

transmutation from the crystalline to the fibrous state, the stronger and more durable it will be, whether as regards its subjection to the action of fire, to attrition, or mechanical stress—in the character of engine grate bars, wagon way-rails, tye bars, &c.—*Thompson's Colliery Inventions and Improvements.*
Lond. Mech. Mag.

List of American Patents which issued in the month of March, 1847, with Exemplifications, by CHARLES M. KELLER, late Chief Examiner of Patents, in the U. S. Patent Office.

1. For an *Improvement in the manufacture of Welded Iron Tubes*; Thomas Henry Russel, of Great Britain, March 6.

This is for an improvement in the method of welding iron tubes by the pressure of rollers. As heretofore done, the pressure to which the tube was exposed for welding, tended to separate the joint. To avoid this, the under roller is dispensed with, and instead thereof a rod is inserted within the tube, and called the beak, and this is bent up and enlarged at the forward end to form a rest against which the seam rests while under the pressure of the roller.

Claim.—“I claim the pressure roller which makes pressure on the cap joint for welding, in combination with the beak that resists the pressure of the rollers; when this beak is made of less diameter than the inside of the tube, and bent upwards to sustain the lap joint under the roller substantially as described, whether it be sustained by its attachment at the outer end alone, or by the under rollers as described, and placed between the point of the beak and its attachment.”

2. For an *Improvement in Folding and Measuring Cloth*; Elbridge G. Woodman, North Chelmsford, Middlesex county, Massachusetts, March 6.

We are under the necessity of omitting the claim as it could not be understood without the drawings.

3. For an *Improvement in Folding and Measuring Cloth*; Arnold R. Austen (assignor to Simon D. Glines), Providence, Rhode Island, March 6.

Claim.—“I claim as my invention the employment of a horizontal sliding lathe, with measuring and folding scales or bars that fold and deposit the cloth in layers of one yard or any other exact measure, also the use of *receivers* or *holders* that operate in connexion with the sliding lathe to receive and firmly hold from slipping, the successive layers of cloth as they are distributed by the folding scales.

“Also the use of a compressible bed or platform on which the cloth is deposited, that operating in connexion with the sliding scales and receivers, shall gradually lower to make room for the cloth as it is folded thereon.”

4. For an *Improvement in Ploughs*; Emanuel Albert, East German-town, Wayne county, Indiana, March 6.

The patentee says,—“The nature of my invention consists in the following arrangement, viz: to have at the upper part of the mould-board and guard-plate, cast solid with the same, flanches in right angle, —the one to the right, the other to the left, in a manner, that when the mould-board and guard-plate are fitted together, the flanch of the one to be covered by the flanch of the other, and permanently fastened together by a screw bolt.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, are the two flanches which connect together by the screw bolt permanently the flanch of the mould-board with the flanch of the guard-plate, as described.”

5. For an *Improvement in Coal Stoves*; John T. Davy, Troy, Rensselaer county, New York, March 6.

This invention relates to the manner in which the smoke, &c., is conducted from the fire, and the arrangement of the flues incident thereto.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the combination and arrangement of the flues with the cylinder, so as to take the draft off on each side, directly at the top of the fire, and cause it to descend, thence ascend the corner flues, as described, the stove having an opening in the top for fuel as set forth.”

6. For an *Improvement in Planing, Tonguing, Grooving, &c., Plank*; John Cumberland, Mobile, Alabama, March 6.

The patentee says,—“The nature of my invention consists in passing the board or plank to be reduced and planed first under a roller or rollers, whose surface is composed of a series of sharp edges, parallel with the axis, to form cutters, which, in rolling over the board, makes cuts in its surface of the required depth, and at distances apart equal to the spaces between the cutting edges; and then in shaving off the projections thus formed by means of one or more plane irons, leaving the surface smooth, whether these operations be performed by carrying the roller or rollers and plane or planes over the board or plank placed on a permanent platform, or whether this be fixed or connected with a permanent frame and the board or plank be carried to and by them by means of a carriage.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the method of reducing boards to equal thicknesses, or widths, by passing them under the action of cutting or scoring wheels, which cut into the surface, substantially as herein described, when this is combined with another cutter or cutters, which cuts off the parts scored or indented, substantially as herein described.

“And I also claim in combination with this, a smoothing plane or planes for smoothing or shaving the surface, substantially as herein

described. And I wish it to be understood that I claim this method of reducing and planing plank, or boards, &c., whether for planing the surface, tonguing, or grooving, or cutting mouldings."

7. For an *Improvement in Hanging Carriage Bodies*; John Maxson, De Ruyter, Madison county, New York, March 6.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, arranging the helicle springs that support the carriage horizontally and lengthwise along the bottom of the carriage, when this is employed in combination with the four levers having their arms at right angles, or nearly so, to form the connexion between the springs and carriage body, and frame of the running gear, the whole being constructed and arranged substantially as herein set forth."

