

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM GENERATOR.—Cecil R. Benton, Vergennes, Vt. According to this improvement pairs of tubes are placed one within the other, there being an annular space between the tubes for the water and steam, with individual heads for each pair of tubes. The heads have internal recesses communicating with the spaces between the tubes, there being nipples for connection with the tubes and with the water and steam pipes, and one of the heads having a stuffing box through which the inner tube plays. With this generator steam is quickly made, and the pressure is uniform, owing to the equal transformation of water and steam.

Railway Appliances.

CAR WINDOW.—Francis W. Wilson, New York City. To keep car windows normally tight, while yet enabling them to be easily opened and held in any desired position, this inventor has devised a casing having a fixed and a movable guide at each side of the sash, there being a connection between the movable guides, while a stop pivoted at the base of the frame is adapted to swing in position to engage the lower part of the sash, a spring connected to the stop holding it normally in operative position.

CAR FENDER.—Clara M. Beebe, Elmira, N. Y. This is an improvement on a formerly patented invention of the same inventor, a basket being supported in front of the car and co-operating with a shelf to be projected forward by springs that are held under control by retaining devices. The device is designed to be very simple and inexpensive, and well adapted to prevent persons being jammed under and injured by the fender, and also preventing an arm or limb from being dragged beneath the buffer.

Mechanical.

TOOL HOLDER.—John S. Norton, Ogden, Utah. For use on lathes and similar machinery this inventor has devised a tool holder consisting of a bar adapted to be fastened to a tool post and having a vertical inclined opening for the passage of a tool, and also having a recess communicating with the tool opening and an opening in the side of the bar. A gravity pawl fulcrumed in the bar is adapted to engage the shank of the cutting tool.

MAKING WELDLESS CHAINS.—Hippolyte Rongier, Gartsherrie, Scotland. This is an improvement on a formerly patented invention of the same inventor for machinery for making weldless stayed chains from a cruciform bar of steel by cold punching, the present invention reducing the number of separate punching operations to bring the bar to a roughly formed chain, the passage of the bar through a single machine now dispensing with five different operations, and the punching being so performed as to dispense with subsequent trimming of the ends of the links.

Miscellaneous.

CARPET STRETCHER.—William G. Berram, New Rochelle, N. Y. This is a simple device for conveniently stretching and holding a holding a carpet in stretched condition while being tacked, the carpet layer being permitted to use both hands freely to tack and straighten the carpet. The device consists of two parts adapted to move one on the other, and having at opposite ends means for engaging the floor and the carpet to be stretched. One of the parts has serrations engaged by an operating lever, a pawl holding the parts in position when moved.

POCKET COMPANION.—Frederick W. Bacho, Mobile, Ala. This is a device but a trifle larger than an ordinary pencil holder or fountain pen, and adapted to contain a variety of useful articles which may be readily brought to position for use, as a pen and pencil holder, a measuring tape on a spindle, a rubber eraser, a whistle and a knife blade, a calendar, and several small toilet articles.

MECHANICAL CASH BOOK.—Alonzo D. Smith, New Woodstock, N. Y. This improvement comprises a casing made in two hinged sections to open and close like a book, each section having a series of guideways for slides indicating between reading bars the date and amount received, one of the sections representing the credits and the other the debits. It is a simple and durable device, easily operated to indicate the amounts of money received and paid out.

GAS METER.—Edward D. Mitchell, Brooklyn, N. Y., and John Hearne, New York City. These inventors provide improvements in mounting the flag wires, whereby they are made capable of easy movement while being thoroughly gas tight, the case being also improved so that it may be more economically made and not be liable to chafe or wear out the leathers, and improved means being devised for mounting and guiding the valves of the meter.

GAS PIPES AND CONNECTIONS.—Christian Weuste, Mulheim-on-the-Ruhr, Germany. This inventor has devised an apparatus for closing and opening gas connections of all kinds by transmitting liquid from two vessels communicating with one another into an enclosure in connection with the gas pipes, the object being attained by an increase or decrease of the pressure in the pipes. The improvement comprises a bell having a gas inlet and dipping into a connected vessel having a liquid seal, another seal receiving liquid from the seal, while the second seal communicates with the bell to receive gas, and a gas outlet leads from the second seal.

