RECENTLY PATENTED INVENTIONS.

Electrical Devices.

ELECTRICAL ROSETTE.—J. A. MEBANE, South Boston, Va. The invention is an improvement in that class of devices commonly designated as "rosettes" or "ceiling-blocks," the same being provided with ears for connecting electrical circuits and also with safety-fuse wires extending between the respective attachments with which the line-wires and the lamp-wires are duly connected.

OVERHEAD LINE.—E. GIRAUD, 18 Rue Royale, Paris, France. In Mr. Giraud's present patent the invention has reference to divers improvements in overhead lines, and more particularly to the high-tension lines, the fall of which, brought about by the breaking of a conductor, is liable to cause serious accidents.

ELECTRIC-TRACTION SYSTEM. — J. P. GORMAN, JR., New York, N. Y. This invention relates to systems of electrical traction, and more especially to those receiving current from series of separated contact devices. It presents all advantages of separated contact conduction, there being no two live points so readily accessible that a person is liable to touch both at the same time. The arrangement of the poles renders construction comparatively inexpensive and secure against leakage and allows a single line of poles to serve two tracks.

Of Interest to Farmers.

THRESHING-MACHINE. — W. BRENTON, Carlisle, Ind. The straw or grain is passed by the cylinder onto an endless apron and is moved toward the rear of the machine, a toothed cylinder agitating the straw and dislodging the grain during its passage. At the end of the conveyer the dislodged grain falls between the aprons upon the riddle, while the straw passes upon the upper surface of a rotating cylinder and between cylinders supported by shafts to an endless apron, where it is agitated a second time. Threshed grain falls from this apron onto the grain-board and from thence through the riddle and into the shoe.

CHURN-COVER.—J. C. HOGUE, Winfield, Texas. The improvement pertains to earthenware churns, and its object is to provide a cover arranged to prevent undue splashing of milk through the dasher-stem opening and to allow convenient periodical removal of the cover for examining the progress of churning and to permit of stacking the covers during the process of burning the same in a kiln or the like.

CORN-PLANTER.—C. W. LANHAM, Stanford, Ky. The planter is driven over the ground to be planted with the power-wheel in contact therewith. The wheel imparts rotation to a shaft, which in turn rotates the dropping-wheels. Each of the openings in the dropping-wheel receives corn from the hopper during its passage thereunder and drops same into the shoe when the wheel is rotated. When the end of the row is reached, the power-wheel is elevated out of contact with the ground, thus restraining operation of dropping mechanism while the turn is being made.

BUTTER-PRESS.—F. MURPHY, Lisbon, N. Y. One of the principal objects of the invention is to provide means by which butter or like substance may be molded into a plurality of prints, each possessing any desired shape, dimensions, and weight, and also to simplify the construction of presses of this character, as well as to greatly reduce the labor attending the manipulations or operations thereof.

GATE FOR WIRE FENCES.—R. H. SINGER, Uniontown, Md. It is the common practice to provide passageways in wire fences with closures comprising a swinging bar-gate or a series of detachable wire bars or rails adapted to slide in holes provided in opposite posts. The cost of the gate, and many other important objections have led to Mr. Singer's present invention, which embodies an improved closure consisting of connected and attached wires, lever-clamps, and screw-eyes.

Of General Interest.

MOISTENING DEVICE.—P. A. PETERSON, New York, N. Y. The purpose of the invention is to provide a moistening device adapted for home or for office use and which can be carried in the pocket and to so construct the device that it will be simple, durable, and economic in construction and which will be effective in operation, being ready for use as long as there is any supply of moisture at hand.

BUTTER-CUTTER.—R. J. WOOLLEY, Portland, Ore. In use a block to be divided is placed upon the support in contact with the wall. To permit introduction of the block an upright may be removed, and then may or may not be returned to furnish a stop at this side of the support. Means are provided to pass the wire through the material to divide it horizontally. If the upright is in its socket, it is removed and the standard-frame allowed to travel to and remain at extremity of the base. The upright is then inserted in its socket and frame applied, two uprights entering its openings. It is now drawn downwardly, dividing the two sections of the block into two series of cakes, which may be removed and operation repeated.

