RECENTLY PATENTED INVENTIONS.

Engineering.

ENGINE.—Robert D. Knight, Vinita, Indian Territory. This is an engine more especially designed for use on locomotives, the invention covering an improvement whereby the engineer may control the introduction of steam into the cylinder regardless of the slide valve. The cylinder is connected by the usual ports with the steam chest in which operates the slide valve, and in the ports are arranged plugs which may be turned to close the ports and connect them by additional ports with the exhaust. The outer ends of the plugs are connected with each other and with the locomotive cab, permitting the engineer to change their position as desired, singly or collectively.

GAS OR VAPOR ENGINE.—Frederick W. Mellars, San Francisco, Cal. This engine is designed to be of very strong and durable construction and highly efficient in operation. It has a rocking valve adapted to open and close the gas inlet and exhaust, the valve being operated by a cam which, during the part of its revolution corresponding to the compression and expansion periods of the engine, holds the valve stationary and in a closed position over both inlet and exhaust.

VAPOR ENGINE. — Isaac F. Allman, Jersey City, N. J. This engine has a governor comprising a spring-pressed block mounted to slide on a running part of the engine and formed with an oblique groove engaged by a lever fulcrumed on the running part, while a sliding sleeve is connected with the lever and with the part to be governed. The improvement is designed to enable the engine to be governed with great precision, the governor acting positively and quickly when an abnormal speed is attained, causing the exhaust valve to remain closed to prevent the escape of burned gases and a drawing of the mixture into the cylinder until the speed is reduced.

Railway Appliances.

SWITCH.—William W. Doty, New York City. This is a switch especially designed for use on street railways, the switch being normally closed to the side track, but being opened, when desired, by pressure of the foot upon a lever projecting up through the car platform, as the car comes to the proper place, the switch being closed after the car has passed by the wheels coming in contact with another lever. Should the switch point be accidentally moved by a passing vehicle, a spring causes it to swing back to closed position. The entire construction is simple and not liable to get out of order.

RAILWAY GATE.—Samuel L. Reed, of Ebensburg, and William S. Reed, of Johnstown, Pa. This is an improvement in gates used at crossings, to close the roadway on the approach and passing of a train, and comprises a shaft connected with a pivotally mounted gate and having a flexible connection with cams adjacent to the track and adapted to be moved successively by a passing train. The device is so arranged that the gates are also automatically opened when the train has passed the crossing.

SIGNAL LANTERN.—Willard R. Dodson, Jermyn, Pa. This lantern is designed to burn both day and night for a week without attention and consuming but a very small quantity of oil, although giving a large degree of radiation, sufficient for signaling. The wick is made of a sheet of cloth and a sheet of asbestos paper, and is practically imperishable, needing but slight adjustment at long intervals. The lamp also combines various improved details designed to add to its commercial efficiency and insure its durability.

Agricultural.

PLOW.—Joseph J. Bonen, Iron Mountain, Mich. This is a plow especially adapted for the cultivation of the potato, or for drilling for planting or for digging potatoes. It is fitted with adjustable wings or mould boards, so that it may be accommodated to growing plants, and is provided with a shovel, which is detachable from the share and the stock, so that the plow may be used for ordinary purposes when desired. The share and stock are so made that in new ground the weeds will be cut as the plow is drawn forward.

CULTIVATOR SEEDER ATTACHMENT.—William R. Frost and William H. Butlin, Croton, Iowa. An attachment particularly adapted for sowing oats in corn ground or wheat in corn stubble, or like purposes, has been devised by these inventors, the attachment being used as readily on rough ground or on a hillside as upon smooth ground. Means are provided for controlling the amount of seed to be dropped per acre, the seed being dropped in front of and covered by the cultivator teeth, the seed box being close to the ground, so that seed will not be wasted in windy weather, and the planting and raking in of the seed being performed in one operation.

Miscellaneous.

BICYCLE SADDLE.—Sylvester J. Brown, Denver, Col. This inventor has devised a solid seat or saddle having a tree of wood or similar material, a waterproof covering of rawhide, and a suitable leather top, the saddle tree being made and shaped to give a maximum degree of comfort to the rider. The tree is formed in three sections, a body section forming its rear portion having a forward angular recess extending from end to end, while two side sections fit in the recess and are connected on a substantially central line and shaped to form a portion of the body and a horn.

