

**RECENTLY PATENTED INVENTIONS.**

**Engineering Improvements.**

**ROTARY PUMP.**—O. C. JONES, Philadelphia, Pa. This rotary pump is constructed to be easily reversed and is adapted particularly to be used in connection with an improved rotary engine invented by Mr. Jones, which was recently described in the SCIENTIFIC AMERICAN. The pump comprises a pump cylinder with inlet and outlet orifices, a rotary piston, a swinging abutment mounted in the cylinder, and a wall arranged at one side of the piston turning therewith. The wall is spaced from the adjacent head of the cylinder and is provided with orifices at the respective sides of the piston. A chamber is attached to the wall which communicates with one of the openings in the wall and also with the discharge or outlet orifice.

**Hardware.**

**SOLDERING-IRON.**—A. G. KAUFMAN, San Francisco, Cal. Mr. Kaufman's soldering-iron belongs to that class adapted to be heated by burning gas. The invention provides a tool arranged to allow convenient handling and manipulating by tinner, plumbers, and other mechanics, which will insure a uniform internal and external heating of the point without danger of impairment by external influences such as draft, dropping of solder and the like.

**NUT-LOCK.**—W. D. EVANS and J. C. WIGGINS, Eupora, Miss. A simple and positive nut lock which will not detract from the strength or appearance of the bolt and nut but will rather add thereto, has been invented by Messrs. Evans and Wiggins. The construction of the nut lock is such that it may be used with equally good results upon metal or upon wood. It may be expeditiously and conveniently applied and when once adjusted cannot be shaken loose.

**Mechanical Devices.**

**MACHINE FOR BENDING PIPE-ELBOWS.**—E. H. SMITH, Mt. Vernon, Ohio. In the operation of this machine the pipe will be fitted on a mandrel and held by clasps slipped on over the pipe. Jaws are then operated to compress the clasps and pipe and the proper treadle is operated to set a worm into gear with its worm wheel, which thereupon causes a ball to swing upward and tilt the mandrel, bending the pipe elbow, as desired. In thus bending the pipe elbow the preliminary crimps will be forced up between the sections of the clasp and will be pressed into the form of flat ribs or flanges projecting from the surface of the elbow.

**DEVICE FOR OPERATING CONCENTRATING TABLES.**—A. W. JOHNSON, Aspen, Colo. Mr. Johnson's invention is in the nature of a mechanical appliance for imparting to the reciprocating tables of ore concentrators and like machines, their necessary shaking movement. The novel construction and arrangement of the various parts afford five or more modified movements of the shaking table. But little power is required for operating the device.

**CARTRIDGE-SHELL LOADER.**—E. L. WETZIG and G. W. REUST, Junction City, Kans. In this cartridge shell loader, powder and shot holders are employed also a charge receiver arranged to slide beneath them. A lever is provided which is so pivoted that it may swing in both vertical and horizontal planes and engage with this charge receiver. A wall plunger is mounted to reciprocate vertically and is suitably connected with the lever whereby it is forced down with the same in loading the cartridge shell.

**COLLAR-BUTTON-VENDING APPARATUS.**—M. F. PRICE, Iowa City, Iowa. Mr. Price's invention relates to a machine designed especially for vending collar buttons, and the machine is of such character that it is readily adaptable to coin-controlled operating devices, thus enabling the inventor to provide a coin-controlled collar-button-vending apparatus.

**APPARATUS FOR AUTOMATICALLY LIGHTING OR EXTINGUISHING GAS LAMPS.**—T. F. WESTENHOLZ, Hellerup, near Copenhagen, Denmark. The lighting and extinguishing of street gas lamps is ordinarily undertaken by lamplighters and entails a considerable expense. In order to overcome this expense the present invention is provided, whereby the lighting and extinguishing of gas lamps may be accomplished automatically at a predetermined hour. This is accomplished by connecting a clockwork with the gas cock, which opens or shuts the latter through the medium of intermediate gearing.

**Railway Contrivances.**

**AIR-BRAKE SIGNALING AND RELEASING DEVICE.**—F. H. DUKESMITH, Charlottesville, Va. The invention provides a simple construction whereby to signal to the train crew whenever the brake is set from any cause whatever, and further to enable the crew to release the brakes while the train is moving. The invention comprises important details of construction.

