RECENTLY PATENTED INVENTIONS.

Engineering.

REVOLVING MUFFLE FURNACE.—August R. Meyer, Kansas City, Mo. To facilitate the desulphurizing or chloridizing of ores or metallurgical products, this furnace has formed in its walls a revoluble cylinder with independent longitudinal flues, the furnace discharging successively into the flues, and there being a channel at the end of the cylinder, but remote from the furnace, connecting the cylinder flues, and adapted to be placed in communication with the interior of the cylinder. An outletat the furnace end of the cylinder is also adapted to be successively connected with the cylinder flues. The products of combustion travel twice through the flues before passing off to the chimney, utilizing the dust to the fullest advantage, and the products of combustion are kept entirely separate from the material under treatment.

FEED WATER HEATING APPARATUS.—Elihn K. Jones and Thomas N. Wilson, Fulton, Oregon. According to this improvement the feed water is forced through hollow grate bars on its way to the boiler, the main grate bar having a series of parallel lengthwise passages, and there being joined to it a series of minor grate bars having like communicating passages, while a series of pipes connect the main grate bar with the upper portion of the boiler, and a pipe connects the lower portion of the boiler with the grate. A practically equal distribution and circulation of water in all portions of the grate are assured, and normally all the water from the pump passes through the grate before entering the boiler.

Railway Appliances.

FARE BOX.—Oscar Katzenberger, San Antonio, Texas. This invention provides a receptacle for fares especially adapted for use on cars or other vehicles, the fare to be paid by each occupant upon entering, and the construction permitting the driver, motorman, or gripman to readily ascertain the amount of fares paid. Each fare is registered as paid in, and the receptacle may be opened by the driver or conductor to make change. The person depositing the fare may also know immediately that it has been registered, and coins paid in excess of or in denominations less than the coin of the fare are delivered to a receptacle not accessible to the conductor or driver.

Electrical.

UTILIZING ROENTGEN RAYS.—Charles F. Easton, Wallace, Idaho. An improved lantern for employing the Roentgen rays for experimental, demonstrative or practical purposes, has been devised by this inventor, the lantern body being opaque to X rays, and having a front aperture and fixed disk whose central opening registers therewith, while an adjacent parallel rotatable disk has graduated apertures which may be brought into coincidence with those in the fixed parts. Arranged in the case on a sliding carriage is a Crookes tube, and means for making a rapid or slow and fine adjustment of the tube.

TELEGRAPH KEY.—Martin M. Porter, Malone, N. Y. This invention provides a simple and positive means for automatically closing the circuit through the instrument after the key shall have been released by an operator. The improvement comprises a spring plate adapted for electrical connection with a line wire, a key lever, and a finger piece of insulating material, to which is attached a metal contact having electrical connection with the key lever, while a plate hinged to swing vertically on the finger piece has a projection adapted to engage with the spring plate to force it out of engagement with the contact on the finger piece.

ELECTRIC SELLING DEVICE.—Alexander Davidson, New York City, and Charles G. Armstrong, Chicago, Ill. To sell reserved seat tickets at different stations, and prevent the sale of the same ticket at two different stations, according to this invention, the stations are connected electrically and each has duplicate electrical apparatus, whereby a sale at one station is automatically reported at the other stations. If the same ticket be offered for sale at two different points, the device is rendered inoperative and a visual or audible sound is given. The invention comprises synchronous clocks connected in circuit with a master clock, each clock being combined with a commutator, battery, signal bell, and annunciator board, etc., there being also a three-wire circuit for the operative parts of the ticket selling devices.

Mining, Etc.

SILVER AND GOLD ORE PROCESS.—Henry Hirsching, Salt Lake City, Utah. This process relates principally to the obtaining of copper from copper ores, but is also applicable for obtaining the silver and gold, whether with or without copper. It is an ammonia process, especially advantageous and economical with refractory ores, whether with or without copper, and where melting or other processes would not be satisfactory or profitable, and consists in subjecting them to the action of a solvent to dissolve the metals and then electrolyzing the solution, first with a cathode of the precious metal and then with a copper cathode.

Mechanical.

METALLIC PACKING.—Edward L. Raynsford, Susquehanna, Pa. This invention is for an improvement on formerly patented inventions of the same inventor, and provides a packing for use on piston and valve rods, piston slide valves, and other machine parts, the packing being arranged to prevent all leakage, and readily compensate for wear of the parts, insuring a perfect joint at all times. It is made with a sectional ring having overlapping joints, and on its periphery is a transverse recess extending over the overlapping joint, a segmental block fitting in the recess to cover the joint.

