

and, if desired, a hand rest may be employed below the shoe to hold it steady in turning the tool, a lamp or gas flame being placed adjacent to the tool not in use for alternately heating the tools.

Agricultural.

ANIMAL CLEANING DEVICE.—Orson P. Fretwell, Cedar City, Utah. This device comprises a rotary brush mounted in a framework in which is also mounted a gear wheel and connections, with a rubber or similarly covered tire on one or more operating wheels, the rotary brush being operated by pushing the device along in contact with the animal's body.

CANE PLANTER.—Jacob C. D'Azevedo, Brooklyn, N. Y. This invention relates to machines in which the operations of making a furrow, planting the cane, and covering the furrow are accomplished in successive and closely following steps, the machine facilitating the planting of cane of any desired length, planting the cane in multiple in the same furrow, and dropping the various pieces simultaneously.

CONNECTING ROD FOR REAPERS. MOWERS, ETC.—Daniel J. Crosby, Kadina, South Australia. This rod is designed to facilitate actuating the knives of reapers and mowers, etc., in such a manner that, when obstructions are met with, the connecting rod, which converts the rotary into reciprocal motion, shall lengthen or shorten, and thus avoid breaking of the knife or other part of the machine.

BAND CUTTER AND SELF-FEEDER.—Henry J. Fournier, Hazelton, Iowa. This machine is separate and distinct from a thrashing machine, with which it is connected only when it is desired to automatically feed the grain to the feeder of the thrasher.

Miscellaneous.

PHOTOGRAPHIC CAMERA.—Daniel P. O'Leary and Samuel B. Kull, New York City. This invention covers an improvement upon a formerly patented invention of the same inventors, in which the movement of the film is automatically controlled by a shutter mechanism.

TRANSFERRING DESIGNS.—William R. Fish, Brooklyn, N. Y. To facilitate taking prints from lithographic stones or metal, etc., and converting them into sensitive transfer sheets, regardless of the age of the print or the number of times it has been used, this invention provides for first treating the sheet or film containing the drawing or design with a mixture of water and albumen, gelatine or one of the mucilaginous gums, then washing in water, then treating it with a greasy or printing ink, and then transferring to a stone, plate or printing surface.

GAS GENERATING MACHINE.—Frank A. Hutter, New Haven, Conn. This machine is designed to make gas for illuminating or heating purposes, and has a cylindrical generator, with perforated partitions, and packed with an absorbent material, the generator being mounted to be partially rotated occasionally, to facilitate the complete combustion of heavy oil.

SPRAYER.—Jules Bengue, Paris, France. This invention relates to devices for spraying ethyl chloride and other volatile liquids, employing therefor a capillary discharge opening with a protecting filter, but instead of the ordinary closing valve having a movable plug, a washer is used of suitable soft material, inclosed in a metallic cap.

MOVEMENT OF FLUID IN PIPES, ETC.—Orville Carpenter, Pawtucket, R. I. This invention relates to fire sprinklers and other apparatus containing a fluid normally dormant, but adapted to flow when a valve or other device is opened, and to apparatus containing a fluid normally in motion and liable to have its flow interrupted.

RESERVOIR PEN.—Carl J. Reinz, New York City. This pen has a tapering tubular shaft open at its inner end and provided with barriers, and an integral tongue extending beyond an opening at the branch

ing of the nibs, it being designed so to construct an ordinary writing pen that, at one dipping of ink, it will take up and retain sufficient of the fluid to accomplish the writing of one or more letters of medium length without the necessity of a second supply.

CASH RECEIPT.—Alpheus C. Sine, Stanford, Ky. At the foot of the main casing of this receptacle is a drawer, over which is a casing supporting a shell which holds a rotary coin carrier, where coins may be placed or from which they may be removed at will, the upper casing holding gearing by which the coin carrier is operated, and the base casing carrying a receptacle for notes and also an alarm mechanism by which notice is given when the apparatus is operated.

AXLE BOX.—Franz A. Surth, Dortmund, Germany. This invention provides novel forms of plates and ring to constitute a closure for the space between axles and the walls of the openings in axle boxes, through which openings the axles pass, the closures serving to prevent the passage of dust in such spaces and also preventing the escape of the lubricant from the axle box.

KITCHEN TABLE.—Rudolph J. Hentze, Jersey City, N. J. This table is provided with a bin for holding flour, etc., protecting the contents from insects and dust, the bin being also placed in the table as not to interfere with the ordinary use of the table.

SHOESTRING HOLDER.—Henderson T. Small, Chanute, Kansas. This is a simple device, composed of a bracket having at one end a screw shank, the bracket being provided with a contact surface and with an elastic band sprung into seats thereon.

FENCE WIRE STRETCHER.—John W. Schaal, Logan, O. The wire clutch mechanism embraced in this invention comprises a bar to which a series of clutches is attached, a tension bar and arms being attached to the bar and pivotally connected to the clutches, the apparatus being adapted to stretch one wire or to stretch several wires simultaneously.

