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### Steel Castings.

A method has recently been devised by which wrought iron can be melted, and poured into molds, producing castings which retain all the toughness and qualities belonging to wrought iron. Scrap or wrought iron may be employed, or bars or plates cut into small pieces, these being melted in crucibles such as are used for melting blistered steel. To a charge suitable in amount to the crucible, one-half of one per cent. of charcoal, (by weight,) one per cent. of manganese, and one of red ammonia are added. The whole is covered from the atmosphere and melted in a temperature of about fifteen hundred degrees Fahrenheit, which temperature is maintained for three hours. The metal is then poured into molds. The iron thus cast is so malleable as to be capable of being treated under the hammer in the forge, and thus part of the iron may be shaped in molds and part completed by forging, producing ornamental work.

[The above is copied from an exchange, and we consider it a good recipe for converting wrought iron into cast steel. Any one who may try the experiment will find it to produce a good result. Let them smelt all the given ingredients in a crucible, skim off the scoria, and pour out the metal into ingot molds, and they will find very good cast steel.

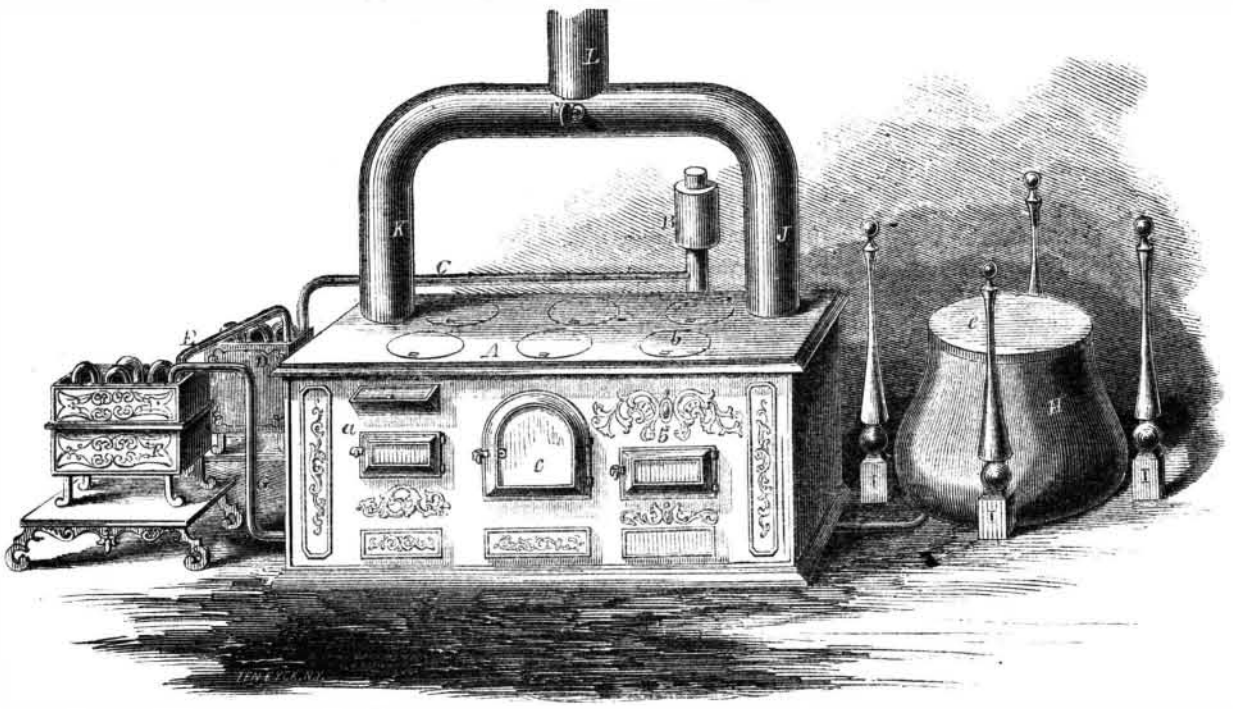
### Russia Sheet Iron.

It is a popular notion that the process of manufacturing the tenacious and glossy "Russia sheet iron" is a profound secret and that the vigilance of the Russian government and the Russian manufacturers has hitherto successfully prevented all foreigners from obtaining the slightest information on the subject. The present Commissioner of Patents, in his last report, also alludes to the manufacture of this article as one of the great unsolved problems in science, which the industrial interests of the country require should be explained.

Mr. Wells, in his recent work, "Principles and Applications of Chemistry," states that this current belief has no foundation in fact, and that the method of preparing the iron in question is perfectly well known. According to the authority quoted, "Russia sheet iron is, in the first instance, a very pure article rendered exceedingly tough and flexible by refining and annealing. Its bright, glossy surface is partially a silicate, and partially oxyd of iron, and is produced by passing the hot sheet, moistened with a solution of wood-ashes, through polished steel rollers."

Another mythical bubble is thus punctured, and the wonderful story of guarded founderies and ever-watchful officials, as connected with Russia sheet iron, will take rank with the account of "Symmes Hole," and the barnicles which turn to Solon geese.—*Exchange.*

## HENDRICKX'S GAS APPARATUS.



There is little doubt that gas, as supplied to consumers in our large cities in charged a most unwarrantable and extravagant price, and very often the quality is not the best. Many methods have been adopted to lower this price, but in most instances have proved unsuccessful, and the only way now left is for such as have large houses, hotels, public buildings, &c., to make their own gas, and prove to the gas companies their independence. In the country, where no gas-works are erected, the ever-dangerous "burning fluid" is used as an illuminating material, and the results, in the form of accidents and loss of life, we read in every newspaper. The most safe, cleanly, and cheap illuminating agent has been unquestionably proved to be coal or other gas, the former being most easily manufactured, and the raw material generally at hand. Many individuals would willingly fit up a private gas-works, but they have not, in the first instance, the room to spare in their garden or grounds, and secondly, few feel inclined to go to the expense of putting up gas-works for their own private use.

In order to enable every family to make their own gas, A. Hendrickx, of this city, has invented the arrangement that forms the subject of our illustration. It is a combination of a cooking range and a gas apparatus, so that the waste heat from the range can be made to aid in the generation of gas, and the coke produced in the retort will, in a great measure, supply the fuel for cooking. The perspective view of the apparatus above may be easily understood.

