

ENGINEERING INVENTIONS.

A railroad signal has been patented by Mr. Robert B. Potter, of North Adams, Mass. It consists of a shaft mounted to turn on a post, a signal wing on one end of the shaft and an arm on the other end, with a curved arm pivoted on the post and connected by a link with the arm on the end of the shaft, so when the signal is lowered its position is not further affected by pulling the wire for swinging it down.

A pumping and drilling machine has been patented by Mr. Abraham W. Carnahan, of Rouseville, Pa. The tower is of the usual construction, and the pump or drill rod is operated by crank levers and rocking bars connected directly with the crank shaft of the engine in such manner as to make a simple and inexpensive construction, and one not apt to get out of order.

AGRICULTURAL INVENTIONS.

A hay carrier has been patented by Mr. Thomas S. Davidson, of Colesburg, Iowa. It consists of a carriage formed of plates pivoted to small wheels adapted to roll along the ridge pole when the invention is used for depositing hay in a mow or on a stack, with other novel features, being simple in construction and convenient in use.

MISCELLANEOUS INVENTIONS.

A hose coupling and hydrant attachment has been patented by Mr. John Young, of Tiffin, O. This invention covers novel forms and arrangement of parts in that class of hose and pipe couplings where the meeting sections are clamped together by a hook on one section engaging pins or studs on the other.

A bottle stopper has been patented by Mr. James M. Kerr, of New York city. The stopper is composed of a tube, a cork placed upon it, a cap, and a ball valve placed in the cap, so that the stopper automatically closes airtight, but permits the escape of liquid as desired, by inverting or slanting the bottle.

A sash fastener has been patented by Mr. Alanson Cary, of New York city. It has a pendent pivoted locking bar, with which is combined a finger lever for operating the bar, a frame piece for receiving these devices, and a fixed plate to engage with the finger lever, the device being mainly designed for windows having upper and lower sashes.

A rein holder has been patented by Annah E. Bussell, of Nashua, N. H. This invention covers a novel construction of a rein rest or holder to be attached to the dashboard of vehicles, over or through which the reins may be passed to prevent their slipping down on the back of the horse and becoming troublesome.

A process of purifying potable and other waters has been patented by Mr. Farnham M. Lyte, of Cotford, Surrey Co., Eng. It consists in the production in the liquid of aluminum hydroxide from sodium or other aluminate and an acid aluminum salt, any remaining excess of hardness to be neutralized by an additional quantity of aluminate.

A gate has been patented by Mr. Thos. W. Edrington, of Patriot, Ind. It is made to slide by a supporting rail in a deeply grooved roller on a heavy post; and through ropes and pulleys on this post and on vertical posts at the ends of the gate, it may be readily opened by parties desiring to pass without the necessity of their descending from a vehicle.

An alarm attachment for measuring vessels has been patented by Mr. Albert Daggett, of Strong, Me. Combined with a gong hammer and the mechanism for operating it is an inverted U-shaped lever, so connected to a float that the attachment will automatically give an alarm when the vessel on which it is fixed is filled or almost filled.

A stay roller for sliding doors has been patented by Mr. Frank P. Coleman, of Brockport, N. Y. It is so made as to hold the outer edge of the door closely against the side of the barn or other building to which the door is hung, the roller being yieldingly mounted, so as to give when encountering irregularities from warping of the material, snow and ice, etc.

A flooring clamp has been patented by Mr. Loren G. Welch, of Groton, Vt. It is so made that the teeth of the base engage the floor joists in such position that when the lever is raised its head bears against the plank, which are clamped up when the long arm of the lever is depressed, the rounded head not damaging the edge of the board, and no interposed jam being necessary.

An evaporating apparatus for saccharine and other juices has been patented by Mr. Jose Guardiola, of Chocoma, Guatemala. It consists of a series of tanks with raised ends, between which are steam coils, curved pipes below connecting the tanks, with other novel features, whereby the evaporator will act rapidly because the juice is divided into several portions.

