RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

MACHINE FOR HARVESTING ONION SETS OR SIMILAR CROPS.—J. W. JEFFERSON, 101 Main Street, Louisville, Ky. The onion sets are removed from the earth by means of series of scoops mounted on endless vertical chains. These diggers raise the crop to the top of the machine, and deliver it through converging chutes into an inclined rotary screen, which separates the vegetables from the soil, and discharges them at the rear of the machine. The endless chains travel on sprockets, which can be adjusted to regulate the depth of soil taken up, and are driven by the rotatable rear axle, which is connected by clutches to the hubs of the rear wheels.

BELT GEARING FOR THRESHING MACHINES.—WILLIAM NEWMAN, Alexandria, S. D. It frequently happens that the long driving belt, which connects the threshing machine to the traction engine, is blown off its pulleys by the wind. Mr. Newman dispenses with this belt and substitutes a wire cable in its stead. In order that the cable may not be bent too short in rounding the pulleys, large band wheels are employed, on the grooved peripheries of which the cable travels. To insure the proper friction a strip of rubber is placed along the base of the groove, and in addition, a series of grips are employed whose jaws clamp the cable where it presses the base of the groove.

Apparatus for Special Purposes.

APPARATUS FOR CLEANING THE BOTTOMS OF SHIPS.—ROBERT S. CULPEPPER, Houston, Tex. The docking of a vessel in order to remove barnacles from her bottom entails considerable expense. Often enough it happens that the vessel is far from a drydock. The present invention provides a practicable and portable apparatus that can be compactly stored on shipboard and can be brought into use quickly. The device will effectually remove foul adhesions from the bottom and sides of the ship.

Electrical Apparatus.

ELECTRIC COIL.—WILLIAM SPENCER, JR., Schenectady, N. Y. The inventor has endeavored to provide an improvement in coils for electricity, such as generators. The invention is a compound coil, the inner coil having air spaces to prevent it from becoming heated. Air spaces are also provided between the inner and outer coils for a similar purpose.

FORMER FOR FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS.—G. C. WEBSTER, Warren, Ohio. The invention consists of a former upon which double spiral filaments for incandescent electric lamps are wound and secured before being subjected to the baking process. The former consists of a cylindrical carbon body having ears at the top, and two spiral grooves leading downward therefrom on opposite sides, and terminating in straight portions parallel to the central axis. A bundle of carbon filaments are laid with their central portions between the ears, and are wound along the spiral grooves, to which they are held by threads wrapped spirally around the former.

Engineering Improvements.

SPARK ARRESTER.—W. P. ALLEN and J. E. H. BROWNE, Albuquerque, N. M. The spark arrester may be placed in a locomotive at comparatively small cost, and consists of a casing placed in the smoke-box over the ends of the boiler flues. The product of combustion passing through the flues, forces the sparks through a sieve and a hood of wire netting at the nozzle of the casing. The sparks are thus extinguished, and the cinders are forced out of the smoke-stack by the exhaust of the engine. The side and bottom walls of the casing slant, respectively, inward and upward, and act as deflectors to force the sparks and cinders toward the outlet sieve. The top of the casing is hinged so that it may be readily swung open when it is found necessary to clean the arrester or the boiler flues.

ROTARY ENGINE.—T. J. MASTERS, Cardiff, England. The improved engine consists essentially of a revolving piston divided internally into a number of chambers, each presenting a radially-disposed face to the pressure of the steam, and each provided with a steam-admission port opening through the periphery of the piston. The admission ports of adjacent chambers are alternately in different transverse planes. The piston revolves steam tight in a cylinder provided with circumferential steam-passages and ports opening therefrom through the inner wall of the cylinder, in such positions that the admission-ports of the piston will coincide therewith at certain points during the revolution of the piston. Each chamber has also an exhaust port opening through the end of the piston, and these ports coincide, at certain points in the revolution, with correspondi.. exhaust ports in the end or side cover of the cylinder. The number and disposition of the admission and exhaust ports is such that steam will be admitted to more than half the number of chambers at one time, during which time it is being exhausted from the remaining chambers.