A is a cooking range, having on its top plate the openings, *b*, for pots and pans, an oven, *c*, and fire door, *a*. This cooking fire is connected by a flue, K, with the chimney, L, so that it is perfectly independent of the retort, and can be used alone when it is not requisite to make gas, the retort being placed through the back of the range on the opposite side of the oven, and its fire door is seen at *b'*. The flue of the retort fire is indicated by J, and communication can be opened between it and L by the damper, *f*, which enables only one or both fires to be lighted and used.

As it is supposed that this apparatus will have to be attended to by domestics who are not used to manage such contrivances, it has been made as simple as possible; and in the pipe which conducts the gas from the retort to the condensers there is a safety valve, B, (on which there is a special patent) the use of which renders explosion almost impossible; and no matter how careless the attendant may be, the retort being once filled with coal, the door closed, and the fire attended to, the apparatus will continue to work with safety and perfection as long as there is any gas in the coal, as, should the gas be generated so quickly as to produce a dangerous pressure in the retort, it will elevate the safety valve—which is simply an inverted cup over a pipe, and surrounded by water—and pass quietly into the air, without any dangerous results. The gas passes from the retort through pipe, C, into the condenser and cooler, D, where it parts with its tarry matters and other impurities, and from that it passes by pipe, E, into another purifier, where the sulphur is separated, and the gas thoroughly cleansed by a special composition adapted to this apparatus. This gas is finally led through pipe, G, into the gasometer, H, placed between the posts, I, which is an india rubber bag of any suitable size, and which is provided with a flat top, *e*, that can be weighted to force the gas to the burners with any desired pressure.

We have seen one of these combination cooking ranges and gas generators at work, and were highly pleased at its economic results. It is free from the many objections which are raised against rosin and rosin oil apparatus, and it is every way adapted to supply large or small houses with that most necessary of all blessings—light.

The patents are dated April 27th, July 27th, and August 3d, 1858. Any further information as to cost, agencies, &c., can be obtained by addressing Hendrickx Brothers, Gas Generating and Cooking Range Co., No. 512 Broadway, New York.

### Animal Curiosities.

The tongue of a cat is a singular instrument. It is her currycomb. For this purpose it is rough, as you will find it if you feel it. When she cleans herself so industriously, she gets off the dirt and smooths her coat just as the ostler cleans and smooths the horse's coat with the curryoomb. Her head she cannot get at with her tongue, and so she has to make her fore-paws answer the purpose instead.

There is one bird that lives chiefly on oysters. It has a bill, therefore, with which is opens an oyster as skillfully as an oysterman can with his oyster knife.

Some birds can sew very well with their bills and feet. There is one bird that sews so well that it is called the tailor bird. Its nest is hid in leaves which it sews together. It does this with a thread which it makes itself. It gets cotton from the cotton plant, and with its long, delicate bill and little feet, spins it into a fine thread. It then pierces the holes through the leaves with its bill, and passing the thread through the holes, sews them together. We believe that in getting the thread through the holes, it uses both its bill and feet.

### Novel Experiment in Ship Building.

The Boston *Journal* describes a steamer which is now being built at East Boston, and is to be propelled in a novel manner. She is built as an experiment, the inventor being furnished with the necessary funds by some of the leading shipbuilders of Boston. The hull is fifty-two feet long, and thirteen feet wide at the stern, and tapers gradually at the bow, which is very sharp. She is five feet deep. On deck she will have a cabin 19 feet long. She will be worked by an engine of 12-horse power, to which will be attached two propellers—one at the stern, three feet in diameter, to work in the water, and one at the stem, eight feet in diameter, to work in the *air*. The air propeller is attached to a shaft which connects with the engine and the water propeller at the stern. It is supported by a post at the stem. Both propellers will be worked by steam. The smoke pipe will lie horizontally on the deck. The inventor is confident that by this arrangement he can easily get 25 to 30 miles an hour speed out of this craft.

The South Carolina Blue Ridge Railroad has a summit of 2,151 feet, passed by a tunnel 5,562 feet long, and approached by gradients of 1 in 75.


**Issued from the United States Patent Office**
FOR THE WEEK ENDING NOVEMBER 23, 1858.

[*Reported officially for the Scientific American.*]

* Circulars giving full particulars of the mode of applying for patents, 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.

REFRIGERATOR—Abel H. Bartlett, of Spuyten Duyvil, N. Y. : I claim the wedge form and position of the ice and water receptacle, D and C', dividing the provision chambers, B B, arranged substantially as and for purposes specified.

SASH FASTENER—John Bestwick, Jr., of Dedham, Mass. : I do not claim, separately, the eccentrics, D, for they or their equivalents have been previously used.

Neither do I claim a sliding spring bolt, f, for they are commonly used.

But I am not aware that eccentric and slide bolt have been used in connection as a sash fastening, and placed in such relation to each other as shown and described.

I claim, therefore, as a new article of manufacture, a sash fastener having an independent eccentric, D, and an independent bolt, f, combined and arranged as shown and described.

[A notice of this improvement will be found in another column.

TRUSS BRIDGES—John C. Briggs, of Concord, N. H. : I claim the application of india rubber or equivalent springs to the compressed joints of truss frames and trussbeams, substantially in the manner and for the purposes described.

DEVICES FOR CLAMPING AND FEEDING THE BOLT IN FELLY SAWING MACHINES—Derwin E. Butler, of Chesterfield, Ohio : I claim, first, The bed, G, arranged with the rods, d d, arms, e e e' e', connected by the bar h, and the spring, H, for the purpose of readily operating the bolt, L, for feeding and removing the same from the saws, as described.

Second, The jaw, J, formed on the bent bar, K, attached to the bed, G, and spring, J, so that the jaw may be operated to grasp the bolt, and the bolt relieved therefrom by the movement of the bed, G, substantially as set forth.

[For more information about this invention see another page.]

MACHINE FOR SPLITTING LEATHER—Henry E. Chapman, of Albany, N. Y. : I claim the arrangement of the dished circular knife, C, the series of split springs, G G G G, and the sliding bed, D, in their relation to each other, as described.

