



Reported Officially for the Scientific American. LIST OF PATENT CLAIMS ISSUED FROM THE UNITED STATES PATENT OFFICE FOR THE WEEK ENDING SEPT. 4, 1855.

ELECTROLYSIS—J. A. Adams, of Brooklyn, N. Y.: I claim the electrolysing or vibrating brush, operated as shown, or in an equivalent way, for the purpose of covering or coating the molds for electrolysis purposes with any proper powdered substance, the said vibrating brush being combined when necessary, with a carriage, N, arranged as shown, or in an equivalent way, so that the whole surface of the molds may be presented gradually or successively to the action of the brush as the molds pass under it.

[When a page of type, or a wood engraving, is to be duplicated by the electrolysis process, an impression of the article to be reproduced, is taken in soft wax. The mold thus made is dusted over with finely ground plumbago, and then placed in a solution of sulphate of copper, where it is subjected to the galvanic battery. The plumbago serves as a metallic base, on which copper is deposited in the same manner that substances composed wholly of metal, are coated or galvanized.]

The dusting of the wax molds has heretofore been done by hand, which is a slow and laborious operation; it is also imperfect, for unless great care is taken to dust every portion evenly, the electrolysis will prove defective. The present improvement accomplishes the dusting wholly by mechanism, and executes the work better, cheaper, and far quicker than it can otherwise be done.

The above is an important improvement; it is now in successful operation at the large Electrotyping establishment of Filmer & Co., 123 Fulton street, over the Scientific American office. The Electrotype is fast superseding the Stereotype, in the art of printing.]

MOWING MACHINES—C. B. Brown, of Alton, Ill.: I claim, first, attaching the finger bar, F, to the bar, D, of the frame by means of the plates, H, placed each side of the bars near their ends, which overlap each other, the plates being bound or pressed against the sides of the bars, by means of screw bolts, J, which pass between the two bars. The ends of the bars having screws or screw bolts, K, passing vertically through them.

Second, I claim constructing the frame of the machine of two metallic sides, D, D', between which the driving wheel, A, is placed, and attaching the bar, D, to the lower ends of said side pieces, and also the draught pole or tongue, E, as shown. [Without engravings it would be difficult to give a correct idea of the precise application of these improvements. It is sufficient to say that they tend to cheapen the construction of the machine, to render it more durable, lighter, and easier of draft. Every such advantage gained is an advance worthy of special note. Mowing machines are coming into such extensive use that their improvement, in any respect, is a matter of deep interest to agriculturists. Mr. Brown's invention is ingenious and excellent. It consists, first, in a peculiar way of attaching the finger bar to the main bar of the machine. Second, in the construction of the frame of the machine; and, third, in the management of the gearing, by which motion is communicated to the sickle.]

VALVES FOR REGULATING STEAM ENGINES—P. W. Mackenzie, of Jersey City, N. J.: I claim, first, the construction and arrangement of the cut-off valve, I, and its seat, H, M, L, and the disk, K, and the application to the said valve of a variable spring, P, or their equivalents, whereby the valve is made to cut off the supply of steam by the action of the current of steam in the passage from the boiler to the engine, when it has attained the desired speed. Second, the employment, in connection with the cut-off valve of the piston, J, working in the cylinder, E, which prevents the too sudden opening of the said valve, the said piston cylinders and valves operating as set forth.

Third, providing for the opening of the cut-off valve by means of the spring, P, as soon as the slide or other induction valve, covers the part of the cylinder by the employment of a stop, P', to prevent the entire closing of the said valves.

OPERATING AND DUMPING EARTH CARTS—Rich. Ray of Louisville, Ky.: I claim the method of operating alternate trucks, upon a double railway track, by the several devices, as described.

I also claim the automatic delivery of the loaded cars, constructed as described by several devices thereon, in combination with a post, O, situated between the tracks. I claim the device for closing the bottoms, A, of the cars, as described.

OPERATING DUMPING CARS—Richard Ray, of Louisville, Ky.: I claim the use of the guide bars, k and m, when in combination with car d, constructed with the arc, e.

SEEDING MACHINES—E. and G. Stephenson, of Plainfield, Mass.: We claim distributing or conveying the seed from the box, E, to the conveying spout, F, by means of the tube, L, with plate A' attached, the tube being secured within a shaft, L', which has a reciprocating rotary motion.