Gas Apparatus.

ACETYLENE-GENERATOR.—ELMER F. MACKUSICK, Manhattan, New York city. The generator is arranged automatically to feed and charge the generator with calcium carbid in a very simple and effective manner, without danger of losing the gas-saturated water. The device can be used without the aid of skilled labor, the generation of gas automatically stopping upon cessation of consumption of gas.

GAS-HOLDER.—ELMER F. MACKUSICK, Manhattan, New York city. The gas-holder is intended to be used in connection with acetylene-gas generators, and is arranged to cool the gas to insure a rapid condensation of the moisture in the gas, so that it will pass to the bell in a dry state. Means are also provided for the escape of the gas in case of excessive pressure in the gas-chamber in the upper part of the water-tank of the holder.

Hardware and Tools.

BUTTER-CUTTER.—IRA B. WALKER Etna, Cal. The device is intended to cut butter into squares of equal size and weight, and is of particular service in creameries or the like. By its means slabs of butter, representing, for instance, a day's output, can be quickly and evenly cut to the designed sizes.

GAGE.—CLARENCE M. SEARS, Botsford, Conn. The gage is useful for all purposes to which such instruments can be applied. It is particularly serviceable when working with machine tools. By its means measurements can be accurately gaged, a tool located with respect to the part to be operated upon, and any variation in one direction or the other detected.

DOOR SECURER.—EDWIN P. RAETHER, San Diego, Cal. It has been the inventor's purpose to provide a simple appliance that can be readily introduced betwen the lower end of a door and a doorsill to hold the door closed. The device is of such small size that it can be carried in the pocket, ready for use at any time.

LOCK.—OSCAR KATZENBERGER, 702 South Alamo Street, San Antonio, Tex. It is the purpose of the invention to improve upon the principles and parts of a lock previously patented by the inventor so as to permit their application to every kind of lock made. The improvements consist of such an arrangement of the parts as to permit the application of the tumblers to the bolt direct, instead of to the auxiliary bolt, as heretofore; and such changing of the parts as to permit the use of a concavo-convex spring to produce the necessary friction on the tumblers instead of the spiral spring. The use of a dog and ratchet wheel, the latter having a smooth place for the beginning is thus permitted. The combination is communicated by sound or touch.

Heaters.

STOVE.—WILLIAM HEUERMANN, Sedalia, Mo. The invention provides a means by which to enforce a circulation of heated air and products of combustion in such a manner as to increase the heating capacity of the stove, save fuel, and regulate the combustion.

MAGAZINE HEATING STOVE.—JONATHAN W. NOXON, Valley City, N. Dak. Mr. Noxon has devised novel details of construction for a heating stove of the self-feeding type, permitting an exact control of fuel combustion, adapting the stove for complete burning of valuable waste, gaseous products, and utilizing the combustion of fuel for heat generation to a degree greatly in excess of that afforded by ordinary stoves.

ATTACHMENT FOR STOVES.—JOHN H. SOEHREN and CHARLES J. ROHLF, Everly, Iowa. The invention relates to improvements for attachments for cooking stoves, ranges, or heaters. A simple device is provided which is designed to be placed above a stove to catch any steam, heat, or smoke that may rise, and direct the steam or the like into the smoke-pipe or into a pipe leading into an upper room for the purpose of heating that room.

STOVE.—EDWARD E. WALTERS, Lehighton, Pa. The stove has a firebox around which a water-jacket is arranged. In the water-jacket is a continuous passage surrounding the firebox. Connections extend between the ends of this passage and a water boiler, to provide for the circulation of water. The boiler in question comprises a shell through which fire-tubes pass; an inclosing casing having an outlet for the products of combustion; and passages carrying the draft from the firebox into the end of the casing and through the water-tubes or into the side of a casing past the boiler. The stove is useful for cooking and general house-heating.

Machine Tools.

