

ENGINEERING INVENTIONS.

A coal washing machine has been patented by Mr. Samuel Nevins, of Summit Hill, Pa. It comprises an automatic shaking screen, water circulating apparatus, endless coal rake, and endless slane elevator in a water tank for separating slate, fine dust, etc., from coal, and for washing the coal.

A well drilling machine has been patented by Mr. Lycurgus Nelson, of Florence, Tenn. It consists of a specially devised frame, mounted on low wheels for convenience of transportation, with a rock drill in combination with a driving shaft, wa king beam, and sheave, with several special features to promote economy and efficiency.

MECHANICAL INVENTIONS.

A pulley has been patented by Mr. John D. H. Cleaveland, of Smithfield, Minn. It has dovetail or locking recesses in which are wooden keys to facilitate the securing of leather or other material on or around the pulley by nailing it to the keys, thus making a metal pulley covered on its periphery.

A motor has been patented by Mr. Cesar Huet, of New Orleans, La. It consists of a novel contrivance for multiplying and transmitting the motion, an improvement in the contrivance of open coupling for applying power to a fan and other devices, with an improved regulator and brake device.

A sand belt attachment for spoke lathes has been patented by Mr. Ephraim Case, of Owensborough, Ky. The sand belts are contrived with the cutter head carriage, for following the cutter heads along the spokes to smooth them automatically after the spokes, and thus save the time and labor of subsequently smoothing them separately.

AGRICULTURAL INVENTIONS.

A stubble cutter has been patented by Mr. Joseph P. Gueno, of Terre Bonne Parish, La. In combination with specially devised side bars, and knives attached thereto, is a chisel edged tooth and colter, so that as the implement is drawn forward the colters cut and break the roots of the stalks, the knives cutting such as may be left standing.

MISCELLANEOUS INVENTIONS.

A draught vehicle has been patented by Mr. Thomas Hill, of Jersey City, N. J. The mud shields are attached to the boxes containing the springs by which the vehicle body is supported, and arranged to overhang and partly inclose the inner end portions of the arms or journals of the axle.

A huggy spring has been patented by Mr. Carlos J. Miller, of Mount Kisco, N. Y. The invention consists in a special construction of spring adapted for buckboard buggies, causing the vehicle to ride easily and prevent rumbling noises, and also preventing the buckboard from sagging in the middle.

A wick trimmer has been patented by Mr. Robert Hoffman, of Cohoes, N. Y. In combination with a pair of shears is a clamp for pressing the wick against one of the blades, and a lever for acting on the clamp to press its inner edge piece from the edge of the blade to permit passing the wick in between the edge of the blade and the clamp.

A calcimining and wall brush has been patented by Mr. Henry Bantz, of New York city. The object of the invention is to facilitate the manufacture and promote convenience in renewing the bristles, the handle and its body portion for holding the brush head being struck up in halves from sheet metal, the brush head being removable.

A folding table has been patented by Mr. Charles M. Bolles, of Dallas, Texas. When folded the table is triangular in shape, so it can be placed in the corner of a room, but will make a square or parallelogram of much larger size when unfolded and set up in the room, by the use of the leaves and specially devised braces.

A calendar attachment for pens and pencils has been patented by Mr. Schuyler C. Lord, of East Surry, Me. This invention consists in a tube with a rotating sleeve, the whole made for fitting on the end of a pencil or a penholder for use as a calendar, the days of the week being placed on one tube and of the month on another, so the sleeve can be set for any month.

A log turner has been patented by Mr. Royal E. Park, of Sherman, N. Y. It is for turning logs upon their carriages in saw mills, and the weight of the log causes the device to automatically turn the log upon the carriage and force it to proper position, the device being also simple and strong and not liable to get out of order.

A vacuum pan has been patented by Messrs. James D. Edwards and Leon F. Hauptman, of New Orleans, La. This is primarily for use in the sugar manufacture, and practically embraces a system including two pans acting together, a condenser, receivers, tanks, pumps, steam connections, all making a complete practical plant, with many novel features in construction and mode of operating.