WIND WHEEL.—Ninian H. Dolsen, Hessel, Mich. This is a compound wheel with a front wheel having inclined vanes revolving in one direction while the other wheel has buckets facing and revolving in the opposite direction. The two wheels are cylindrically incased to confine the air against centrifugal action and insure delivering the air from the front to the rear wheel. The construction is simple and the wheel is designed to develop great power for its size.

HANDLING FENCE WIRE.—John B. Crowder, Talucah, Ala. An improved apparatus for re-

moving fence wires and putting them up has been devised by this inventor, comprising a carriage having a shaft supporting a spool, a ratchet drum engaged by an operating lever and a pivoted and adjustable guide frame. By this means wire may be stretched to any desired degree in erecting the fence, and when a fence is to be taken down the wire may be rewound upon its spool and readily stretched in place at some other location.

CLOTHES RACK.—Granville Bartlett, Rushville, Ind. This is a light wire construction adapted to be readily folded in small space and which, in slightly modified form, may also be used as a vine rack, wider at the top than the bottom, and especially adapted to support tomato vines, giving the fruit plenty of room to ripen. The bottom ends of all the upright portions or legs of the frame are bent to form feet, and connecting wires forming cross bars are out of vertical alignment to accommodate more clothes.

PRESERVING GRAPE JUICE.—Charles Staubes, San Jose, Cal. To preserve grape juice unfermented, making a palatable beverage resembling wine, but without any alcohol, and its medicinal qualities being unimpaired, this inventor has devised a process which consists in mixing the juice with benzoate of sodium in a sulphured cask and adding common salt, afterward transferring the juice to other sulphured casks and adding benzoate of sodium, and, finally, again transferring the juice to clean sulphured barrels, exposing it during transfer to the air and adding Spanish clay, salt, horse radish root and tannin.

Designs.

BUTTON.—Dennis C. Fauss, New York City. This is an oval button with central circular portion, from which project radial stellated lines, the central portion containing a monogram.

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.

CAMBRIDGE NATURAL SCIENCE MANUALS. Physical Series. Mechanics, Statics, Hydrostatics. An elementary textbook, theoretical and practical, for colleges and schools. By R. T. Glazebrook. Cambridge: University Press. 1895. Pp. xiv, 244, 176, 208, xxiv. Price \$2.25.

This exceedingly attractive book we find ourselves called upon to strongly commend. Modern physical science is now so largely based on the laws of mechanics that the best possible introduction to it is a study of mechanics, pure and simple. Here we find mechanics admirably treated in the aspect of the mechanics of statics and dynamics, and then in the same book we have a treatise on hydrostatics. It will be observed that the paging is not consecutive—dynamics, statics, and hydrostatics each having a separate manual, in this case bound together. At the end of the book are put three indices, one for each subject. A limited number of problems are given, exemplifying examination papers just enough to give the English aspect, which, of course, is not an improvement for this country. The answers to the problems are also contained.

THE AERONAUTICAL ANNUAL. 1896. Edited by James Means. Boston: W. B. Clarke & Company. 1896. 8vo. Pp. 158. Illustrated, plates. Price \$1.

This is the second year of publication of an annual "devoted to the advancement of the neglected science." It contains most interesting papers on aerial flight and matters connected therewith, by such writers as Otto Lilienthal, Hiram S. Maxim, O. Chanute, William H. Pickering, J. B. Millet and others. The paper of Otto Lilienthal was given in the issue of the SCIENTIFIC AMERICAN for March 7, 1896. The editor of the annual notes that Mr. Maxim considers that petroleum motors will be a leading factor in the aerial navigation of the future, as no other substance which can be obtained on a commercial scale contains such a quantity of latent energy. The publication contains a vast amount of useful information on the subject of aeronautics, and, as the profits of this edition will be given to the Boston Aeronautical Society, to be added to its experimental fund, it is doubly worthy of a large sale.

