RECENTLY PATENTED INVENTIONS.

Engineering Improvements.

ROTARY ENGINE.—REUBEN P. JARVIS, Smith Centre, Kan. The purpose of this invention is to provide a rotary engine of simple construction and effective operation, so constructed that the motive agent may be utilized to the utmost profit. The engine has a cylinder with an inlet-port and two open exhaust-ports. A fixed shaft having a crank-arm extends into the cylinder. A piston is eccentrically mounted in the cylinder, and turns loosely on the shaft. In rocking trunnions carried by the piston, piston-heads are fitted to slide in slots in the piston-rim. The inner ends of the piston-heads are pivotally connected with the crank-arm of the fixed shaft. The heads are adapted successively to pass the ports, so that live steam is taken at the inlet-port, a portion of the steam being exhausted at the first exhaust port and the remainder at the last exhaust-port.

Mechanical Devices.

CIGAR-BUNCHING MACHINE.—ABRAHAM FRANK, New York city. The object of this invention is to provide a cigar-bunching machine of simple construction, which machine may be successfully used with the bench of any cigar-making apparatus. The present machine is provided with a table, an apron for the table, and a roller for the apron, the three parts operating to roll a bunch to proper shape without unduly packing the tobacco. The size of the pocket in the apron in which the material for the bunch is placed, may be readily increased or decreased in size.

Miscellaneous Inventions.

TENSION DEVICE FOR LOOM-SHUTTLES.—FRANCISQUE DAVID, St. Etienne, France. This invention seeks to provide a simple construction by means of which the spool may be retarded more or less, according as the tension on the thread decreases or increases. To this end the invention consists of a shuttle having a support or body portion, a spool mounted therein, and a brake normally engaging and retarding the spool. The brake embodies means engaged by the thread as the latter passes from the spool, so that tension on the thread serves to relax the brake.

MEASURING AND REGISTERING DEVICE FOR LOOMS—ALFRED and JOHN BENTLEY, Paterson, N. J. The measuriug and registering device provided by these inventors comprises a casing, a fixed stud, and a registering wheel arranged within the casing and provided with a hub extending through an opening in the casing. The registering wheel is adapted to turn loosely upon the stud and to slide thereon. A fastening device is carried by the hub and is arranged to engage the stud. A spring is adapted to press on the registering wheel and coacts with the fastening device to hold the registering wheel in operative position. A friction-wheel is adapted to be operated by the passage of the fabric in engagement with the wheel. Mechanism is provided for driving the registering from the friction wheel.

CAKE-TURNER.—CHESTER E. MACDUFFEE, Narragansett, R. I. The purpose of this invention is to provide a cake-turner so constructed that the blade may be conveniently turned from a point at or near the handle, without changing the position of the hand or of the handle. With this end in view, the inventor provides the shaft of the blade with a pinion made to engage a rack within the casing in which the shaft is journaled. A spring is located within the casing and bears with one end upon the casing and with the other end upon the stem of a button. By pressing the button, the spring is placed under tension, and the shaft of the blade is given a half turn. When the button is released, the retractile force of the spring will cause the shaft automatically to resume its initial position through the medium of the rack and pinion.

RAILWAY CATTLE-GUARD.—CHARLES H. MATHIS, Bowie, Tex. The guard provided by this invention is so constructed that it will be automatically opened by the action of the wheels of the engine of an advancing train, and closed when the train has passed. The cattle-guard consists of a gate made in three sections,—a central section between the tracks adapted to operate in a direction parallel with the rails of a track, and side sections located outside of the track-rails. The side sections are spring-controlled and are arranged to operate in a direction transversely to the rails of the track. A connection is provided between the outer and the central sections of the gate. Trip-bars operating the gate-sections are arranged to be acted on by the wheels of a train.

CUFF-HOLDER.—CHARLES V. RICHARDS, Skowhegan, Me. This cuff-holder consists of two flat arms connected with each other at one end so as to move toward and from each other at their free ends. The contiguous edges of the arms are provided with notches communicating with each other by means of two slots gradually decreasing in width in the direction of the joined ends of the arms. The inner slot is wider than the outer slot.