MULTIPLE SPINDLE LATHE.—FRANK HIRSCH, Stockholm, Sweden. The headstock of this lathe is provided with a horizontal drum carrying a number of chuck-spindles, and the lengthwise-moving slide-rest is provided with a corresponding number of tool-spindles in opposition to the chuck-spindles, while besides the slide-rest a number of tools adjustable in a direction at right angles thereto are employed. The chuck-spindles are driven by a gear-wheel having internal teeth and surrounding said spindles. The revolving drum may be stopped independently of the chuck-spindles, and the device is so arranged that any individual chuck-spindle may be stopped for taking off a finished piece of work without interrupting the rotation of the others. In screw cutting the tool revolves at a uniform speed in the same direction as the chuck-spindles, but at a less speed while screw cutting, and at a greater speed during its withdrawal. The lengthwise motion of the slide rest is transmitted through levers to one or several tool slide-rests arranged to move in a direction at right angles to the drum axis. The tool slide-rests may be automatically moved in several directions.

Mechanical Devices.

SAVINGS BANK.—ARTHUR C. REICHEL, Union Hill, N. J. This registering savings bank is provided with a mechanism that will cause the sum total of the money deposited in the bank to be accurately indicated at an opening in the casing. Two coins cannot be introduced into the bank in quick succession; nor can a second coin be introduced before the first enters at the receiving slot of the bank, has passed through the mechanism and has been registered. After a certain sum has been deposited the door of the bank can be opened.

SHOE-CLEANING MACHINE.—WILLIAM RICHARDSON, Colfax, Wash. The machine consists of a frame provided with two standards between which a brush is mounted to turn. A cleaner engages the surface of the brush; a locking device secured to one of the standards holds the cleaner in place. By turning the brush through the medium of a crank handle and shaft the shoe can be quickly cleaned.

SHINGLE PACKER.—FRANK CAMPBELL, Haynesville, Me. The invention is a machine for packing shingles in bundles. The shingle packer consists of a frame, in the upper portion of which are inclined bed rails; a headboard; and a removable foot-board. Side-guides are mounted to swing on the bed-rails. In order to force the shingles closely together, upper and lower presser-bars simultaneously movable in opposite directions, are employed. By means of this device shingles can be raipdly packed before they are tied.

LIQUID WEIGHING MACHINE.—WILLIAM W. GEORGE, Winchester, Ky. Mr. George has devised a very ingenious contrivance for weighing liquid as it is discharged from a keg or other vessel. A device is attached to the keg whereby the faucet is turned off when the desired amount of liquid has been weighed. The operation is automatic.

MERRY-GO-ROUND.—WILLIAM F. MANGELS, Coney Island, Brooklyn, New York city. The improved construction devised enables a movement to be given to the seats without the use of a pit, or without unduly raising the platform and seats above the ground. Easy running of the machine is secured by giving a smooth uniform movement to the several parts of the driving-gear for the crank-shafts to avoid undesirable jerks and strain on the revoluble frame and seats.

AMALGAMATOR.—J. R. SAWYER, Arroyoseco, N. M. The amalgamator consists of a number of conical drums, one above the other, and horizontally mounted to rotate in suitable bearings. The drums are connected by a chain and sprockets, and have series of cups along their inner surfaces. While the drums are rotating, the material containing the precious metal is fed into the base end of the uppermost drum and is treated by the mercury contained in the cups. Owing to its nature, the mercury readily takes up the precious metal as it flows out of the cups at the top and through the material back into the cups at the bottom of the rotating drum. This operation is continued while the material, under pressure of the new material continually added, gradually works along the uppermost drum and through a pipe into the second drum. There it is similarly treated and discharged into the next drum, and so on through the entire machine. The mercury owing to its specific gravity and fluid form is retained and will not travel up fo the apex of the drums.

GOLD SEPARATOR.—A. L. DANA, Colorado Springs, Col. The mineral is first passed over a spreader-plate into a trap. Water flows into this trap underneath the spreader-plate, causing an undercurrent which will lift the dross, while the gold, by its specific gravity, settles to the bottom. If any gold escapes from the first trap it is carried to a second trap where the same operation takes place. The overflow and tailings pass out through a spout, and any values that may be carried along in the pan are stopped by a riffle. The traps and pan are oscillated in order to assist in separating out the gold.

