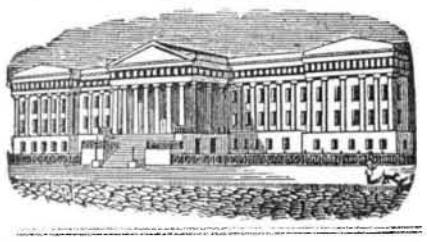

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING SEPTEMBER 16, 1856.

CHIMNEY CAP—Wm. Brownelle, of Newport, R. I.: I claim the described construction and arrangement of the ventilator, for the purposes specified.

DRESSING FELLIES—Wm. M. Bulloch, of Marcy, Ind.: I claim the rotating ring or band, G, placed within the stationary ring or band, F, the ring or band, G, having the cutter head shaft, E, fitted to it, the shaft, E, being rotated by the gearing, C D, as shown and described, for the purpose specified.

FEED MOTION FOR SHINGLE MACHINES—John Broughton, of Chicago, Ill.: I do not claim the disk wheel, D, with knives attached, for that device has been previously used.

But I claim the disk wheel, D, with knives, F, face guide, G, and face cam, K, attached and used in connection with the vibrating bed, H, the whole being arranged and operating as shown, for the purpose set forth.

HEADING BOLTS—Ebenezer and Philemon Coleman, of Philadelphia, Pa.: We claim the levers, H H, with rollers, h h, attached to them, and the ratchet roller, i, attached to the pendant plate, G, the above parts being arranged and operated as shown, for the purpose specified.

We further claim the heading die, E, and jaws, F F, provided with dies, e e, when arranged as shown, so as to operate conjointly with the rollers, h h and i, for the purpose set forth.

DENTISTS FORCEPS—John G. Coates, of Big Lick, Va. I claim constructing forceps with rotating beaks, to adapt themselves to the exterior formation of the tooth, substantially as and for the purposes specified.

SAW SET—Abraham Casey, of New York City: I claim the combination and arrangement of the stock, A, having a transverse kerf, E, bevel bolster, D, and punch, B, substantially as and for the purpose set forth.

Second, I claim arranging the bolster on a turning screw pin, which moves in a slot, and has a clamping nut, substantially as and for the purpose described.

REEFING SHIP'S SAILS UPON EXTRA YARDS—Joseph S. Foster, of Buffalo, N. Y.: I claim the double yard, H H, or extra yard of two pieces, placed about midway between the upper and lower yards, the sail passing between the two pieces, operating in the manner and for the purpose set forth.

FIRE-ARMS—Edmund W. Graham, of Manchester, N. H.: I claim, first, arranging the chambers in which the powder is placed and the chambers in which the ball is placed, at right angles to each other, or nearly so, and so as to communicate with each other, as described, and for the purpose specified.

Second, I claim covering each powder chamber at the time of the discharge, with a protecting cap or plate, as described.

HARVESTERS—Wm. Gage, of Buffalo, N. Y.: I claim raising and lowering the finger bar and cutters by means of swinging the outside frame, to which the finger bar is attached, upon two pivots upon the inside frame, and holding the same where placed by means of the serrated plates, E E, and tightening rod, d d, when said frames are constructed and arranged to operate in relation to each other, and the driving wheel, finger bar, and cutters, in the manner and for the purposes set forth.

I do not claim a board set edgewise and upon an angle inward, when the same is not combined with the wheel, W, and used for mowing, whether fixed immovably to finger bar or hung upon a hinge.

Neither do I claim a mold board or a dividing board, when combined with and fixed on a platform, and used for reaping.

But I claim the peculiarly adjustable mold board, z y, in combination with the wheel, W, and its supporting arm, x y, when used in mowing, for the purpose of protecting the wheel and arm from loose grass, and prevent its lodgment thereon, when the above parts are constructed and arranged in the manner described.

PREPARATION OF HIDES FOR TANNING—George W. Hatch, of Princeton, Ill.: I do not claim the use of pyroligneous acid as such, but confine my claim to the use of smoke from wood or other equivalent combustibles, in the preparation of hides for rapid tanning, as set forth.

ATTACHING SHAFTS TO SLEIGHS—George Kenney, of Milford, N. H.: I claim attaching the shafts, C C, to the runners of the sleigh by means of the eyes, F F, and rods, G H, said eyes and rods being attached to the cross pieces, B D, provided with springs, I I, the whole being arranged as shown, for the purpose set forth.

GRANULATING METALS—John Feir, of San Francisco, Cal.: I claim the use of the outer and inner vessel, 1 and 2, when constructed and operated in the manner described, in connection with the pipe, 3, and its elbows, as set forth, for keeping the water in circulation, and for granulating the metal.

