#### RECENTLY PATENTED INVENTIONS. Engineering.

AFRIAL RAILWAY.-Ignacio M. de Oca y Mellan, New York City This invention relates to constructions in which the care are suspended from a cable and have a trolley which runs on the cable, and provides for the use of double hangers, increasing the safety of the traffic, and for novel movable supports for the cable, whereby the path will be cleared for the hangers as the car passes the supports, without leaving the cable unsupported at any time. The invention also covers improve-ments in the trolley and novel means for operating the movable supports.

#### Railway Appliances.

CAR COUPLING. - Andrew D. Alden, Brockport, Pa. 'This patent is for a coupling of the automatic latching type, and more particularly that form wherein a coupling jaw or knuckle is rivoted to swing laterally in the drawhead to interlock with or be released from a knuckle on a similar coupling. A knuckle pivoted to the drawhead is engaged by the shoulder of a rocking dog having a spiral channel where the knuckle is moved into operative position, a tripping bar sliding in the drawhead under the dog and having a toe adapted to engage the spiral channel and rock the dog to release the knuckle. The drawhead of this coupling is without any openiug in its upper side, and hence it is not liable to be obstructed by snow, ice, etc.

BLOCK SIGNAL SYSTEM. - Joseph E. Donbavand, Millville, N. J. In connection with the usual danger and caution signal circuits, this invention provides for the employment of auxiliary signal circuits and signal mechanisms which may be located at various points in the blocks, such auxiliary signaling mechansms being adapted to be actuated by a train in the rear of the point at which the signaling mechanism is located, so as to indicate the approach of a train. The invention also provides for improvements in the mechanisms as well as in the arrangement of the circuits, rendering the system more simple, inexpensive and positive. adapted for employment on both single and multiple track roads.

#### Electrical.

SHADE HOLDER FOR ELECTRIC LAMPS. - Morris D. Greengard, St. Louis, Mo. To secure the shade in the desired position without the use of screws this inventor has devised an improvement according to which the lamp socket has a shoulder, and the holder has arms with bearing portions at their free ends, while a ring fittedon the socketabove the shoulder has cams engag ing the bearing portions. The ring may also be provided with spring clasps and slides movable independently of the ring and clasps.

ELECTRIC RAILWAY SYSTEM.-Barton R. Shover, Indianapolis, Ind., and Frank P. Townsend, Asbury Park, N. J. According to this improvement the main electric wire and circuit closing devices are placed in a conduit between the rails, or near one of them, and all parts from which danger by contact would come are placed in a closed circuit, the circuit closers being closed by an electro-magnet carried by the car to convey the cur rent through the car motor. As the car passes along the contact strips are successively elevated, and the working rail sections are so short that there can be no danger from them to one in front or in the rear of a car.

# Agricultural.

HAY FORK OPERATING DEVICE -John F. Tuttle, Springdale, Washington. To dispense with the derrick teams used in connection with thrashing machines for the operation of the fork, this inventor has devised a mechanism, the driving pulley of which is mounted on a tumbling rod, whereby a shaft is operated carrying pulleys of three or more diameters, around either one of which the rope attached to the fork may be run, and easily changed from one to the other. The de vice does not allow the fork to interfere with the table tenders of the machine, enables the fork to take up a much larger load than heretofore possible, and to be used with more certainty, insuring the safety of the forker.

THRASHING MACHINE FRED. -George W. Rucker, Belle Plaine, Iowa. In feeding attachmenta for thrashing machines this inventiou provides an improved device of simple and inexpensive construction. having means for cutting the bundles and feeding the grain to the separator, designed to increase the capacity of the machine and give better results. Within a casing which supports one end of a carrier is a knife drum, be low v hich is a conveyer having its rear end vertically movable, the carrier being at a proper elevation to feed the material into the casmg, and being operated by four men, two on either side. The sheaves are straightened out automatically in case they strike on end, and the cut material is fed to the pickers and thence to the sepa-

# Miscellaneous.

DENTAL TOOL AND PLUGGER. - James W. Dennis, Cincinnati, Ohio. This is an instrumentes pecially adapted for taking up and holding pads or plugs for introduction into cavities in the teeth, particularly those which absorb surplus mercury from amalgam fillings, the tool facilitating the locating of the plug or pad m a tooth cavity without causing pain.

