

**IMPROVED ATTACHMENT FOR CARPENTERS' SQUARES.**

Jeremiah Daniels, Sharon, Wis.—This invention relates to an improved attachment for carpenters' squares, and it consists of a number of parallel bars that are secured to slotted end pieces that are clamped to the square by means of screws and nuts. The object of the invention is to provide a square that will facilitate laying out single and double mortises, tenons, and other operations in carpentry. The square is used by placing its longer arm against or upon the timber to be laid out and marking at the sides of the parallel bars for the sides of the mortises or tenons. The attachment does not interfere with the use of the square in the ordinary way, as the heads and nuts of the bolts are on a line with the inner edge of the square beam and serve to guide it. If the bars do not stand in the required relation to the side of the timber, the slots in the end pieces and the bolts afford a means of adjustment.

**IMPROVED LINE FENDER FOR HARNESS.**

Thomas J. Lindsay, Winfall, Ind.—The object of this invention is to prevent a horse, in double or single harness, from getting the lines under his tail, and the nature of the invention consists in a fender or shield which is made of wire or leather, and shaped to fit the upper portion of the tail of a horse, said fender or shield being provided with a tail strap, side pieces, and other means for properly fastening it to the harness.

**IMPROVED BRACELET.**

Julius Hackenberg, New York city, assignor to himself and Charles H. Graef, Edgewater, N. Y.—This bracelet is formed of a number of parallel rings, held together by cross stays, which are grooved exteriorly, so that the rings project above them, whereby, at a short distance off, the stays are not at all or scarcely noticeable, thus giving to the bracelet the appearance of a series of independent rings, while at the same time the rings are firmly united together.

**IMPROVED MUSTACHE SPOON.**

Roger Williams, Yonkers, N. Y., assignor to himself and Robert J. Anderson, New York city.—This invention relates to an improved spoon to be used by persons with mustaches, the spoon keeping off any part of the soup or other fluid from the mustache, while admitting the easy taking of the liquid, and also the convenient cutting of any larger part therein; and the invention consists of a spoon whose bowl is placed at a suitable angle to the handle, provided with a lateral mustache guard, extending at slight inclination across the front part of the bowl, and arranged with a cutting edge at the rear portion. The position of the bowl to the handle facilitates the taking up of the liquid over the rear part of the bowl and the ready conveying of the same into the mouth by a turn given to the handle, which tilts the bowl and empties the same of the liquid.

**IMPROVED BELL PIANO.**

William H. Wood, Port Rowan, Ontario, Canada.—The object of this invention is to provide a musical instrument in which bells are employed to produce the musical sounds. It consists in the arrangement, in a casing similar to that of an ordinary piano, of a number of bells of either metal, glass, or pottery, properly tuned, and in an arrangement of hammers operated by means of keys, and in dampers and softeners operated by pedals or stops. The softeners consist of pieces of leather, which are attached to bars that are moved by an arrangement of levers similar to those of an ordinary piano.

**IMPROVED SELF-ADJUSTING EYE SHADE.**

Thomas A. Platt, Brooklyn, N. Y.—The object of this invention is to furnish an improved eye shade, which shall be so constructed that it will adjust itself to the shape and size of the head, and may be worn without causing pain or annoyance to the wearer. The invention consists in an improved eye shade formed by the combination of the two springs with each other and with the shade. To the ends of the spring are secured, by rivets or other suitable means, the ends of a similar metal spring, to pass over the head of the wearer, and thus keep the shade in place.

**NEW HOUSEHOLD INVENTIONS.****IMPROVED FRUIT JAR.**

Hiram Purdy, Burlington, Iowa.—The object of this invention is to furnish fruit jars which shall be so constructed that they may be closed perfectly airtight, and which will allow their covers to be easily removed. The cover, which fits into the mouth of the jar, is tapered, and has a wide shallow groove formed around it to receive the rubber band or packing. The jar is closed by pressing the cover down into place while the contents of the said jar are hot, and have thus expelled the air. To open the jar the upper edge of the band is drawn down to uncover the air hole and allow air to enter the jar. The cover is then drawn to one side, which forces the edge into the groove and allows the other side of the cover to be raised.