CUTTING PAPER—Harvey Law, of New York City: I claim the combination of the rising and falling platform, C, and clamping frame, E, by means of toggles, F F', said toggles having cranks, G G', connected with them, the pintles of which work in curved grooves, or otherwise actuated, substantially so, and for the purposes set forth.

CARPENTER'S BENCH—I. W. Mahan, of Lexington, Ill.: I claim the carpenter's and cabinet-maker's assistant bench, constructed in any manner substantially the same as set forth.

PRINTING PRESS—A. & B. Newbury, of Windham Center, N. Y.: We claim, first, the rotating and reciprocating printing cyltnder, E, operated by means of the endless racks, C, pitman, I, and bars, b, arranged as shown and described.

Second, we claim the revolving fly, U, constructed, arranged, and operating as set forth.

CHURNS—Albert Pease, of Weston, Vt.: I claim the combination of the two fixed boards on the dasher handle, and a sliding board, or its equivalent, moving between them, substantially as described, disclaiming the use of two fixed boards, except in the combination specified.

LOCOMOTIVE AND STEAM BOILER FURNACE—Wm. P. Parrot, of Boston, Mass.: I am aware that perforated plates for the admission of air have been used in connection with hollow bridges, but in working with a rapid draft the smoke and gases in the fire box or furnace are not properly mixed with the air so as to complete the combustion. I do not, therefore, claim any such combination or arrangement of parts.

But I claim the hollow box or cone, having tubes for the passage of the smoke and gas, and apertures for the admission of heated air, so arranged, in the manner substantially as set forth, as intimately to mix the two, for the purpose described.

CLEVIS—Edwin A. Palmer, of Clayville, N. Y.: I do not claim any part of the common clevis.

But I claim the pin provided with a spring, and arms, E E, in combination with the projection in the head, and openings through which the arms may pass, and the recesses, I I, arranged substantially as and for the purposes set forth.

VARIABLE CUT-OFFS FOR STEAM ENGINES—Charles H. Reynolds, of Lewistown, Me.: I claim the arrangement of the suspended lifting rods, F F, with their studs, m m, secured to the valve rod or rods, and operated on by the arms, I I, of a rock shaft, and the plate or plates, C, with beveled edges, g g, sliding on the said valve rod or rods, said plate or plates being operated on by the governor, and operating on the lifting rods, substantially as described.

COTTON PICKERS—B. G. Shields, of Marlin, Texas: I claim as an improvement on the patent of George A. Howe, of the 4th December, 1855, the application of a fan or fans to the gathering chain, as a means of removing the gathered cotton from said chain, and this I claim whether said fans be used as set forth, or in any other way substantially the same.

SHINGLE MACHINE—P. O. Sherwin, of Jamestown, N. Y.: I claim the stops, K K, in combination with the notches or teeth, t t, on the set wheels, arranged and used for the purposes and substantially as set forth.

HARVESTING MACHINES—George W. Tolhurst, of Cleveland, Ohio: I am aware that continuous zig-zag slots or ledges have been used, of various kinds: but when these become damaged by wear they are irreparable. I do not claim any of these.

But I claim the combined use of the single row of removable pins with the adjustable angular slot, j, for the purpose of procuring a vibratory motion, to be applied to the cutters as set forth.

RIDING SADDLES—Pascal Plant, of Chicago, Ill.: Disclaiming entirely the primary principle of applying spiral springs to saddles, and also disclaiming the use of enclosed compressed air spring saddles, both principles of which have long since been well known and used.

I claim the distinguishing features of improvement, the sockets, A B, and vertical shanks, F F, provided with immovable springs, g g, arranged in the manner and for the purposes specified.

SHINGLE MACHINE—David D. Tupper, of Boston, Mass.: I claim the described method of arranging and operating the cutter head, whereby the pressure rolls are inclined, to correspond to the inclination of the face of the bolt, for the purposes set forth.

IRON FENCE POSTS AND TIES—John B. Wickersham, of New York City: I claim the double ripped post or tie, cornered and mortised upon opposite and corresponding sides, as specified, in combination with the inclined corner key, E, for holding and crimping the rail, as described

Second, I claim so constructing the fence tie and key above named that it may be attached to a wood in order to take up the lax tension of wire and flat hoop iron, and thus act as a compensator for the expansion of the metal when used for fences, as set forth.

SELF-ACTING RAKES FOR HARVESTERS—J. Whitehead, of Manchester, Va.: I claim the combination of the swinging arm, I, and traveling carriage, J, moving together and independent of each other, by means substantially such as described and for the purpose set forth.

I also claim the locking arm, I, at each end of its transverse movement, so that the rake cannot swing around while the carriage, J, and rake, L, reciprocate together and discharge the gravel, substantially as described.