A pivotal support for mirrors, transoms, etc., has been patented by Mr. Oscar P. Breithut, of Williamsport, Pa. It consists of a hinge formed of three parts, a conical pintle, a socket adapted to receive it, and a support for the projecting end of the pintle, the conical pintle being held in frictional contact with its socket, the device being readily applied for tilting mirrors, transom lights, etc.

A liquid bedded keel block has been patented by Mr. Frederick C. Lang, of Jersey City, N. J. It consists of cases, with stuffing boxes, followers, connecting pipes, valves, and outlet pipes, whereby, using these blocks, all parts of the keel will be equally supported, and any part thereof can be exposed, repaired, and again supported, the blocks adjusting themselves to any inequalities of the vessel's keel.

A dry paint composition and a mixed paint form the subject of two patents issued to Mr. Geo. W. L. Marsden, of Wilmington, Del. Among the in-

redients used are mineral wool or other mineral fiber, pulverized red or white lead, hydraulic cement, and pulverized resin, with turpentine, linseed oil, and varnish, to make paints impervious to the action of the atmosphere, or to air and water.

A stock or hay frame has been patented by Mr. John T. Carrington, of Clay Center, Kansas. It is designed for use in connection with or as a substitute for a wagon box, facilitating the loading and carrying of animals therein, making a cage-like box for the transportation of calves, sheep, hogs, etc., or the device can be used on railroads or in private stock yard chutes.

A mould for making artificial stone, tiles, etc., has been patented by Mr. Edward Ormerod, of Brooklyn, N. Y. It may be made of wood or metal, and is formed of four bars hinged together, one end bar having a notched bar projecting beyond the end, and outside bar having a pivoted latch, whereby concrete may be conveniently fixed in position and compressed under a hydraulic press.

A machine for making flat paint and whitewash brushes has been patented by Mr. Samuel A. Verbruyck, of Belleville, N. J. The handle, bristles, and band are put together in the ordinary manner, and so inserted between clamping levers that the bristles will be firmly compressed, the band lying smoothly to fit the reduced size of the compressed brush until it can be firmly fixed to fasten the brush upon the handle.

A combined newspaper stand and file has been patented by Mr. William E. Bailey, of Shrewsbury, Pa. It has a tubular post attached to a base plate, in connection with an adjustable frame formed of longitudinal and transverse bars, the device being calculated to hold newspapers so they can be conveniently read, while it can be conveniently adjusted and readily moved from place to place.

A window shade has been patented by Mr. Walter J. Cox, of Wichita, Kan. Combined with bracket pieces at the sides of the window and two shade rollers journaled therein are various novel features for arranging one shade at the top and another at the bottom of the window, whereby the shades can be adjusted easily, require but little space, and so no light can pass in between the shades.

A band cutter and feeder for thrashing machines has been patented by Mr. Michael Doran, of Bergen, N. Y. The feeder frame is made in two sections, hinged together on their under side, so the attachment may be conveniently folded for transportation, and there are cutters to sever the bands on the sheaves, with springs to force the carriers to their work as the bulk of the sheaf diminishes.

A sash fastener has been patented by Mr. Martin O. Lane, of Altoona, Pa. Locking blocks formed with slots are so mounted, with levers arranged to ride in the slots, that when the levers are depressed the blocks will be brought into engagement with the window sash, the device having no springs to get out of order or pins to be lost, and adapted to hold the sash in position with or without weights.

A mail crane attachment has been patented by Messrs. Oliver P. and Cassius M. C. Williams, of Connor's Station, Kan. A frame is pivoted to swing in a horizontal plane to follow the motion of the car, and a yieldingly connected catch is on and moves with the frame, whereby the bag or pouch will not be blown off by the wind, but may be readily removed, without tearing, by the attachments of mail cars.

A brick machine has been patented by Mr. Frank Hartings, of St. Rosa, Ohio. It is so designed that in forming the bricks the clay is forced and delivered to the die by a continual forward movement, whereby the clay may be compressed in a homogeneous state, to give the brick the same density throughout, and they may be made by this improvement in the ordinary brick machine.