A wagon end gate has been patented by Messrs. George Thomas and Harrison H. Thomas, of Waterloo, N. Y. End wings or gates are secured to the gate and have notches and stops, while rods are held on the sides of the box with a hook lug and handle at their opposite ends, so the end gate can be locked in position when raised, lowered, or held at an inclination.

A graining compound has been patented by Messrs. Hezekiah Bailey and William H. Bailey, of St. Thomas, Ontario, Canada. It consists of a mixture, compounded in a special manner, of apple cider, eggs, saupeter, and color, which flows easily from a sponge or brush, and may be worked with coarse or fine combs, the fingers, rags, etc., as paint is worked in graining.

A sheet metal roofing plate has been patented by Mr. Patrick H. Regan, of Nashville, Tenn. The joints are made to easily lock together and be waterproof, while not liable to be broken or split by pressure or tension, and also providing for contraction and expansion from changes of temperature, the face of the plate is so made to deflect water away from the joints.

A crane has been patented by Mr. John Wild, of Chester, Pa. This invention covers a special construction, combination, and arrangement of parts to improve the efficiency of that class of cranes where the hoisting block has to travel along the crane beam for shifting the load, and has an oval clutch mechanism with pulleys for moving the hoisting block backward and forward.

A sash holder has been patented by Mr. Obadiah G. Newton, of Trenton, Mo. It is a special combination of an eccentric with an attached handle and a pendent friction shoe, both secured on or to the shoe, making a very simple and efficient fastener, which may be applied either to the right or left hand side, and is thin enough to allow one sash to freely pass another.

A macerating machine has been patented by Mr. Frank M. Avery, of Brooklyn, N. Y. It is a grinding or crushing machine, with a revolving drum and concave, more especially intended for obtaining the fibers and juices from vegetable substances, adapted to be easily and quickly adjusted for different materials, and calculated to yield to avoid breakage when hard foreign substances enter the machine.

A box for changing photographic plates has been patented by Mr. Hieronimus Mader, of Isny, Wurtemberg, Germany. The object of the invention is to provide an improved device for facilitating the exchanging of dry plates within or outside of the studio, without necessitating the use of complicated appliances, such as portable dark rooms, etc., and this device enables a photographer to easily carry a large number of plates with him.

The preparation of caseine and of articles made therefrom forms the subject of two patents issued to Mr. Emery E. Childs, of Brooklyn, N. Y. The first patent provides for the production of a cheap and superior quality of caseine from milk curd direct or common cheese, the products to be used for various useful and ornamental articles, while by the other patent the milk curd is taken after it has been separated from the whey, but before the water has been pressed out, and working or kneading such naturally saturated curd in its own water; the coloring ingredients may be introduced here, the whole worked at a temperature below boiling, and, as a tough, glutinous mass, pressed into sheets or moulds of any desired form.

NEW BOOKS AND PUBLICATIONS.

POULTRY FOR PROFIT.

This is a neatly printed little volume, by P. H. Jacobs, editor of the *Poultry Keeper*, and *Form, Field, and Fireside*, at which office it is published in Chicago, Ill. The book is intended for beginners in poultry raising; the author claims to have had a practical experience of thirty years in the poultry yard.

THE ELECTRICIAN'S POCKET BOOK. Cassell & Co., 739 Broadway, New York.

This is an English edition of Hospitalier's *Formulaire Pratique de l'Electricien*, translated by a member of the Society of Telegraphic Engineers and Electricians, London. The work will be found useful for electricians in all branches of their art. It contains illustrations of the ordinary appliances used in telegraphing, in house alarms, office signals, etc., with tables giving the conductivity of the various metals, directions for charging the batteries, etc.

VENTILATION AND HEATING. By John S. Billings, Surgeon U. S. Army. *The Sanitary Engineer*, New York. Price \$3.

This work is a revised and enlarged publication in book form of a series of papers formerly published in the *Sanitary Engineer*, and treats of the principles involved, under the conditions of modern life, and their practical application. The source from which this book emanates is of such established high character that commendation would be superfluous.