BADGE.-Oliver T. Eads, Harvey, Ill. This is a device to be attached to the coat or vest and representing the head and bust of a man, the arrangement being such that by drawing down upon a string the neck portion will be drawn out or elongated. The device is designed to afford amusement or to serve as a hint to a questioner that further questions are not desired.

HAIRPIN.-Frank J. Prokop, Dolgeville. N. Y. This invention relates especially to pins having ornamental heads, or to be worn as ornaments in the hair, and is made in two sections, a stem or shank section and a shell casing or receiving section constituting the lower portion of the pin. The pin may be readily placed in the desired position in the hair and then locked in such position.

Cyrus Roberts, and Thomas J. McCrary, Alvord, Texas In this device a bar on which is a series of numbers slides in a frame or base which is also provided with a series of numbers, there being a sliding lever or pusher for moving the sliding bar. The sliding bar is provided with a longitudinal serrated plate, and the lever or pusher movably secured to the frame is adapted to be swung into engagement with the serrated plate. On the base block is a series of peg holes in which amounts exceeding 100 in a single column are to be noted by means of pegs or pins, thus facilitating the adding of long columns of figures

EVAPORATING LIQUIDS.—Leon F. Haubtman, New Orleans, La. For quickly absorbing moisture from saccharine liquids, etc., this inventor has devised an apparatus in which a series of inchned plates is arranged in a casing to form chambers having communication with one another, there being a liquid receiver at the end of each plate and meaus for heating liquid in the receivers, and heated air being forced through theap paratus in a direction opposite to that in which the liquid is flowing.

HOT AIR HEATER.—Adam W. Ringand, Toledo, Ohio. In order to utilize the fuel in a hot air furnace to the fullest advantage, the fire box, according to this improvement, is made with a combustion chamber extending the length of the heater, and having side walls curved inward toward each other, so that their convex sides are contiguous, there being also an interior hot air chamber separated from an exterior hot air circulating chamber, an mlet flue leading into the exterior chamber having a valved connection with the interior chamber. The fire box construction allows for a large grate surface, and its inwardly curved walls present increased radiating surface and allow for larger air spaces hehind them

STRAW BURNING STOVE. - Walter P. Hitchings, Waubay, South Dakota. The fire pot of this stove is composed of angular bars partly beneath the feeder and partly beneath the griddle holes, the inclined rear side of the fire pot being separated from the oven wall and arranged over the entrance of the base live. A flue passes m front of and beneath the oven, and the heat may be utilized to great advantage in heating pots and pans set in the holes, as well as for heating the oven withoutscorching articles placed therein.

PASSENGER REGISTER -- William H. Cling, Charleston, S. C. This is a device for registering those entering a car, theater, etc., by means of a plate which is depressed by the stepping on it of those passing in. It comprises a box with spring-supported cover. pendant from which is a hook pawl adapted to engage a ratchet wheel on a shaft, there being also on the shaft removable tape-carrying reels, the tape having printed figures in consecutive order. By inspecting the tape at any time it is readily ascertained how many times the cover has been depressed, or how many people have stepped on it in passing.

VEHICLE STORM GUARD. - Sylvanus Norton, Sinclairville, N. Y. This is a device for attaching the hoods, storm guards or aprons to the dash of a vehicle, consisting of a strap with a clamping device at one end and a take-up lever connected with the opposite end, a second clamping device being connected with the take-up lever. After the guard is attached to the hood, dashboard and body of the vehicle, the latter is practically a closed vehicle, and when the guard is not required to close the entire front it may be used as a pocket, protecting the lower extremities of the occupant.

Show Case. - Frank Gurley, High Point N. C. This Inventor has devised a show case from which dust or litter may be readily swept out, the bottom strip of the door frame at one side having a recess extending down to the floor and cut transversely through the strip to the level of the floor, a block fitting the recess beneath the door.