8. For an *Improvement in Cotton Cleaners*; Robert M. Livingston, City of Mobile, Alabama, March 6.

Claim.—"What I claim as my invention and improvement, and for which I desire the exclusive privilege and right, is for the application of any kind of net or open work material, affixed upon arms radiating from a shaft, to act as a beater or beaters, either with or without a fanner, in the cleaning of cotton, &c."

9. For an *Improvement in Steamboats, and Propellers therefor*; Stephen J. Gold, Cornwall, Litchfield county, Connecticut, March 6.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, first, the employment of side wheels having their shafts parallel with the line of motion, with narrow short paddles in an oblique position on the periphery of the wheel, and all the radial lines of which are perpendicular to the shaft, constructed substantially as herein set forth, and so arranged as to dip the paddle only into the water, in the manner and for the purpose described, the paddles being made to enter and leave the water without obstruction, and with sufficient velocity to prevent putting it in motion, before leaving it, enough to impede the progress of the boat, as above specified.

"Secondly, I claim placing two or more wheels on the same shaft, constructed as above set forth, the lead or angle of the paddles of the rear wheels being increased as herein described.

"Lastly, I claim forming the wheel with two or more arms, projecting down to the periphery of each of the stationary paddles, said arms being embraced by the paddles, which are made in two parts for that purpose, so as to present no obstruction to their passage through the water, while the strength and lightness of construction are fully preserved, and the paddles are perfectly braced."

10. For an *Improvement in Horse Powers*; Jesse Urmy, Wilmington, Newcastle county, Delaware, March 6.

Claim.—"What I claim as my invention, and desire to secure by

letters patent, is constructing the links of the endless chain of a horse power in the manner described, so that they form firm connexions and a permanent axle for the friction rollers, while at the same time they constitute the rack by which the power is transmitted, substantially as set forth, by which means the use of axles extending through from side to side is dispensed with, while the advantage of the rollers attached to the platform is retained, forming a cheap and efficient horse power."

11. For an *Improvement in Wheels for Railroad Cars*; Godlove K. Kane, York, York county, Pennsylvania, March 6.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is making the spokes which unite the hub and rim of railroad car wheels, each of a plate, one portion of which is parallel with the axis of the hub, and extending from the hub to the rim, and the other connected with the rim, in a line diagonal with the plane of the wheel, and extending from the rim to the hub, the first gradually diminishing in width from the hub to the rim, and the other gradually diminishing from the rim to the hub, substantially in the manner and for the purpose described."

12. For an *Improvement in Cutting Corks*; Philip C. Traver, Newburgh, Orange county, New York, March 6.

The patentee says,—“The nature of my invention consists in cutting corks in the form of a frustrum of a cone, or cylinder, from a sheet of cork (fed by hand or machinery) by means of a cutter fastened to the periphery of a hollow mandrel having a compound longitudinal and rotary motion around a centre or axis of a cylindrical sliding holder, inserted into a corresponding aperture in the mandrel, and bearing upon the sheet of cork, in which hollow mandrel is placed a spiral spring, bearing against the upper end of the holder, the lower end of the holder, guiding the cutter at the required angle to give the required taper to the cork.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the before-described mode of cutting corks, by means of the aforesaid combination of the hollow mandrel, sliding holder, centerer, and guide—with the cutter for cutting the cork to the required shape—said cutter having a simultaneous, longitudinal, and revolving motion produced by the means described, or other more suitable means, operating substantially in the manner set forth.”

13. For an *Improvement in Refining Pine Oil or Spirits of Turpentine*; Norris L. Martin, Brooklyn, New York, March 13.

Claim.—“I claim refining spirits of turpentine or pine oil, by the use of alkali and water, substantially in the manner set forth.”

14. For an *Improvement in Weaving Wire for Screens, &c.*; Henry Jenkins, Pottsville, Schuylkill county, Pennsylvania, March 6.

Claim.—“I claim as my invention, the apparatus described for weaving the screens from wire so crinkled; said weaving apparatus consisting in the combination of the stretching frame, or blocks, and screws, with the sliding frame, the harness and the sleigh which are attached to the said frame, the whole of which are made to advance from one end to the other of the loom, by means of the lever and its appendages.”

15. For an *Improvement in the manufacture of Screens or Sieves*; Henry Jenkins, Pottsville, Schuylkill county, Pennsylvania, March 6.

Claim.—“What I claim therefore as constituting my invention, and desire to secure by letters patent, is the manufacture of screens, or sieves, from wire of the larger sizes, either rolled or drawn; the wire from which they are made being prepared by crinkling, as set forth, previously to its being formed into meshes, by which procedure I am enabled to manufacture screens with meshes of the largest sizes, say four inches on the side, more or less, and in such manner as that they shall be more durable, and less costly, than those made in the other ways; and this new manufacture of sieves I claim independently of the particular manner of effecting the crinkling, or of interweaving the wire so as to form the requisite meshes.”