ATTACHMENT FOR BOAT-DAVITS.—N. MURCHISON, New York, N. Y. The principal objects of the invention are to provide means for lifting both ends of a boat by a very efficient hand-operated device and freeing it from the chocks, to deposit both ends simultaneously and at the same speed in the water, and to provide for steadying the boat in the chocks without employing additional mechanism. The present invention is designed as an improvement on or attachment for a form of boat-davit previously patented by Mr. Murchison, yet capable of use with many other forms of davits.

POSTAGE-STAMP-BOOK CABINET.—J. P. MCDONALD, Philadelphia, Pa. This inventor provides an improved portable stamp-cabinet adapted to preserve stamps in good order and easily accessible for counting or removal. The cabinet is particularly adapted for the use of postal clerks, stamp-clerks, and others who preserve, handle, or sell stamps.

VACUUM-TRAP.—G. M. HILGER, Chicago, Ill. The object in this case is to provide a trap designed for use in connection with vacuum-separators, vacuum oil-separators, and other apparatus requiring removal of the liquid while the latter is under a vacuum, the trap being automatic in operation, and arranged to allow the condensating liquid of the apparatus to flow under gravity-pressure into the trap and to be forced out of the latter under pressure to a suitable place of discharge.

BRIDLE-BIT.—A. B. CAMPBELL, Coraopolis, Pa. This improvement pertains to bridle-bits used for the control of a horse when riding or driving the animal, and has for its object to provide novel details of construction for a bit that adapt it either for the control of vicious hard-mouthed animals or those that are easily controlled.

EMBALMING-CATHETER.—H. M. CRIPPEN, Ballston Spa., N. Y. The catheter comprises a tube and flexible member, combined with which is a slidable member, performing the function of stiffener for the flexible member and of a shield for preventing the operator's hands from becoming soiled. The slidable member is provided with means by which it is held in any position adjusted on the catheter, said means constituting a grip to be taken hold of to operate the slidable member and also a packing for preventing leakage of blood and other matter between the slidable member and catheter tube.

MUSICAL INSTRUMENT.—A. M. KRUEGER, Belleville, Texas. The invention relates to stringed musical instruments of the lyre type; and its object is to provide a new and improved musical instrument which is very light, of high resonant qualities, and arranged to permit convenient manipulation of the strings without the player touching the soundboard with the fingers.

ATTACHMENT FOR FAUCETS. — G. A. OLLSEN, Providence, R. I. In this instance one of the principal objects of the inventor is the provision of a device by which a pail, pan, or other vessel may be conveniently suspended on a faucet or spigot to be filled with water or other liquid drawn from the discharge-spout thereof.

TRANSFER APPARATUS FOR WIRE HEDDLES.—E. NEUMANN, Crefeld, Rhenish Prussia, Germany. This is an automatic apparatus for receiving and holding in position and also for discharging the pieces of wire in the manufacture of wire heddles, and for use in combination with heddle-making machines, especially for that kind in which the several steps of forming the central eye and the end eyes of the heddles are carried on automatically, but in separate stages. Also for use in combination with almost any kind of automatic heddle-making machines for receiving wire heddles when formed and subsequently discharging these heddles into an automatic soldering-machine, which smooths and makes durable the central eye and ends of the wire-heddles.

RESPIRATOR.—J. WARBASSE, Newton, N. J. It is intended that this device will be very light, and therefore adapted to be conveniently worn over a nose to supply out-of-door air to invalids or other persons requiring pure air during waking or sleeping hours, the device being also adapted for use in laboratories, shops, and places where noxious fumes, filings, and dust floating in the air are liable to be inhaled. It is useful for the administration of oxygen, gas, anesthetics, medicated air, and vapors.

HOSE AND HYDRANT CONNECTION.—L. A. WESTON, Adams, Mass. The object of the invention is to provide a simple, inexpensive, and thoroughly effective device whereby a hose having a coupling provided with a thread adapted to the connecting device may be quickly and securely attached to a hydrant having a thimble upon which the threads do not correspond to those of the hose.

ATTACHMENT FOR LADDERS.—F. VAN ALSTINE, Sacramento, Cal. An object in this case is to provide a store-service ladder with means whereby goods in stock within a store or other space may be taken from the supporting-shelves therefor and readily examined or handled at any height, either to ascertain the amount of stock on hand or make up orders or sort or rearrange the goods without the operator having to descend with the goods for that purpose.

