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#### LIST OF PATENT CLAIMS

Issued from the United States Patent Office. FOR THE WEEK ENDING MAY 13, 1851.

To Jonathan Sullivan, of Lexington, N. C., for improvement in Straw Cutters.

I claim, in combination with the toothed grooved cylinder and curved stationary knives, the clearers, arranged and operating substantially as shown.

To John R. St. John, (assignor to James Renwick, G. F. Barnard, and E. B. St. John, of New York, N. Y., Trustees of the St. John's Compass and Log Manufacturing Co.), for improved method of supporting the vanes of aquatic velocimeters. Ante-dated Dec. 27, 1850.

I do not intend to claim any of the parts herein described, as taken separately; all are well known and in common use: but I claim attaching the disc or plate to the sliding frames, one of which frames carries the shaft of the paddle blades, when said frame and plate are fitted to be lowered into or raised out of a tube, in such a manner that when in place for use the plate prevents any indirect current of water from ascending into or descending out of the tube, to disturb or destroy the accuracy of the instrument, leaving the paddle blades subject only to the direct action of the vessel's progress through the water, substantially as described.

To Rufus Bixby, C. S. Bixby, and John Grist, of Dayton, Ohio, for improvement in Planing Machines.

We claim the employment on one or both sides of the grooving cutters, of a chain or band applied and operated in the manner substantially as described.

To Charles Hoskyns, of New Orleans, La., for improved apparatus for relieving the helmsman from the shock of the rudder.

I claim the combination of two sets of pawls between which a wheel is placed, loose upon the shaft, having an endwise motion thereon, by means of the male and female screw, as described, said wheel being provided with a hub, so fitted as to disengage the pawls when the hub arrives at the limit of its end play in either direction; the result being that the rudder secures itself through the agency of the pawls, and is unlocked so as to be free to move in either direction, by the first motion of the same wheel, which afterwards moves the rudder. In other words, I claim the combination of the hub, secured to the wheel, the male and female screws, or their equivalents, and the ratchet and pawls, substantially in the manner and for the purposes described.

To George Faber, of Canton, Ohio, for improved apparatus for indicating the height of water in steam boilers, etc.

I claim the combination of the chamber with the boiler or other vessel, in which the height of fluids is to be measured by means of tubes so formed and attached, as to act as springs, to indicate the weight of the water at any time within said chamber, for the purpose and substantially in the manner herein set forth.

To James M. Clarke, Lancaster, Pa., for improvement in Flouring Apparatus.

I claim, first, the arrangement of the "hopper boy," revolving on the same centre as the stone and the chamber beneath the stone, by which the flour is cooled as it is conveyed to the centre opening of the bolt, substantially as set forth.

Second, I claim the annular or endless conveyors for carrying the flour, &c., in the several annular chambers, to the spouts, the same being operated in the manner described.

Third, I claim, in combination therewith,

the air passage for returning the particles of flour which would otherwise escape, to the centre hole of the floor of the bolting chamber, to be drawn in again by the draft, substantially in the manner set forth.

To Ezra Ripley, of Troy, N. Y., for Crane Hinge of doors, shutters, &c.

I claim the crane door-hinge, constructed in the manner and for the purpose substantially as set forth.

To A. F. Ahrens, of Philadelphia, Pa., for improvement in Setting Teeth.

I claim attaching artificial teeth to a plate in the roof of the mouth, by means of a wedge-formed recess in the tooth, and a pivot of corresponding shape, soldered or otherwise, attached to the plate, when the union of the two is effected, by the use of platinum and tin or solder, substantially in the manner and for the purposes specified.

To A. F. Ahrens, of Philadelphia, Pa., for improvement in Setting Teeth.

I claim securing artificial teeth to a plate in the roof of the mouth by means of a rebate in the inner face of the tooth, and a slide fitting the same and soldered or otherwise attached to the plate in the mouth, for the purpose and in the manner described.

To Joseph Grant, of Providence, R. I., for improvement in Brick Presses.

I claim, first, the form of the pressing plates thicker at one edge than the other, as shown, and for the purpose described.

Second, the motion of the followers or plungers (three) by rollers moving in fixed grooved channels (two) and acted upon by revolving cams, (two) producing a drop movement, and operating as herein shown and explained.

Third, propelling the machine forwards by means of wheels keyed on the mould cylinder shaft, for the purpose of depositing the bricks, as made, in regular layers for drying.