AN IMPORTANT QUESTION IN METROLOGY. By Charles A. L. Totten. John Wiley & Sons, New York.

This book is a "challenge to the metric system," and an "earnest word with the English speaking peoples on their ancient weights and measures," dating their origin back to the builders of the Pyramids and treating them as a product of the knowledge originally imparted to the Hebrews, according to Bible accounts.

FORESTRY OF NORWAY, NORTHERN ASIA, AND THE URAL MOUNTAINS. By John Croumbie Brown, LL.D. Oliver & Boyd, Edinburgh.

The title above given covers three distinct volumes by the same author, who is also the author of nine other books on forests and forestry, and arboriculture. The author has had long experience as a practical botanist and lecturer on botany, and his books contain much valuable information on a subject that is of very general interest in this country at the present time.

Lee's Map of the Industries of Western Pennsylvania is a convenient office chart of the Pittsburgh Gas Coal Beds and the Connellsville Coke Field, with their transportation lines and index to the most important industries.

Received.

THE MARITIME CANAL OF SUEZ, FROM ITS INAUGURATION, Nov. 17, 1869 to 1884. By Professor J. E. Nurse, U. S. N. Washington, D. C.: Government Printing Office.

A NEW SYSTEM OF LAYING OUT RAILWAY TURNOUTS. By Jacob M. Clark. D. Van Nostrand, New York.

A NEW METHOD OF RECORDING THE MOTIONS OF THE SOFT PALATE. By Harrison Allen, M.D. P. Blakiston, Son & Co., Philadelphia.

Special.

SPITTING, AND THE MEN WHO SPIT.

The habit of spitting is a peculiarly American one, and it is growing on the American public. When Charles Dickens first visited this country, he said some sarcastic things about it, which gave considerable offense, because they were justly merited. Since then the habit has increased a thousandfold. Why do people spit so much? Is it mere habit, or is there a valid cause for it? It is at best a very unpleasant and untidy habit. With some the habit is from another cause, which is quite as objectionable, namely, the chewing of tobacco, which demoralizes the salivary apparatus as badly as it defiles pavements and carpets. With that habit, however, we having nothing to do just now, for we are about to refer to a far more deeply-seated cause of the evil practice.

The fact is that a very large proportion of the American people have catarrh. Catarrh is a disease of many forms. Its seat is chiefly in processes above and in the immediate rear of the nose. The delicate passages are lined with an exceedingly sensitive membrane, which is often either lightly or severely inflamed. When inflamed it secretes a peculiar liquid or semi-liquid deposit, which must be got rid of in some way. It must either be absorbed, swallowed, or spit out. The causes which produce it prevent its absorption. To swallow it is to afflict the stomach with that which is not only indigestible, but also poisonous. To spit it out seems the only way to get rid of it. And so along the street and in public conveyances and in halls, churches, theaters, stores, and even elegant private apartments we hear and see the constant hawk, hawk, spit, spit, spit, of thousands of people who would like to be free from the unclean habit, but who cannot, because they have catarrh.

Our editor had occasion recently to hold conversation with a gentleman who was formerly in bondage to this habit by reason of grievous catarrh, but who has of late years been thoroughly emancipated from it. He is a gentleman of culture and education: Mr. Chas. E. Cady, at the head of Cady's Business College, at Fourteenth Street and University Place, New York. In view of his position and the influence he holds over young men, his experience is worth quoting.

Mr. Cady's catarrh was of long standing; probably inherited. He remarked to our correspondent that in his early life he had a few hobbies on the health question; such, for instance, as that he should bathe freely in very cold water all winter, and that he should sleep with more cold air in his room than most people consider good for them. As he lived in Ogdensburg, N. Y., he had all the facilities he wanted for making the most of cold air and cold water in wintry weather.