[This seed sower is very simple in its construction; the above claims are an explanatory of the mechanism as a description would be without diagrams. The machine is capable of sowing the seed either in drills or in hills, according to the pleasure of the operator; the change from one to the other involves only the turning of a nut or two. Corn or clover—the largest or the smallest seeds—each may be sown with equal facility, without delay or inconvenience in adjusting the parts. The machine is cheap, effective, and easily managed. It ranks, in our opinion, among the best implements of its class.]

SAWING HOOPS—Elias Strange and Thos. B. Smith, of Taunton, Mass.: We claim the employment of two reciprocating saws, G, G', arranged as shown, viz, one saw being secured in a laterally sliding sash, and the other in a permanent sash, or one which only has a reciprocating motion in a vertical direction. [Considerable difficulty has been hitherto experienced, in pole hoop sawing machinery, to retain an even thickness in the hoops,—cut off, as they are, from long, tapering, crooked poles. The present improvement accomplishes this peculiar operation with an uncommon degree of perfection and rapidity. Two upright saws are arranged, side by side, and against them the hoop pole is fed, by means of roller. One of the saws, and one set of the rollers, are placed in a yielding frame, which readily expands or contracts, according to the irregularities of the pole. Two hoops, both of an even thickness, are cut by one passage of the stuff through the machine. For the purposes intended, this is a valuable improvement. To its ingenious inventor it will doubtless prove, in a pecuniary point of view, highly remunerative.]

SUPPORTING SHIPS' TOPMASTS—Thos. Batty, of Brooklyn, N. Y.: I claim the employment, for the purpose of supporting or assisting to support the topmast or top-gallant mast and superincumbent spars and rigging, and for setting up the same when necessary, of two diagonal double screwed iron stays, e, constructed and applied as described between the cap of the lower mast and the heel of the topmast.

[Ordinarily, the lower end of a ship's topmast is supported on what is known, in nautical parlance, as a "fid." This consists of a square bar of iron, which passes through the heel of the topmast, at right angles to the latter. The "fid" rests on the "trestle trees," which are two stout horizontally projecting pieces, secured near the top of the lower mast. In all vessels there is more or less tendency in the "trestle trees" to sag down out of a horizontal position; for upon them falls the entire weight of the topmasts with all their spars, sails and rigging. It is no easy matter to restore the topmasts of their proper position, when once the "trestle trees" have given way. Mr. Batty supports the topmast by providing two iron straps, which extend, on an angle, from the cap of the lower mast, to the ends of a bolt that passes through the heel of the topmast and answers as a "fid." The heel is also furnished with a strong iron thimble. Both straps are made in two pieces, united at their centers by nut and screw; whenever it becomes necessary to raise the heel of the topmast, it may be done in a moment, by screwing up the straps.]

Mariners, and all others acquainted with the rigging of vessels will see, at a glance, the great superiority of this improvement over the common plan. It is so much cheaper and better that it must soon come into very extensive use.]

TELEGRAPHIC TIDE GAUGES—Alex. Boyd, of Lumberland, N. Y.: I do not claim the employment of a float and weight for indicating the height and weight of water in channels and passages, irrespective of the mechanism shown for transmitting motion to the slides, by which the lights are obscured and exposed, for they have been previously used. But I claim showing and obscuring a series of lights, J, successively so that the height of the water may be indicated by the number of lights visible by means of the slides, H, provided with projections, M, and the rod, S, attached to a rope or chain, V, said rod, S, operating the slides, the rope or chain, V, working over pulleys, B, and moved and operated by the shaft, G, which receives its motion by means of the float, C, and weight, H.