CRIBBAGE-BOARD.—WILSON G. ROSS and JOHN J. REID, Benicia, Cal. The purpose of this invention is to provide a counting-board in which the use of pins will be dispensed with, thus obviating the danger of losing the counting devices. The board comprises a frame, a bar mounted to rotate therein and having numerals on two of its surfaces, guide-rods in the frame, and counters movable longitudinally of the guide-rods. As the counts are made, the counters are lifted relatively to the guide-rods and moved along until the proper number is reached. As the higher numbers are required, the bar is rotated or rocked to bring the requisite numbers into view.

ADVERTISING DEVICE.—LANCE J. TOFFELMIER and ALBAN HEIRON, San Leandro, Cal. To provide a new advertising machine, especially designed for use in street and railway cars, public buildings and other places, and constructed in such a manner that the machine is actuated by a moving door, window, or the like, to display the advertisements attractively, this inventor has devised an apparatus consisting principally of a revolving cylinder adapted to carry advertising cards on its periphery, a gearing to rotate the cylinder, and a mechanism to rotate the gearing intermittently on the cylinder in one direction only. The mechanism, as before stated, is actuated by a hinged or sliding door, window, or other movable part.

CIRCULAR SAW.—SIEVE T. JOHNSON, Trinidad, Cal. This circular saw comprises a central section having a peripheral screw-thread and a flange projecting radially beyond the screw-head, in connection with a rim-section having saw-teeth at its outer periphery, and a female screw-thread at is inner periphery, fitting the screw-thread on the central section, and securing screws extending through the rim and flange parallel with the axis. The saw is especially designed for sawing shingles. The cutting section is made removable.

FIRE-ESCAPE.—HENRY VIEREGG, Grand Island, Neb. This fire-escape belongs to that class in which a trackway or rail is mounted to run around the top of a building. On this trackway a carriage moves. A ladder is provided which is secured to a wheel running over the track. A shaft is mounted at the upper portion of the ladder and is driven by an endless chain passing over a wheel secured to the shaft. In descending from the building, the chain is grasped with the hands and the weight of the body causes the person to be carried downward. In order to regulate the speed of the descent, a centrifugal governor controlling a strap-brake is used in addition to a hand-brake.

VEHICLE FOR COLLECTING HOUSEHOLD REFUSE OR OTHER MATERIAL.—SAMUEL L. KINSBRUNER, Friedenau, Germany. This invention provides a receptacle having an opening, adjacent to which a frame is hinged and adapted to engage a garbage-box or the like. A closing lid is secured to the frame and has a catch to engage the cover of the box. Connections between the lid and the frame enable the lid with the box-cover to be moved away from the frame and box when the latter are turned. The apparatus may be mounted on wheels to permit ready transportation of the garbage collected.

WIRE SPRING MATTRESS.—JACOB S. KNECHTEL and ROBERT G. VINCENT, Hanover, Canada. The wire spring mattress of these inventors comprises side rails; terminal cross-beams, one of which is secured to the rails, the other being adjustably secured thereon; side rods extending longitudinally; links for supporting the rods from the side rails; and a wire fabric formed of strands having coils extending alternately on opposite sides and having diagonal connecting links for joining adjacent coils of adjacent strands. The coils on the sides of the fabric are engaged by the side rods; and the ends of the strands are formed into loops for removable connection with pegs on the terminal beams. The several sections can be readily taken apart, thus permitting the mattresses to be packed in pairs for transportation.

METHOD OF PLANTING SEED.—ISAAC J. JENKINS, El Paso, Ill. The purpose of this invention is to provide a rapid and convenient means of planting, and to prepare the seed so that the farmer may readily determine the exact amount of seed required to plant a given piece of ground. The invention consists of a tubular casing comprising a fabric of coarse mesh. The seeds are arranged in the order in which it is desired that the plants shall appear, and are held in the desired position by the elasticity of the fabric. The tubular casing thus prepared is planted in any suitable manner.

