RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

HOEING-MACHINE.—GEORGE W. STACY, Belmont, Miss. The invention is an improvement in machines designed for chopping cotton or for use wherever it is desired to hoe the ground or thin out a growing crop. The improvements are designed to be used in connection with any form of straddle-row cultivator and to be operated from the wheels of the cultivator.

BERRY-BOX.—HENRY C. FINLEY, 135 Main Street, Oklahoma, Oklahoma Territory. The inventor has devised an improved berry-box made of pasteboard or other thin, cheap material, which box can be packed and shipped "knocked down" or in the flat and easily and quickly struck up for use. The box is composed of two parts, a body and a bottom, the latter being supported centrally by the fastening device which secures the side of the bodies together.

Engineering Improvements.

ROTARY ENGINE.—EDWARD A. STEWART, Troy, Ohio. The piston of the engine is provided with a number of peripheral buckets. Around the cylinder a number of steam-chests are grouped, each being connected by an admission-port and an exhaust-port with the cylinder. A valve is mounted to turn in each steam-chest to control the admission and exhaust of the steam to and from the cylinder and the buckets of the piston. These valves are so arranged that one of the buckets is always under continuous pressure of steam from an admission-port. The steam can be used expansively in high or low-pressure cylinders.

TABLE FOR CUTTING CLAY FENCE-POSTS, ETC.—ARPHAD SNELL, Tice, Ill. In the SCIENTIFIC AMERICAN for January 7, 1899, an illustrated article appeared on a clay-cutting table invented by Mr. Snell. The purpose of the present invention is to simplify the general construction of that table. A fixed and a rotary conveyor-table are mounted upon the same carriage. Mechanism is provided to move the carriage to and from the mold or shaping machine, limiting the movement of the carriage at such time. The rotary conveyor-table can be turned by a simple mechanism and temporarily locked in the desired position. The table is provided with a series of belts upon which the molded article is received. Fingers, operating simultaneously with the cutting mechanism, serve to make depressions in a molded fence-post at desired intervals apart. The depressions thus formed are intended to receive fence-wires.

METHOD OF SHRINKING AND FINISHING LINENS, COTTONS OR OTHER FABRICS.—WILLIAM HEBDON, Brooklyn, New York city. The method consists in saturating a piece of cloth, then subjecting it to pressure to squeeze out surplus moisture. The wet piece is rolled in a dry piece to moisten the latter. Both pieces are then heated and dried in open width and finally pressed in open width. In order to carry out this process an apparatus is employed which is described in the patent.

WAVE-POWER.—ISAAC A. BRADDOCK, Haddonfield, N. J. The invention is an improvement in machines actuated by incoming or outgoing waves to compress and store air to be used in driving machinery. A hollow float is pivoted to an anchor. On the shore, a cylinder is mounted, the piston of which is connected with the float. A pipe connection extends between the cylinder and the float. The float is likewise connected by a pipe with a storage vessel for air. By reason of this arrangement the cylinders move toward and from the water to accommodate the device to the rise and fall of the tides and to storms and calms which influence the height of the water.

SWITCH-LOCKING DEVICE.—WALTER E. EMERY, West Chicago, Ill. A bracket is attached to the switch-point, and to a switch-rod which passes under the main rail. An arm is carried by the main rail and a lock is sustained on the arm. By these means the switch is securely held in either open or closed position.

Miscellaneous Inventions.

HORSE-HITCHING DEVICE.—IDA W. and HENRY CASSER, Colorado Springs, Colo. The device is to be attached to a vehicle and is so connected with the bridle-bit that, should the horse start forward, the bit connection will be wound in such a manner as to draw the horse's head down or back and stop him. Thus the usual hitching posts, weights or the like are dispensed with.

METAL PRINTING-WHEEL.—EDWARD FUCHS, Manhattan, New York city. The invention relates to printing telegraph and other machines using a printing-wheel for printing type-characters on tape, paper sheets and the like. This new wheel is cheap in construction and is arranged to permit convenient renewal of worn or injured type-characters on the body of the wheel.

DRYING DEVICE FOR CEMENT-KILNS.—HARRY STEHMANN, Hoboken, N. J. It is one of the functions of this invention to utilize the waste gases to dry the material before it is admitted into the kiln. A draft is produced in the kiln in such a manner as to obtain a product of superior quality at a relatively small cost, and to keep the kiln in a working condition so that few repairs will be necessary.

