

Means are provided for cutting roots and the sod at the sides of the ditch, and provision is made for the elevation and discharge of the soil at the sides of the ditch and to open the way for the penetration of the share at the bottom of the ditch.

Medical Devices.

APPLICATOR.—W. C. HOLT, Oakley, Kan. This applicator is adapted for the application of medicaments to the vagina, cervix, and other uterine organs, the rectum, and also to other internal parts of the human body. The invention provides a device which can be readily cleaned and by means of which a tampon may be quickly and neatly applied by the person receiving treatment. The device also serves to render positive the application of medicines without loss before a full entrance has been effected.

Railway Improvements.

CAR-TRUCK.—R. E. POWERS, Johnstown, Pa. Mr. Powers' invention is an improvement in truck frames for railroad cars. The side frames for the trucks are cut from an I-beam and reinforced by binder strips of angle metal. The frame can thus be strongly and at the same time very cheaply made.

Vehicles and Their Accessories.

SPEED-VEHICLE.—F. S. STODDARD and F. E. WHITNEY, Syracuse, N. Y. The present invention relates to a vehicle of the type suitable for driving at high speeds. The shafts are fastened to a point lower than the bottom of the vehicle and yet higher than the spindles of the front axles, this point having been found to be most advantageous. If the draw-irons be placed at a point higher than this, the animal will, to some extent, be pulling the vehicle toward the earth, and if placed lower than this, he will be lifting the vehicle somewhat. The fifth wheel is practically as wide as the vehicle body in this construction, thus greatly strengthening the vehicle and at the same time preventing undue rocking movement or an excess of lost motion when the vehicle is strained into different positions.

DRIVING MECHANISM FOR VEHICLES.—L. G. NILSON, New York, N. Y. It is a common practice to place the driving gearing for electric automobiles, such as chains or spur gears, directly on the spokes or very close to the drive wheels. The disadvantage of this is that such gearings catch considerable sand or grit which may fall from the wheels, causing the gearing to wear out quickly, and it is practically impossible to encase the gearing. The present invention overcomes the above-mentioned difficulties by so arranging the parts that the driving mechanism is placed between the body-supporting springs and remote from the wheels, where it can be completely encased.

Miscellaneous Inventions.

FOOT-SHIELD.—W. E. BOSWORTH, Frankfort, Ky. When pulling on a shoe the under part of the stocking engages the insole of the shoe and produces a pulling effect on the ends of the toes which tends to draw and turn under the toes into a cramped and unnatural position. This causes much discomfort and results in the probable formation of corns. To obviate such cramping, Mr. Bosworth has invented an attachment which may be placed over the end of the foot to prevent all such frictional contact.

DIE FOR COVERING TUBES.—P. H. FRIEL, Kenosha, Wis. The present invention is an improvement upon a former invention patented by Mr. Friel. It consists of a die of such construction as forms the double lock-joint with flush parallel edges, which makes a stronger and more nearly invisible joint than the single lock-joint heretofore used on the die as already patented.

SAD-IRON HOLDER.—K. BARNICKOL, Rome, N. Y. The object of this invention is to provide a holder for heated sad irons which is connectable with an ordinary ironing board, and when in place is adapted to receive a hot sad iron and hold it reliably against lateral displacement.

FASTENER FOR GARMENTS, ETC.—J. L. DINKELSPIEL, New York, N. Y. This invention relates to a device for fastening together the parts of a garment or other structure of cloth, leather or other material. The present invention provides certain improvements in the construction forming the subject-matter of patent previously granted to Carrie P. Parker.

CISTERN-FILTER.—J. W. CRAINE, Winfield, Kans. Mr. Crane's invention relates to a cistern filter which will purify water as rapidly as the same is removed from the cistern. Provision is made for removing undue pressure from the water upon the interior of the filter and also for permitting the ready entrance and egress of air to and from the filter.

HOSE-COUPLING.—H. T. CRONK, New York, N. Y. Mr. Cronk provides in the present invention an improved hose coupling which relates to a previous invention patented by Mr. Cronk. The ends of the hose are turned back forming a flange, and coupling sections engage these flanges and are held together by clamping nuts.

GARMENT-RACK.—C. DOUBLAT, New York, N. Y. This garment rack is especially adapted for use in hotels and other places where a

number of garments are to be taken care of. The construction of the rack is such that the wraps and umbrellas and canes of the various guests can be quickly and accurately arranged, classified and returned in good condition to their owners without the liability of mistakes.