BACK-PROTECTION GARMENT. — S. F. SWANTEES, Itasca, Ill. One intention of the improvement is the provision of means for presenting a soft surface to certain parts of the body, so that garments otherwise of a rough and irritating nature can be worn with comfort; and further to provide means for forming an air-space between the soft material forming the inside surface and the main part of the garment.

TIME-INDICATOR FOR LETTER-BOXES.—J. C. SMITH and J. S. DAVIS, Montgomery, Ala. This invention pertains to means on a letter-box for indicating the time at which the letters are collected, and has for its object an indicator of the character stated which will be automatically operated, displaying the next time of collection upon simple closure of the letter-box door.

MARINE VESSEL.—J. J. SITZLER, New York, N. Y. This improvement refers especially to propulsion of marine vessels, the object being to reduce the displacement of the vessel to a minimum, so as to reduce the resistance to propulsion, and to produce a more efficient propeller than that commonly employed.

CUFF-FASTENING. — H. C. SHEPHERD, Crete, Neb. In this case the invention relates to improvements in fastening devices for shirt-cuffs, an object being to provide a fastening to take the place of the ordinary buttons or links that will have a neat appearance and that will hold the cuff in proper position without danger of breaking or bending the cuff.

FORK.—W. A. REDDICK, Niles, Mich. This fork is of simple construction, yet possesses great strength and durability. The ring, while providing a simple and inexpensive means for securing the grip in place, possesses the additional utility of being a convenient means for suspending the fork and as a suspending means the rigid ring integral with the fork is much superior to the ring as ordinarily constructed.

SAW-GAGE.—J. S. LINTON, New York, N. Y. The inventor provides a gage for the tables of machine-saws, which can be set so as to guide the cutting operation of two boards in such manner that their mitered edges will be cut to accurately fit together, and, further, provides a gage of simple, durable, and economic construction adaptable to any saw-table and which can be quickly and conveniently adjusted to produce cuts of any desired angle or bevel.

TRIP CASING-SPEAR.—W. H. KESSELMAN, Parkersburg, W. Va. This trip casing-spear is for use in oil-wells and the like. The inventor provides means whereby the jaws can be forced into engagement with the inner walls of the casing in a very simple manner, and in such a way that no accumulation of dirt or other obstacles will prevent their operation, and, furthermore, provides for loosening the device from the walls of the casing when it appears to be impossible to raise the casing with the spear.

BINDER.—C. L. DONOHOE, Santa Barbara, Cal. In this patent the invention relates to a binder for leaves or papers of various sorts, but is especially adapted for use in what is known as the "perpetual" ledger system of bookkeeping. The object of the invention is primarily to produce an efficient, easily-operated, and practically-indestructible or all-metal binder.

ROLLING DOOR OR SHUTTER AND MEANS FOR OPERATING THE SAME.—J. CAHILL, Norfolk, Va. The invention pertains to improvements in "'rolling" doors or shutters and means for operating them, its main object being to provide a rolling door or shutter which shall be simple in construction and noiseless in operation. Another, is to close the opening or space at the top of the doorway usually caused by the unwinding of the door or shutter.

NON-REFILLABLE BOTTLE.—C. E. CARROLL, Newport, Ark. When this bottle is empty, it is impossible to fill it, since it is impossible to remove the casing pushed down over the neck and impossible to pour liquid into the bottle without so removing it. The valve or cork or other suitable material prevents any ingress of liquid into the bottle. A small opening through the valve allows the inward passage of air to release the vacuum created by the outrush of the liquid.

LABEL-HOLDER.—DE WITT G. BROWN, American Falls, Idaho. This device for holding labels is particularly for gummed labels, used for example by druggists. The object is to provide a device in which the labels may be effectually held in such a way as to permit of their convenient removal and also to avoid curling or rolling of the labels due to the application of the gum to one surface thereof.

ETHER MIXTURE FOR DISINFECTING.—T. BARGIELA, J. P. MISLOWSKY, A. CARICCHIA, and L. E. ODIO, Buenos Ayres, Argentina. The invention refers to a new compound which possesses special properties for deodorizing and aromatizing petroleum and other hydrocarbons. Oil treated loses some greasiness, its illuminating power is greater, while the flashing point is higher. It may be used in the preparation of varnishes, the aromatization of animal fats and oils, and candle-wicks impregnated with the substance increases brilliancy of light.