CAN STRAIGHTENER.—C. W. NICKLAUS, Elgin, Ia. The invention is a simple device for taking kinks and dents out of the cylindrical sides of tin cans. The can is placed onto a concave seat or straightening bed, and a former arm, operated by foot power, is forcibly brought down against the inner wall of the can, thereby pressing out the dents. In order to adapt the device to different cans, detachable can-seats of different sizes are employed.

GEOGRAPHICAL CLOCK.—A. J. DAY, Semaphore Road, Exeter, South Australia. The object of this invention is, by one instrument and with one dial, to indicate standard time at all parts of the world, also to indicate the point on the equator at which the sun is at its meridian, and to enable the mean time to be calculated. It is to be used in connection with an ordinary map or globe, and the zone system by which the earth is divided into twenty-four zones, each equal to one hour of time. Twenty-four pointers indicate the time in each and all of the twenty-four time zones. A circle is attached to the underside of the pointers, having the degrees of a circle marked thereon, and an index shows on the dial, at any moment, the actual meridian and its longitude, from which the mean time at any place can be calculated.

CASH REGISTER.—N. COLLINS, Monument Square Chambers, London. The invention relates to machines for registering cash receipts. Printed records are furnished of each individual amount received, and of the aggregate of that and the several amounts previously recorded, as well as a record of the time at which each transaction is registered. The apparatus is especially designed to prevent the falsification of the record through omission to complete the registration, by printing a record of a transaction in respect of which a key may have been depressed. A separate time-record is also printed in order to show the times of opening and closing the machine for purposes of business. The entire mechanism may be locked to prevent unauthorized use of the machine outside business hours.

Railway Contrivances.

HOSE-BRIDGE.—DE CALVUS SMITH, Colebrook, Ohio. The invention is an improvement in hose-bridges for use on railroads, where it is desired to pass a hose across a track in case of fire. The bridge can be readily applied to the rail and secured thereto from lateral or longitudinal displacement; is supported or steadied in position by lateral arms and adjustable supporting devices; is braced by an arch-bar; and efficiently serves the purpose for which it is intended.

RAIL JOINT.—WILLIAM H. SHIPE and JOSEPH P. GLEESON, Scottdale, Pa. The invention is in the nature of a combined chair and rail joint, in which the chair-like base will stand a space between two adjacent ties, so that it will be supported on both ties. A joint can be produced between the ties. Devices are employed for securely fastening the rail in the joint section. The invention obviates the use of bolts and nuts.

STREET-CAR TRANSFER-TICKET.—MORGAN WASHBURN, 280 Broadway, Manhattan, New York city. The system in vogue in our large cities, by which it is possible for a street-car passenger to travel long distances for a single fare, is only too often abused. Frequently passengers resort to the cheap, but dishonest, practice of using transfer-tickets in such a manner that they pay but a single fare, where they ought to pay several. Mr. Washburn has devised a means which will frustrate any such scheme. By means of a ticket divided into sections, containing each the name of a railway line, and into indices arranged along the side of each section and repeated in the several non-separable sections, he succeeds in preventing a passenger from traveling in a circle or returning to a starting-point with but the payment of a single fare.

SEAT.—LOUIS JANSON, Brooklyn, N. Y. The seat is reversible, and is adapted particularly for use in railway-cars. The back of the seat is fastened to the upper ends of two levers which are pivoted to the seat-base. The seat proper has an arc-shaped slide at each end, bearing on socket pieces in the base, and is connected by levers to the seat-back. To lock the seat two arms are pivoted to the center of the base, and so connected with the seat-back, that the latter must be lifted up before moving sidewise to reverse the seat.

RAILROAD CONSTRUCTION.—W. M. HICKOK, Pharisburg, Ohio. Cup-shaped anchor-plates are employed at intervals along the track. Extensions from these plates have recesses at their tops adapted to receive the base portions of rails. Tie-rods pass through openings in these extensions and lugs on the ends of the rails, connecting one to the other. Opposite rails are connected by cross-ties.

