

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion: about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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"C. S." metal polish. Indianapolis. Samples free.
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W. Hoskins & Co., Assay Furnaces, 81 Clark St., Chicago.
Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.
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The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

For Sale.—Two second hand Corliss engines, 16 x 48 and 14 x 48, now running at our factory. Can be seen until August 1, 1896. Withington & Cooley Mfg. Co., Jackson, Mich.

General Contractors—Make more money. Investigate Ransome's Concrete Construction. Easily learned. Liberal terms for exclusive rights. Ransome & Smith Co., 622 Boylston Bldg., Chicago.

The Ph. Nickols Cider Co. Albany, N. Y., offer an opportunity to make a fortune. Will sell the receipts for making cider extract including the pat. of April 2, 1895, at \$10 a copy. Samples of extract sent on receipt of 15 cents.

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

RECENTLY PATENTED INVENTIONS.

Engineering.

ROTARY ENGINE.—George E. Boom, New York City. This engine is designed to occupy but small space, and has rotary pistons and all rotary parts evenly balanced, reducing the vibratory motion to a minimum, and making it possible to employ a light base and framework while obtaining a high speed. The pistons are mounted on disks which have bearings in the walls of the cylinders, and on the opposite sides of the disks are segmental counterbalance weights to which are attached gear wheels, the disks, pistons and parts being mounted on two shafts parallel with each other. Self-oiling mechanism is provided for the bearings and the engine may be readily converted into a water pump or meter.

Railway Appliances.

CAR FENDER.—John P. Geraghty, Jersey City, N. J. Upon a main frame supported from the car, according to this improvement, is a yieldingly mounted sliding frame on which are pivoted side arms, an apron being attached at its lower end to the arms and at its upper end to a fixed support. The apron is thus normally held in a stretched position, inclined from the dashboard nearly to the rails, but when a person in the path of the car is struck by the fender and falls upon the apron the arms swing upward and form a scoop of the apron, in which the person will be received and held without injury.

SPEED INDICATOR.—George S. Wright and Howell P. Terry, Brooklyn, N. Y. A wheel on the axle or other rotary part of the car or vehicle, according to this invention, is connected by a driving belt with a shaft driving an axle on which is a wheel within a casing, a wing subjected to the current generated moving a pointer on a dial. The graduations on the dial indicate miles and parts of miles, and the position of the pointer indicates the speed at which the car is traveling.

SWITCH.—William G. Lewi, Albany, N. Y. This improvement is for a device to be operated from a moving car to shift switches. It comprises depressible platforms in front of a switch, parallel rock shafts, a plunger beneath each platform, while the platform comprises two drop sections and a sliding section, all having a hinged connection. There is a crank connection between each plunger and a rock shaft, while a shifting bar is connected with the movable section of the switch, and by links and crank arms with the rock shafts. The shifting bar may be automatically operated by pressing downward upon shifting plates at either side of the track.

SIGNALING APPARATUS.—Charles Olson and John D. Morrison, Roseburg, Oregon. This is an apparatus arranged in connection with air brakes, the closing of an angle cock in the system being marked by an indicator in each car, and causing the locomotive whistle to be sounded. The signal pipe is charged with a constant pressure below that of the train pipe, and the signal pipe is connected with the angle cock, and when the plug in the latter is closed, connection is made with the signal pipe and a pop valve to sound the whistle in the cab of the locomotive.

Electrical.

TRANSMITTING ELECTRICAL ENERGY.—Thomas W. Onderdonk, New York City. A device more especially designed for use in dental work, rock drilling, etc., has been devised by this inventor, to facilitate transmitting electrical energy in a simple and effective manner. The invention comprises a reciprocating tool and an electro-magnet and armature for causing reciprocations in one direction, a motor in an electric circuit and on the motor shaft a thimble of alternating metal and insulated strips, while a second electric circuit is connected with the first circuit and with the magnet of the tool. Contact plates in the second circuit engage with the thimble to transmit an intermittent current to the

tool magnet, there being a rheostat in the second circuit to regulate the force of the reciprocations of the tool.

Agricultural.

TURNING SWATHS.—George E. Nelson, Dillon, Montana. This is a machine adapted to travel behind a mowing machine, and take up and turn over swaths of cut hay or grass, leaving the swaths in practically the same position relative to each other that they were before being lifted and turned. The frame of the machine is readily raised or lowered, according to the character of the hay or grass on the ground, and within the frame are two rotating rakes, each adapted to take up a swath.