RE-ISSUE.

FOLDING LIFE-BOATS—C. Loeker, of New York City. Patented Jan. 7, 1855: I do not claim hinging or pivoting the ribs to a keel or to a central frame.

But I claim the chain or chains, or their equivalents, as connected and arranged in relation to the stern and stern posts, ribs, and central frame, and operated as set forth.

DESIGNS.

STOVES—Garretson Smith, Henry Brown, and James A. Read, (assignors to Cox, Hager & Cox,) of Philadelphia, Pa.

FLOOR CLOTHS—Antoine Glowinski, (assignor to D., A. E. & N. B. Powers,) of Lansingburg, N. Y.

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ADDITIONAL IMPROVEMENT.

FIRE-ARM—Frederick D. Newbury, (assignor to Richard Varick De Witt,) of Albany, N. Y. Patented Aug. 12th, 1856: I claim the placing the hammer and trigger with their springs within the arm, D.

I claim the cocking of the hammer by the movement of the arm, D, and the aid of stud, S, or its equivalent.

I claim the placing of the tape priming under the barrel and in front of the cone, the same to be brought properly on to the cone by the movement of the arm D.

I also claim the placing of the tape priming, and operating the same as described, in combination with the arm, D.

American Association for the Advancement of Science.—(Concluded from page 11.)

Storms and Ventilation.—Dr. Reid, of Edinburgh, exhibited the operation of an Argand gas-burner, with a glass chimney, an apparatus being attached under the burner, by which he could regulate at pleasure the amount of air going inside, or that going outside of the flame, producing thus the most singular and complicated rotatory motions of the burning gas and floating specks of lampblack. He then gave a brief account of the numerous experiments which he had tried concerning the rotary motion of the air under a great variety of circumstances, and showed how the results might aid us in forming a theory of storms, but more particularly how it would aid in general theories of physics, and in special arrangements for ventilation. The difficulty in architecture is that the same mind that plans the warming and ventilating apparatus does not plan the general form and adaptations. Another place where the rotary currents are of great importance is in the ventilation of mines, where they may be studied to advantage, and used to promote the health of the miners. Nothing is more interesting to man than the atmosphere in which we live—an ocean without geographical limits—in which, and by which we all live, ceaseless in motion, from a great variety of causes, and each movement directly affecting the comfort and health of man.

Every house should be so constructed and arranged as to have a sufficient supply of pure air, as its inmates require an adequate supply of oxygen to support respiration, and if this is not obtained, the health must be injured. How few houses are built with reference to this great principle of health.

Aneroid Barometers.—Prof. Guyot read a paper on this subject, in which he expressed views of great importance in reference to the character of such instruments. He acknowledged its great conveniences, but against dependence on it for nice measurements of mountain altitudes he entered his formal protest. He had made many experiments and comparisons with good mercurial barometers, and found them worthy of reliance as a scientific instrument, only under the condition that it is kept stationary, and individually tested to learn the correctness for temperature, &c. Had he trusted to his aneroid barometer in his recent visit to the Black Mountains, he would have been led to errors of 400 to 500 feet, as was proved by the two good mercurial barometers that he carried. A traveler who carries an aneroid alone with him, must not expect accuracy within two or three hundred feet. Simply from motion or from having been subjected to great changes of pressure, it will change its zero without giving any external indication.

N. B. Webster exhibited a chart on which were three curves, representing the mortality at Portsmouth, Va., during the months of July, August, September, and October, 1855; the variations of the thermometer and of the barometer. On the charts were also indications of the atmosphere, the lightning, and the winds, so that the inquirer could study all these points at once. The day of greatest mortality was Sept. 1,—one-tenth of the white population then in the town died in one week. Not sixty white persons who remained in town escaped the fever, and but 37 per cent. of the patients survived. Among the blacks only 3 per cent. died.

The Gyroscope.—Prof. Rogers read a paper on this philosophical toy. He said these instruments have lately attracted a good deal of attention. They consist essentially of a wheel which may be made to rotate very rapidly at the end of an axis, which is balanced on a swivel joint at the top of a vertical post. If, while the wheel is rotating, the axis is thrown out of balance, by means of a sliding weight, the axis begins to rotate in a horizontal direction round the post. This is the simplest form, but others more complicated are to be found. They were first made by Prof. R. W. Johnson, of Philadelphia, and had recently been revived in France. The French mathematicians acknowledge Prof. Johnson as the inventor. He published an article in *Silliman's Journal*, about twenty-five years ago, describing his apparatus. Professor Rogers then explained the cause of the secondary rotation by the method of the combination of rotations, and by the doctrine of couples of forces. He wished to divest the theory, if possible, of the forms of the calculus, and present it in the beautiful geometrical manner in which the theory of the parallelogram of rotations enables it to be stated.