**IMPROVED BED BOTTOM.**

Germain Luciani, Paris, France.—This invention relates to an improved elastic mattress, which is constructed chiefly of wood, and is designed to supply a cheap and useful article, having advantages which have hitherto only been obtainable at high prices. All elastic mattresses hitherto constructed, even those having lengths or laths of wood, have been provided with springs, and this invention is designed to avoid this costly and complicated arrangement, being based essentially upon the principle of utilizing the inherent elasticity of the strips of wood or laths, united by bands or straps fastened rigidly either to the strips of wood or to the rods, and are doubled and sewed with very strong thread, so that the said strips of wood and rods may slide freely, as in sheets or coverings, the capability of which is necessary to give elasticity to the whole apparatus, between which they slide.

**IMPROVED RECIPROCATING CHURN.**

Grovner Goff and Henry Hardick, Stevensville, N. Y.—The object of this invention is to furnish for dairymen an improved churn motion, by which a uniform stroke is imparted to the dasher of the churn with little effort, the length of the stroke being readily adjusted as required. The pitman connection of the crank shaft with the elbow lever changes the rotary motion of the hand crank wheel into the reciprocating motion of the elbow, for working the dasher, the flywheels, and transmitting gearing, facilitating the working of the churn, so that the same may be run with but little effort, producing a uniform and effective stroke of the dasher, and facilitating and accelerating the churning operation. The device is readily applied to the churn, always in order for work, easily adjusted, and effective in operation.

**IMPROVED CHURN.**

Nelson W. Cone, Delaware, O.—The object of this invention is to provide a churn that will thoroughly and expeditiously cut and agitate the cream, and that is simple and inexpensive in construction. The cream receptacle consists of a rectangular box, having a suitable cover, and having grooves formed at its ends for receiving bars from which fingers or breakers project toward the center of the churn. The shaft is provided with a number of blades or paddles, which project radially from the shaft, and are of such width as to nearly fill the spaces between the breakers. The breakers and blades should be of about the same width, and the number of each should be proportioned to the size of the churn.

**NEW MECHANICAL AND ENGINEERING INVENTIONS.****IMPROVED LIFTING JACK.**

Joseph S. Kirkwood, McKeesport, Pa., assignor to himself and Henry C. Myers, of same place.—The nature of this invention consists in combining, with a ratchet lifting drum, a lifting rack, which is guided by tapered grooves in two standards, in combination with one or more ad-

justing screws, which will allow the rack bar to be disengaged from the said ratchet drum whenever desired, and thus quickly raised or lowered by hand. Should the rack bar be raised, and it is desired to lower it quickly, this can be done by turning back the screws and disengaging the bar from its wheel. The ratchet wheel teeth, as well as the teeth on the rack bar, are pitched like saw teeth, so that they are very strong, and will stand considerable strain without fracturing.

**IMPROVED MORTISING MACHINE.**

William W. Green, Jr., Chicago, Ill., assignor to himself, E. N. Niegel, and J. M. Shields, of same place.—This invention has reference to a new construction of mortising machine, and consists of a revolving endless chain saw, formed of pivoted sections or links with cutting teeth, to which the proper tension is imparted by a grooved tension bar, the wood being fed and guided to the mortising saw by a movable treading table or bench. Any thickness of wood can thus be exposed to the action of the saw, while, by stretching a chain with wider links on the rollers, a mortise of greater width may be cut. By feeding the stuff along the table the mortise is cut by the chain saw. The machine may be employed for mortising, sawing, and recessing lumber, as it is readily controlled by the movable table and worked in rapid and effective manner. To the sides of the tension bar may be attached, by studs or pins, wedge-shaped sections, which impart to the endless cutting chain a certain angle of inclination at both sides, and admit thereby the cutting of wedge-shaped mortises, when such are required.