LIFTING JACK.—William W Goodwin and George A. Brown, Carthage, Me. This is a jack of the screw type which may be operated in small space and with but little friction, being capable of elongation in both directions from the center to a length equaling twice its length when closed. The screw rod of the jack has right and left threads starting from its center, each thread engaging an interiorly threaded cap, and the ends of the caps having teeth to interlock with wood or other material with which the jack may be operated, these caps also engaging the auxiliary screw threaded caps or extension pieces, to provide for a greater range of adjustment of the jack.

Agricultural.

LISTER CULTIVATOR.—Cornealious P. Welter, Perry, Kansas. The cultivator blades or disks of this simple and inexpensive machine are at opposite sides of the runners, and may be simultaneously raised or lowered, there being means for adjusting the blades or disks toward and from the draught line of the carrier, in proper position for rows of different widths. The parallel sleigh shaped runners are connected by arched bars, and a rock shaft journaled on the runners has arched center and angular ends on which the cultivator blade carriers are mounted, and the shaft is rocked to raise and lower the cultivator blades by means of a hand lever within easy reach of the driver.

CUTTING ROOTS, ETC.—John J. Sherman, Traverse City, Mich. The body of this machine comprises a box slotted in opposite sides, a cutter in the front slot and a handle lever projecting through the rear slot, the lever having a broad portion adapted to serve as a false oscillatory bottom to support the tubers or roots placed in the box to be cut. The knife may be readily removed for sharpening, and is adjustable for varying the thickness of the pieces or slices cut; it also has attached short supplemental knives to further divide the material into pieces or slices.

Miscellaneous.

CENTRIFUGAL MACHINE.—Peter Cooper Hewitt, New York City. Two patents have been granted this inventor for an improved machine for separating liquids from viscid or solid substances by centrifugal force, the construction being designed to obtain the best effects with a minimum expenditure of power, and effect the complete separation of substances where partial success only has heretofore been obtained. The invention comprises a separating bowl of small diameter and comparatively great length, with weirs for controlling the distribution of the liquid or mixture to be operated on, there being a peripheral discharge controlled by a valve and valve operating mechanism. Combined with the bowl are perforated hoops and perforated annular plates within the bowl to check the free circulation of the material acted on, and weirs of novel construction discharge the light and heavy liquids automatically into hoods. The bowl has improved bearings at its upper and lower ends, to facilitate the maintenance of a high velocity, there being a lubricating device for the lower bearing and an adjusting device for the upper one. The later improvement more especially adapts the machine for the separation of liquids and such solids and semisolids as are discharged from the separating bowl with difficulty, and for the separation of living organisms which have a different density from the liquid they grow in, but have the power to remain suspended in the liquid.

APPARATUS FOR AERATING LIQUIDS.—This is a further invention of the same inventor, especially applicable in aerating waters, beer and other liquids. It consists of a centrifugal machine constructed particularly to reduce the liquid to the form of an extremely thin film, the machine being operated in a covered vessel suitable for the required pressure, and the beer or other liquids being aerated while in the form of a highly attenuated film. When it is necessary to carry on the operation under a pressure greater than that at which the liquid is to remain, the liquid is carried to a storage reservoir through a pressure reducer which allows the gas to expand in the reservoir, whence it is taken back to be used again in aeration, while the liquid is held in the storage reservoir at the required reduced pressure.

BEER MANUFACTURING APPARATUS.—Still another patent of the same inventor provides an improved apparatus for brewing, in which the fermenting vat is connected with a gas receiver, where the gas developed may be stored under pressure, and a cooling chamber, from which the beer is conveyed to a separator or purifier and aerator, the latter being connected with the gas receiver to utilize the gas generated during fermentation. A valve controlled pipe connects the beer receiving tank with the aerator, and a connected storage tank is also connected with the aerator and the gas receiver.

PROTECTING REGISTRY ROLLS.—Charles A. Schindler, Jr., West Hoboken, N. J. To arrange rolls exhibiting the names of voters that they may be readily examined, and posted where desired without being damaged by the weather, this invention provides a protecting casing having an opening in its bottom edge, an upper spring-actuated roller to which a flexible carrier is attached, there being stops at the top and bottom of the case and a combined guide and stop on the carrier, with means for clamping the registry rolls to the carrier. By removing the cap of the case, the roller, with its carrier, and the registry rolls are all easily removed.

BICYCLE SUPPORT.—Francis P. McNulty and Thomas McDermott, Cincinnati, Ohio. This support is adapted to swing from the rear wheel spindle, which is extended at each side and engages two-part nuts, the latter engaging the ring or top portion of the support, which is formed of a rod bent to constitute a foot at its outer end. In supporting a wheel these rods extend slightly out at each side, the feet engaging the ground, but when not so required as supports the rods are turned up to engage the rear fork. One of these rodlike supports only may be used, instead of two, as one prefers.