A spinning and twisting machine has been patented by Mr. William Baird, of Almonte, Ont. Canada. This invention relates especially to a sliding plate carrying spring arms with pulleys journaled therein, carrying a tension pulley for securing the requisite degree of tension on the spindle bands according to the nature of the fibers being spun, or the required fineness or coarseness of the yarns.

A case for lead pipe has been patented by Mr. Albert Kohler, of Waconia, Minn. It is preferably made in octagonal form, with one or more partitions, a covering and bottom of transverse strips crossing the frame at different angles, curved strips secured to the transverse strips of the partition to separate the adjacent convolutions of the pipe, to prevent injury by the jamming of one layer or coil upon another.

A roller for photographic sensitive paper has been patented by Mr. Erastus B. Barker, of New York city. This invention provides hollow rollers or cylinders on which photograph paper is wound or stored, the cylinders being made to fit and readily slide upon the camera rollers, thus obviating the inconvenience of winding the paper upon the photo roller itself, a tedious operation as hitherto performed in the dark room.

A swinging centerboard for vessels has been patented by Mr. James A. Deering, of Gloucester, Mass. It is preferably made of metal and several tons in weight, and attached to the lower ends of rods by hinges, so that when lowered it will be free to maintain a vertical position in the water, no matter to what extent the vessel may keel over, the invention covering mainly the peculiarities of the device for raising and lowering.

A carriage top former has been patented by Mr. James F. Kirkland, of Guelph, Ont., Canada. It consists of a base or body pivotally mounted on a stand and having adjustable end and side clamps, whereby carriage tops may be mounted in proper position at the time they are being trimmed, providing a form which may be quickly and accurately adjusted to hold the several parts of frames of varying form and size in their required relative position.

NEW BOOKS AND PUBLICATIONS.

BRAND BOOK OF BRITISH IRON AND STEEL AND TIN MANUFACTURERS. Compiled by Herbert W. Griffiths. London: The Iron Trade Exchange.

This is a directory of the manufacturers that gives the extent of their plant and kinds of goods they severally make, with the trade brands therefor, which cannot fail to be of especial value to all who are themselves metal workers or dealers in a large way.

MCCARTY'S ANNUAL STATISTICIAN. 1886. L. P. McCarty. San Francisco, Cal.

This book contains over 600 closely printed pages, largely of figures and dates, touching industry and politics, history and geography, things curious and things useful, arranged as though for convenience in answering odd and unusual questions, as well as many which occur in every day disputes.

ANNUAL REPORT OF THE CHIEF OF ORDNANCE, FOR THE YEAR ENDING JUNE 30, 1885. Washington: The Government, 1885.

The report of the Chief of Ordnance contains information of considerable interest, both in the accounts of special inventions examined by the department, such as Gen. Russell Thayer's dirigible balloon, and motor, and Dr. Buckner's aerial drop for explosives; and in the tabulated records of the performance of different weapons. The metallurgical experiments made in connection with the casting of ordnance have a value independent of the art of war.

ELECTRO-DEPOSITION OF GOLD, SILVER, NICKEL, COPPER, ETC. By Alexander Watt. London: Crosby, Lockwood & Co.; New York: D. Van Nostrand.

All work in the department here treated of partakes of a development so recent that each year adds something important to our knowledge of the practical details best adapted for the more perfect operation of electro-metallurgical processes, and this book brings down therecord pertaining to such progress to the latest date. Deposition by immersion is also treated of, the recovery of gold and silver from waste solutions, the materials used, and the auxiliary operations connected with electro-deposition.

PRACTICAL TREATISE ON GEARING. Providence, R. I.: Brown & Sharp Manufacturing Co., 1886. (Price \$2.10, post-paid.)