ICE CRACKER AND SHAVER. - Frederick E. Steere, Lynchburg, Va. This is a simple machine for use in connection with the sale of beverages, facilitating the shaving or cracking of ice as desired. The ice is placed in a hopper through which a plunger carrying disk with spikes on its face may be moved to force the ice against rotating teeth to break up the ice in small pieces, or a disk carrying knives may be advanced beyond the teeth, when the ice will be shaved instead of being cracked, a crank being turn d iu both cases.

UMBRELLA. - Rufus Waples, Jr., Philadelphia, Pa. This invention is for an improvement in what are known as umbrellas and canes—the umbrella proper being applied to and removed from a handle which may be an ordinary cane. The ribs are arranged to expand in two opposite sets connected together and the braces are arranged in similar sets connected together, the ribs being arranged in groups to avoid multiplicity of joints, and the ribs and braces being in certain respects constructed and connected anke. The handle may be made hollow to form a sheath for the collapsed and folded umbrella portion, or the latter may be applied to an ordinary cane or staff.

PAINTERS' BLIND HOLDER.-John W. Woodward, South Royalton, Vt. For holding blinds and similar articles while being painted, this inventor has devised a light and simple construction by which a blind of any length may be held and turned to any derired position to facilitate work on it. It has two treatles adjustably united by a connecting bar, and each trestle having an adjustable upright in which is a longitudinal screw turned by a crank arm, while a T-shaped arm centrally pivoted to the connecting bar is adapted to be held in engagement with the side edge or the bottom of the blind.

CURTAIN FIXTURE.—Emsley L. Slight. Ennis, Texas. This invention relates to fixtures in which a spring roller is carried in sliding supports that move up and down on vertical guide strips attached to the window frame, and provides a novel form of sliding head with grooved ways or runners moving over stationary vertical guide strips, there being devices for retaining the journals of the roller in the head and springs to hold production of a number which is unique in the history the head to any adjustment on the guide strips. With of trade journalism. It is published at New York and the gage on pump discharge pipe indicates 40 pounds. this improvement the curtain may be readily adjusted to Chicago.

CALCULATOR. - Wesley A. Copeland, shutoff the light from either the top or bottom of the window, or any intermediate portion

> HINGE.—Tyree Rodes, Nashville, Tenn. This is a hinge especially adapted for gates, and the patent is for an improvement on a former patented invention of the same inventor. The hinge is made of a piece of stout wire whose middle portion has several coils forming an eye, while its ends are wavy and some what divergent and terminate in spurs, being designed for convenient attachment to the gate between or end pieces, whereby the body or shanks of the hinge are covered up, leaving the eye only exposed.

SPECTACLES .- John T. Meredith, Shawnee, Ohio. These spectacles have auxiliary temples fitted to slide on the straight temples, and having an outer curved ear portion, with means for locking the sliding to the straight temples. The auxiliary temple, when pushed in, assumes an almost straight position, but readily curves around the ear when pushed out to securely hold the spectacles in place.

HEADS AND MASKS.-Isidor Roescher. New York City. An eye and tongue support for artificial heads and masks or vibratory supports for dolls' eyes and tongues, has been patented by this inventor, in which the supports are so concealed and so attached that the least movement affords vibrations which appear at the openings provided. The artificial eyes and tongue are connected with separately arranged springs within the mask, so that they will not interfere with the action of each other.

#### Designs.

DESIGN FOR SCRUBBING BRUSH. Samuel K. Hawkins, New York City. This brush is made in an approximately 8-like curve, with pointed ends, and the upper edge is chamfered all around.

SASH WEIGHT. - Robert R. Bren, New York City. This is a weight having at one end specially advantageous recesses surrounding the aperture for the attachment of the sash cord, so that it may be readily secured to the weight without liability to friction against the sides of the pocket in which the sash runs

BACK BAND HOOK.-Hiram E. Weth erbee, Greenville, Miss. This design is for a substantially flat plate in which are elongated parallel openings with adjacent perpendicular serrations, there being a broad hook surrounded by an opening about centrally of the

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.

