

RECENTLY PATENTED INVENTIONS.

Apparatus for Special Purposes.

OVEN FOR COKING PEAT WITH RECOVERY OF BY-PRODUCTS.—E. BREMER, Mariupol, Russia. The object of the invention is to provide an oven more especially designed for coking peat by dry distillation in a very economical manner by utilizing the gases produced as fuel for the heating of the reducing-retorts. Its construction consists of a suitable number of vertical retorts, of refractory material and arranged side by side, of any suitable material, the retorts being combined into groups and allowing free access from the bottom.

SNOW-MELTING APPARATUS.—H. C. DAVIS, Philadelphia, Pa. The invention provides novel details of construction for a snow-melting apparatus that afford convenient, practical means for the speedy conversion of snow from the city streets into water. By the provision of such apparatus at suitable points in the streets it will be possible to remove the snow on a large area before it obstructs travel.

TURPENTINE-STILL.—J. F. BAILEY, Valdosta, Ga. Broadly stated the invention comprehends a still, special steam-heating means, a steam generator, a cold water tank, having therein any suitable worm or column condenser, the worm being in open communication with the upper part of the still, and a steam-operated pump having suitable connection with the supply of cold water, the condenser tank, and the steam generator. The pump is worked by steam which has in its live state served for heating the still. Improved results are attained through inductive action produced by the pump in the steam passageways through the still, whereby with a minimum use of steam an improved production of turpentine, tar, and resin is had.

Of Interest to Farmers.

MOWING-MACHINE.—C. H. HEWER, High Street, Cricklade, Wilts, England. Mr. Hewer's invention relates to a track-cleaner for mowing-machines designed to clear the cut grass from the standing crop during the first cut around the field or across the standing crop, and thereby dispense with the manual labor usually required to remove this cut swath before the field or piece can be completed, a requirement which often entails great loss of time and crop.

Of General Interest.

MIRROR-FRAME.—L. B. PRAYLAR, New York, N. Y. The purpose of the invention is to provide an exceedingly simple construction of mirror frame, wherein the mirror can be securely held between two sections, one section entering the other, and the flange at the outer section be pulled or clamped upon the corresponding flange on the inner or front section in such manner as to make a smooth, overlapping connection without the use of solder.

DEVICE FOR USE IN SHARPENING PENCILS.—A. D. FAGELIES, Chicago, Ill. The object of this invention is to provide an improved device for sharpening pencils with a knife, which is simple in construction and arranged to permit convenient carrying in a pocket and to allow an accurate and quick sharpening of the pencil. The device comprises a sleeve, formed with guide fingers against which the knife is drawn when sharpening the pencil, and which therefore prevent the knife from cutting too deeply into the wood and from breaking the lead of the pencil.

NON-REFILLABLE BOTTLE.—P. McGRATH, Hibbing, Minn. Mr. McGrath's invention is an improvement in that class of attachments for bottles adapted to render them non-refillable. The attachment in the present instance consists of a pair of ball valves, adapted to assume different positions, according to the position in which the bottle is held, so as to allow or prevent escape of the liquid.

ROPE-FASTENER.—H. GARTELMAN and P. E. SCHNITZER, New York, N. Y. The invention provides a simple and inexpensive device which is especially designed to securely fasten a rope without chafing or cutting the same, and at the same time permit the rope to be pulled out of place easily and quickly, the rope being so manipulated that it will not double or kink during the operations of fastening or releasing the same.

Machines and Mechanical Devices.

TIME-LOCK.—E. A. MARSH, Chicago, Ill. Mechanism is provided by this inventor to prevent overwinding of the clockwork, and the bolt has the form of a hook which protrudes from the lock and is moved laterally. The several dial wheels may be read off together, a single pointer being common to them all. The invention relates to time-locks, such as are used for safes, vaults, and compartments wherein valuables are stored.

BALLOTING-MACHINE.—W. M. DOUGHERTY, St. Joseph, Mo. In the present patent the invention relates to certain improved interlocking devices by which a voter is prevented from operating more than one of the counters at the same time. This application is a division of Mr. Dougherty's application for patent on balloting-machines previously filed.

Pertaining to Musical Instruments.

NOTE-SHEET.—W. R. VERSTRAELEN and C. ALTER, New York, N. Y. The object of this invention is to provide a sheet arranged to control the sounding devices of the musical instrument, to govern the forward travel of the sheet on its spool, and to control the connection of the main wind-chest with the action wind-chest.

PICKING DEVICE FOR ZITHERS.—W. R. VERSTRAELEN and C. ALTER, New York, N. Y. In this patent the object of the invention is the provision of a new and improved picking device for self-playing zithers arranged to insure a proper automatic picking of the strings according to the notation of a note-sheet.

