RECENTLY PATENTED INVENTIONS.

Pertaining to Apparel.

MARKING DEVICE FOR SKIRTS.—MARGARET HALL, Vancouver, Wash. The invention has reference more especially to devices or structures for marking ladies' garments—such as skirts, coats, cloaks, dresses, and the like—on a line at which to cut or hem the garment to derive a hang thereof at the bottom a uniform distance all around from the ground or floor. The device is collapsible and occupies but small space in shipment or transportation or when not in use.

SHOE-HEEL.—R. I. HERRMANN, Roulette, Pa. The invention relates to improvements in heels for shoes, the object being to provide a heel which may be firmly yet detachably connected to shoes, so that the heels may be transferred or substituted one for the other when worn down at one side, thus not only equalizing the shape of the heels, but keeping the footwear in proper form.

Electrical Devices.

TROLLEY.—J. H. WALKER, Lexington, Ky. Various improvements are included in this patent relating to the trolley harp, its connection with the conductor wire of the pole, and the manner of mounting the trolley wheel. It is figured by this inventor that the improvements will prolong the life of the trolley harp and its attachments and result in greater convenience in effecting the necessary adjustments due to wear and usage.

TROLLEY-POLE.—P. DUDLEY, Asbury Park, N. J. The purpose of the invention is to provide a ball-and-socket connection between the fork for the trolley wheel and the pole and a laterally-curved guide and support for the fork, which construction allows the wheeel to accurately follow the wire when the latter is not exactly overhead and also to follow the wire upon all manner of curves, said construction also insuring the wheel being straight upon the wire regardless of the angle of the pole.

TELEPHONE ATTACHMENT.—F. F. HOWE, Cleveland, Ohio. The inventor provides means whereby the swinging spring-pressed carrier may be moved in either direction from its normal position and will when so moved release the rocker connected with the telephone-switch, so that if the carrier be moved laterally in one direction to permit application of the receiver to the left ear or laterally in the opposite direction to permit the application of the receiver to the right ear the rocker will be released in both instances to open the telephone-switch. It is an improvement particularly in that class illustrated in a former patent issued to Mr. Howe.

CORD-SUSPENSION ELECTRIC DENTAL ENGINE.—J. V. TRENAMAN, New York, N. Y. In this case the improvement pertains to means for mounting and manipulating dental engines, and more particularly to the means for suspending the electric motor and its accompanying parts. The device is neat in appearance and materially increases the quality of the insulation as between the wires and other metallic parts.

Of Interest to Farmers.

SHIPPING-COOP.—H. B. FRY and T. B. FRY, Memphis, Tenn. This improvement has reference to shipping coops or crates such as are used for transporting live fowls. The object of the invention is the production of a coop of this kind which is simple in construction and which is sanitary and which is capable of being folded up compactly for return shipment.

CORN-TOPPING TOOL.—F. W. GORDON, Miami, Tex. The object of the inventor is to provide a cutting-tool that may be placed on either or on both hands of the operator and cut corn-heads from the stalks when the heads have been grasped and the tool or tools subsequently manipulated so as to forcibly impinge the sharp edge of a knife that is a part of each tool against the stalk near the head while the latter is grasped, the cut heads being thrown into a receptacle, thus expediting the operation of removing heads of cereals from the standing stalks.

MOWING-MACHINE.—S. D. GRIMM, Concordia, Kan. In this machine the sickle bar is operated by a lever as its fulcrum intermediate its ends, the outer end being connected by a ball and socket joint and pitman rod with the sickle bar and the inner end arranged to engage two rollers each provided with cam grooves so that the rotation of the rollers with suitable gearing giving the desired speed, will effect horizontal rocking of the lever to actuate the cutting devices.

STRIPPING AND CLEANING MACHINE.—E. BEHRENDT, Batangas, Philippine Islands. The object in this case is to provide a machine especially adapted for treating the leaf-sheaths or band-like material stripped off the abaca and like plants and arranged to permit a quick and thorough separation of the pulp and freeing the fibers without injury to the latter, the fibers being completely freed or cleaned of the pulp.

LAND-ROLLER.—S. WARNER, West Union, Ind. This roller is especially adapted for rolling listed corn, being capable of operating upon two or more listed ridges. A purpose of the invention is to provide rollers especially adapted to the shape of the ridges and which will not only roll the top or crown of a ridge, but will also crush the earth at the side edges where it is most needed. Means are provided for adjusting the rollers bodily upon their supports to accommodate them to different-sized furrows made by different-sized listers.

WATER-REGULATOR.—R. J. POWERS, Chicago, Ill. The invention relates to novel means for regulating the water admitted to troughs, tanks, and other receivers by which means to automatically cut off the water-supply when the trough is full. It is particularly adapted for use in connection with stock-waterers; but it is useful in other ways.

Of General Interest.

SLIDING DOOR.—J. S. SCHLOSSER, Chicago, Ill. This invention relates to sliding doors such as used on stables and cars. The object of the invention is to produce a sliding door which is hung in a simple manner, which may be readily opened and closed, and which will operate to close the doorway tightly when the door occupies its closed position.

BUFFER.—S. M. GOLDBERG, New York, N. Y. The invention refers to a toilet article employed for polishing nails. The principal objects thereof are to provide a device with a buffing-surface which can be readily removed and replaced, so that when worn the entire article does not have to be discarded, also to provide means for securely holding the buffing material upon a base, and to provide a removable handle.

VAGINAL IRRIGATING DEVICE.—V. SALCEDO, Apaseo, Guanajuato, Mexico. One purpose of the invention is to provide a hygienic device for the organs and protecting them during such operation, which device is externally applied and is provided with means for ventilation and introduction of the cannula of a syringe without bringing same in contact with the person and also means for conducting refuse to a distant receptacle, thus protecting clothing and bedding.

LIQUID-COOLER.—F. D. H. KLUHSMEIER, New York, N. Y. In this case the invention pertains particularly to improvements in devices for cooling beer drawn from a faucet having direct connection with a keg, the object being to provide a device of this character that will keep the beer at a proper temperature, and, further, to so arrange the device as to supply ice water.

