

much pleasure, and cordially recommend it to the profession.

**THE AMERICAN SPORTSMAN**, West Meriden, Conn.

The issue for January 30 has been received. It contains many articles of interest both to the naturalist and the sportsman.

**PRINCIPLES OF METALLIC MINING**. By J. H. Collins, F. G. S., Honorary Secretary of the Miners' Association of Cornwall and Devon, Author of "A First Book of Mineralogy," etc.

**ELEMENTS OF MAGNETISM AND ELECTRICITY**, with Practical Instructions for the Performance of Experiments, etc. By John Angell, Science Master of the Manchester Grammar School.

These two excellent little treatises are issued by Messrs. G. P. Putnam's Sons, Fourth avenue and 23d street, New York, at 75 cents each. They are included in the publishers' "Elementary Science Series."

#### Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From December 28, 1874, to January 14, 1875, inclusive.

**BUTTON FASTENER**.—D. Heaton, Providence, R. I.  
**CAR JOURNAL BOX**.—J. N. Smith, Jersey City, N. J.  
**CASTING UNDER PRESSURE**.—J. Mackintire, Cambridge, Mass.  
**CLASP OR BUCKLE**.—C. J. Weldon, San José, Cal.  
**CRIMPING APPARATUS**.—A. H. Lowrey et al., Newark, N. J.  
**CUTTING PLANE**.—R. E. Lowe, Kane, Ill.  
**DRAWERS**.—J. J. Fitzpatrick, Philadelphia, Pa.  
**ENAMELING PIPE, ETC.**—American Enamel Co., R. I.  
**FIRE ARM**.—J. Lee, Milwaukee, Wis.  
**FORMING HAT BODIES**.—J. Wharton et al., Newark, N. J.  
**FURNACE GRATE**.—H. Ryder, Mass.  
**GAS LIGHTING AND HEATING**.—L. Arnold, New York city.  
**HAMMER**.—C. Parker, Meriden, Conn.  
**HAT MAKING MACHINE**.—J. W. Corey, Newark, N. J.  
**KINDLING FIRES**.—D. S. Silcox, Charleston, S. C.  
**KNITTING HATS, ETC.**—A. Reed et al., New York city.  
**LIFE MATTRESS**.—J. F. Peck, Springfield, Mass.  
**LITHOLYCE**.—H. W. Bradford, Randolph, Mass.  
**LOOM**.—C. H. Chapman, Shirley, Mass.  
**LOOM**.—G. Crompton, Worcester, Mass.  
**MAKING HORSE SHOES**.—J. Russell, New York city.  
**METAL CARTRIDGE**.—A. C. Hobbs et al., Bridgeport, Conn.  
**MUSICAL INSTRUMENT**.—M. J. Matthews, Boston, Mass.  
**PACKING MATERIAL**.—W. S. Fish (of Mystic, Conn.), Glasgow, Scotland.  
**PIANOFOORTE**.—W. B. Miller, Baltimore, Md.  
**RIVETING MACHINERY**.—M. Bray, Boston, Mass.  
**ROTARY PUDDLER**.—W. Sellers, Philadelphia, Pa., et al.  
**SCHOOL TEACHING APPARATUS**.—M. McVicar, Potsdam, N. Y., et al.  
**SHARPENING TWIST DRILLS**.—C. Van Haagen, Philadelphia, Pa.  
**SLIDE VALVE**.—S. F. Dodge, Detroit, Mich.  
**STEAM OR AIR ENGINE**.—G. J. Wardwell, Rutland, Vt.

### Recent American and Foreign Patents.

#### Improved Self-Discharging Hay Bake.

S. G. Hurlbut, South Union, Ky.—This invention consists of pivoted parallel rake heads, mounted on a rockshaft, for the purpose of dumping or raising the teeth of the ground when the rake is being transported from place to place. The wheels are smaller than usual, and the heads extend over and beyond them on either side. The teeth, which are hinged at their connection with the head by means of a hingeplate, are so controlled that they can be set at an angle receding one from the other, to the right or left, for the purpose of discharging the hay at either side of the rake in one continuous windrow without lifting them from the ground, thereby making a continuous raking, discharging the hay as fast as gathered from the side in a neat, light manner, leaving it in good condition for further curing.

#### Improved Coffee Roaster.

Michael W. Fry, Guyanotte, W. Va.—This invention relates to certain improvements in coffee roasters, and it consists in the combination, with a rotary moving cylinder, of an angular projecting air chamber upon the inside of said cylinder, which causes the coffee, when passing from one side of the cylinder to the other, to leave the hot periphery of the cylinder and fall over the shelf formed by the air chamber, by means of which the coffee is roasted uniformly and prevented from burning. It also consists in combination with the air chamber of a stop pin or plate attached to the cylinder, and ledges or flanges upon the framework, which limit the reciprocating motion of the cylinder to a semi-revolution.

