RECENTLY PATENTED INVENTIONS.

Engineering.

ELEVATOR DRIVE WHEEL.—George S. Fouts, San Jose, Cal. To effectively drive a rope, cable, or other band for elevators and other carriers, this invention provides a pulley having in its rim a groove whose base is continuous, forming a smooth, solid seat, while at intervals the side walls have openings through which operate grip sections, connected with one or more cam rings upon the shaft and hub. A cam groove of the cam ring is so formed that it will operate the gripping sections to grip the rope on a portion of the circumference of the pulley and free it at other portions, permitting the rope to move freely into and out of contact with the pulley and yet tightly clamping it to the pulley for driving purposes.

Railway Appliances.

CAR TRANSFER BOAT.—Walter G. Berg, New York City. This boat has a vertically movable platform arranged to permit of running a car upon it and raising or lowering it and a car, according to the difference in height between the pier or landing and the boat. The boat is wide and long, to accommodate several lines of track, and has at one end a turntable, with which supports are held to turn, a platform suspended from the supports being adapted for vertical movement, and there being an apron hinged to the platform at its periphery. A hoisting device is connected to the platform, and any suitable power may be employed for turning the turntable, and for raising and lowering the platform or swinging the apron.

RAILROAD GATE.—John J. Flippin, Neapolis, Va. Devices operated by compressed air are arranged, according to this invention, to lower a gate at a road crossing as a train approaches from either direction, the moving train also actuating the devices to raise the gate after the train has passed. A main pipe along the track near the crossing is kept charged with compressed air from receivers or by other suitable means, and the apparatus includes a gate wheel having cylinders and pistons, a valve wheel pneumatically operated in one direction and oppositely actuated by a spring, pipes connecting the valve wheel with the air mains, and tripping devices being connected with the controlling valves.

AUTOMATIC SWITCH.—Carl Reger and Eugene Duerr, Buffalo, N. Y. To enable a motorman on a street railroad to open a switch and run his car on a branch track, the switch again closing automatically when the car has fully passed upon the side track, according to this invention, a pivoted switch point is connected with a lever operating two switch levers, one in the main track and the other in the side track. The switch is opened by depressing a staff sliding in a casing on the platform of the car, and is automatically closed again by the swinging of a lever caused by the engagement of an arm by the flange of one of the rear car wheels.

Electrical.

LIGHTING VEHICLES.—Jules A. Ageron, Paris, France. For lighting wheeled vehicles this inventor provides an electric generator operated by the rotation of the wheels, an accumulator connected therewith, rotatable circuit breakers in the connection, driving disks movable from one circuit breaker to another, and a lamp in circuit with the accumulator. The apparatus is designed to afford light not only during the forward travel of the vehicle, but also while it is stationary or traveling backward, and its dimensions and weight are but moderate. A continuous current magneto electric machine is employed, having its brushes so disposed as to permit of rotation in either direction, and the accumulator supplies the desired current when the machine is out of action.

ELECTRIC SWITCH.—Maximilian Schalscha, Hoboken, N. J. This is a switch for automatically regulating the current through a motor to gradually increase or decrease the speed, the device to be carried by a car and comprising a series of contact plates through which the circuit may be closed by a switch arm, the arm being mounted on a rotary shaft, while a rotary shaft has gear connection with the arm carrying shaft, and arms are extended radially from the last named shaft. Pins are located on the track in the path of the arms to engage and move them, and there is gearing between the shaft and the contact arm to drive the latter from the former.

ELECTRIC LOCOMOTIVE AND RAILWAY.—This patent is for a further invention of the same inventor, according to which the current is automatically regulated, dispensing with the services of an attendant while the cars move from one point to another and return. The invention provides for rapidly and economically conveying coal, etc., from a vessel or car, the car being started by turning on an initial current and automatically attaining full speed, but the current being gradually and finally cut out and reversed. In the case of a dumping car the invention also provides simple and automatic means for releasing the dumping mechanism, whereby the contents may be discharged into a pocket or receptacle.

Mechanical.

DIE STOCK.—Gustav Wagner, Reutlingen, Germany. In screw-cutting dies this inventor has devised a die with several sets of differently arranged screw-cutting jaws, so that threads of different pitches may be cut with the same die without removing the jaws or cutting tools. The cutting edges may be readily adjusted to any desired diameter and securely held after adjustment to prevent displacement of tools during the cutting operation, avoiding any inexactness from a soiled condition of the die and the loss of individual tools, while simplifying the manipulation of the die.