ANIMAL-TRAP. — J. H. THARP, Cherokee, Kan. In operation a plunger is lifted against resistance of a spring until the eyes thereon engage pins on the rock-shaft. The shaft is then rocked by a depending arm to bring the pins in horizontal position, and a swinging platform is lifted until it engages a notch in the arm, the tension of spring providing resistance between the arm and pins to retain the platform in elevated position. Slight addition to weight of platform, however, will overcome the friction, causing the platform to descend and release the arm. Rocking of shaft allows the eyes to slip from the pins and the plunger to descend.

SELF-LOCKING SEAL. — F. LAPORTE, St. Louis, Mo. Mr. Laporte provides a sealing-strip, provided at one end with a plurality of transverse slots and having the opposite end laterally extended. A single transverse slot is formed adjacent to junction of the laterally-extended end with the strip, and beyond this slot is a projecting embossed surface. A tongue of large extent is formed upwardly from substance of strip near commencement of lateral extensions and having its attached end adjacent thereto, and a second tongue of small extent is formed downwardly from substance of the first tongue and having its attached end adjacent to the free end of said tongue.

Hardware.

MECHANIC'S SQUARE.—J. M. REALING, Daytona, Fla. In this patent the invention has reference to squares such as used by artisans in many classes of work. The object of the improvement is the provision of a tool of this kind which will combine the utility of a try-square, bevel-gage, and a level. It is adapted for inside and outside position on all work.

NUT-LOCK.—J. PETERS, Bothwell, Ontario, Canada. In this instance the aim of the inventor is the provision of novel features of construction for a nut-lock that adapt it for general use to detachably secure a nut in a reliable manner on the threaded end of a bolt and permit the reuse of the nut-lock as often as may be desired.

Heating and Lighting.

STOVE.—C. T. TAYLOR and G. L. CLARK, Mount Sterling, Ill. In this case the invention pertains to stoves; and the object of the inventor is to produce a stove in which the combustion will be improved and equalized at all parts and to provide the stove with improved means for heating air for the purpose of warming living apartments or rooms.

CUT-OFF VALVE FOR GAS OR OIL BURNERS.—A. ASHCRAFT, Fort Smith, Ark. The improvement relates to valves more particularly designed for cutting off the fuel or illuminating supply from gas or oil burners. The object is to provide a valve of the character stated which shall not only be simple in construction and adapted for ready attachment, but after being set or opened for supply of gas or oil the burner operates to automatically close the valve, cutting off the fuel-supply should the gas or oil cease to burn.

Household Utilities.

RECLINING-CHAIR.—L. KIPP, Waterbury, Conn. The invention has reference to chairs, and especially to that class adapted to be used as steamer-chairs or reclining-chairs. The object of the improvement is the production of a chair of this type which is of simple construction and which may be quickly adjusted so as to support a person in an upright position or in different reclining positions.

BOOK-HOLDER.—J. N. MILLER, Ashland, Ore. The holder is simple in construction, light, and occupies but little space on a desk. It may be cheaply constructed of any suitable material, and when folded up the holders may rest together. The edges of the book are supported out of contact with the desk or table, and the arrangement of the front supports directly beneath the edges of the book insures a very stable position of the holder.

ALARM.—W. L. MONROE, Omaha, Neb. Although this device furnishes an effective alarm in which the hammer is operated by ample force under comparatively slight pressure by the door or window which is to actuate it, it may be very cheaply manufactured, the base, holder, shield, and guiding and retaining projections being stamped from a single sheet of metal, while the other elements are simple to produce. The holder may be varied in diameter to receive cartridges of any suitable caliber or may support any other device which by contact of the hammer will sound an alarm.

Machines and Mechanical Devices.

APPARATUS FOR FORMING AND SOLDERING CAN-BODIES.—L. C. SHARP, Omaha, Neb. In the present invention the carrier moves continuously and without reversal throughout the entire operation of the machine, and the various steps performed by it do not involve the interruption of the movement of the carrier, thus making a fast machine. Peculiar means are also involved for automatically feeding the sheets or blanks of tin to the machine, thus dispensing with an operator to stand by the machine and steadily feed the blanks thereinto.

INVOICING MACHINE.—J. Q. WIMER, Joplin, Mo. The invention relates to an apparatus for measuring the number of yards in a piece of cloth while it is being unwound from the board upon which the bolt is formed and rewound upon a similar board. Pressure is sufficient to kill any insect, such as a moth, which may be within the folds, and rewound upon a second board.