FLUTE.—Carlo T. Giorgi, New York City. This flute has a mouthpiece curved in direction of the length of the flute, with a mouth hole on its top and a resonating chamber extending below the line of communication between the mouthpiece and the body of the flute.

LOCK FOR FLUSHING VALVES.—Charles H. Shepherd, New York City. Combined with the flushing valve lever, according to this invention, is a lock which engages the lever when it is raised and holds it in elevated position until released by the descent of the float ball of the supply pipe.

FIREPROOF FLOOR CONSTRUCTION.—Francis Omels, Moultrieville, S. C. As an improvement in steel frame buildings, this invention provides for hangers suspended from the floor beams, auxiliary beams whose ends enter the hangers and are supported thereby between adjacent beams.

BIN.—Walter Thomas, Palatka, Fla. This invention provides an improved bin for granular foods, the bin having a novel arrangement of a number of compartments in one entire and inseparable structure, the elements of which are very closely combined.

LEMON SQUEEZER.—William H. Cox and Charles Hughes, Red Bluff, Cal. This is a simple and inexpensive device with which, by a single movement, the operator may cut a lime or lemon and extract the juice.

MERRY-GO-ROUND.—Thomas T. Temple, Paris, Ky. This is a circular swing of simple and cheap construction, to be operated by one of the riders, and consists of two seats suspended from the ends of a pivoted beam, there being means by which one of the riders may be shifted in relation to the central post.

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Notes & 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.

(7272) G. B. C. asks: 1. Can the 3 or 6 inch call bell be worked by the incandescent light wires (current about 104 volts), or should the magnets be wound especially for that purpose? A. The magnets of call bells should be wound to a very high resistance, if they are to be connected directly to a lighting circuit.

(7273) J. L. T. says: Can a meerschraum pipe be cleaned so that it will color again by boiling in milk, or otherwise, and what is the process? A. When once burnt the pipe cannot be satisfactorily colored unless the burnt portion is removed and the surface again treated by the process by which the meerschraum was prepared.

(7274) F. H. asks: 1. How many bichromate of potash batteries will it take to magnetize the field of the little alternating current dynamo of SCIENTIFIC AMERICAN, September 11, to light two or three 16 candle power 110 volt lamps? A. Five bichromate of potash cells will be required in series.

(7275) O. J. asks how to make a good strong battery to use with a gas engine and to run small motors, and if there is any advantage in using copper in the place of carbon. A. The bichromate plunger battery described in SUPPLEMENT, No. 792, is a very powerful battery, one of the most powerful. It can be easily made and recharged.

(7276) L. S. asks for a formula or formulas for flash light powder, for use in photography, which can be set off with fuse, and work with a minimum of smoke and noise? A. Valuable formulas for flash light powders are given in SUPPLEMENT, Nos. 1062, 1088, 1115 and 1116; price 10 cents each by mail.

(7277) C. W., writing about the small alternator recently published in the SCIENTIFIC AMERICAN, asks (1) whether the ring and armature core can be cast with as good results? If so, can they be cast with the same kind of iron as sash weights are made of, that is scrap tin and pig iron? A. No. You must use the best soft iron to be had for field and armature cores of a dynamo.

pounds of wire No. 20 double cotton covered in 12 layers, 120 feet for each spool. Armature teeth must be wound with four even layers of No. 22 double cotton covered magnet wire, about 2 pounds in all, approximately 80 feet on each prong. 3. Could it be charged with four cells of the primary battery? A. No. Four cells of battery are not enough to charge the field. When wound as above it should be charged from an incandescent lighting circuit.

NEW BOOKS, ETC.

THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC FOR 1898. Edited by Walter E. Woodbury. New York: Scribner & Adams Company. 1898. Pp. 370. 8vo., 300 illustrations. Price 75 cents.

This annual, now the twelfth of the series published, appears this season embellished with a beautiful collection of the latest and best examples of process work, and is typical of the progress that has been made in this line. The book is replete with many useful articles and hints representing the experience of well known writers on photography, particularly as regards its relation to the amateur worker.

CENTRIFUGAL ANALYSIS. A manual for the use of the centrifuge in everyday work. Illustrated. Rochester, N. Y.: Bausch & Lomb Optical Company. Pp. 36. This neat pamphlet is supplied gratis to persons interested in the centrifugal analyses of water, milk, urine, blood and other liquids or semi-liquids.

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INDEX OF INVENTIONS

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DECEMBER 7, 1897,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with patent numbers and names of inventors. Includes items like Alarm device, Armature for dynamo-electric machines, Asbestos manufacturing, Automatic signal, Axle box, Baking, cooking and heating furnace, Balance, postal, Bath, Battery, etc.

(Continued on page 397)

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(Continued on page 399)

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