PLUMBER'S CLAMP.—James H. Griffin, New York City. This a device more especially designed for temporarily holding lead pipes in place while wiping a joint, and comprises a U-shaped clamping arm having at one end a seat for the pipe and at the opposite end a nut in which screws a rod having on its lower end a clamping plate adapted to engage the pipe on the side opposite the seat. The latter has an extended socket in which is a supporting pin in a suitable base, and in direct line with the screw rod and seat.

STAVE PLANING MACHINE.—Carl S. Algren, New York City. For dressing the outer and inner surfaces of staves intended for use in building tanks, vats, or similar work, this machine is made with an ordinary cutter head to dress the inner sides of the staves, and two movable cutter heads to dress their outer surfaces on a bevel, that the hoop or band placed about the tank or vat may have a better bearing surface. The latter cutter heads are made movable on the shaft in order to accommodate them to staves of different widths and to cause the bevel to be started from the outer edges of the staves. The adjustment of the cutter heads is automatic, being accomplished by the action of the edges of the staves against guide levers.

Agricultural.

COTTON CHOPPER.—John R. Miller, Bend, Texas. The choppers are, in this machine, adjustable to regulate the distance between the hills, and cultivators are arranged to follow the choppers in such manner that the spaces between the rows of hills will be cultivated as the hills are formed. The ground or supporting wheels are adjustably placed on their axles corresponding to the adjustment of the choppers, to insure a uniform distance between the rows of hills as the machine is drawn up and down the field, and, by means of levers within convenient reach of the driver, the plows and choppers may be made to enter the ground as far as desired or be entirely removed from the ground.

Miscellaneous.

MAGAZINE FIREARMS.—Gardner P. Hastings, Springfield, Mo. In this arm is a mechanism by which the empty shell is extracted by the loaded shell to be next placed in the cartridge chamber, the extractor being effectively and surely operated from the breech block. A better bearing of the slide action upon the hammer is also obtained than heretofore for cocking the hammer, and the firing pin is made in two sections, one in the breech block, and adapted to strike the shell, while the other section is adapted to receive the impact of the hammer, being placed in a recoil locking block. The latter occupies such position during the extracting of the shell and the loading of the cartridge chamber as to carry the breech section of the firing pin entirely out of the path of the hammer, such section being brought into concerted action with the other section only when the cartridge is fully within its chamber and all parts are in position for firing. The magazine may be readily secured in or detached from the gun.

TYPEWRITER ATTACHMENT.—Walter P. Butler, Minneapolis, Minn. This invention is designed to enable operators on typewriters to more easily execute tabulations of items and figures and to dispose the subject matter more uniformly and neatly. In effecting this end, the inventor provides a digit scale and a pointer which he may fix respectively to the frame and carriage, or vice versa, so that there will be relative movement as the carriage moves on its track. Thus, by establishing a known relation between the scale and platen, it is easy to bring the platen into any desired position with reference to the type, and consequently to arrange items and figures in any manner on the paper. The parts are readily interchangeable and are applicable to any style of typewriter.

WIRE FENCE TOOL.—Norman D. Wintersteen, Sac City, Iowa. A readily portable tool has been devised by this inventor to facilitate the erection and repair of wire fences, for placing the wires along a line of posts, stretching and splicing them while they are being secured in place, and the drawing of staples from posts and straightening them for reuse. The tool comprises two lapped and pivoted handle arms, each having a jaw member inwardly bent, one member with a notch and the other with a projecting nose to enter the notch, while the jaws are also longitudinally slotted, with a ratchet toothed stretcher bar longitudinally movable in the slots, dogs engaging the stretcher bar, on one end of which is a clamping bar, and there being means for locking the handle arms together.

PIPE WELL AND MEANS FOR DRIVING IT.—Nelson W. Davis, Port Jefferson, N. Y. Instead of first driving the well pipe and then pumping out and inserting a strainer section, as heretofore, this invention provides a pipe which may be driven by pressure at its lower end and on top of the strainer, or at the lower end of the strainer, where there is a steel shoe section adapted for engagement with a rod connected with the driving head, on the upper end of a screen protector tube. Another form of driving head and strainer point are also provided, with which the strainer can be used as an open or closed end drive pipe, in both forms the driving blow being practically delivered at the lower end of the well tube, allowing a harder blow to be given than in the usual method of driving.

PUMP.—John D. Wilcox, Gilman, Ill. This is a pump particularly adapted for pumping sand and water from oil or similar well tubes during the operation of boring. The pump handle is fulcrumed on a link pivoted to lugs, making a shifting fulcrum to allow its end to move in a direct vertical line with the pump rod, and on the plunger is a valve made in two sections and designed to prevent clogging with mud or sand. On the upper end of the body portion of the pump is a water and dirt receiver having an outlet spout, and there is a swivel connection between the pump body and receiver.

