No. 3283. DAVID N. B. COFFIN, Jr., THOMAS H. JOHNSON and BENJAMIN WOODWARD, Boston, Mass., U. S., 8th April, 1874, (Extension of Patent No. 236, N. B.): "Improvements in Capstans and Windlasses." (Perfectionnements aux cabestans et aux guindeaux.)

Claim.—1st. The conical or taper gears *h*, *g*, *f*, *e*, and the angular shafts *j*, in combination with the barrel of a capstan; 2nd. Connecting the fulcrum gear *e*, to the bed-plate, automatically by furnishing each with series of inclined faced lugs; 3rd. Duplicating the inclined faces of the lugs *i*, on the fulcrum gear, and the bed-plate in reverse order so as to operate both ways; 4th. The inclined or wedge-shaped lifter *q*, made moveable separately from the parts to be locked together, in combination with the sliding bolts of a capstan; 5th. The arrangement of one or more series of inclined or wedge-shaped lifters upon a ring or circular connection *p*, so as to operate simultaneously on several bolts in the locking mechanism of a capstan; 6th. Casting the lower journal part of the spindle or shaft of a capstan on and as a part of a bed-plate; 7th. Casting the lower journal part of a spindle or shaft of a capstan hollow in combination with its formation on and as a part of the bed-plate irrespective of the construction of the upper portion; 8th Compounding the spindle or shaft of a capstan, by forming the lower journal part on and as a part of the bed-plate, and inserting the comparatively lighter wrought part to form the upper portion; 9th. The employment of the shaft *b*, extended from the capstan in combination with the shafts *d*, or *e*, with suitable gears as *u*, *f*, *s*, and *t*; 10th. Locking the fulcrum gear of a capstan to the bed-plate, by means of bolts moveable upward from beneath into contact therewith; 11th. The employment of a series of inclines moveable in a circle and so applied in combination with the fulcrum gear of a capstan as to lift said gear from its position of inaction to the proper position to be acted on by gears playing into it; 12th. Fastening the cover of a capstan by means of lugs *v*, in combination with the sockets or grooves in the hub, 13th. The arrangement of the cover fastenings in relation to the locking mechanism of the capstan, so that when the cover is rotated to a stop in one direction, the bolts will be adjusted for the simple power and the cover fastened, and when rotated in the opposite direction to a stop, the cover will also be fastened and the bolts adjusted for the multiplied power, while in an intermediate position the cover is unfastened and may be removed; 14th. Suspending the fulcrum gear to the rotating body of the capstan; 15th. The arrangement of the gears A, Z, pawl wheel F, barrel I, friction L, and chain wheel P, and the points of disconnecting, whereby both barrel I, and chain wheel P, are brought under control of the friction mechanism and yet used separately for winding, heaving in, &c; 16th. The windlass shaft N, in combination with the friction band and barrel of a windlass; 17th. The partly circular heads and sockets, in combination with the pawls of a windlass; 18th. A groove formed under the projecting part of a capstan's base; 19th. The application of pawls to a capstan by means of a cast joint or hinge, in any manner so as to allow the pawl to operate in both directions; 20th. The employment of a side opening *g*, in combination with the enclosed bolt, in the construction of a capstan; 21st. The arrangement of inclined lifters, made moveable, in combination with the lock notches or spaces *h*, so as to be used both to slide the bolts out of connection automatically and also at the pleasure of the operator; 22nd. The arrangement of inclined lifters *i*, *i*, in duplicate and in reverse order in combination with lock-notches or lugs and sliding bolts; 23rd. The arrangement of an elevated flat-part *j*, between two inclines arranged in reverse order, 24th. Radially-sliding keys or bolts in combination with a retaining socket in one part, and a locking space or shoulder in another, of the two parts of a capstan or windlass to be connected or disconnected; 25th. A roller or sheave, arranged with its axis obliquely to the windlass and its axis; 26th. The employment of conical or cylindrical rollers, arranged in combination with the spindle or barrel of a capstan or windlass to relieve the friction incident to the side or transverse thrust; 27th. The arrangement of rollers longitudinally, between the shoulder of a barrel and that of the spindle or bed plate to sustain and support the barrel end-wise; 28th. The arrangement of sliding bolts in sockets on the fulcrum gear, 29th. The lifting and sustaining ring *v*, in combination with the bolts or locking mechanism of a capstan and inclined lifter, arranged either on it or an auxiliary part *x*, 30th. The employment of an elastic or spring element interposed between the part bearing the pawl pockets and the fixed portion of the bed-plate, 31st. The inclines X, for automatically lifting the fulcrum gear; 32nd. Locking or clutching the centre or first moving gear of the capstan to the lever-head automatically by interlocking lugs formed on each; 33rd The arrangement of a concentric circular or annular flange or rib, or flanges or ribs N, between the spindle or hub and the rim or periphery of the bed plate of a capstan or windlass; 34th The arrangement of a friction wheel between the two barrels of a capstan or windlass with provision for connecting and disconnecting it to or from one or both at pleasure; 35th. The application of the differential windlass to the friction mechanism of a capstan or windlass; 36th. The employment of the combined bearing and brake or friction shoe in the friction mechanism of a capstan or windlass; 37th. The employment of chain-lugs spanning the groove in the chain-wheel and made adjustable radially in sockets at the bottom and extending up the sides of the groove between the two checks of the chain-wheel; 38th. The employment of keys back of said lugs, with or without the circular form; 39th. The arrangement of a ratchet or toothed rim directly in connection with the central or first actuating gear of a capstan above the main barrel bearings and in combination with a non-traversing or local jointed pawl or pawls connected to the lever-head; 40th. Constructing the ratchet-plate and central or first actuating gear of a capstan in one piece; 41st. Seating the hub of those rotating parts of a capstan which have a vertical or approximately vertical axis directly within an oil or other lubricating receptacle or rim as shown.