"By the time I was twenty years old," said Mr. Cady, "I had catarrh, deep seated and firmly fixed. It came on so slowly that I hardly knew it was catarrh. I had to use my handkerchief constantly. I was continually hawking and spitting. The habit grew upon me. It became a great nuisance to myself, as I know it was to other people. There was a constant dripping into my throat. I always had a weak stomach, and this made it weaker. I was not prostrated, nor was I such a dyspeptic that I could not eat my food; but I was in slavery to this horrible catarrh, and I saw no way of escape from it."

"After trying sundry catarrh remedies without advantage, I concluded to make an experiment with Compound Oxygen, for which purpose I consulted Dr. Turner, at the New York office of Drs. Starkey and Palen. I procured a Home Treatment: In about four weeks great improvement was visible. I continued the treatment for nearly six months at intervals; my catarrh, which had been unusually obstinate, was now at an end. The unpleasant secretions disappeared, and also the pain in my head which had accompanied them. The necessity for hawking and spitting ceased, and I was free from that unpleasant bondage. My stomach grew stronger and my digestion better, and so continue to the present time."

"This was about three years ago. Since then I have had no return of the catarrh, and I have not needed any more Compound Oxygen. I know my cure must be reasonably permanent, for I have taken several slight colds, which have passed away without leaving any evil effects. During my catarrhal days such colds would have aggravated my disease to a serious extent, and caused me much annoyance."

"With my catarrh gone and my general health greatly improved, you may quote me as freely as you please as a firm believer in the virtues of Compound Oxygen."

"I wish for the sake of the thousands who are kept by their catarrh constantly hawking and spitting, that all victims of this unpleasant disease could know of Compound Oxygen and make trial of it. I see no reason why it should not do for them what it has so thoroughly done for me."

A "Treatise on Compound Oxygen," containing a history of the discovery and mode of action of this remarkable curative agent, and a large record of surprising cures in Consumption, Catarrh, Neuralgia, Bronchitis, Asthma, etc., and a wide range of diseases, will be sent free. Address DRs. STARKEY & PALEN, 1109 and 1111 Girard St., Philadelphia.

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Valuable Patent.—United States Patent allowed. Absolutely perfect and exceedingly simple railroad nut lock. I will sell two-thirds of each foreign patent for the money to pay for the patent. Address James A. Campbell, care "Banner," Brenham, Texas.

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If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent agency, 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

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Curtis Pressure Regulator and Steam Trap. See p. 286. Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 286.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 270.

Drop Forgings. Billings & Spencer Co., Hartford, Conn.

Brass & Copper in sheets, wire & blanks. See adv., p. 222.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

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Hoisting Engines, D. Frisbie & Co., Philadelphia, Pa.

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Renshaw's Ratchet Drills. No. 1, \$10; No. 3, \$15. Cash with order. Pratt & Whitney Co., Hartford, Conn.

Shipman Steam Engines.—Small power practical engines burning kerosene. Shipman Engine Co., Boston. See page 317.



HINTS TO CORRESPONDENTS.

Name and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) A. G. H. desires to know the process used for deodorizing tallow in the manufacture of imitation butter. A. It is hard to say just what process is used by those who manufacture artificial butter. Admission to the factories is almost impossible, and the details of manipulation are kept very secret. A good article of tallow is generally used, and it is presumed that steam is injected into the fat in such a way as to remove the odor and color. See article on this subject on page 633 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 397. On a small scale, substances rich in oxygen can be used to purify the tallow, thus, by melting the fat and adding to it a small quantity of potassium bichromate dissolved in water; and subsequently a little hydrochloric acid. The mixture is then stirred, and washed with warm water until thoroughly cleansed, when the tallow will be found to be completely deodorized and bleached. Potassium permanganate is likewise used with good results.

(2) S. R. S. asks in what year Kolbe discovered the process of making salicylic acid from carbolic, the price of salicylic acid before the discovery, and what amount of the salicylic acid could be obtained? A. That salicylic acid may be obtained from phenol was demonstrated by Kolbe and Lautermann in 1860. In 1874, Kolbe modified and simplified his original process, subsequent to which it became prominent as a disinfectant. Prior to 1874 it had no commercial value, and of course could not be obtained in quantity.