GAME-TABLE.—CHARLES W. STROUD, Joplin, Mo. The table is to be used in card-games. The essential feature is a table having rotary parts or carriers provided with pockets to receive the cards which are to be dealt to the players. By means of this device a fair distribution is secured. There are fifty-four pockets in all. Hence it will be necessary to take two cards from another pack, a deuce and a tray, for example, and give them a certain value such as honors. When the pockets on the carriers are alined, there will be nine slots in front of each player. From the slots, the five cards of a hand are selected. Should the player wish to discard, he lays his discards to one side and takes other cards from the remaining series of four pockets. Other methods of drawing the cards can be employed. The table is a simple and very efficient and fair card-dealer.

TIMBER-HOOK.—GEORGE H. HITCHINGS, Hoquiam, Wash. The drag device carries a joint-plate which is pivotally connected by straps with the hook-bars. The drag device when drawn upon pulls the joint-plate which operates to draw the hook-bars firmly together and force their prongs into the timber. The drag device swings freely from side to side, independently of the hook-bars, and being connected with the joint-plate pulls thereon and then on the connecting straps. Thus traction is exerted whether the drag device is in line with the joint or hook-bars or stands on either side of the joint, as most frequently happens. All twisting at the joints is avoided. The parts of the hooks are maintained and braced in the desired positions.

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

NEW BOOKS, ETC.

DOMESTIC SERVICE. By Lucy Maynard Salmon. New York: The Macmillan Company. 1901. 338 pp. Price $2.

This most helpful book on the "servant question" was written after a thorough scientific investigation of the problem by Miss Salmon. Five thousand blanks containing pertinent questions were sent out to employers and employees throughout the country; and the statistics found in the book were compiled from the returns. The deductions and conclusions therefrom are found in several interesting chapters. A chapter throwing much light on domestic service abroad has been added to this, the second edition.

THE THEORY OF NUMBERS. By Richard Dedekind. Translated from the German by Prof. W. W. Beman. Chicago: The Open Court Publishing Company. 1901. 115 pp. Price 75 cents.

Two interesting essays on Continuity and Irrational Numbers and The Nature and Meaning of Numbers, respectively, are contained in this little book. The essays contain much stimulating thought, and are well worth the perusal of all who are interested in higher mathematics.

THE TINSMITH'S PATTERN MANUAL. By Joe K. Little, C.E. Chicago: The American Artisan Press. 1901. 248 pp., 100 diagrams. Price $3.50.

This book will be found of incalculable value to tinners and all sheet metal workers. In it are laid down general geometrical principles which, when mastered, will enable the user to draw a number of different patterns whose construction is essentially the same; and to develop the surface of any article with much greater ease and rapidity than by following the methods in general use. The book is entirely practical, and its popularity is shown by the fact that a second edition, brought thoroughly up to date, has just been issued.

THE STANDARD GUIDE TO THE CITY OF MEXICO. By Robert S. Barrett. City of Mexico: Modern Mexico Publishing Company. 1901. 152 pp. Price 50 cents.

This guide will be found invaluable to Americans about to visit Mexico. It furnishes a complete description of the city and its environs, and is copiously illustrated with fine half-tone engravings. It is prefaced by an interesting historical note, and all the buildings are described with full notice of their historical interest.

ROAD MAKING AND MAINTENANCE. A Practical Treatise for Engineers, Surveyors and Others. With an Historical Sketch of Ancient and Modern Practice. By Thomas Aitken. With Numerous Plates and Illustrations. London: Charles Griffen & Company, Limited. Philadelphia: J. B. Lippincott Company. 1900. Pp. 440. Price $6.

The author describes the modern methods at present employed in England, which make use of all the recently developed road-making machinery. The book is comprehensive, and treats of the subject in detail from the quarrying of road material or metal to the completion and keeping in repair of the road. The cost of the various operations based on actual road-building experience is given also. The latter half of the book is devoted to the description of carriageways and footpaths and the materials employed in their construction. Some novel suggestions for relieving overcrowding of the traffic in large cities are also given. The book is a valuable one for all persons engaged or interested in improving the roads of our country.