MEASURING INSTRUMENT.—Hercules Scott, Princeton, West Va. This is an instrument more especially designed to facilitate measuring the area of plots of land, and also adapted to measure the distance between objects, the heights of objects, etc. It comprises a table or base at opposite sides of which are stationary sights, and a sighting arm pivoted at one end of the sight lines, the table having two graduations on which indicates the pivoted arm. One of the graduations indicates the distance of an object sighted on the pivoted arm and on the sight line at the opposite side of the table, the other graduation indicating the distance between two objects when one is sighted on the pivoted arm and the other on the adjacent sight line.

HEATING AND COOLING COIL.—Julius E. Koester, New York City. This is a coil which may be readily cleaned and subjected to a high or low temperature to heat or cool a liquid made to flow through it. It is made of two or more grooved sections separated by a division plate having an opening for connecting the adjacent ends of the grooves with each other and causing the liquid to first flow through the groove in one section and then through the groove in the other section.

PICTURE EXHIBITOR.—George W. Brown, Colorado Springs, Col. This patent is for an improvement on a former patented invention of the same inventor, and provides a simple construction for use in connection with a phonograph or like instrument, and actuated with the phonograph by the same power. It comprises a closed casing in which are rollers, one of them connected with an operating mechanism, an illuminating device being arranged in the casing, a strip carrying pictures arranged to move over the rollers and an eyepiece in position to render visible the pictures on the strip.

VIOLIN CHIN REST.—Myron H. Coloney, Denver, Col. This is a device which may be readily placed in position on or removed from the instrument, and comprises a tubular shank made in two parts, one slidable on the other, a head on one of the parts carrying the rest proper, and there being a foot on the other part. A post fixed to one of the parts has a projection engaging a vertical slot in the other part, and a spring on the post draws the head and foot toward each other to clamp the device in place on the instrument.

SIGN LETTER.—Raleigh M. Pearson and William Letzig, Little Rock, Ark. This is a transparent letter backed with gold, silver or colors, the latter having a backing of tin or lead foil, whereby the letters will be exceedingly transparent and the color thoroughly protected. The letter, character or symbol is so shaped that it may be attached to the inside or outside of a pane of glass with equal ease, and the letter may be applied to the plane surface of any material by a cement which does not appear over the entire surface of the letter but is confined to its margin.

SIGN WRITER'S APPARATUS.—Herman C. Carver, Red Oak, Iowa. This improvement comprises a body portion provided with liquid feeding devices, a guide to engage the surface on which the sign is to be painted, and a supplemental arm to engage the hand of the operator and indicate the degree of pressure applied to the guide. The body portion has a flanged mouthpiece which may be closed by a block through which passes a point serving to form the fine lines, while the block may be moved inwardly to permit the flange of the mouthpiece to form shaded lines, the apparatus being capable of very readily and beautifully forming the various shade lines and scrolls desirable.

STAMP RACK.—David S Haines, Sandy Hill, N. Y. This is a rack for holding postage stamps to be offered for sale, and comprises a frame in which are two uprights having vertical slots in which are journaled two pairs of rollers, there being a turning knob on one trunnion of each roller, springs bearing on the trunnions of the upper rollers and an apron oppositely wound over the rollers. Upon the apron are numerals corresponding to the number of stamps on a sheet, and the stamps are so held that the attendant can always readily determine the number sold, while the inconvenience and liability to loss from having single stamps lying around is obviated.

SHOW STAND.—Henry Klein, New Lexington, O. This is a stand more especially designed for holding window shades in assorted styles, so it will not be necessary to handle all to get a desired style, and protecting their edges or ends, while the shades are readily removable as desired. The stand is circular, revolving on a central shaft, and is divided into compartments by radial partitions, the compartments being closed by top and bottom plates and doors, having an open middle space through which the shades may be seen. The doors, at the bottom, are opened to insert or remove shades.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

BICYCLES AND TRICYCLES. An elementary treatise on their design and construction. By Archibald Sharp, B.Sc. With numerous illustrations. London and New York: Longmans, Green & Company. Pp. 536. Price $4.

