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NEW YORK, SATURDAY, JULY 2, 1864.

Contents:

(Illustrations are indicated by an Asterisk.)

AMERICAN STEAMSHIPS.

Our merchant steam marine has long been celebrated for the speed and economy of magnificent vessels. In point of economy, particularly, we have excelled all other nations, and there are few foreign vessels afloat which can compare with some of our latest steamships. One of the greatest items of expense in steam lines is fuel, and the most lively interest attaches to everything relating to a diminished consumption of it; particularly at this time, when the cost of the article seems to be so well sustained at advanced rates that there is no prospect of its falling.

For the past three years the Pacific Mail Steamship Company have been renewing their fleet of ships, and they have now some vessels which challenge the admiration of every one for their unequalled performances.

These ships are first-class, and full-powered as regards engines; the speed they attain for the amount of coal burned is worthy of special notice. The *Constitution* was the first of these new ships, and the *Golden City* the second; both are essentially the same dimensions and model, being 364 feet long, by 45 feet beam; tunnage (carpenter's measurement) is 4,400 tuns. The engine has a cylinder 105 inches diameter by 12 feet stroke, an adjustable cut-off, and an overhead beam.

The voyages of these vessels are made under different circumstances, as regards the load carried. From San Francisco to Panama, they are light, and average 14 feet draft on an even keel. The log of the *Golden City* is before us, and we make our extracts from it. On the return trip the draft is much greater, and averages 17 feet. The distance run by the *Golden City* on the trip from San Francisco to Panama, averaged 218 miles in 24 hours. During this trip 393 tuns of coal were burned, or one tun of 2,240 pounds, part anthracite and part Cardiff (Welch) per hour. The steam pressure was 12 pounds and the revolutions 13,625 (average) in 24 hours. *The point of cut-off was* 14 *inches* (average). On the return trip from Panama to San Francisco, the distance run in 24 hours averaged 253 miles, while the coal (anthracite and Cumberland) consumed in doing this duty was 39 tuns, about 3,360 pounds per hour with 15,084 revolutions in 24 hours. The point of cut-off was 32¼ inches. Average pressure 17½ pounds. These trips are from Dec. 12th, 1863, to Jan. 4th, 1864, inclusive.

Such a record as this is extraordinary, and no ship but an American one, and no engine but a beam-engine has ever achieved it. The *Golden City* has Sewel's surface condenser and the Martin boiler (so much abused and derided of late), and there is no question at all of its economy for the duty it does. The amount of waste in the fuel is but 12 per cent. Here we have a ship of 4,400 tuns burthen, making 9 miles an hour on 2,240 pounds of coal. Comment is unnecessary. It appears from these figures that the cost of producing a horse-power on the trip from Panama to San Francisco, was about 3½ pounds of coal per hour. This force is not produced so cheaply as it is by some investigators (speculators, perhaps we might say) of the marine steam engine, who make a horse-power for any number of pounds of coal less than four that the fertility of their imaginations can supply, but it is the actual amount of one trip taken at random from the log of a ship doing duty, and making money for her owners. The facts stated will bear investigation.

It is gratifying to us, as a people, that our engine and ship builders are capable of producing machines and models which defy competition. Those persons who mourn over the monopoly of the sea now enjoyed by foreign nations, may be assured that when peace reigns again, we are fully capable, so far as vessels go, of outstripping all others.

A LAW OF COMBUSTION.

Numerous and careful experiments have developed the law that the heat generated by the burning of any substance is pretty nearly in proportion to the weight of oxygen with which the substance combines in burning. For instance, the combustion of one pound of hydrogen gas will raise the temperature of 33,808 lbs. of water one degree of the centigrade scale, while the burning of a pound of tin will raise the temperature of only 1,144 lbs. of water one degree. But the pound of hydrogen in burning combines with 8 lbs. of oxygen, while the pound of tin combines with only about one-fourth (¼ths) of a pound of oxygen. A simple calculation will show that the quantity of heat generated by the combination of a pound of oxygen is very nearly the same in both cases. A pound of oxygen in burning hydrogen will raise the temperature of 4,226 lbs. of water one degree, while in burning tin it will raise the temperature of 4,230 lbs. of water one degree.

This law does not hold, however, in cases where the combustible in burning undergoes a change of form, from the gaseous to the solid, or from the solid to the gaseous state. For instance carbon in burning to carbonic oxide is changed from the solid to the gaseous form, and in this case a pound of oxygen generates only 2,962 units of heat, while in burning this carbonic oxide into carbonic acid, where no change of form takes place, a pound of oxygen generates 4,258 units of heat. In burning zinc the oxygen is changed from the gaseous to the solid state, and in this case a pound of oxygen generates 5,285 units of heat.

When either the combustible or the oxygen is changed from the solid to the gaseous form, a portion of the heat is absorbed, and the amount of sensible heat is dimished, but when the change is the opposite way the sensible heat is increased.

Even where no change of form occurs in either of the combining elements, the amount of sensible heat developed may be modified by a change of volume; an increase of volume diminishing the sensible heat, and a contraction of volume adding to the heat set free.

There are indications also that the law is further modified by influences which are not fully understood. On another page we give a table of the heat produced in burning a number of substances as ascertained by the best observers; an inspection of this table will prove both the general truth of the law and the numerous variations from it.

PRESERVING FRUIT.

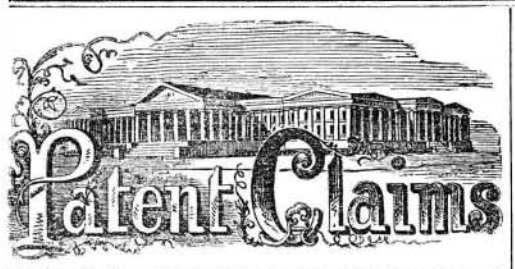
Nearly every one is fond of preserved fruits, but as generally made they are extremely unwholesome; at the present price of sugar "sweetmeats" made in the ordinary way are too expensive to be thought of by persons of ordinary means. Fruit demands—like the Jew in the *Merchant of Venice*—pound for pound, or as much sugar as fruit, and only the best and most costly kinds of the sugar should be used. It is very generally understood that the process of preserving fruit in air-tight cans is not only cheaper but far better than the old-fashioned way. By this method one-fourth the usual quantity of sugar is required, and instead of being a thick agglutinated mass when done, the cherries, plums, or what not, retain their natural color and flavor when properly put up. They not only appeal to the palate but please the eye, which is not the least important point gained in preparing food.

All that is necessary to succeed in preserving fruits in this way is to exclude the air from the jar. This is cheaply effected by boiling. The jars should be of glass, for through it the condition of the fruit can be seen perfectly and detected if it ferments, whereas with other material no warning is given until the vessel bursts and the material is wasted, if it has not been well prepared. Some of our contemporaries prefer corks and cement for closing the mouths of the bottles or jars, but we regard this method as infinitely more troublesome, more costly, and less reliable in the hands of inexperienced persons than those cans which have an india-rubber gasket in the mouth, which is compressed by a screw stop or its equivalent.

With these jars any one can make a tight joint if they screw it up properly. A very great defect with cans of this kind is that the gaskets or rubber rings are too thin and the mouths of the jars are uneven. If the bottom of the stopper is uneven as it generally is, it bears upon the gasket in some places while it is open in others. This is a very annoying fault, and makers of such jars would consult their own interests by testing each can and its cover before it leaves their hands. This is easily done with water. If the jar when capped is not water-tight it certainly will not be air-tight. Another fault is in leaving great cavities inside the glass tops where they are made lighter. These cavities should be filled with plaster by the purchaser, for they hold air and tend to the very evil they should prevent. A cheap and convenient way is to take a piece of stout fine linen and cover it thickly inside and out with a cement made of beeswax and rosin. This latter article is very dear at present, and there is a good substitute for it in a pitch made from coal tar, which may be had in large cities by going down on wharves where vessels are being calked, or in ship chandlery stores. The fruit should be put in a pot surrounded by boiling water, and the jar filled within an inch of the top. If it is fuller the air below, as it rises, causes the contents to overflow and wet the top of the jar, so that the cement does not stick. When the fruit rises to the mouth of the jar then is the time to apply the cover. Clap on the linen, covered thickly with cement, and tie it tightly. When the fruit is cold the cover will be depressed an inch or more if there is no air beneath. If the cover lies flat the air is not expelled and the fruit will spoil.

Another way to test the vacuum is by suddenly turning the jar upside down when cold. If there is much air within, it will be seen escaping in bubbles through the mass to the top (in this case the bottom) of the jar. There will be some air at any rate; it is impossible to get a perfect vacuum in any vessel whatever. If the first trial fails the cemented cover should not be pulled off. Place the jar in warm water again and bring it to a boil. If there is air below, the cover will rise like a light biscuit. Take a pin and make a small hole in the top and it will fall; then just at the moment the juice rises to the opening (or a little before) have ready a lump of cement and clap it over the pin hole. If this is done dexterously the operation cannot fail, and when cold the cover will show for itself whether it is tight or not. The necessity for waxing the cloth thoroughly and tying it tightly will be apparent when the pressure it has to sustain is born in mind; that upon a jar two inches in diameter at the mouth being forty-five pounds. Fruit preserved in this way is much cheaper, more economical and healthier. So far as the palate is concerned there is no comparison with the old-fashioned plans.