**IMPROVED RAG ENGINE.**

Edward D. G. Jones, Pittsfield, Mass.—This invention has relation to engines which are designed for reducing rags to pulp fit for making paper. The nature of this invention consists, first, in novel devices for lifting or adjusting long spindles or cutting cylinders of rag engines, where the bars both arranged outside of the tub or vat, and supported independently thereof, the back bar being so placed, relatively to the tub, that the cutting cylinder can be driven by a belt applied directly to a pulley on the spindle, the two bars being adjustably simultaneously from the front of the tub; second, in a half-box bearing for the rear end of the cylinder spindle, which is supported upon the rear bar, and adjustable at right angles to the longitudinal axes of the spindle; third, in constructing the breast or back fall of the belt in a plane which is tangent to the arc of the concave beneath the cutting cylinder, whereby a free discharge is effected, and the pulp is not thrown back over the cylinder.

**IMPROVED FLYING MACHINE.**

James J. Pennington, Henryville, Tenn.—This invention relates to machines for navigating the air, and it consists in a fan of peculiar construction, which takes air in from the front of the air ship and forces it out at the rear. The object of this invention is to provide apparatus by which the air may be navigated with facility and safety. The apparatus is suspended by a balloon or upon a rope tramway, and is propelled by drawing the air into the conduits and driving it out of the discharge nozzle. When the apparatus is suspended by a balloon it is raised or lowered by auxiliary fans, and when it is desired to turn the apparatus in a horizontal plane a gate is turned so as to direct the air to one side or the other, as may be required. To steer the air ship vertically and to assist in propulsion a fan is employed having feathering blades, which are turned on their axis, as the fan is rotated, by a central cam. This cam, being movable, permits of reversing the action of the fan.

**IMPROVED PUMP.**

George W. Robaugh, Ottumwa, Iowa.—The object of this invention is to provide a piston for pumps that may be readily packed without removing it from the pump, also to provide an efficient valve and valve seat. The piston is provided with a flange, against which packing is pressed by the follower. The follower is sectional, being made of two parts. A nut holds these parts in place on the rod and against the packing. When the packing is to be removed the nut is loosened, and one part is removed from the rod by raising it upward and moving it sidewise until it is free from the piston rod. The other part is removed in a similar manner. The valve casing or cage consists of a casting having upon each end a flange for connecting it with the other portion of the pump. This casting is of two diameters, the lower portion being the smaller, and having formed in it the valve seat. In the upper and larger portion there is a rabbet for receiving the grating or cover, which is held in place by the pump barrel. Below the grating there is an annular valve that is fitted to the valve seat, and to a seat formed on its upper surface another valve is fitted. The lift of the annular valve is limited by the grating, and the lift of the other valve is limited by the cage. The lift is thus divided between the two valves, and greater capacity is secured than is possible with a single valve unless the lift is unduly increased.

**IMPROVED DEVICE FOR PROPELLING VESSELS.**

William F. Morrison, Plattsmouth, Neb.—The object of this invention is to provide an improved device for propelling and steering vessels without agitating the water, the same to be used in canal, river, lake, and ocean navigation. The invention relates particularly to the combination and arrangement of parts for steering a vessel. The desired effect is produced by the expulsion of water from suitably arranged tubes. The water may be discharged through either upper or lower pipe, and the reaction or force against the closed end of the pipe caused by the discharge of the water along through the pipe produced the forward or backward motion of the vessel. The water surrounding the vessel is but little agitated, as the operation of supplying the water to the tank and the discharging of the same for propelling and steering purposes produces only a small effect on the same, the water being discharged at a very slow motion, while the internal reaction at the right angles of various discharge pipes, together with the recoiling force of the confined water on the closed end of the pipes, gives a very effective propelling and steering capacity.

**IMPROVED FIRE ESCAPE.**

Henry W. Chapman, Blue Rapids, Kan.—The object of this invention is to provide an improved fire escape which may be instantly made ready for use, and by which persons may easily and safely descend from the upper portions of burning buildings. The apparatus when not in use may be folded upon the floor of the room, and may be covered by some article of furniture. When it is required for use a triangular frame is set up in the window, and the person desiring to descend sits upon the seat and lowers himself by the rope or is let down by persons from below. If flame and smoke should issue from the lower portions of the building, the lower end of the rope may be carried away from the building, and the person, in this manner, may be conveyed to a distance from the building.