BICYCLE TRACK.—John B. Hansler, Newburg, N. Y. To furnish a cheap and smooth track for wheelmen between towns and villages, and one which may be readily constructed in a more direct course than the ordinary highways, is the object of this invention, according to which the track is formed of metal plates having their edges rolled upward and inward and then outward, dovetail locking devices fastening the ends of the plates to each other and to supporting cross beams, the latter being held up by vertical posts which extend into the ground through plates which act as sills. The posts are adjustable to support the cross timbers and track at the desired level, and drainage holes are provided in the track plates.

BREAKDOWN FIREARM.—Charles E. Whilden, Charleston, S. C. For three barrel guns having two shot barrels and a rifle below and between them, this inventor provides an improved arm with a removable rifle barrel, to be so placed in connection with the shot barrels that it can be attached firmly to a suitable support, and quickly removed when it is desired to lighten the gun, the removable barrel permitting the employment of many different calibers of rifle barrel with the same stock. A cocking and firing mechanism for the rifle hammer is located within the body of the gun, and the trigger is of novel construction, only two triggers being required for the three barrels.

TYPEWRITING MACHINE.—Andrew J. Spears, West Plains, Mo. This invention is for an improvement in typewriters which, after a line of writing is completed, return the carriage and cylinder automatically instead of by hand, and provides an improved construction and arrangement of parts for feeding the carriage positively and directly by the action of the keys, for automatically returning the carriage after a line of writing is completed or in the middle of a line, and for automatically turning the cylinder to present a new space for a line of writing.

CASH INDICATOR AND REGISTER.—John F. Parker, McPherson, Kansas. This is a machine of comparatively simple mechanism for registering all individual sales and cash receipts from one cent upward, and indicating the total amount of sales and receipts. By pressing down a finger piece at one side of the casing, the registration of the previous sale is canceled and the cash drawer opened, to be closed by hand after the next registration is made, but, to guard against compounding the registrations, only fifteen seconds is allowed for the drawer to remain open, automatically working mechanism then locking the parts. This time may be varied according as the owner desires in setting the machine.

A NEW COLORING AGENT.—Georg H. Weiss, Charlottenburg, Germany. To form black chrome mordanted wool dyestuffs exceedingly fast to light, milling and soap, this inventor has devised a process of making carbonyl metadiamido salicylic acid, which consists in treating nitroamido salicylic acid with phosgene, thereby producing carbonyl metanitroamido salicylic acid having a melting point of approximately 283° C., and finally reducing the product to carbonyl metadiamido salicylic acid, soluble with difficulty in water and alcohol, insoluble in benzine, ligroine and chloroform, easily diazotizable, the diazo compound forming, by combination with the usual color producing substances, azo dyestuffs which are easily mordanted.

DIE HOLDER AND BOX.—Robert Turner, New York City. To hold dies for stamping and embossing, this box is open at one end, and has a removable end piece held by catches, there being die clamping devices in the end piece and in the opposite side of the box, while a false side and its opposite side have guideways for the dies, held in place by a clamping device. The box is arranged to hold separate dies forming matter to be stamped or embossed, the dies being interchangeable to permit of setting up any desired matter.

PAPER HOLDER.—Thomas P. Mautz, Stewardson, Ill. Two patents have been granted this inventor for a superior receptacle for paper in sheets of different lengths or paper bags, the device holding the material in graduated arrangement, enabling a person to readily select and withdraw a sheet or bag of the desired dimensions. The holder has a box or body portion with removable partitions, having pockets at their lower ends, and each partition being independent, although each serves to brace and strengthen the casing or holder. The holder is used in an upright position for heavy paper and in inclined position for light or manila paper. Although principally intended to hold wrapping paper, it can be used to hold any kind of sheet paper, its simplicity and cheapness making it practical for everyday use.

PREPARING NUTMEAL.—John H. Kellogg, Battle Creek, Mich. To produce an improved article from peanuts or other nuts, this inventor blanches the kernels and removes their cuticles, then boils them for several hours until they are thoroughly cooked and soft, dries the cooked product, and subjects it to a heavy pressure between rollers. Two products are thus obtained, a dry and practically white nutmeal and a pasty substance described as nut butter.

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

NEW BOOKS, ETC.

THE UNIVERSITY TUTORIAL SERIES. THE TUTORIAL CHEMISTRY. Part I. Non-metals. By G. H. Bailey. Edited by William Briggs. London: W. B. Clive, University Correspondence College Press. New York: Hinds & Noble. Pp. viii, 226. Price $1.

THE UNIVERSITY TUTORIAL SERIES. THE TUTORIAL STATICS. By William Briggs and G. H. Bryan. London: W. B. Clive. New York: Hinds & Noble. Pp. viii, 260. Price $1.