TAILOR'S MEASURE.—HESTER A. WOOLMAN and E. Z. LESH, Guadalajara, Jalisco, Mexico. In this patent the invention relates to tailors' measures such as used in marking garments before cutting. The object is the production of a measure having scales and marking-curves conveniently placed for the purpose of facilitating the measuring and marking operations. The device is preferably in the form of a plate the edges of which are formed with scales and curved in certain parts.

SEWER-PIPE.—G. FELTZ and W. S. EAST, Lima, Ohio. The invention relates to pipes, such as used in the construction of sewers and culverts. The object is to produce a pipe arranged so that the succeeding sections interlock with each other. Further objects are to prevent scouring under the pipe and to provide improved means for attaching the pipe to a bulkhead, such as found especially in culvert construction.

PROJECTING APPARATUS.—F. SCHWANHAUSSER, New York, N. Y. The inventor provides improvements in projecting apparatus, such as a combined dissolving stereopticon and a moving-picture apparatus, whereby only two lamps are required, one being capable of being bodily shifted in a lateral direction to assume an active position either for one of the stereopticon-lanterns or for the moving-picture apparatus.

METHOD OF MAKING CONCRETE SLABS OR BLOCKS AND APPARATUS THEREFOR.—W. R. STANTON, 2 Gonville Place, J. W. KNIGHTS, 67 Tenison road, and W. DRAKE, 4 Broad Street, Cambridge, England. The object in this invention is to facilitate the production of blocks and slabs by pressure or ramming in a mold; and to this end consists, essentially, in providing an improved form of vertical-sided collapsible core in conjunction with a separable mold for shaping the blocks and slabs, the core being so constructed that it may be withdrawn from the cavity of the block or slab without the necessity of the core being tapering in form.

CAP-FITTING.—W. C. TRUEX, Allentown, Pa. One purpose of this inventor is to provide a vase or cap-fitting for brass or iron bedsteads, newel-posts, and other devices where the above cap or vase may be used, which device is simple and economic in construction, capable of expeditious and convenient application, and when applied is entirely concealed from view.

EXCAVATING AND CONVEYING SYSTEM.—E. B. MERRY, Augusta, Ga. Mr. Merry's invention relates to systems for excavating various materials and transporting them to desired points in suitable receptacles. His principal object is to provide a simple and efficient system which will meet a wide range of requirements and be usable in many situations. By a slight rearrangement of the elements upon the frame the excavating-cable may be caused to operate at either side of tracks.

ELECTROCHEMICAL PROCESS OF PRODUCING NITROGEN COMPOUNDS.—J. W. WOOD, Moulton, Iowa. Mr. Wood's invention relates to an electrochemical process for producing nitrogen compounds. The process is conducted at ordinary temperatures. The electrolytic fluid around the anode is constantly drawn off by a siphon. The fluid is preferably renewed, by adding water thereto. The nitrogen which is constantly removed from the liquid is replenished by nitrogen of the air as said air passes in the form of bubbles upward through the liquid. A comparatively minute quantity of nitric acid may be used at the start, the air furnishing all of the nitrogen afterward needed.

PROCESS OF UTILIZING THE NUTRITIVE PROPERTIES OF MIDDLINGS.—S. B. APOSTOLOFF, 28 Bush Lane, Cannon Street, London, England. In this process the floury constituent of "middlings" (of whatever grade) may be extracted and utilized in breadmaking by introducing it into the kneading apparatus and therein incorporating it with the flour for the "batch." The process involves dissolving out the floury constituent from the middlings, adding yeast to the liquor and fermenting; straining the fermented liquor, so as to separate the bran or insoluble matter, and passing the strained liquor to the kneading trough for admixture with ordinary flour.

SAW.—S. J. GRAY and J. HORNING, Oakland, Cal. The arrangement of the joint while permitting sufficient flexibility in one direction will prevent bending of the links with respect to each other in opposite direction. By making the link substantially wedge-shaped in cross-section and placing teeth on the base of the wedge a strong link is secured with a smaller amount of metal than would be necessary with a link rectangular in cross-section. The wide edge of the link is adapted to withstand compression strain and afford a broad attachment for the teeth, while a narrow edge is sufficiently strong to resist a tension strain.

PERMUTATION-LOCK FOR BOTTLE-STOPPERS.—J. C. BOWERS, Boston, Mass. The lock comprises a casing carrying means for supporting the stopper, said casing having mounted therein a spring-controlled bolt, cooperating with which are a plurality of tumblers, which require to be brought into certain positions relatively to each other, by which to enable the lock and stopper to be removed. A dial-plate is employed for the lock, in association with which is a rotatable knob having special means for operating the tumblers to cause the bolt to become either engaged with or disengaged from a portion of the neck of the bottle.

PRINTING DEVICE.—O. D. SAFFORD, Passaic Park, N. J. While especially designed for printing columns, the device is particularly designed for printing names, addresses, and the like. The principal object of the invention is to provide for conveniently setting up words to be printed in such a way that they can be readily placed in alinement and readily removed from the printing device, so as to adapt it for those classes of business in which only a small number of impressions is required.

FIRE-ESCAPE.—J. A. REYNOLDS, New York, N. Y. This invention relates to a fire-escape or combined fire-escape and scuttle, the principal objects being to so construct a fire-escape in the shape of a ladder or stairway that it can be partially folded up out of the way and to connect it with a scuttle in such manner that the placing of the escape or stairway in a proper position will automatically open the scuttle, while the folding will close it.

TOBACCO-PIPE.—N. P. SHULIN, Butte, Mont. The object in this improvement is to provide a pipe arranged to keep fresh and clean, to prevent tainted saliva and nicotine from entering the smoker's mouth, and to prevent sparks leaving the pipe while smoking, thus rendering it perfectly safe to smoke the pipe at any desired place and without danger of setting fire to the surroundings.

