

## ENGINEERING INVENTIONS.

An air motor has been patented by Mr. Alois M. Koniakowsky, of Ellingen, Tex. It consists of an engine, single-acting air pump, receiver, double-acting exhaust pipe, with levers, valves, connections, etc., forming a motor to be operated by compressed air.

A mechanical stoker has been patented by Mr. James Hodgkinson, of Manchester, Eng. It has an ordinary hopper opening into a crusher box, with improved rotating helical crusher and adjustable flexible spring plate for crushing, measuring, and delivering fuel to the distributor, whence it is automatically scattered over the fire.

A car coupling has been patented by James Barry, of Willmar, Minn. Shafts are journaled, in combination with the drawhead, on the end of the car, levers being pivoted to the sides of the car, and rods connecting the levers with cranks on the ends of the shafts, a rod connecting the crank of each shaft with the lever at the same side of the car at which the crank is located with other novel features.

A lubricator has been patented by Mr. Peter Barclay, of Boston, Mass. This invention covers improvements in a lubricator for engines, etc., formerly patented by the same inventor, and instead of an intercepting perforated plate a perforated coil is used, giving increased condensing surface; for downward-drop lubricators, also a diaphragm is so arranged near the bottom of the glass tube that the oil cannot be thrown back on the glass by the pulsations of steam in the engine.

## AGRICULTURAL INVENTIONS.

A hay gatherer has been patented by Mr. James H. Poage, of Monroe, Mo. It has teeth connected by cross bars and provided with a reversible tongue, the latter so connected with the rake that it may be readily reversed, so the gatherer can be drawn back from collected hay without its being necessary to back or detach the team.

A plow has been patented by Mr. Chas. Atkinson, of Chicago, Ill. It is an improvement on a former patented invention of the same inventor, and relates to the construction of the wheels, axle, and guiding mechanism, the revolving cutter mountings, the contrivances of the subsoil attachment, and in some guide and cutter attachments to the plow.

A seed planter has been patented by Mr. Augustus E. Choate, of Cochran, Ga. Spring bars, with coverer arms and plates, are attached to the frame of the planter, with other novel features, making an attachment calculated to ridge the earth over the seed sufficiently to obviate the first plowing usually required for that purpose after the use of the ordinary board coverers.

## MISCELLANEOUS INVENTIONS.

A design for a pedestal or stand has been patented by Mr. Richard M. Hunt, of New York city. The design is that adopted and now being used for the Bartholdi statue, but is also appropriate for use in smaller dimensions for other monuments or for various ornamental uses.

A gridiron has been patented by Mr. Charles M. Cooke, of Brooklyn, N. Y. It is for an attachment to a range or cooking stove, and has novel features affording particular convenience, while the escaping odors are prevented from escaping into the room, but are returned to the fire for consumption.

A printing machine has been patented by Mr. Philip Jackson, of Plainfield, N. J. This invention relates to two-revolution printing presses, and covers a special construction and arrangement of parts to cover the raising of the impression cylinder during the return of the type bed.

An adjustable finger ring has been patented by Mr. Frank N. Foster, of Duluth, Minn. Combined with a gem frame or center piece is a bow or circular band, the ends of which are pressed into the ends of the frame, while there are cams pivoted in the ends of the gem frame for locking the ends of the bow therein.

A lathe chuck has been patented by Mr. Edward Pement, of Esmond, Dakota Ter. This invention covers a special construction, arrangement, and combination of parts for a face plate and chuck attachment, which is intended to enable the operator to bring any point on the face of his work to the center very easily and rapidly.

A parabolic railway and car have been patented by Mr. Moritz Geber, of Berlin, Germany. Combined with parabolic rails is a hinged platform with a hook and a hoisting or lifting device for raising the free end of the platform, for improving the mechanism for starting the cars and promoting the efficiency of gravity railways.

An adjustable double bedstead has been patented by Mr. Albert T. Schlichting, of New York city. Combined with a bedstead is a vertically adjustable frame above it, with devices for raising and lowering the upper section or frame and locking it in place, so as to form one or two bed supports, one above the other.

A drive chain has been patented by Mr. William Stephens, of New Richmond, Wis. By this invention drive chain links are so made as to be adapted to be separated from each other, the construction being such that the links may be locked to and unlocked from each other only when brought to a certain unusual position.

A watch case has been patented by Mr. William Carpenter, of Salida, Col. Combined with a watch case is a movement-holding band or ring and a link hinged to the case and to the said band or ring, making an improved watch case with dust proof joints, the object being to facilitate placing and adjusting the works in the case.

A method of drying grain has been patented by Mr. David M. Bunnell, of Brooklyn, N. Y. The invention consists in applying a blast of heated air to the interior of a mass of moving grain and driving off the moisture arising therefrom by a blast of air admit-

ted above the grain, thus facilitating the drying and cooling of malt, grain, and other substances.

A baling press has been patented by Mr. Charles Smith, of Marquette, Mich. In combination with the press sills and follower are tubular shafts with ratchet wheels, gear wheels with spring pawls engaging with the ratchet wheels, means for operating these, and so the follower can be readily drawn down to press the material into a bale, the invention being designed to simplify the construction and promote the efficiency of such presses.