PLANTS AND THEIR CHILDREN. By Mrs. William Starr Dana. New York, Cincinnati, Chicago: American Book Company. Price 65 cents.

Not every book of nature study can be so heartily commended as Mrs. William Starr Dana's "Plants and Their Children." Some educators have gone into raptures over the beauty of flowers, and neglected the study others have missed the beauty in sordid pursuit of fact; it has remained for Mrs. Dana to hitch her wagon to star, to teach at once science and poetry. The study of flowers is inherently attractive. It is the study by which the child is most readily attracted, from which he is least liable to be discouraged. That he is so often discouraged speaks ill of his teachers. The flower, says Mrs. Dana, attracts the bee by sweetness and beauty. In the same way it attracts the child. Others may be led into botany through the study of cells and slimes. He leaves these to his elders. One entrance appeals to him, that which leads through flowers, and the wise teacher will lead him in by that. Once in, it will take more than a few techniterms to frighten him from this fascinating flowerland. Yet this book, carefully as it shuns the less attractive as pects of the subject, is not unscientific. It leads inductively to the prime principles. It tells of the formation of the seed, the storing of food, the growth of the infant plant, but all with a living interest, not sentimental, but poetic with the comprehensive poetry of Thoreau and Emerson. The book teaches the child to see. It teaches the observant, expectant mood of the scientist, a mood nsonant with the most spiritual religion. The illnstrations, by Alice Josephine Smith, are most adequate. The book is in every way most attractive. book is designed for a supplementary reader. easy to foresee the pleasure that the children will find in Mrs. Dana is widely known as an authority on the subject of plants and plant life, and her first publication along these lines, "How to Know the Wild Flowers," attained an enormous circulatiou. We commend the book alike to those who have made such subjects a study and to such as are not sufficiently observing to have become enamored of the plant life about them, or who have not come under the spell of Mrs. Dana's charming style.

LRE'S HOME AND BUSINESS INSTRUCTOR. Chicago: Laird & Lee. Pp. 3 Price, cloth, 50 cents and 75 cents. Pp. 372

This is a well printed and arranged little handbook in which is compactly set forth many valuable points on penmanship, letter writing, bookkeeping, banking, everyday law, mercantile and technical terms, social forms and speeches, etc. It is somewhat unique in its arrangement and quite original in its treatment of the various subjects, and must be a valuable aid to selfinstruction by the young, as well as a handy volume in many ways to have

The October number of the Street Railway Journal is more than double its normal size, as the enterprising publishers decided to issue a souvenir num ber on account of the St. Louis Convention of the American Street Railway Association. The transportation facilities in the city of St. Louis are fully treated and a colored map is provided. The number is filled with interest ing matter and is beautifully printed on coated paper. The advertisements, which fill 248 pages, are printed in colored inks. We congratulateour contemporary on the

### Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion : about eight words to a line. Advertracments must be received at publication office as early as

Marine Iron Works. Chicago. Catalogue free. " C. S." metai polish. Indianapolis. Samples free

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Handle & Spoke Mchy. Ober Lathe Co., Chagrin Falls.O. Yankee Notions. Waterbury Button Co., Waterb'y, Ct. For good letter copies see "Rubber Tipped" adv., p. 340. Screw machines, milling machines, and drill presses. I'he Garvin Mach, Co., Spring & Varick Sts., New York,

Would manufacture metal specialties of undoubted nerit. Cycle parts preferred. G.W. Cilley, Norwich, Ct.

Carpenters. - Make more money. Go into concrete construction, Ransome system. 758 Monadnock Bik., Chi'go

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.

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.

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#### HINTS TO CORRESPONDENTS.

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.

Blooks referred to promptly supplied on receipt of price.