SUBMARINE VESSEL.—S. NEVES, Valparaiso, Chile. One purpose here is to provide a vessel to contain one individual, who is supplied with atmospheric air from above the water level and have telegraph or telephone communication with attendants on the surface of the water, and to provide means for propelling the boat ahead, sternward, starboard, or port, or up or down, thus enabling descent to depths unattainable by ordinary apparatus, and whereby the person in the vessel having control can move in any direction, the bow being provided with bull's eyes, enabling the occupant to observe upon all sides of the vessel, as an electric light may be provided within.

ANIMAL-TRAP.—A. A. KELLOGG, Clinton, Mo. The invention refers to traps of the form commonly known as "cage-traps." It comprehends in its broad conception a trap having an adjustable tubular passageway leading from a suitable opening in the cage to its interior, means for adjusting the tubular passageway, a hinged door in the latter, and novel trigger and securing devices.

PROCESS OF HARDENING AND SOLIDIFYING OILS AND UNSATURATED ORGANIC COMPOUNDS.—A. KRONSTEIN, Karlsruhe, Baden, Germany. By this invention Mr. Kronstein is enabled to use any solidifying unsaturated organic compound similar to drying-oils other than wood-oil and in any proportions whatsoever, so as to obtain various grades of consistency from liquid to solid without use of a reducing agent and without fear of overstepping the desired degree of consistency and also to vary the time required for solidification. It is an improvement on this inventor's former patent.

FILTER.—A. L. JOHNS, Colorado Springs, Col. The structure is in the form of a barrel and is capable of being rolled for a sufficient time to cause ore therein to thoroughly mix, by which to facilitate and expedite chlorination of gold contained in the ore. The filter is of special construction, has means for securing the same in the bottom of the containing structure therefor, other means being employed between the filter and lining of said structure to prevent access of sand and the like to a chamber disposed beneath the filter for receiving from the latter the gold chlorid without admixture therewith of sand and slimes.

STORAGE-BIN.—G. H. WARREN and S. FONTAINE, Minneapolis, Minn. In this instance the invention relates to the construction of storage-bins, especially those used for the storage of grain and similar materials which must be kept free from moisture. The bin is provided with means for the circulation of air, and for reducing the possibility of a destruction of its contents by fire.

CASE FOR PHONOGRAPHIC OUTFITS.—M. HEMSTREET, JR., North Bergen, N. J. The object of this improvement is to provide means in which phonograph cylinders or records and the horn or trumpet may be conveniently packed and transported from place to place. This enables persons to carry the outfit conveniently and without danger of breaking the records. In attaining this end a case is provided having means for carrying a large number of records and also arranged to carry a telescoping trumpet or horn.

PAINT.—C. A. LUNDQUIST, Moscow, Idaho. This invention relates to paints used for coating various substances. It forms a hard coat of a character resembling that of cement, and it preserves wood or other surface from the action of rain or sunshine. It does not crack or peel off in the manner of paints of other kinds, and will stand for any length of time in any sort of weather.

CERAMIC PRODUCT.—M. M. MÉRAN, 155 Rue du Faubourg Poissonnière, Paris, France. The present invention has for its object a ceramic product constituted by magnesia silicates employed pure, but nevertheless presenting sufficient plasticity before firing and great strength when they have been fired. The first burning or the biscuit of this pottery may be provided with an appropriate coating or enamel.

GARMENT-CLASP.—J. H. GEISEL, New Rochelle, N. Y. MR. GEISEL'S invention has reference to clasps for garments, it being especially applicable to the retaining in place of a belt, waist, and skirt. As its principal object it provides a compact and attractive device for this purpose which may be readily manipulated by the wearer and which will effectively perform its functions.

BUTTER-CUTTER.—G. ERICSON, New York, N. Y. The cutting edges are provided to be forced into the tub or mass of butter, thus forming a cake which is subsequently separated from the body of the butter by a cutting-wire or the like, the device being then withdrawn with the cake of butter thereon and being provided with an ejecting-plunger by means of which the cake may be delivered.

STAMP.—J. M. CAMPBELL, Lombard, Ill. The improvement refers to hand-operated stamps such as found upon desks in offices for the purpose of affixing dates or other printed matter to papers or envelops. The object is to provide a stamp with an inking device, to the end that the stamp or type may be inked quickly, neatly, and thoroughly, and so that a distinct and uniform impression will be produced.

VENTILATOR.—J. W. BE QUETTE, Platteville, Wis., and B. F. SACKETT, Toledo, Ohio. In this patent the invention relates to improvements in devices for giving ventilation to buildings or rooms, the object being the provision of a ventilator so constructed that the hot or foul air will readily pass out from the top or upper portion of a room and be replaced by fresh air. It is designed to be arranged in the wall of a building.

FOLDING UMBRELLA.—F. L. ATHERTON, Paterson, N. J. One purpose of the invention is to so construct the umbrella that the ribs can be permitted to remain at full length in opening and closing, operating at such time in practically the same manner as an ordinary umbrella, so that when it is closed the ribs will automatically fold outward upon themselves, reducing the body portion of the umbrella to about one-half of its length. It may easily be placed in a medium-sized hand-bag.

CIGAR-CASE.—M. NIÉLL, New York, N. Y. This improvement pertains to a cigar case or similar receptacle, the principal objects being to provide a combination lock and cigar cutter and to improve articles of this character. The construction provides a most convenient and effective locking and cigar-cutting operation without the use of a large number of movable elements.

LOCK FOR BAG-FRAMES.—L. B. PRAHAR, New York, N. Y. One purpose of the inventor is to provide a lock carried by one member of the frame, usually the central member, which will receive and fasten the other frame mem-

bers in closed position in such manner that either outer frame-member may be released without disturbing the locking connection between other frame members, and so that at will both of the outer frame members may be simultaneously released, completely opening the bag to which the frame is secured, both outer members when closed being self-locking.

Hardware.

LOCK.—G. FAIS, New York, N. Y. A combined bolt and hasp is employed having movement within a case, as well as through holes or openings formed in a door with which the lock may be associated, said case having a beam on the door, and being provided with a catch for engaging with the bolt and preventing the latter from being moved outwardly or withdrawn after proper manipulation thereof for effecting locking engagement with the hasp of one of the usual handles of a milk-can or the like.