16. For an *Improvement in the Steam Cotton Press*; P. G. Gardner, City of New York, March 13 (antedated 13 January).

The patentee says,—“The nature of my invention consists principally in the combination of the platten with the piston rod of a vertical steam cylinder, by means of double toggle-joint levers, and connecting rods, in the manner set forth.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the connecting of the platten with the piston rod through the medium of the toggle-joint levers and the suspension rods; arranged, combined, and operating with each other, and with the wings in such a manner as to bring the reaction of the levers principally upon the cylinder, and the bed piece, substantially as set forth.”

17. For an *Improvement in Cleaning Cotton*; Rozell Needham, Memphis, Shelly county, Tennessee, March 13 (antedated December 21, 1846).

Claim.—“What I claim as new, and desire to secure by letters patent, is the combination of the adjustable hatchel and the skeleton cylinder with each other, and with the rotating beating wings and adjustable open concaves, substantially in the manner and for the purpose set forth.”

18. For an *Improvement in Rack Wrenches*; Zelotus W. Avery (assignor of Benjamin Webb), New Berlin, Chenango county, New York, March 13.

The patentee declares,—“The nature of his invention and improvement to consist in forming the wrench with a cylindrical chamber in its largest end, extending entirely through it, having a circular seat formed around the same for the reception of a number of cylindrical revolving notched cores or nuts of uniform diameter, fitted to said circular seat, having a square or polygonal opening, in the centre of the same, corresponding with the size or shape of the nut or head of the screw to be turned, which is received into said square, or polygonal opening—the said nut being made to turn with the wrench when turned to the left, by means of a pall, attached to the wrench by a pin and spring, and engaged with a tooth of the nut—said pall, when the wrench is turned to the right, slipping back over one or more teeth of the nut without turning it, and being again engaged with another tooth of the nut, and the wrench again moved to the left, causing the nut to turn with it, and to turn the screw to which the nut is applied, and thus by a repetition of the aforesaid operation, causing the screw to turn as many times as may be required without disengaging the wrench therefrom, by simply moving the handle to the right and left in the arc of a circle, vertically, or horizontally, or obliquely, to any degree required, being adapted to the turning of any sized screw, by merely changing the cylindrical nut or core, without changing the wrench circle, and handle, and its appendages—the revolving notched nut or core being held down upon its seat in the circular chamber of the wrench, by a turning catch attached to the wrench and made to overlap the rim of the core or nut.”

Claim.—“I claim as my invention, the peculiar mode or manner of adapting the wrench to the turning of screws, bolts, or nuts, or other articles, made with square, polygonal, or other shaped heads, by means of the changable cores, constructed as above set forth, and represented, in combination with the turning catch for holding the revolving core to its seat, as constructed and operated, as above described.”

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19. For an *Improvement in Breaking and Cleaning Hemp*; F. P. Holcomb, New Castle, Delaware, March 13.

Claim.—“What I claim as my invention, and desire to secure by letters patent is, the combination of the stationary bed brake and the rotary brake, and small scutchers arranged in the manner described, so that the hemp can be fed in by hand, broken, and cleaned with but one handling and at one operation, the breaking and cleaning being done on separate cylinders, but the parts so arranged as that they are brought close together, and so adjusted as to only allow the machine to touch that part of the fibre that is to be acted on, thereby preventing its wear in the machine.”

20. For an *Improvement in Boring Machines*; Jonathan Johnson, Mifflinburg, Union county, Pennsylvania, March 13.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, the manner in which I operate and withdraw the auger and regulate the movement of the carriage, by means of the vibrating post and its arms and lateral projecting concave—the cam and pulley, upon the auger shaft—the pin and tooth, upon the pulley—the spring, the detent and pin, connected to each other,—the vibrating bar and weight—the whole arranged, combined, and operating with each other and with the notches in the side of the carriage, and the weight for moving the same substantially in the manner set forth.”

21. For an *Improvement in Turning, Cutting, and Splitting Stone*; Charles Wilson, Springfield, Hampden county, Massachusetts, March 13.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, the mode of cutting, turning, or splitting stone, or other like material, by means of a revolving cutter, operating in the manner herein set forth.”

22. For an *Improvement in Furnaces for producing Malleable Iron direct from the Ore*; Alexander Dickerson, Newark, Essex county, New Jersey, March 13.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, the method of making malleable iron direct from the ore, by combining a chamber containing the charge with a closed fire containing a continuation of the charge and the loop formed therein, arranged below and communicating with the same, provided with a suitable opening, closed by a door, for the introduction of a portion of the charge, and for excluding the air therefrom; and with movable bars for holding up the charge in the upper chamber whilst burning down the charge in the lower chamber and taking out the loop therefrom at the door, substantially as above described and set forth.”

23. For an *Improvement in Air-tight Stoves*; John S. Marll and William J. Ogden, Georgetown, District of Columbia, March 13.

Claim.—“What we claim as our invention, and desire to secure by letters patent, is, the arrangement of the hot air chamber and tubes in combination with the radiating pipes and division plate with its valves, substantially in the manner described.”