(6991) W. A. B. asks(1) how to magnetize a piece of thin iron. A. Starting at one end, rub it across the pole of a strong magnet; a dynamo field magnet is excellent. Removeit in a sweeping curve and repeat the rubbing, always in the same direction but changing sides. 2. Do you know of any work published on magnetism that an ignoramus can understand? The encyclopedias have lengthy articles on the subject, the more of which I read the less I know. A. We recommend "Magnetism," by Houston & Kennelly, price \$1. which is a very good work and can be readily understood by those not especially trained in electro technics, also Lectures on the Electromagnet," by Thompson, price \$1: "Electromagnet and Electromagnetic Mechanism." by same author, price \$6. Much of the above has been iven in the Scientific American Supplements

(6992) O. F. McG. asks: Will you please inform me through your valuable columns how the electropoion fluid for putting in batteries is made? A. Various formulæ are used. The following is Tissandier's:

Water......100 parts by weight. Potassium bichromate..... 16 Sulphuric acid 66°....... 37 " " "

The mixing of the acid and water is supposed to produce enough heat to insure solution of the bichromate. Do not use until cold.

(6993) C. A. P. writes; All things being equal in both cases (that is, speed, load propelled and distance traveled), would the strain on the bicycle chains differ if one bicycle is geared at 70 and one at 80 inches? Would there be any difference in the strain on the chain the front and the hind gears are transposed, other conditions being equal? A. For equal work as you state, the strain on the chain increases with the increase in the gear; 80 gear exerts a harder pull on the chain than 70 gear. By transposing the gear, the strain would be less on the chain by the difference in the relations of the

(6994) G. H. W. asks: How many of the caustic potash batteries described in "Experimental Science " wiii it take to light a six candle power incandescent lamp, and also what voltage lamp should be sed? Will you also inform me how much black oxide ofcopper should be added to the jar? A. Thirty or forty cells would be requisite. Use about a half mich layer of copper oxide to each jar.

(6995) W. W. P. writes: I am heating with steam from a small upright boiler, and as the steam coils are on a level with, or possibly lower than, the bottom of the boiler, I have practiced the wasteful plan of running the condensation into the gutter instead of returning it to the boiler. I have heard, however, that there is a method by which the condensation can be returned to the boiler in cases like mine. Will you please adviseme through the columns of your journal? A. The water in the coils can be returned to the boiler under the conditions you name, by a return steam trap. This apparatus is well known in the steam fitting trade.

(6996) T. S. B writes: We have a 20 inch by 48 inch Corliss engine with Bulkley condenser. We take the condensing water from the Hudson River, with a Worthington duplex steam pump; the steam cylinders are 7 inches diameter, the water cylinders 9 inches, and 10 inches stroke, each piston running about 30 strokes per minute. Steam pressure from 60 to 80 pounds, The distance the water is carried, about 200 feet; the ele-

vation, about 81 feet. The pipe is half way4 inches and theother half 31nches. The pump has also a Bulkley conair chamber and is discharged into the suction pipe. giving a vacuum of 15 inches to 20 inches. The vacuum at the Corliss engine is 24 inches to 26 inches. Can you have taken your papers for about 40 years and I have never asked a favor before. A. You do not give sufficient datafor exact figures. Your vacuum adds to the engine about 40 horse power and you expend in steam on the pump probably less than 4 horse power in steam. So your gain will be the difference, or 36horse power. Now, if your engine is 200 horse power without the condenser,

you will gain  $\frac{36}{200}$  =18 per cent by the use of the vacuum.

(6997) E. E. S. writes: Most men, who have occasion to use screwdrivers, think that, of two screw drivers exactly alike, except in length, the longer formation on the finishing up of plaster with paraffine as one will start screws which could not be started with the shorter one. Is this difference real or imaginary? And if real, please explain why. A. The only advantage that the long screwdriver has is in the facility for a strong grip from the hands.