COOLING APPARATUS.—J. E. HAARMANN, Omaha, Neb. An apparatus for cooling fluids particularly liquid or semi-liquid substances is provided in this invention. It is especially adapted for use in distilleries, starch and sugar factories, breweries, glucose works, and other manufactories where material is cooked or boiled.

FOLDING CHAIR.—S. R. ROGERS, Mount Airy, Ga. This invention relates to improvements in folding chairs, the object being to provide a chair that may be readily adjusted to any desired position, or folded in compact form so that it may be easily carried or transported from place to place.

BRILLIANT.—R. P. SMITH, New York, N. Y. This improved broiler is especially intended for buffet and other use where the space is limited. Such, for instance, as in the buffet kitchens of parlor cars, apartment houses, or private residences, yachts and the like.

CONVERTIBLE ARTICLE OF FURNITURE.—W. M. BOAZMAN, Greenville, S. C. This improved article of convertible furniture may serve as a stationary bed or lounge, also as a rocking lounge, cradle, or chair, a rolling chair, or reclining chair. The changes or adjustment of parts required to adapt it for any one of these articles is effected by a very simple manipulation.

FOLDING LADDER.—H. LABRANCHE and F. THIROT, 114 Avenue de Suffren, Paris, France. The present invention relates to an improved folding ladder of the kind which comprises rigid sides connected together by means of steps, the ends of which are pivoted or jointed to these sides, so that the latter can be brought together, the one against the other, when the ladder is not in use.

FASTENER FOR SHOW-CASES.—P. S. SCOTT, Brooklyn, N. Y. The fastener is more particularly intended for use on show-cases on the outside of stores, where they are exposed to the weather and to the view of the passing public. In show-cases of this class it is desirable to provide a lock-hasp which cannot be pried or broken open by thieves, and which at the same time is capable of preventing rain or dust from entering the crevice at the point of application of the hasp. Such a device is provided in the present invention.

TILING FOR FLOORS, WALLS, CEILINGS, FIREPLACES, ETC.—F. ALCAN, New York. The object of the invention is to provide an improved tiling arranged to permit of setting the tile blocks in such a manner as to form color patterns, greatly resembling those of oriental rugs, and hence greatly enhancing the artistic merit of the structure on which the improvement is used.

CIGAR HOLDER AND ASH RECEIVER.—J. C. D. ROSS, Chicago, Ill. Mr. Ross's invention relates to improvements in combined cigar holders and ash receivers. It provides a simple and cheap article adapted to hold a cigar in position for the ashes to drop into a receiver, thus preventing the ashes from dropping on and soiling the clothing of the smoker. The holder may be adjusted as the cigar burns away to bring the receiver into proper position for catching the ashes.

BOX-COVER SUPPORT.—S. B. EVANS, Enid, Okla. Ty. A device for holding the cover or lid of cigar boxes in open position to display the contents of the box to purchasers is provided by Mr. Evans' invention. The device may be cheaply manufactured and easily applied to securely hold the box cover in the desired rearwardly inclined open position. It may also be readily removed from an empty box and reused on a new one.

HEAD-GATE.—H. W. ELDER, Dawkins, Colo. This improved head-gate is adapted for use in irrigating ditches and the like, and is arranged to form a portable dam in the ditch to control the water flowing through the ditch upon the land to be irrigated without danger of the water leaking past the gate at the sides. The arrangement also is such as to prevent the bottom of the ditch from unduly washing out at the downstream side of the gate.

PHOTOGRAPHIC CAMERA.—W. F. FOLMER, New York, N. Y. The invention relates particularly to reflex cameras, and it provides for automatically setting the shutter while depressing the mirror and making the exposure automatically when the mirror is released. Means are provided for automatically opening the diaphragm to a full aperture when setting the mirror and permitting the operator to diaphragm the lens to whatever stop may be desirable.

Designs.

POKER-CHIP.—S. A. COHEN, New York, N. Y. The design consists of a representation of a shield bearing on its face the representation of a raging lion in horizontal position and surmounted by a crown having a cross and flanked, on both sides by leafy branches, the whole being surrounded by a circle.

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. 3659.—For a machine for cutting light leather into narrow strips about 1/4 inch wide.
"U. S." Metal Polish, Indianapolis. Samples free.