#### Improved Hay Derrick.

George W. Martin and James C. Moor, Brookston, Ind.—This invention relates to certain improvements in hay derricks. It consists in two A-shaped frames, connected at the top by a wire cable, and held slightly inclined toward each other by guy ropes attached to picket pins. Upon said cable rests a movable frame containing two sheaves, one running upon the cable and the other supporting the rope attached to the hay fork. This movable frame engages with a latching catch at one end of the cable to hold it stationary until an adjustable stop unlatches the device and allows the frame to pass laterally to the desired position, the movable frame being restored to its original position by a weight suspended upon a pulley running on the guy rope.

#### Improved Shutter Fastening.

John D. Jones, Omaha, Neb.—The invention consists in using a box that allows the notched locking bar or rod to pass through slots thereof, while the bolt and spring are fully protected, and yet easily operated by the thumb piece.

#### Improved Lamp Burner.

Aaron C. Vaughan, Rainsburgh, Pa.—The invention consists in means whereby a stronger light may be obtained without the consumption of additional oil, the same being accomplished by a more perfect supply of oxygen and less consequent waste in the shape of partially combusted carbon.

#### Improved Car Coupling.

Menasch Pettengill, Minneapolis, Minn.—The invention is an improvement in automatic car couplings, and consists in providing the sliding head of the buffer with a series of parallel, horizontal, semi-circular grooves or cavities to receive the curved end of the link, the construction being such that the latter may be held or supported horizontally at various angles, or readily changed from one groove to another without withdrawing the coupling pin.

#### Improved Lamp Stove.

Edward A. Ripplingille, Holborn, Middlesex county, Eng.—The object of this invention is to provide a combined stove and lamp in which the heating properties of a lamp are utilized to form a small cooking stove, and the lamp still allowed to perform its function of lighting the room. It consists in a flat lamp of peculiar construction which slides into the stove frame, which latter is provided with reflectors and a glass door.

#### Improved Car Coupling.

Benjamin Slusser, Sidney, Ohio.—The invention consists in novel means whereby cars may be conveniently coupled, securely held together, and easily uncoupled, while a car that switches off the track will at once become disengaged, and those whose drawbars are of unequal height are coupled with the same facility. It is without a coupling pin or other device susceptible of being lost or readily stolen.

#### Improved Croquet Mallet.

Thomas H. Logan, Fort Leavenworth, Kan.—The invention consists in making the mallet stock in two sections, recessed to receive a handle, and held by clamp screws.

#### Improved Smoke Stack.

Darerrick Allard, St. Albans, Vt.—This invention relates to certain improvements in smoke stacks for locomotives, etc., and it consists in an adjustable discharge pipe for the cinders and sparks contained inside the smoke stack, and terminating above in a funnel-shaped mouth, in combination and concentric with an inverted conical plate provided with spiral grooves, an annular cap for directing the current down the interior of said plate, and an inverted conical cage of gauze wire; whereby the draft of the smoke stack is regulated and the sparks and cinders eliminated and carried off.

#### Improved Funnel for Barrels.

August Pfarr, Baltimore, Md.—The invention relates to funnels through which liquids are run into barrels, casks, and other packages, and consists in a novel indicator by which it will always be promptly shown when the package is full, and by which all waste is effectually prevented.

#### Improved Box for Car Axles.

John M. Brosius, Richmond, Va.—The invention relates to axle boxes generally, but particularly to the middle boxes of trucks adapted to changeable gages, and consists in the several features of improvement whereby the axle box is rendered more easily removable, the lubricant more readily injected upon the ends of the journals, and each axle to certainly follow the other in turning off upon switches.

#### Improved Design for Graves.

Isaac G. Lunday and C. G. Anglin, Hickory Flat, Ala.—The invention consists in placing over the grave successive slabs growing successively smaller, until the highest is reached, when a monument, shaft, or column surmounts them all.

#### Improved Railroad Car Truck.

John M. Brosius, Richmond, Va.—The invention consists in certain novel features of invention by which car trucks may be adapted to use on railroads of different gages, spacing the wheels automatically to suit each change of gage, and thus rendering entirely unnecessary the breaking of bulk in the freight, or the transfer of passengers from one road to another.

#### Improved Car Coupling.

George W. Call, Nashua, N. H.—On the approach of cars, link-supporting lever frames are first brought in contact, and are gradually swung below their respective drawheads, while the link enters at the same time into the cavity of the drawhead to be coupled. The connection of the drawheads carries both in backward direction, and releases thereby latch levers from their seats, dropping thereby pin guide frame and pin, and coupling the cars.

#### Improved Cotton Press.

William T. Crenshaw and Robert J. Carothers, Burton, Tex.—The invention relates to a perforated hopper into which the cotton is received from the gin, and from which it is discharged by feed rollers into the press; also, to locking the revolving press box to a fixed base, and thereby relieving its pivot bearings of the strain due to the action of the screw which operates the follower.

