



Reported Officially for the Scientific American
LIST OF PATENT CLAIMS

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LOCK—By Albert Betteley, of Boston, Mass.: I claim, first, holding the tumblers rigidly, so that they cannot be moved, when the key-hole is exposed by means of a cam placed on the shaft with the cam which moves the bolt.

Second, I claim so arranging the tumblers with the key, that the tumblers will form themselves into the right position, so that the bolt can be withdrawn by dropping by their own weight, or being pressed by springs upon the keys, as described.

SAW MILLS—By Wm. C. Bronson, of Erwin, N. Y.: I claim the construction of a saw-frame or gate of metal tubes constituting the guides, as well as the uprights of said frame and cross-pieces, or heads, united to said uprights in the manner set forth.

I also claim the arrangement of the cross-hooked bar and hooks on the ends of the saws, in combination with the sustaining side bars and upper open plate, for the purpose and in the manner substantially as set forth.

[We believe this is a good improvement. See engraving in No. 48, Vol. 6.]

SPINNING BAIT FOR CATCHING FISH—By J. T. Buel, of Whitehall, N. Y.: I claim, first, constructing a bait with an air-tight chamber, which chamber is provided with an aperture or apertures for the admission of air, when fishing light, near or on the surface of the water, and for the admission of water when it is desired to fish deep under the surface of the water, substantially as specified.

Second, I do not claim passing the line through a cork or float, that the float may move freely upon the line; neither do I claim attaching a spinning bait to the line by means of a swivel, but I claim passing the line through a tube in the body of a spinning bait, substantially as described, to enable the bait to twirl freely, without twisting the line.

STONE CUTTING MACHINES—By John W. Cochran, of Williamsburgh, N. Y.: I claim, first, cutter jaws or their equivalent, combined with and carrying a cutter across the stone, in the segment of a circle, the cutter being so set that the part of its periphery in contact with the stone, when cutting, inclines towards, and the part of the periphery opposite thereto, from the axis or centre of motion of the cutter jaws.

Second, the application of revolving cutters to dressing stone, moving and cutting in a curved line across the stone, and on a convex edge of the undressed portion of the surfaced formed by the line of cut, and cutting towards the centre of motion of the cutters in such curved line.

Third, the combination of a rock shaft with cutter jaws to carry the cutters over and clear from the undressed portion of the stone, substantially as described and set forth.

Fourth, the combination of the rock shaft, guide table, and friction rollers and their equivalents, substantially as described and set forth.

Fifth, the combination of the rock shaft and cam and roller, to produce the rocking or trembling motion, substantially as described.

[This is a most excellent improvement.]

APPARATUS FOR CLOSING DOORS—By M. T. Cooper, of Ballston Spa, N. Y.: I claim the combination of the heavy roller upon a vibrating arm, with the turning railway or inclined plane, the former attached to the door and the latter to the casing, and the whole operating substantially in the manner and for the purpose described.

HORSE COLLARS—By H. B. Latham, of Huntington, N. Y.: I claim, first, the spring and staples to connect the upper ends of the hames, as described.

Second, I claim so constructing and fitting the collar and hame, that the hame shall work or slide on the collar, by any jerk or lurching of the harness, for the purpose of relieving the animal—said collar and hame being fitted with the rivets or their equivalents, to allow the one to slide on the other, and being connected by the bolts, or their equivalents, as described.

ATTACHING ROSES FOR KNOBS TO DOORS, etc.—By Nathan Matthews, assignor to Richard Edwards, D. A. Morris & Nathan Matthews, of Pittsburgh, Pa.: I do not claim the mere employment of a dovetail joint for securing the circle plate in its place; but I claim the combination, substantially as described, of the circle plate, having dovetails on its inner face, the dovetails which are fast on the door or other object, and the shank or socket of the knob, or what is equivalent, any spindle or shaft attached to the knob or handle.

COAT FORMS—By Wm. B. Olds of Meriden, Ct.: I claim the bow in form, substantially as described, suspended by a shank at a point distant, horizontally, from its vertex, on a pivot, or its equivalent, which is stationary in a bracket, or any suitable standard, or pendant, so placed or constructed as to allow the bow to turn round in any direction, as set forth.