THE London Gutta-percha Company assert that the gutta-percha used to insulate the telegraph cable between Dover and Calais, which has been laid thirteen years, exhibits no deterioration in its insulating properties. They also publish a certificate of William Thomson, of Glasgow College, stating that his tests show that the loss of electricity from imperfect insulation in a circuit of 2,000 or 3,000 miles would be insignificant.



ISSUED FROM THE UNITED STATES PATENT-OFFICE

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☞ Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

43,170.—Knitting Machine.—Walter Aiken, Franklin, N. H.:

I claim as the needle plate as made with the depression, a′, arranged below its needle groove, a, and to operate with a needle when made with a projection to extend downward from its shank, as set forth.

43,171.—Roofing Material.—Stephen M. Allen, Woburn, Mass.:

I claim as a new article of manufacture the herein described roofing or sheathing for covering buildings, awnings, etc., the same consisting of sheets composed of animal and vegetable fibrous matter combined and pulped in the manner of pasteboard, substantially as set forth.

Second, In combination with sheets consisting of animal and vegetable fiber combined as before described, I claim the saturating of the same with coal tar or resinous matter, substantially as set forth.

Third, In combination with leather paper saturated with resin or coal tar as described, of sand, gravel, marl applied to the outside, substantially in the manner and for the purposes set forth.

Fourth, Cementing to the leather, paper when saturated with resin or coal tar and coated with sand or other like substances as described, a sheet of felt made of hair or wool, with or without vegetable fiber, substantially in the manner and for the purposes set forth.

43,172.—Lining Barrels, etc.—Gustavus Arnd, New York City:

I claim, first, A lining for barrels, etc., produced by spreading on their inner surface a solution of india-rubber or allied gums and curing the same by the introduction of steam or hot air, substantially as and for the purpose specified.

Second, The within-described process of producing a lining for barrels, etc., by vulcanizing or mixing a solution of india-rubber or allied gums after the same has been spread on the surface to be protected.

[The object of this invention is particularly to render coal oil or petroleum barrels perfectiy oil and water-tight.]

43,173.—Feathering Paddle Wheel.—Felix Barbaires, Solano County, Cal.:

I claim, first, The regulating lever, P, or its equivalent, in combination with the accessory stationary shaft, G, by which the position of the paddles, N N, can be varied at pleasure, when constructed and operated substantially as herein described.

Second, The shape of the paddle, N, with wrist, M, and its pivots, M′, when constructed and operated substantially as herein described.

Third, The eccentric, I, with its strap flanges, J J′, arms, K K, and their connection with the paddle wrists, M M, when constructed and operated substantially as herein described.

Fourth, I claim the combination and connection of the main shaft, A, with the accessory shaft, G, regulating lever, P, eccentric, I, strap flanges, J J′, outer and central arms, E E′ E″ and K, and their respective connections with the paddle, N N, substantially as described and for the uses and purposes as hereinbefore set forth.

43,174.—Pianoforte.—W. W. Batchelder, New York City:

I claim the bars, e e, applied in pianofortes, and radiating from the part or parts of the sounding board having a good vibrating quality and connected to the sounding board at points of inferior vibrating quality, substantially as and for the purposes specified.

43,175.—Car Coupling.—John S. Bell, Hackettstown, N. J.:

I claim the slide, D, with pendant bar, E, attached in combination with the spring, F, block, G, pin, C, and link or shackle, I*, all arranged substantially as and for the purpose herein set forth.

I further claim the shaft, H, with the arm, I, attached, provided with a notch, e, the spring, J, for holding the link or shackle in the notch and the retaining or holding spring, K, or its equivalent, substantially as and for the purpose set forth.

[This invention relates to a new and improved car coupling of that class which are commonly termed self-coupling, and it consists in a novel arrangement of parts for keeping the link or shackle in a proper position for entering the draw-head of an adjoining car, and it further consists in a novel arrangement of a pin and slide arranged in such a manner that the slide will sustain the pin when the former is raised, and the slide be capable of being forced back by the entering link of the draw-head of an adjoining car so that the pin may drop within the link and form a connection.]

43,176.—Composition for stiffening Hat Bodies.—James M. Bottum, New York City:

I claim the combination of the material named, for the mixture as herein specified, to stiffening hat bodies, or for any other articles where the same result is required.

43,177.—Machine for cutting Splints.—J. C. Brown, Brooklyn, N. Y.:

I claim the revolving cutter cylinder, C, and the fixed cutter, a, when combined and arranged substantially in the manner and for the purpose specified.

43,178.—Machine for stripping Leaves from Sugar Cane.—Derwin E. Butler, Chesterfield, Ohio:

I claim the stripper, E, in combination with the clamp, G, attached to the sliding bar, B, and either with or without the knife, D, all arranged to operate substantially as and for the purpose set forth.

I also claim the connecting of the clamp, G, to the bar, B, by means of the cord, I, substantially as shown for the purpose of giving a quick and long movement to the clamp under a slower and shorter movement of the bar, for the purpose specified.

43,179.—Mode of securing Shoes to Horses Feet.—Lauren Carpenter, Lake City, Minn.:

I claim the elastic band, B, in connection with the shoe, A, screw rods, C D, and screw, E, all arrang substantially as and for the purpose herein set forth.

[This invention consists in a new and improved mode of securing the shoe to the foot or hoof of the horse, whereby nails are dispensed with and the shoe rendered capable of being readily attached to and detached from the foot or hoof, and also capable of having its parts readily adjusted to compensate for the growth of the hoof.]

43,180.—Force Pump.—Aaron Carver, Little Falls, N. Y.:

I claim the cylinder, A, provided with ports and valves at both ends, substantially as described, in combination with the peculiarly constructed piston, P, and hollow piston rod.

I claim the combination and arrangement of the recess, X, in the pipe, I, with the hole, W, and the hole in the piston-rod, the hole in the piston-rod being opposite the recess, X, when the piston is down.

43,181.—Corn Planter.—E. C. Chesney, Abingdon, Ill.:

I claim, first, The bill-shaped shoes, H, on the circumference of the hollow planting wheels, D, in combination with the tappets, c, triggers, d, and seed boxes, E, all arranged and operating substantially as and for the purposes set forth.

Second, The sliding frames, G, in combination with the planting wheels, D, constructed and operating substantially as described.

Third, The arrangement and combination of the cam, L, lever, M, bolts, l, foot lever, J, tongue, K, and planting wheels, D, all constructed and operating in the manner and for the purpose substantially as herein specified.

[This invention consists in the arrangement of one or more bill-shaped shoes on the circumference of a hollow planting wheel rotating freely on a stationary axle in combination with a tappet attached to said axle and acting upon a trigger which connects with a seed slide extending into a seed box in the interior of the planting wheel in such a manner that for each revolution of the planting wheel on the ground the seed slide or slides in the shoe or shoes are actuated and a quantity of seed is deposited in the ground in hills at the desired distances apart.]

43,182.—Shuttle for Looms.—Augustus D. Clark, Wilkinsville, Mass.:

I claim my improved shuttle having its spindle-head, D, its spring-catch, F, and spring retainer, E, constructed, arranged and applied together in manner and so as to operate as set forth.

43,183.—Heel-cutting Machine.—Oliver G. Critchett, Stoneham, Mass.:

I claim a heel cutting machine so organized that a cutter is made to rotate on its own axis for the purpose of cutting and to travel around a stationary heel for the purpose of forming its contour, substantially as specified.

Also the means for operating the cutter, and causing it to traverse about a stationary heel, the same being the universally jointed shafts and the cam groove arranged to operate substantially as specified.

Also in combination with the carriage which presents the heel to the mechanism which forms the curvilinear outline the knife which cuts the front of the heel, and the gage which arrests at the proper point the cut of the knife, substantially as described.

43,184.—Apparatus for gumming, cutting, and mounting Photographic Prints.—Daniel H. Cross, Shaftsbury, Vt.:

I claim, first, The angular cutting blades so arranged and operated as to fit the die-stand or compressing punch—the two forming shears—to cut and mount photographic, or other prints or cards, in the manner herein described for the purposes specified.

Second, I claim the sliding spring clamp for the purpose of holding and gumming the prints, and placing them centrally on the die punch, in combination with the yielding table, as herein described.

Third, I claim the combination of the card-receiver, the spring-follower, and the reciprocating frame, for alternately placing the cards in position to receive the prints and discharge the same, in the manner herein set forth.

43,185.—Coal Screen.—John R. Deihm & Jasper Snell, Pottsville, Pa.:

We claim a cylindrical coal screen composed of a series of segments, constructed and connected together in the manner substantially as herein set forth.

[This invention consists in constructing the screen of a series of segments composed of longitudinal cast-iron bars connected by transverse wrought-iron rods, the former being cast on the latter so as to obtain a firm connection of the parts, the segments being attached to bands at their ends, all so arranged that a very superior coal screen is obtained, in consequence of the parts being always retained in proper position, and a free escape allowed for the coal and dirt, while the segments are rendered capable of being curved or bent to suit the required diameter of the screen.]

43,186.—Match Safe.—Seidel de Mackiewicz, New York City:

I claim the employment of an ignition or roughened surface for matches, composed of wire gauze, made substantially in the manner herein shown and described.

[The match-holders so commonly employed are usually provided with a rough surface composed of sand or sand paper, upon which the match is rubbed in order to produce ignition. Such sand surfaces soon become destroyed by use. This improvement consists in making the rough surface of wire gauze, which forms a cheap and enduring material upon which the match may be regulated with the same facility as upon sand paper. The invention is applicable to every form of match-holder.]