PICKING DEVICE.—W. R. VERSTRAELEN and C. ALTER, New York, N. Y. In this case the object of the improvement is to provide a picking device arranged to insure picking of the proper strings as called for by the notation of the note-sheet and to insure full and harmonious sounding of the strings and prevent injury to the same by moving the picks easily and softly in and out of engagement with the strings approximately the same as when the strings are picked by hand.

SELF-PLAYING ZITHER.—W. R. VERSTRAELEN and C. ALTER, New York, N. Y. The invention relates to stringed instruments having a coin-controlled motor and automatic picking devices for picking the strings. The object is to provide a zither arranged to permit the use of a number of selected rolls of note-sheets on a single carrier, whereby any one of the note-sheets may be brought into operative position and unwound over a tracker-board to cause picking of the strings, according to the notation of this operative note-sheet, and to automatically rewind the operative note-sheet after the tune is played to allow resetting of the roll-carrier for another tune.

COIN-CONTROLLED APPARATUS.—W. R. VERSTRAELEN and C. ALTER, New York, N. Y. In the present invention the object is to provide an apparatus more especially adapted for use on self-playing musical instruments and arranged to utilize the introduced coin as a circuit-closer for starting the motor employed for running the instrument on which the apparatus is applied and to release the coin, and thereby break the circuit after the instrument has finished playing and the music sheet has been reloaded on its spool.

HARP-HOLDER.—C. F. SUTER, Black Diamond, Wash. Mr. Suter's invention has reference to holders for mouth-harps and other instruments; and the objects are to provide a holder for instruments to be held in the mouth which shall be easily secured in position, which shall be adjustable in all directions, simple in construction, and cheap to manufacture.

Prime Movers and Their Accessories.

TURBINE.—L. E. TRUESDEL, Kershaw, S. C. This invention relates to a radial flow turbine, and comprises features by which the efficiency and commercial utility of the apparatus is materially increased. Steam entering through the steam-inlet nozzle imparts a driving influence to the wheel both in striking the radially disposed buckets and an annular row of buckets, in connection with a group of vanes, and an efficient utilization of the energy is effected. The web being essentially in frusto-conical form deflects the exhaust-steam outward after leaving the annular row buckets and causes the steam to lie at one side of the wheel, so as not to interfere with the turbine operation, this steam passing in constant stream from the exhaust-opening.

LOCOMOTIVE-BOILER.—J. MURR, Dunkirk, N. Y. The object of this invention is to provide useful improvements in locomotive-boilers whereby an even draft is produced through all the flues and a ready escape is had of the smoke and gases from the flues to the smoke-stack without carrying cinders through the stack and at the same time a free exhaust at the steam from the engine is had without danger of back pressure.

Pertaining to Vehicles.

VEHICLE-TONGUE.—P. FRIST, Anderson, Ind. The present invention refers to vehicle-tongues, and more especially to that type consisting in the main of a metallic tube of suitable dimensions. The object is to provide a simple, servicable, and inexpensive tongue of the type specified which is well adapted to withstand strains to which it is subjected when in use and which may be readily adapted to vehicles of different types by simply changing the dimensions of the tongue.

JOINT-BAND.—J. C. RAYMOND, New York, N. Y. In this patent the invention relates to tires such as shown and described in the Letters Patent of the United States formerly granted to Mr. Raymond. The object of the invention is to provide a new and improved joint-band for covering the joints of adjacent tire sections to prevent leakage and to securely hold the tire in place on the rim of the wheel.

DEVICE FOR PROTECTING PNEUMATIC TIRES.—E. LAISSÉ, 9 Rue de la Barrière, Elbeuf, Seine-Inférieure, France. An important feature of the invention consists in using as wire gauze a sort of wide chain made

up of rings engaged one in another in the same manner as in a coat of mail. This chain is not incorporated with the rubber, but is free between the outer covering and the canvas that carries it. The chain has much greater flexibility than other wire gauze either woven or plaited.

Railways and Their Accessories.

LUBRICATING-PACKING HOLDER FOR CAR-AXLE BOXES.—J. S. PATTEN, Baltimore, Md. By this invention Mr. Patten seeks to provide a lubricating device in which the packing carrier will hold the backing and prevent it from shifting in the direction of the circumference of journal, and in which the carrier will take the pressure of the actuating springs so that the latter will not tend to condense or compress the packing against the journal.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of the paper.

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Perforated Metals, Harrington & King Perforating Co., Chicago.

