the said top 3. 3rd. In a railway car heater, the safety shuttle 22 beneath the grate, adapted to close automatically in event of the upsetting of the car. 4th. The combination, with a stove or furnace, of the weighted pivoted door 22 and automatic catches 23 to lock the same in close position in event of upsetting. 5th. The combination of the air-tight heater 1 2 3 4, outlet 12, check valve 14 and safety valve 16.

No. 15,431. Improvements on Conveyors for Flour Mills. (*Perfectionnements aux conduits des moulins à blé.*)

The George T. Smith Middlings Purifier Company, (Assignee of John M. Finch,) Jackson. Mich., U. S., 9th September, 1882; for 5 years.

Claim.—1st. In a flour dressing machine, a recepticle having an opening in the bottom for the passage of the material, in combination with horizontally sliding cut-offs supported upon the receptacle and independently of the conveyor casing and adapted to be removed from the machine and reversed. 2nd. The combination, with the two conveyers and the hopper above said conveyers, of the horizontally sliding cut-offs provided with inclined bottoms and supported above the hopper, and adapted to be removed from the machine and reversed. 3rd. In the conveyer, a hopper arranged above the conveyer, horizontally sliding removable and reversible cut-offs between the conveyer and the bottom of the hopper, in combination with movable stops adapted to engage with the ends of cut-offs. 4th. The combination, with the conveyers, a hopper above the conveyers and the horizontally slididg cut-offs of the movable doors adapted to permit an examination of the material and the removal of the cut-offs. 5th. The combination, with the two conveyers and the hopper above said conveyers, of reversible cut-offs adapted to be removed from the machine and replaced in a reversed position.