This is an excellent little work on one of the most important subjects which comes up in machine design—the proper form of gearing. It has been prepared for men in practical life, who would like to know how to construct correct gear wheels, but who have not the opportunity to take up the subject in the thorough technical manner in which it is presented in the ordinary text books. It has fulfilled its purpose admirably. Throughout it is always plain and practical. Any intelligent workman will have no trouble in understanding either its explanations or directions. The typography is clear and discriminating; the cuts and diagrams uniformly good. The marginal indices make it convenient for reference.

REPORT OF THE COMMISSIONER OF EDUCATION, FOR THE YEAR 1883-84. Washington: The Government, 1885.

The fourteenth annual report of the Commissioner of Education shows a gratifying increase in the amount of information collected by the office. Its usefulness to the teachers of the country is better appreciated than formerly. As a bureau of information its resources have largely increased, and have been better utilized. The volumes in the pedagogical library now number 16,500, and the pamphlets 42,100, furnishing sources of information not elsewhere available. The museum of educational appliances is also being extended. The report contains much of interest in the detailed educational methods pursued in the different States and Territories, as well as a glance at the status of education in foreign countries. Statistical tables of schools and school publications occupy a large part of the volume. A well arranged index has been added.

Light Reading for an Idle Hour.

The Bostonians (Macmillan & Co.), a novel by Mr. Henry James, presents in a rather attractive form, and with considerable literary ability, a decidedly extreme view of women's sphere and mission. If the title means that the author believes such ideas are prevalent in Boston, he certainly should be commiserated with upon an experience which has led him to such conclusions; but the subject is one on which it is always easy to elicit a deal of small talk at the country boarding house or the seaside hostelry, for which Mr. James' book will afford a graceful introduction.

A Tale of a Lonely Parish (Macmillan & Co.), by F. Marion Crawford, is perhaps rather an artificial presentation of life in a small English hamlet, with quite sufficient introduction of startling incident to hold the attention of the reader to the close, when all the principal characters of the story are left in the most comfortable condition possible.

The Salammbô of Gustave Flaubert, translated by M. French Sheldon (Saxon & Co.), is a striking story of love and war in the time of ancient Carthage. The author may be called the founder of the French naturalistic school, but this work has been exceedingly difficult to render into English, with proper expression of its life and action, although it has long had a high place in French literature.

Received.

GYRATING BODIES: AN EMPIRICAL STUDY. By C. B. Warring, Ph.D. Poughkeepsie, N. Y.

EIGHTH ANNUAL REPORT OF STATE BOARD OF HEALTH OF CONNECTICUT. Printed by order of the Legislature, by Tuttle, Morehouse & Taylor, New Haven, Conn.

THIRD ANNUAL REPORT OF BUREAU OF STATISTICS OF LABOR, STATE OF NEW YORK. Albany, N. Y.: The Argus Company.

PRECAUTIONS TO BE ADOPTED ON INTRODUCING THE ELECTRIC LIGHT. By Killingworth Hedges. London and New York: E. & F. N. Spon.

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.

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The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Hawell's Engineer's Pocket-Book. By Charles H. Haswell, Civil, Marine, and Mechanical Engineer. Giving Tables, Rules, and Formulas pertaining to Mechanics, Mathematics, and Physics, Architecture, Masonry, Steam Vessels, Mills, Limes, Mortars, Cements, etc. 500 pages, leather, pocket-book form, \$4.00. For sale by Munn & Co., 361 Broadway, New York.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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.

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Nystrom's Mechanics.—A pocket book of mechanics and engineering, containing a memorandum of facts and connection of practice and theory, by J. W. Nystrom, C.E., 15th edition, revised and greatly enlarged, plates, 12mo, roan tuck. Price, \$3.50. For sale by Munn & Co., 361 Broadway, New York city.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 46.

Hercules Lacing and Superior Leather Belting made by Page Belting Co., Concord, N. H. See adv. page 238.

Cutting-off Saw and Gaining Machine, and Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

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Barrel, Keg, Hogshead, Stave-Mach'y. See adv. p. 76.

Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

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