To Martin Rich, of Fairfield, Wisconsin, for improvements in Saw Mills.

I claim, first, the tightener and key, and the manner in which they are used in tightening the dogs, as herein set forth.

Second, I claim the movable arm to regulate the thickness to be sawed when changing from one thickness to another in the same log, without taking the dog out of the log, as herein described.

Third, I claim placing the second dog upon the main plate and adjusting it by the bolt and key, constructed in the form and manner, and for the objects and purposes herein set forth.

No other part of the said described dogs do I, in this my specification, claim as new or original, excepting such as above enumerated.

#### RE-ISSUES.

To G. H. Corliss, of Providence, R. I., for improvement in cut-off and working the valves of Steam Engines. Originally patented March 10, 1849.

I claim, first, the method substantially as described, of operating the slide valves of steam engines by connecting the valves that govern the ports at opposite ends of the cylinder, with separate arms of the rock-shaft, or the mechanical equivalents thereof, so that from the motion thereof the valve that keeps its port or ports closed, shall move over a less space, while its port or ports are closed, than the one that is opening or closing its port or ports, and vice versa, while at the same time the two arms, by which they are operated, have the same range of motion as described, whereby I am enabled to save much of the power heretofore required to work the slide valves of steam engines, and by which, also, I am enabled to give a greater range of motion to the valves, at the periods of opening and closing the ports, to facilitate the induction and eduction of steam, as specified.

And lastly, I claim the method of regulating the motion of steam engines, by means of the regulator, by combining the said regulator with the catches that liberate the steam valves, by means of movable cams, or stops, substantially as described.

To Calvin Adams, of Pittsburgh, Pa., (assignor to J. P. Sherwood, of Sandy Hills, N. Y.,) for improvement in Door Locks. Originally patented Dec. 17, 1842.

I claim making the cases in which the movements of locks and latches for doors are contained, double faced, or so finished that either side may be used for the outside, in order that the same lock, or case fastening, may

answer for a right or left hand door, substantially as described.

I also claim the peculiar construction and double action (upon an inclined and horizontal track or way) of the locking car, as described, and the combination of the locking car and two safety cars, with one another, and with the connecting or vibrating bar and bolt, as described, so as to fasten the bolt securely and prevent its being picked.

To Alex. Calderhead, of Philadelphia, Pa., for improvement in the Jacquard Machinery for weaving all kinds of figured cloth. Originally patented Feb. 3, 1841.

I claim, first, in connection with looms for weaving figured fabrics, depressing the suspension board, or its equivalent, while the corresponding pattern card, acting as a trap-board, or its equivalent, is elevated substantially as described.

Second, I claim working the card prism, by mechanism connected with the loom, and whilst the boards, or their equivalents, for working the harness, are not opening and closing the shed, substantially as described.

#### DESIGNS.

To M. C. Burleigh, of Great Falls, N. H., for Design for Stove Doors and Panels.

To James Hutchinson, of Troy, N. Y., (assignor to Deborah, A. E., and Nathaniel Powers, of Lansingburgh, N. Y.,) for design for Floor Oil Cloth.

To N. A. Batchelor, of New York, N. Y., for design for Clock Frames.

(For the Scientific American.)

#### Practical Remarks on Illuminating Gas.

(Continued from page 278.)

The production of gas from oil is a continuous process, and accordingly differs from coal gas. According to trustworthy statements, 1 cubic foot equal to about 6½ gallons of whale oil, will produce on an average 300 cubic feet of gas. Dr. Fife says that it is generally allowed that by cautiously conducted trials, a gallon of whale oil will yield 100 cubic feet of gas; but this is seldom attained in practice, unless the gas is of inferior quality; for it is well known that by a particular mode, a large quantity of poor gas may be procured; he also says, "I am inclined to think, that in practice, there is in the conversion of oil into gas, a loss of about one-half."

Another material from which gas is generated for illuminating purposes, and which is more or less used at the present time, is Rosin!

Resin.—Resinous bodies form a very numerous class of vegetable substances. When volatile oils are exposed to the action of the air, they become thick after a time, and are then found to be converted into resin. The oil absorbs oxygen from the air, and is deprived of part of its carbon, which, combining with the oxygen of the atmosphere forms carbonic acid. Resinous substances therefore are generally considered as volatile oils saturated with oxygen. The resinous substances are divided into numerous species, such as copal, shellac, benzoin, rosin, &c., the latter only will now command our attention, as it is this species that has been made available for illuminating purposes.