(6998) J. P. J. asks: 1. What two liquids when poured together will ignite with a rose colored flame, and also the reaction which takes place? A. Turpentine and strong nitric acid may be used to produce deflagration. The experiment is highly dangerous. 2. Can you give me the chemical reaction taking place by calc. carb. in H2O, and the formula for acetylene gas? A.  $CaC_2 + H_2O = C_2H_2 + CaO$  or  $CaC_2 + 2H_2O = C_2H_2 + Ca$ (OH)2. 3. Also can you give me a good preservative for insects, which, when put on, will kill and preserve them? I am now using turpentine and creosote, but do not like the mixture. A. Potassium cyauide is very generally used for killing insects, but is poisonous, and is liable to stain the insects. Chloroform is good, but is apt to cause a stiffening of the wing membranes. La boulbene recommends for the preservation of insects in a fresh state plunging them in a preservative fluid consisting of alcohol with an excess of arsenious acid in fragments; 11/2 pint alcohol will take about 14 troy grains of arsenic. The living insect, put into this preparation, absorbs about 3-1000 of When soaked in this liquor and dried, it will be safe from the ravages of moths. Anthrenus or Dermestes. This liquid will not change the colors of blue, green, or red beetles if dried after soaking from twelve to twenty four hours. Hemiptera and Orthoptera can be treated in the same way. The nests. cocoons, and chrysalids of insects may be preserved from injury from other insects in the Wimshurst influence machine. A. Possibly, if by being soaked in the arseniated alcohol, or dipped into benzine or a solution of carbolic acid or creosote. For spiders, puncture them and steep for several days in a strong alcoholic solution of pure phenol, and then in dilute alcoholic glycerine. Or use a saturated solution of salicylic acid in glycerine; dry carefully.

(6999) E. M. B. savs: Can you send me a recipe for hektograph gelatine that will absorb the ınk and not require washing? A. Hektograph Sheets. -Soak 4 parts of best white glue in a mixture of 5 parts of water and 3 parts of solution of ammonia, until the glue is soft. Warm the mixture until the glue is dissolved and add 3 parts of granulated sugar and 8 parts of glycerine, stirring well and letting come to the boiling point. While hot, paint it upon white blotting paper with a soaked and a thin coating remains on the surface. Allow it to dry for two or three days, and it is then ready for use. An aniline ink should be used for writing, and before transferring to the blotting paper, wet the latter with a damped sponge and allow it to stand one or two minutes. Then proceed to make copies in the ordinary way. If the sheets are laid aside for two days, the old writing sinks in and does not require to be washed off .-Chem. and Drug

(7000) M. C. asks for a receipt for removing writing in ink from paper. A. The Journal de Pharmacie d'Anvers recommends sodium pyrophosphate for the removal of ink stains. This salt does not injure vegetable fiber, and yields colorless compounds with the ferric oxide of the ink. It is best to first apply tallow to the ink spot. then wash in a solution of pyrophosphate until both tallow and ink have disappeared. Thick blotting paper is soaked in a concentrated solution of oxalic acid and dried. Laid immediately on a blot, it takes it out without leaving a trace behind. Tin chloride, 2 parts; water, 4 parts. To be applied with a soft brush, after which the paper must be passed through cold water.

(7001) A. L. F. asks: How to bleach bones to deodorize and take grease out? A. The curators of the anatomical museum of the Jardin des Plantes have found that spirits of turpentine is very efficacious in removing the disagreeable odor and fatty emanations of bones or ivory, while it leaves them beautifully bleached. The articles should be exposed in the fluid for three or four days in the sun, or a little longer if in the shade. They should restupon strips of zinc, so as to be a fraction of an inch above the bottom of the glass vessel employed. The turpentine acts as an oxidizing agent, and the product of the combustion is an acid liquor which sinks to the bottom, and strongly attacks the ivory if allowed to touch it. 2. How to blue screws such as those used in guns and safe doors. A. The articles to be blued should have their surfaces cleaned and polished. They may be then heated in fine clean wood ashes to a temperature of from 500° to 600°, accord mg to the depth of the color required. It is not necessary to watch the temperature, but simply to examine the articles from time to time to see that when cooled in the air they assume the proper color. They should then be immediately removed, and the operation is then com-

(7002) H. W. S., Jr., says: Will you give recipe for waterproofing silk fishing lines to prevent them from sinking? A. 1. Two parts boiled oil, 1 part gold size, put in a bottle, shake well, and it is ready for use. Apply with a piece of flannel, expose to the air and dry. After using the line two or three times it should have another coat, the application being repeated when neces-. 2. Apply a mixture of 2 parts boiled linseed oil and 1 part good size; expose to the air and dry.