24. For an *Improvement in the Method of Producing Rectilinear Reciprocating Movements for Planing Machines, &c.*; Moses Ingalls, Burlington, Bradford county, Pennsylvania, March 13.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, the method, substantially as herein described, of

giving to the carriage a reciprocating rectilinear motion, in combination with the lateral motion at each end of its course, by means of the straight grooves in combination with the diagonal grooves at each end and the spring switches, substantially as described.

"And I also claim, in combination, the method, substantially as described, of giving the reciprocating motions of any desired extent, and greater than the circumference of the actuating pinion, by placing the two racks on each side of a plain at right angles to the axis of the pinion, in combination with the pinion, having cogs entirely around its circumference in the middle of its length, and segments of cogs on each side as described."

25. For an *Improvement in Cast Iron Plough Clevises*; John Van Brocklin, Middleport, Niagara county, New York, March 13.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, the construction of a double-gaged, cast-iron clevis, substantially as described."

26. For an *Improvement in Clocks*; John S. Greig, Walden, Orange county, New York, March 13.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, the pendulous plate, together with its ball or weight and the cylindrical stud."

27. For an *Improvement in Combing Wool*; C. G. Sargent, Lowell, Middlesex county, Massachusetts, March 13.

We extract the following from the specification:—"The nature of my invention consists in attaching the comb teeth to a series of plates that are caused to slide along in front of the cylinder of cards, and a pair of rollers for the fibres to be acted upon, and stripped from the teeth, and then are shifted in a parallel position to slide back to the end from whence they first started, and there shifted back to pass along as at first; a hollow box through which steam or heated air circulates being placed between the comb teeth and the cylinder of cards, and a little below the points of the comb teeth, for the purpose of keeping the fibres at the required temperature while under operation in the machine."

Claim.—"What I claim, therefore, as my invention, and desire to secure by letters patent, is, making the series of plates that carry the comb teeth continuous in their action by transferring them at each end from one groove or set of ways to another, and back again, substantially as herein described."

28. For an *Improvement in Shirt Bosoms*; Madelin Tassie, Brooklyn, King's county, New York, March 13.

Claim.—"What I claim as my invention and improvement, and desire to secure by letters patent, is, the self-adjusting quality or

property the bosom possesses by the addition and application of the yoke and elastic strap described, which belong to no other bosom."

29. For an *Improvement in Looms for Weaving Brussels Carpeting*; Erastus B. Bigelow, Boston, Massachusetts, March 20.

We could not, without drawings, give a clearer idea of these improvements than will be derived from the following claim :

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, giving to the two parts of the mechanism, that which weaves the cloth or forms the body of the fabric, and the one which operates the figuring wires, a separate and distinct organization, substantially as described, when these are connected and combined by an intermediate mechanism which shifts the motive or driving power from one to the other, substantially as described; and in combination with this, I also claim the employment of the two brakes to arrest the momentum of the moving parts to prevent any conflict in the operations of the two parts of the mechanism, as described.”

“I also claim the method, substantially as above described, of taking the figuring wires and transferring them one by one to the apparatus which introduces them under the figuring warps, as described.

“And finally, I claim the method, substantially as described, of carrying and dropping the figuring wires under the figuring warps by means of a sliding box or its equivalent which supports the wire, as described.”

30. For an *Improvement in Looms*; James Haworth, Frankford, Philadelphia county, Pennsylvania, March 20.

The patentee says:—“My improvement is designed to remove the friction of the shuttle against the “*swett lever*,” and thereby to reduce the power required to operate the loom.

“Beside the aforesaid object, I also, by my improvement, effect another important object, namely, running the loom backward or in a contrary direction, without the use of the shuttle, when the loom is not performing the operation of weaving.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, is, the mode of relieving the pressure of the swett lever against the “*shuttle*” by means of the combination of the additional finger with the *stop-rod* and *lathe-arm* and pin, or any other combination substantially the same.”

31. For an *Improvement in Preventing Explosions of Steam Boilers*; Alfred Stillman, City of New York, March 20.

The patentee says:—“The nature of my improvement consists in the use of a tube, one end of which is stopped by fusible metal, and rests upon some part of the boiler liable to be overheated from a deficiency of water, while the other end opens through the external part or shell of the boiler to allow the escape of steam to give alarm to the person

in attendance, whenever the fusible metal should become melted by the overheated boiler, and so arranged that the issue of steam may be stopped at pleasure, and the fusible metal subsequently restored to its place with very trifling labor or detention."

Claim.—"What I claim, and desire to secure by letters patent, is, the application to steam boilers of a tube, constructed for the purpose, or in the manner herein described, and stopped with a cap, or any other shaped piece of fusible metal resting upon a part of the boiler liable to become overheated in the absence of a proper supply of water, and designed for the purpose and objects herein substantially set forth."