43,187.—Ring and Traveler Spinning Frame.—John C. Dodge, Brooklyn, N. Y.:

I claim the connection of the waste detacher with the rmg, so as to be attached to it and with it, be removable from the ring rail or socket plate, the whole being substantially as specified.

43,188.—Composition for Tanning.—Samuel Dunseith, Philadelphia, Pa.:

I claim a tanning liquor composed of the ingredients herein described, when prepared and used in the manner specified.

43,189.—Machine for enamelling Elliptical Frames, etc.—G. W. Ferguson & H. H. Ferguson, New York City:

We claim, first, The combination of an adjustable tool, H, mounted on a rod, G, with the eccentric wrist-pins, h h′, which are adjustable in slotted cranks, F F, rotating in the same direction, and with the rotating cross or platform, B, all constructed and operating in the manner and for the purpose herein shown and described.

Second, The hinged arms, j, in combination with the tool-holder, I, clamp, J, bar, G, and rotating cranks, F F′, constructed and operating substantially as and for the purpose set forth.

[This invention consists in the employment or use of an adjustable tool mounted on a rod which is secured to two eccentric wrist-pins which are adjustable in slotted cranks secured to the upper ends of arbors to which a rotary motion is imparted in one and the same direction and from the same shaft, which imparts motion to the platform carrying the picture frame or other article on which an ellipse is to be described in such a manner that said tool in describing an ellipse retains a position corresponding with the radius of curvature at every point, and the various moldings produced by it will be of uniform width and shape throughout.]

43,190.—Collar Clasp.—Valentine Fogerty, Boston, Mass.:

I claim the collar clasp made substantially as and for the purpose described.

43,191.—Preserving Railroad Ties.—Benjamin S. Foreman, Morrison, Ill.:

I claim the application to railroad ties of a composition made of the materials and applied as and for the purpose herein set forth and described.

43,192.—Printer's Ink-roller.—Lewis Francis & F. W. Letmete, New York City:

We claim, first, Combining glue and glycerine to form a composition for the manufacture of printer's inking-rollers.

Second, We claim combining glue, glycerine and molasses for the same purpose.

43,193.—Flask or Retort.—Sidney L. Geer, Norwich, Conn.:

I claim the chemical flask or retort above described made of clay, or any mineral compound, glazed within and encased by a metal pocket around its sides and bottom, as a new article of manufacture.

[This invention consists in making chemical flasks of clay or any mineral compound, glazed within, and encased around its sides and bottom within a metal pocket so as to protect it from blows or other causes of injury. It is meant for the use of chemists and dentists in generating nitrous oxide gas, and for similar uses.]

43,194.—Pipe Vise.—Francis Glasser, Mystic Bridge, Conn.:

I claim a pipe vise so constructed as to open to permit the entrance and removal of the pipe in a direction perpendicular to its axis, by means distinct from that employed for clamping the same, and to allow when closed of being firmly secured against being opened by the action of the clamping device, substantially as herein set forth.

43,195.—Metallic Shield for the Army and Navy.—Wm. F. Goodwin, Powhatan, Ohio:

I claim the construction, arrangement and operation of shields for the purposes and in the manner described, the same consisting essentially in the employment whether as a fixed or movable attachment to ships or to any wheeled or otherwise supported frame of metal plates curved so as to present its concave surface outwardly, *i. e.*, facing the enemy, substantially as herein set forth.

43,196.—Printing Press.—George P. Gordon, Brooklyn, N. Y.:

I claim, first, The use or employment of a revolving ink distributing table or disk operating a second revolving ink distributing table or disk for the purpose of thoroughly and evenly distributing the ink and imparting the same to the inking rollers.

Second, I claim the use or employment of the revolving inking rollers in combination with a revolving ink-distributing table or disk, for the purpose specified.

Third, I claim the use or employment of the revolving inking rollers, in combination with a revolving ink distributing table or disk, operating a second revolving ink distributing table or disk, for the purpose specified.

Fourth, I claim the use of a platen, vibrating substantially as shown, in combination with a stationary bed, and a revolving ink distributing table or disk operating a second revolving ink distributing table or disk, for the purpose or purposes herein shown.

Fifth, In combination with a platen, vibrating substantially as shown, I claim the use or employment of a stationary bed, revolving inking rollers and a revolving ink distributing table or disk, or a revolving ink distributing table or disk operating a second revolving ink distributing table or disk, for the purpose specified.

43,197.—Oil-cup for Carriage Axle.—Lyman Gregory, Battle Creek, Mich.:

I claim the combination of the conical or conveying orifice, c, of the oil-cup, the sponge, F, or its equivalent, and the rod, f, connecting the sponge with the lid, D, all substantially as and for the purposes herein specified.

43,198.—Spinning Machine.—Peter W., Thos. H., and Alfred Greenwood, Philadelphia, Pa.:

We claim, first, giving to the delivery rollers, B B′, the reciprocating rotary motion, independent of the ordinary feed or delivery motion substantially as described.

Second, The combination of the bar, G G′, arms N, and P, the rack, K, and pinion, L, arranged and operating substantially as described.

43,199.—Method of applying Torpedoes for Harbor Defence.—John D. Hall, Philadelphia, Pa.:

I claim the within-described system of pipes and pumps or other forcing apparatus applied for the discharge of torpedoes at one or more points in the width of the bed of the channel of a harbor, substantially as and for the purpose herein set forth.

[This invention consists in the employment of a system of pipes placed on or underneath the bed of the channel leading to the harbor, and one end of each of which is connected with a pump or pumps, or suitable forcing apparatus, placed within a suitable fortification on shore or at any suitable distance therefrom, and the other ends of which are arranged at suitable intervals in the widths of the channel, the said pipes serving as conductors through which to force torpedoes by the pump or pumps, or other forcing apparatus, and deliver the same under the bottoms of enemy's vessels attempting to pass through the channel over the said pipes.]

43,200.—Distributing Grain in Mills.—Charles S. Hamilton, Fond du Lac, Wis.:

I claim, first, The use of the revolving spout, L, for receiving the grain as the latter is elevated and distributing the same to the different bins, substantially as set forth.

Second, I claim the combination of the chain of buckets and the revolving spout, substantially as described.

Third, I claim the arrangement and combination of the revolving pout, L, the shaft, M, and index, N, with the chain of buckets or elevating devices, substantially as described.

43,201.—Device for collecting Gases from Petroleum and other Wells.—H. M. Hamilton, Franklin, Pa.:

I claim the application to the pipe or stock, A, of a pump used for pumping petroleum, salt or other wells, of a chamber, D, with two apertures, a b, one at the bottom to carry off the liquid and the other at the top to carry off the gases in the manner substantially as herein specified.

[This invention consists in the application to the upper end of the pipe or stock used for pumping petroleum, salt and other wells, of a chamber or series of chambers with two discharge openings, one at or near the bottom through which the liquids which are brought up from the well descend to be conducted to their appropriate receptacle or tank, and the other opening in the top of said chamber, through which the gases emanating from the well ascend to be conveyed to a tank or other proper vessel, from which they can be drawn and used for fuel or illumination.]

43,202.—Bridge Girder.—David Hammond and W. R. Reeves, Canton, Ohio:

We claim, first, The arch constructed of the side pieces, a a, top pieces, b b, claping pieces, c c, bolts, d d, and nuts, e e, the whole combined substantially as herein specified.

Second, The combination of the arch constructed as hereinbefore specified, the string piece, D, suspension rods, B B, diagonal braces, C C, and shoes, E E, substantially as herein specified.

[This invention consists in a novel construction of a wrought iron arch, and novel combination of an arch, a string piece, suspension rods and diagonal braces, whereby a girder is obtained of great strength and stiffness with a comparatively small weight.]

43,203.—Device for Hanging Door-bell.—J. O. Harris, Ottawa, Ill.:

I claim, first, the employment of the wheels, C, when grooved substantially as described, and provided with the pin, c, or its equivalent, arranged and operating substantially as and for the purpose shown and specified.

Second, I claim the employment as aforesaid, of the grooved wheels C, provided with the pin, c, or its equivalent, in combination with the bell wire, D, arranged and operating as herein described and set forth.

Third, I claim the combination and arrangement of the wheel, C, when provided with a groove upon one side as shown and the pin, c, with the bell wire, D, as and for the purpose described.

Fourth, I claim the combination of the grooved wheels, C, the pin, c, the bell wire, D, the looped wire, E, or its equivalent, and the hook h, arranged and operating as and for the purposes specified and shown.

43,204.—Rotary Pump.—C. H. Harrison, San Francisco Cal.:

I claim, first, The combination with cylinder, A, of the eccentric, L, and cylinder, F, when the latter has a rolling motion on the inner circumference of cylinder, A, substantially in the manner and for the purposes described.

Second, I claim in combination with the cylinder, A, eccentric, L, and cylinder, F, the partition, C, dividing the chamber, B, in two compartments, one of which is connected with the suction pipe and the other with the discharge pipe of the pump substantially as here in described.

Third, The combination of the cylinder, F, with the movable partition, a, joint, k, and slide, b, substantially in the manner and for the purposes described.

Fourth, The hinged check-valve, M, when applied to rotary pumps, and when constructed substantially as herein described.