**IMPROVED SEWING MACHINE.**

William G. Cummins, Cookeville, Tenn.—This invention relates to improvements in lock-stitch shuttle sewing machines for general family use, which can be stopped or started instantly at the will of the operator without stopping the treadle. The bobbin may also be wound while the needle and feed motion is stopped, and be run by treadle or hand in convenient manner, the object being not only to extend the adaptation, but to simplify the construction, especially of those parts subject to wear and repair, and thus produce a low priced, reliable, and readily repairable sewing machine of wide range. The invention consists essentially of an improved connection of the bobbin winder with the driving shaft and clutch pulley, and by an elbow lever with the presser bar, so as to interrupt the operation of the sewing machine without stopping the treadle. The bobbin winder is retained in raised or lowered position by an elevator and clasp spring, as required.

**IMPROVED DITCHING MACHINE.**

John H. Rauch, Ida, Mich.—The frame of this improved ditching machine is composed of two parallel lines rigidly secured together at a suitable

distance apart by means of bolts and bracing tubes. The frame is mounted on two transporting wheels, one of which is applied on an axle and constructed with a flanged rim, for the purpose of preventing it from slipping on the ground. By means of a draft equalizer the team can walk on the outside of the ditch being dug and draw the machine, and by means of the tongue attachment a team can draw the machine direct. At the front end of the elevator frame is a gage drum, which is provided with sod cutters, and in the rear of this drum, and a little below it, is a shovel plow rigidly fixed to the elevator frame. The earth excavated by this plow is carried up by means of an endless apron attached to a chain and deposited upon another endless apron, which is arranged at right angles to the elevator chain. A drum rolls on the ground in front of the plow and gages the depth the plow should run. The excavated earth is carried up by the elevator apron and deposited upon an apron attached to the chain, which latter will carry the earth off laterally and deposit it in a wagon or upon the ground at a proper distance from the ditch.

**IMPROVED CLUTCH FOR STOPPING AND STARTING MACHINERY.**

Moses C. Johnson, Hartford, Conn., assignor to Willard Parker, New York city.—Upon a shaft a pulley is placed, the rim of which is bored out to receive a split ring, over which it freely revolves when the ring is unexpanded. A sleeve is placed upon the shaft, and to it a wedge is secured, which consists of a bar of iron or steel that is made flat and tapered at one side and left round upon the other side. When this wedge is forced between the follower and ring, the follower is forced outward, straightening the toggle and throwing the ends of the ring apart, so that the ring fills the rim. It is obvious that when the ring is thus expanded the disk will carry the pulley or the pulley will carry the disk, as may be required.

**IMPROVED SHEET METAL ROLLER-SEAMING MACHINE.**

Pardon A. Whitney, Southington, Conn.—This invention relates to the construction of the shaft journals and journal boxes. The shafts are of a uniform diameter from the burrs to the gears, so that they may slide through their journal boxes. The lower shaft is journaled in a fixed bearing at the front of the machine, and is turned at the other end, forming shoulders. Upon this portion, and between the shoulders, a cylindrical box is placed, which is split longitudinally and is placed in the frame, where it is clamped by a screw. When the screw is loosened the box, together with the shaft, may be moved longitudinally within certain limits. The front box of the upper shaft is solid, and is fitted to a rectangular opening at the front of the frame. A spiral spring bears this box up, and the screw passes through the cap and bears upon the top of the box. The upper shaft is turned down at its rear end and fitted to a box placed in the back of the frame, and is held in place by a pin that passes through the sides of the frame and forms a pivot, upon which the box swings.