A wheel or pulley has been patented by Mr. George P. Clark, of Windsor Locks, Conn. It is made with side plates and penetrating points to enter the material composing the body or wearing surface of the wheel, which is supposed to be of paper, leather, rubber, or similar material, or having tires or outer wearing surfaces made of such material, the sheets of which are so compressed as to become a solid and nearly homogeneous mass, the outer edge, or wearing surface, being turned or worked down as required.

An adding machine has been patented by Mr. William J. Macnider, of Greensborough, Ga. Combined with a series of counting wheels is a toothed wheel adapted to engage therewith, and mounted on a shaft with one end journaled in a swinging standard, the latter connected by a suitable lever with a push pin, by means of which the toothed wheel can be swung toward and from the counting wheels, with other novel features, for rapidly and accurately adding columns of figures.

A calculator has been patented by Mr. Jules V. Charpentier, of New Orleans, La. This invention consists in a series of tabulated cards, a rotary slotted screen, and a box therefor, so made and combined as to form a device by which can be shown at a glance the date of maturity of any note or draft, etc. The same inventor has likewise obtained a patent for an apparatus for facilitating the multiplication of numbers, by which a table of figures is formed in sections, separately placed upon rollers within a box, the figures being so arranged upon the table that when a row of numbers to be multiplied is registered or brought to the front of the box by moving the rollers, the result of the multiplication of this row of registered figures by each of the numerals from 2 to 9 appears simultaneously on the table at the front of the rollers.

A holdback for vehicle shafts has been patented by Mr. Daniel T. Chambers, of Mechanicsburg, O. It consists in a triangular shaped piece of material, with a hole through it, so applied to the shaft as to form a simple and secure attachment of the breeching of the shafts, avoiding the chafing of the strap and shaft, and being cheaply made and easily applied. The same inventor has likewise patented an improved holdback for harnesses, combining with the carriage shaft a ferrule with a flange, a shaft tug attached to a girth and to a saddle strap of the harness, a tang secured to the tug, and a holdback strap connecting the tang with the breeching of the harness, the device being self-attaching and detaching, and such as will avoid rattling and unnecessary wear on conspicuous parts of the gear.

## NEW BOOKS AND PUBLICATIONS.

A HISTORY OF THE PEOPLE OF THE UNITED STATES, FROM THE REVOLUTION TO THE CIVIL WAR. By John Bach McMaster. Vol. II. New York: D. Appleton & Co., 1885.

Three years have now passed since the appearance of the first volume of Professor McMaster's history, and the lively interest which it excited has secured in advance a warm welcome for this second installment of the work. The present volume covers the period from 1790 to 1803, and contains in its seven chapters a wonderful store of curious information in regard to life and society as it existed under the early administrations. It is eminently a history of the people, and in reviewing the events of these important years, it is always their sympathies and prejudices which are brought forward and are kept in view. The historical outline presented is indeed only a background against which to picture the social life and sentiment of the new republic. Covering, as it does, the experimental years of the Constitution, the field susceptible of such popular treatment is particularly engaging. The now almost forgotten customs of our ancestors, their inexperienced criticisms upon the measures of the general government, and their outspoken distrust of the reputed monarchical tendencies of the first cabinet form the material for very entertaining chapters. At so formative a period in the national development, when there was open contest between Congress and the States, when the group of undoubted aristocrats gathered around Hamilton were in direct opposition to the extreme republicanism of the circle which acknowledged Jefferson as its chief, the dominance of English or French influence was an element of great moment to the future of the nation. This phase in the national growth has been admirably handled by Professor McMaster. He has also taken considerable pains to inform us in regard to the origin of a number of our more popular ballads and of such expressions and phrases as have a recognized value in our vocabulary. The famous cry of the French revolution, "Ca ira," which originated with Franklin, is traced through its history. The account of town and country life as they were at the beginning of the century, and of the growth of those social usages which we have come almost to regard as instinctive, are also very readable and instructive. In conclusion, we can only say that Professor McMaster has rendered an important service to the descendants of those people whom he has so gracefully chronicled, and the mental history which he has traced will be a contribution of permanent value to the national literature. The general character of the author's work is always excellent, and the reader cannot fail to be impressed with the evidences of a most praiseworthy thoroughness and care which are everywhere manifest. The volume closes with the negotiations which led to the Louisiana purchase, and leaves three more installments yet to come before the work is completed.

## 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 "Improved Green Engine" Automatic Cut-off. Providence Steam Engine Co., R. I., Sole Builders.

Manufacture of Soaps, Candles, Lubricants, and Glycerine. Illustrated. Price, \$4.00. E. & F. N. Spon, New York.

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Shafting, Couplings, Hangers, Pulleys. Edison Shafting Mfg. Co., 56 Goerck St., N. Y. Send for catalogue and prices.

Air Compressors, Rock Drills. Jas. Clayton, B'klyn, N. Y.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

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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.