Fifth, The application to the eccentric, L, of the friction strips, S' when made of hard wood so as to work on the inner circumference of the cylinder, F, substantially in the manner and for the purposes herein described.

Sixth, I claim the holes, V, in the circumference of the cylinder, F, when the latter is constructed and arranged substantially as herein described.

43,205.—Door Sheave.—Robert G. Hatfield, New York City :

I claim the construction and arrangement of a sheave and roller in such manner that when in use, the axis of the latter will have imparted to it a translatory as well as a revolving movement upon the bearings formed in the body of the sheave, substantially as described.

43,206.—Carriage, Chair, and Cradle combined.—G. W. Hank, Chicago, Ill. :

I claim, first, Constructing the body of the carriage of two parts, B and C, arranged and operating substantially as and for the purposes specified and shown.

Second, I claim the combination of the rockers, L M, with the platform, K, constructed, arranged and operating as and for purposes delineated and described.

Third, I claim the combination of the parts, B C, with the chair top F, provided with the hole N, arranged and operating as and for the purposes shown and set forth.

Fourth, I claim the combination of the chair, B C, the top, F, and revolving arms, J, as and for the purposes shown and described.

43,207.—Harrow.—J. H. Hendee, Jackson, Mich. :

I claim, first, the combination of the hinged sections, F F, forward hanger frame, E, and wheeled carriage, substantially in the manner and for the purpose described.

Second, The construction and arrangement of the hanger frame, E, substantially as and for the purpose described.

Third, The arrangement of the hinged sections or beams, F, in combination with the hooks on the axle, A, and the staples on the sections substantially as and for the purpose described.

43,208.—Dummy Locomotive Truck.—Isaac L. Hilt and A. W. V. Rausch, Frankford, Penn. :

We claim, first, the two independent trucks, A A, pivoted to and combined with the supporting frame, D, by means of pedestals, I I', which are arranged directly over one of the axles of each and which serve at the same time as a means of transferring the weight of the said frame to the axles subtantially as herein specified.

Second, The two pedestals, I, I', constructed with pivot-like heads to enter sockets e e, attached to the bottom of the car body, and thereby keep the body in place upon the supporting frame, D, of the engine and driving mechanism substantially as herein described as well as pivot the said frame to the trucks.

Third, The combination of the two counter shafts, K, K', one constituting the crank shaft of the engine and the other coupled with it by cranks and connecting rods, and one geared with one of the axles of one of the independent trucks, and the other gearing with one of the axles of the other of said trucks for the purpose of applying power to axles of both trucks substantially as herein specified.

Fourth, the intermediate countershaft, K2, and its cranks, g2 g2, applied in combination with the countershafts, K K', and connecting rods, i i, substantially as and for the purpose herein specified.

Fifth, the sliding boxes, f f, applied in combination with the frame D, and forward axle of the forward truck to slide longitudinally upon the said frame and allow the axle to slide within them, thereby providing for the support of a portion of the weight of the boiler and heavy parts of the engine upon the said axle while providing for the vibration of the truck substantially as herein described.

Sixth, Keeping the cogwheels of the driving axles in line with the frame, D, and the pinions of the countershafts by so fitting them to their respective axles that they are free to oscillate laterally thereon, and fitting their hubs to openings in the pedestals, I I', or their equivalents substantially as herein specified.

[This invention consists in certain improvements in the running gear of dummy locomotives and steam railway cars, whereby greater facility is afforded for turning the curves, and the driving power is applied to trucks at both ends of the locomotive or car, and the body of the car is relieved from all jarring otherwise caused by the engine and their attachments.]

43,209.—Device for Heating Waxed Thread in Sewing Machine.—Amos Holbrook, Jr., Lynn, Mass. :

I claim the combination of a fluid gas joint with the rotating horn of a sewing machine, substantially as and for the purpose set forth.

43,210.—Bobbin Winder of Sewing Machine.—A. C. Kasson, Milwankie, Wis. :

I claim the smooth surfaced pressure roller, D, applied in combination with the bobbin winder of a sewing machine substantially as and for the purpose herein specified.

[The object of this invention is to provide the bobbin winders of sewing machines with a means of laying the thread even upon the bobbins, which while being effective is so simple as to add little to the cost of the winder.]

43,211.—Beehive.—Washington Kennedy, Roxbury, N. Y. :

I claim a series of removable boxes or hives, B B B, each provided with elevated central chambers, C, slat slides, h h, slat tops, f i, slides, E E, and surplus honey boxes, D D D, the whole enclosed in a case A a b, all as herein described and for the purposes specified.

[This invention consists in the employment or use of a series of bee compartments constructed and arranged in a novel way and in such a manner within a house or case that the bees can be confined to one appartment until more room is required when they are admitted to another compartment, the whole being devised that the parts are very accessible, old comb allowed to be removed, the bees prevented from swarming, space being readily removed and the bees kept in a healthy state.]

43,212.—Fly Trap.—David Lake, Smith's Landing, N. J.:

I claim, first, the combination and arrangement of the bait wheel, z, bait trough, o, guides, L L, shoulders, l l, cap, T T, sliding bolt, P, and stay plate, H, substantially as described, and for the purposes set forth.

Second, The combination and arrangement of the tube, J, opening, z, sliding valve, K, and guides, ● ●, substantially as described, and for the purposes set forth.

43,213.—Fire Damper Regulator.—Philip Lamb, San Francisco, Cal. :

I claim the arrangement of the spring, C, spring adjuster, H, piston rod, F, piston, B, steam cylinder, A, steam pipe, a, and slotted damper arm, E, all as herein specified and for the purpose set forth.

[This damper regulator is composed principally of a cylinder, a piston and a spring, the cylinder receiving steam at one end from the boiler to act upon the piston which is arranged within it, the piston being connected by a crank with the damper and the spring being applied within the cylinder to act upon the piston in opposition to the pressure of the steam which tends to move it in a direction to close the damper.]

43,214.—Calendar Clock.—B. B. Lewis, Hartford, Conn. Ante-dated June 15, 1864 :

I claim, first, securing a calendar device to a dial of such a nature as to indicate by a pointer on the face thereof, a given point of time substantially as shown and described.

Second, I claim the collar tube, f, or its equivalent combined with the dial, a, pointer, i, and star wheel, g, substantially as and for the purpose described.

Third, I claim a tube, f, having a collar, x, as described in combination with a dial, a, for the purpose set forth.

Fourth, I claim the employment of a seven tooth or star wheel, g, arranged upon or over the center spindle, b d, in combination with the pointer, i, substantially as and for the purpose described.

Fifth, I claim the employment of a twenty-four hour wheel, k, to produce a successive movement of the seven tooth or star wheel, g once in every twenty-four hours, substantially in the manner and for the purpose described.

43,215.—Vapor Stove.—Russel R. Lewis, New York City:

I claim, first, The combination of the set screw, H, with the fluid and expansion chambers, substantially as described for the purpose of forming a heater cup of the screw head as set forth.

Second, The combination of a heater cup, the standards, or expansion chamber, a fluid chamber, an adjusting screw, and a wick tube, substantially in the manner and for the purpose described.

43,216.—Cooking Stove.—R. Little, Canton, Ohio :

I claim the combination of the oven, B, and fire box, A, with the flues, C, D, angular flues, H, and center return flue, I, when the several parts and flues are constructed and arranged as herein described.

43,217.—Clover-huller.—M. H. Mansfield, Ashland, O. :

First, In a Clover Separating Machine having a cylinder and concave armed with grooved and beveled or roughened teeth, I claim the relative arrangement of the thrashing cylinder B, shakers E E', and shoe, G, all as herein described and for the purpose specified.

Second, I claim the combination of the straw shaker, E, grain board E', hangers, b b', double pitman rod, H, f f, and crank wheel I, as and for the purposes set forth.

Third, In combination with the aforesaid straw shaker, E, grain board, E', and hangers, f f, I claim the adjustable slotted brackets F, constructed and operating as and for the purposes specified.

[This invention consists in placing a straw separator between the hulling mechanism and the screens, so that the mass from said hulling mechanism will be discharged directly on or carried to the straw separator, and the operation of trashing and separating the straw from the pods previous to the latter entering the hulling mechanism can be dispensed with.]

43,218.—Stop Valve.—Francis McGhan, Washington, D. C. :

I claim, first, the combination of the two valves C and C', operating substantially as and for the purpose herein set forth.

Second, In combination with the above, I also claim the threaded hollow stem, A, constructed and operating as described.

[The object of this invention is to produce a simple device both of cheap and durable construction whereby pipes or other water passages may be opened and closed with great facility, and which at the same time will effectually prevent leakage without the interposition of stuffing boxes, packing ring or other similar devices.]

43,219.—Car Coupling.—Henry McKee, of Chandlerville, Illinois :

I claim the two draw heads, A A, provided with vertical projections, a, at each side of their upper surfaces, and with inclined front surfaces, a, in combination with the removable, or detachable hooks, D, and the links or shackles, C, all arranged substantially as and for the purpose herein set forth.

[This invention relates to a new and improved car coupling, of that class which are termed self-couplings. The object of the invention is to obtain a car coupling, which will be simple in construction, be certain to form a connection when the draw heads of two cars are brought in contact, and be capable of being disconnected with the greatest facility when required.]

43,220.—Evaporating Pan for Sugar and Sirup.—Louis Megowen, of Upper Alton, Illinois :

I claim, first, The oscillating skimmers, C, slotted to fit the partitions. c, of the pan, A, and suspended from gudgeons, b, in combination with the sperical sides, a, of the pan and with the troughs, D, constructed and operating in the manner and for the purpose substantially as herein shown and described.