SPEED-INDICATOR. — B. VOLKMAR, New York, N. Y. The purpose of the invention is to provide an indicator capable of indicating a greater number of miles than any other indicator of which the inventor has knowledge of the same size and type. A further purpose is to provide an indicator in which a governor-

ring has sliding motion upon the shaft, and is connected with a long tapered cone that slides upon the shaft, which cone operates a chain of gearing for moving a hand or pointer over the dial.

STEAM HYDRAULIC INTENSIFIER. — T. E. HOLMES, 63 Sheldon road, Nether Edge, Sheffield, England. The design of the invention is to obviate defects without in any way interfering with the ordinary mode of working a press. It provides (for the purpose of effecting the automatic cut-off of the steam-supply) mechanism in the nature of a "hunting-gear," which on one hand, is connected to the main controlling-valve and its actuating-lever and, on the other, is adapted to be controlled automatically by the main steam-piston, said lever being controlled directly by hand or steam or other power relay, which in turn is manually controlled through medium of hunting-gear.

LIQUID-WEIGHING MACHINE. — C. J. HEDEMANN, Honolulu, Hawaii. This invention relates to improvements in machines for weighing liquids, such as cane-juice or other material capable of running or discharging from a supply-pipe; and the inventor's object is to increase the accuracy of the weighing and the efficiency of the machine. The present invention resides in means or additional features to the machine shown and described in a former patent granted to Mr. Hedemann.

CORE-CUTTER FOR CEMENT-BLOCK MACHINES.—J. W. STUART, Paris, Ill. This improved machine is used for forming building-blocks of cement or other plastic material, and especially for cutting out or coring the blocks when being molded, whereby they are produced with a central hole or passage of any desired shape, thus economizing material, reducing the weight of blocks, and adapting them when duly laid in a wall to form continuous vertical air-passages.

TUCK-GUIDE FOR SEWING-MACHINES.—S. FRIEDMAN, New York, N. Y. The invention has reference to such sewing-machine attachments as tuckers, and has for its principal objects the provision of a device by which work of different widths may be operated upon with a minimum amount of attention and in which the relation of the elements to one another may be changed to meet varying conditions.

Prime Movers and Their Accessories.

INTERNAL-COMBUSTION ENGINE.—C. M. STEELE, Statesville, N. C. The object in this case is to eliminate or neutralize shock resulting from the explosion of the charge and its effect upon the engine and to provide means for more effectually air-cooling the parts. The piston and cylinder are mounted respectively upon separate parallel crank-shafts, so that the explosion of the charge causes the cylinder to yield in one direction and the piston in the other, the cylinder turning one crank-shaft and the piston the other, both shafts being connected by toothed wheels running in opposite directions.

GOVERNOR MECHANISM.—H. T. BALLARD, Youngstown, Ohio. In the present patent the invention has reference particularly to a governor mechanism for Corliss engines; and the object of the inventor is the provision of an efficient mechanism applied to the fly-wheel or shaft of the engine by which to regulate the valve mechanism.

STARTING MECHANISM FOR GAS-ENGINES.—V. B. MILLER, Philadelphia, Pa. The invention relates to starting mechanism for explosion-engines. In starting engines of this class in the usual manner by means of a crank it frequently happens that the crank will be given a violent jerk or "back-kick." The object of the invention is to produce a mechanism of simple construction which will enable explosive-engines to be started without danger to one turning the crank. It is especially applicable in connection with gas-engines of the type usually found on automobiles.

ELECTRICAL IGNITER FOR INTERNAL-COMBUSTION ENGINES.—W. H. WALTER, New York, N. Y. The aim of this inventor is to provide a simple and efficient construction of igniters of that class which employ stationary terminals or electrodes and which may be advantageously used on internal-combustion engines in which oil is liable to be pumped up from the crank-pit past the packing-ring and into the combustion-chambers. The object is to provide an improved igniter which insures the passage of an electric spark or sparks under any and all conditions of service and in which the deposit of carbonaceous matter on the terminals (one or both) is overcome.

ROTARY ENGINE.—R. C. MCLEAN, Cleveland, Ohio. The object of the inventor is to provide an engine which is simple in construction and which will operate efficiently with little waste. Further, to provide such an engine with an improved arrangement for the exhaust-ports. Its use is by no means confined to steam, and it may be operated by any other gas, such as compressed air. Indeed, it could be operated by water.