CHECKING DEVICE.—ELI C. EAGLESFIELD, Berlin, Wis. Connected with a bit and sleeves located over the ends of the bit, is a check consisting of a strap passed through the rings of the bit and through the sleeves. The strap in its passage through the rings of the bit is formed into a chin-strap, a nose-band, and check-straps. An adjusting device is provided for the end of this check-strap and a connection with the crotch-strap. This check-strap enables a horse to be thoroughly controlled, preventing him from running or pulling to the side.

EXTENSION-CHAIR.—JAMES G. BULKLEY, New York city. This invention is an improvement in extension-chairs of that type in which the parts may be extended to form a couch. The chair has a back normally extending below the seat. Guides at the rear edge of the seat permit the back to be raised and swung to the rear on a pivot. A rod extending between the arms of the chair has its ends bent to enter holes in the arms, whereby the back may be supported in different positions. Swinging legs are pivoted to the upper end of the back. Eyes in the back and legs are adapted to receive the bent ends of the rod, whereby the rod may act as a brace for the back. Above a fixed seat-board a removable seat-board is located, the forward edge of which is adapted to be received by a slot in the frame of the chair to support the removable seat-board at an angle.

BELT-TIGHTENER.—ELIAS A. BIGELOW, Dash, Mich. This belt-tightener comprises a frame pivoted to swing bodily and two rollers at different distances from the pivot of the frame. The rollers are spaced to bear on the opposite runs of a belt, each roller describing its own arc, without changing its distance from the other roller when the frame swings on its pivot. The rollers being located at different distances from their pivotal supports, give, in effect, levers of different lengths. This principle is used to produce an automatic tightening within certain limits; and these limits are altered when necessary by adjusting devices.

CLEANER FOR SEED-COTTON.—EDWARD HART, Victoria, Texas. This cotton cleaning machine is provided with a laterally oscillating concave bed or cradle, having spaces for the escape of dust or dirt. A rotary stirrer and fan composed of arms having boards secured at points removed from their outer ends, works in the concave bed or slatted cradle.

CUSPIDOR-CARRIER.—CHARLES C. CORLEW, Fresno, Cal. The collapsible carrier provided by this inventor comprises a main rectangular frame, hinged guards and hinged retaining frames both of rectangular form. Hinged bottoms are connected with the main frame. Means are provided for locking the guards, retaining frames and bottoms in their open operative positions.

PORTABLE JAIL.—WILEY S. KING, Darlington, S. C. This portable jail is mounted on wheels and has barred inclosing walls and a series of bunks on opposite sides of a central aisle. The jail is especially designed for use in imprisoning convicts employed in many parts of the country in constructing roads. In order that the jail may be conveniently stored and transported, the inventor has provided means for facilitating transportation. The bunks furnish means whereby the prisoners are provided with sleeping accommodations.

CLAMPING-ATTACHMENT FOR HARNESS.—JAMES N. FARLOW, Lander, Wyo. This invention seeks to provide a simple device to supplant the use of buckles. The device in question consists of a looped clamping frame having diagonally-disposed side bars extended between a top cross-bar and a lower cross-bar, and a clamping bolt passing through alined perforations in the straps to be clamped, which perforations lie between the cross-bars of the clamping-frame. A winged nut is used in connection with the clamping-bolt.

Designs.

BOX-LID SUPPORT.—JOSEPH L. CONWAY, Sioux City, Iowa. The leading feature of this box-lid support consists in a front flap, having a doubled-up extension, and an arm leading from the lower edge of the back flap at angles thereto. The support is applied to a box so that the previously mentioned arm will rest upon the box, while the front flap will cover the edge of the lid toward the front. Advertising matter may be inscribed upon the flap.

CUP OR SIMILAR ARTICLE.—JOHN W. HANLEY, New York city. In this design the inner and outer surface of the vessel are divided into rectangles by vertical and horizontal lines, and in these rectangles pictorial figures are sketched. The bottom of the cup contains a sun or similar radiating figure.