**GRAIN-CAR DOOR.**—G. R. GRIGG, Coffeyville, Kans. This car door, though especially designed as a grain door, may be utilized also for other purposes. Its construction is applicable to any car and will be a fixture. It may be made to closely fit in between the jambs,

having hinged extensions or wings at its sides to fit back of and against the jambs, enabling the door to be opened outwardly when the wings are folded back by the pressure of the grain or material against it.

**Technology.**

**APPARATUS FOR FREEING AMMONIA FROM GAS LIQUOR.**—H. A. ABENDROTH, Berlin, Germany. The present invention relates to improvements in that class of apparatus for the treatment of gas liquor which consists of a number of superimposed cells, in the uppermost of which the crude gas liquor enters to be brought into contact with steam passing upward from underneath. In this treatment the incoming crude liquor is heated to such a degree that some of the ammonia gas is driven off by causing the liquor to descend through the heated column, while at the base of the latter the liquor is mixed with milk of lime in order to liberate the fixed ammonia contained in the liquor and to cause it, together with the evolved steam, to ascend the column.

**ART OF MANUFACTURING WHITE LEAD.**—C. H. VICKERMAN, Philadelphia, Pa. Mr. Vickerman's invention relates to the manufacture of white lead by the so-called "Dutch" process and it consists in carbonating lead in the presence of fibers of the domestic sumac plant, the fibers being previously leached and thereby divested of coloring-matters, thus preventing discoloration of the white lead as formed.

**Vehicles and Their Accessories.**

**TOE-CLIP.**—F. J. and W. H. McMONIES, Portland, Ore. The toe-clip which is adapted for use in connection with bicycle pedals, comprises a substantially U-shaped bridge-piece which may be secured to the pedal. A flexible strap piece is provided which may be secured to the bridge piece. Means are supplied for adjusting the strap piece to fit varying sizes of feet.

**SEAT ATTACHMENT FOR BABY-CARRIAGES.**—M. ELWERT, Los Angeles, Cal. Mr. Elwert's invention relates to seat attachments of buggies, go-carts and similar vehicles, though more particularly for baby carriages, whereby a nurse or other attendant may sit down no matter where the vehicle may be situated, the seat being of such structure as to be readily folded and concealed beneath the body of the vehicle.

**Miscellaneous Inventions.**

**PIN.**—A. A. MANNINGS, 188 Alexandra Road, Kilburn, London, England. The invention relates to an improvement in scarf or other pins and has for its object to insure the permanence of the engagement of the pin in the fabric of the article in which it is inserted. The pin is provided at the head with a pointed spur or barb oppositely directed to the point of the shank which is adapted to engage the fabric.

**VIOLIN.**—M. KRIWULKA and P. E. HOLMQUIST, Philadelphia, Pa. The object of this invention is to provide means for exerting strain or tension on the body of a violin so that the necessity for frequent tightening of the usual strings will not be apparent, and the instrument will not so readily lose its tension over night. The arrangement at the same time secures a more powerful, clear, and voluminous changeable resonance in tone.

**CABLE-JOINT.**—W. M. MURPHY, New York, N. Y. Means are provided in this invention for joining the lead casing of submarine or other electric cable. When a cable is spliced it is necessary to join the lead covering hermetically. This has heretofore been done by "whipping" a joint around it; but by means of the present invention Mr. Murphy is enabled to dispense with this process and effectually connect the covering.

**BARREL-FILTER.**—J. J. PRINDLE, Colorado City, Colo. This barrel filter is especially designed for the extraction of precious metals from ore by the "chlorination process," and the primary object of the invention is the provision of a durable and cheap construction which effectually retains sand or pulverized ore in the cask while the valuable solution is being forced to the bottom of the same so as to pass out through the outlet.

**GLOVE AND NECKTIE HOLDER FOR BOXES.**—J. L. REINER, New York, N. Y. A simple and economic device is provided by this invention which can be conveniently, quickly and durably applied to the bottom of a box and rigidly secured in an upright position in any order of arrangement desired or best adapted to the character of the articles to be held for display in any predetermined groupings.

**SCREEN.**—H. LE F. SANDERS, Jersey City, N. J. Certain novelties of construction are involved in this improved window screen which permit its ready adjustment to a window of any size. The screen, though readily adjustable to any window, when in place is perfectly rigid and is adapted to slide on strips on the window frames to raise or lower or otherwise dispose it as desired.