APPARATUS FOR HEATING AND VENTILATING BUILDINGS—William H. Churchman, of Janesville, Wis. : I claim the arrangement and combination of the induction and eduction flues or venti-ducts, K K', the continuation flue of the venti-duct, K', the damper, j, and the registered openings, f g h i, whereby any number of the rarifying drums, D, with their accompanying venti-ducts, K K', may be used at pleasure, either for warming or ventilating alone, or for both at the same time, as described.

[For more information regarding this invention, see another column.]

METHOD OF REGULATING THE WINDING OF TIME-KEEPERS—Jonathan Dillon, of Washington, D. C. : I claim the described method of making springs or coils self-regulating, by the use of the slot and lever, or by any other similar device acting substantially in the same manner, and for the purposes and uses expressed.

BLACKSMITH'S TUYERE—Benjamin E. Dixon, of Marshall, Mich. : I do not claim the mode of protecting a tuyere by the introduction of water, for that has long been known and used.

But having described my improvement, and shown its applicability to water tuyeres, I claim the mode of regulating the length of the discharging orifice in a water tuyere, by means of the oblong tapered wind chamber, A, with grooves or other equivalent device in its casing, in combination with one or more of the tapered plugs, P P, rods, R R, and the detachable cover, D, to be used for the purposes and in the manner substantially as described and set forth.

CHIMNEY CAPS—Charles Douglas, of Cleveland, Ohio: I claim the frame, A A A B, the valves, C C, the cap, D, and the plan of linking the valves and cap together, to give them their proper relative positions, all substantially as described, and for the purposes set forth.

MACHINES FOR BREAKING STONES FOR BALLASTING RAILROADS AND TURNPIKES—A. C. Ellithrope and Ives Scoville, of Chicago, Ill. : We claim the cylinders, A B, constructed with a solid base, C, and sectional shell D D D, when the said shell is made in segments, and dovetailed and secured together, and dressed with teeth shaped and set as described, and when the said cylinders are used for breaking stone for macadamizing or ballasting railroads, &c., substantially as set forth.

PICKER STAFF FOR LOOMS—Samuel Estes, of Newburyport, Mass. : I claim my improved arrangement of the picker staff, D, with the guide, D, with respect to the outer end of the passage. a, the same being substantially as shown in the drawings, and as described.

MODE OF BAKING ARTICLES COMPOSED OF CARBON—DeGrasse B. Fowler, of New York City : I claim the manufacture of articles from a composition of carbon and gas tar, or their equivalents, when treated with pressure and heat, and baked in the presence of lime, substantially in the manner described.

GEARING—G. B. Ganster, of Reading, Pa. : I claim the arrangement on the wheels, E and F, of the plates, A A' A'', rollers or wheels, B B B, plates, D D' D'', and collars, o o o, the whole being constructed and operating in the manner and for the purpose specified.

STRAW CARRIERS—Carlos W. Glover, of Farm Ridge, Ill. : I claim in combination with a series of bars, a b, having the motions described, the spring shield for aiding to guide the stalks or other thing conveyed thereon, and for preventing their falling back or becoming entangled, substantially as set forth.

GEARING—Ebenezer A. Goodes, of Philadelphia, Pa.: I claim providing the wheels respectively with spiral projections, a, and spiral grooves, b, substantially as and for the purposes shown and described.

[A notice of this improvement is given in another column.]

BRICK MOLDS—James A. Hamer, of Reading, Pa. : I am aware that two suspended hand pieces have used. I therefore do not claim such device in itself.

But I claim the two crank rods or their equivalent, as connected with the followers and secured to the frame, and as operated upon by the hand piece, the whole being arranged and combined and operated substantially as described and set forth.

COOKING RANGES—Joshua Harrison, of New York City : I am aware that boilers have been so connected with ranges that the draft of their fires will be downward from the article being cooked; but the heat of such fires has either been conducted directly into the fire of the range, or else into a chimney or flue, and thus to a good degree lost; whereas, by my arrangement, the heat of the broiling fires is applied directly to that part of the range most distant from the main fire, and made most effective where most needed.

I am also aware that double or ventilating doors have been used, I myself having used such; but the orifices on the inside of such doors have been at or near the bottom or top, one or both; but experiments made by myself have proved that the ventilation is most effective, and its effects most desirable, when such inside orifices are not at the bottom or top, but at or near the middle of the doors, as described.

What I claim is, The arrangement and combination of the flues, C and F, with the breaks or parts, G I and 2, substantially as described, and the dampers, f, in connection with the main flues, F F, directly underneath the fire, for the uses and purposes set forth.

I also claim the arrangement of the broiling grates, H H, with the flue, c, for the purpose of applying the heat of such fires directly to and making it effective in heating that part of the range most distant from the principal fire.

I also claim the construction and arrangement of the top plate, D, as described, by which the front and back rails, o o, are made a part of the body of the range, while the central part of such plate is made in separate sections, the back rail being also a base or foundation for the mason work, as set forth.

COOKING STOVES—Richard M. Hermance, of Stillwater, N. Y. : I claim the arrangement of the flue slips, T T', in the chamber, D, in combination with the fire box, A, descending flues, E E', upon the sides of the stove and oven flues under and back of the oven, and exit pipe, C, arranged and operating together substantially as and for the purposes set forth.

SCREW WRENCH—Joseph Hyde, of Troy, N. Y. : I claim, first, The arrangement of the thumb piece, M, and the screw, C, in the manner and place described.

Second, I claim making the sliding jaw, E, in two equal parts, divided on a vertical line parallel with the bar, D, and the jaw, L, so as to cast the nut, R, and the recess, H, at the same casting of the said sliding jaw.

INKSTANDS—Orlando H. Jadwin, of Carbondale, Pa.: I claim in combination with a hollow plunger for raising the ink, an independent cup for holding said ink, and from which it cannot, by the ordinary want of tightness, flow back into the reservoir, substantially as described.