TROLLEY.—J. S. VAN LEER, St. Louis, Mo. This invention aims to prevent a trolley from leaving the wire, and also to facilitate in finding the wire. Arranged on opposite sides of the trolley are guard-plates having an elliptical form, their upper portions extending above the plane of the trolley. At their lower ends these plates are connected together and weighted, which causes them to maintain an upright position at all times. By giving them an elliptical shape, should they engage a cross-wire, they will be swung downward and clear the same.

RAILWAY TIE.—C. DE CEW, Brooklyn, N. Y. The invention relates to metallic railways. The chairs, bearing on the ties against the rail at opposite sides thereof, are formed with slots disposed transversely to the rail, and have pairs of diagonally-disposed or V-shaped beveled surfaces. Spring keys with correspondingly beveled surfaces engage the surfaces of the chairs, and are connected by bolts to the ties.

Vehicles and Their Accessories.

AUTOMOBILE LOCK.—JOHN F. WILSON, Jetmore, Kans. The invention is a device for locking the controlling-lever of an automobile-motor. A lock of simple construction is provided, which can be operated only by the person to whom the combination at which it is set is known. Thus the starting of the ve-

hicle is prevented. Should an attempt be made to open the lock without releasing the proper latches, an alarm will be sounded.

SPEED-RECORDER AND REGISTER FOR VEHICLES.—CARL FRANCKE and HEINRICH SCHWABACHER, Dessauertstrasse 6, Berlin, Germany. The apparatus will indicate the time at which a tram car left a station, the speed at which the car covered its journey, the time at which it completed the journey, and the various stopping places. The apparatus can also be made to indicate the total of the various separate journeys made within a certain given period.

BRAKE.—GASTON H. DE BERLY and EUGÉNE G. RASSINIER Rue Damrémont 4, Paris. France. The invention is chiefly characterized by the combination of a sleeve carried and fixed to the hub of spokes of a motor vehicle wheel, which sleeve is acted upon with braking effect by two rollers carried upon a lever. The lever is pivoted to the axle; and by its operation a progressive grip is obtained upon the inside or outside of the sleeve or upon both sides.

PAWL AND RATCHET BRAKE. — E. CANAPLE and F. THIÉBAUX, Germigny-l'Evêque, Seine et Marne, France. With this invention the driver of a vehicle may use both hands, if desired, to operate the brake lever, as the pawl and ratchet act automatically. By the shifting of a weight on the pawl the latter may be made either to engage the ratchet teeth or to swing free from them.

VEHICLE BRAKE.—J. W. PACKARD and W. A. HATCHER, Warren Ohio. The brake comprises a shoe mounted on a lever hung from the vehicle spring and actuated by a connecting-rod and foot lever. The shoe coacts with the inner periphery of an annular brake-rim fastened directly to the inner periphery of a wheel at one side of the spokes.

ELASTIC TIRE.—W. F. WILLIAMS, 17 and 18 Great Pulteney Street, Golden Square, London. The invention consists in embedding into the rubber an open-meshed fabric, of the nature of a fishing-net, formed of cords knotted together at their points of intersection. The meshes are large and open so that the rubber will fill and completely envelop them. The knots insure that the cords will mutually support each other, and they so strengthen the rubber as to prevent tearing.

Miscellaneous Inventions.

ARCH.—LOUIS LANE, Toledo, Ohio. Mr. Lane has devised an improved construction of small arched bridges, culverts, and the like. Arch plates spring from abutments, which plates are corrugated in the direction of their curve. A key-bar is arranged between the upper ends of the plates. To the bar plates are secured engaging the upper and under surfaces of the arched plates. By properly proportioning and employing metal arch-plates, the trouble and expense of temporary centering which has rendered the use of such arches impracticable in many places, owing to the great diversity of sizes, are saved.

CURRYCOMB.—JOSEPH E. GILBERT, Dansville, Mich. The scraper-blades are held together in pairs. Through slots in some of the scraper-blades, guide-bars loosely pass, which are held at their ends in the outer toothed bars. The scraper-blades can be moved endwise. Hence, it is possible to remove the adhering scurf from the comb, simply by moving the scraper-blades, and not by striking the currycomb against the floor or wall to its great injury.