MOTH TRAPS TO BEE HIVES—By E. W. Phelps, of Newark, O.: I claim the peculiar construction of the moth traps as described, composed of a slide having the centre groove and two side grooves, and the metallic hinged cover arranged as set forth.

BUTTONS, STUDS, etc.—By David Rait, of New York City: I claim making a stud, button, or other similar fastening, or article of jewelry, in two parts—one part carrying a tube, and the other part, with two snap springs, operating in the manner substantially as set forth.

[This is a very simple and convenient improvement. The patentee is a manufacturing jeweller at 375 Broadway.]

SMUT MACHINES—By Daniel Shaw, of Cheshire, O.: I claim the offset, that is to say, enlarging the space of the hollow trunk on the opposite side thereof, from that at which the grain is admitted, in combination with the screen, spout, passage, and valve, for taking the dust, etc., into the fan case, whereby the cheat and light grain which will pass up the spout with the impurities, is effectually separated and delivered through the spout, substantially as set forth.

IMPROVED HARPOON—By J. D. B. Stillman, of

New York City: I do not claim making the flukes separate from the point, or causing the latter to enter deeper than the former, into the body of the whale; but I claim the combination of the sliding and unlatching flukes with the lance, and the lines, or their equivalents, by means of which the point is driven deeper by the drag, or traction on the line, substantially as described.

MECHANISM FOR ACTUATING AN ADJUSTABLE ECCENTRIC—By Mathew Stubbs, of Cincinnati, O.: I claim the described devices for the adjustment of an eccentric sheave, that is to say, the sheave stock arranged so as to traverse a bed plate, at right angles to the shaft, or axle, and operated by a hand bar through the medium of suitable levers and yoke connects with a sliding collar, from which projects a rack which gears into a pinion upon the screw which actuates the sheave; and this I claim, whether or not the same be combined with the vibrating arm and shifting pin, as for variation of the throw.

GRAIN SEPARATORS—By John Thompson, of Chili, N. Y.: I claim the novel arrangement for separating the grain from the straw, by which the slats provided with teeth, have a rotary and lateral motion, said motion produced, substantially, as described, or in any equivalent manner, in combination with the inclined slats, whereby, by their combined action, the grain is perfectly and rapidly separated from the straw, operating in the manner and for the purpose set forth.

BOOT JACKS—By Sardis Thomson, of Hartsville, Mass.: I claim, first, the heel gripper and stirrup, in combination with the lever, to draw the stirrup over and hold the toe of the boot, in the manner and for the purpose set forth.

Second, I claim the movable heel gripper, in combination with the connecting rod and stirrup, constructed, and operating, substantially the same as described.

SEED PLANTERS—By Jesse Urmy, of Wilmington, Del.: I claim the jointed tooth attached to the beam in combination with the swivelling bifurcated spout, to direct the corn, as specified, for ribbed seeding.

I also claim the combination and arrangement of the counter with the clutch, as described, so that the counting shall stop when the seed is not delivered.

I also claim the finger register and its appurtenances, as described, for regulating the quantity of seed delivered.

I also claim, in combination with the seeding apparatus, the pulverizer for guano, &c., constructed and arranged as set forth.

RAILS AND CAR WHEELS—By John Valentine, of New York City: I claim the guide wheels, in combination with the rail, constructed as described, and the carriage, said wheels having their circumferences bevelled so as to expose two surfaces to roll upon, one to project against the side of the rail, and the other to come in action upon the surface of the inner strip, forming part of the chair, when the guide wheels become burthen wheels, as described, the whole being constructed and operating substantially as set forth.

RE-ISSUE.

FURNACES FOR SMELTING IRON ORE; Patented originally Oct. 31, 1839—By J. A. Roth, of Philadelphia, Pa.: First, I do not claim the increasing of the draught as separately by itself.

Second, I do not claim to generate steam, or to heat the blast by waste heat, otherwise than claimed; I therefore only claim the arrangement of the fire chambers, opening each by a flue into one horizontal flue, in combination with the boiler plate in said flue, for generating steam, and the pipes therein, as means of heating the blast; the whole being constructed and operating as described.