WALL PAPER.—HARRY WEARNE, Rixheim, Germany. Six designs, as follows: 1. Striped panels of fine vertical lines interspersed with alternate panels of rose garlands and panels of festooned bars on each side of a line of floral figures. 2. Horizontally striped panels alternating with vertically striped panels on which are bouquets of flowers with connecting sprays extending across the panels. 3. Bouquets of roses and buds of various sizes arranged on a wave background simulating watered silk. 4. A central rectangle with dots around inner edge and short vertical lines across the middle. The rectangle is surmounted by a scroll having foliate extensions from the ends of which hang foliate pendants. To these pendants are fastened floral sprays terminating at the ends of the rectangle. Above the scroll is a floral bow. Below the rectangle is a foliate figure, and under this a bouquet with bell center and foliate bell pendant at the bottom. 5. A fanciful foliate center figure arched over by decorated scrolls which support a star-shaped panel. The panel is surmounted by C-shaped scrolls and a foliate spray. 6. Two upright rustic posts and next to the left one a narrow rustic ladder. Vines with rose shaped flowers are trained on the posts and ladder.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS, ETC.

GLUCOSE IN CONFECTIONERY. A Statement from the National Confectioners' Association of the United States. Report from the National Academy of Sciences; Letter from Dr. Cyrus Edson, Commissioner of Health. Philadelphia: Confectioners' Journal Print. 1898. Pp. 11.

TWELFTH ANNUAL REPORT OF THE COMMISSIONER OF LABOR, 1897. Economic Aspects of the Liquor Problem. Washington: Government Printing Office. 1898. Pp. 267.

THE BUSINESS GIRL. By Ruth Ashmore. New York: Doubleday & McClure Company. Philadelphia: Curtis Publishing Company. 1898. Pp. 175. Price 50 cents.

The author is on the editorial staff of the Ladies' Home Journal, and is, therefore, undoubtedly able to give admirable common sense advice to girls, for this paper, like our own, has a Notes and Queries Department, and these letters of inquiry will certainly give a good indication of what girls wish to know. The frontispiece is a beautiful photogravure of Ruth Asmore's desk, though what connection it has with the volume we fail to understand.

DIE LIQUEUR-FABRIKATION. Von August Gaber. With illustrations. Vienna: A. Hartleben. Pp. xvi, 400. Price, paper, $1.35.

"Die Liqueur-Fabrikation" is a desirable addition to the monographs constituting the admirable Chemisch-Technische Bibliothek published by Hartleben. Like most of the other works of the series which we have noticed in this column, the present work on the manufacture of liqueurs is characterized by the same exhaustive treatment. True to his principles, the author has described in his work only those methods which have been actually tried and which have shown their value on more than one occasion. Taken as a whole, this seventh edition of Gaber's work bids fair to uphold the good name already earned by previous editions.

DIE KITTE UND KLEBEMITTEL. Von Sigmund Lehner. Vienna: A. Hartleben. Pp. viii, 134. Octavo. Price, paper, 60 cents.

In the present fifth edition of this admirable monograph on cements and adhesives the author has endeavored to embody only those formulæ among the vast number of recipes known in the various trades which have proved really useful. Since, in the manufacture of machinery and in the erection of gas and waterworks, the need of useful cements for the purpose in hand has often been felt, Herr Lehner has incorporated in his work directions for making the best cements known in these industries. In everyday life it often happens that one finds it necessary to repair broken glass and porcelain ware, and for this reason the recipes given for this purpose have been selected with more than usual care. The descriptions of the making of glues and stone cements will no doubt find favor with many a builder. The tanner, the maker of Indiarubber articles, the manufacturer of machinery, the upholsterer, the glazier, the bookbinder and the dentist will find here the best recipes for making the cements used in their arts.

BIRDS THAT HUNT AND ARE HUNTED. Life Histories of One Hundred and Seventy Birds of Prey, Game Birds and Water Fowls. By Neltjie Blanchan. With Introduction by G. O. Shields. New York: Doubleday & McClure Company. 1898. Forty-eight colored plates. Pp. 359. Price $2.