BERICHT DES COMITÉS DER MECHANISCHEN KUENSTE UEBER DIE ARBEITEN DES HERRN ALBERT COLLET. Die Sicherung der Schienenbefestigungen betreffend, Abgefasst von Herrn E. Sauvage. Paris, Rue de Rennes 14.

BERICHT UEBER DIE SICHERUNG UND BEFESTIGUNG DER SCHIENEN AUF HOLZWELLEN VERMITTELST EINSCHRAUBBARER HOLZDUEREL (trénail). System Albert Collet. Von M. Cartault. Paris: Veuve Ch. Dunod.

DIE EISENKONSTRUKTIONEN DER INGENIEUR-HOCHBAUTEN. Ein Lehrbuch zum Gebrauche an technischen Hochschulen und in der Praxis. Von Max Foerster. IV. Lieferung. Fortsetzung des III. Abschnittes. Kuppeldächer, Zeltdächer, Walmdächer, und Föpplsche Tonnenfiechtwerkdächer. 97 illustrations and one plate. Leipzig: Wilhelm Engelman. 1901. Large octavo. Pp. 257-320.

The fourth instalment of this admirable work, which we have had previously occasion to comment upon favorably, continues the discussion of roofs begun in the previous instalment. The explanations and illustrations are singularly clear. Excellent use has been made of the graphic system of estimating strains in framed structures.

KNOWLEDGE DIARY AND SCIENTIFIC HANDBOOK FOR 1901. London: Knowledge Office. 1900. 8vo. Pp. 528. Price, $1.20.

The volume will prove a most useful adjunct to the libraries of all astronomical workers, as it contains a historical summary of the advance of that science in the nineteenth century, with astronomical notes and tables and an account of the astronomical phenomena of the year, and twelve star maps showing the night sky for every night in the year, with full descriptive account of the constellations and principal stars, together with a calendar of notable events, table of principal observatories in the world and monthly astro-ephemeris. The pages devoted to the Diary, which form the bulk of the book, are of large size, and a page is provided for each day. While the scope of the work is mainly astronomical, its usefulness is not confined entirely to that science, and the diary alone is worth the moderate price asked for the entire book.

TEXTBOOK OF IMPORTANT MINERALS AND ROCKS WITH TABLES FOR THE DETERMINATION OF MINERALS. By S. E. Tillman. New York: John Wiley & Sons. 1900. 8vo. Pp. 176. Price $2.

This book is the slow outgrowth of the efforts to meet the necessities of the United States Military Academy for a convenient textbook of important minerals and rocks. The author has performed a great task in a very acceptable manner. The tables are excellent and tend to afford a ready determination of the rocks.

THE RUSSIAN JOURNAL OF FINANCIAL STATISTICS. February, 1901. St. Petersburg: The Russian Journal, 23 Millionnai. 8vo. Pp. 740. Price $5 per annum.

This is a very extraordinary publication. The publishers state that copies of two specimen numbers will be mailed on receipt of postal expense. The portly volume is brimful of information relating to Russia. It seems to be a careful compilation, and will undoubtedly be welcomed by all those who have any trade with Russia.

THE OCTOPUS. A Story of California. By Frank Norris. New York: Doubleday, Page & Co. 1901. 12mo. Pp. 652. Price $1.50.

This novel deals with the wheat growers of San Joaquin Valley, who came into actual conflict with the railroad, which they believe is trying to defraud them of their lands. It is the first volume of a trilogy entitled "The Epic of the Wheat." The first book deals with the war between the wheat grower and the railroad trusts; the second, "The Pit," will be the fictitious narrative of a "deal" in the Chicago wheat pit; the third, "The Wolf," will probably have for its pivotal episode the relieving of a famine in an old world community. Among the interesting features of the present novel are a map of the locality and a list of the principal characters in it. With the modern psychological work of fiction this last innovation is especially commended.

ELEMENTARY TEXTBOOK OF COAL MINING. By Robert Peel. London: Blackie & Son. Philadelphia and New York: J. B. Lippincott Company. 1901. 16mo. Pp. 300. Price $1.

This book is intended mainly as a textbook for those who are first-year elementary students of coal mining, attending classes in connection with the Science and Art Department, or the lectures which are now given at most mining centers in England under the technical education scheme. This, of course, greatly curtails its usefulness for American readers. Fortunately we have nothing like the Science and Art Department in this country to hamper our students. To those who wish a general knowledge of coal mining the book will perhaps prove of value.