TOURNURES—Benjamin Johnson, of Philadelphia, Pa. : I am aware that a metallic band flared out at its lower edge has been adapted to the waist, and suspended from the shoulders simply for the purpose of hanging all the skirts of the under garments upon it, so that their weight shall be transferred from the hips to the shoulders; and that metallic ribs or fibrous webbing have been used before, for the purpose of connecting segmental and other springs so as to cause them to rest in vertical planes upon the undergarments and person, as elastic supports for the dress skirts, as in G. V. and E. A. Pierce's "bishap," and also that a textile webbing has been used before, for the purpose of connecting together laterally, conically-formed elastic frames or spiral springs, so as to cause them to rest side by side, longitudinally against the under petticoats and the person, as in C. J. Houghton's bustle; therefore I do not claim springs or elastic strips resting either directly upon the undergarments and person, for supporting the skirts of the dress.

Neither do I claim a metallic waist band; nor connecting springs together laterally by means of a webbing of any kind in the construction of a tournure for ladies' dresses.

But I claim a curved elastic projection or support, consisting of the springs, B B' B'', and webbing, C C, or their equivalents, when the said springs are constructed, arranged and fixed to a waistband, A, so as to be held out thereby free from the undergarments and person as described, that they may operate in connection with the webbing, substantially in the manner described, and for the purposes specified.

METHOD OF NEUTRALIZING LOCAL ATTRACTION OF THE NEEDLE—Calvin Kline, of Brooklyn, N. Y. : I do not confine myself to the arrangement of the magnets within a binnacle.

But I claim applying and arranging the magnet or magnets in a horizontal position or positions below or above the needle of the compass, with opposite poles in the vertical plane of the axis about which the needle turns, and on opposite sides thereof, and in such a manner as to be adjustable on centers lying in or as nearly as practicable in the vertical axis about which the needle turns, that their poles may be made to point in any direction necessary to compensate for local attraction, and have such direction varied as may become necessary, substantially as set forth.

[A description of this invention will be found on another page.]

FURNACES FOR EVAPORATING SUGAR JUICE—Louis Lefebre, of New Orleans, La. : I make no claim to the fluting or corrugating of kettles, separately considered.

But I claim in combination with the fluted outer surface of the kettle, forming the masonry constituting the opposite face of the flue with corresponding flutings or corrugations, so as to surround the kettle with an undulating passage for the products of combustion, substantially as and for the purposes set forth.

REFRIGERATOR—Adolphus Lipmann, of New York City : I claim the described arrangement of a series of coiled pipes, E, which emanate from the ice chamber, C, and which are carried down between the two walls, a and b, of the refrigerator, to a central coil, G, substantially as and for the purpose specified.

[A notice of this improvement will be found in another column.]

SMUT MACHINES—Hugh Marshman and Charles F. Foulke, of Carlisle, Iowa. : We are aware that air has been admitted into various parts of grain-cleaning machines, and may have been in the upper portion of the spout through which the grain is discharged, and a part of the blast admitted.

But we are not aware that a blast of air has been so arranged in reference to a horizontal trunk through which the chaff and light grains have to pass, as to give an accelerated blast in the upper portion or strata of the air in the trunk, when compared with the speed of that in the lower portion of said trunk, in the manner described by us, by which the light grains are more effectually separated, as set forth.

We claim, first, The combination and arrangement of the casing, D, and funnel-mouthed opening, d, the parts being so arranged in relation to each as to, at the same time, give a converging descent to the grain, and an inward partially downward blast through it at that point.

Second, The introduction of an auxiliary blast into the upper portion of the horizoutal trunk, J, as described, by which a more perfect separation of the light grain is secured, as set forth.

MOLDS FOR MAKING BOTTLES—John L. Mason, of New York City : I claim the combination of the screw thread with the rim, f, and also its combination with the rim, r, for the purposes set forth.

I also claim the combination of the grooves in the female screw of the mold with the air passages through the mold, for the purpose set forth.

I also claim the blower-over, in combination with the molds for the necks of bottles, as described.

I also claim a flanch above the "blower-over," as described, for the purposes set forth.

ORE SEPARATOR—L. Stadtmüller, of Bristol, Conn. : I claim the apparatus described for sizing ores, constructed and arranged substantially as specified.

SADDLE-TREES—Jesse Nece, of Philadelphia, Pa. : I do not claim, broadly, hinging the pommel and cantle of saddles to the side pieces of the same, being aware that such device is old.

But I claim, first, Rounding the under side of both the pommel, B, and cantle, C, of a wooden saddle-tree where they bear on the side pieces, and employing, in combination with the whole, the side strips, h and i, and h' and i', so that the said side pieces may be free to vibrate on their hinges, and still retain their proper relative position with regard to the pommel and cantle, as set forth.

Second, The metal arch pieces, E and F, secured to the pommel and cantle of the saddle-tree as described, for the purpose specified.

FARM GATE—William Newlone, of Penn Yan, N. Y. : I claim, first, The combination of the post and hinges, constructed and operating as described.

Second, The chain, E, or its equivalent, with the means for adjusting the same, as and for the purposes specified.

Third, The catches and latch, combined with the means for actuating the same, as arranged in the specification.

PRESERVING SURFACES OF CAST OR WROUGHT IRON—Charles Francis Leopold Oudry, of Paris, France : I claim, first, The employment of a varnish or of successive varnishes, insulating, metallizing and intermediary, between the object to be coated with copper—whether the same be metallic or non-metallic—and the protecting copper itself, all or a part of said varnishes being composed of certain metallic substances united with fat or essential oils, and gummy, resinous, bituminous, or asphaltic substances, substantially as described, and for the purposes set forth.

Second, The coating of all kinds of objects with copper, by the employment of one or several varnishes in succession previous to the galvanic coppering obtained directly in a bath of sulphate of copper, i. e., without the intervention of a bath of cyanide of copper, substantially as described.

BUSTLES FOR LADIES' DRESSES—George V. and Edwin A. Pierce, of New York City: We claim the springs a a, fitted into a bishap or bustle, in combination with a lining or strap forming a straight line of connection between the ends of said springs, for the purposes set forth; and in combination with said springs, a a, fitted into a bishop or bustle, in the manner specified, we claim the springs, c c, arranged and acting in the manner and for the purposes described.

We also claim the strap, f, or tape, in combination with the springs, a a, and bustle, substantially as and for the purposes specified.