No. 3284. ADAM PRITZ, Dayton, Ohio, U. S., 10th April, 1874, for 10 years: "Automatic Car-coupling." (Attelage de wagon automatique.)

Claim.—1st. The coupling pin D, constructed as shown and provided with a central opening D1, which has the general form of a triangle with round corners and concave sides, in combination with the draw-head A; 2nd. In combination with the coupling pin D, provided with the central opening D1, and connected to or with the draw-head A, the pin L, passing horizontally through said head and engaging with said coupling pin.

No. 3285. JAMES INGLIS, Montreal, Que., 10th April, 1874, for 5 years: "Process for Sensitizing Glass or other Plates." (Procédé pour sensibiliser les plaques de verre ou autres.)

Claim.—The frame *a*, comprising the handle *b*, the notches *c*, *c*, the supports *d*, *d*, the pin *e*, with the manner of using it as represented in Fig. 3.

No. 3286. JAMES A. TUPPER and ABNER R. GILES, Ottawa, Ont., 10th April, 1874, for 5 years: "Machine for Washing Clothes." (Machine à laver le linge.)

Claim.—The round bar, its fixture in the straight position forming its own shoulders in the box or tub and admitting of one-eighth of an inch more or less between the lower part of the bar and the zinc on the bottom of the box or tub.

No. 3287. DANIEL B. WAGGENER and JOHN H. BREED, Philadelphia, Pen., U. S., 10th April, 1874, for 15 years: "Fire Extinguisher." (Extincteur d'incendie.)

Claim.—1st. In a fire extinguisher, the combination of an acid chamber A, an alkaline chamber B, and a generating chamber C, to which they are connected by curved water-ways A1, and B1, open throughout their entire length and each giving vent into the generating chamber above its bottom line; 2nd In a fire extinguisher, the combination with the generating chamber C, of the strainer F, secured to its periphery, and perforated at all points except on its upper surface between the periphery of the generating chamber and the discharge pipe E, 3rd. The combination with a fire extinguisher of a spring or springs *g*, for holding a wrench.

No. 3288. WILLIAM P. HALE, Brockport, N. Y., U. S., 10th April, 1874, for 5 years: "Circular Saw." (Scie ronde.)

Claim.—1st. A circular saw, having both sides concave from circumference to circumference, diametrically as set forth; 2nd. A circular saw having a plain circumference between the teeth on a true circle of uniform radius, and teeth formed by notching; 3rd Swaging or bending the teeth outwardly beyond the circumferential line to form projecting cutting edges.

No. 3289. WILILAM P. HALE, Brockport, N. Y., U. S., 10th April, 1874, for 5 years: "Circular Gang Sawing Machine." (Machine à scies circulaires multiples.)

Claim.—1st. The cylinder I, secured to the shaft G, or head H, by radial screws J, or other means whereby an air space intervenes between the cylinder and shaft; 2nd. Securing the saws on the cylinder I, by intervening rings K, and outer rings K1, screwing on the cylinder as described; 3rd. The combination with a gang of operating circular saws of upper and lower series of guides L, arranged above and below the cut of the saws, 4th. The guides L, having channels *a*, hung upon a tubular shaft M, for conveying lubricating oil to the saws, 5th. The employment of the worm gears P, arranged as set forth, for operating the feed and delivery rollers C, D, as described.

No. 3290. ISAAC NEWTON, Cleveland, Ohio, U. S., 10th April, 1874, for 5 years: "Carriage bolt." (Boulon de voiture.)

Claim.—The described bolt having projections or feathers *a*, on the sides thereof directly under the head.

No. 3291. CHARLES H. THURSTON, Marlborough' N. H., U. S., 10th April, 1874, for 5 years: "Wooden Knob and Closet Pin." (Bouton de porte et patère en bois.)

Claim.—1st. A knob attachment consisting of a screw as represented having gimlet points at its opposite ends and a groove arranged with and in the thread; 2nd. In a knob closet pin, a handle composed of a head or body B, a grooved screw A, and the key C, all constructed and arranged as set forth.