HANDY GUIDE TO PATENT LAW AND PRACTICE. By George Frederick Emery. London: Effingham Wilson, Royal Exchange. 1896. Pp. xxiv, 312. Price \$2.50.

This little manual is devoted to English patent law and will form very interesting reading for American patent lawyers, enabling them to see how the law of England, perhaps less codified than ours, operates in the protection of the rights of inventors. It is thorough, clear and well printed, and should, we think, attain extensive use in this country. It is a great mistake to limit our reading to matter relating immediately to our work, the most valuable ideas being often obtained by the study of the methods of other countries. In England, as before mentioned, codification has not been as extensively indulged in as here, yet we do find codification in this book in an appendix devoted to it, which appendix furnishes an example of the power of that distinguished and peculiar body, the English Board of Trade. It will be noticed that examinations will be required, or a proof of qualifications, before an agent is allowed to practice in England. This is something which some think might well be introduced here, and which is analogous to our practice in admitting to the bar.

ALDEN'S LIVING TOPICS CYCLOPEDIA. A record of recent events and of the world's progress in all departments of knowledge. New York: John B. Alden. Price 50 cents.

This volume covers matter running from A to Boy, the life of Boyesen being the last topic, except the appendix, in which several other topics are given, in order to keep the book well up to date. The idea of this work is that the information sought in an encyclopedia is

wanted more for the last three years than for any other time, and accordingly in this work the field of the world's recent progress is gone over and the topics are alphabetically treated. At the end of a definite period the book will be complete and the ground will be open for the opening of another. Annual encyclopedias have obtained a great popularity, and this little one, giving dates and numerous statistics will be found of considerable value to all. For instance, among biographical topics we find Barnato, the great English promoter, and, of course, when "J" comes out, Jameson will be given. The scope of the work in science and its freshness, too, is shown by the inclusion in it of argon and astronomy.

GAS MANUFACTURE: THE CHEMISTRY OF. A practical handbook on the production, purification and testing of illuminating gas, and the assay of the by-products of gas manufacture. For the use of students, chemists, and gas engineers. By W. J. Atkinson Butterfield. With numerous illustrations. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 1896. Pp. xiv, 375. Price \$3.50.

An up to date book on gas manufacture will be well received by all gas engineers, who seem to have been somewhat neglected by the authors of technical manuals. This work is fully up to date, the best indication of which is that acetylene is treated in it, which certainly is the last development of gas industry; and incandescent burners are also quite fully treated. Photometry receives quite adequate description and problems of analysis, such as the determination of sulphur, are treated with comparative fullness. Illustrations are used where required, and the subject throughout is creditably presented. The size of the work is such as to make it agreeable for reading, the tendency in the past, inaugurated by Clegg's treatise, having been to make books on gas manufacture of awkward dimensions.

A TEXTBOOK OF GAS MANUFACTURE FOR STUDENTS. By John Hornby. London: George Bell & Sons. New York: Macmillan & Company. 1896. Pp. xii, 261. Price \$1.50.

We have just reviewed an extensive treatise on gas manufacture. Here we have a briefer one, designed for students' use, especially for students preparing for examinations for the "City and Guilds of London Institute," and, of course, that imposes on it the usual limitations which we have often deplored. In other words, there seems to be a large amount left out that should have been noted. Such as it is, however, it is well prepared and well printed.

CHEMISTRY FOR ENGINEERS AND MANUFACTURERS. A practical textbook. By Bertram Blount and A. G. Bloxam. With illustrations. Volume 1. Chemistry of Engineering, Building and Metallurgy. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 1896. Pp. x, 244. Price \$3.50.

This work, of which we have only the first volume before us, is somewhat of an innovation, it being based on the idea of giving applied chemistry with reference to specified branches of industry. How far successful such a work can be is more or less doubtful if it is to be used by one who depends upon it entirely for science, but to an educated engineer such a book will be most useful, and is to be highly recommended. The second volume is to go into the chemistry of manufacturing processes, so that after all the work takes the shape largely of a technology.

SYNOPSIS OF CURRENT ELECTRICAL LITERATURE. Compiled by Max Osterberg. Electric Power, New York. New York: D. Van Nostrand Company. 1896. Pp. xiii, 143. Price \$1.