#### Improved Car Coupling.

Henry Dutcher, Port Jervis, N. Y.—As the cars are run together and heads formed upon the coupling bars catch upon each other, the downwardly projecting parts of the upper head straddle the body of the lower head, which prevents the coupling from being uncoupled by the lateral movement of the cars.

#### Improved Toy Bubble Pipe.

F. Wright Pease, Metuchen, N. J.—This invention consists in the combination, with a flexible stem and suitable mouth piece, of a bowl provided upon the edges of its mouth with ledges, projections, or grooves, which, by retaining a portion of the soap solution, enable the operator to blow a much larger bubble.

#### Improved Eaves Trough Hanger.

Edward Kirk, Jr., Sheridan, Ill.—This consists of a lateral brace, with forked ends or prongs, which are driven in horizontal direction through the gutter near its inner edge into the frame of the roof. The prongs are bolted to a metallic band, arranged to embrace with one end the outer rim of the same, while the upwardly inclined rear part is attached to the shingles and roof frame.

#### Improved Range.

Edwin O. Brinckerhoff, New York city.—The space between the bottoms of the inner and outer cases is occupied by a drawer, the interior of which is divided into two equal parts by a vertical division plate. The side parts of the drawer are divided into flues by vertical division plates, extending from the ends of said drawer nearly to the central division plate. The rear division plates are placed a little in front of the rear wall of the inner case. The spaces between the inner ends of the rear division plates and the central division plate are provided with dampers, which are raised and lowered, to close and open said spaces. The flue for conducting the products of combustion from the range to the chimney projects in the rear of the middle part of the back of the outer case, and fits into a recess formed to receive it in the brick work inclosing the rear part of the range. The flue is divided into two equal parts by a vertical division plate, openings into the flue being formed through the lower middle part of the back wall of the outer case, and in line with the spaces at the sides of the central division plate of the drawer.

#### Improved Horse Power.

Reuben Stiles, East Troy, Pa.—This invention is an improved horse power for operating a churn, and for other purposes, which is so constructed that its rear end may be conveniently raised and lowered to give the endless chain any required inclination, and the endless chain may be conveniently tightened or slackened, as may be desired. To the front parts of the frame of the machine, at a suitable distance from their lower ends, are attached bearings in which a shaft revolves. To one end of the shaft is attached a crank wheel, from which motion is given to the machinery to be driven, and which is made heavy, to adapt it to serve as a fly wheel. To the middle part of the shaft, at a suitable distance apart, are attached two wheels, the rims of which are notched to receive rods, which are connected to each other by straps to form an endless chain, and to which are attached the cross bars or planks, upon which the horse or other animal walks, to give motion to the machine. The inventor is willing to negotiate for the sale of territory or to manufacture on royalty, and can furnish patterns and directions for the use of intending manufacturers.

#### Improved Harrow.

Peter S. Carhart, Collamer, N. Y.—The bars of which the beams are composed are clamped together by bolts with teeth, and bars or metal plates between them, either one or both being notched to receive and hold the teeth. The notches in the clamping plates are contrived with extensions inclined front and back, above in one direction and below in the other, and the teeth are pivoted, so that when the harrow is drawn in one direction the teeth will be vertical, and when drawn in another direction they will be inclined. The tooth shifts according to the way the harrow is drawn, but at the same time is held tight.

#### Improved Cheese Knife.

George E. S. Phillips and William A. Young, Berryville, Va.—The knife is made of such a length as to reach from the center to the edge of the cheese, and the ends are attached to a semicircular bar so that it has a slight longitudinal rock. The outer end of the knife and bar are held down by a spring, the free end of which rests upon the outer end of the curved bar, so that the knife may operate with a sliding cut, cutting the cloth first. A suitable construction enables the arm, to which the knife and bar is secured, and its attachments to be swung out of the way to enable a cover to be placed over the cheese.

#### Improved Pump.

George Harrison Laub, West Lebanon, Ind.—The invention relates to the means whereby the lower valve is detachably connected to the side of the inclosing cylinders, and the seat for said valve is adapted for ready removal when the sand collected beneath and around it requires to be washed out of the cylinder.

#### Improved Bouquet Holder.

Jurias G. Dreher, Pine Grove, Pa.—This invention is an improved bouquet holder, simple in construction and convenient in use, which will keep the stems of the flowers moist, and thus keep the flowers fresh for a long time, and which may be carried about without spilling the water. It consists in the combination of a slotted tube, conical flange or cup, gun elastic case, and sponge with each other and with a rod and conical base, a rubber plate, a flanged tube, and a spring bolt, which together form a well arranged device for the stated purpose, adapted for use as a vase as well as for carrying in the button hole, etc.