SALUTING DEVICE.—James C. Boyle, Spokane, Washington. To lift the hat automatically in saluting, without raising the hand, this inventor has devised a mechanism principally contained in a casing inside the hat, there being on the lower side of the casing curved spring fingers which gently clasp the head of the wearer. In a hat containing this mechanism, when the wearer bows, the swinging of a pivoted weight block pushes a rod whereby a spring is released and an arm is operated to raise a bow piece to which the edges of the hat band are attached, the swinging back of the weight, as the wearer resumes an erect posture, causing the hat to drop into its normal position on the head.

PENCIL HOLDER AND CLIP.—William E. Quinn, Anniston, Ala. This is a simple device for the use of conductors, engineers, telegraph operators, etc., the device being a holder for a pencil or pen and also adapted to receive train orders, telegrams, etc., the holder being also conveniently attachable to any portion of the wearing apparel. On the front face of a back plate is pivotally mounted a spring-pressed clamping plate with pencil-holding fingers struck up from its central portion, while on the upper end of the back plate is pivoted a spring clasp.

COPYING PRESS MOISTENING DEVICE.—Wallace S. Hampsher, Mount Vernon, N. Y. This moistener comprises a pan adapted to hold between guide strips a block on which the sheets to be moistened are placed, the water in the pan rising nearly to the surface of the block, and the sheets being moistened by capillary attraction. The sheets are covered by a cover or presser plate with inclined top surface, and whose marginal edges come within and slightly below the upper edges of the pan.

PILE FABRIC. — Ludger Beauregard, St. Joseph de Levis, Canada. This is a fabric designed to form an imitation of Persian lamb, and consists principally of a fabric backing and a heavy strand of wool or other material interlaced with and knotted on the backing in a particular novel manner to form raised loops on the face of the backing. The strands forming the loops are made of a large number of loops which readily spread and fill the spaces between the adjacent loops, and the dyed fabric is singed to more closely imitate Persian lamb.

METALLIC ROOFING, SIDING, ETC.—Pressly C. Patterson, Cambridge, Ohio. This is an improvement in the construction where the sheets or sections have parallel raised and depressed portions and interlocking side and end flanges for forming seams with adjacent sheets or sections, the improved construction having raised portions to form continuous air spaces and depressed portions forming channels for carrying off the water, while also forming a concealed lock, and a secret nailing flange extending under the raised body portion, while warping is prevented.

METALLIC ROOFING.—This is a further patent of the same inventor, providing more especially for the prevention of leaking, the sheets having interlocking side flanges for forming seams with adjacent sheets and a nailing strip extending under and formed on its top and at one side of the seam with a gutter for carrying off water leaking past the seam. This roof need not necessarily be laid on tight sheathing, but may be laid on laths from one to two feet apart, depending on whether light or heavy gage metal is used for the sheets.

FIRE EXTINGUISHER.—George W. Cofran and William J. Murray, Baltimore, Md. This is an improvement in automatic extinguishers in which a fusible closure is provided upon the nozzles or outlets, and affords a simple means by which a reduction of air pressure in the pipe system will effect a flow through the system of gas, water or other extinguisher. The arrangement is such that when a certain diminution takes place in the pressure in the pipes a diaphragm in a connected tank falls, freeing a plunger and releasing the extinguishing fluid, the nozzles opening automatically on a sufficient rise in temperature.

CURTAIN FIXTURE. — Joseph Darling, Peachville, Pa. The curtain roller, according to this improvement, is of the automatic type, but the spring stud has an attachment composed of a headlike portion with inwardly facing flange or shoulder, there being a portion adapted to be pressed into locking contact with the spring stud of the roller. The invention affords improved means for connecting the roller with its main supporting bracket, for braking the curtain operating and supporting cord, and for connecting the cord to take up slack and level the roller.

INHALER. — Lyman P. Walter, Chicago, Ill. To facilitate inhaling various medicaments, this inventor provides a device which may be nested in small space and carried in the vest pocket, comprising a nose piece having an open side to fit over the nose and at the bottom a projecting nipple and cup to receive the medicament, the latter being preferably held in a small piece of sponge or other absorbent. The several parts of the device consist of three separable pieces and are preferably made of hard rubber.