Rosin (or colophony).—This substance is extracted from different species of the fir, and the resinous matters obtained have been classified, and have received different appellations. That procured from the "pinus sylvestris" is the common turpentine; from the "pinus larix" Venice turpentine; and from the "pinus balsamea" the balsam of Canada. The turpentine is obtained by stripping the bark off the tree; a liquid juice flows out, which gradually hardens; this juice consists of oil of turpentine and rosin; by distilling, the turpentine passes over, and the rosin remains behind; by distilling to dryness common rosin is obtained. The yellow color is given to rosin, by adding water while it is in a fluid state; it being incorporated with it by agitation.

Rosin Gas.—If rosin was naturally fluid instead of being solid, there would be no difference in the mode of obtaining gas from it to that practiced in the oil gas manufacture; as this, however, is not the case, it becomes necessary to render the rosin fluid by some suitable means, that it may be easily supplied to the retort; for this purpose the flame from the retort fire, before escaping by the chimney, is employed, by being allowed to pass around the reservoir containing it. Gas is generated

from rosin in precisely the same manner as from oil, and the apparatus for both are similar in construction. Rosin is composed of carbon, hydrogen, and oxygen, its atomic formula being  $C_{10}H_7O$ . When decomposed these elements form new combinations and yield bi-carburetted, light carburetted hydrogen, carbonic acid, oxygen, and free hydrogen; there is also a large deposition of carbon formed upon the retort. The temperature of the retort should be somewhat higher than that required for the decomposition of oil; if the retort is too cold, a considerable quantity of essential oil is distilled, the vapors of which pass over, while the oil remains behind.

The opening of the retort for the removal of the coke, or whatever material may be used to increase the heated surface, becomes necessary much oftener in the manufacture of rosin gas than it does in oil gas; and where large quantities are manufactured, the renewal takes place every few hours; this operation is accompanied by an escape of a large quantity of light amorphous carbon, in the form of lampblack, which is conveyed through the air considerable distances, settling upon all contiguous surfaces, and is a constant source of annoyance to the inhabitants residing in the vicinity of such works. Rosin gas has not so high an illuminating power as that generated from oil; nevertheless it is much more desirable, being more free from the obnoxious odor which accompanies the latter, arising from the decomposition of animal matter contained in the oil, and which is brought over with the gas and condenses in the pipes, and not containing so much aqueous vapor which is condensed at common temperatures, and by which much is lost and great inconvenience caused by the clogging up of pipes.

Rosin is oftentimes introduced into coal retorts in a solid state in company with the coal; but this is only done when it is necessary to generate gas in a limited space of time, and more rapidly than can be done with coal alone. In cases of emergency it has been used with advantage, as it becomes decomposed and liberates its gases so quickly.

Rosin gas works have been erected, and companies formed for the purpose of manufacturing and supplying this gas; but they have not been successful; the expense attending the generating is the prime difficulty, and the fluctuating price of the raw material is also a great source of uncertainty. In New York this gas was at one time manufactured upon a large scale, but it has now been entirely given up and coal gas substituted. In Boston likewise for many years this gas was manufactured to a great extent, but is now entirely abandoned. Works were erected in a neighboring city a few years since, and after struggling along for some time, endeavoring to manufacture a gas satisfactory to their consumers, and receiving no remuneration for the investment, they were abandoned, and coal gas works erected in their place, at a great sacrifice of property. J. B. B.

#### Blasting Rocks.

Blasting rocks by the old process consists in making holes in a proper spot, by using a heavy iron bar, of which the successive strokes produce the desired effect; the hole then is cylindrical and rather conical, being wider at the top by the friction of the rod bar against its sides. The powder has not then all the effect which it could have, and can never be used in large quantity. A process used with full success, is this: a deep hole is first made in the above manner, then a glass tube is inserted, and strong sulphuric acid mixed with a small proportion of water is poured in; the acid dissolves part of the stone; the sulphite is then extracted and the bottom washed by sending down some water, which is pumped out by any means whatever; this operation is repeated as many times as is necessary to produce at the bottom of the hole a kind of pouch, which is well dried by using rags or anything similar. This pouch is then filled with powder by the common process of ramming, and then blasted. The quantity of powder being as large as it may seem necessary, permits to blow up, with a single charge, as much as with ten of the old process, and to have larger blocks if desired.