#### Improved Beer Regulator.

John Obrecht, Tell City, Ind.—For the purpose of providing a simple apparatus for regulating and preserving beer, a larger water receptacle is provided, with an interior smaller gas reservoir. The same is connected, by intermediate branch pipes with a check valve and stopcock, to the gas-distributing pipes, with stopcocks and water indicators, and then to the kegs containing the beer for the action of the gas thereon. The water tub is connected by a pump with the faucets of the empty kegs, for pumping water therein, and so as to force, by the distributing and reservoir connecting pipes, the liberated gas back to the reservoir for being applied to the next keg to be tapped.

#### Improved Process of Coloring Photographs.

Jeremiah Gurney, New York city.—The photographs are retouched and colored on the front side in the usual manner, and then rendered transparent by the application of a suitable mixture of white wax and kerosene. The colors are thus already fastened to some extent to the front side of the picture. A thin coat of glycerin is then applied to the front side of the picture, for fixing the colors and protecting them completely against the action of the gelatin, into which the picture is immersed, and then, faced downward, placed on the collodionized plate glass. The gelatin or binding substance forms the connection of the photograph and the collodionized surface. The excess of gelatin is then gently pressed out and the whole dried and hardened, being ready to receive the finishing coloring on the back of the picture. As the picture is transparent, it may be worked up with equal facility as on the front side, without the risk of losing the likeness, while the colors appear with an exquisite softness and delicate finish. One or more thicknesses of cardboard soaked in warm gelatin are next placed on the back of the picture and the whole dried again, to be then cut around the edges for taking it, with the enameled surface, off the glass plate, the enameled surface adhering firmly to the photograph and protecting the same.

#### Improved Car Propeller.

Casper Devilbiss, Shellsburg, Iowa.—A series of posts is set in the ground on each side of the railroad, in order to support wheels having a high flange on the outside. These wheels may have each a separate shaft, but it is preferred to hang them on the ends of shafts which span the road. The bars of the car frame are made to run between the flanges of wheels and on their peripheries. A guide and friction bar is elevated over the middle of track, and friction rolls are provided, between which the bar is passed. The upper roll is attached to a sliding gate and made adjustable, so as to increase or diminish the friction, according to the load. The lower roll is connected with and worked by the engine, which is arranged on the car in any convenient position. By turning the crank the rolls are turned so as to then bite upon the bar, thereby drawing the car over the wheels.

#### Improved Sawing Machine.

George W. Bell, Orange, Tex.—In this device sleeve boxes for the shaft which drives the saw are employed in consequence of the great weight of the saw and swing frame, to relieve the shaft, by being permanently fixed in the frame, so as to support the weight. The push bar, for feeding the saw to the log, is jointed to the swing frame at one end, and works between friction feed rollers, one of which is arranged in fixed bearings, and the other in sliding bearings, which are connected with a lever. The latter is forced down on the feed bar to set it in motion by the hand, and raised to throw it off to stop the bar by a spring. A weighted cord turns an eccentric pulley, which is so connected with the swing frame by a cord that, when the feed rollers are thrown out, the weight will, by turning the pulley and winding a rope upon it, swing the saw back.

#### Improved Machine for Melting Snow.

Charles G. Waterbury, New York city.—The essential feature of this invention consists of a series of burners for hydrocarbon oils, arranged on a portable machine, in combination with a reservoir or a retort and suitable pipe connections for supplying the oils or vapors to the burners. The arrangement is such that when vapors are burned they will be discharged into the burners with the requisite force by means of pressure in the retort, to drive the flame down on the snow and ice to be melted with great force. The invention also consists of the combination, with the above, of a steam boiler and pipes, for discharging steam jets into the burners, or below them, to combine with the vapors or oils, both for impelling the flame and for increasing the heat. Another feature of the invention consists of runner plates attached to the sides of the machine for closing in the space under the machine to the ground, for confining the heat, the said plates being capable of rising and falling, as required by irregularity of the surface, and for lifting them off the ground when the machine is to be turned around. There is also a horizontal revolving brush of steel wires, closing in the under space immediately in front of the burners, to prevent the escape of heat that way, and to be used for stirring and breaking up and throwing the particles of snow into the flames behind.

#### Improved Combined Baby Jumper and Swing.

Clara Jane Haney and Sarah Ann Coleman, Edwardsburg, Mich.—A bracket supports, by means of a strap, a framemade of two vertical rods and two cross bars. The vertical rods pass through a sliding cross piece, beneath which are spiral springs. The straps for holding the child are connected with the cross piece.

#### Improved Almond Grater.

Julius Levy, San Francisco, Cal.—This is a roughened porous cylinder revolving within a hopper, the bottom and sides of which are also roughened, and conform with the roundness of the cylinder near its base. This insures the almonds being thoroughly grated before passing into the receptacle below.