



Reported expressly for the Scientific American, from the Patent Office Records.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING NOVEMBER 27, 1850.
To Smith Beers, of Naugatuck, Conn., for improvements in machines for turning irregular forms.

I claim the mode herein described, of changing the position of the ratchet, by means of the arrangement of the sliding rod, knee, lever, lifting plate, and pawl.

To H. J. Betjemann of Cincinnati, Ohio, for improvement in machines for boring dovetailed mortises.

I claim, first, the rotating cutters, (five) formed and arranged substantially as described, with conical heads and cylindrical necks, in combination with a rest or movable table, for the reception and attachment of the bed-post, the said table, while being advanced towards the cutters, being conducted by suitable guides (three) as described, either upon the moving table or the stationary bench, in a course which is at first at right-angles to the face of the post, and thence, as soon as the cylindrical cutter has begun to act in a longitudinal course, receding sufficiently from the face of the post to form a mortise which shall bind the dovetailed tenons of the rail, as they are pressed down in their sockets.

Second, I claim, in combination with the aforesaid guides, the stops, substantially as here arranged and applied, or their equivalents, whereby the table is limited in its course to the particular range of cutting action required for the time being.

To Joseph Dilks, of Philadelphia, Pa., for improvement in the Alarm and Indicator for Steam Boilers.

I claim the peculiar method of moving the indicator by its attachment to the side valve of the whistles, by which the connection is continued through the head of the boiler, as herein described, dispensing with the stuffing-box and packing.

To W. H. Horton, of Newburyport, Mass., for improved arrangement of the bending rollers in tin cutting and bending machines.

I claim to so combine and arrange the rollers, with respect to the jaws, as specified, so as to enable the said roller to be operated in the manner substantially as set forth; that is to say, to be moved in a plane parallel to the common axes of the shafts, the said roller being arranged in a turning frame and supported by a movable and adjusting frame; and the object of my improvement being to enable a person to move the roller against the tin in the manner and for the purpose of binding it down, substantially as hereinbefore explained.

To Wm. Kelly, of Eddyville, for improvement in the Metallic Flask for casting large Kettles.

I claim the elastic iron core, supporter, or inner part of the flask, constructed of wings attached to the crown, and provided with covering strips, substantially as described.

To Orville Mather, of Cincinnati, Ohio, for improvement in machines for Dressing Spokes.

I claim, first, constructing a cylindrically rotating cutter head, with a separating joint athwart its middle, and in the plane of its rotation, so arranged as that, by the mutual advance or recession (in the direction of their axis of rotation) of the respective sections of the cutter heads, as they traverse the length of the stuff, the cutting edges are adapted to impart the varying outline and form required for the work.

Second, the shafts and weighted levers, in combination with other levers, and the links, or their equivalents, for sustaining in position the tongues upon the spoke, and the rollers upon the guides, and rendering them self-adjustable under all the circumstances which can affect them.

To Melville Otis, of East Bridgewater, Mass., for improved Nail Plate Feeder and Turner.

I claim, first, giving the alternating motion

to the nipper rod, by means of a pair of jaws actuated by the opposite ends of a vibrating beam, one of the jaws being provided with a spring and toggle, which causes it to grasp and release the nipper rod, the whole operating substantially as described.

Second, I claim giving to the said rod its progressive advancing and slightly retrograde motions, by means of a pair of jaws actuated by a cam and an eccentric, and two springs, substantially as specified.

Third, I claim operating the follower, so that it is raised from the nail plate, and the nail plate from the lower cutting jaw of the machine, by means of a cam, a rock shaft, and a radius bar connected to one end of the follower, substantially as described.

Lastly, I claim transmitting the motion from the nail machine, by means of a lever beam and connecting rods, when the lever beam is hung upon a cranked centre, and the actuating connecting rod is provided with a knob acting upon a flat crank pin, substantially as described, whereby I am enabled, with facility, to throw my feeding machinery in and out of gear.

But I do not intend, hereby, to confine myself to the particular forms and proportions herein described, provided I construct a machine substantially the same.

To Harvey W. Sabin, of Canandaigua, N. Y., for improvement in Horse Rakes.

I claim, in my improved horse-rake, the device for raising the teeth, substantially to clear them of the hay, and dropping them again, by means of the apparatus, substantially as described, being worked by the draught of the team, when thrown into gear, at the will of the operator.