**IMPROVED WIRE FENCE TIGHTENER.**

Chambers C. La Rue, Blairtown, Iowa.—This invention has relation to devices for tightening wire fences, and the nature of the invention consists in the combination of an angular lever with clamping jaws or pinchers and a connecting rope. The pinchers consist of two levers constructed with gripping jaws, one of which jaws is flanged, so that the other jaw, which is flat, can firmly bite and hold the fence wire. To prevent the wire from being flattened or kinked, the straight jaws of the pinchers are grooved, and in these grooves the wire will lie closely and be gripped by the flanged jaws.

**IMPROVED STRIPING MACHINE.**

Christopher Van Slyck and Henry S. De Forest, Schenectady, N. Y.—The object of this invention is to furnish an improved machine for forming ring stripes around broom handles, which shall be simple in construction, convenient in use, being easily adjusted to form the wide or the narrow stripes, and reliable in operation, forming the ring stripes with perfect accuracy. The handle to be striped is placed in notches in the sides of the upper ends of arms, the lower ends of which are rigidly attached to the end parts of the shaft, which rocks in bearings in the blocks, and to which is attached an arm which projects downward through a slot in the bed plate. The lower end of the arm is rounded off, and to it is attached a strap, to be connected with a treadle or other device, to enable it to be operated by foot or hand power, to bring the handle in contact with the cylinders by which its point is applied, by the revolution of which the handle is revolved.

**IMPROVED LIFE-SAVING APPARATUS.**

Walter S. Green, Long Branch, N. J.—This invention relates to apparatus for rescuing persons from wrecks of vessels and other inaccessible places, and it consists of a cart on which are mounted two reels, one for carrying a hawser and the other for carrying a line. The cart is also equipped with a mortar and other appliances. The mortar and balls are used for carrying the smaller line to the vessel. The smaller line is used for hauling the hawser to the vessel, the sand anchors are buried in the sand, and to them the shore end of the hawser is attached. Shear poles are arranged for holding the hawser up out of the water, and the boatswain's chair runs upon the hawser from the vessel to the shore, being hauled by the small line.

**IMPROVED FIRE ESCAPE.**

Annabella G. Knox, New York city.—This invention relates to an improved fire escape, which may be stored away in compact shape, is instantly ready for use, allows the convenient lowering of children, packages, etc., from upper stories, and forms, finally, a convenient communication with the ground from any height. The invention consists of a rope of suitable strength, having bolstered stops secured at suitable distance to the rope, which is secured to the floor or other support of the upper story, and provided with similarly bolstered loops or handles at the part passing over the window sill. The lower end may be closed to form a loop to be placed around the body of children or around packages and other articles. The fire escape may be stored away in a suitable box in the rooms, halls, or other suitable place, is instantly ready for use, packed into small space, and cheaply manufactured.

**IMPROVED FIRE ESCAPE.**

George N. Shishmanian, Galveston, Tex.—This invention consists of an air cushion, having a concave upper surface, in the center of which there is an opening of sufficient size to admit a person's body. The cushion is supported above a suitable car by standards that rest upon springs. The object of the invention is to provide apparatus for receiving without injury persons or goods falling from windows of burning buildings. When the apparatus is to be used it is drawn near the building, and beneath the window from which escape is to be made. The person desiring to reach the ground jumps into the concave surface of the air cushion and escapes through the central aperture to the car below. The momentum of the fall is broken by the cushion, and is arrested by the action of the springs. Goods may be thrown upon the cushion without fear of breaking them. The apparatus can be readily moved from place to place, and is more manageable and reliable than ladders.

**IMPROVED PACKING FOR COMBINING TUBES OF INJECTORS FOR STEAM BOILERS.**

James B. Harkins, Altoona, Pa.—This invention consists of a combining tube for boiler injectors, provided with a rabbet to receive packing rings and a follower, said rabbet being in communication with the passing stream of water through suitable openings extending to the inner surface of the tube, whereby the packing is expanded by the pressure of the water. When the injector is in use the outward pressure of the water and steam exerted in the inner surface of the rings throws them against the barrel of the injector and prevents water and steam from passing between the rings and barrel. The packing thus made and applied requires no adjustment, as it remains tight until it is worn out.