GRATE BARS—Silas T. Savage, of Albany, N. Y. : I claim the employment of the bar, a, when provided with a series of flanges which form an arc above the bar, and which taper from the extremities of the chord of said arc, to or near the bottom of the bar, thus supporting the coal in arches above the bar, and at the same time strengthening and sustaining the bar by the tapering sides of the flanges, substantially in the manner specified.

KNITTING MACHINES—Frederick Schott, of Brooklyn, N. Y. : I claim, first, The combination of the levers, G and H, the dog, G', spring, k sliding bar, I, adjustable slips, K' K, and the eccentric, H', or its equivalent, on the main shaft, the whole operating substantially as described, to effect the movement of the needle bed in one and the other direction alternately.

Second, The two-grooved safety guide, K2, applied in combination with the feeder, to operate substantially as and for the purpose specified.

Third, The needle and stitch hook protector, N, applied and operating substantially as set forth.

Fourth, The combination of mechanism to operate the sinker or reliever, P, consisting of the cam, R, on the main shaft, the arm, D3, and spring, u2, on the rock shaft, the spring, w, applied to the reliever bar, P', the projection v' v2, on said bar, the stationary inclined projection, Z, on the frame, and the stationary inclined planes, Z' Z2, the whole applied and operating substantially as set forth.

Fifth, The combination of the bar, X, or its equivalent, furnished with teeth, 20 20 and 21 21, and a wedge like projection, 27, the pawl, 23, operated by the movement of the needle bed and the stop lever, W, the whole applied to operate substantially as described, in combination with a belt-shipper, to stop the machine as soon as any desired number of courses have been knitted.

[A full description of this invention will be found on another page.]

MACHINE FOR PRINTING NAMES OR DIRECTIONS ON PACKAGES, &c.—James Spencer, of Toronto, Canada : I claim the application of common type arranged in a form upon a plane bed, to the printing of successive names, numbers, or addresses, one at a time, upon papers, pages, books, tickets, or other articles requiring to be printed, marked, or addressed; and the construction of the machinery as described, or any similar combination of machinery for producing the same motions, causing the bed to traverse so as to bring all the names, numbers or addresses in the form successively under the aperture in the tympan, and causing the matter placed under the platen to receive the desired impression.

SEWING MACHINES—James H. Spencer and Thomas Lamb, of Philadelphia, Pa. : We wish it to be understood, that although we have described the shuttle as moving in the arc of a circle, we do not desire to confine ourselves to that particular movement, as a horizontal motion would be equally as effective.

We wish it also to be understood that we do not claim, broadly, causing the carrier to convey the shuttle over the required space, independently of any shuttle race.

But we claim, first, The vibrating or reciprocating carrier, h, with its permanent projections, R R, yielding projection, j, and spring-retaining catch, p, in combination with the shuttle plate, M, its casing, N, and spool, n, when the several parts are constructed substantially as described, and when they are arranged in respect to each other, and to the lip, q, as and for the purpose set forth.

Second, We do not claim, broadly, feeding the fabric by the combined vertical and lateral motion of a roughened surface feed bar on the said fabric, as such a device is described in the patent of A. B. Wilson, granted December 19th, 1854.

But we claim the arrangement of parts described for feeding the fabric, and regulating the amount of the feed, that is to say, the cams, F and G, spring rod, P, arms, w and v, the rod, z, its collar, 2, and adjustable nut, 9.

Third, The cylinders, 3 and 4, with their respective pins, when arranged in respect to each other, to receive the folds of the needle thread, as set forth, so that by turning one or both of the said cylinders, the pins may cause more or less of the folds to bear against the surface of the cylinder, as described.

WIND MUSICAL INSTRUMENTS—C. J. Van Oeckelen, of New York City : I claim, first, The application to a musical instrument of several different rows of reeds, combined in such a manner that each key of the instrument can produce several different sounds, by causing one or several reeds to vibrate according to the pleasure of the performer, preserving always, nevertheless, the proper musical expression of the note, in the manner substantially as described.

Second, The arrangement of the several parts in such an instrument by which the power is obtained of causing each note to vibrate on itself, and independently of all the others in the manner substantially as described.

Third, The application to a musical instrument, the sounds of which are produced by the vibration of reeds of several rows of valves so arranged as to act one upon the other, and that the valves of the different rows thus connected can be opened either all together or only one or more at a time by touching the same key of the instrument at the pleasure of the performer, preserving always nevertheless the proper musical expression of the note, in the manner substantially described.

MANUFACTURE OF SEWING NEEDLES—Henry Walker, of Alcaster, Warwickshire, and Gresham Street, of London, England. Patented in England May 19, 1858 : I claim forming the eyes of needles in the cylinder of the wire, without flattening the same by means of the double grooves, E, substantially as and for the purposes specified.

THRESHING MACHINES—M. D. Wells, of Morgantown, Va., and Harrison Hagans, of Brandonville, Va. : We claim the combination of the bifurcated spikes, a, of the cylinder, with the peculiarly notched ribs, R, of the concave, operating together as described.

PARASOLS AND UMBRELLAS—Edward Young, of Philadelphia, Penn. : I do not claim to be the inventor of any of the parts severally described, the same being all known and common devices.

But I claim the combination and arrangement of the stationary tube, c, with the swivel rod, d, substantially as set forth and for the purposes described.

SEWING MACHINES—H. W. Harkness (assignor to himself and W. H. Nettleton), of Bristol, Conn. : I do not claim feeding the cloth in sewing machines by pressure between two flat smooth surfaces; neither do I claim feeding cloth by a revolving wheel and vibrating clamping surface, nor between two wheels with either smooth or roughened surfaces, but I am not aware of any previous instance in which a smooth pressure foot reciprocating on the surface of the cloth and holding the same down on to the stationary bed, has effected the feeding of the cloth by a vertical clamping surface rising through a slot in the bed, and acting against the end of said smooth pressure foot, forming a bend or angle in the cloth that insures a firm hold with very little pressure of the foot on the bed : therefore—

I claim feeding the cloth to sewing machines by the combined action of a smooth reciprocating pressure foot and a vertical clamp acting at the end of said foot to hold the cloth firmly while being moved, the bend or angle thus formed in the said material enabling the feed to act with but little pressure on the goods from the smooth foot-piece, as specified.

