

**THE OLDEST FAMILY—ITS GROWTH AND DECLINE.**

The vast multitude of facts which have been collected by the students of geology have developed the general law, that each family and species of animals made its first appearance on the earth in individuals few in numbers and small in size; it gradually increased both in size and numbers, till it attained its maximum, and then through long ages it slowly and gradually declined.

In making the soundings for the Atlantic telegraph between Newfoundland and Ireland a small tube with a valve was fitted to the end of the line, so as to bring up a little of the sediment from the bottom of the sea, and when this was dried it was found to be a dust so fine that on rubbing it between the fingers it would disappear in the cracks of the skin. On placing this dust under a microscope each particle was seen to be a shell—the home of a sentient being. When these shells are highly magnified little holes are discovered in them through which delicate filaments protruded that were the animal's organs of locomotion. As these filaments branch out like the roots of a tree, the animal is called a rhizopod, from two Greek words which signify root-footed.

As the rhizopod is the simplest form of animal life it is probably the oldest. The shells are found in all of the geologic periods, and as we go down in the strata, or backward in the ages, they regularly increase in size and numbers. They form a large portion of the chalk formation which was laid down in the age of reptiles, and at that time the shells were generally of about the size of a pin's head; in lower strata the shells are found as large as a penny, and in still lower a foot in diameter.

By a communication on another page from the geologist, Dr. Stevens, it will be seen that the Canadian geologists have found the remains of rhizopods in unstratified granite, a rock heretofore supposed to be destitute of organic remains. These rhizopod shells in granite are three feet in diameter. Thus it is proved that the seas were swarming with life in that remote time when the oldest formation was hardened into rock. And at that time the rhizopods had reached their maximum development. Unless this family forms an exception to the general law of animal life, it must have been growing through unmeasured ages before the time when the hardening granite first enfolded the gigantic remains in their everlasting tomb.

**TO OUR READERS.**

**PATENT CLAIMS.**—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and enclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1863, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

**INVARIABLE RULE.**—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

**MODELS** are required to accompany applications for Patents under the new law, the same as formerly, except on design patents, when two good drawings are all that are required to accompany the petition, specification and oath, except the Government fee.

**Binding the "Scientific American."**

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, i. e., heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII, to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.

**Back Numbers and Volumes of the "Scientific American."**

**VOLUMES I., III., IV., VII., VIII. AND IX., (NEW SERIES)** complete (bound) may be had at this office and from periodical dealers. Price, bound, \$2 25 per volume, by mail, \$3—which includes postage. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding. VOLS. II., V. and VI. are out of print and cannot be supplied. We are unable to supply any of the first six numbers of the current volume. Therefore all new subscriptions will begin hereafter with the time the money is received.



ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING JUNE 7, 1864.

Reported Officially for the Scientific American.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

**42,999.—Piston Packing.**—J. Randolph Abbe, Providence, R. I.:

I claim the combination of the screws, b, b, or their equivalents, the screws, e, e, having wedge-shaped heads, the toothed nuts, f, f, toothed ring, F, toothed gear, G, and spindle, l, the whole applied to operate substantially as and for the purpose herein specified.

[This invention consists in a novel and very effective manner of setting out or adjusting the packing of a piston, whereby the necessity for removing the follower or any portion of the piston or of the cylinder head, for that purpose, is obviated.]

**43,000.—Oil Cup.**—E. W. Bancroft, Columbus, Ohio:

I claim the tube with the small perforation at the top, by means of which the oil is gradually fed to the machinery, substantially as shown and described.

**43,001.—Planing Machine.**—Alonzo T. Boon and John Collins, Galesburg, Ill.:

In a machine for planing, sawing, boring, and cornering, we claim the combination of the adjustable side table, with the adjustable jaws or gage bars, as constructed and arranged, when used in combination with the planing-knife, saw and boring-bit, as arranged on one end of the driving-shaft in the frame, for the purposes above-mentioned, and as herein-described and set forth.

**43,002.—Bathing Tubs.**—Alfred Brady, New York City:

I claim the construction, combination and arrangement of the overflow channel, the waste hole and waste-pipe, as described in the above specification, the overflow channel being placed on the inside of the tub so as to bring the overflow channel over part of the waste hole and waste pipe, thereby forming one straight and continuous channel from the overflow channel into the waste pipe, the opening in the top of the overflow channel being sufficiently large for removing obstructions in the overflow channel or waste pipe, all as shown and described.

**43,003.—Furnace for calcining Ores.**—J. B. Britton, Philadelphia, Pa.:

I claim, first, A calcining furnace, having a fire-place, F, communicating with a chamber, D, and with a flue for carrying off the products of combustion, so that the latter must pass across the said chamber to the said flue, substantially as and for the purpose described. Second, The box, K, or its equivalent, arranged below the chamber, D, in combination with the appliances herein described, or any equivalent to the same, whereby the said box is caused to discharge masses of calcined ore, as set forth.