Railways and Their Accessories.

NUT-LOCK.—M. OMALIA, Scranton, Pa. Mr. Omalia employs a main washer or ring-plate to be placed over the bolt employed and flatly against the surface of a portion of the structure to be bolted, and in conjunction therewith employs a supplementary washer or ring-plate also adapted to be placed over the bolt used. Said washer is also so adapted to a part of the structure to be bolted as to be incapable of turning about the bolt in either direction, while the two said washers are so adapted to each other as to effectually resist any tendency to reverse turning of the nut on the bolt.

CAR-FENDER.—J. LANDAU, JR., New York, N. Y. The object of the present invention is to provide a fender arranged to safely land and retain any object struck by the fender-basket, to permit of conveniently folding the fender when not in use, and to allow quick and convenient transfer of the basket from one end of the car to the other. It relates to fenders such as shown and described in the Letters Patent of the United States formerly granted to this inventor.

NUT-LOCK.—H. SEEGER, Morley, Iowa. The nut-lock is designed especially for railway-work, but useful in various other connections. It comprises the arrangement with a bolt and a shouldered nut of a washer or collar adapted to surround the bolt inside of the nut and carrying a peculiar dog coacting with the shoulder or shoulders of the nut securely to lock the same.

RAILROAD-TIE. — C. E. SHANNON, Marble City, Indian Ter. The aim of this inventor is to produce a tie which will have the strength and durability of a metal tie, combined with the resiliency and advantages of a wooden tie. It can be laid upon the usual road-bed where wooden ties are used, and does not require a specially-prepared road-bed of asphalt or concrete, such as is often required with metal ties. When the wooden blocks wear out, they may be readily removed without removing the body of the tie, and new ones may be easily inserted.

CROSS-TIE AND MEANS FOR HOLDING TRACK-RAILS THEREON.—E. A. GILLCHRIST, McKeesport, Pa. The purpose in this improvement is to provide novel details of construction for a railroad cross-tie of the class formed of concrete or a similar composition of matter and for means embodied therewith, that enable the convenient, stable, and secure clamping connection of track-rails that are mounted upon the tie and permit speedy release of the rails and removal from the tie.

Pertaining to Recreation.

AMUSEMENT APPARATUS.—O. ROBERTS, Winfield, Kan. Mr. Roberts employs a frame associated with which is an ascending section of trackway, said section merging at the upper end thereof into another which is descending then ascending, but in a different plane from that of the first mentioned section, the second mentioned then merging into a corresponding section terminating in an under or return section between which and a receiving-section used there is a gap over which the vehicle and occupants are carried along a trajectory, there being also a second gap between lower terminal of the receiving section and upper terminal of a final section of trackway, over which final section the vehicle reaches the ground from whence it started.

TARGET.—T. J. MCNELLY, New York, N. Y. Principal objects of the invention are to provide a target with an indicating device and a movable bull's-eye which when hit by a bullet will release the indicating device, so as to show that the eye has been hit; also, to provide a bell which will be rung at the same time and to provide the target with a series of removable sheets each representing a target and each designed to be removed from the main target after each person's shooting has ended in order that a record may be kept by each one of his own score.

Pertaining to Vehicles.

LOG-CARRIER.—W. E. SINCLAIR, Mobile, Ala. This improvement is in that class of carriers in which the draft animals attached to a tongue and wheeled axle are utilized for lifting and handling logs, the tongue being adapted to slide in suitable guides and connected with a pivoted lifting-lever which in turn operates chains and grapples attached to the log. The chief objects are to reduce the draft heretofore required for raising the logs by the lift-lever and chains and also to enable operation of loading and unloading to be more quickly effected.

VEHICLE-WHEEL.—M. G. BABIO, New York, N. Y. Mr. Babio's invention refers to an improvement in wheels, and particularly to an improvement in the construction of the wheel for which he formerly made and filed an application for patent, and the purpose is to avoid friction between the flanges of the primary hub and the sides of the secondary hub, so as to adapt the above-named construction to light and high-grade vehicles, which adaptation will give more comfort to occupants than attained in those now in use.

Designs.