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American inventions negotiated in Europe. Wenzel & Hamburger, Equitable Building, Berlin, Germany.

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Patented inventions of brass, bronze, composition or aluminum construction placed on market. Write to American Brass Foundry Co., Hyde Park, Mass.

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Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 15 South Canal Street, Chicago.

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Two patents for sale. Supply tanks for water service, No. 589,550. Valve, a cut-off, for supply tanks, No. 537,941. Can furnish some valves, cut-off, in working order. P. J. Leithauser, Clarendon, Texas.

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The celebrated "Hornsbly-Akroff" Patent Safety Oil Engine is built by the De La Vergne Machine Company Foot of East 13th Street, New York.

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HINTS TO CORRESPONDENTS.

Names 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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(9464) P. D. E. writes: Will you please give me at your earliest convenience, either by letter or through your Notes and Queries column, the answers to the following questions? 1. How is muzzle energy calculated? For example, how is it that the 16 inch, 40-caliber, B. L. gun firing a 500-pound projectile, with a muzzle velocity of 2,800 feet-per-second, develops 27,204 foot-tons muzzle energy? A. The muzzle energy of a gun is computed by multiplying the weight of the shot in pounds by the square of the muzzle velocity in feet per second, and dividing the product by twice gravity (64.32) multiplied by pounds $500 \times 2,800^2$ in a ton (2,240); thus $\frac{64.32 \times 2,240}{2,240} = 27,207$

foot-tons. 2. How is the striking energy of a projectile calculated? A. The striking of a shot is its velocity energy assumed, from the muzzle energy, less air friction, divided by the distance that the force of the shot is arrested in feet or decimals of a foot. See SCIENTIFIC AMERICAN SUPPLEMENT No. 862 on impact or the force of a blow. 3. Nickel steel weighs 40 pounds per square foot per inch of thickness. Does this hold good for Krupp armor? For example, does one square foot of 5-inch armor weigh 200 pounds, of 6-inch 240 pounds, and of 7-inch 280 pounds? A. The weight of steel plate is correct as stated. 4. The 13,000-ton battleship "Idaho" is designed for a speed of 17 knots with 10,000 horse-power. On page 31 of the 1903 Report of the Chief of the Bureau of Ordnance, it is stated that to increase her speed to 18 knots would necessitate an increase of 6,000 horse-power. Please explain how this increase of horse-power was estimated. A. An approximate formula for speed of vessels is, cube of velocity in knots per hour multiplied by the cube root of the square of the displacement in tons, and product divided by a coefficient for mold of the vessel. Have no data of the Ordnance Bureau. 5. I recently wrote to the Bureau of Ordnance requesting information relative to the weights of certain gun mounts, and the number of rounds allowed to the guns on shipboard. I received an answer stating that such data was confidential, and not issued for publication. Now on page 232 of the SCIENTIFIC AMERICAN for October 12, 1901, it is stated that the mount of the 6-inch 50-caliber R. F. gun weighs 5.43 tons, and the shield 2.7 tons, making the total weight for the mount 8.13 tons; and in an article on the armored cruisers of the "California" type in the SCIENTIFIC AMERICAN for December 1, 1900 (p. 344) it is stated that 500 rounds are allotted to the four 8-inch guns, 2,800 rounds to the fourteen 6-inch, 4,500 rounds for the eighteen 3-inch, etc. Are these figures authentic, or are they merely the result of guesswork? I notice that in the tables of guns given in Brassey's Naval Annual the weights of the mounts are seldom, or never, given. It seems to me, however, that this data is no less important than the weight of the gun itself. A. We cannot account for information that occasionally leaks out in regard to government work and methods.

NEW BOOKS, ETC.

THE NEW THOUGHT SIMPLIFIED. How To Gain Harmony and Health. By Henry Wood. Boston: Lee & Shepard, 1904. 12mo.; pp. 195. Price, 80 cents.

Those interested in the New Thought movement, so called, are already familiar with Mr. Wood's writings. He has published a number of books, and has contributed largely to magazine literature. He is one of the more reasonable and conservative exponents of the idealistic or psychic hypothesis as opposed to the materialistic conception of being. Even to those of the opposite persuasion, there are parts of this exposition that will prove refreshing reading, and may furnish a new point of view. After all, it is the change in viewpoint which makes life a progression, and animates existence with the spirit of promise and of hope.

CONTI E CALCOLI FAVTI. By Ing. Italo Ghersi. Milan: Ulrico Hoepli, 1904. 16mo.; pp. 191.

This small volume contains many useful tables of equivalents that will be found of value by the physicist, chemist, and engineer,