32. For an *Improvement in Knitting Machines*; Joseph Vickerstaff (assignor of A. Cummings and W. S. Haines), Philadelphia, Pennsylvania, March 20.

The nature of this invention consists in forming the loops from a series of warps, by means of a series of needles arranged in a circle, and parallel with each other, made to slide within a ring, that answers the purpose of a presser, so that the threads which are to form the new loops shall be caught under the beaks of the needles, before they are closed by the presser ring, to allow the previously formed loops to pass over and be cast off; the bobbins and guides being made to travel around the needles, or to vibrate back and forth alternately, according to the design of the figure to be produced.

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, the arrangement of the needles in a circle, and parallel with each other, or nearly so, in combination with the pressure ring, by means of which the beaks of the needles are closed to hold the new, and cast off the previously formed loops, substantially as described; and this I claim in combination with the inner tube over which the woven fabric hangs, as herein described.

"I finally claim the rotary table which carries the warps and guides, in combination with the needles, arranged as described, whereby the warps can be carried around continuously in one direction, or alternately in opposite directions, for the purpose and in the manner, substantially as described."

33. For an *Improvement in Steam Engines*; Wilson Eddy (assignor of S. Norris), Springfield, Massachusetts, March 20.

Claim.—"What I claim as new, and desire to secure by letters patent, is, the combining together of two cylinders, an exterior and an interior, as herein set forth; the exterior cylinder being permanently attached to the engine in the ordinary way, and the interior cylinder being removable at pleasure, as herein fully made known."

34. For an *Improvement in Cut-off for Steam Engines*; Horatio Allen, City of New York, March 20.

Claim.—"What I claim in this improvement, is, placing the *fulcrum*

of the lever, which carries the cut-off slides, *on the rod* carrying the main valve, or on some part having the same motion as the main valve, substantially in the manner set forth."

35. For an *Improvement in Steam Valves*; Henry H. Grame, City of New York, March 20.

The patentee says:—"The nature of my invention consists in the introduction of independent valves in the ordinary 'steam chest for sliding valves,' with means of connecting or disconnecting them to the slide valve, operating, when connected, in such a way as to prevent any further ingress of steam within the cylinder after the piston has passed through a certain part of its stroke, and when disconnected, allowing the steam to work through the whole stroke of the piston."

Claim.—What I claim as my invention, and desire to secure by letters patent, is, the peculiar manner of connecting and combining the cut-off valves with the main valve, the hooks, rockers, and the stops; the said several parts being contained within the steam chest and worked by the main valve, operating and combined in the manner and for the purpose set forth."

36. For an *Improvement in Journal Boxes*; James Old, Pittsburg, Pennsylvania, March 20.

Claim.—"What I claim as my invention, and wish to secure by letters patent, is, the making of a frame, shell, or concave (for confining metals or alloys), by itself, separate from the box for journals of shafts in machinery, and using the same for lining the box, by fastening it in some way thereto, so that the same may be applied to every kind or shape of a box, whether of brads, iron, wood, or anything else, and on or to plain surfaces; and so that when it is worn out, it can be replaced thereon or thereto almost indefinitely by a new one, thereby causing a vast saving in the number and cost of boxes."

37. For an *Improvement in Heating Ovens*; P. Grouville, L. U. Mouchet and E. Mouchet (assignees of B. Rodrigues), France, March 20.

The inventor says, in his specification:—"The nature of my invention consists in the employment of air as a vehicle to convey caloric to the oven from an air chamber heated by furnaces, so that the same air circulates from the air heating chamber, under and through the oven, and when it has been partly condensed and its specific gravity increased, by giving out its contained caloric, returns back, through another set of flues to the air heating chamber, there to be reheated, thus keeping up a constant circulation, from the air heating chamber, around, and through the oven, and back again to the air heating chamber, instead of heating ovens by the circulation of air heated on its passage through a heated chamber, around the oven, or through it, and then escaping into the atmosphere. And also in combining with the above mode of heating ovens, an arrangement of fire chambers

without grates and ash pits, and with an arrangement of flues and dampers for heating the air, and to assist in heating the oven, on the principle of returning the products of combustion to the fire chamber, that is fire chambers, flues, and dampers, so arranged that the products of combustion, by the closing of the dampers, are returned to the fire chambers to consume the combustible gases, &c., and to retain the heat within the furnaces and flues, except when an active combustion may be required. And also in so arranging the flues through which the smoke and other products of combustion pass as to increase the temperature of the air as it circulates through a series of passages, under the bottom of the oven to heat it, and thus increase its rarefaction, and cause it to ascend into the oven."