The rapidity with which cycling has attained such great and general popularity, as well on the other side of the Atlantic as in this country, gives especial interest to the appearance of a book forming, as this one does, a valuable addition to bicycle literature, and which treats of the design and construction of machines from a scientific standpoint. Part I treats of mechanics and the strength of materials as applied to bicycle construction; Part II of the development of the machine—stability, steering, gears in general, etc.; and Part III of the frame, wheels, bearings, varieties of gear, tires, pedals, cranks, springs, and saddles, etc. The book has many valuable tables and diagrams, and is an up to date treatise for the intelligent and critical bicycle rider.

FIRST AID IN ACCIDENTS. What to do in emergencies until the doctor arrives. Manual of "First Aid to the Injured," for the Fire Department, to be used as Hand Book by the Members of the Red Cross Society American Firemen. New York: Fred J. Miller. 1895. Pp. iv, 52.

There is something about the ground covered by this work which would suggest an English origin, so that it is a real comfort to find that so practical a subject, and so well treated, is here executed specifically for the American market. It applies particularly to firemen and is designed to be used by all members of the force. It simply tells what is to be done in case of accidents until the doctor arrives, does not attempt to substitute the help of the uninitiated for that of a physician, but simply to hold one secure from danger as far as possible until the physician arrives on the ground.

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.

Minerals sent for examination should be distinctly marked or labeled.

(7112) M. H. W. says: Will you kindly give me a recipe for removing nickel from steel, after the work is finished? It is removed by acids. Also please inform me object in coppering the steel before nickeling? A. Defective or old nickeling can be removed by first freeing from adhering dirt and grease; clean by plunging in a solution of caustic soda. The rust is next removed, which is best effected by connecting the article with a piece of sheet zinc and placing it in a mixture of 100 parts water and 1 part sulphuric acid until the rust spots have disappeared or can be readily removed by wiping. The article is then dried and treated in the nitric acid bath. For the latter it is best to use a mixture of 1 part by volume of nitric acid and 10 parts by volume of sulphuric acid 66° B. The acid mixture should be kept in a vessel of glass, porcelain, or stone ware, or in a wooden trough lined with lead, and when not in use it should be covered. The articles to be stripped are placed in the acid bath and allowed to remain until the nickeling is completely dissolved. Should this not be the case in the course of an hour, the articles are taken from the bath by means of an iron tool, rinsed quickly in running water to remove the nickel salts not soluble in the acid, and then dried with cloths. They are then placed in the acid. When the nickeling is entirely dissolved, the articles are rinsed in water and brought immediately into the nickel bath; or if they are to be coppered before nickeling, as is frequently done, they are put into a cyanide of copper bath. The above is from Langbein's "Electro Depositions of Metals," $4. The object of coppering steel before nickeling is to prevent its rusting, and also to give a better hold for the nickel on the baser metal. The nickel is then not so liable to scale off.

(7113) C. G. S. says: Would you kindly tell me the best paste to use for labeling bottles where the bottles are exposed to the wet? A. Labels which are exposed to the wet should be varnished, after the paste is dry, with copal varnish. 1. Tragacanth, 1 ounce; gum arabic, 4 ounces; water, 1 pint. Dissolve, strain, and add thymol, 14 grains; glycerine, 4 ounces, and water to make 2 pints. Shake or stir before using it. 2. Rye flour, 4 ounces; alum, ½ ounce; water, 8 ounces. Rub to a smooth paste, pour into a pint of boiling water, heat until thick, and finally add glycerine, 1 ounce, and oil of cloves, 30 drops. 3. Rye flour, 4 ounces; water, 1 pint. Mix, strain, add nitric acid, 1 drachm, heat until thickened, and finally add carbolic acid, 10 minims; oil of cloves, 10 minims, and glycerine, 1 ounce. 4. Dextrin, 8 parts; water, 10 parts; acetic acid, 2 parts. Mix to a smooth paste, and add alcohol, 2 parts. This is suitable for bottles of wood, but not for tin, for which the first three are likewise adapted. 5. A paste very similar to 3, but omitting nitric acid and glycerine, is also recommended by Dr. H. T. Cummings—Am. Jour. Pharmacy. 6. A good paste for labels for specimens: Starch, 2 drachms; white sugar, 1 ounce; gum arabic, 2 drachms; water, q. s. Dissolve the gum, add the sugar, and boil until the starch is cooked. 7. A good paste is made by soaking flake tragacanth in sufficient cold water that the brush will not sink into the paste when finished. To prevent souring, add to the water 2 grains hydronaphthol (dissolved in a little alcohol) for each pint, and a few drops clove oil for scent. To keep away the flies add some oil of pennyroyal. Avoid, in making pastes, oil of wintergreen and carbolic acid, for these produce a purplish discoloration by contact with the tinned iron of the