NUT-LOCK.—I. J. GRIFFIN, Ossining, N. Y. In this case the object is to provide a new and improved nut-lock arranged to allow convenient screwing up of the nut on the bolt to the desired position, to securely hold the nut against accidental return movement, and to permit the operator to unlock the nut for unscrewing the same whenever it is desired to do so.

Heating and Lighting.

CHIMNEY-COWL.—C. T. MILLER and D. B. STORCK, Battle Creek, Iowa. The cowl is formed from a single piece of metal, and the same is of special construction by which wind striking it from any direction is caused to be utilized as an accessory in educting the smoke and other products of combustion from the chimney in connection with which the cowl may be employed. The structure may also be formed of two pieces of metal, each practically a duplicate of the other, the two pieces being cut out and struck up to the desired form, so as to present substantially the form of the first piece of metal.

ILLUMINATING APPARATUS DESIGNED FOR USE IN FLASH-SIGNALING.—A. ROSENBERG, 259 High Holborn, London, England. The object in this case is to provide self-contained apparatus capable of being packed away in a small compass when not in use and wherein, as compared with other similar apparatus, first, a larger proportion of the light may be utilized; second, the projected beam of light will have a relatively greater range of transmission or penetrative power coupled with diminished liability of signals being read by persons for whom they are not intended. The invention relates to apparatus for optical signaling, but applicable also as search-light apparatus.

INCANDESCENT GAS-LAMP.—L. T. ALTON, New York, N. Y. The invention provides a check and air-mixing chamber and also an additional air-chamber which surrounds the mixing-chamber and permits a supply of pure air—that is, air free from gas—to be directed against the inside of the mantle in predetermined quantities, whereby a more complete combustion is had, and a larger mantle may be heated either to incandescence, if the mantle is to be used for lighting purposes, or to a lower degree if the burner is desired for heating purposes only.

TIME GAS LIGHTING AND EXTINGUISHING APPARATUS.—T. F. WESTENHOLZ, Hellerup, Denmark. This device comprises an hour-dial, a lifting-hand movable over the dial, an extinguishing-hand movable over the dial, a spindle on which both hands are mounted, a pinion, a releasing-lever for engaging the pinion, a lever having a blade-shaped stop, a pin, a wheel on which the pin is mounted, arms, and devices in which said arms are designed to engage to stop the motion of the lighting and extinguishing mechanism. It is to be employed in street-lamps and houses especially.

Household Utilities.

STOVE.—F. A. BUCK, Hubbardston, Mich. In operation the damper is lowered to close communication between the rear flue and the smoke-vent while the fire is kindling, making direct draft from the fire pot through the smoke-consuming chamber into the vent. Well kindled, the direct draft may be shut off by raising damper to close communication between upper part of stove and vent, thus forcing heated gases down through the front flue, the base-flue, and up through the rear flue. Draft in either direction may be regulated by check-drafts. Magazine lightly covered, all draft must be through the opening between the baffle-plate and the front lining-section.

MOP-WRINGER.—R. CHRISTENSEN, Ogden, Utah. The intention in this improvement is to provide a wringer which forms a permanent fixture of a pail or like receptacle and is arranged to permit of conveniently placing a mop in the wringer to wring out the mop and to cause the dirty water to pass into the pail without splashing the water upon the floor during the wringing operation.

WATER-CLOSET BOWL.—A. W. HOWE, Honolulu, Hawaii. In the present patent the invention has reference to water-closet bowls: and the object is the production of a bowl with which a cuspidor is incorporated, to the end that the cuspidor may be automatically cleaned. The device is very sanitary.

DETACHABLE SUPPORT FOR IMPLEMENTS AND OTHER ARTICLES ON STOVES.—F. B. SMALL and J. C. MULLIGAN, Bath, Me. The object of the improvement is to provide a device and means for detachably clamping it upon the border-flange of a top plate on a stove or range, and affording very convenient means for holding implements used at a stove for ready removal. It provides means for supporting plates or other dishes, adjacent to or over the stove to warm them, and a support for towels to or above the stove to dry them.

EGG CUP AND CUTTER.—E. N. GAILLARD, New York, N. Y. The cup and cutter is arranged to prevent soiling of the hands or table-cloth by securely and neatly holding a boiled egg in position to allow of conveniently cutting off the top portion of the egg by the use of knives in a hinged cover, retaining the cut-off portion within the cover when swinging the latter over to allow free access to the opened-up egg and readily receiving any drippings from the egg.

POTATO-MASHER.—C. C. NAEVE, Portland, Ore. The material to be pulped is introduced through the hopper into the feed-chamber. The crank being revolved this material is forced by the screw, with the assistance of the ribs, longitudinally of the chamber and against a perforated plate, through the openings in which it passes into the mixing-chamber, thus receiving its preliminary division. Here it is subjected to the action of heating-fingers, which reduces it to a creamy state. Milk or other fluid, and condiments, may be delivered from the reservoir into the pulp and mingled therewith, the mixture being finally discharged over a chute. Means are provided for readily cleaning the apparatus.

Machines and Mechanical Devices.

TYPE-WRITER.—A. H. HOGEN, Geddes, S. D. An important object in this invention is to do away with the keyboard now ordinarily used and the delicate connections with which it is usually provided. The invention comprises means for accomplishing all of the results obtainable on high-priced machines of a complicated nature, these being obtained by means which render it possible to build a machine that will have very few delicate and easily broken or deranged parts and at the same time will be capable of being built at a low cost.

DEVICE FOR PAINTING OVERHEAD WIRES.—G. WELMAN, New Orleans, La. By this device overhead wires, especially insulated feed-wires, may be given a coating to preserve them from the elements of the weather. It is designed to be operated from the ground and to apply a coating of paint or other preservative in an effective, rapid, and economical manner. It is so constructed that the paint can be automatically applied and evenly coated by cheap labor and without danger to life or limb in its application.

