the seat-frame, of the foot-rest pivoted at its upper end thereto, and having a pivoted brace rod O, which engages teeth o^1 upon the racks P secured to the upper edge of the side cross-bars *b*, whereby the adjustment of the foot-rest may be regulated, substantially as described. 13th. The combination, with the foot-rest F, of the step T hinged thereto, the brackets T^1 secured to the foot-rest, and the bar T^2 secured to the step in such manner that they will abutt against each other when the step is adjusted to a position at right angles to the foot-rest, substantially as shown and described. 14th. The combination, with the foot-rest removably pivoted to the seat-frame, of the step T hinged to the lower end thereof, and means, substantially as shown, to support the step in adjusted position. 15th. The combination, with the leg B of the chair, of the bracket or plate *s*, having a vertical eye in its forward end, and an upwardly-projecting flange s^2 at its rear end, and metallic step-bracket s^1 pivotally secured thereto, substantially as shown and for the purpose set forth.

No. 30,724. Furniture Drawer.

(*Tiroir de meuble.*)

George Bower, Fayette, Mo., U. S., 7th February, 1889; 5 years.

Claim.—1st. The combination, with a casing and a sliding drawer, of a roller journalled on the rear of the drawer below the upper edge thereof, and having its ends projecting beyond the ends of the drawer, and cords wound on the projecting ends of the said roller, and having their ends secured to the front and rear of the casing, substantially as described. 2nd. The combination, with a casing and a drawer sliding therein, of brackets secured to the back of the sliding drawer, a roller journalled in the said brackets, below the upper edge of the back of the drawer, and having its ends projecting beyond the ends of the drawer, cords wound on the projecting ends of the roller, and having one end connected to the rear of the casing, and adjustable pins secured to the front of the casing, and to which the other ends of the said cords are secured, substantially as herein shown and described.

No. 30,725. Portable Derrick. (*Grue portative.*)

Peter Rabbitt, Jacksonville, Ill., U.S., 7th February, 1889; 5 years.

Claim.—1st. In a portable derrick, the combination of the upper or top beam A, the laterally and longitudinally movable lower or track beam B, the trussing and bracing rods E, E and F, F, the standards C, C, and the longitudinally-slotted adjustable legs H, H, substantially as and for the purpose described. 2nd. In a portable derrick, the combination of the upper or top beam A, the laterally and longitudinally movable lower or track beam B, the trussing and bracing rods E, E and F, F, the knuckle-jointed bolts G, G, the longitudinally-slotted adjustable legs H, H, and the standards C, C, substantially as described. 3rd. In a portable derrick, the combination of the legs or standards C, C, the extension legs H, H, formed with the longitudinal slots I, I, the rods D, D, provided with the nuts *d* and d^1, arranged on the outside and inside of said legs, and the tail-bolts J, J, provided with the nuts j^1, j^1 and *j*, *j*, the latter being elongated and having teeth or projections on their inner faces, substantially as and for the purpose described. 4th. In a portable derrick, the combination of the top beam A, the laterally and longitudinally movable track-beam B, the knuckle-jointed bolts G, G, the legs or standards C, C, the extension legs H, H, rods D, D, provided with the nuts *d*, d^1, the tail-bolts J, J, provided with the nuts *j*, *j*, and j^1, j^1, and the trussing or bracing rods E, E and F, F, substantially as described.

No. 30,726. Submarine Telegraphic Cable.

(*Câble télégraphique sous-marin.*)

Johann C. L. Loeffler, Westminster, Eng., 7th February, 1889: 5 years.

Claim.—A telegraph cable on which are strung metal ferrules, forming part of its protective covering, substantially as and for the purpose herein set forth.

No. 30,727. Milk Ærator and Cooler.

(*Garde lait aérateur,*)

Thomas J. Millar, Spencerville, Ont., 7th February, 1889; 5 years.

Claim.—A milk cooler and ærator comprising, in combination, the milk receiver A having a bottom provided with a neck B on the outside, surrounded by a row of perforations *a*, and the circular distributing or cooling disk C, having a neck C^2 to telescope said neck B^2, and provided with a drop rim C, overflow rim C^1, and feet D, as set forth.

No. 30,728. Signal Light for Vessels.

(*Feu de signal pour vaisseaux.*)

Joseph W. Coulston, Philadelphia, Penn., U.S., 7th February, 1889; 15 years.

Claim.—1st. The combination in signal lights for vessels, of colored port and starboard lights, with a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern, but shielded from view from points within the range of the said colored port and starboard lights. 2nd. The combination in signal lights for vessels, of colored port and starboard lights, with white warning or object lights located at port and starboard, and visible from dead astern, and from a number of points to port or starboard of dead astern, but shielded from view from points within the range of the colored port and starboard lights. 3rd. The combination in signal lights for vessels, of the usual colored port and starboard lights, supplementary colored side lights visible through a range including a number of points to port or starboard respectively, and one or more white warning or object lights visible from dead astern, and through a range including a number of points to port and starboard of dead astern, but shielded from view from points within the range of the colored side lights. 4th. The within described compound side light consisting of a single lantern box, having a colored side light visible from a number of points to port or starboard, and a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern. 5th. The combination of the single lantern box, having a colored side light visible from a number of points to port or starboard, and a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern, with a shield, or shields, for restricting the aft range of the colored side light, and the forward range of the white warning or object light.