These two works are designed to cover chemistry and statics as required for passing the London University examination for a degree. Like all such books, while useful, they are of limited and accurately defined scope, which scope is fixed by the requirements of the English course. This renders them of restricted value for the American student.

CLAY GLAZES AND ENAMELS. With a supplement on crazing, its causes and prevention. By Henry R. Griffin, C.E. The whole forming a treatise on glazing and enameling brick, terra cotta, and pottery. Including exact recipes and formulas for all the principal colors now in use and full instructions for their preparation and application. Indianapolis, Ind.: T. A. Randall & Company. Pp. 138. Price $5.

Of all practical subjects, the subject of the present work has been one the details of which are most difficult to obtain. A glaze which would not crack and which would work with unfailing certainty time after time has been a desideratum for a long time. The present work on the subject very thoroughly tells not only how to make glazing, but gives the technique of the blending, etc. It is not too much to say that it will fill a long felt want, as it falls in the field of what has long been a trade secret.

TURKEYS AND HOW TO GROW THEM. A treatise on the natural history and origin of the name of turkeys, the various breeds, and best methods to insure success in the business of turkey growing. With essays from practical turkey growers in different parts of the United States and Canada. Edited by Herbert Myrick. Copiously illustrated. New York: Orange Judd Company. 1897. Pp. vii, 154. Price $1.

This monograph treats of a subject of great interest to farmers. No gallinaceous bird perhaps is more troublesome in managing than the turkey, and certainly none can be said to give more satisfactory results. This monograph should lead to increased success in the cultivation of the noblest of the tribe, and in the present days of poultry raising, the use of the incubators and other refined supplements lead to more than the ordinary expense.

HYPNOTISM UP TO DATE. By Sydney Flower. Chicago: Charles H. Kerr & Company, 56 Fifth Avenue. 1896. Pp. 161. Price $7.

The author of this curious book seems to be a believer in some of the extreme views of hypnotism and at the same time states his views in a very guarded way, so as to give one the idea that he is very conservative. The book is written in the form of dialogues between a physician who is a hypnotist and his patient. The author ingeniously enough shows some skill in avoiding troublesome explanations. Thus, at the end of the first chapter, he states that the doctor explained the feats of mind readers, and, instead of giving them, states that the explanations were so simple and so convincing that the author prefers not to publish them, not wishing to make public the evidence of his own gullibility. Had he given a real, thorough treatment of the subject, instead of thus avoiding it, and had he devoted some space to the natural magic of the mind reader as well as to the hypnotist, he would have performed, we think, a very acceptable service. The psychologist of the day is vibrating between full fledged hypnotism on one hand and materialism on the other, and this book may be a contribution to the lighter literature of the subject. Some of the author's criticisms on Conan Doyle and others are very amusing.

DIE BEARBEITUNG DES GLASES AUF DEM BLASETISCHE. Ein Handbuch für Studirende, welche sich mit Wissenschaftlichen Versuchen beschäftigen. Von D. Djakonow und W. Lermantoff. Mit 30 Abbildungen. Berlin: Verlag von R. Friedländer & Sohn. 1895. Pp. xiii, 154.

This nicely illustrated book with contents, but, unfortunately, without index, is devoted to glass blowing for the chemist and physicist, including the manufacture of strictly scientific apparatus by glass blowing before a blast lamp. The author follows the German custom of using a single blast lamp, instead of the converging jets of flame so generally used by the professional glass blower. The book is very systematically arranged, well illustrated, and its divisions indicate really thorough covering of the ground. It seems as if the work might repay translation, except that America is hardly yet ready for this class of monograph.

THE MANUAL OF STATISTICS AND STOCK EXCHANGE HAND BOOK. New York: Charles H. Nicoll. 1897. Pp. 500. Price $5.

The nineteenth annual issue of this work maintains the reputation of its predecessors, which has made the publication a standard reference authority for investors, bankers and brokers, and all interested in the values and fluctuations in prices of properties whose securities are dealt in by the public. The book covers especially all railroads and street railways, miscellaneous corporations, coal companies, cotton and petroleum, banks and trust companies, insurance companies, the mineral industries, etc.

METALS: THEIR PROPERTIES AND TREATMENT. By A. K. Huntington and W. G. McMillan. London and New York: Longmans, Green & Company. 1897. Pp. 562. Price $2.50.

In the series of text books of science adapted for the use of artisans and students in public and science schools, published by this well known firm, this volume occupies a most important place, especially the new edition, edited and brought up to date by a professor of metallurgy in King's College, London, and a lecturer on the same subject in Mason College, Birmingham. The latest forms of furnaces, some of which are hardly yet considered as beyond the experimental period, are here illustrated and described. The work deals but sparingly in chemical and mathematical formulæ, and every chapter in the book is well within the comprehension of any intelligent mechanic or ambitious young apprentice.