ATTACHMENT FOR PLANERS.—J. H. BAUER, New York, N. Y. The invention pertains to an attachment for planers and similar machine-tools adapted for modifying the ordinary operations performed by such tools. The principal ways Mr. Bauer modifies the operations are to turn the work so as to provide for cutting a screw-thread on it and to move it on the support upon which it is mounted in such a manner that the stationary tool past which it moves will make a cut having a curved or slanting inner surface. The device will cut a molding of any kind in a column.

VARIABLE-SPEED DRIVING MECHANISM.—R. M. RUCK, 44 Thurloe Square, South Kensington, London, England. The principal object of the present invention is to provide means for enabling the pinion member of the mechanism to be shifted lengthwise of the cone by hand under automatically-acting control instead of by automatically-actuated mechanism under manual control. The invention relates to that type of variable-speed driving mechanism which is described in an application for Letters Patent having Serial No. 310,696.

MECHANICAL MOVEMENT.—W. F. MURPHY, Long Branch, N. J. The invention consists in the combination of a driving-shaft connected to a driven shaft through a driving-disk with intersecting guide-grooves in its face traversed by guide-blocks, a cross-head connecting the blocks and a crank-shaft on the driven shaft at one end and to a counter-shaft geared to the driven shaft by cranks and a link at its opposite end. This movement will be found desirable in boats and locomotives.

TRANSMISSION GEAR.—W. L. BUCK, New York, N. Y. The invention relates to mechanism for transmitting rotary motion at different speeds and in opposite directions. It is applicable to various uses, notably in automobile transmission and for transmitting from gasoline motors in marine propulsion. Change of speed and direction is accomplished by the relative movement of gears, which are meshed the periphery of one gear against the face of the other.

COMBINATION-GAGE.—J. D. CANN, New Castle, Pa. The purpose of the invention is to provide a combination-tool or universal machinist's tool whereby the gage, bevel, or angle of any piece of work may be quickly and accurately determined; and the purpose is to construct such a tool of three main elements capable of use independently or in combination.

MACHINE FOR RESHAPING BOTTLE-CAPS.—G. G. GLENN, Gastonia, N. C. In the present patent the object of the invention is the provision of a simple and practical machine for reshaping previously-used crown-caps for bottles and at the same time inserting new cork disks therein. The inventor has found that the bottle-caps may be used as a rule four times to advantage.

WIRE-FENCE MACHINE.—H. J. GARDNER, Montpelier, Ohio. With a single revolution of a crank the stay-wire is given two complete wraps, or more if desired. The second coil passes over the first, providing a lock. Means are provided for folding the machine into small compass, easily transportable. A double cutter saves much time in severing the wire, which is ordinarily done by hand with nippers. A stronger fence results from wrapping the stay-wires in opposite directions than when wrapped in the same direction, since in the first case they serve as braces for each other and not so easily displaced.

BRICK-MACHINE.—C. E. POSTON, Crawfordsville, Ind. Mr. Poston's object is to provide means for giving to the bricks unique and novel faces and ends as distinguished from known smooth or glazed faces. Rough-surfacing is desirable for a variety of reasons, among which are more ornamental appearance and a better bond when laid. This invention provides means for producing it without hand-labor and the use of "brooms" or other devices.

EXERCISING DEVICE.—F. PÉLISSIER, Gonaives, Haiti, W. I. The device is intended especially to be used by musicians for the purpose of manipulating the knuckles so as to increase their flexibility. The object of the invention is to produce a device which will afford means for giving the fingers of the hand a movement at the joint and to provide such arrangement as will enable various relations between the movements to be produced. It may be used by paralytics, or persons whose hands are attacked by numbness or stiffness at the joints.

CENTRIFUGAL FILTER.—R. E. LEE, Franklin, La. In the present patent the invention has reference to centrifugals or centrifugal filters, and the object of the improvement is the provision of a cylinder or drum of such construction as will enable the same to be readily adapted to machines of slightly-different sizes. The cylinder is of very simple construction.

FABRIC-HOLDING FRAME.—H. HOCHREUTENER, West Hoboken, N. J. One purpose of the inventor is to provide a frame adapted for use in connection with what is known as "Swiss embroidering-machines" and to so construct the frame that any desired number of retaining devices may be employed, which devices are simple, light, and strong, and so that by their means any desired number of pieces of fabric may be quickly and conveniently stretched and firmly secured in their stretched position without danger of injury to the goods.

METHOD OF LUBRICATING PNEUMATIC MACHINERY.—E. A. EMERY, Cripple Creek, Col. The inventor employs a lubricant of a solid nature and utilizes a current of compressed air as the vehicle by which the lubricant is carried to surfaces desired to lubricate. The most potent factor in dissolving a charge of solid or pressed lubricant is the action of moisture present in the current of compressed air on the charge, and he places the lubricant charge in such proximity to the path of the current that the moisture therein will have access to the lubricant so as to dissolve the latter gradually and slowly. The lubricating solution thus formed is conveyed in the air-current to surfaces of the machinery.

LUBRICATOR FOR PNEUMATIC MACHINERY.—E. A. EMERY, Cripple Creek, Col. In the present invention Mr. Emery employs a construction adapted to contain a "cartridge" or charge of solidified oil or grease treated to make it soluble when attacked by moisture, and around or adjacent to this cartridge the motive fluid is caused to circulate, so that the cartridge is caused to dissolve by its affinity for the moisture in the motive fluid, whereby the lubricant is taken up by the current of the motive fluid and carried into the machine or parts it is desired to lubricate.

WRITING-MACHINE.—J. B. VIDAL, Havana, Cuba. Mr. Vidal's invention has reference to a writing-machine, and the object of the improvement is to construct a writing-machine which will be capable of attaining a speed equal to that of an expert stenographer. Two sets of keys are used and when operated there is no danger of a finger touching the wrong key, and mistakes are thereby avoided.

FLOAT MECHANISM.—P. S. MAURITZEN, Port Richmond, N. Y. In this case the invention relates to float mechanism adapted for use in connection with intermittent flushing apparatus and with pumps or siphons for periodically emptying catch or drainage basins. Its principal objects are the provision of a simple and effective mechanism of this character.

Prime Movers and Their Accessories.

