four other places in Europe. The process consists in first grinding the cryolite into powder, then mixing it with ground chalk, or limestone, at the rate of one hundred parts of the former to one hundred and twenty-seven parts of the latter. These substances are calcined in a reverberatory furnace. The product is then dissolved in hot water, and a solution of alumina and soda results, the lime being precipitated. This clear solution is afterward charged with carbonic acid gas, which precipitates the alumina and unites with the soda, forming a solution of carbonate of soda, which is run off into pans and crystallized. But before being crystallized, if caustic soda is designed to be made, fresh-slaked lime is added to it, and with this the carbonic acid unites; a precipitate of the carbonate of lime falls to the bottom of the vessel, leaving the solution to be crystallized as a pure caustic soda—a substance which is now in much demand for refining petroleum. Greenland is the only country, we understand, in which cryolite has as yet been discovered.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list :—

Sewerage and Dredging Apparatus.—This apparatus, which may be termed a floating sanitary sewerage receptacle and suction dredging boat, consists of a floating vessel capable of being propelled by steam power or other means, having within it one or more deposit compartments, whose capacity is a very considerable proportion of that of the whole vessel, provision being made for buoyancy, for the reception of sewerage deposits or of muddy or other deposits, obtained from the bottoms of docks, harbors, rivers, bays or other waters, or from bars, or from a stationary collecting reservoir, which may be arranged at the outlet of a sewer and in which a partial filtration may be effected to obtain the deposits in a more condensed form, or for the collection of solid matters that may be suspended in such waters while in an agitated condition; such vessel being fitted with pumps or their equivalents, and furnished with suitable suction, delivery and discharge pipes for taking up the said deposits or solid matters, with more or less water, and delivering them into the before-mentioned compartment or compartments of the vessel, in which the said deposits or solid matters are retained, while the water is nearly all expelled through filters fitted to the vessel; the deposits so collected being intended to be conveyed away by the vessel to be discharged where it cannot be returned by the change of tide or current. The principal object of the invention is the removal of deposits which have been delivered from sewers at their outlets, but it may be used generally for the removal of heavy deposits from the bottoms of docks, rivers, bays, harbors and other waters, or the solid or decomposing matters that may be suspended in the waters thereof, and also of the sunken or floating, decomposing or putrifying organic matter found in rivers, streams, or other waters, and thereby serves not only to prevent the contamination of the atmosphere but to prevent, in a great measure, the formation of mud banks and deposits which require to be removed by digging and the filling-up of docks and under piers, and thus to prevent injury to harbors. The inventor of this improvement was William Atkinson, deceased, late of Brooklyn, N. Y. Information relating to the invention may be had of his executors, Charles Atkinson, Moline, Ill., and Joseph Atkinson, Newbury, Vt.

Gilt Molding.—Imitation gilt molding is usually manufactured by covering the molding with silver-leaf, and after the leaf has been applied the surface is burnished and covered with gold lacquer, whereby it assumes the appearance of real gold. Silver-leaf is expensive, and furthermore it takes a very long time and great care to apply the same to the molding; the leaves are small and very thin, and one leaf after the other has to be placed in position, and with the greatest care the joints between the several leaves cannot be wholly concealed. The object of this invention is to use large narrow strips of tin foil or other cheap metal foil sufficient to cover the whole length of the molding without joints, and capable of being applied by means of a roller which presses and stretches the same into and on the different members of the molding. H. W. Ladd, of New York City, is the inventor of this device.

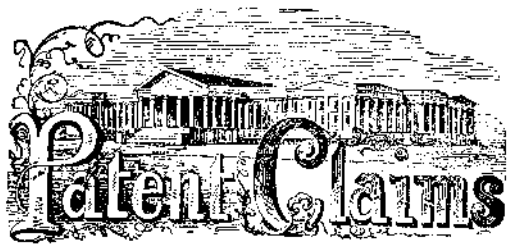
Railroad Chair.—This invention consists in the employment of a sustaining bar which extends across two sleepers or crossties and fits into the necks of adjoining rails, and is held in place by a bed piece supported by two crossties, in such a manner that said sustaining bar receives the weight and thrust of passing trains conjointly with the top of the rails, and being supported by the underlying sleepers at the weak point, serves not only as a sustaining but as a re-acting support to keep the rails in line and in surface. E. St. John, of Elmira, N. Y., is the inventor of this improvement.