IRRIGATION SHOVEL.—John H. Gordon, South Bend, Wyoming. This is an implement peculiarly adapted to the requirements of irrigation farmers, making it possible to do a variety of work with one tool. It has a protruding tip and chisel-like point, which may serve as a pick or a crowbar in digging a narrow, deep trench, and edges of the blade curving from this point outwardly and upwardly, so they will follow the tip through strong sod and into any soil, while the scoop shape of the blade enables it to remove large quantities of earth at every stroke.

Miscellaneous.

GEOGRAPHICAL CLOCK DIAL.—David W. Thompson, Englewood, Ill. This is a clock for the use of educational institutions, indicating to the eye, in addition to the local time of the place, the time of day or night in all parts of the world, the portion of the earth's surface where daylight prevails and the portion where night prevails. It is also capable of adjustment to illustrate this for all seasons of the year and all latitudes, showing the rising and setting of the sun and the seasons, and all terrestrial phenomena dependent upon the inclination of the earth's axis to the ecliptic and the revolution of the earth.

BUILDER'S SCAFFOLD.—John E. Ennis, Duluth, Minn. This invention provides scaffold supporting devices so arranged that the scaffold may be raised or lowered with the load by the operator thereon, the apparatus being capable of use as an inside or outside scaffold, or as a window scaffold where a ground support cannot be conveniently employed. The apparatus is also provided with a "runway" or intermediate scaffold, for use as a landing or turning station for the barrowman or load carrier.

TYPEWRITER WORD REGISTER.—Clayton O. Blandin, Hastings, Neb. This improvement is more especially designed for use in commercial telegraphy, registering the number of words written to determine the cost of a message, as such messages are usually written on a typewriter. It comprises a casing in which is a registering disk operated by connection with the space bar of the machine, and the improvement is applicable to every style of typewriter.

PYROCATECHIN MONO-ACETIC ACID.—Wilhelm Majert, Falkenberg, Germany. Pyrocatechin mono-acetate of sodium is a remedy for consumption and loss of appetite, stopping night perspiration reducing the evening temperature, and in mild cases destroying the bacilli of the disease. The acid is obtained, according to this invention, by subjecting one molecule of chloracetic acid to the action of one molecule of pyrocatechin in the presence of free carbonate of a free alkali or carbonate of alkali, in accordance with a novel process described in the patent.

STEAM RADIATOR.—Augustus Eichhorn, Orange, N. J. This inventor has devised a radiator designed to readily and effectively expel the air from its interior upon the entry of the steam. In the base is a series of sections communicating with the base at one of their ends, while a diaphragm extends longitudinally and centrally with the base and serves to introduce the steam at the rear of the sections, so that it will be behind the air, and thus easily and effectively expel it.

STORM SASH FASTENER.—Andrew A. Loetscher, Dubuque, Iowa. For fastening storm windows, screens, or shutters to a window casing, this inventor has devised a simple and inexpensive fastening comprising a flanged block to be pivotally connected to a sash, a handle in line with an opening in the flange, while a pin or lug is attached to the casing for engagement with the flange. The device may be easily operated from the inner side of a room, so that a screen may be placed in position or removed with very little trouble.

FENCE POST.—William J. Sleep, Birmingham, Ala. This is a post especially adapted for carrying the runners of wire fences, and adaptable for the uprights of an arbor, a summer house, etc. It is preferably of metal, of boxlike construction, with longitudinal slots or openings and drainage openings near the ground line, and has undercut downwardly inclined brackets to receive the upper ends of braces. A binding strip held on one of the faces of the post has transverse grooves for securing wires to the post.

FENCE.—Elias Roth, New Oxford, Pa. This invention is for an improvement in fences made with wire stretchers, the stretcher wires being made with integral loops to engage the side of the post and being secured on the posts by staples which embrace adjacent members of each loop, thereby preventing longitudinal movement of the wires. The pickets are of peculiar construction, and are firmly bound by the stretcher wires, the latter yielding upwardly when shortened by low temperatures and sagging proportionately during the hot, summer weather, while the fence remains erect.

TILTING SPRING SEAT.—Charles F. Davy, Starkville, N. Y. This is a seat supported on springs from a frame adapted to be bolted to the seat post of a vehicle, and having at its sides studs from which extend side springs, so that the seat will be free to move in all directions, but will be held in position by the springs. The seat is well adapted for use on agricultural machines, locomotives, etc., being readily adjustable to stand at an angle to the surface over which the machine is driven.