**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.**

- Marine Iron Works. Chicago. Catalogue free.
- Inquiry No. 3471.**—For a spring motor for running a sewing machine.
- AUTOS.**—Duryea Power Co., Reading, Pa.
- Inquiry No. 3472.**—For dealers in ready-made, adjustable, small frame buildings.
- Small Steam Motors.** F. G. Grove, Luray, Va.
- Inquiry No. 3473.**—For veneer-cutting machines suitable for heavy work.
- "U. S." Metal Polish. Indianapolis. Samples free.
- Inquiry No. 3474.**—For air-compressing machines and a machine for putting up horse radish in glass.
- Dies, tools, models. Am. Hardware Co., Ottawa, Ill.
- Inquiry No. 3475.**—For manufacturers of dynamometers.
- Coin operated machines. Willard, 284 Clarkson Street, Brooklyn.
- Inquiry No. 3476.**—For makers of steam turbines of 2 to 5 horse power.
- Dies, stampings, specialties. L. B. Baker Mfg. Co., Racine, Wis.
- Inquiry No. 3477.**—For the manufacturer of the Baker power pressure blower.
- Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.
- Inquiry No. 3478.**—For manufacturers of thin sheet celluloid.
- Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.
- Inquiry No. 3479.**—For manufacturers of gun barrel tubes.
- Want you to read our Ad. on page 385. A Money-making Metalworking and Stamping plant for sale.
- Inquiry No. 3480.**—For parties to make small steel or malleable iron castings.
- Let me sell your patent. I have buyers waiting. Charles A. Scott, Granite Building, Rochester, N. Y.
- Inquiry No. 3481.**—For a band machine for fringing or raveling old carpet.
- Gear Cutting of every description accurately done The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y.
- Inquiry No. 3482.**—For manufacturers of bard compressed paper pulp articles.
- Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.
- Inquiry No. 3483.**—For makers of electric welding devices.
- FOR SALE.**—Patent on cheap contrivance that is indispensable in every store. Certain to sell quickly. A. L. & O. Sovellius, Hancock, Mich.
- Inquiry No. 3484.**—For makers of a first-class oat huller.
- The largest manufacturer in the world of merry-go-rounds, shooting galleries and band organs. For prices and terms write to C. W. Parker, Abilene, Kan.
- Inquiry No. 3485.**—For makers of wheat steamers or cookers for breakfast foods, or for flaking purposes.
- We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc. Metal Novelty Works, 43 Canal Street, Chicago.
- Inquiry No. 3486.**—For dealers in wood used by pattern makers.
- The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.
- Inquiry No. 3487.**—For manufacturers of automobile parts.
- Gasoline Automobile Batteries. William Roeb's "Autogas" used properly will carry vehicle twice as far as any other battery of same weight. William Roeb, inventor and manufacturer, 42 Vesey Street, New York, N. Y., U. S. A.
- Inquiry No. 3488.**—For makers of fire alarm whistles.
- To Ambitious Persons.**
- A prominent business man of New York City writes that he would like to come in touch immediately with a few well-recommended people who desire a higher education. This gentleman (whose name is withheld at his request) has at his disposal a limited number of Free Tuition Contracts in a well-known educational institution for home study. This school can teach you to become a Practical Engineer, Electrical Engineer, Electric Railway Engineer or Telegraph Engineer, Illustrator, Caricaturist Ad-writer, Journalist, Proof-reader, Bookkeeper, Stenographer. If you are awarded one of these Free Tuition Contracts, the only expense to you while you are studying will be the cost of instruction papers, postage, etc., this you can pay during the first four months. If you are ambitious to improve your station in life, we should strongly recommend that you write to this gentleman at once. Address W. L. B. P. O. Box 53 Madison Square, New York City. Be sure to mention Scientific American.
- Inquiry No. 3489.**—For a small air pump to be run by an electric motor.
- Inquiry No. 3490.**—For the makers of the "Naphey" acetylene gas burner.
- Inquiry No. 3491.**—For the makers of the Duplex motor.
- Inquiry No. 3492.**—For manufacturers of vending machines.
- Inquiry No. 3493.**—For parties to make small steel or malleable iron castings.
- Inquiry No. 3494.**—For manufacturers of dynamometers operated by windmill power.
- Inquiry No. 3495.**—For manufacturers of sorghum mills, with attachment for cutting the bagasse as it leaves the mill.
- Inquiry No. 3496.**—For planting machines for seeding and watering in one operation.
- Inquiry No. 3497.**—For a patented box or crate which can be taken apart and returned to consigner.
- Inquiry No. 3498.**—For a machine for preparing cotton for felt mattresses.
- Inquiry No. 3499.**—For makers of brick-making machinery.
- Inquiry No. 3500.**—For makers of light gasoline or other motors.
- Inquiry No. 3501.**—For parties dealing in rhodium.
- Inquiry No. 3502.**—For an outfit for making half-tones.
- Inquiry No. 3503.**—For machinery for compressing refuse, sawdust or other light material into special blocks or forms, for use as fuel.
- Inquiry No. 3504.**—For manufacturers of revolving brushes similar to those in carpet sweepers.