CAN OPENER.—Oliver C. [illegible]ompson, Emporia, Kansas. This device consists of a slotted and sharp pointed lever to which a knifeholding clamp is adjustably attached, the point of the lever being adapted to pierce the head of a sheet metal can, and the knife or cutter being adapted to make a circular cut when the lever is turned on its point. The construction is such that the metal is severed by a clear draw or shear cut, enabling the lever to be operated with great ease.

CHICKEN COOP AND TRAP.—James M. Harvey, Palmyra, Tenn. This inventor has devised a coop in combination with a trap in which animals seeking to prey on the chickens may be caught and retained. It has two compartments, with a communicating door, one compartment for the chickens to live and roost in, and a trap section into which they are admitted to feed and exercise. Animals entering the trap section to prey on the chickens are imprisoned there.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

ARTESIAN WELLS AS A MEANS OF WATER SUPPLY. By Walter Gibbons Cox. Brisbane, Sydney, Melbourne and Adelaide: Sapsford & Company. 1895. Pp. 148. Price $3.

In Australia an immense effect has been produced by artesian wells, and in California also the most important results have been obtained by them. This work, giving the most practical results in these and other countries, is very acceptable. Naturally, Australia receives the principal part of the attention, but America is not slighted. The list of topics purporting to be an index is exceedingly unsatisfactory and is an actual blemish to the work.

WEATHER AND DISEASE: A CURVE HISTORY OF THEIR VARIATIONS IN RECENT YEARS. By Alex. B. MacDowall. London: The Graphotone Company. 1895. Pp. 83.

In this book the curve system of obtaining results is extensively applied to the particular subject, and the author seems to have considerable confidence that by it he will obtain valuable results. The relations of climatic and weather conditions to hygiene have of late years received more scientific treatment than of old. This book is a step in that direction.

HOWELL'S STEAM VESSELS AND MARINE ENGINES. By G. Foster Howell. With a closing chapter on sailing ships and schooner yachts. New York: Published by the American Shipbuilder. Pp. 183. No index. Price $5.

This excellent treatise gives a somewhat general review of ships of commerce and of yachts, and is particularly interesting from its presentation of the most modern types of vessels, including four and five masted sailing and auxiliary ships, and many classes of steam vessels, of engines and of equipments now being turned out from the different yards. People familiar with the shipping of America will have no difficulty in recognizing many old friends among the illustrations, which add very largely to the charm of the book, it being made up almost more of cuts than of text. The presentation of new and less familiar rigs is another feature. A most interesting series of portraits of well known ship builders and others interested in marine engineering completes the work. The absence of an index, however much it may be regretted, is compensated for to a very great extent by a full table of contents.

ELEMENTARY TREATISE ON ELECTRICITY AND MAGNETISM. Founded on Joubert's "Traité elementaire d'Electricité." By G. C. Foster and E. Atkinson. New York, London, and Bombay: Longmans, Green & Company. 1896. Pp. xix, 552. Price $2.25.

This work is a modified translation of Joubert's "Traité elementaire d'Electricité," made with his consent and his authorization for the changes which the authors deemed it advisable to make in its arrangement. All that is necessary to say of it is that it treats very fully of its titular subject and that it forms another excellent addition to the library of the electrician, which will be, we are confident, very valuable and acceptable to many. It is printed clearly and is certainly a most useful work.

ELECTRICITY UP TO DATE FOR LIGHT, POWER AND TRACTION. By John B. Verity. London and New York: Frederick Warne & Company. 1896. Pp. xii, 238. Price $1.

The preface states that some 20,000 copies of this work, now in its fifth edition, have found their way into circulation. It certainly seems a rather brief treatise when its subject is considered, and is devoted largely to English practice. Its interest for engineers in this country will be, of course, not enhanced by the fact that it is devoted to foreign practice, although ideas will certainly, in many cases, be widened by such study.

PETROLEUM. A treatise on the geographical distribution and geological occurrence of petroleum and natural gas, etc. By Boverton Redwood, assisted by George T. Holloway and other contributors. In two volumes, with numerous maps, plates, and illustrations in the text. Vol. I, Vol. II. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 1896. Pp. xxv, 900. Price $13.50.