This is the first publication of this kind in the English language. It gives a brief synopsis of the principal papers on electrical topics which have appeared during the past year, one by one, and after each topic it gives the name of the publication in which it appeared and the date. The use of all this is evident. One finds in this book a resume of what has been written on the various specific subjects relating to electricity, and the synopsis accordingly indicates which books will be of value, and it also tells where they are to be found. Mr. Osterberg has done a most valuable piece of work, and it would be poor criticism to attempt to find deficiencies in it. We hope that it will receive so warm a reception that it will give its author encouragement to continue it from year to year.

PRIZE ESSAYS ON SPINNING, AS THEY APPEARED IN THE WOOL AND COTTON REPORTER. Whitinsville, Mass., U. S. A. Purchased and now published by the Whitinsville Spinning Ring Company. Pp. 91. Price \$1.

Four prize essays are given in this work, all, of course, very technical, and for that reason, probably, of greater value to mill people. They are the results of a contest including twenty competitors. The portraits of the authors are given.

THE CONSTITUTION AND FUNCTIONS OF GASES, THE NATURE OF RADIANCE AND THE LAW OF RADIATION. By Severinus J. Corrigan. St. Paul: Pioneer Press Company. 1895. Pp. viii, 46.

This work, treating of the constitution and function of gases, is not one that lends itself to review. It presents the author's views and is extensively elucidated by mathematics.

THE MODERN WIZARD. By A. Roterberg. Published by the author. Pp. 120. Price \$1.

Books on magic seem always to be attractive. The present one purports to give modern tricks, and would act rather as a supplement to existing books than as a substitute for them or a rival to them.

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The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail \$4, Munn & Co., publishers, 361 Broadway, N. Y.

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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.

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(6783) **Novice** writes: On page 83 of your No. 6 we find rule No. 16 of the National Board of Fire Underwriters offered to people who are about to employ electric lighting: "Current from street railway wires should never be used for lighting or power in any building, as it is extremely dangerous." Please inform your readers, many of whom are no doubt using current from street railway wires, as well as yours truly, in what consists the extreme danger in such cases. A. The high voltage may be supposed to render it dangerous. Exactly how this should affect fire risk is not very clear.

(6784) **A. L.** writes: I have made a small dynamo. The fields each contain 44 pieces of sheet iron, separated by paper wound with No. 14 wire, 9 layers and 23 coils in each field. The ring armature contains 44 pieces of sheet iron, and has 6 teeth wound with No. 18 wire, 16 turns of wire on each. It is two inches in diameter, and the sheet iron sections are insulated with paper sections between. This dynamo was intended to operate as a dynamo or as a motor. It produces sufficient current to decompose water, but I cannot make it cause a 16 candle power lamp to glow, though I have run the dynamo at more than 4,000 revolutions per minute. Would you advise rewinding it? If so, please say what size wire would be best to give a 16 candle light? I would prefer not to rewind it. Would you advise the use of an induction coil or transformer? If so, please advise me how to construct one suited to this dynamo in your Notes and Queries column. A. Your description is very meager; probably your dynamo is too small for the 16 candle power lamp. Try it on a smaller one of low voltage. You will, in any case, have much trouble, on account of the soft iron core. An induction coil or transformer will be of no value for it.

(6785) **A. C. B.** says: Can you give me formula in your notes and queries to laundry lace curtains, without stretching with pins or on frames? A. Shake every curtain, or hang them on a line and brush them down with a soft hair brush. Prepare a soaking liquid by dissolving a small quantity of borax in warm water, soak for an hour or two, then squeeze between the hands to remove the superfluous water. Take some good soap and chip it in hot water; stir until all the soap is melted, and a fine lather produced. By this time the water will be moderately warm. Immerse the curtains in this, pass them repeatedly through the lathered water, or work them up and down. Rubbing should be avoided; when absolutely necessary, do it gently and without a brush. Squeeze out the soapy water, and rinse in plenty of soft, warm water. Wring carefully. Curtains should be dried quickly. If in the country, they