[In the above short list of patents, granted last week, we have the pleasure of recognizing no less than four cases which were secured through the "Scientific American Patent Agency."]

Chimneys of Boilers.

A chimney should be constructed with reference to the volume of air it is necessary in a given time to supply to the fuel. The area of the chimney requires to be such as will allow the products of combustion to pass away in such a period as will let the requisite quantity of air go into the furnace in a specified time. A pound of wood requires about 4½ lbs. air for its combustion. It is therefore necessary that if 10½ lbs. of wood are consumed every hour, or during any period of time to produce steam equalling in amount one horse-power, that the chimney will have to be of such a capacity as will allow all the carbonic acid gas to pass away, or to make it more plain, call it 47½ lbs. of rarified air. Now, the question, "what should be the proper height of the chimney, its area, &c., for every steam boiler" are not thoroughly understood, or why would there be such a variety of opinions among engineers on the subject, as has been proven by the evidence adduced in the case of "the Wheeling Bridge and long chimney steamboats." The following are the rules for chimneys laid down by "Bourne:"

"If 200 cubic feet of air of the atmospheric density are required for the combustion of a pound of coal, and 10 lbs. of coal per horse-power per hour are consumed by an engine, then 2,000 cubic feet of air must be supplied to the furnace per horse per hour, and the area of the chimney must be such, as to deliver this quantity at the increased bulk due to the high temperature of the chimney when moving with the velocity the rarefaction within the chimney occasions, and which is usually such as to support a column of half an inch of water. The velocity with which a denser fluid flows into a rarer one is equal to the velocity a heavy body acquires in falling through a height equal to the difference of altitude of two columns of the heavier fluid such as will

produce the respective pressures; and, therefore, when the difference of pressure or amount of rarefaction in the chimney is known, it is easy to tell the velocity of motion which ought to be produced by it. In practice, however, these theoretical results are not to be trusted, until they have received such modifications as will make them representative of the practice of the most experienced constructors. Boulton and Watt's rule for the dimensions of the chimney of the land engine is as follows:—Multiply the number of pounds of coal consumed under the boiler per hour by 12, and divide the product by the square root of the height of the chimney in feet; the quotient is the area of the chimney in square inches in the smallest part. A factory chimney suitable for a 20-horse boiler is commonly made about 20 inches square inside, and 80 feet high, and these dimensions are those which answer to a consumption of 15 lbs. of coal per horse-power per hour, which is a very common consumption in factory engines. If 15 lbs. of coal be consumed per horse-power the total consumption per hour in a 20-horse boiler will be 300 lbs., and 300 multiplied by 12=3,600, and divided by 9 (the square root of the height)=400, which is the area of the chimney in square inches. It will not answer well to increase the height of a chimney of this area to more than forty or fifty yards, without also increasing the area, nor will it be of utility to increase the area much without also increasing the height. The quantity of coal consumed per hour in pounds, multiplied by 5, and divided by the square root of the height of the chimney, is the proper collective area of the openings between the bars of the grate for the admission of air to the fire.

In steam vessels Boulton and Watt allow 8½ square inches of area of chimney per horse-power, and in marine flue boilers they allow 18 square inches of sectional area of flue per horse-power; but this proportion appears to be one-third greater than what is allowed by many other makers, whose boilers, however, are scarcely so conspicuous for an abundant supply of steam. The sectional area of the flue in square inches is what is termed the calorimeter of the boiler, and the calorimeter divided by the length of the flue in feet is what is termed the vent. In marine flue boilers of good construction, the vent varies between the limits of 21 and 25, according to the size of the boiler and other circumstances—the largest boilers having generally the largest vents; and the calorimeter divided by the vent will give the length of the flue in feet. The collective area for the escape of the smoke and flame over the furnace bridges in marine boilers is 19 square inches per horse-power, according to Boulton and Watt's proportion.

Crossley's Patent Carpets.