[Throughout the long extent of the American sea-board there are many harbors, much frequented by coasting and other vessels, where the entrances are blocked by sand bars or reefs, over which, at certain stages of the tides; there is not a sufficient depth of water to permit safe navigation. The same may be said of various shoals. It is often a matter of difficulty for a mariner, in approaching such places, to determine whether or not the depth is sufficient for his vessel; through a want of correct information he is often delayed from going into port, and is driven off by a storm; or, what is more frequent, his ship strikes bottom and becomes a wreck. Mr. Boyd has produced a very excellent invention whereby all such difficulties may be avoided. He erects a frame-work on the locality of danger, in which he places a combination of simple mechanism for raising and lowering signals,—flags, or balls, for the day time, and colored lights for the night. The mechanism is operated by a float resting in the water. As the tide rises and falls the machinery moves and the signals change. Thus, there may be a signal for each foot of depth; when the water is two feet deep, two signals will be shown; as soon as the tide has risen another foot, three signals will be exhibited—and so on, vice versa. The advantages of this invention are so self-evident that we need not enter into a detail of them. We regard it as an important improvement, and trust that it may find a very extensive introduction. The number of lives, and the amount of property annually lost, for want of some such system of signalization along our coasts, is immense.]

CHIMNEY STACK OR CAP—M. M. Camp, of New Haven, Ct.: I do not claim either of the parts, as such, nor any two of them combined. But I claim the combination of the three parts, A, C, D, when constructed, arranged, and combined, as described. MOLD FOR BACKING ELECTROTYPE SHELLS—Aaron D. Farmer and Hanson Rathbone, of Brooklyn, N. Y.: We claim the use of the mold frame, B, or its equivalent, in combination with the bed plate, A, to plate, C, and clamps, and handle, G, or their equivalents, for the purpose substantially as described, for backing electrotype shells. DOVETAILING MACHINE—J. J. Haley, of Philadelphia, Pa.: I claim the forming of a dovetail, either as a mortise or a tenon, at a single operation, by angularly placed reciprocating chisels, A, A', in combination with horizontally placed chisels, O, O', arranged substantially as set forth. I claim giving a reciprocating motion to the chisels, O, O', by the small cam, L, in combination with the chisels, A, A', and a gear, D, O, and pitman rods, H, H', for the purpose of actuating the chisels in unison with each other, in the manner described. I claim the arrangement of the angular, E, E', in combination with the guides, F, for the purpose of effecting the under cut or sides of the dovetail. I claim the arrangement and combination of the angular guides, E, E', and chisels, A, A', on stocks, F, F', with the horizontal chisels, O, O', and guides, M, and snail, I, on shaft, H, for producing the dovetail and completing the mortise, in the manner set forth.

GRASS HARVESTERS—Jonathan Haines, of Pekin, Ill.: Adjustable seats, or seats that can be adjusted, have been used; but to do this the machine must be stopped, and the adjustment, when made, is permanent, this I do not claim. But I claim, first, the hanging of the cutter bar to the main frame, by means of the longitudinal, K, and transverse rods, M, so that said cutter bar may be free to rise and fall to the undulations of the ground, while it is prevented from all lateral motion. I also claim the use of a driver's seat when mounted on ways or rails, so that the driver can, at pleasure, throw his weight forward or backward, to aid in balancing or relieving the cutters, as the variable character of the ground or condition of the grass may require.

CORN SHELLER—J. V. Horne, of Magnolia, Ill. I claim the revolving cylinder, E, furnished with buckets, D, flanching, P, and holes, F, in combination with the revolving cylindrical screen, F', for the purpose of cleaning the grain separating the chaff, and elevating the grain and delivering it, in the manner set forth. [In this corn sheller, the ear passes between a toothed cylinder and a concave plate, whereby the grain is instantly stripped off; the corn and cob then fall into a revolving screen, which conveys the cob away out of the machine, while the corn falls through the meshes of the wire on to a concave receiving pan. The winnowing is done by a fan which sends a blast of air, lengthwise, through the screen. The grain is elevated high enough for tagging, by means of miniature elevators. This improvement combines all the conveniences that could possibly be desired in a corn sheller. The old-fashioned shellers are simpler in construction, but they only half do the work. Mr. Haine's machine shells, separates the cob, cleans and bags the grain, all by the turning of one crank.]

BRICK MACHINES—J. A. Victor, of Montgomery, Co., Ky.: I claim the combination of the endless chain of molds connected substantially as described, with the two sets of rollers, one of the upper of which, in addition to aiding in drawing the mortar through, at the same time compresses the clay in the mold.