Marline Spike.—This invention consists in the arrangement of one or more cavities in the surface of a marline spike, in such a manner that when the point of the spike is passed through a rope the end of the strand can be passed through the opening before the spike is withdrawn, and thereby the operation of splicing ropes is considerably facilitated. Albin Warth, of Stapleton, N. Y., is the inventor of this device, which he has also secured by patent in Europe.

Apparatus for Heating Air by Steam.—This improvement relates to the heating of air for the supply of furnaces by means of the exhaust steam from a steam engine, and the condensation of such steam by its consequent loss of heat, to enable its water to be returned to the boiler. It consists in the employment for the above purpose, of an apparatus composed of a series of flat, vertical and parallel radiators connected at one end with a steam-box, which receives the exhaust steam from an engine, and at the other with a box for the reception of the water of condensation, and incloses within a box or casing at one end, of which there are one or more inlets for air, and at the other end of which there is a pipe connected with a fan, by which a current of air is drawn through the box between and in contact with the radiators, and, after being heated by the exhaust steam, is driven into a furnace for the purpose of accelerating combustion, thereby utilizing the waste heat of the steam, while the water obtained by condensation in the radiators is collected to be returned to the boiler by the force pump. A patent was issued for the above-described invention by Addison C. Fletcher, of New York City.

Drilling Turrets.—The object of this invention, by Thomas F. Rowland, of Greenpoint, L. I., is to drill the bolt holes or other holes in a gun turret, or other circular structure, perfectly radial to the center, and to ream out holes which have been drilled or punched in the plates previously to their being set up, and bring such holes, in lapping plates, exactly opposite to each other, and radial to the center of the structure. The invention consists principally in the employment, for the above purpose, of a machine, for drilling or reaming, attached to a shaft which is arranged concentrically to the axis of turret or structue in bearings above and below it, and which has the rotating axis of the drill or reamer stock perpendicular to the axis of the said shaft, such machine being adjustable upon the shaft lengthwise of the latter to operate upon the structure at any hight, and the shaft being capable of turning, so as to present the drill or reamer in any radial direction.

IT IS a noteworthy fact of the criminal absurdities of fashion, that when silk and cloth are the dearest and most difficult to be had, it requires more of each material to make one man or woman's garb than it did a hundred years ago.



ISSUED FROM THE UNITED STATES PATENT OFFICE

FOR THE WEEK ENDING MAY 19, 1863.

Reported Officially for the Scientific American.

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

38,542.—Rotary Engine.—W. B. Allyn, Washington, Ohio:

I claim, first, The stationary annular cam, A, provided with ports, i i', and situated between the cylinders, C C, in combination with sliding pistons, D, common to both cylinders and with stationary abutments, j, all constructed and operating as and for the purpose herein shown and described.

Second, The rock-shafts, f, provided with arms, e, in combination with cranks, g, links, h, and with the pistons, D, constructed and operating as and for the purpose specified.

[This invention consists in the arrangement of a stationary annular cam provided with an induction and exhaust port and situated between two rotary cylinders in combination with sliding pistons common to both cylinders and with stationary abutments in such a manner that by the steam admitted through the induction port in the cam and by its action on the sliding pistons a rotary motion is imparted to the cylinders and to the shaft to which they are attached, and that an extensive surface is offered to the action of the steam.]

38,543.—Clock.—R. T. Andrews, Plymouth Hollow, Conn.:

I claim, first, The driving-wheel, B, furnished with a series of twelve pins, e1 e2 e3, &c., which are arranged to act upon an arm of the stop shaft to bring the stop, m, or its equivalent into operation substantially as and for the purpose herein specified.

Second, The combination on the same shaft, y, of the stops, m and r, and the lifting arms, v and u, substantially as herein set forth.