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

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For Steam and Power Pumping Machinery of Single and Duplex Pattern, embracing boiler feed, fire, and low pressure pumps, independent condensing outfits, vacuum, hydraulic, artesian, and deep well pumps, air compressors, address Geo. F. Blake Mfg. Co., 44 Washington St., Boston; 97 Liberty St., N. Y. Send for catalogue.

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Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

Wood Working Machinery. Full line. Williamsport Machine Co., "Limited," 110 W. 3d St., Williamsport, Pa. Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 308. Universal and Independent 2 Jaw Chucks for brass work, etc., both box and round body. A. F. Cushman, Hartford, Conn.

Cyclone Steam Flue Cleaners are the best. Crescent Mfg. Co., Cleveland, O.

The Improved Hydraulic Jacks, Pumps, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 61.

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The best Steam Pumps for Boiler Feeding. Valley Machine Works, Easthampton, Mass.

## Notes &amp; 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. 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) J. W. S. sends a small piece of a bitter root for identification. A. There are so many of our native plants that have bitter roots that it would be impossible to identify them by a piece of the root alone—especially by so small a fragment as our correspondent sends. Let us have the leaves and flowers of the plant, or the fruit, if not in flower, and we will name it for you.

(2) A. C. B. asks how to destroy chicory when it has taken possession of a lawn. A. In the first place, it is very important that the young plant be not allowed to mature breathing organs—leaves. Cut the plant off just beneath the surface as soon as it appears; do not wait till it is large enough to pull up. Sometimes it may appear again in a weakened state after it has been treated as above; but it will probably not make its appearance a third time.

(3) A. F. L. desires a sure and certain death to bedbugs. A. We know of nothing better than the following: Mix together 2 ounces camphor, 4 ounces spirits of turpentine, 1 ounce corrosive sublimate, and one pint of alcohol.

(4) C. McD. asks: Is there an oil extracted from coal tar such as made in gas works? If so, what process do they use? A. Crude petroleum is frequently called coal tar oil. The heating of coal tar itself gives rise to benzol, toluol, and members of the aromatic group. From the two mentioned previously aniline oil is derived, which is the starting point in the manufacture of many of the aniline colors.

(5) F. W. D. asks for a good chasing pitch or composition, for backing up metal, so that it can be chased in high relief and with sharp outlines, to be used on sheet brass about 25 gauge. A. Use a mixture of one part beeswax with two parts rosin, with sufficient sweet oil to soften the composition to fancy.

(6) P. A. F.—The darkening in color is due to the decomposition of the whitelead. There are various theories as to its cause, none of which are satisfactory; but the fact is well known that houses painted with whitelead near the seashore very rapidly darken in color. The only remedy that we can suggest is the substitution of zinc white for lead white. The use of dark colors is also recommended.

(7) E. L. desires a receipt for a brilliant black varnish for cooking and gasoline stoves. A. Try the following:

Asphaltum ..... 2 lbs.  
Boiled linseed oil ..... 1 pint.  
Oil of turpentine ..... 2 quarts.

Fuse the asphaltum in an iron pot, boil the linseed oil, and add while hot, stir well, and remove from the fire. When partially cooled, add the oil of turpentine. Some makers add driers.

(8) F. N. E. writes: Do you know of any preparation that could be economically used to harden the surface of a seasoned pine floor, the floor to be used for roller skating? A. Wood that is steeped in or covered by a paint brush with a solution of copperas, marking 2 to 2½° Baume, becomes both harder and more indestructible. We believe, however, that ash or maple are the varieties of wood generally preferred for skating rinks.

(9) C. T. B. wants formula for developer for developing plates which have had instantaneous exposures. A. See Beach's Potash Developer, in August 2 number of SCIENTIFIC AMERICAN. No toning is necessary for dry plates. It is used in toning silver prints.

(10) A. L. writes: Can you give me instructions to kiln dry sweet potatoes? A. They can be dried in an oven at moderate heat, but the best plan is to use an ordinary fruit evaporator; much better results can then be obtained.

(11) W. T. K. asks: What are the chemicals, the quantity of same, and process required, for solar printing, so that, for finished prints, which are taken from tracings, the paper shall be white, and the lines a dark blue or black? A. The paper is first prepared by dipping it in a bath composed of:

Distilled water ..... 10 ounces.  
Iron perchloride ..... 1 "  
Oxalic acid ..... 4 drachms.

When dry the paper, if protected from light, can be kept as long as may be necessary. To copy a drawing, the model on oiled or transparent paper is applied on some paper thus prepared, and the whole exposed to light in an ordinary photographic printing press. The paper, on being withdrawn from the press, is placed in a bath containing from 15 to 18 per cent of ferrocyanide of potassium. It is then washed in an abundance of water, passed in a bath containing 8 to 10 per cent of muriatic acid, washed again, and dried. The explanation of the operation is as follows: The perchloride of iron, under the influence of light, is reduced by the oxalic acid to the protochloride, which is soluble in a solution of ferrocyanide of potassium, while the same potassium salt transforms the perchloride into the in-