Claim.—"What we claim as our invention, and desire to secure by letters patent, is, the method described of heating ovens by the circulation of air through them from a heating chamber, combined with the oven by two sets of flues, one for the ascending current or currents, and the other for the descending current or currents, by means of which the air, after being heated, passes up through the oven, and becoming specifically heavier, than the ascending current or currents, by giving out a portion of its caloric, descends to the heating chamber to be again heated, and then again to pass up to, and through the oven, and so on; the hot air or heating chamber not being provided with any aperture for the admission of fresh air to it whilst in operation. And I also claim, in combination with the above mode of heating ovens, by the circulation of heated air through the oven, the arrangement of furnaces, flues, and dampers, as herein described, operating on the principle of the air-tight stove, by means of which combination, the desired temperature can be maintained within the oven at a small expenditure of fuel, whilst the apparatus possesses the capacity to attain the temperature required, as described. And we also claim arranging the main and return flues for the passage of the smoke and other products of combustion directly under the chamber through which the heated air circulates to heat the bottom of the oven, by means of which the rarefaction of the hot air is increased, to cause it to ascend into the oven, as herein described."

38. For an *Improvement in Foot Stoves*; George H. Thatcher, Ballston, New York, March 20.

Claim.—"What I claim, is the peculiar construction of the apparatus for surrounding the feet with a thin stratum of heated water, as above described. And I claim in combination therewith, the adjustable heater, arranged and operated in the manner and for the purpose set forth."

39. For an *Improvement in Pumps*; Ralph Bulkley, City of New York, March 20.

The patentee says,—"The nature of my invention consists in the application to, and combination with, vessels' stepped pumps, a verti-

cally applied indentation or indentations, on the *outer* surface of the pump, extending upwards from or near the lower end of the pump, to any required distance, about four or five feet, upwards, more or less. These indentations may be made by fluting, or by grooves, or by battons placed at suitable intervals; and these indentations may extend entirely around the pump, or around any required section of it. And *through the projections* so formed by fluting, grooving or by battons, *transverse indentations*, or orifices are to be made, sufficient to form a *communication* for water from *each* indentation to the others; and one or more of the *vertical* indentations are to extend to and communicate with, the *lower* or receiving *orifice of the pump*; and those *not* so communicating, are to have a *stop-water* at foot; leaving only the horizontal or transverse communications open; around these transverse fluted indentations, downward, in sections, or entire, including the main orifice, is to be applied, appended thereto, a metallic, or other covering, containing small *perforations*, so that water may pass through into the indentations on the outer surface of the pump, to the receiving orifice; so that if the *covering* at the lower end of the pump should become "choked" or clogged by swelled grain, or otherwise, the *water* would rise upon the pump, until it found an *entrance* into the indentations or transverse flutes; and in the outer canals formed thereby, the water will pass *downwards* unobstructed, into the receiving orifice of the pump; the object of which is, to preserve an *unobstructed* passage for water to the orifice of the pump, though the lower end and lower part of the pump become "choked" and clogged with swelled grain or otherwise; a casualty of common occurrence, arising from a *variety of causes*, by which the pumps frequently, at times most needed, become *useless*, endangering life and property."

Claim.—"What I claim as my invention, and desire to secure by letters, is the application to, and combination with, vessels' pumps, the indentations and appendages connected therewith, as herein described, for the objects and purposes herein set forth, using, therefore, any description of material that will effect the object."

40. For an *Improvement in Screening Grain*; John Bamborough, Lancaster, Pennsylvania, March 20.

The patentee says,—“The nature of my invention consists in the construction and arrangement of the screens for screening the grain from cockle, &c., and conveying it off separate from the grain, while it is susceptible of being converted into the common riddle fan at pleasure.”

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the combination of the screens and cockle boards, arranged substantially in the manner and for the purpose set forth.”

41. For an *Improvement in the Expansion Joint for Steam Engines*; Henry R. Dunham, New York, March 20.

Claim.—“What I claim as my invention, and desire to secure by letters patent, is the application of a plate of flexible metal in a steam pipe between two flanches of different diameters, the yielding of which plate shall give sufficient room for the expansion of the pipe, thereby avoiding the necessity of using stuffing boxes, or the ordinary copper hemispherical ring joint, for side pipes of steam engines.”

42. For an *Improvement in Looms*; Lawrence Holmes, Anderson, Essex county, Massachusetts, March 27.

Claim.—“What I claim as my invention, is the peculiar manner of producing, by means of the jacquard apparatus, a double draught upon each of the harnesses; in other words, I claim the peculiar punches and bars (connected with the harnesses as described) as combined together, and with the remainder of the jacquard apparatus and with the harness, and constructed and operating therewith, substantially as described.”

43. For an *Improvement in Carriages*; A. W. Forward, Georgetown, Kentucky, March 27.

Claim.—“The improvement which I claim, and for which I desire letters patent, is the converting of a two horse carriage into a one horse carriage, by separating the fuchels, and the branch stays, which is done by removing the four bolts described.”