To Elisha Steele, of Waterbury, Conn., for improvement in Suspender Buckles.

I claim the construction of the buckle frame and attaching the tongue or points thereto, so that the tongue or points slide out or into the buckle, instead of acting upon a hinge or roller, as above described.

To Augustus Thayer, of Melden Bridge, N. Y., for improved Auger Handle.

I claim the construction of auger handles, substantially as set forth, that is, by making the principal part of the same, from end to end, of one piece of wood, or other material, securing the central portion through which the auger shank passes, with a metal band, and arranging a detent for holding the shank with machinery to operate it; the said handles being for use with augers, or any other tools to which it may be adapted.

To J. T. Trotter, of New York, N. Y., for improvement in Vulcanizing India Rubber.

I claim the use and employment of zinc prepared by the process described, whereby a hyposulphite, or similar preparation of zinc, is obtained, in combining with india rubber, for the purpose of curing or vulcanizing it, substantially as hereinbefore set forth, without the use of free sulphur in any way, in combination with the rubber.

RE-ISSUES.

To Charles Davenport & Albert Bridges, of Cambridgeport, Mass., for improvement in the manner of constructing Railroad Carriages, so as to ease the lateral motion of the bodies thereof. First patented May 4th, 1841.

We claim connecting the said turning bearing to the truck frame of the above described kind, resting on four wheels or more, by a mechanism, substantially such as described, that shall not only allow such turning bearing independently of the wheels and axles a lateral play movement or movements, in directions transversely of the carriage, but bring or move it back to its central position after the lateral deflective force has ceased to act.

DESIGNS.

To Samuel Pierce of Troy, N. Y., (assignor to Johnson Cox & Fuller,) design for Stoves.

Cotton Spindles of the World.

The London Examiner gives the following tables as an estimate of the number of spindles engaged in the cotton manufactory throughout the world:—Great Britain, 17,500,000; France, 4,300,000; United States, 2,500,000; Zollverein States, 815,000; Russia, 700,000; Switzerland, 650,000; Belgium, 420,000; Spain, 300,000; Italy, 300,000. Total, 28,585,000.

Gravitation—What it is.

Under this heading, a writer (W. K.) in last week's Scientific American, puts forth some ideas, which are incorrect and contradictory. He says—

"Gravitation is that property of matter by which it resists a change of state, with respect to motion or rest. This will, no doubt, be considered a sweeping declaration." &c. It is a sweeping declaration, but only a declaration. If he had used the word *inertia* instead of "gravitation," he would have given us, word for word, the very proposition of Newton, as relating to *vis insita*; the only difference between the two is, that Newton is nearly right, while W. K. is the very opposite. If gravitation is that law which resists a change of state, as set forth above, it is very easy to prove it. It is just this—every body once in motion, must forever continue in motion; a ball, shot from a rifle, will forever continue fleeting through space. It is in motion, you see, therefore it will resist a change of state to rest. Now, how is it that a ball, shot from a rifle, is brought to a state of rest? We can easily understand how it gets motion, or, in other words, has changed its state of rest, viz., by the *impact* of a superior force; but, then, no powder, no human hand touches it while fleeting through the heavens; and how does it come to a state of rest? Take away the known law of gravitation—that principle of attraction in all bodies—and we cannot explain it; but with it we can explain the phenomenon. By the laws of Inertia and Gravitation, we can explain all the deflections, all the motions, and the forms of moving bodies, but not by the declaration above. The whole of the reasoning, to prove his proposition, is inappropriate. I cannot see how it applies to, or dovetails with, his text. Instead of proving his proposition, his exposition relates wholly to the composition of forces, an entirely different subject. One of the most singular ideas set forth by him is this—

"If this is the true philosophy of gravitation, then we are at once introduced to the true reason why its force is always in proportion to the quantity of matter. When we lift a stone from the earth, we separate two bodies, containing a vast amount of matter, for which reason we experience a great opposition. When the stone is small, it leaves the earth to move only a small distance, it is true, but as all motion is mutual, and proportional to the two bodies themselves, the earth must, upon the lifting of the stone, recede her proportion. When we double the volume of the stone to be raised, then, although the quantity of matter contained in both is the same, yet because the earth, the greater of the two, is obliged to recede twice the distance, we experience twice the difficulty in raising it; we therefore say, the stone has twice the weight of the former."