**43,004.—Husking-pin.**—Frank Brown, Russel, Ohio:

I claim the herein-described husking-pin, when constructed substantially as set forth.

**43,005.—Machine for grinding File Blanks.**—James S. Brown, Pawtucket, R. I.:

I claim the combination of the two series of arms, r r s s, or their mechanical equivalents, and their adjustable centers or rods, n, v, provided with adjustments, as described, with the file blank carrier, C, arranged and so as to operate with a grinding wheel or stone, substantially in manner as specified.

I also claim the combination of the file carrier and its adjustable arms and centers, having adjusting devices as explained, with the carriage, D, provided with devices for moving or adjusting it, substantially as explained.

**43,006.—Metallic Bath Furnace.**—James S. Brown, Pawtucket, R. I.:

I claim the improved metallic bath furnace, or combination and arrangement of one or more fire-places, A, B, a bath-pot chamber, D, a bridge, F, a flue passage, e, and an escape flue, l, the whole being connected in manner, and so as to operate substantially as specified.

**43,007.—Rake for Harvesters.**—O. H. Burdick, Auburn, N. Y.:

I claim, first, In combination with a rising and falling rake, a spring that is mechanically compressed and relaxed, to hold the rake to the platform, and to release it when it is to be raised up, substantially as described.

I also claim the combination of the cam and pin, c, d, on the gear, G, with the cam and slot, i, on the rake plate, for procuring an easy traverse, and rising and falling motion to the rake, as described.

I also claim a rake plate constructed with a cam, a slot, and an adjustment for the rake, so that, whilst the rake may be set more towards or from the grain, the cam and slot may continue to work with their co-operative parts without interruption, substantially as described.

I also claim, in combination with a clutch, the spring-bolt, k, and the tail-piece, j, so that the rake may throw itself out of action at the end of every stroke, or be continued in action at the will of the driver or conductor, substantially as described.

**43,008.—Tool for making Metallic Sashes.**—Andrew J. Campbell, New York City:

I claim a tool or implement for covering with sheet metal the rails or bars of sashes, composed of a series of wooden blocks and metal plates provided with holes, and arranged substantially as described.

[This invention relates to a new and useful tool for covering with sheet metal the wooden bars or rails of sashes, such as are used for show-cases and for similar purposes.]

**43,009.—Artificial Gum and Palate.**—John A. Cummings, Boston, Mass.:

I claim forming the palate and gums in which the teeth are inserted in one piece of hard rubber or vulcanite, i. e., an elastic material which can be hardened sufficiently for the purpose of mastication and retain a portion of its elasticity so as to yield a little to the motion of the mouth, as herein set forth and for the purposes specified.

**43,010.—Railroad Car-brakes.**—John Davis, Alleghany City, Pa. Antedated Jan. 2, 1864:

I claim the use of rods, j k l and m, levers, h and x, springs, 2, and catch, y, or their equivalents, when used in combination with brakes, which are operated substantially in the manner herein described and for the purpose set forth.

**43,011.—Washing Machine.**—Jacob Dodder, Washington, Iowa:

I claim the S-shaped line, i, on the interior surface, for subjecting the clothes to the greatest pressure at the extreme throw of the crank, in combination with beaters that are operated by the adjustable connecting rods.

**43,012.—Washing Machine.**—J. H. Fellows, Belvidere, Ill.:

I claim the projections, d d', formed of a single centring or bead, l, with conical ends, 2, divided longitudinally and centrally, but this I only claim when the said projections are arranged on the bottom, c, and rubber, E, in the particular manner represented, and used in combination with the stand, B, frame, D, d, arbor, C, a, and key, D', all as shown and described.

[This invention consists in the employment of use of projectors of a peculiar shape applied to the bottom of the tub, and to the under or base side of the rubber, in such a manner as to combine the rubbing and compressing principles, and ensure a perfect cleansing of the clothes without injuring them in the least.]

**43,013.—Tanning Hides and Skins.**—William Fields and Isreal Townsend, Wilmington, Del.:

I claim, first, The employment or use, in tanning hides and skins, of a current of compressed air applied to the hides or skins, in combination with the ordinary tanning liquor, in the manner and for the purpose substantially as specified.

Second, The perforated pipe, E, extending through the air-tight vat, A, near its bottom, in combination with an air-pump and loaded valve, all constructed and operating in the manner and for the purpose substantially as herein shown and described.

[This invention consists in the employment or use, for the purpose of tanning hides or skins, of a current of air applied to said hides or skins, under a pressure of from five to twenty or more pounds, acting in combination with the ordinary tanning liquor in such a manner that the compressed air is caused to circulate through the liquid, and, by its action, the tanning liquor is forced into the hides or skins, and at the same time, by the motion of the air in the vat, the hides are constantly brought in contact with fresh air, and the handling of the hides and all the labor connected therewith can be saved.]

**43,014.—Galvanic Batteries.**—George W. Freed, Lancaster, Pa.:

I claim the vessel, C, with its g ooves, z p z, in each end, bottom ledge and end holes, c, when constructed in the manner and for the purpose specified.