HARVESTERS—A. E. Kroger, of Norwalk, Ct.: I claim attaching the finger bar, D, to the front bar, A, of the frame, A, by means of the rods, C, C', which slide through the ends of the bar, A. The rods, C, C', being encompassed by springs, D', D', as shown. [New England soil is proverbial for its stones and rocks. Many of her meadows are so abundantly supplied, in this respect, that the mowing machines of ordinary construction cannot be operated in them to advantage, although on smoother soils they are entirely successful. Mr. Kroger's improvement is intended to obviate all the difficulties which have hitherto attended the use of this species of mechanism on rough grounds. In the first place, he curves up the fingers a little, in front, so that, on meeting an obstruction, they will be likely to rise up and slide over the same; second, in the attachment of the finger bar to the frame, he employs springs, in such a manner that when one end of the finger bar strikes a stone, the bar yields and easily glides over the obstacle, without raising the whole machine. These are excellent improvements, and reflect much credit upon the mechanical genius of the inventor.]

TO PREVENT AN OVER-SUPPLY OF COAL TO THE FIRE BOX OF HOT AIR FURNACES—L. W. Leeds, of Germantown, Pa.: I claim the arrangement in the fire chamber of the balance valves, H, H', for the purpose of preventing an undue quantity of coal from remaining in the fire box. CONSUMING ESCAPE STEAM AS AN ADJUNCT IN HEATING FURNACES—Thos. Maskell, of Franklin, La.: I claim the use of escape steam decomposed at a high heat by means of a pipe, B, and bulb, C, or their equivalents, so placed above the bed of coal, as to admit of the coal being readily with the gases eliminated therefrom as an economical adjunct in heating boilers, as set forth.

FOUNTAIN PEN—G. W. White, of Mt. Vernon, N. Y.: I claim the manner of constructing the holder by having two small tubes, one fitting close over the other, the inner tube joined to the main band, and the outer tube having the holder for the pen attached, and having a hole drilled through both tubes, on the side that the pen is attached, so that the ink may flow out into the pen, r, when the outer tube is turned or revolved around on the inner tube, the holes are turned away from each other, and the holder closed; this outer tube to be turned and regulated by means of a small projection on each tube to the place desired.

SPIKE MACHINE—Amos Whittemore, of Cambridgeport, Mass.: I claim pointing the spike by means of the inclined bed, A, the advancing roller, e', the inclined surface, F, and the pressing roller, J, as set forth.

UNIVERSAL DOG FOR PLANING MACHINES—Solem S. Gray, of South Boston, Mass., assignor to himself and S. A. Woods: I claim, first, the arms, F, F', in combination with a pivoted clamp, whereby it is rendered rigid when desired, as described. Second, I claim placing the screw which forces up the clamp above the level of the dogs, for the purpose set forth.

LOCOMOTIVE LAMP CASE—Salmon Bidwell, of Rochester, N. Y.: I claim the placing of the chimney, horizontally, and in such a position as to discharge the smoke near the top and behind the lamp, as described.

DESIGNS. TRADE MARKS—Thomas Lewis, of Malden, Mass. COOKING STOVES—Wm. T. Coggeshall, of Fall River, Mass.

Steamships Building in New York.

The new steamship *Adriatic*, for the Collins' line, is being built by George Steers, and is intended to be ready for launching early next spring. The steam frigate *Niagara*, which is being constructed by the same nautical architect, will be ready for launching in December next.

The large steamship *Cornelius Vanderbilt*, (the name of its owner), for his Havre line, is being pushed forward rapidly by its builder, Mr. Simonson, at Green Point. It will be 3,500 tons burden, and be driven by two immense *over head* beam engines, which are now being constructed at the Allaire Works.

The steamship *Fulton* has just been launched from the yard of Smith & Dimon. She is 2,500 tons burden, and is intended for the Havre trade. We have been informed that the engines of the *Adriatic* and the *Fulton* are to be oscillators—vibrating cylinders—like the Arago. They are more simple and cost less than either "side levers" or over-head beams, but whether they will prove as economical in the long run, has yet to be determined. These steamers will, no doubt, settle the question, which has hitherto been a mooted one with marine engineers.

A Farm Steam Engine.