GRAIN AND FRUIT DRYERS—Chas. A. Haskins and G. Macardle, of New York City, assignors to Joshua A. French and Eliza C. Tyrrell, of Jersey City, N. J.: We claim the traveling pipes and adjustable drums, and the form of the drums through which the hot air is compressed and distributed over and through the material to be dried. Also, the carriage and seats upon which the drums are adjusted, supported, raised and carried in combination with the pipe journal, H, gear wheel, o, and chamber, G, substantially as described.

RECLINING CHAIR—A. E. Kendall and P. K. Keyes, (assignors to themselves and C. W. Elton), of New York : We would here remark that we do not confine our invention to this description of chair alone, as we intend to apply it to such articles of furniture as required the reclining position for the comfort and convenience of the occupant.

We claim, in combination with the swinging post, E, jointed arm, D, and back, C, the employment of a serrated segment, F, and fastening, e, constructed and operating substantially as set forth and for the purposes specified.

LOCKS—Wm. Moore, of Brooklyn, N. Y., assignor to G. L. Cameron, of Chester, C. H., South Carolina : I do not claim in itself a check tumbler moving on a center pin.

But I claim as an improvement on my said patent of September 14, 1852, the check tumbler, l, and spring m, in combination with the tumbler, f, that is acted on from both key-holes, h and i, substantially as and for the purposes specified.

COOKING STOVES—Gibson North (assignor to North, Chase & North), of Philadelphia, Pa. : I claim the arrangement of the grooved back of the fire chamber, the cold air chamber in the flue and the guard plate at the corner of the oven, substantially as described and for the purposes specified.

SEWING MACHINES—James Perry (assignor to Isaac C. Noe), of New York : I do not limit myself to the precise construction and arrangement of the parts, as these may be variously modified without affecting the principle or mode of operation which I have invented and claim to be new and useful; nor do I wish to be understood as claiming any particular device simply to catch a loop and to move the same that the needle may enter it.

I claim the combination and arrangement of the levers and cams for imparting the three reciprocating movements to the looper, namely, that in the arc of a circle, the lateral and the vertical, in the manner substantially as described for the purposes specified.

Also, the shield, i', in combination with the looper and needle, arranged and operating in the manner described, for the purpose of presenting the loop to the looper with greater certainty.

MACHINE FOR MAKING ENVELOPES—M. G. Puffer, (assignor to Cyrus White and L. A. Corbin), of Rockville, Conn. : I claim, first, the shape essentially of the cams, Nos. 1 2 3 4 5 6 7 8 9, for the purpose set forth.

Second, The employment of the jack, F, arm, C, operating as described, to paste and lift the paper, and the fly, b, to separate it therefrom on to the carrier, H, as described.

Third, The carrier, H, shaft, o, fingers, n, arm, w, stud, p, catches, m, and arms, j, for the purpose as described.

Fourth, The combined action of the bed, N, with the plunger, R, for the purpose, as described; also the employment of the springs in the plunger, R, for the purpose as described.

Fifth, I claim the folding flaps, o, projecting from the center, or nearly so, from the end of a shaft or shafts, and having their bearings on one end or on each end thereof, whether with or without the half circle, x x, substantially as shown and described.

Sixth, The construction and arrangement of the catch wheel, t, with a long tooth, q, and guard, y, for the purpose as described.

Seventh, The arrangement of the nippers, T', operating in the manner and for the purpose described.

MACHINES FOR TARRING ROPE YARN—John Stewart (assignor to Charles Wall), of Brooklyn, N. Y.: I claim the employment within the tar vat of one or more series of sheaves or conductors over or round which the yarns are bent in the manner described, to open their fibers, and make them pass and return in an opposite direction through the tar for the purpose set forth.

[A paragraph relating to this invention will be found on another page.]

APPARATUS FOR BORING WELLS—I. M. Butler, of Oxford, Miss.: I claim the square-chambered auger, a, constructed substantially as set forth.

### RE-ISSUES.

WOOD SCREWS—The Eagle Screw Company, (assignees of Thomas J. Sloan,) of Providence, R. I. Patented Aug. 20, 1846 : Claims—First, Making the core with a conical point, substantially as described, in combination with the body of a cylindrical form, or nearly so, substantially as and for the purpose specified.

Second, Making the core with a conical point, substantially as described, in combination with the thread, formed on such conical point of a gradually less depth as it approaches the apex of the core, and with the several convolutions on the body, at equal distances apart, substantially as and for the purpose specified.

Third, Making wood screws with the core or a conical shape along that part of the length of the screw extending from where the thread begins on the shank, to where it becomes of full depth, substantially as and for the purpose specified.

Fourth, Making wood screws with the core of a cylindrical or nearly cylindrical form, and with a conical point in combination with the thread of equal pitch along the conical point and body, that is, with all the convolutions at equal distances apart, and of gradually less depth from the base to the apex of the core, substantially as described.

REDUCING THE FRICTION OF JOURNALS OF AXLES ON RAILWAYS—J. K. Denning, of New York City, assignees of Leon Joseph Pomine De Mirimondi, of Paris, France. Patented Aug. 23, 1856 : I claim the arrangement for the semi-boxes for resting on the journals of the friction rollers within the upper part of the main part of the main journal box, and entirely enclosed within the said main box, substantially as described, in combination with the axle journal on which the rollers rest to sustain the load, as described.

I also claim taking the lubricating matter from the looser part of the main box, and applying it to the journals of the rollers by the projections at the ends of the axle journals.

I also claim the method of lubricating the journals of the rollers, and the periphery of the axle journal and the rollers, by the projections on the axle which in rotating take the lubricating matter from the reservoir in the main box, and apply it to the journals of the rollers above, that the drippings therefrom may lubricate the periphery of the rollers and axle journal, substantially as described.

WATCH CASES—Elihu Bliss, of Newark, N. J. Patented April 13, 1858 : I claim arranging the push piece which passes through the pendent, substantially as described, in combination with the pin, h, and so as to operate the spring catch to the closed bizzle of the outer case, when the face of the watch is in either position, as set forth.