I claim projecting points, z p z, on the plates, each plate set separately in its groove, in combination with the cap, B, made of gutta percha, or its equivalent, applied in the manner and for the purpose specified.

I claim the cover or lid, A, with its one or two pair of screw taps, p l z l, and p z z z, and perforations for the plate points, p, and z z, a band above, and wire beneath, and metallic rings and connected with their respective screw taps, as shown, all arranged substantially in the manner specified.

I also claim the covering or cap, B, made of gutta percha, or its equivalent, substantially in the manner and for the purpose specified.

**43,015.—Preparing Short-staple Fiber from Hemp, Flax, etc.**—Jim B. Fuller & James P. Upham, Claremont, N. H.:

We claim, first, Preparing the fibers of flax, hemp, and other similar substances for "cottonizing" or rendering applicable to short staple textile fabrics, by subjecting such substances, while in the vessel in which they were boiled or cured, with water or other liquids used for softening or dissolving the gummy and coloring matter in such substances, to the action of a piston, plunger or follower, or equivalent device, so arranged as to press the fiber into a solid compact mass in one part of the curing vessel, at the same time pressing out of the mass all or nearly all the dissolved gummy and coloring matter while such gummy and coloring matter is in a dissolved or softened condition, so that it can be readily drawn off, while the fiber is contained in the curing vessel, substantially as and for the purposes specified.

Second, We claim washing the cured fiber by the combined action of the piston, C, or its equivalent, and of water, in the manner substantially as specified and for the purposes set forth.

**43,016.—Method of suspending Steam Boilers.**—C. O. Ganse & S. N. Jordan, Oswatomie, Kansas:

We claim, first, The springs, R R R, the ropes or chains, M M M M, and the pulleys, N N, in combination with the boiler, substantially as and for the purpose set forth.

Second, The spiral springs, T T, in combination with the boiler or chamber, B, as described and shown.

**43,017.—Attaching Sabots to Spherical Projectiles for Ordnance.**—George P. Ganster, New York City:

I claim a sabot, B, having a concave face, d, and aperture, c, in combination with a spherical shell, A, having a screw threaded seat, b, projecting from its rear side, when the said screw threaded seat serves to securely attach the shell to the sabot, and all the parts are constructed, arranged, and employed in the manner and for the purposes herein specified.

**43,018.—Lathing for Walls and Ceilings.**—D. D. Garland, Kewanee, Wis.:

I claim an improved lathing for walls and ceilings constructed of boards or pieces sawed of a proper thickness from any suitable timber and slotted longitudinally, substantially as herein shown and described.

[This invention consists in having boards sawed from any suitable timber of a thickness about equal to that of ordinary laths, and having said boards or pieces of the same slotted longitudinally nearly their whole length, the spaces between the slots being about equal in width to an ordinary lath, whereby several advantages are obtained over the ordinary laths.]

**43,019.—Spring Brace and Clip for Carriages.**—E. J. Green, Valparaiso, Ind.:

I claim, first, In combination with the bow-shaped brace, E, secured as herein described, the guide rod, G, and guide plate, f, for keeping the spring in a vertical position as it plays under its superincumbent weight, substantially as described.

Second, I also claim in combination with the brace and the guide rod, the clip plates, H I, for securely fastening the spring to the head block, substantially as described.

**43,020.—Washing Machine.**—Chauncey H. Hale, Fayetteville, N. Y.:

I claim the construction of the adjustable elliptic spring, D, adjustable arms, L, and adjustable screw rod, M, when arranged and combined as herein described, and for the purposes set forth.

**43,021.—Explosive Compound.**—Halvor Halvorson, Cambridge, Mass.:

I claim the combination of an organic sulphide and a cyanide or ferric cyanide with an organic deflagrating ammoniacal salt and a chloric or per-chloric salts of potassa and ammonia, as and for the purposes described.

**43,022.—Compound of Cyanogen and Iron.**—Halvor Halvorson, Cambridge, Mass.:

I claim the compound of cyanogen and iron, herein set forth.

**43,023.—Sheep Rack.**—R. Hart, Savanna, Ohio:

I claim the herein described sheep rack, composed of the hinged sections, A B, the troughs, C C, standards, D and cam, E, when these several parts are constructed, arranged, and combined in the manner and for the purpose herein set forth.

**43,024.—Heel for Boots and Shoes.**—C. H. Helms, Poughkeepsie, N. Y.:

I claim, first, The employment or use of the cutter wheel, C, in connection with the guards, E F, either or both, substantially as and for the purpose set forth.

Second, Providing the cutters, D, with throats, b, arranged as shown, in connection with the space, i, between the guard, F, and the outer side of the cutterwheel, C, to admit of the free escape of the heelshavings, as described.

**43,025.—Coating Barrels to render them Oil-tight.**—Albert H. Hook & J. Henry Darlington, New York City:

We claim saturating wooden vessels, as and for the purposes herein above set forth.

We also claim in combination therewith the manner of stopping the bunk-hole.