CORSET.—Levi Weingarten, New York City, and David Groth, Newark, N. J. This corset has

a slit in one edge and a pocket in each edge of the slit, a shield being permanently secured to the corset adjacent to the inner end of the slit, with its side edges sliding freely in the pockets. The corset may be made to readily adapt itself to the form of the user, the expandable parts being capable of spreading or contracting without exposing portions of the garments beneath the corsets.

Designs.

DESIGN FOR MIRROR FRAME.—Albert Wanner, Jr., Hoboken, N. J. This design comprises a scrolled frame or border, latticework within the frame and a floriate center within the latticework, the sides of the frame having two series of ornaments.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

Notes & Queries

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.

Illustrations sent for examination should be distinctly marked or labeled.

(6830) W. W. M. writes: In your answer to my question in a recent issue, you advised me to use caustic soda in place of caustic potash in the battery under consideration. If such a change were made, 1, what would be the change in potential? A. There is no appreciable change in voltage, but you get the advantage of a clean solution and of one cheaply made. 2. Could commercial sheet zinc be used for negative plates? A. Yes.

(6831) J. P. H. asks how to make an Æolian harp. A. Æolian harps should be made to fit into a window, so that the sash can be adjusted to cause a strong breeze across the strings of the instrument. Make the box of thin dry pine, the top piece or sounding board of extra clear stuff about three-sixteenths of an inch thick. Sides and bottom can be one-quarter of an inch, length two inches shorter than the width of your window, width ten inches, depth two and a half inches. The ends should be of hard wood, and thick enough at one end



to hold the eyes or studs for fastening the wires or catgut strings. At the other end the wood should be thick enough to hold a set of violin keys, if you use catgut; or iron piano pins, if you use wire, which should be steel. Two bridges of hard wood glued diagonally across each end, for the strings to rest upon. If steel wire is used, a round wire should be inserted upon each bridge, so that the sounding wires will not cut the wood. The rest you may gather from the sketch. The tuning should be harmonic, or say thirds, fifths, and octaves. Make about four holes in sound board, one inch diameter, under the strings.

(6832) S. L. D. says: I am a subscriber to your valuable paper, and would like you to tell me in Notes and Queries how I can restore gilt picture frames that have become dark and dingy. A. You may improve them by simply washing them with a small sponge moistened with alcohol or oil of turpentine, the sponge only to be sufficiently wet to take off the dirt and fly marks. They should not be wiped afterward, but left to dry of themselves.

(6833) W. P. W. asks: What will take electricity out of printing paper? A. Nothing has yet been invented that will do this satisfactorily. Moist air palliates the evil, but will not always stop it.

(6834) J. S. asks: 1. How is copper oxide easily and cheaply made? I have tried heating copper scraps, but it didn't work after the first coat. A. Mix with ten per cent of potassium chlorate and water enough to make a thin paste, ignite, and wash. By calcining and vigorous shaking you should succeed by simple ignition. 2. How are the copper oxide plates in an Edison-Lalande battery made? A. See SUPPLEMENT, No. 792 for description of the battery named. 3. I am making a dry battery as follows: I use an amalgamated commercial zinc cup, coated with plaster of Paris and sal ammoniac mixed with water containing a small quantity of gelatine and glycerine. Inside of this is a layer of blotting paper, and around the carbon a mixture of powdered carbon and manganese dioxide mixed with the same solution as the plaster of Paris. The voltage is all right, but the amperage is low. How can I reduce the internal resistance? A. The resistance will inevitably be high—you can reduce by adding zinc sulphate in strong solution.

(6835) A. R. B. writes: We should like to be informed, through your valuable paper, how many storage batteries it would require to light ten 16 candle power, 32 volt lamps for six hours continuously per day. What primary battery and how many would you advise us to get, with which to charge the storage batteries? A. We advise you to consult with a dealer in storage batteries, as different sizes are made. You will require eighteen in series, and a moderate size of cell would

suffice in a single series for your purposes, giving a total of eighteen cells. Do not attempt to charge with a primary battery.

(6836) J. W. C. asks: Can you give me a receipt for making a solution for removing the scale from drop forgings of iron and soft steel? I understand there are some concerns using a pickle for doing so. What effect would it have on the metal? A. Use, by volume, sulphuric acid, 1 part; 1 part nitric acid; 2 parts water, applied warm. Either the acid or the iron may be heated. It will not injure the iron, unless used to excess.

TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

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United States were Granted

April 7, 1896,

AND EACH BEARING THAT DATE.

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