I also claim arranging the case of the watch which contains the movement, and which carries the dial within a surrounding ring or rim, so that it can be turned within the said ring and in the plane thereof, substantially as described and for the purpose set forth.

I also claim arranging the journals by which the body of the watch is attached to an outer case, and on which it turns reversed so as to leave the works of the watch free to be shifted in its surrounding ring, substantially as described.

DESIGNS.

STOVE PLATES—Samuel D. Vose, of Albany, N. Y. Four cases.

## Notes on the Progress of the Paddle and Screw.—No. 3.

Having thus noticed the paddle-wheel generally, as to when it was introduced, how it was turned, and where it was placed, I may proceed to consider various plans and inventions relating to its several parts; but it is to be distinctly understood that I refrain from comparing the relative merits of these different suggestions.

Beginning, then, with the shaft and wheel, as a whole, we find that Tremeere (1801) and Robinson (1826) supported it on a stage, to be raised and lowered by ropes. For the same purpose Melville (1845) used a cogged sector, and Drake (1851) employed screws. The connecting rod had a screw joint, which allowed the rod to accommodate its length to the varied distances between the piston rod and the shaft. Coles (1839) supported the shaft on friction wheels.

To enable the engineer to use only one wheel at a time, Gough (1828) put each on the shaft of a separate engine, while in Field's plan (1841) the wheel was disconnected by moving it and the part shaft horizontally. For the same purpose Wilkinson (1835) moved a sliding crank plate along the divided shaft, until the crank pin locked into it. Brunet (1843) used a sliding ring and bolts; Thomas (1851) employed wedges and a friction cushion. In Seaward's plan (1840) the parts were coupled by friction surfaces, screwed up to close contact. Trewhitt (1840) tightened a friction strap by cutters; Bodmer (1843) and Borrie (1843) used cog wheels; Scott Russell's patent (1853) gearing, worked by the motion of the shaft, is applied to the *Leviathan*. Price (1823) used intermediate wheels to regulate the relative speed of the engine shaft and paddle shaft. The groove and stud apparatus of Parlour (1838) gave the wheel twice the speed of the engine shaft. Murdock (1839), Brown (1842), and Bodmer (1844), had plans somewhat similar.

The modifications of the wheel itself are difficult to classify. Barton (1820), Sang (1852), Bellford (1853), and many others, made it a buoyant drum. Stevens (1827) put floats on three arms, not in the same plane. Springs were introduced by Adams (1839 and 1855) to ease concussion. Skene (1827) had side plates on the rims. In Tayler's plan (1840) one wheel might be covered from the water by a shield. Essex (1838), by dividing the wheel horizontally, folded back one part by hinges on the rim; while in Drake's plan (1851) the arms fold on hinges, like a fan. Galloway (1832) and Herbert (1855) attached an additional wheel, by a short shaft jointed to the outer end of the other, so that the rims of the wheels approached water, and were more apart at the upper edges. Daubeny (1840) made the second outside wheel turn slower than the inner one, but in a parallel plane.

Let us next turn attention to the floats or paddle boards, and first as to those that are immovable on the wheel. Floats of the simple rectangular radial form were the earliest in use. Pitot (1729) put floats in planes tangential to the surface of a cylinder on the shaft; Perkins (1829) placed them at an angle to the shaft; Sharpley (1856) aggregated them into one continuous spiral rib; Galloway (1832) used two sets of floats, inclined in different directions; Chatterton (1842) and Stevens (1851) inclined each float in an opposite direction to the next, which projected beyond it at one end. Brooman (1852) put the oblique floats with one end further from the shaft than the other; Carter (1832) put a valve between each pair of inclined floats. This was to let out the back water, which was effected in Pickworth's plan (1836), by louvre boards in the float, in Elvey's (1837) by a valve, and in Woodley's (1839) by holes bored diagonally through the float. Galloway (1835) divided the float horizontally, and put the parts successively in advance of each other. In Gemmel's plan (1837) the middle part was foremost, and Jones (1847) made the parts to overlap.

The edges of floats were curved by Robertson (1829), Ruthven (1830) made them of a barrel shape, and there is scarcely any other form which has not been proposed for them at one time or another. Hollow floats were used by Berry (1831), to condense the steam conducted through the arms.

Floats were made movable, for reefing, shipping, and feathering. For reefing, Parr (1825) made the floats slide on the arms with joints. Galloway (1843) placed the movable pieces on a separate inside wheel, moving laterally on a hollow shaft; and Brunet (1843) placed them on different sides of the arm. Massie (1836) dividing each float into parts with parallel bars, caused one set to move over the other for reefing. For attaching the floats, Hamond (1844) used wedges, while screws were employed by Brown (1847).

Hall (1839) and Bird (1842) protruded them by a fixed spiral groove. They might be folded on hinges in Tremeere's plan (1801), and were worked through screw rods by Holebrook (1838). In Leeming's plan (1835) and Newton's (1843), each float protruded during part of every revolution. Redmund (1838) made them fall back by hinges as they revolved. Each float ran out and in by its buoyancy in Oxley's plan (1845).

## "Pass the Pepper."

Of all the aromatics which are partaken of by man as flavorers to his food there is none more common than pepper, and when unadulterated, its tendency, in small quantities, is rather to aid digestion than otherwise. The three important peppers commonly found on the dinner table are white, black, and cayenne, all natives of the tropics. They are much used (to stimulate digestion) by their human brethren—those hot and choleric old nabobs who confer a benefit on the world by living in hot climates far removed from the haunts of civilized life. Thus the *chow-chows*, *curries*, and other hot dishes so relished by your yellow-faced East and West Indians owe their flavor and pungency to the amount of pepper that they contain.

There is one variety of the genus *Piper* to which the white and black peppers belong (cayenne being a member of the genus *Capsicum*—called so, by the bye, from a Greek word whichsignifies to bite); this variety is a great favorite with housekeepers and cooks, and has received from them the flattering name of "allspice," as it combines in itself the flavor of cloves, nutmeg, and cinnamon; it grows plentifully in Jamaica and other American islands, where it was first discovered by the Spaniards, who gave it the name of *Pimenta de Jamaica*. The French call it the "round clove."