Second, The well, g, in the last compartment of the pan, A, in combination with the zig-zag holes, c', finishing pans, E, double flues, F, and dampers, i, all constructed and operating in the manner and for the purpose specified.

[This invention consists in the application to an evaporating pan, of oscillating skimmers, hung on gudgeons which have their bearings in lugs or standards, rising from the ends of the pan, and are provided with slots to clear the partitions of said pan, in combination with its covered sides, and with troughs running along their edges in such a manner, that by the action of said skimmers, the scum rising in the several compartments of the pan, can be thrown out into the troughs with little exertion or loss of time.]

43,221.—Blacking-box and Holder.—George H. Monroe, Cincinnati, Ohio :

I claim a blacking box, or blacking box holder, constructed substantially as herein described.

[This invention consists of a blacking box, provided with an L shaped cylindrical rim, in such a manner that the blacking contained in the interior of the box, on being taken out with the brush, is not liable to soil the edges of the lid, and the outside of the same can always be kept clean without difficulty. The invention consists also in the application of a handle to a blacking box so that said box can be easily handled without soiling the figures.]

43,222.—Grain Elevator.—Joseph T. Moulton, Chicago, Ill.:

I claim, first, The circular track, or tracks, D, applied in combination with the elevator, A, and driving shaft, E, in the manner and for the purpose substantially as herein specified.

Second, The carriages, C, in combination with the elevator shaft, B, track, D, and driving shaft, E, constructed and operating in the manner and for the purpose substantially as set forth.

Third, The yoke, K, in combination with the elevator, A, hoisting tackle, g h i, and windlass, F, constructed and operating in the manner and for the purpose described.

[The object of this invention is, to adapt an elevator to the holds of vessels at different stages of the water, the hight of which may vary from 6 to 75 feet at different times of the day, or in different seasons and to avoid entirely the necessity of a belt tightener which is now universally used.]

43,223.—Railroad Car Roof.—J. Palmer, Cleveland, Ohio :

I claim the arrangement of the plates or sections, a b, when lapped continuously together as described, without fastenings, in combination with the ribs, F, ceiling, D, with the roof, A, and car lines, in the manner and for the purpose set forth.

43,224.—Metallic Mold for Molten Glass.—Wm. Pounteney, Brooklyn, N. Y.:

I claim the bringing of the molten glass in contact with a thinner portion of the metal of the molds, than the body of the mold itself, so that the part of the mold in contact with the glass will be immediately raised in the temperature so as not to chill the surface of the glass, and at the same time the heat so imparted will be moderated and diffused gradually into the thicker parts of the mold; thereby producing the desired smoothness and appearance of polish upon the surface of the glass, substantially in the manner described.

43,225.—Harvester.—J. W. Prentiss, and E. M. Birdsall, Penn Yan, N. Y.:

We claim, first, The combination of the two reciprocating cutters, I I, both acting against central rougers g, placed between them in the fingers, H, as herein shown and described.

Second, Operating the cutters, I I, through the medium of the double geared vibrating segment, J, and the racks, j j, on the bars, K K, of the cutters, I I, substantially as described.

Third, The wheel, P, placed on the clutch S, which is fitted on the axle, Q, and arranged as shown with or without clutch, T, for throwing the cutter-driving mechanism in and out of gear with the wheel or wheels, B B', without moving or adjusting the cutter-driving-gearing as set forth.

Fourth, The adjustable bearings, V V, N N, for the axle Q, and shaft, M, when constructed and applied to the frames of harvesters for the purpose specified.

43,226.—Accordeon.—Ernest Pries, New York city :

I claim the combination with a portable bellows operated by both hands, of keyboards, A B, and correspon ing reeds representing two or more chromatic scales, substantially in the manner and for the purpose specified.

Also, the arrangement of the keys, C C', and D D, substantially as herein shown and described, so that the keys, C', represent the octaves of the keys, C, and the keys, D', the octaves of the keys, D.

[The invention consists in the employment or use in combination with a portable bellows, operated by both hands, of reeds and key boards which represent two or more chromatic scales, in such a manner that a light and portable instrument is produced, which can be used for playing or accompanying tunes in any key the same as a pianoforte or melodeon.]

43,227.—Churn.—John Rankin and J. N. McIntire, New York City :

We claim the employment of a dasher having its beaters so formed and arranged as to feed the contents toward each end of the box, as specified in combination with the vertical breaker ribs, T2, the whole arranged to operate as and for the purpose set forth.

We also claim the employment of the breaker wheel, H, constructed and operating as specified in combination with a surrounding or inclosing case formed with ribs, w and y, and exits, v, the whole constructed and operating as set forth.

We also clam hanging the main gear, L, on an eccentric stud, e c2, in combination with the spring catch and notched box, Z, the whole arranged to operate as and for the purpose set forth.

43,228.—Operating Gun Carriages.—Isaac Rindge, Cincinnati, Ohio :

I claim the combination of the screw and eccentric shaf connected to the lever and turn table, for the purpose substantially as described.

43,229.—Cider Mill.—George R. Ruland, and Wm. W. Green, Jr. Byron Center, N. Y.:

We claim the combination of two endless platforms, D E, and an endless apron, G, passing between them, said platforms being so arranged so that their contiguous surfaces shall come nearly in contact, to produce pressure substantially as and for the purpose herein set forth.

We also claim making the lower sections, a', longer than the upper sections, a, and providing their ends with the cross cleats or shoulders, l l, between which the said upper sections, a, match and fit, for the purpose of confining the pomace during the act of pressing substantially as herein set forth.

We also claim hanging the ways, B B, of the upper platform, on a bearing, f, at one end, and adjusting the other end down to increase the pressure, by means of the rods, i i, projections, g g, and nuts, h h, or some equivalent means, substantially as and for the purpose herein described.

We also claim providing the sections, a' a', of the lower endless platform, with openings or perforations, s s, whereby the cider can escape through, substantially as herein described.

We also claim the receptacle or trough, H, situated between the ways, C C, and inclosed by the lower endless platform, E, said receptacle or trough being so situated as to catch the expressed cider, and discharging it by a suitable spout, substantially as described.

We also claim the packing strips, u or u', in combination with the sections, a a, or the cleats, l l, so arranged that when said sections or cleats close in the act of pressing, the packing strips will shut off the passage of the cider, substantially as herein set forth.

43,230.—Clock.—Chrysostomus Schwippl, New York City :

I claim the arrangement and combination of the hands, A A', central pivot, a, suspended movements, B B', and gear-wheels, b c b' c', all constructed and operating substantially in the manner and for the purpose shown and described.

43,231.—Tire or Hoop-bender.—Melchi Scott, Fairfield, Iowa :

I claim the sliding apparatus, and the pincers combined with the side levers, and the adjustable rack, which being operated by the lever, l l, brings the bar forward until it begins to bend, when the pincers let go their hold until the next time the lever is raised.

I claim also the graduating staff, a, in the lever, l l, with the numbers, 1, 2, 3, 4, 5, 6, corresponding to the numbers on the notched side plates, 1, 2, 3, 4, 5, 6, by which the tire may be made larger or smaller, by means of the corresponding numbers.

43,232.—Preserving Fruit, etc.—Harlow C. Smith, Chicago, Ill. Ante-dated June 16, 1864.:

First, I claim in the construction of stoppers for hermetically sealing jars for the preservation of fruit, the employment of a valve substantially as and for the purposes herein specified and described.

Second, I claim in combination with the above, the cross bar, E, provided with the elastic cushion, e, arranged and operating for the purposes set forth.

43,233.—Mode of preventing Mildew in Canvas, Cloth, etc.—William Stacey, Kittery, Maine :

I claim the use and application of the aforesaid liquid to sail cloth, sails, flags, awnings and tents.

43,234.—Windlass.—E. Stearns, Brooklyn, N. Y.:

I claim the windlass constructed and arranged as hereinbefore described, with two shafts provided each with a series of wheels, the wheels of one shaft varying in diameter, relatively with each other and also varying in diameter with respect to the wheels of the other shaft, and the wheels of one shaft being adjustable so that the two shafts may be connected by gearing, varying in diameter relatively with each other in order to increase or diminish the power and speed of the drum shaft as circumstances may require, in combination with means substantially as described for adjusting the wheels.

I further claim the arrangement of the shafts, K, arms, J M, and the notched plate, N, for adjusting the wheels, D' E' F', and securing them in the desired position substantially as set forth.

[This invention consists in providing the driving shaft of the windlass, with a series of wheels shifting or adjustable of different diameters in connection with a series of wheels placed on the draw shaft, and also of different diameters, the adjustable wheels being moved by levers, and all arranged in such a manner, that the driving shaft may be made to communicate motion to the draw shaft, through the medium of gearing which may be varied according.]

43,235.—Boot and Shoe.—B. F. Sturtevant, Boston, Mass.:

I claim a boot and shoe, having its sole or soles and its upper or uppers combined, united or connected with and by means substantially as described.

43,236.—Mode of Connecting two or more pieces of Leather together.—B. F. Sturtevant, Boston, Mass.:

I claim my new or improved art, substantially as described, of uniting or connecting two or more pieces of leather.