The following is a description of the new style of carpets invented by Thomas Crossley, of Roxbury, Mass, and for which a patent has been granted, the claim of which was published three weeks ago on our patent list, page 222. This description is furnished by the patentee:—

"First. The Patent Ingrain Carpeting is woven plain, without colors or figure, in two or more substantial Plys or layers of cloth, and ingrained or connected together at various points, which is done by causing the warp of one ply or layer at such points to be woven in and become a part of the other ply or layer.

By thus Ingraining together the several plys of cloth, great strength and firmness is given to the fabric. And generally the nearer such points of ingrained cloth come together, the better may the carpet be expected to wear. In the patent ingraining carpeting this ingraining occurs at short intervals.

In ordinary Ingrain Carpeting, the Ingraining or connecting together of the several plys is regulated wholly by the kind or size of the figure woven, as for instance, in large figures where the several objects combined to make up the pattern are bold and striking, there will be found great quantities of plain or open cloth in sections of considerable size when the several plys of cloth are not at all connected together.

This absence of Ingraining is wholly unavoidable, as when the Pattern is woven the

contrast between the figure and the ground cannot be preserved but by keeping the colors of the several plys, and therefore the plys themselves entirely separate. Hence people generally prefer small figures to large ones, owing to the greater amount of ingraining, and consequently of service contained in the former over the latter.

Secondly. The cloth after being sheared and dressed, receives the pattern and colors from blocks or rollers, upon one or both sides. When both sides are figured, the back or under surface is stamped first with one style of pattern and colors, and the face or upper surface with an entirely different style of pattern and colors,—giving a variety of style never before obtained in any other kinds of carpeting.

Another new and important feature in the Patent Ingrain Carpeting is discovered in the fact that the colors stamped upon one surface do not appear through on the other side. This is prevented by the peculiar construction of the cloth. No other fabric of woolen, or where wool is a component part, has ever been printed upon one side, without more or less showing through upon the other surface."

[We understand the invention completely by the claim; but those of our readers not acquainted with the manufacturing of carpets could not; this description of Mr. Crossley will be interesting to them. Common two and three ply carpets are exceedingly dear, considering the coarse and miserable texture of them. This is owing to the difficulty of making them. They have to be wove by pattern on the Jacquard machine, and are very expensive to make in all their details. This improvement will furnish us with carpets having duplicate designs—one on each side—and the carpet will be woven much closer if not, it will afford the public no benefit, as the colors of common carpets are differently blended on each side. This carpet is printed like a book or newspaper; we have never heard of carpets being so printed before, and must consider it a great improvement. We suppose that Mr. Crossley washes his carpets after they are printed to remove any surplus acid in the colors. This will render them superior when dried, pressed, and finished, to other three ply carpets, as by these processes the carpets will be semi-fulled and rendered superior in quality.]

Loss of the Amazon.

The commissioners appointed by the British government to enquire into the cause of the burning of the Amazon, have made a report. It states that they cannot account for the fire, but that they attribute the loss of so many lives, to the efforts of the officers to subdue the flames, instead of first taking measures to save the lives of those on board. They recommend that every steamship should have force pumps to be worked by hand, as well as those which are worked by the engines. The very thing invented by a correspondent on page 223, this Vol., Sci. Am., and for which our Patent Office refused a patent.

Important to Merchants and Pilots.

Judge Kane has decided that a vessel and her owners are not liable for injuries done by her collision with another vessel, if she has a pilot on board; but that the pilot is responsible for any damage done to other vessels, by collisions while he is on board. Judge Kane decided that the pilot is not the servant of the owners, as the law compels them to take him on board, and that they are not responsible for his neglect, misconduct or want of skill. This is an important decision, and will render legislative action desirable to increase the security now required to be given by pilots for their good conduct and the faithful discharge of their duties.—[Phila. Ledger.]

Fresh Water on Shipboard.

It is stated that a very important step has been taken in the British navy to secure a supply of fresh water at sea. A compact distilling apparatus has been adjusted to the cabooses, whereby, with the usual, or little more than the usual expenditure of fuel, a full daily supply of sweet, wholesome water is procured for the ship's company. A similar apparatus, it is said, has been applied to one of the Philadelphia steamships.