Now, sir, this is not correct: force is not always in proportion to the quantity of matter. Laboring force embraces weight, or gravity, and velocity. One body having just half the quantity of matter as another, may have the same amount of force, yea, ten times the amount. A ball, weighing one ounce, has as much force as one weighing a pound, if the same quantity of powder is used to propel each. What he says about lifting the stone is droll.

He forgets that there are properties belonging to matter which are named magnitude and density, and these properties must be considered apart from distance or space. One pound moved through 100 feet of space, in one second, has as much force as 60 lbs. moved through space at a velocity of 100 feet per minute. About lifting the stone, and the receding of the earth, is very amusing, as it seems that, doubling the volume of stone, the quantity of matter is not increased; that is, there is just the same quantity of matter in one pound of sugar that there is in two:—W. K.'s wife, if he has one, could never become a believer in this doctrine. A pair of scales could easily convince him that he is in error. The most singular announcement which he makes, is as follows:

"We can move a weight, not only about three times greater in a horizontal than in a

perpendicular direction, but even ten, fifty, or a hundred times as great. The reason is plain, there being no separation of bodies, there can be no re-action in a direction towards each other,—the force, therefore, thrown upon the body is constant, and although we can scarcely see the effect at first, yet, as the force is every instant accumulating, therefore, by continued pressure, we can move a much greater body in a horizontal than in a perpendicular direction."

There, engineers, don't you see that a horizontal is a hundred times more powerful than a vertical engine. This, however, is not the meaning of W. K., but it shows how he confuses subjects—he has not a clear understanding of them. The fact is, direction of motion has nothing to do with the subject; there is no difference in the force of one body from another, if both have the same momentum—let them be moving in any direction, horizontal or perpendicular. I was sorry to see such an idea advanced as the following:—"The elements of matter are unoriginated, hence they have already passed through an infinite number of modifications, in which every particle of matter has been associated with every other particle, from which it has since been projected." He deduces the above from the laws of action and re-action. He might just as well have said, that he himself was not originated, because there is an inherent principle of self-preservation within his breast. How he accounts for matter passing through various modifications, the association of particles, and then their separation, is a problem; such events could never happen, if his theory was true; never.

It is not long since that a writer in the Scientific American discovered the same law as W. K., giving it another name, but he was going to make vessels cross the Atlantic in a few days by it.

The laws of Mechanics are not generally nor well understood. With your permission, gentlemen, I will pursue the subject in some subsequent articles. MACLAURIN.

The Cotton Worm.

MESSRS. EDITORS—In No. 4, page 27, of the present volume of the Scientific American, is an article under the head of "Cotton Worm," which speaks of a destructive insect, a fly, resembling the "Candle Fly." In my researches in entomology I never came across an animal of such a denomination; no doubt the misnamed insect is a *Papilio, Noctua Gossypii*, a native of South America, blown to our Southern States when in the winged state, and becomes destructive when, on its arrival, the cotton is in full bloom; if later, it is a welcome customer. So I found it in 1812, in South Carolina, where the cotton had ripened into pods, and nothing left for it but the leaves, on which it fed, by which means the planters reaped a cleaner crop, free from the small particles of the leaves. Fortunately, this insect cannot endure our climate, or else it would become naturalized. The manner of destroying the fly, as stated by the writer, would rather be inefficient—examining the blossoms; what a labor! The quicker way would be to set the whole crop on fire, and is more sure than inviting these guests to a dish of molasses—a luxury to bees, wasps, and hornets, but not to papilios, who only suck nectar from flowers. The only method our planters have tried, was to light fires near by, in calm nights, around the cotton fields, which attracts moths.

Savannah, Oct. 20, 1860. A. G. O.

[The article referred to, in the above letter, was an extract from another paper, and credited to that paper. We did not endorse, nor make any comments on it.—ED.]

Freshets.

It is our opinion that there have been more freshets in our country, this season, than any other within our recollection. Last week the village of Cleveland, Oswego Co., was visited with a destructive freshet in the rising of Black Creek, which carried away five dams and two bridges.

The Toronto papers estimate the surplus wheat of Upper Canada this season at 7,000,000 bushels more than last, which was 4,000,000—making 11,000,000 bushels.