DESIGN FOR A TOILET-POWDER RECEPTACLE.—W. A. BRADLEY, New York, N. Y. Mr. Bradley has invented a new, original and ornamental design for a toilet-powder receptacle of very neat and graceful proportions. The width of the receptacle is double the thickness, the height double the width, the body is nicely rounded. The screw-threaded neck and perforated top are attractively designed.

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.

Business and Personal Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. **In every case it is necessary to give the number of the inquiry.**

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Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 7930.—For manufacturers of machinery for making a dry condensed milk by spraying same upon a revolving cylinder which is heated by steam.

"U. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 7931.—For manufacturers of Chapman metal aspirator which can be screwed on water tap to exhaust air from tubes.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

Inquiry No. 7932.—For manufacturers of rubber cloth specialties.

Automatic wire end butter dish machinery; or plans, if preferred. B. A. Grasberger, Richmond, Va.

Inquiry No. 7933.—Wanted, address of firm making preparation called "Ascage."

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Machine Company. Foot of East 138th Street, New York.

Inquiry No. 7934.—For manufacturers of machinery for the manufacture of powder.

Every business firm and manufacturer should get our prices on lithographing—can save you money. Stilwell, 709 Pine St., St. Louis.

Inquiry No. 7935.—For manufacturers of machine and mold for making concrete drain tiles, also for powdered sand and stone screens.

FOR SALE.—At a reasonable price one German patent No. 159,139. Improved spatula and cork extractor. Address E. B. Jelks, Quitman, Ga.

Inquiry No. 7936.—For firm who can supply the tobacco-cutting machine, roasting and preparing cigarettes.

FOR SALE.—Self-swinging gate, great improvement. Sell or lease on royalty. Patented November 21, 1905. Claude Siebring, George, Iowa.

Inquiry No. 7937.—For the manufacturers, dealers or jobbers in novelties and office or store equipment.

Metal Novelty Works Co., manufacturers of all kinds of light Metal Goods, Dies and Metal Stampings our Specialty. 43-47 S. Canal Street, Chicago.

Inquiry No. 7938.—For manufacturers of raw hide pins, ⅛ inch to 3-16 inch diameter by 12 inches long.

WANTED.—Practical storage battery man to join me in making small storage batteries. Must have some capital. I have building and power. Capital, Box 773, New York.

Inquiry No. 7939.—For manufacturers of ceiling fans run by steam and gasoline power.

I have office, facilities and capital, and want good, legitimate office proposition; could represent manufacturers desiring to market their product in the South. F. T. Crump, No. 215 Mutual Building, Richmond, Va.

Inquiry No. 7940.—For manufacturers of gasoline engines.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery tools, and wood fiber products. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

Inquiry No. 7941.—For manufacturers of nut-shelling machinery.

WANTED.—Experienced foreman for erecting department "Four Cylinder Motors" with well-established automobile company. Must have had similar experience with good company. Address Foreman, Box 773, New York.

Inquiry No. 7942.—For the manufacturers of stone mills and handle and spoke machinery.

Inquiry No. 7943.—For manufacturers of brass balls and rods suitable for static machines.

Inquiry No. 7944.—For manufacturer that makes small dove-tail or lock-cornered odorless wood boxes.

Inquiry No. 7945.—For manufacturers of saw machines for squaring small timber from one inch up.

Inquiry No. 7946.—For manufacturers of a waterproof material, not costing more than 40 cents per yard, being one yard or more wide, pliable, light weight and guaranteed to be absolutely waterproof for two years.

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.

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(9899) F. Q. B. calls attention to a misstatement in one portion of a note upon projectiles, which we gladly amplify and correct. The theoretical path of a projectile in a vacuum would be a parabola, and in textbooks of physics the subject is ordinarily treated from the theoretical standpoint only. The results of the resistance and motion of the air are such as to render the theoretical result of little practical value in gunnery. In a case cited by Wood, a ball was shot with a velocity of 1,000 feet per second and at a range which should have carried it by the law of projectiles to a distance of 31,250 feet. Its actual range was 5,000 feet. A projectile rises highest when shot vertically upward, or at an angle of 90 deg. with the horizontal. For other angles its rise varies as the square of the sine of the angle of elevation. As the sine of 30 deg. is ½, it follows that a bullet shot at this angle would rise ¼ as high as if shot vertically; if shot at 45 deg. elevation, it would rise ½ as high as at 90 deg. elevation. The greatest range is found at 45 deg., and for equal angles above and below 45 deg. the range is the same.