44. For an *Improvement in Furnace Bars*; John H. Fellows, Cincinnati, Ohio, March 27.

The patentee says,—“The nature of my invention consists in an improved furnace bar as follows, viz: first, the common bar is generally made flat on the surface, but the present invention has two longitudinal grooves, and a raised centre ridge between them. The grooves fill with ashes from the fire of either coals or wood, as the case may be, which being a nonconductor of heat, keeps the bar from melting, while the raised centre ridge must always keep the same cool. Second, the raised centre ridge always prevents the possibility of drawing the ashes out from the grooves in the bar, when clearing the fire with the poker, which is requisite to keep the space between the bars from filling up with clinkers, and thereby stopping the draught; hence, the ashes always remaining in the grooves, protected by the centre ridge, keep the middle of the bar cool. It cannot therefore warp or get out of its place, like the old bars. Third, in putting out the fires of either steam boats or land furnaces, which is desirable when the engine stops, to save fuel, and the time of the hands—bars frequently break down as soon as cold water is thrown on the fire—not so with the present invention; cold water thrown on them makes the bed of ashes firmer in the grooves, and the bars are not injured by

being suddenly cooled, like the common ones. Fourth, the bars now in general use are made double, so that when hot, should one side give way the other must follow. This is avoided by the present invention, being a single bar which also gives a further advantage, as they can be placed at any given distance from each other, so that by widening the space, give an additional draught, which is desirable, and more particularly with low furnaces."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is the application of two grooves and a central ridge to furnace bars, in the manner described above."

45. For an *Improvement in Augers*; Alfred Newton, L. B. Smith, and E. Sanford, Meriden, N. Haven county, Connecticut, March 27.

Claim.—"What we claim as our improvement and invention, and desire to secure by letters patent, is the making or constructing double or single twist augers, with a gradually increasing length of twist, and consequent gradual enlargement of cavity, from the lower or cutting end to the other extremity of the twist."

46. For an *Improvement in Pneumatic Hydraulic Engines*; Joseph C. Strode, East Bradford Township, Chester county, Pennsylvania, March 27.

We are informed by the patentee,—“The nature of this invention and improvement consists in making use of a column of condensed air between the propelling fluid, and the fluid that is to be raised—said air being condensed in a pyramidal shaped chamber, by means of the momentum of a descending column of water—said chamber having a communication by a small opening at its top with another chamber into which the spring water, or fluid to be raised, is introduced, called the spring water chamber, and upon which the condensed air in the first named chamber is made to act, causing said fluid to rise through a tube placed in the spring water chamber, (open at its lower end, and closed alternately at its upper end, by means of a valve,) into a large air vessel, or receiver, of the usual form and construction, being conducted thence to its place of destination, by pipes or hose, in the usual manner.”

Claim.—“What I claim as my invention, and wish to secure by letters patent, is, first, making use of a column of condensed air between the propelling fluid—and the fluid to be raised in the manner above described, or other mode substantially the same by which analogous results are effected. Second, I claim the particular combination of the pyramidal air chamber, the internal spring water chamber, and the water tube with the curved conducting pipe and valve, and the air chamber and hinged valve, constructed and arranged in the manner and for the purpose substantially as set forth.”

47. For an *Improvement in Bobbin Stands*; Noah C. Piram, Boston, Massachusetts, March 27.

The patentee says in his specification,—“My improvement in said stand consists in combining with it, and also with the cap piece, vertical lips or flanches, one of which is made to extend entirely around the lower head of the bobbin, and to rise up above the lower surface of the said head. The other flanch in a similar manner extends downwards from the cap plate, and around the upper head of the bobbin, and below the upper surface of the said head. The object of the said flanches is to prevent the twine on the bobbins from either passing between the lower surface of the lower head of the bobbin, and the upper surface of the base, or between the upper surface of the upper head of the bobbin, and the lower surface of the cap piece, as it very often does in the ordinary bobbin stand, and by so doing either becomes entangled, or so wedged between the surfaces in opposition, as to render it nearly, if not entirely impossible to rotate the bobbin, until the cause of the difficulty is removed.”

Claim.—“What I claim, is the lip or flanch as applied to, or combined with, the base or cap piece, and arranged with respect to the bobbin, in the manner and for the purpose as above specified.”

48. For an *Improvement in Steam Engines*; Charles Galvani (assignor of John Clark), City of New York, March 27.

The patentee says:—“The nature of my invention consists in combining a rotary engine with an annular furnace, the revolving rim of the engine being heated so that when water is forced into it, it shall be flashed into steam which passes round through the cylinder and thence issues through an orifice on one side at a tangent to the wheel.”

Claim.—“What I claim as new, and desire to secure by letters patent, is, the combination of the engine, constructed substantially as described, with a furnace in which it revolves, and which generates the steam with which it is driven, all as above set forth, by which what is denominated flash steam is employed in a rotary engine.”