One of our correspondents—A. C. Ireland, of Chillicothe, Ohio—informs us that a neat portable steam engine, for driving a grain thrasher and separator, has been constructed at the machine shop of Wm. Welsh, of that place, under the superintendence of John Ritchie, and has been in operation since the 5th of last July, thrashing and cleaning from five to six hundred bushels per day. It is capable of doing more than this, but H. Wade—for whom it was built—says that this is excellent work. The boiler is tubular, the cylinder is of 6 inches bore and 12 inches stroke. It makes 175 revolutions per minute, with steam at 40 lbs. pressure, and does more work than any common thrashing machine driven by eight horses. It is placed on broad tread wheels, four feet in diameter, is easily drawn from place to place by two horses, with the boiler filled, and is very economical in the use of fuel. This engine is capable of driving various agricultural machines and sawing firewood for the family. We have no doubt but portable steam engines will yet come into more general use among our farmers, as they are so convenient and easily

managed in comparison with horses. We believe that on every farm numbering a hundred acres, and upwards, a portable steam engine could be profitably used.

The Greatest Coal Field in the World.

The coal field of what is called "The Ohio Valley," is by far the largest in our globe.—This valley comprehends all that space of country penetrated and watered by the Ohio river and its tributaries, such as Western Pennsylvania, Western Virginia, all of Ohio, Indiana, and Illinois, up to the narrow rim of the Lakes and the States of Kentucky and Tennessee. It embraces a surface of about 230,000 square miles; and on that surface the coal basins, or in other words, the surface which is underlaid with coal is, according to the best authorities as follows:

Table with 3 columns: State, Surface, sq. miles, Coal Surface. Includes entries for Western Pennsylvania (20,000 sq. miles, 10,000 coal), Western Virginia (25,000 sq. miles, 13,000 coal), Ohio (35,000 sq. miles, 10,000 coal), Indiana (33,000 sq. miles, 7,500 coal), Illinois (40,000 sq. miles, 36,000 coal), Kentucky (40,000 sq. miles, 13,500 coal), Tennessee (40,000 sq. miles, 6,000 coal), and an Aggregate total of 233,000 sq. miles and 99,000 coal.

The above surfaces are not all those of the States named; but that part in the valley of the Ohio. We see then the extraordinary fact that more than one-third of the valley of the Ohio is underlaid with coal, and it therefore gives promise of being the great manufacturing center of the world at some future day.—In the State of Illinois alone there is a total coal area of 44,000 square miles, some of which is comprehended in the Mississippi valley. This State has the largest coal area on our continent, and greater by 26,696 miles than the whole coal area of Europe, which amounts only to 17,504 miles.

The New York Observer and the Scientific American.

THE EARTH A BURYING GROUND—Our attention has been directed to an article in the *New York Observer* of the 23rd, by an anonymous correspondent of this city, signing himself R. L., who charges us with endorsing as "ingenious, authentic, and valuable," some statistical work "just published," which says, "It will require 5,200,000,000 square miles" to bury all the world's dead. The author of the article asks some questions of the editor of the *SCIENTIFIC AMERICAN* respecting the endorsement of the said work, and does so in rather a tart manner. We are sorry we do not know his name, so that we might give him personal public advice respecting the use he has made of ours in connection with his profuse vindication of the capacity of the earth to contain all its dead. The work to which he refers, we have never seen, nor has it been endorsed in the columns of the *SCIENTIFIC AMERICAN*.

To our Subscribers in Canada. By a late enactment of the Canadian Parliament the *SCIENTIFIC AMERICAN* passes free of postage through all parts of Upper and Lower Canada. This liberal law was made for the purpose of encouraging the spread of knowledge among the people of those Provinces. We trust that the receipt of a very long list of subscribers from Canada will enable us to bear testimony to the practical excellence of the new postal regulation.

A Monster Railroad Enterprise.

A correspondent of the *Dubuque (Iowa) Tribune*, has presented a formidable array of facts to show that the time is not far distant when there will be an uninterrupted line of railway communication between the Falls of St. Anthony, on the Mississippi, and the Gulf of Mexico, a distance of some twelve hundred miles. For most of the distance it appears the work is already commenced.

New Historical Lyceum.

Nathan Jackson, Esq., of New York city, has presented \$3500 to the Lyceum of Natural History of Williams College, to aid in the erection of a building for scientific purposes. This Hall (to be called after the name of the donor), is of brick, and nearly completed. On the occasion of the Society's twentieth anniversary, Aug. 14th, a learned and eloquent address was delivered by Prof. Wm. B. Rodgers, of Virginia, on the Relationship of the Natural Sciences.