(9900) H. M. K. asks: What is the chemical composition of wood, bituminous and anthracite coal, and natural and artificial gas? Is the composition of natural gas the same in the various gas-producing rocks and fields? How and in what proportion should natural gas and air be combined in order to create the most heat? Please explain this combination, and also the formation of the new compounds (and elements, if any) giving also the proportionate amounts. Is it possible for the air mixer to allow too much air to mix with the gas? How and in what way in the process of burning is heat made? Most stoves are made so that the gas and air mix before combustion, but in some stoves they do not. Is it possible to get the same amount of heat from 1,000 feet of gas in each case? Does the draft of the stove or the pressure of the gas burnt affect in any way the proper mixture of the gas and air by the mixer? What is the color of the flame in perfect combustion, and why should the color be different in imperfect combustion? What are the evil effects produced by burning gas without a flue connection? A. We may state that the chemical composition of anthracite coal is as follows: Carbon, 86; volatile hydrocarbons, 4; ash and moisture, 10. The composition of bituminous coal varies very greatly, but as a general average we would give the following: Fixed carbon, 65 to 45; volatile hydrocarbons, 25 to 45; ash and moisture, about 10. Wood kiln dry: Carbon, 50; hydrogen, 6; oxygen, 41½; nitrogen, 1; ash, 1½. Natural gas: Marsh gas, 93; hydrogen, 18/10; nitrogen, 3 2/10; other gases, 2. Coal gas: Marsh gas, 40; hydrogen, 46; carbon monoxide, 6; small quantities of other gases, 8. The chemical composition of all of these varies in different localities, but the above figures may be regarded as giving an approximate average. Natural gas and artificial gas both burn with the best results when they are both mixed with air in just the right proportion to give perfect combustion. The best mixture of air and coal gas is one part of gas to about five to seven parts of air measured by volume. The proportion with natural gas is about the same. It is possible for the air mixture in a burner to admit too much air. In the combustion of gas or solid fuel the hydrogen combines with the oxygen of the air to form H_2O, and carbon in the fuel combines with the oxygen of the air to form CO_2. This union of hydrogen or carbon with the oxygen of the air is what produces the heat. It is better to mix the gas and air before combustion, but it is possible to get perfect combustion if this is not done. It is also possible to get perfect combustion regardless of the pressure of the gas or draft on the stove, and so long as the combustion is perfect the same amount of heat is produced. Where the gas and air are mixed before combustion the flame is apt to be nearly colorless, and when they are not so mixed the flame is apt to have considerable color, especially if there is much carbon present in the gas. Where there is no flue connection, the products of combustion escape into the room and vitiate the air.

(9901) H. A. W. says: I would be pleased to have you inform me of the process of coloring incandescent electric light globes, and the necessary ingredients used in producing the following colors, i. e., ruby, green and blue. A. Aniline dyes are used for coloring the bulbs of incandescent lamps. These may be dissolved in amyl acetate or in photographer's collodion. The bulbs should be cleaned thoroughly and dried, coated with the white of egg and dried. The dye will then adhere firmly to the glass. The details of the process may be found in the Notes and Queries of the SCIENTIFIC AMERICAN, No. 10, vol. 74; and in SCIENTIFIC AMERICAN SUPPLEMENT, No. 948, price 10 cents each.

(9902) J. M. C. asks: In all articles I ever read I have gotten the idea that a dynamo of a given current (say 10 amperes) could be run at any voltage, say 14, 25, 52, 75, or 110, and give out 10 amperes, provided lamps in circuit called for that amount. In fact, my idea has been that I could use eight 14-volt, eight 25's, eight 52's, ten 75's, or sixteen 110's, voltage varying with speed, but amperes still the same if lamps call for it. You see I figure eight amperes in circuit (about) in all the voltages, leaving 2 amperes for variation of excitation. Am I right or wrong, yes or no? A. The voltage of a dynamo depends upon the speed of the armature, which determines the number of lines cut per second. The amperes depend upon the resistance of the circuit, internal and external. If you have a resistance which allows 10 amperes to pass without overheating, you can within the limits of safety vary the speed and so the voltage, and the same 10 amperes will flow. But it is not possible to have such a range of voltage as you mention. To change from 14 to 110 volts requires eight times the speed of the armature. No armature could stand the centrifugal force of such a speed. The proposition as you make it is not practicable.