43,237.—Stencil-plate.—Joseph Sykes, Muscatine, Iowa :

I claim the main frame, A, provided with recesses, c, in combination with the secondary frame, C, and letters or blanks, B B*, constructed and operating in the manner and for the purpose substantially as herein shown and described.

[This invention consists in a frame provided with suitable recesses to receive the letters of a stencil alphabet, cut out in suitable pieces of sheet metal, in combination with a secondary frame secured on the inner side of the main frame by means of buttons, in such a manner that by means of the letters of the stencil alphabet any desired word or words can be arranged in the main frame, and securely retained therein by the secondary frame; and after such word or words have been thus arranged, they can readily be transferred to the top of a box, or any other surface, in the usual manner of transferring letters words or names from stencil-plates.]

43,238.—Carriage Hub-band.—S. T. Talcott, Ashtabula, Ohio :

I claim the clutch, F, spring, D, cap, B, button, H, in combination with the flange, C, and band, A, substantially as and for the purpose set forth.

43,239.—Machine for making boxes.—Horace Thayer, Brooklyn, N. Y.:

First, I claim the head, B2, and two forming and pressing wheels, M and N, with suitable means for operating the same, combined and arranged to act simultaneously on the material of a box, or case, with or without the free center, D, substantially in the manner and for the purpose herein set forth.

Second, I claim, in box and case machinery, substantially of the character above specified, so constructing and arranging the mechanism which connects the two wheels, M and N, together, and by which they are simultaneously brought to bear against, or to recede from, the box or the revolving mandril, that, to accommodate itself to the seam, or other irregularity or projection upon the surface of the box rim, either wheel, when said projection comes in contact with it, will yield so as to permit the same to pass without inducing any corresponding movement of the opposite wheel, so as to allow the use of rings previously joined, and consequently the production of boxes very rapidly, in the manner substantially as herein specified.

Third, I claim the triangular frame, V, and links, Q R, arranged substantially as represented, relatively to the two rocking shafts, o p, and to the cranks or levers, O P, wheels, M N, and the mandril, B, of a box or case machine, substantially as and for the purpose herein specified.

Fourth, I claim the employment on the wheel, M, of the series of indenting teeth, m, so arranged relatively to the head, B2, and free center, D, as to indent the material in a series of corrugations pressing upon or into the inner face of the end or head, 3, substantially in the manner and for the purposes herein set forth.

43,240.—Mode of making boxes and cases.—Horace Thayer, Brooklyn, N. Y.:

I claim, as a new method of manufacture, the forming of boxes or cases of the character substantially as herein described, by first soldering the edges, 2, of the sides, 1, next introducing the bottom or end, 3, and finally forming the croze by bending the metal at 4 and 6, at one operation, against the outer and inner faces of the end 3, in the manner substantially as herein set forth.

43,241.—Making Boxes.—Horace Thayer, Brooklyn, N. Y.:

I claim, as a new article of manufacture, a box or case having the bottom or end, 3, retained by a series of internal projections, 6, which projections are raised and pressed into the edge of the material forming the bottom or end, 3, by machinery, substantially in the manner and for the purpose herein set forth.

43,242.—Boxes for Transporting Plants.—Merritt L. Thompson, Brooklyn, N. Y.:

Iclaim a box, formed with a perforated head, whereby the contents can be viewed without opening the box, substantially as described.

43,243.—Cooking-stove.—William Tinsley, New York City:

I claim that particular fire or air passage, with its apparatus, the slotted plate, r, and its register (forming, with the curved plates, s s, the triangle) the upper cover, the under valve, p, the ventilator, and the back sides, W W, constructed and operated as set forth, the whole being considered a combination.

43,244.—Acting Wagon-brake.—P. G. Van Houten, Cohocton, N. Y.:

I claim the angular lever, f, in combination with the tongue, a, the pole, h, the attachment of the brake-bar, n, under the reach of the wagon by the rods, p p, to the cross-bar, y, in the manner and for the purpose described.

43,245.—Portable Piano-forte.—Maurice Vergnes, New York City:

I claim, first, Placing the hammer under the key, to leave more room for the sounding-board, in the manner substantially as above described.

Second, The arrangement of the stem, E, with the curved heel of the hammer to make a quick stroke upon the string in the manner described.

Third, The curve, K, made in the stem, into which the point of the heel of the hammer catches, in the manner described and for the purpose set forth.

Fourth, The projection, L, on the hammer, in combination with the lever, M, to raise the damper at the proper time.

Fifth, Sustaining the hammer in its position ready for the stroke by a band of gum elastic, placed in the manner described.

43,246.—Roller-stand.—Hervey Waters, Northbridge, Mass.:

I claim a roller-stand, constructed or organized substantially as and for the purpose specified.

43,247.—Bayonet-blank.—Hervey Waters, Northbridge, Mass.:

I claim, as a new article of manufacture, a bayonet-blank having the disposition of its material substantially as described.

43,248.—Stamping-mill for quartz.—Zenas Wheeler, San Francisco, and C. K. Hotaling, Grass Valley, Cal.:

We claim, first, The combination of the fan, L M, pipes, N O, chamber, P, spouts, Q R, and mortar-box, C D, all constructed and arranged to operate in the manner and for the purposes specified.

Second, The valve, S, arranged in relation with the mortar-box, and pipes, N, substantially as shown, to regulate the strength of the blast in the mortar-box, and consequently the degree of fineness or communition of the quartz, as set forth.

The securing of the dies, I, in the bed, m, of the lower part, C, of the mortar-box, by means of the flanges, o o, at the lower parts of the dies, the recesses, p p, at the sides of the groove, n, and the wire, q, fitting in a groove in the bottom of the dies, and the bed, m, substantially as described.

Fourth, The combination of the posts, a a, socketed girts, e g, shoulders, h h, bed-plate, B, sockets, b b, soft metal, c, and keys, d d, all constructed and arranged as herein described, to constitute an improved frame for stamping-mills.

43,249.—Cultivator.—Almon Williams, Berea, Ohio:

I claim the adjustable reach, F, the slotted hinged frames, G H and M N, in combination with the teeth or cultivators, and slotted hinges, J, in the manner and for the purpose set forth.

43,250.—Slide-valve for Steam-engines.—James A. Woodbury, Boston, Mass.:

I claim the balanced or nearly balanced slide-valve, constructed and operating in connection with the ports, substantially in the manner and for the purpose herein set forth.

43,251.—Soda-water Apparatus.—Elias Wyckoff, Elmira, N. Y.:

I claim the arrangement of the pump, C, within the vessel, B, in combination with the refrigerating chamber, A, and lever, D, constructed and operating in the manner and for the purpose substantially as herein shown and described.

43,252.—Shuttle for machines for knitting loom-harness.—Darius C. Brown, and John Ashworth, assignors to said Darius C. Brown, Lowell, Mass.:

We claim the shuttle as made with the fluted delivery-rollers, controlled by a spring arranged to press one roller toward the other, the whole being as explained.

We also claim the shuttle as made with the guard-plate, h, arranged between or combined with the spool and the fluted delivery-rollers, and carrying the guide-eye and hole substantially as described.

We also claim the combination and arrangement of the elongated auxiliary eye, m, arranged within the shuttle-chamber, and with respect to the eye, l, thereof, substantially as specified, with such eye, l, and an eye, i, and a pair of fluted delivery-rollers, c d, disposed in advance of the spool as herein-before set forth.

We also claim the shuttle as made with the recesses and studs arranged together, and with respect to the curved ends or noses of the shuttles, substantially as represented and described.

43,253.—Chain-pump.—James M. Connel, assignor to himself and H. Eshbaugh, Newark, Ohio:

I claim, first, Applying to the lower end of a chain-pump shaft a metallic boxing, B' C, so constructed that it forms an enclosing socket for the end of said shaft, and also an extension guard for protecting them from wear, and for centering the buckets, substantially as described.

Second, The flaring, or bell-mouth metallic extension, C, applied to the lower end of the tubular shaft, B, and constituting the valve-seat and foot-stock of the pump, substantially as described.

Third, Flaring, or enlarging the lower extremity of the bore of the tubular shaft, B, in combination with the valve-chamber, b, and valve, g g, substantially as described.

Fourth, Constructing the periphery of the wheel, G, with laterally forward supporting lips, and vertically sustaining shoulders, adapted for receiving two links of a chain, having eyes formed at right angles to each other, substantially as herein described.

Fifth, The combination of the looped bucket-links, d, with a driving wheel, G, having its periphery constructed substantially as described.

Sixth, The combination of the chain-pulley, J, with a metallic socket extension, C B', which also constitutes the valve-seats of the valves, g g, substantially as described.

43,254.—Straw-cutter.—Aaron Y. Clough, assignor to Nelson W. Clark, Charleston, Mich. Ante-dated June 18, 1864:

We claim the arrangement and combination of the devices, D H J and L, as herein described for the purpose set forth.

43,255.—Frame for Pictures, etc.—J. S. Cannon assignor to himself, Andrew J. Cutler and Elias M. Hanover, New Haven, Conn.:

I claim, first, Constructing a picture-frame from a single strip of metal, when the angles are formed in the manner substantially as described.

Second, The combination of a link or loop with the back of a picture-frame, when arranged substantially in the manner described to serve the double purpose herein set forth.

Third, A recessed back, constructed in the manner substantially as described, in combination with a metallic picture-frame, in the manner and for the purpose specified.