49. For an *Improvement in the Steam Cross Cut Saw*; Lewis Kirk, Reading, Berks county, Pennsylvania, March 27.

The nature of this invention consists in attaching a cross cut saw to the cross head of a steam engine, hung on trunnions, in a frame, the ways on which the cross head slides being attached to the head of the cylinder, and the same passing through a guide at the end of the ways, so that by this arrangement the saw is operated directly by the piston rod, and is at liberty to move down through the log as it cuts, in consequence of having the engine hung on trunnions. My invention also consists in reversing the direction of the steam ways that connect the steam chest with the ends of the cylinder, in combination with the two tappets on the valve rod, which are struck by the cross head to shift the valve towards the end of each stroke, by means of which arrangement I am enabled to dispense with the rock shaft heretofore

employed in all engines which operate the valves by the direct reciprocating motion of the piston. And, finally, my invention consists in coupling the trunnions of the cylinder (which are hollow for the introduction and escape of the steam) with the steam and exhaust pipes, by having a cylindrical fillet on the end of each trunnion fitted to an annular cylindrical groove in the end of the steam and exhaust pipe, so that by putting packing in this groove, it can be forced up against the end of the fillet to make a steam-tight turning joint by means of coupling screws which pass through the flanch of the pipe, and a collar that turns on a groove cut in that part of the periphery of the trunnion which projects beyond the boxes in which it turns."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, first, combining with a steam engine, that is hung on trunnions to admit of its vibration as herein described, a cross cut saw attached to the cross head of the piston rod, as described, whereby the saw can receive its longitudinal motions to cut an up and down motion to pass through the log as it is cut, and to be lifted up preparatory to another cut, substantially as described."

50. *For an Improvement in Reducing and Bleaching Straw and other Fibrous Substances*; Lemuel W. Wright (citizen of the United States, residing in London), March 27.

The patentee says:—"These improvements consist, firstly, in the novel arrangement and construction of the several parts of the machinery or apparatus employed, and in the application of the same to the process of reducing and bleaching straw and other fibrous substances (such as wheat, oat, rye, barley, or rice straw, wood, and jute weed, commonly called *larat*, as well as various kinds of grass and Indian corn, leaves and husks, &c.), to be used for the manufacture of various kinds of paper, mill board, card board, button board, &c.; secondly, in the particular machinery or apparatus for cleaning and washing all the dirty and extraneous matter from the straw or other fibrous substances. Thirdly, in the peculiar adaptation of the machinery or apparatus used or employed for reducing or grinding the same into a state of pulp by means of heavy rollers revolving on a plate. Fourthly, in the continuation of the washing of the fibrous substance in the pulpy state, and in the peculiar apparatus or machinery employed for the purpose of boiling the same by steam. And fifthly, in the machinery or apparatus for washing the pulp from the boiling process for performing the souring and chloride processes, and thus perfecting the operation of bleaching the pulp ready for use, as hereinafter described."

Claim.—What I claim as my invention, is the combination and arrangement of the respective parts of the apparatus, as described, by which the straw or other material is subjected in succession to the boiling, washing, and bleaching processes, the respective vessels, the tubes for the conveyance of water and steam and for the transference of the material, and the apparatus for reducing it to pulp, being arranged and operating substantially as herein set forth, by which

means the complete preparation of the paper pulp is effected more economically than heretofore. I likewise claim the construction of the apparatus for converting the pulp into paper, or mill board; said apparatus consisting of a water tight box, and of a deep frame the movable bottom of which constitutes the paper mould; said box, frame, and mould being in the arrangement of the parts and its operation, such as is herein described and represented."

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51. For an *Improvement in Ditching and Fencing*, Elhanan W. Thomas, Chicago, Illinois, March 27.

Claim.—"What I claim as my invention, and wish to secure by letters patent, is the combination of two ditching machines in the manner described, so that the sods cut from two parallel ditches shall be elevated and placed with the grass out in a continuous ridge between said ditches at one operation, in the manner and for the purpose set forth."

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52. For an *Improvement in Raising Water on Bars, Shoals, &c., for rendering them Navigable*; Waller Harris, Richmond county, Georgia, March 27.

"The nature of my invention," says the patentee, "consists in concentrating the water on the channel of streams when at or near low water mark, or below navigable point, by means of fixtures extending from one or both edges of the stream, according to circumstances, and rendering them navigable."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is, the method of obtaining a line at right angles to the current of a stream, for the erection of eddies, piers, or other fixtures, employed in deepening streams, by means of the floating apparatus, provided with shafts and turning on the post, in the manner described."

MECHANICS, PHYSICS, AND CHEMISTRY.

Abstract of a Lecture on the Decomposition of Salts by Hot Steam. Delivered before the Pharmaceutical Society, London, February 9, 1848. By PROFESSOR E. SOLLY, F. R. S., F. G. S., &c.

That steam possesses considerable powers in effecting the decomposition of many substances has long been known; but the extent of these powers, the mode in which they act, and the effects to which they give rise in nature, are very little known: it was the object of this lecture to draw attention to this kind of decomposition, and to illustrate some very curious phenomena produced by it.

In introducing the subject, the Lecturer briefly adverted to the mode in which chemical affinity acts, and the two great changes, of combination and decomposition, to which it gives rise; the latter taking