STEAM PUMPING DEVICE.—E. C. POLLARD, Seattle, Wash. The entire apparatus may be built of standard pipe-fittings, except nozzle and inclosing screen. As an engine it is believed that this apparatus comes as near to fulfilling Carnot's law of the perfect heat-engine as any devised. Downward pressure of the column of water being lifted, which is due to the action of the vacuum, it is not to be considered as a loss of energy, because it is balanced by the upward flow of the water through the suction-pipe, which is due to the same cause.

VALVE-GEAR.—W. HARTMANN, 64 Augsburgerstrasse, Berlin, Germany. The invention relates to valve-gears for use on steam-engines, gas-engines, and other motors. The present invention enables Mr. Hartmann to dispense with the rocking arm actuating the valve-lever by using a detent mechanism which alternately connects the valve-lever with the driving mechanism and locks the valve-lever during the period in which the valve is closed.

CARBURETER.—O. H. HINDS, Le Mars, Iowa. The invention is an improvement in gas-machines or carbureters wherein atmospheric air is utilized to take up the vapors of hydrocarbon liquids—such, for instance, as gasoline; and the invention has for an object the provision of means whereby the amount of gasoline taken up in the air to enrich the gas may be varied without varying the volume or pressure of the air.

ROTARY EXPLOSIVE-MOTOR.—S. DENTON and E. S. VEEN, Great Falls, Mont. A circular cylinder is connected with a rim by means of radial pockets, the whole constituting a fly-wheel, and the pockets carrying radially-movable abutments which co-act with a stationary piston carried by a stationary shaft, on which the cylinder is mounted to turn, and the shaft and piston provided with ports for the inlet and exhaust of the motor fluid.

VAPORIZER FOR HYDROCARBON-ENGINES.—C. F. PEARSON, Chicago, Ill. The special object of the present invention is to provide means for effectively regulating the vaporizer so as to increase and diminish the supply of fuel, this regulation taking place without, however, affecting the uniformity of the fuel mixture supplied to the engine. It constitutes an improvement in the type of vaporizer disclosed in a prior patent granted to Mr. Pearson.

Railways and Their Accessories.

SWITCH-OPERATED SIGNAL-LIGHT.—G. W. JORDAN, Purvis, Miss. When the switch is closed the electric lamp will flash, thus notifying the engineer that the switch is in proper shape. When, however, the switch is open, there will be no flash, thus giving warning that all is not right at the switch. By arranging the lamp to operate when the switch is closed liability of error from defects in the apparatus is eliminated, since it is apparent that failure of the signal to operate for any reason, will indicate "danger" to the engineer.

DERAILER.—T. W. LINN and J. H. PATRICK, Clymers, Ind. This device is for use in derailing railway rolling-stock. It may be used on sidings to prevent cars on the siding from accidentally entering the main track or at a railway-crossing to prevent cars from running onto the crossing when the signal is set against them. A feature is the provision of a shield for protecting the device from snow or rain and from dirt, also the provision of means on the derailer for cutting through and clearing away any ice, snow, or dirt which may have accumulated between the rail and the derailer.

CAR-COUPLING.—P. D. SERRURIER, Savanna, Ill. The purpose here is to overcome the delays to trains caused by the breaking of the draft devices. Generally the part which breaks is the lug holding and forming a pivotal support for the knuckle. The coupling is so constructed that when the lug is broken it may be removed and a new one applied without disturbing the draw-head proper. To this end the coupling is made in two sections, one the "draw-bar" the other the "removable draft-section," the latter being so fitted to the draw bar that it can be removed therefrom when it is desired to replace it with another.

EMBEDDING FOR STREET-CAR RAILS.—F. MELAUN, 9 Hardenbergstrasse, Charlottenburg, near Berlin, Germany. A pavement constructed according to the process in this invention can be submitted to driving as soon as finished. In case work has to be done on the rails later on, the asphaltum cover is first removed on the particular places and the inserted stones are then taken out one by one. The taking or lifting out is effected by lifting devices, and for this purpose the stones are provided in course of construction with iron rings.

RAILWAY-RAIL.—C. W. LANDERS, Genoa, Neb. The object of the improvement is to produce a rail of great strength and durability and which will be reversible in character, so that either face of the rail may be used as the tread or head. This railway-rail is very rigid and its capability of reversal when worn increases the life of the rail.

CAR-DOOR LOCK.—B. B. ROSS, Albany, N. Y. The intention is to use this improvement for locking the doors of milk-cars and while it is especially applicable in this connection, it may be applied to doors of other constructions. The object is to produce a lock of simple construction which is always held in a fixed position, so that it cannot swing against the wooden parts of the door-frame or door to cause damage.

RAIL-JOINT.—E. P. WINGREN, Denison,

Tex. The object here is to provide a joint arranged to securely unite the meeting ends of adjacent rails with each other to allow expansion and contraction of the rails without their sliding on the joint, thus preventing wear, to insure lateral alinement of the rails, to effectively resist the flange thrust on curves, and to allow the convenient use of the device on steam and electric railways.

Pertaining to Recreation.

SKATE.—T. SPACIE, Houston, Texas. Mr. Spacie preferably provides the skate with a foot-plate, but embodies in connection therewith substantially similar devices for attaching the skate to the sole and heel of a shoe, as described in former Letters Patent granted to him. Special means are used for securing to the under side of the foot-plate the forward set of rollers for the skate, and other special means are employed for also attaching to the under side of the foot-plate the rearward sets of rollers employed for the skate.

PUNCHING-BAG. — C. MCKENZIE, Butte, Mont. The invention is an improvement in bags, such as are used for practice in boxing and exercising. The apparatus embodying the invention includes two bags which are so suspended and adapted to revolve and swing laterally in vertical planes as to afford special advantages for instruction in boxing and exercise in general.

CONFETTI - CANNON. — R. KLIEMANDT, Mount Vernon, N. Y. The device is for use upon social occasions and for amusement for the purpose of scattering the substance known as "confetti" over floors and tables and over the persons of participants in various social functions. The invention relates more particularly to a miniature cannon or mortar for causing the confetti or analogous substance to be scattered by means of an explosion.