43,256.—Chain-pump Chain.—James M. Connel, assignor to himself and H. Eshbaugh, Newark, Ohio:

I claim, first, A chain-pump chain-link, A, constructed with lugs or bent portions, a a, substantially as and for the purpose set forth.

Second, Tying the ends of a chain-pump chain link together by means of buckets, C, cast about the middle portion of the link, substantially as set forth.

Third, A chain-pump bucket-link, A a a C, constructed substantially as and for the purpose described.

43,257.—Lantern.—Charles Deaves and Ellis S. Archer, assignors to Archer & Pancoast, New York City:

We claim, first, The fastening composed of the bail-shaped rod or wire, B, and projection, c, constructed and applied in the manner substantially as and for the purpose herein set forth.

Second, The sunken annular groove, h, in the top of the lamp, A, surrounding the burner for the purpose of preventing the overflow of oil while the lamp is being filled, and also to admit of the shaft, D, resting on the top of the lamp as specified.

Third, The hook or lip, f, or its equivalent, on the top of the lamp, A, when used in combination with the shaft, D, for the purpose specified.

Fourth, The corrugated aprons, E, applied to the bottom of the lantern, A', in relation to the lamp, A, substantially as and for the purpose set forth.

[This invention relates to a new and improved mode of securing or holding the burner in the lamp, whereby the use of the ordinary screw for that purpose is avoided, and the burner rendered capable of being adjusted with the greatest facility in order to admit of the shaft by which the wick is raised and lowered being placed in proper position to admit of the lantern being closed down on the lamp. The invention also relates to a simple means to prevent the overflow of oil from the lamp while the latter is being filled, and also to admit of the burner having a low position, so that the wick-adjusting shaft may rest upon the top of the lamp and aid in securing the burner in the lamp. The invention also relates to a corrugated apron at each side of the bottom of the lantern, for the purpose of equalizing the supply of air to the burner, preventing heavy drafts, &c. The invention further relates to a new and improved fastening for securing the lantern down on the lamp.]

43,258.—Apparatus for Tanning Hides.—Henry Liebermann, assignor to himself and George Rock, Paducah, Ky.:

I claim, first, The platform, B, revolving on the top of the tank or vat, A, and carrying the open box, D, in combination with frames, E E', on which the hides or skins are stretched, substantially as and for the purpose shown and described.

Second, The employment or use of moveable baskets, E*, in combination with frames, E E', box, D, revolving platform, B, and tank, A, constructed and operating in the manner and for the purpose substantially as set forth.

Third, The frames, E E', arranged with cross-bars, e e*, e' e'*, longitudinal bars, g g', standards, f f', and double side and end rails, substantially as and for the purpose specified.

43,259.—Breech-loading Pistol.—Samuel M. Perry, Brooklyn, N. Y., assignor to Edward S. Renwick, New York City:

I claim the combination of a barrel, having a chamber at each end of larger diameter than the caliber of the bore intermediate between the chambers, with the lock-frame by means of a pivot, said combination operating substantially as set forth.

43,260.—Breech-loading Pistol.—Samuel M. Perry, Brooklyn, N. Y., assignor to Edward S. Renwick, New York City:

I claim the combination of a barrel, swinging on a pivot in advance of the abutment of the lock-frame, with a cup-formed abutment to sustain the cartridge, the combination operating substantially as set forth.

I also claim the combination of the swinging barrel of a fire-arm with the lock-frame or stock, by means of a counter-bored hub on the one and a smaller hub on the other, the two operating substantially as set forth.

43,261.—Fire Escape-ladder.—Robert G. Pike, Middletown, Conn., assignor to Nicholas Pike, Brooklyn, N. Y.:

First, I claim dividing a ladder into sections and joining them by hinges, or any similar joint, in such manner that the sections may be folded flat upon each other, into the form of a seat or chair, substantially as described.

Second, I claim forming and attaching the arms together, and to the chair or ladder, in such a way that they may be used for hooks to sustain the ladder.

Third, I claim the application of one or two ropes to a ladder, substantially in the manner and for the purpose as described.

43,262.—Thrashing and Grain-separating Machine.—J. H. Quick (assignor to H. R. Withington and John Butterworth, Jr.), Trenton, N. J.:

I claim the air passage, contracted in its central portion, in combination with the pendant guard or apron, D, constructed and operating as set forth.

[This invention relates to a new and improved duster attachment for thrashing and grain-separating machines, for the purpose of preventing dust being expelled or ejected from the thrashing machine into the faces of the operators or attendants. The invention consists in the employment or use of a draught-box provided with a pendant guard or apron, and applied to the machine in such relation with the thrashing cylinder as to effectually carry the dust through the machine.]

43,263.—Power Loom.—Conrad Roder, Ceralvo, Ky., assignor to himself and Konrad Froehlich, Philadelphia, Pa.:

I claim, first, The attachment of the hooks, D D, directly to the heddle frames, substantially as and for the purpose herein specified.

Second, The arrangement of the pattern chain, N, or its equivalent, the knives, E E', and levers, F F* and G G*, in combination with the heddle frames and their directly attached hooks, D D, whereby the harness is operated entirely from above, substantially as herein specified.

Third, The combination of the cam, H, levers, J K, rod, j, spring, k, and rods, i i*, the whole arranged in connection with the levers, F F*, to operate substantially as and for the purpose herein set forth.

Fourth, The hinged guides, S S, and adjustable guides, T T, in combination with each other and with the guides, R R, for guiding the heddles, substantially as and for the purpose herein specified.

43,264.—Apparatus for carbonizing Air for Illuminating Purposes.—Warren A. Simonds, Boston, Mass., assignor to himself and S. G. B. Coombs, South Reading, Mass.:

I claim the cylindrical vessel or reservoir divided into chambers, with partitions arranged and constructed as herein set forth and described, d.

I also claim the construction and arrangement of a sectional wheel, when operated as herein specified.

I also claim the sectional wheel made fast to the shaft, L, when arranged within a sectionally divided vessel or reservoir and operated, for carbonizing the air for illuminating purposes, as herein specified and set forth.

43,265.—Lightning Arrester for Telegraphs.—George A. Stearns, Rochester, N. Y., assignor to himself and Elijah Valentine, Milwaukee, Wis.:

I claim establishing a communication between the line circuit of an electric telegraph and the earth, by the use of charcoal, powdered glass, powdered amber, powdered sulphur, or other equivalent substance, when brought into contact with such line circuit by means of a suitable apparatus, for the purpose of discharging from the wire all atmospheric electricity, before it can be communicated to the registering apparatus, substantially in the manner herein represented and described.

When charcoal, powdered glass, powdered amber, powdered sulphur, or other equivalent substance is employed for the purpose above indicated, and in substantially the manner herein-described, I also claim inserting therein metallic rods or wires, in the manner and for the purpose herein represented and described.

43,266.—Copying Press.—George C. Taft (assignor to Thomas H. Dodge), Worcester, Mass.:

I claim the combination of the handle-piece, G, and thimble-piece, F, with the arch-piece, C, and screw spindle, E, substantially as set forth.

43,267.—Machine for cutting Lead Pencils.—Albin Warth, Stapleton, N. Y., assignor to Eberhard Faber, New York City:

I claim, first, A machine constructed, arranged, and operating substantially as herein-described, for cutting off the ends of lead pencils.

Second, The oscillating flap, C, at the bottom of the hopper-box, B, constructed and operating substantially as herein-described, so that the pencils in the hopper box are agitated without having their varnished surfaces tarnished.

Third, The india-rubber fingers, e', arranged at the bottom of the hopper-box, B, for the purpose of compelling the pencils to pass singly into the sockets of the carriers.

Fourth, The carriers, E, with sockets, f4, and lips, f5, in combination with hooks, e, at the lower ends of the plate, D, constructed and operating substantially as herein-described, so that one pencil after the other is taken from the hooks and deposited in the sockets, f4.

Fifth, The combination of the adjustable heads, E', with the carriers, E, so that said carriers can be adjusted for pencils of different length.

Sixth, The concave cutter, I, in combination with the springs, j', and with the carriers, E, constructed and operating in the manner and for the purpose substantially as herein shown and described.

Seventh, The oscillating grinding wheels, J, applied in combination with the cutters I, or saws, I', in the manner and for the purpose substantially as set forth.

43,268.—Cultivator.—L. B. Waterman (assignor to himself, E. W. Simonds, and P. A. Fischer), Chicago, Ill.:

I claim, first, The braces, T T, and jointed bars, T1 T2, in combination with the pendant shovels, N, when arranged and operating as set forth.

Second, The auxiliary wheeled supports, R, at the rear end of pendant shovel frames, M, in combination with the main supporting wheels, C C, substantially as and for the purpose set forth.

Third, The combination of the half rolling beams, f, with the pendant frames, M, and auxiliary supporting wheels, R, substantially as and for the purpose set forth.

Fourth, The combination of the jointed brace, T T1 T2, pendant shovel frames, M, half rolling beams, f, and footlever, i, and hand levers, O P, substantially as and for the purpose set forth.

43,269.—Washing Machine.—Robert Cranston, Edinburgh, Scotland. Patented in England Sept. 17, 1862:

I claim, first, The reel or drum, C, constructed and operated in the manner and for the purpose substantially as herein set forth.

Second, I also claim the combination of the box, F, with its two outlets, the trough, E, and the gutter, G, with its perforated cover, g, substantially as and for the purposes specified.