Inquiry No. 3660.—For makers of tool steel balls. Coin-operated machines. Willard, 284 Canal St., Brooklyn.

Inquiry No. 3661.—For 1892, 1893, 1894 or 1895 make of drop frame ladies' bicycles, weight 35 or 40 pounds. Dies, stampings, specialties. L. B. Baker Mfg. Co., Racine, Wis.

Inquiry No. 3662.—For machinery for making starch from rice.
Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 3663.—For manufacturers of mop-wringers.
Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 3664.—For makers of model castings for steam and electrical machinery.
Want metal novelties of any kind, any quantity? Write Metal Stamping Co., Niagara Falls, N. Y.

Inquiry No. 3665.—For dealers in advertising novelties.
Patented articles, principally of cast iron, made and introduced. Atlantic Foundry, Phillipsburg, N. J.

Inquiry No. 3666.—For makers of ice and creamery plants.
Let me sell your patent. I have buyers waiting. Charles A. Scott, Granite Building, Rochester, N. Y.

Inquiry No. 3667.—For manufacturers of fringing machinery.
Special and Automatic Machines built to drawings on contract. The Garvin Machine Co., 149 Varick, cor. Spring Streets, N. Y.

Inquiry No. 3668.—For manufacturers of caps. Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 3669.—For firms who install factories for the production of artificial manures from bodies of dead animals.
Crude oil burners for heating and cooking. Simple, efficient and cheap. Fully guaranteed. C. F. Jenkins Co., 1103 Harvard Street, Washington, D. C.

Inquiry No. 3670.—For makers of electric clock alarm bells for colleges and schools.
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. 3671.—For dealers in small novelties.
We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc. Metal Novelty Works, 43 Canal Street, Chicago.

Patent No. 694,279, horse ties, for sale outright or on royalty.
J. T. Horris, 299 Lexington Ave., New York.

Inquiry No. 3672.—For parties to make small, magnetic electrodes.
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. 3673.—For the address of parties who make cardboard 3-16 inch thick and one side faced.
Africa advertiser open to represent any business or will purchase for cash notions or novelties. Catalogues, prices and samples to Mr. A. Nickson, 8 Airth's Buildings, Smith Street, Durban, Natal, South Africa.

Inquiry No. 3674.—For makers of toy printing presses, also stencil manufacturing sewing machine companies.
Gasoline Automobile Batteries. William Roche's "Autogas" used properly will carry vehicle twice as far as any other battery of same weight. William Roche, inventor and manufacturer, 42 Vesey Street, New York, N. Y., U. S. A.

Inquiry No. 3675.—For parties to make telephone brackets to order.
A public exhibition of American and foreign inventions will be held for two weeks in February at Buffalo. Object, practically presenting them to manufacturers and capitalists. Modern Invention Exhibit Company, 124 Erie Co. Bk., Buffalo, N. Y.

Inquiry No. 3676.—For machinery for making cigar boxes.
FOR SALE.—Patent No. 717,281 "Novelty" new article of manufacture, "Cigar Holder and Ash Receiver." This will surely supply a long-felt want for smokers, especially at officers, clubs, homes, etc. Julius C. D. Ross, 685 Burlington Street, Chicago, Ill.

Inquiry No. 3677.—For an electric motor from 6 to 8 h. p. of the alternating type.
Inventors wishing to sell their patents or to have them manufactured on royalty will find it to their interest to correspond with me.
J. C. Christen, Main and Dock Sts., St. Louis, Mo.

Inquiry No. 3678.—For machinery for extracting the fiber from Lecchuilla, Maguey or Heniquen.
Inventors and parties desiring to have patented articles manufactured please take notice:—An old established New England concern, with large experience in manufacturing and marketing specialties of different kinds, desires to obtain control of patented inventions of merit, and would either purchase same outright or manufacture on royalty. All communications will be considered strictly confidential, and we reserve the right to reject any or all inventions submitted.
Address P. O. Box No. 316, Bridgeport, Conn.

Inquiry No. 3679.—For makers of steam turbines.
Inquiry No. 3680.—For makers of small turbine water wheels.
Inquiry No. 3681.—For parties to make a small steam engine to order.
Inquiry No. 3682.—For a motor for running a sewing machine.
Inquiry No. 3683.—For makers of gasoline engines.
Inquiry No. 3684.—For the makers of the Bunsen burners for gas mantle lamps.
Inquiry No. 3685.—For makers of the dry cold washer for plaster mines.
Inquiry No. 3686.—For a trolley box or device for delivering mail from rural routes to houses on the routes.