Upon the conclusion of this paper a debate sprang up, which consumed a very disproportionate time of the meeting. Prof. Bartlett gave an explanation of the toy, starting from a different foundation; and some of the members supposing—as Prof. Rogers himself appeared to do—that Prof. Bartlett doubted the theory advanced in the paper, many needless words were uttered upon the subject. At length Prof. Rogers acknowledged the truth of several of the views which he had at first supposed were contradictory to his own, and Prof. Peirce, who had not yet spoken, closed the discussion by a simple statement of the real points of the case. He observed that Prof. Lovering had recently presented a complete discussion of the question to the American Academy; that the whole theory of it was in fact contained in that of the common top; and as for the antiquity, the same theory was long ago presented by one Isaac Newton. [Laughter.] Prof. Rogers said that he was aware of this similarity of the theory of the Gyroscope to that of the top, and of the precession of the equinoxes, and had prepared diagrams to illustrate these subjects, and also the experiments of Foucault on the pendulum, which he would have shown to the Association as illustrations of his paper, had he thought that there would be time. Prof. Henry remarked that the same problem was found in gunnery, when a rotary motion—as in the rifle—is given to the ball.

We published on page 200, Vol. 11, SCIENTIFIC AMERICAN, an engraving of the above-named philosophical toy, gave a brief description of it, and made a few remarks concerning the nature of its peculiar action, stating that the same laws which governed its motions reigned among the stars. That article soon attracted universal attention; gyroscopes were obtained by all the mechanical and scientific institutions in our country; by numerous clubs, and hundreds of private persons, and it formed a theme of wide-spread discussion; and on another column, our readers will perceive that it formed a question for discussion to the mathematicians of the American Academy of Sciences, at Cambridge, Mass., as well as the *savans* at Albany. Prior to the illustration of Lane's Rotoscope on the page referred to, we published a short account, on page 138, same volume, of Fessels'.

This beautiful instrument, under the name of the Gyroscope and Rotoscope, is quite old, but has been known to a very limited number of persons; it has, therefore, afforded us much pleasure to have been the means of making a knowledge of it so universal.

Rev. B. Powell, F. R. S., in a lecture on Rotary Motion, delivered before the Royal Society, London, in January, 1854, explained the action of the Rotoscope with a model, and presented the same views respecting its motion and those of the heavenly bodies as Professor Rogers. The following is an extract from his lecture:—

"It always affords a sort of intellectual surprise to perceive for the first time the application of some simple and familiar mechanical principle to the grand phenomena of astronomy; to see that it is but one and the same set of laws which govern the motions of matter on earth and in the most distant regions of the heavens; to perceive a celestial phenomenon, vast in its relations both to time and space, and complex in its conditions, identified as to its mechanical cause, with the rotary movement of a little apparatus on the table before us."

The improved gyroscopes manufactured by McAllister & Bro., Philadelphia, Pa., exhibit two other motions beside those shown by one illustrated in the article referred to above. It has a variable balance arm, which will make the wheel or globe revolve in one direction if underbalanced; when balanced it will not revolve, but merely rotate; when overbalanced it will revolve in a contrary direction. It shows the principle of rotary motion discovered by Frisi in 1750, namely, that when a body is rotating about an axis and any cause tends to make it rotate about another axis, it will not rotate about either, but about a new axis intermediate to the two. These apparatuses are for sale by McAllister & Co.. and J. W. Queen Philadelphia.

Pennsylvania Polytechnic College.

The citizens of Philadelphia deserve great credit for the establishment of this new and useful institution in their city. It was incorporated in 1853, and we understand that it has already been more successful than was anticipated. The building is in Penn Square, and has been undergoing extensive repairs. The chemical laboratory and apparatus room are on the ground floor. These communicate by dumb waiters with the principal lecture room on the second floor, the appointments of which are exceedingly neat and convenient. Communicating with the lecture room is the Professor's preparing room; north of this is the Faculty's office; and next to this, on the same floor, is the room appropriated to the geological and mineralogical cabinets.

These are arranged under three heads:—1. Geology and Palaeontology. 2. Minerals which are not ores. 3. Ores proper. This classification has proved to be well adapted to instruction in the department of mines—one of the most important in the college. The rooms of the academical department, and those of the Professor of Mathematics and Civil Engineering, are on the third floor; and the fourth is devoted to the class rooms of the Professors of Design and of Mechanics. It is a scientific institution in every sense of the term.

Florida Railroads.

A railroad is now in the course of construction in Florida, for the purpose of uniting the Atlantic with the Gulf. The object of building such a railroad through this Peninsula, is one of far-reaching sagacity, and will ultimately tell upon the interests and prosperity of Florida.