No. 30,729. Machine for Rolling Screw Threads. (*Machine à fileter les vis.*)

The American Screw Company, (assignee of Charles D. Rogers), Providence, R.I., U.S., 7th February, 1889; 15 years.

Claim.—1st. In a machine for rolling threads on screw blanks, a straight die having formed upon its acting face a series of inclined parallel ribs, which for portions of their length are V-shaped in cross-section, and are then transformed into ridges whose cross-sections are truncated wedges having faces progressively increasing in width from the point where they commence to take the truncated form to the end of the ribs, in combination with a straight back-rest or die having upon its face a series of inclined parallel ribs, similar in form to the series of reversely inclined parallel ribs upon the acting die, but of less area in cross-section, and thereby adapted to bear only upon the core of a screw-blank rolled between it and the acting die, as described. 2nd. In a machine for rolling screw threads on screw-blanks, a straight die, substantially as described, in combination with a straight back-rest, having formed upon its face a series of inclined parallel ribs, which are similar to the series of reversely inclined parallel ribs formed upon the acting die, excepting that the sides of the ribs which constitute the walls of the recesses between the ribs upon the back-rest are less inclined relatively to each other than the sides of the corresponding portions of the ribs of the acting die.

No. 30,730. Steam Pump. (*Pompe à vapeur.*)

Dorr B. Burnham, (assignee of Elon A. Marsh,) Battle Creek, Mich., U.S., 7th February, 1889; 5 years.

Claim.—1st. In combination, a steam chest provided with suitable ports, chambers, and restricted passages from the chamber to the cylinder, and an actuating valve having heads with faces of unequal area, whereby said valve is operated to diminish or increase the flow of steam, and thereby regulate the pressure in the cylinder to correspond with the resistance to the piston, or work to be done, substantially as described. 2nd. In combination, a steam chest having restricted portage from valve chamber to cylinder, and an automatic valve having heads with faces of unequal area, operating to produce isochronism of the piston by equal and differential steam pressure acting upon the unequal areas of the heads, the resistance of the piston serving to automatically regulate the pressure in the cylinder to correspond with the work required, substantially as described. 3rd. In combination, an automatic valve for steam engines, a trip passage leading from live steam passage to the engine cylinder, similar passages leading from each end of said cylinder to the ends of the valve chamber, and a longitudinal passage in the engine piston, whereby the end passages from cylinder to the ends of valve chamber are alternately coupled to the passage from live steam pipe, and the valve is reversed by live steam pressure, substantially as described. 4th. An automatic valve for steam engines, provided with exterior enlargements having faces of different areas, in combination with induction ports and restricting ports, substantially as described. 5th. The combination, with a steam chest having annular admission ports and secondary restriction ports, of a valve provided with heads having faces of unequal area, whereby the portage is restricted when the pressure in the engine is beyond that required to do the work, and said portage is increased when the pressure is insufficient, substantially as described. 6th. In a steam pump having the water cylinder adjacent to the steam cylinder, the combination of the water plunger, a packing, a perforated ring interposed between the ends of said packing, and a passage leading from said ring in the water chamber to the suction chamber, substantially as described. 7th. In a steam feed water, the combination, with the exhaust chamber, of a three-way valve, and ports arranged, the diaphragm between the exhaust suction chambers, to conduct the exhaust steam to atmosphere or to suction chamber, substantially as described. 8th. In a steam pump, the combination, of the steams and water cylinders in close connection with each other, and means consisting of a loose divided packing, and an opening, substantially as described, to prevent the leakage of water into the steam cylinder. 9th. In a steam pump, the combination of a sliding member, and the packing, whereby automatic variable tension is produced by the hydraulic pressure exerted in the pump, substantially as described 10th. In a steam pump, a plunger packing sealed from atmospheric leakage into the pump chambers, in combination with a perforated ring, and a passage from the water cylinder to the suction chamber, substantially as described. 11th. In a steam pump, the combination of a steam and water cylinder, a packing whose tension is automatically varied by water pressure, and means for conducting the leakage by the plunger packing into the suction chamber.

No. 30,731. Steam Boiler Setting.

(*Montage des chaudières à vapeur.*)

Martin E. Hershey, David Longenecker and David Fleming, Jr., Harrisburg, Penn., U.S., 7th February, 1889: 5 years.

Claim.—1st. In a steam-boiler setting, the combination, with the bridge-wall, and the air passages for supplying air to the top thereof, formed by the metal bottom plates having the upwardly extending webs or flanges, and the refractory blocks lying on the tops of such webs, of hollow perforated fire-bricks located over the mouths of such passages for distributing the air, substantially as described. 2nd. In a steam-boiler furnace, the combination, with the bridge-wall, of air passages for supplying air to the top thereof, formed by the bottom plate having the upwardly extending webs, and the re-