Black pepper is cultivated in large quantities in Malacca, Java, and especially at Sumatra, the trade of these places being almost exclusively in these spices. A pepper garden during the ripening of the pod is a lovely sight, being a large plot marked out into regular squares of six feet, in each of which are planted young trees called *chinkareens*, that serve as props to the pepper vines. When the prop has reached twelve feet high, it is cut off and the vines planted, two to each prop. A vine is three years in coming to maturity, and the fruit, which grows in long spikes, is three or four months in ripening. The berries are plucked as soon as ripe, and spread on mats upon the ground to dry, by which process they become black and shriveled, and are imported here as black pepper. In this city, and distributed throughout the States, are many mills where pepper is ground, and, we are sorry to say, it often sophisticated with burnt crust of bread and other adulterations.

The Sumatrans once did a genuine Yankee trick in connection with pepper, which is worth recording. They steeped the pepper corns in water until their shells or outer coat burst and then drying them without it, sold for three times the price of the black, as a different species, to the East India Company, who then monopolized the pepper trade. The company, having swallowed the story, made the buyers swallow it too, and ever since we have had the two peppers, white and black, both coming from the same plant, but one possessing its coat, and the other being deprived of that useful appendage, and so weakened in its pungency. The effect of pepper is stimulative and carminative, and as a condiment it seems not only to add a peculiar flavor of its own to dishes into whose composition it may enter, but also to develop the flavor of the other ingredients. Taken in small quantities it warms the whole system, but if a large dose be placed on the palate, it seems to burn the tongue, and throw the whole mouth into a perfect glow. As a medicine it has been proved beneficial in cases of vertigo, paralysis, and intermittents. The pungency depends on the presence of an aromatic resin, which can be extracted by ether and alcohol, and partially by water.

Cayenne was first noticed on the coast of Guinea, and has been generally used by the natives of those climes in which it grows as a strengthener for the stomach. It is an extraordinary fact, but still true, that although savages may be unacquainted with the polite arts, they are generally well informed upon the subject of gastronomy, and to suit their sometimes peculiar tastes, they generally discover all the edible good things which their native soil affords. It cannot be denied that hunger and the palate are great equalizers, and the stomach, much as we abhor gluttony, does much for civilization; in fact, his stomach and its wants distinguish man from the brutes, for, as Dr. Kitchener correctly observed, "Man is the only cooking animal."

The cayenne of commerce is the grain or seed of the capsicum ground and mixed with flour and then baked into little cakes in an oven; these are again broken up and mixed with more flour and placed in jars for sale. The tree or plant is very beautiful, and forms a great ornament to a garden, but it is very tender and requires much care. It is more pungent than either white or black peppers, and is often adulterated with logwood and mahogany sawdust and red lead; this latter can, however, be easily detected by placing a spoonful carefully in a glass of water, when, should it contain any red lead, it will from its specific gravity quickly drop to the bottom, while the cayenne will sink but slowly. A very pleasant drink may be made for these cold winter nights, and one that is healthy too, from pepper. Here is the recipe:—Place three or four lumps of sugar with half a teaspoonful of pepper in a tumbler and fill up with hot water; when the sugar is dissolved, drink. It is not only pleasant to the palate, but warms the whole body more effectually and quicker than any spirits. Those of our readers who try our recipe once will often, during the coming winter, when the fire burns low, and they feel chilly generally, exclaim in the language of our caption, "Pass the pepper."

## Compass Compensator.

The mariner's compass is often found to indicate wrongly from what is called "local attraction" affecting the magnet; this is peculiarly the case in iron ships. Calvin Kline, of Brooklyn, N. Y., has invented and patented this week an arrangement to correct or counteract this. The nature of the invention consists in the arrangement of one or more magnets in a horizontal position, below or above the needle of the compass, with opposite poles horizontally in line with the vertical center or axis on which the needle turns, and on the opposite sides thereof, by which arrangement the opposite poles of the magnet or magnets are caused to act upon the needle to force it into the same direction. It also consists in in applying the so arranged magnet or magnets so as to make it or them adjustable on a center coinciding as nearly as practicable with the vertical axis on which the needle turns, that their poles may be made to point in any direction necessary to compensate for the local attraction, and may have their direction varied to meet any point or points of local attraction that may be produced by different cargoes or other causes. It further consists in providing for the adjustment of the so arranged and applied magnets in a direction parallel with the axis or vertical center on which the needle works, for the purpose of increasing or diminishing the intensity of their action according to the intensity of local attraction. Patents have also been obtained in England, France, and Belgium.

## Tarring Rope Yarn.

John Stewart, of Brooklyn, N. Y., has invented an improved machine for tarring rope yarn, and assigned the invention to Charles Wall, 220 Front st., New York. The improvement consists in the employment within the tar vat of one or more series of sheaves or conductors, around which the yarns are bent in their passage through the tar, and by which they are conducted in such a manner as to cause them to pass through the tar in opposite directions, whereby they are caused to be more perfectly penetrated by the tar, and to keep the tar well stirred. The claim will be found on another page, as it was patented this week.

## Knitting Machine.

F. Schott, of Brooklyn, N. Y., has invented an improved knitting machine, which has principally for its object the production of stockings and other knitted fabrics of a closer or more compact texture than those ordinarily produced by machinery. It consists in a series of improvements in those kinds of straight knitting machines in which the needle bed has a movement back and forth, to present the needles, one or more at a time, in regular succession into an operative relation with one or more feeders or thread conductors, and a corresponding number of stitch hooks. The claims will be seen on referring to our list this week.

## Improved Sash-Fastener.

John Bestwick, Jr., of Dedham, Mass., has invented an improved sash-fastener, which consists of an eccentric or cam provided with a spring fitted within a proper box or case, and used in connection with a spring bolt. These parts are placed in the side strip of the sash, and the eccentric and spring bolt are in such relation to each other that the lowered sash will not only be retained at any desired hight, but also locked when down or closed, and the spring bolt drawn back by actuating the eccentric. The invention was patented this week, and the claim will be found on another page.

WE are indebted to Hon. John Cochrane, Member of Congress for this city, for many Congressional favors, and especially for copies of the Annual Report of the Commissioner of Patents.