Third, I also claim the combination of the reel, C, the roller or knucklers, I, and the brushes, J, arranged substantially as specified.

43,270.—Apparatus for obtaining Photographic Pictures.—J. J. L. Rousseau de Lafarge, Paris, France:

I claim, first, The internally grooved box for carrying the glasses in combination with compartments at the back thereof for holding the bottles.

Second, In combination with the double glass and bottle box, I claim the pintles and gudgeons on the sides thereof for the attachment thereto of two vertical and independent bath vessels, one lined with rubber, or the equivalent thereof, to contain the silver bath for sensitizing the damp collodion, the other made or lined with yellow glass, to contain the iron bath for developing the picture.

Third, Combining with each vessel a hinged flap, provided with rubber or rubber-lined stopper and screws, to form a secure and hermetic joint, substantially as set forth.

Fourth, I claim the construction of the principal or outer frame, with plunging frame or nipper and doors provided with springs for keeping the glass in position.

Fifth, The arrangement of the springs in the flap and their combination with an outside knob and trigger so that the springs may be withdrawn from off the surface of the glass or released at pleasure, substantially in the manner and for the purposes set forth.

43,271.—Lever Paddle.—John Harris, London, England:

I claim the combination of the slotted brackets, k m, and reciprocating pivots, l j, with the slotted handle, F, of the paddle, E, with the working beam, H, and rock shaft, I, all constructed and operating in the manner and for the purpose substantially as herein set forth.

[This invention relates to a certain novel arrangement of lever paddles, rollers, rocking frames, and fulcrums, whereby a greater percentage of the propelling power is usefully applied than by using propellers of the ordinary construction, and which may be used for the propulsion or for the steering of vessels by causing a paddle so to act as to give the inertia of the water a greater purchase, and by bringing the paddle into and from the water with as little resistance from, or disturbance to, the water as possible.]

43,272.—Device for folding Envelopes.—William Henry Hook, Walworth, England:

I claim marking or impressing moistened lines on paper for the purpose of facilitating the process of folding, and the machinery or apparatus employed therein, as described and illustrated in the accompanying four sheets of drawings, or any modification thereof.

43,273.—Anchor.—Edward R. C. Morgan, Mumbles, South Wales, assignor to Abraham Morrel, New York City:

I claim connecting the two flukes of an anchor, hinged to the shank by separate bolts, by a curved bar, G, passing through a suitable hole, h, in the shank, in the manner and for the purpose substantially as described and set forth.

43,274.—Blast Furnace.—Woldemar Raschette, St. Petersburgh, Russia, assignor to Alexander Trippel, New York City. Patented in Russia, Feb. 22, 1862:

I claim, first, A blast furnace, A, the hearth of which when bisected by a horizontal plane, presents a narrow long rectangle, the short sides of which are to be used as working sides, and the two long sides for two or more rows of tuyeres, and whose long and short sides increase gradually from the hearth up to a point near the throat, substantially in the manner and for the purposes herein shown and described.

Second, The employment or use in combination with a long rectangular hearth of a double row of tuyeres, each tuyere being placed so as to be between two of the opposite side, in the manner and for the purpose substantially as specified.

Third, The arrangement of one or more fire-places, and a series of fire-flues under the bottom and through the walls of the furnace, A, constructed and operating in the manner and for the purpose substantially as set forth.

Fourth, The slotted air-chambers, substituted for or in combination with the tuyeres and applied to the furnace, A, substantially as and for the purpose described.

43,275.—Holster.—William Tileston, Georgetown, D. C.:

I claim the attachment of the wiper, E E, and the sheath, D D, to the holster, A, substantially as described.

RE-ISSUES.

1,704.—Sewing Machine.—S. Pancoast (assignee of Geo. Fetter), Philadelphia, Pa. Patented Oct. 23, 1960 :

I claim, first, The hook or loop-catcher, N, formed substantially as described and illustrated, the said hook being arranged to revolve around or adjacent to a spool case, and being so situated in respect to the eye-pointed needle, and having such a motion imparted to it in connection with its revolving motion that it will seize the needle thread, carry the same around, or partly around, a spool case, and release the said loop of thread, all substantially as set forth.

Second, The guard, M, or its equivalent, constructed, arranged, and operating on the thread which passes from the spool case to the fabric, substantially as set forth.

Third, The stationary spindle, I, with its disk, J, the hollow spindle, G, and carrier, H, the annular cap, L, and spool case, K, the whole being arranged and operating substantially as set forth.

1,705.—Mode of casting Plow Plates.—F. F. Smith (assignor to himself and the Collins Company), Collinsville, Conn. Patented Nov. 20, 1860 :

I claim, in connection with the making of cast cast-steel plow plates in molds, the opening or loosening up of the mold before the molten metal chills enough to shrink to any extent, for the purpose of relieving the plate or casting, and to prevent it from cracking by the shrinkage of the cast cast-steel in cooling, substantially as herein described.

1,706.—Plow.—F. F. Smith (assignor to himself and the Collins Company), Collinsville, Conn. Patented Nov. 20, 1860 :

I claim a plow the plates of which are made of molten cast-steel, substantially as and for the purpose described.

1,707.—Mode of attaching Door Knobs to Spindles.—Emery Parker, Meriden, Conn. Patented May 5, 1863 :

In combination with a screw-threaded knob, and the screw-threaded angular spindle, I claim the key or clamp piece, b, or its equivalent, fitting a recess in the end of the shank, located entirely within the escutcheon, and concealed thereby from view, in the manner and for the purpose substantially as set forth.

I claim the employment of the independent washer, e, in combination with the spindle, escutcheon, knob, shank, and metal piece, b, when constructed and arranged substantially as and for the purpose described.

1,708.—Buckle.—Frederick Stevens, Harrison Township, N. J., assignee of Luther Fogg, Boston, Mass. Patented June 2, 1863. Re-issued Aug. 11, 1863 :

I claim the connection of the tongue with the surrounding frame by a hinged joint, substantially as described, in combination with its connection with the metallic shank by a second hinged joint back of, and parallel with, the hinged joint by which it is connected with the surrounding frame, substantially as described, whereby the tongue can be made to liberate the end of the strap independently of the bending or yielding of the connection between the shank and the strap, or other article to which it is to be attached.

I also claim the curved or bent frame having the inner face of the cross bar, b', sloping or beveled, or of equivalent form, in combination with the griping tongue, substantially as described.

And I also claim grooving the griping end or the tongue, substantially as described, when combined with the surrounding frame, substantially as described.

DESIGNS.

1,964.—Lady's Hat.—Wm. E. George, Wentham, Mass., assignor to Joseph Cowell.

1,965.—Plate of a Cook's Stove.—Garrettson Smith & Henry Browne (assignors to J. G. Abbott and C. Noble), Philadelphia, Pa.

Notes and Queries

P. D. G., of N. Y.—You cannot straighten your circular saw by hammering. The face of the hammer, or drop, as well as of the anvil, must be equal in extent to the size of the saw. Manufacturers of circular saws are provided with tools of this description.

B. O., of N. Y.—Chloride of nitrogen is made by passing chlorine through salammoniac. Great caution is requisite to avoid accidents.

L. M. R., of Ohio.—Caloric engines are not made large enough to operate flour mills. They are used chiefly when small power is needed.

J. M., of Pa.—We presume you can obtain rifle barrels of the kind you mention by addressing Messrs. Blunt & Sym, of this city.

G. C., of N. Y.—Plow-shares are painted with blue paint, and varnished.

A. Van V., of N. Y.—The mode of setting your boiler is defective in one point; that is the smoke-box, or more properly the combustion chamber at the end. The boiler is but 13 feet long, and you have a smoke-box at the end 12 feet long. The gases evolved from burning fuel ignite only at certain temperatures, and your smoke-box is so long that the gases aforesaid get so cool that they pass out through the flues unconsumed. Shorten your smoke-box one-half at least; and you may make it even less with benefit. Try it six feet long first. Otherwise your boiler is well set.

E. J. B., of Ohio.—It takes time to burn gunpowder as it does to do anything else. If you will put a very large charge in a gun and fire it over snow, you will find unburned grains on the surface of the snow. The quantity that will burn in a gun depends upon the length and caliber of the gun, the quality of the powder, the size of the grains, and other conditions, all of which perhaps are not understood.

T. N., of N. J.—The proper proportion for cement pipe is one of water cement to three of sand. Gravel from the size of a pigeon's egg down is better than fine sand, and it must be perfectly clean and free from mold or vegetable matter. The cement and sand must be thoroughly mixed before the water is added, and it must be used immediately after mixing. The most common cause of failure is a poor quality of cement.

O. H. R., of N. Y.—We know of no oil that can be burned with a blow-pipe without smoke or smell. A lamp that would burn kerosene in this way would be a valuable invention, now that alcohol is so high. Probably all that is required is a thorough mixing of air with the vapor of the oil.

G. B. S., of Canada.—If you are a Canadian the patent fee will be $500, to be paid at the time the application is made.

F. P. C., of Mass.—Some time ago we gave the rule for calculating the horse-power of a steam-engine as follows :—Square the diameter of the cylinder and multiply the product by 7854, this will give the number of inches area in the piston. Multiply the area by the pressure of steam and the number of feet the piston travels per minute. This must be divided by 33,000, which is supposed to be the standard for a horse-power. It seems that some have misunderstood this simple matter, and one subscriber asks whether a stroke is one movement of the piston or *two*. If the