CURTAIN-FIXTURE.—WILLIAM E. MATHEWS, Ferndale, Cal. The curtain-fixture is easily applied and readily adjusted. The same screw or clamp will operate to secure the curtain-bracket in any desired adjustment, and will, at the same time, bind the bars that form the bracket in clamping engagement with the window casing.

PAPER-FASTENER. — ROBERT MCMAHON, Manhattan, New York city. The paper-fastener consists of two members, of which one is provided with pins to be passed through the papers and to engage the other member. Registering apertures in the members permit the passage of a seal-ribbon. Flaps on the second member conceal and lock the pins without covering the registering aperture. The device fastens any desired number of superposed sheets securely together.

SHIPPING-BOX.—ASA E. PIPER, Buffalo, N. Y. The box is intended to hold and ship produce, such as butter, the construction being such that the box can be knocked down, so that several boxes can be made to occupy a very small space. The cost of manufacture is small.

CHATELAINE-BAG HOOK.—MARCUS T. GOLDSMITH, Manhattan, New York city. The inventor has devised a hook that is arranged to be held securely in position on the waist-belt, so that it cannot be accidentally detached. Only the wearer can remove the hook.

WINDOW BOX FOR PROTECTING FOOD.—ALEXANDER BOLLER, Manhattan, New York city. This folding box for windows can be closed up flat, so as to occupy a minimum amount of room in storage. Self-adjusting fastening devices permit the attachment of the box to a window-frame of almost any size. The upper lid can be raised or lowered to permit cleaning of the window-panes. The lower member can be adjusted to enable the window-sill and the bottom of the box to be thoroughly cleaned. The sides can be adjusted without disturbing the bottom. However slanting the sill may be, the bottom can always be maintained level.

BOTTLE CLOSURE.—JOHN SCHIES, Anderson, Ind. The neck of the bottle is grooved to receive a sealing strip, so formed as to be engaged by the threaded cap. The seal swells in the groove, while the cap is held to the seal by the screw-threads. The threading of the cap into the ring, as well as the moisture of the contents of the bottle, will operate to aid the natural resilience of the seal in forcing the seal into the groove of the bottle-neck.

SLIDE LOOP-CLIP.—ISAAC GOURES, 403 East Seventy-seventh Street, Manahattan, New York city. The invention is an improved device for holding a supporting strap or loop as adjusted on a belt of elastic webbing or the like. Mr. Goures' device is of simple construction, and, when in position, prevents the loop or strap from sliding along the web. The clip is so arranged that it will neither cut into nor soil the web during its movement.

PROJECTILE AND FUSE.—LEOPOLD JULIG, 348 Seventh Street, San Francisco, Cal. The invention is a new projectile and fuse, whereby greater effectiveness is obtained. It is an improvement upon that form of projectile in which the fuse or primer is ignited by the primary combustion of potassium, which, when brought into contact with water ignites and burns spontaneously.

CALCULATOR.—ARMAND T. BEAUREGARD, Stamford, Conn. This improved calculator is more especially designed for use in testing the accuracy of electric recording watt meters and finding by mere inspection the percentage error whether the meter be fast or slow.

CHATELAINE HOOK.—LOUIS B. PRAHAR, Brooklyn, New York city. Mr. Prahar has devised a simple, light and durable form of chatelaine hook, so constructed that it can be quickly applied to a belt or band, and as readily removed. The chatelaine hook is held to a support in such a manner that it can work no injury.

BAR MIXING-GLASS. — HENRY MORGAN, Cripple Creek, Colo. The invention provides a mixing-vessel having an internal hinge, and a strainer loosely pivoted on the hinge. The liquid passes through the strainer and into a serving-glass. The device is readily detachable.

CARBID CARTRIDGE FOR ACETYLENE GAS GENERATORS.—ELMER F. MACKUSICK, Manhattan, New York city. The inventor has devised a new and improved charge for acetylene gas generators, which is arranged hermetically to inclose the calcium carbid and to prevent its disintegration by moisture while not in use. An intermittent generation of gas is caused and the charge is submerged in water, thus insuring a cool generation of gas.