CARRIER FOR GAME.—J. M. PAUL, El Paso, Texas. One purpose of the inventor is to provide a device for carrying game adapted to be worn across the shoulders and held in place by the weight of the load. Another, is to so construct the device that moderately large or small game of all kinds in large or small quantities may be expeditiously, conveniently, and securely placed in position in the carrier and carried with comfort without injury to the game.

Designs.

DESIGN FOR A BOTTLE. — G. BUTON, Bologna, Italy. In this original and ornamental bottle the inventor produces a design the length of which is about evenly divided between the neck and body portion. The latter is plain in outline, but the neck at its center is gracefully and slightly increased in diameter.

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.**

MUNN & CO.

For logging engines. J. S. Mundy, Newark, N. J.

Inquiry No. 8286.—For manufacturers of small machinery of brass or iron, such as can be used in model construction work.

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

Inquiry No. 8287.—For manufacturers of an attachment of a gasoline or gas stove testing automatically the temperature of an oven.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 8288.—For manufacturers of machinery for making silk underwear, stockings and gloves.

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

Inquiry No. 8289.—For manufacturers of burlap bag turning machine.

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. 8290.—Wanted, the address of a party to make closures to fit in a corset.

The celebrated "Hornsby-Akroyd" safety oil engine. Koerting gas engine and producer. Ice machines. Built by De La Vergne Mch. Co., Ft. E. 138th St., N. Y. C.

Inquiry No. 8291.—For manufacturers of high-grade stilletes.

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. 8292.—For manufacturers of sheet gutta-percha ¼ inch thick, and sheet ebonite No. 14 gauge, also Stubs' steel wire.

Automobile experts are in constant demand at high salaries. Our seven weeks' course is the most thorough and practical, fitting men to drive, handle and repair. Day and evening classes. Special course for owners New York School of Automobile Engineers, 146 West 56th Street, New York.

Inquiry No. 8293.—For manufacturers of machinery for cutting and polishing the bevel on plate glass.

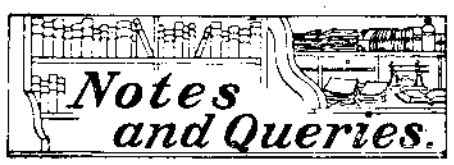
Inquiry No. 8294.—For manufacturers of match-making machinery.

Inquiry No. 8295.—For manufacturers of machinery for sawing logs up into shingle lengths by having it stationed on the log and operated by a small gasoline motor.

Inquiry No. 8296.—Wanted, a decorticating machine for South American fibers.

Inquiry No. 8297.—Wanted, a malleable cast factory to manufacture a horse release evener.

Inquiry No. 8298.—For manufacturers of wood-turning machinery, such as machines for making bungs for beer barrels, also wooden corks, also spigots.



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.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(10085) C. S. J. asks: I wish to learn the cause of trichinæ in pork. A. The trichina spiralis is a worm, a parasite of the hog. It is often found in great numbers in the flesh of these animals, in the encysted condition but still alive. If such meat is eaten without cooking thoroughly, the parasite is taken into the body and is rapidly propagated. The worm came originally from the rat. As hogs eat rats, they pass into the hog and thence into man. The only preventive is thorough cooking. This kills the trichinæ. No rare or underdone pork should ever be eaten. The risk is too great. The cost of immunity is so little, that anyone may be safe. Cook all pork thoroughly. 2. The cause of ptomaine poisoning by eating pork. What causes the presence of the poison, how the poison can be prevented, and whether or not there is any way of detecting the presence of poison before using the meat? A. Ptomaines are formed by decomposition. If only fresh food is used, one will be safe from these poisons.

(10086) H. S. N. asks: I have been a reader of your paper for several years, and always enjoy reading it. I should like to submit a problem for solution. The problem is this: Several years ago I took a picture of a fast train while running, a Michigan Central flier, at a point about two miles east of Decatur. On development the plate showed a blur of 1-32 inch, i.e., the pilot did. I used a Vive extra rapid plate; the focus of the lens was 6 inches; the distance of the engine, the pilot, from the camera, 50 feet; the length of exposure, 1-100 of one second; camera was placed at an angle of 15 deg. with the track. What was the speed of the train? The camera was a Vive, 4¼x4¼, meniscus lens. A. The solution of your problem of the speed of the train is not difficult, at least so far as a sufficiently close approximation is concerned. Start with the fact that the image of the pilot moved 1-32 inch during exposure. Since the lens is 6-inch focus and the pilot is 50 feet away, the pilot moved across the line drawn through the center of the lens, 100 times 1-32 inch, or 3.125 inches, since 50 feet is 100 times 6 inches. And since the camera made an angle of 15 deg. with the track, we must divide the 3.125 inches by the sine of 15 deg. to find the distance the pilot moved during the exposure. This gives 12.07 inches as the distance the train moved in the time of exposure, or 1-100 second. In one second it moved 1,207 inches, or 100 feet 7 inches. This is a speed of somewhat over 71 miles per hour. As we said above, this is an approximate solution, but still not far from the result which an exact solution would give.

(10087) J. S. M. asks: Will you kindly answer in your column of Notes and Queries the inclosed questions relative to Roman computation? I suppose the matter is simple enough, but I have never come across any work explaining it, nor any person whom I have asked who could throw any light on the subject. A. Very little is known concerning the method by which the Romans used their very inconvenient notation for performing the ordinary calculations. They are supposed to have used the abacus for all except the most simple problems. This instrument is in common use now by all Chinamen, and it is not difficult for any one to see it used wherever these men may be found. A description of the abacus may be had from any encyclopedia. There was a rod for each denomination of numbers to millions, seven rods each carrying five balls. Another set of short rods corresponded to these, and had one ball sliding on each. They could thus count by fives and carry by tens. Other rods supplied their need for calculating ounces. Further than this their business did not require them to go; they never needed to divide the distance of the sun by the velocity of light. They died in total darkness in regard to both of these data of the universe. As we said at the outset, we do not know the detail of the method by which the Romans made their calculations. Their mode of writing numbers was not like ours by placing like denominations in the same column, but each letter had its significance, and each number could be added by itself on the abacus, since each rod meant a denomination.