Third, The combination of the driving-wheel, B, furnished with pins, e1 e2 e3, the wheels, o and k, carrying the stop pins, l and q, the two stops, m and r, and the lifting arm, u, the whole applied to operate substantially as herein specified.

[This invention consists in a certain novel construction, arrangement and combination of the parts of the striking movement whereby it is rendered simpler than the movement in common use, and less liable to get out of order.]

38,544.—Apparatus for Sewerage, &c.—William Atkinson, Brooklyn, N. Y. Ante-dated Oct. 26, 1862:

I claim an apparatus whose principle elements consist of a floating vessel having one or more compartments or any portion of its interior constructed and arranged for the reception of such deposits of solid matter or of muddy water or water containing solid matters; a pump or pumps and pipes or other equivalent means of delivering the such deposits or water into said compartments or space; one or more filters or strainers to provide for the escape of water from said vessel and the retention of the deposits or solid matters therein, and suitable means of discharging the deposits or solid matters, the whole combined to operate substantially as and for the purpose herein specified.

38,545.—Tea and Coffee Pot.—John Bamber, Rochester, N. Y.:

I claim the application of the ledge or guard plate, l, as and for the purpose set forth.

38,546.—Flour-packer.—John Beall, Berlin, Ill. Ante-dated Aug. 15, 1862:

I claim the arrangement of the compensating cone, K, with the shaft, I, platform, E, cylinder, B, and packer, D, as and for the purpose herein shown and described.

[This invention is particularly designed for packing flour and meal in sacks and barrels, direct from the mill, the object being to obtain a machine which will automatically adjust itself so as to pack with uniform closeness, and thus put equal quantities in all receptacles of the same size.]

38,547.—Stack Cover.—Jacob Bickhart, Harlan, Ind.:

I claim a cover for hay and grain stacks, composed of a cap, A, having sides, C, connected to it by hooks or hinges so constructed as to admit of the sides being readily attached to and detached from the cap, and the sides composed of one or more pieces and arranged so as to be connected together at their edges and form close joints, substantially as and for the purpose herein set forth.

I further claim the pin, B, in combination with the cap, A, and sides, C C, for the purpose herein set forth.

[The object of this invention is to obtain a cheap, substantial cover for hay and grain stacks, one which will admit of being readily applied to the stack and removed from it, and afford secure protection from rain or snow.]

38,548.—Railroad Rails.—Thomas S. Blair, Pittsburgh, Pa.:

I claim the production of a railroad rail, part of steel and part of iron, without welding by carbonizing a portion of the top of the rail, then rolling down the blisters, tempering and straightening the same, substantially in the manner and for the purpose described.

38,549.—Artificial Leg.—Douglas Bly, Rochester, N. Y. Ante-dated July 20, 1862:

I claim the improved transverse bearing, a b, constructed, arranged and combined with the foot and leg, substantially in the manner and for the purposes shown and described.

38,550.—Artificial Leg.—Douglas Bly, Rochester, N. Y.:

I claim, first, Expanding and contracting the artificial limb by means of the vertical or longitudinal over-lapping edges, c, or equivalent, in such a manner as to adapt the same to the size of the mutilated extremity of the natural limb, substantially as herein set forth.

Second, I claim the arranging or placing the axis, e, at right angles, with line of progression of the wearer, when the longitudinal diameter of the foot is at an angle, more or less, with said line.

Third, I claim the stationary axis, e, intermediate with the foot and ankle portion of an artificial leg, in combination with the groove of the ankle turning in such a manner that the motion and friction comes on the superior surface of the axis, so as to clear it of dirt, and prevent wear, substantially as herein set forth.

Fourth, In combination with the axis thus arranged, I also claim the central flange, h, or its equivalent, for retaining the parts, C e B, in their normal relations to each other.

Fifth, In combination with the axial bolt, e, and flange, h, I also claim the connecting rods, j j, or their equivalents, as herein described.

Sixth, I claim the flexible non-elastic vulcanized india-rubber tendons, substantially as described.

Seventh, I claim the constant coaptation of the wearing surface of the joint with an axial bolt, by means of yielding springs, in combination with tendons binding the parts together, in the manner set forth.