NOZZLE.—CHARLES A. SNIDER, Jersey City, N. J. A carrier provided with a number of different articles is movably mounted upon a support in such a manner that by moving it any one of the articles can be brought into an operative position. The invention is particularly applicable to nozzles for fire-hose or fire-hydrants. The construction is simple and compact; and its parts easily accessible.

VALVE.—ANTON WAGNER, Manville, R. I. The purpose of this invention is to enable one having charge of a valve to tell exactly to what extent the valve has been moved, and thus accurately regulate the amount of fluid that may pass through it. This end is attained by providing a peculiarly constructed scale used with the valve, so that all movements are recorded on the scale.

BOX.—AUGUST FLASKAMP, Crefeld, Germany. The box is intended to contain and display scarfs, neckties, and similar articles, and to hold the things displayed either directly on posts or supporters or between partitions. The individual supports for the articles or the supports for the partitions are simply constructed and securely fastened in position in the bottom of the box.

Designs.

HOOF PAD.—JOHN CAMPBELL, Manhattan, New York city. The body of the pad has at its side edges forward of the heel at the quarter two shoe recesses, the inner walls of which are formed by the outer surfaces of the projection. In the body at the underside there is a depression or pneumatic chamber which narrows toward the front of the pad and from which a channel leads through the heel to the back edge.

NECKTIE.—ABRAHAM W. COWEN, Manhattan, New York city. The design provides a combined four-in-hand and bow tie.

SUSPENDER YOKE. — BENJAMIN STEIN, Manhattan, New York city. The leading features consist of two connected side-wing sections curving upward and outward in opposite directions; and a downwardly-extending tab member, forming a portion of the central section of the yoke and continuous with the side-wing sections.

PURSE TOP.—SIDNEY A. KELLER, Manhattan, New York city. The leading feature of this design is an arch surmounted on the faces and other margin by a complete floral pediment.

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WATER WHEELS. Alcott & Co., Mt. Holly, N. J.

Inquiry No. 2205.—For novelties and patent labor-saving devices.

Stencil Machines.—A. J. Bradley, 101 Beekman St. N.Y.

Inquiry No. 2206.—For dealers in very fine washed flour of emery.

Metal substitute. Crane Bros., Mfrs., Westfield. Mass.

Inquiry No. 2207.—For dealers in photo-engraving supplies.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 2208.—For manufacturers of compressed air apparatus for cleaning carpets, furniture, etc.

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

Inquiry No. 2209.—For makers of machines for making clay knobs, bushing cleats, etc.

Rigs that Run. Hydrocarbon system. Write St. Louis Motor Carriage Co., St. Louis, Mo.

Inquiry No. 2210.—For manufacturers of the Tesla electrical system for carrying ore and bags of grain.

For sheet metal stampings and novelties try Standard Stamping Co., Seventh and Hudson, Buffalo, N. Y.

Inquiry No. 2211.—For manufacturers of steel tracks for wagon roads.

Are you looking for anything in bent woodwork? Write Tucker Bicycle Woodwork Co., Urbana, Ohio.

Inquiry No. 2212.—For wholesale dealers in amber, horn and celluloid mouth pieces for pipes.

We make anything in sheet metal, any shape. Estimates free. Metal Stamping Co., Niagara Falls, N. Y.

Inquiry No. 2213.—For makers of electric or steam motor and wheel combined, so as to be attachable to vehicles to be run as an automobile.

I will represent you in Europe. Hardware or novelty trades. Best references. "Europe." Box 773, New York.

Inquiry No. 2214.—For makers of glazed, brown, stone blacking bottles for liquid blacking.

We develop inventions through their several stages, manufacturing for the market. Amstutz Osborn Co., Cleveland, O.

Inquiry No. 2215.—For makers of non-absorbent round paper boxes of 2¼ x 3 and ⅛ inches deep, plain outside.

Special and Automatic Machines built to drawings on contract. The Garvin Machine Co., 149 Varick, cor. Spring Streets., N. Y.

Inquiry No. 2216.—For makers of cheap 1 oz. ink bottles.

Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 2217.—Wanted to buy compressed air carpet-cleaning machines.

Patents developed and manufactured, dies, special tools, metal stamping and screw machine work. Metal Novelty Works Co., 43-47 S. Canal St., Chicago.

Inquiry No. 2218.—For dealers in powdered lead prepared by blowing a jet of steam through the molten metal.

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

Inquiry No. 2219.—For manufacturers of portable houses and buildings.

The best book for electricians and begmners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, $4. Munn & Co., publishers. 361 Broadway, N. Y.

Inquiry No. 2220.—For dealers in apparatus, cans, etc., for the condensed milk business.

WANTED.—Foundry chemist who can also superintend cupolas and produce iron at lowest cost. Young man preferred. Stover Manufacturing Company, Freeport. Md.

Inquiry No. 2221.—For flat steel 5-16 x 3-32.

Wanted—Revolutionary Documents, Autograph Letters, Journals, Prints, Washington Portraits, Early American Illustrated Magazines. Correspondence Solicited. Address C. A. M. Box 773, New York.

Inquiry No. 2222.—For cuts of Serrel or other automatic silk reel machinery; best loom for weaving organzine silk; best loom for weaving floss, for illustrating bulletin of a State Department of Agriculture.

WANTED.—Draftsman of first-class skill wanted in manufacture of highest grade fine instruments. Unusually attractive position for right man, satisfactory compensation and association with experts. Address, stating age, experience and desired salary, Electrical, Massachusetts. Box 773, New York City.

Inquiry No. 2223.—For a simple and inexpensive steel basket.

WANTED.—A first-class machinist, to take charge of a water power plant, seven miles out from the city of Lancaster, Pa. Must be a sober, married man who has had some experience with turbine wheels; man who has had some experience with the Lombard waterwheel governor preferred.

Salary, $720, with house rent free. Residence is a large mansion house, located in a small village within 500 yards of the water power, large garden and stable for horse and cow.

Address Lancaster Electric Light, Heat and Power Company, Lancaster, Pa.

Inquiry No. 2224.—For a light and powerful motor suitable for an airship.

☞ Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Inquiry No. 2225.—For dealers in Richard B. Locke's "Gyro Evaporators."

Inquiry No. 2226.—For manufacturers of rubber supporter buttons for hose supporters.

Inquiry No. 2227.—For parties in New York making small horseshoe magnets.

Inquiry No. 2228.—For dealers in the slicer, blocker and taperer machines for manufacturing corks.

Inquiry No. 2229.—For dealers in machine shop outfits.

Inquiry No. 2230.—For makers of rock-drilling machinery and outfits

Inquiry No. 2231.—For dealers in model air cylinders and valves.

Inquiry No. 2232.—For makers of camel's hair cloth for hydraulic press work.

Inquiry No. 2233.—For manufacturers of pipes.

Inquiry No. 2234.—For manufacturers of baskets or cans for removing debris of villages and city streets.

Inquiry No. 2235.—For manufacturers of parts for suspenders.

Inquiry No. 2236.—For makers of fire escapes.

Inquiry No. 2237.—For manufacturers of spring guns.

Inquiry No. 2238.—For manufacturers of cotton gins.

Inquiry No. 2239.—For dealers in yarn for blankets or robes.

Inquiry No. 2240.—For dealers in rims for cheese boxes.

Inquiry No. 2241.—For dealers in diamond dyes, fast colors.

Inquiry No. 2242.—For a machine for mixing sand and other ingredients for making glass.

Inquiry No. 2243.—For parties to make novelties of white metal, aluminium, etc., to order.

Inquiry No. 2244.—For machinery for making wooden dishes for butter and lard.

Inquiry No. 2245.—For parties to manufacture small articles from pressed steel.

Inquiry No. 2246.—For manufacturers of seed and coffee triers.

Inquiry No. 2247.—For makers of peanut-vending slot machines, which will deliver in sacks, with lamp for heating.

Inquiry No. 2248.—For makers of a slot machine, showing lady in a case delivering packages of gum when machine is operated.

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AND EACH BEARING THAT DATE.

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