(10088) A. N. says: 1. I have seen it stated frequently that a single "ground" on a metallic circuit, while a source of danger, does not impair the transmission. If the potential at a "ground" is 5,000 volts, for instance, does this not mean 5,000 volts above the zero potential of the earth? If so, why does not all the current, if the resistance at the "ground" is low, flow to earth and equalize? A. A single ground on a metallic circuit does not impair the transmission as you state. The amount of electrification that passes to the earth is so small, and the capacity of the earth is so great, that it would take practically an infinite period of time to change its potential. 2. Standing on the ground, can a person touch with impunity one wire of a high-potential circuit if the circuit is free from "grounds"? A. If there was no ground, and no chance for the current to jump and produce another ground, there would be no injury to you in touching a high-potential circuit, but such a condition practically never exists on outside circuits. 3. About what is the resistance in ohms of the human body? A. This varies with the person, the points where contacts are made, and the condition of the flesh where these are made, but it is approximately 2,000 ohms. 4. What is the minimum strength of current the human body can endure? A. You probably mean the maximum. This also varies with the person, and the condition of the body, from 0.5 to 1 ampere.

(10089) F. J. M. says: Will you please answer the following questions through Queries column of your paper: 1. What is a Faradic brush? Please give a short description of it. A. We believe you refer to the brush made of wire bristles, which are connected to one terminal of the coil, while the other terminal is connected to a plate on which the hand rests, thus sending the current from the coil to the brush, the head, and back to the coil through the hand. 2. Does it make any difference what kind of cells are used in connection with a physician's coil? A. Any kind of battery can be used. A good form of dry battery is the most convenient. Always give full name and address, as we might wish to answer your query by mail.

(10090) F. G. says: Please print formula for making a vibrator jump-spark coil for a 3-horse-power engine. A. SCIENTIFIC AMERICAN SUPPLEMENT, No. 1402, price ten cents, gives full directions for winding induction coils of various sizes. One giving a spark 1 inch long would be large enough for your purpose.

(10091) J. B. A. says: Is there any cheap way one can fix a camera so as to make a picture direct on bromide paper, so that you will not have to make a negative, then a print? I thought that there might be an arrangement attached to the lens, so as to change the image on the ground glass, so that when you develop the negative it will appear like a positive. If an arrangement of this kind can be made, will it decrease the light coming through the lens, and how much? A. There is no arrangement by which you can obtain a positive by exposing the bromide to the object through a lens. The negative differs from the positive in other respects than in the inversion of the image. The tintype process appears to do this, but if you look at it carefully you will find that the positive is a perverted image of the object. We fail to see any advantage in such an arrangement, as duplicate copies could not be obtained. If you increase the number of lenses through which the light passes, the image will not be as bright.

(10092) W. D. W. says: Will you be kind enough to answer the following questions for one who is anxious to know and who has the greatest respect for your opinion on scientific matters? 1. Will electric wires, furnishing current for arc lights coming in contact with street trees, injure them, that is, when the insulating covering has worn off from rubbing against the branches of the tree? One of the tree and park commission of this city (Columbia, S. C.), a college professor and a very intelligent gentleman, insists that the electricity, that is, all that is taken by the tree in wet weather, will do no harm, while I hold to the opinion that it will ultimately kill it, and I wish to know which one of us is wrong. A. We have found by experience that leakage from electric arc light wires does injure the limbs of trees, particularly when the difference of potential is very great, although we do not believe it would kill the tree unless it was very young. 2. When a tree has been killed by escaping electricity, how long a time should elapse, in case the leak be located and stopped, before it will be safe to put another tree in its place? A. We see no reason why another tree cannot be put in at once if the ground has been removed. 3. Some very large oaks that are exposed to the smoke from the railroad workshops have died very recently, and I am anxious to know if the smoke is responsible for their dying. The shops have been there for a long time, and it seems that if the smoke is the sole cause the trees ought to have died long before this time. It may be possible, however, that loss of vitality on account of age may be partly responsible for their dying. A. If the trees are very close to the top of the smoke-stacks, we have no doubt that the trees have lost some vitality on account of it, as the products of combustion are very destructive to vegetable life, but the trees would have to be under the direct influence of the smoke.

NEW BOOKS, ETC.

LLOYD'S REGISTER OF AMERICAN YACHTS. 1906. By the Committee of Lloyd's Register. New York: Lloyd's Register of Shipping, 15 Whitehall Street. 384 pages. 35 colored illustrations of flags of the United States and Canada. Price, $7.50.

It was as long ago as 1874 that a small but complete volume containing the register of yachts was issued in New York. Since that time, publications of a like character have been local, rather than national, in scope, confining themselves to the larger yachts and clubs of the Atlantic seaboard only. In 1877 the Committee of Lloyd's Register of British and Foreign Shipping was requested by British yachtsmen to classify yachts after the same plan as merchant vessels. The work thus begun continued to the present time. In 1902, in response to a demand from American yachtsmen, the committee issued a similar Register of American Yachts, which has been continued annually to the present date. In the present volume for 1906, an entirely new plan has been adopted in the arrangement of the work. The introduction of other types of motor than the steam engine has removed the necessity for dividing yachts into two divisions, steam and sail. Consequently, all yachts in the present volume are grouped in one alphabetical list. The almost universal use of the internal-combustion engine has called for a more complete description of this type, and the diversity in hulls has called for new particulars descriptive of the details of houses and cabins. In quality of paper, type, and illustrations, this excellent work is fully up to those which have annually preceded it. The first 260 pages consist of the register, which gives the full particulars concerning the construction, rig, leading dimensions, designer, builder, and place and date of launch, the machinery, the owner's name, and the home board of registry. Particularly handsome are the thirty-four colored plates, giving the flags of yacht clubs and the flags of private owners, following which are the particulars of the American and Canadian yacht clubs, lists of yacht designers, engineers, builders, etc., also an alphabetical list of yacht owners.

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