Inquiry No. 3687.—For a 10 h. p. gasoline engine to operate a 150 light dynamo for electric light work; one in which the regulation is as good as a steam engine.

Inquiry No. 3688.—For makers of running gear, wheels, axles, tires, motor, etc., for automobiles.

Inquiry No. 3689.—For new or second-hand brick-making machinery.

Inquiry No. 3690.—For dealers in strip tool or spring steel of special sizes.

Inquiry No. 3691.—For manufacturers of gas mantels.

Inquiry No. 3692.—For makers of ornamental faucets for fancy coffeepots, etc.

Inquiry No. 3693.—For dealers in electro-plating supplies.

Inquiry No. 3694.—For makers of corn broom machines.

Inquiry No. 3695.—For makers of electric launches.

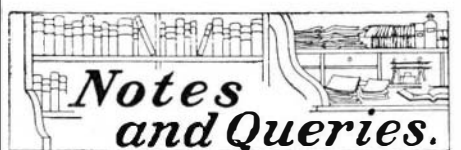
Inquiry No. 3696.—For makers of strong, durable gasoline automobiles for rough country roads.

Inquiry No. 3697.—For makers of machinery for making common pins, hat pins, etc.

Inquiry No. 3698.—For makers of glass jars and labels.

Inquiry No. 3699.—For makers of whitening.

Inquiry No. 3700.—For makers of concrete mixers.



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.

(8786) F. B. asks: How many pounds pressure would I get on a 12-inch pipe, running to a turbine, with a tank of water holding one and one-half million gallons of water, with a ten-foot fall? How many horse power would I give me? How many horse power would I gain with every ten-foot fall through the same pipe? How many horse power will it require to lift a six-inch stream of water 100 feet with the best pump, and will it take twice as much power to lift a 12-inch stream the same height? A. You would have 4 1-3 pounds per square inch pressure at the turbine. It is possible to obtain 5 horse power from the 12-inch pipe, and the same for each additional 10-foot fall. It will require about 12 horse power to fill your 6-inch pipe at full flow, and four times as much power for a 12-inch stream with four times as much water.

(8787) T. O. C. states: I have made an electro-magnet as follows: The cores are 1 1-16 inches in diameter, 3 1/4 inches long, wound with No. 22 magnet wire (double cotton-covered) 12 turns on each spool, the spools three inches clear in length; there is nearly 1 pound of wire on each spool. I want to use it on 110-volt current, but if the current is on for a few seconds, the wire on spools gets pretty warm. Can I avoid the heating by changing the dimensions? I would rather do that than put a lamp in the circuit, if it is possible. I want the magnet to overcome 8 or 10 pounds spring pressure. A. The difficulty with your magnet is excessive current. Two pounds of No. 22 wire will not have more than 16.6 ohms resistance. This at 110 volts will allow about 6 amperes to flow, and the wire cannot carry that current. You must either wind on much more wire, probably three times as much, or use some external resistance, the simplest form of which is a bank of lamps, so arranged as to allow the proper amount of current to flow.

(8788) A. W. F. writes: Is not your advice to C. R., Query No. 8725, a little dangerous in spite of your caution? For instance, if a quantity of gun cotton less than a bursting charge were exploded in a strong tube, would not the initial pressure of the liberated gases remain constant until the gases were allowed to escape, less the reduction of pressure caused by cooling to normal temperature? Therefore, would not the danger be great to suddenly liberate this great pressure by unscrewing the confining plug, as per C. R.'s question No. 2? A. Your suggestion is very proper in regard to suddenly liberating the high-pressure gases of combustion of gun cotton. In unscrewing a plug that would be used in such an experiment, the high pressure would be wasted by leakage over the thread before the plug could be unscrewed.

(8789) R. J. asks: Can you kindly advise us as to the best means of oxidizing yellow and red brass (in castings or in rolled sheets) copper and bronze? We have several showcases, the metal trimmings of which are backed with wood, rendering it impossible to heat same sufficient to oxidize in the usual manner. A. If the blackening effect is the one desired (and this is what is known as "oxidizing" in the trade) it can be obtained by using a very dilute solution of potassium sulphide, to which sometimes a little ammo-