This work we can recommend highly, as it covers the field of petroleum thoroughly. With numerous illustrations and exact technical information, it really seems to have filled what has been a want in scientific literature. Not the least interesting part of it is the section giving a quantity of matter and data which is of recognized value affecting the consumption of petroleum oil for burning purposes. The entire world is gone over for petroleum, the methods of drilling in different parts of the world are explained, and the tools illustrated, and very little that is to be desired will be found lacking. Another interesting feature is the description of the Peruvian oil fields, it being possible that the exhaustion of quinine in Peru and the gradual diminution of other exports will be compensated to some extent by her new petroleum discoveries. An excellent index and a good table of contents add materially to the value of the work.

THE POCKET LIST OF RAILROAD OFFICIALS. Containing the names of officials in charge of railroads, private car companies, fast freight lines and transportation companies of the United States, Canada and Mexico. Also showing the gage of each road, number of miles operated, and rolling stock in service of each company. Published quarterly (January, April, July, and October) by the Railroad Equipment and Publication Company, G. P. Conard, President and Treasurer. J. Alexander Brown, Manager, 326 Pearl Street, New York. Western office, 425 Rookery, Chicago. L. B. Sherman, Western Manager. Pp. 376. Vol. 2. No. 1. Serial No. 5. Price $1 per annum.

Farming, March, 1896. This handsome illustrated monthly, the successor of The Canadian Live Stock and Farm Journal, is published at Toronto, Canada, by the Bryant Press. It is an enterprising, up-to-date periodical, presenting in most attractive form a large amount of reading of interest and value to the farmer, the gardener, the dairyman, and the stock raiser. Among the interesting articles of the March number are "Diarying in the New World," "Profit in Feeding Sheep," "Field Crops in the Northwestern States," "Pointers on Turkey Raising," etc.

Notes & Queries

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.

(6792) G. C. W. asks: Will you please give me through your Notes and Queries column a receipt for a flash powder for photographic purposes? Would like an explosive powder, something of the nature of "Blitz Pulver." A. 1. Magnesium powder, 6 ounces; potassium chlorate, 12 ounces; antimony sulphide, 2 ounces; 75 to 150 grains of the powder should be used. 2. 15 grains of gun cotton and 30 grains of magnesium powder are used.

3. Magnesium..... 40 parts.
Permanganate of potassium..... 40 "
Peroxide of barium..... 20 "

(6793) F. L. S. says: Will you kindly give me the formula for making a preparation for sharpening razors by means of a paste or soap containing something like rogue or emery powder to be rubbed on the strop? A. Mix fine washed emery intimately with fat or beeswax until the proper consistency is obtained in the paste, and then rub it well into the leather strop. For a finer mixture use rouge or putty powder with the wax.

(6794) C. L. says: Will you kindly furnish me the formula for the best and cheapest method of rendering rancid butter sweet, or in other words, to eliminate the smell and render the butter odorless? A. 1. 100 pounds of butter is mixed with about 30 gallons of hot water, containing ½ pound of bicarbonate of soda and 15 pounds of fine granular animal charcoal free from dust, and the mixture is churned together for half an hour or so. The butter is then separated; after standing, it is warmed and strained through a linen cloth, then resalted, colored and worked up with one-half its weight of fresh butter. 2. Rancid butter may be restored, or at all events greatly improved, by melting it with some freshly burnt and coarsely powdered animal charcoal (which has been thoroughly freed from dust by sifting) in a water bath, and then straining it through clean flannel. A better and less troublesome method is to well wash the butter with some good new milk, and next with cold spring water. Butyric acid, on the presence of which rancidity depends, is freely soluble in fresh milk.

(6795) G. M. D. asks how a meerschaum pipe which has been burned in smoking can be fixed so it will color again. A. When once burnt, the pipe cannot be satisfactorily colored, unless the burnt portion is removed and the surface again treated by the process by which meerschaum is prepared. The coloring is produced by action of the smoke upon the oils and wax, which are superficially on the exterior of the pipe, and are applied in the process of manufacture.

(6796) J. O. asks: Will you be kind enough to send me the instructions for making shoemaker's wax? A. This is made by melting together the best Swedish pitch and tallow in a vessel over the fire. The quantity of tallow must be determined by experiment. Roll into balls. The right kind of pitch is of a brown color when fractured.

(6797) J. H. B. writes: 1. I should like to know if the motor which you describe in "Experimental Science" could be modified so as to give the same power