The volume before us is a beautiful one, and it may be regarded as one of the triumphs of modern bookmaking that such a handsome volume can be produced at such an astonishingly low price. It is beautifully printed and handsomely bound in green silk cloth, with a rich green top, which has heretofore been largely relegated to the cook-book. We are glad to see, however, that the use of colored edges is coming into vogue. Nothing is more appropriate than a neatly colored edge to match the binding, and some of the effects produced are very artistic, as in the present instance. The system of reproduction used in the plates is most admirable, and while the volume caters in a great measure to the sportsman, it is the hope of the author and editor that the sportsmen may learn to hunt more and more each year without guns; for all true sportsmen are lovers of nature. The time has come when the camera may and should to a great extent take the place of the gun. Several enthusiasts have demonstrated that beautiful pictures of wild birds may be made without taking their lives. We heartily commend this volume to all lovers of nature.

MANUAL OF DETERMINATIVE MINERALOGY. With an Introduction on Blowpipe Analysis. By George J. Brush. Revised and enlarged. With Entirely New Tables for the Identification of Minerals. By Samuel L. Penfield. Fifteenth Edition. First Thousand. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1898. Pp. 312. Price $3.50.

The present volume is the fifteenth edition of a work which is well-nigh classic. As far as the English language is concerned, it is the last word on determinative mineralogy, and the many tables which it contains will enable any one to accurately determine minerals, provided they have a good knowledge of blowpipe analysis, and this book is calculated to give them such a knowledge. It is freely illustrated by 375 engravings. It is a standard text book in many colleges, and the enormous sale of a book of this kind is alone evidence of its great value. The analytical tables for the identification of the minerals are an outgrowth of tables of Von Kobell as modified by Prof. Brush. The introduction, however, of a large number of new species since 1874 has necessitated a complete rearrangement of the minerals. The tables have been so developed that tests of characteristic mineral constituents furnish the chief means for identification; thus, identifying minerals, students may gain possession of important information concerning the chemical composition of compounds. The distribution of minerals in the tables and statements concerning their chemical and blowpipe characters have been verified in almost all cases by experiments made upon well authenticated specimens in the Brush collection at New Haven.

THE PHILIPPINE ISLANDS AND THEIR PEOPLE. A Record of Personal Observation and Experience. With a Short Summary of the More Important Facts in the History of the Archipelago. By Dean C. Worcester. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1898. Pp. 529. Price $4.

The Philippine Islands at the present time are an all-absorbing topic of interest, so that this volume appears at a most opportune time. During the years 1870-74 Dr. J. B. Steere made an extended trip for the purpose of gathering zoological specimens and ethnological material, and in the course of his travels visited the Philippine Islands. We have already published in the SCIENTIFIC AMERICAN a number of Dr. Steere's papers on the subject. Dr. Steere's trip tempted others to visit this little known field, and another trip was planned by him in 1887-88, and the author of the present volume was one of those who went on the expedition. In 1890 the author made a second trip, and the volume before us is the fruit of his explorations in this comparatively unknown world. It is a very interesting volume and is handsomely printed and illustrated.

ANNUAL REPORT OF THE STATE GEOLOGIST OF NEW JERSEY FOR THE YEAR 1897. Trenton, N. J.: The John L. Murphy Publishing Company. 1898. Pp. 368.

The excellent work accomplished by the Geological Survey of the State of New Jersey is well known to all who are in any way interested in the science of geology. The present volume is fully up to those which have preceded it.

A HANDBOOK OF ENGINEERING LABORATORY PRACTICE. By Richard Addison Smart. First Edition, First Thousand. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1898. Pp. 290, 16. Price $2.50

This volume is intended primarily as a manual for the use of students in the routine of experimental work in steam engineering, strength of materials and hydraulics. The author is associate professor of experimental engineering at Purdue University, an institution which possesses an elaborate equipment, including a locomotive testing plant. The book is admirably arranged, and the diagrams and illustrations which elucidate the text are excellent. It is an admirable text book, and there is no doubt that it will be well received by those who are interested in steam engineering.