**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.

(8755) L. Q. says: I wish to know the ingredients and proportions—in short, the recipe—for a solder for tin by using which it is not necessary to use acid or other preparation in order to stop small leaks in family tinware. A. The free-flowing solder used by the fakirs is composed of 1 part lead, 2 parts tin, 1 part bismuth. The solder wire is made by flowing the melted solder through small holes in the corner of a square sheet-iron plate, at the same time drawing the lead over a cold flat iron surface. A little practice will give you the necessary conditions for making the solder wire uniform in size.

(8756) W. M. S. wants a formula for figuring the horse power, bore and stroke, also speed of four-cycle gasoline engines, and uses 8 horse power, double-cylinder, 350 feet per minute marine type as example. A. The horse power of a four-cycle gasoline engine is the mean explosive pressure multiplied by the cylinder area and one-half the number of revolutions per minute and the stroke in feet. The product divided by 33,000 equals the horse power. The details of engine dimensions, atomizers and vaporizers are now in press in a book on "Gas, Gasoline and Oil Engines," by Hilscock, \$2.50 by mail, enlarged edition.

(8757) F. W. L. asks: 1. What is the approximate resistance of a quantity of barley lying loosely in a box of insulating material one foot long by one square inch in cross section, where current is run from end to end? A. The electrical resistance of dry barley under any circumstances would be infinite. It would be an insulator as dry wood is. If the grains are moist, they would conduct to an extent depending on the degree of moisture. 2. How long will it take one ampere of current to decompose one quart of water? A. A coulomb of electricity will deposit 0.00010384 gramme of hydrogen. This is done each second the electricity flows. One quart of water weighs 946.4 grammes. Of this 1/9 is hydrogen, or 105.15 grammes. Divide 105.15 grammes by the number given for hydrogen, and you will have the number of seconds required for one ampere to decompose 1 quart of water.

(8758) J. S. W. asks: 1. How is starch extracted from Irish potatoes, also from the cassava plant? A. Potato starch is usually prepared by rasping the tuber into as fine a pulp as possible, and washing this in water. The milky liquid passes through sieves of increasing fineness until the fiber, etc., are removed. In a settling tank the sand or other heavy matter is separated from the starch and the latter is siphoned off from the top through holes in the sides of the tank. Centrifugal machines are sometimes used for separating the starch from the water. The crude starch is purified by washings and levigation, with passings through sieves and bolting cloth. The purified starch is at last dried in drying rooms. The general process of preparing cassava starch is the same, only the work is done more crudely and by hand. There is a much less proportion of starch than in the potato, and the fiber is more difficult to rasp fine. The sifting is more difficult. The starch is dried in the air under sheds. If the damp starch is heated in shallow pans with constant stirring, the grains burst and adhere together, forming irregular kernels, sold as tapioca. 2. Is there any way of converting a continuous current of electricity into an alternating one? A. Continuous currents are converted into alternating currents, or the reverse, by a rotary converter. The armature has two windings, one of which is motor and the other dynamo. The current in the first drives the armature, and the second winding delivers the current of the sort desired.

(8759) G. K. B. says: We have many gas wells here. When the gas comes out it is very cold. Many offer explanations, but I am not satisfied, as I do not believe they are based on scientific principles. Wells are bored about 1,000 feet to gas. A. The gas comes cold from the wells which you describe because it expands from great pressure at a depth of 1,000 feet to atmospheric pressure at the surface of the earth. This is fully explained in Sloane's book on "Liquid Air."