(7003) H. L. S. asks for a method for removing tattooed marks from the body. A. A writer in denser; the water is taken for it from the lower part of the Chemical News has stated that if the tattooing is performed with some carbonaceous matter, the marks can be made to disappear by being first well rubbed with a salve of pure acetic acid and lard, then with a solution give me percentage of gain under these conditions? I of potash, and finally with hydrochloric acid. A dermatologist should be consulted if possible.

> (7004) D. A. asks: How can the fingers be best cleansed if stained in photographic development especially when they have been wet with old or dirty hypo? A. Paint the blackened parts with tincture o jodine, let it remain until the skin becomes red, then apply ammonia, when the stain will disappear. treatment should not be used if there are any recent cuts on the bands.

> (7005) A. G. says: Can you give me the name of any manual on plaster moulding or any inthey are finished in the plaster shops? A. The polish on plaster figures is said to be produced by immersion in melted paraffine or wax, and rubbing smooth.

> (7006) F. T. says: Please give me a formula for darkening copper without injuring it. I have some electros of half tones which I want to blacken and then fill hollows with magnesia to use all as a picture. What substance is put on metal (brass) to imitate the color of wrought iron work? A. You can produce a dead black surface on both copper and brass by using 1/8 ounce platinum tetrachloride dissolved in 1 ounce of water. The metal must be chemically clean.

> (7007) G. G. Y. writes: I am putting up a line of eight stations. I want to use the Bell receiver for transmitter, there being two at each station, making sixteen in all. Now the question is, will a person hear the message just as plain at one place as at another? The message will have to go through each one. We have up a line where there are two at each end and it worksall O. K. How many can we put on the line before we overload it, or cause the sound to be indistinct? A. The message will be heard as well at one place as at another; if the telephones are in series, the opera tion will be impaired as more telephones are introduced. The exact number that can be used cannot be stated You can readily experiment with the proposed connections before erecting your line. Try a through metallic circuit with the telephones in parallel with each other, arranged like incandescent lamps.

> (7008) E. A. O. asks if there would be any advantage in using mica plates instead of glass plates you could get perfect sheets of adequate size. The experiment would be interesting and worth trying.

> (7009) J. J. K. asks how to make the foundation for a walk and what proportion of cement and sand to put on it so as to make it good in all weathers. A. The foundation for a walk (not a street sidewalk) may be made with a layer of very coarse gravel or finely broken stone 3 to 4 inches thick, with a coat cement 1 part, sand 2 parts, 1 inch thick. The gravel or broken stone bed should be wet and well rammed to make the walk permanent. For street sidewalks a thicker bed of gravel or broken stone should be made.

(7010) G. E. B. writes: I have had made to order a few 10 candle power 10 volt incandescent lamps to be run by batteries. 1. Will you kindly inform me as broad copying brush, until the paper is thoroughly to the amount of amperes needed? A. Allow three and one-half amperes to each lamp. 2. Would six cells, 2 volts each and 5 amperes and 100 ampere hours each, be sufficient and for how long? A. The six cells, if able to maintain the voltage and amperage stated, would answer; presumably for ten hours, possibly for less.

# 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 unequaled 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

AND EACH BEARING THAT DATE.

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hore	569,415	
berg	569.269	
Axle lubrica tor, car, A. W. Wright	569,480	
Axle, vehicle, O. S. Ebert	560 183	
Barber's case, Carlson & Lawson	569 274	
Barber's turn, O. L. Danforth	569 178	
Barrel and truck, combination waste, J. R. Rus-	000,110	
eell	569,520	
sell. Basin clamp, adjustable wash, G. M. Willment	569.268	
Bath cabinet, thermal, Jones & McCreery	569.417	
Bed, folding, J. Hotsa pillar	569 202	
Bedstead, folding, J. R. Deibm	569.548	
Bicycle, H. J. Thompson	569,394	
Bicycle alarm, B. Arnold	569 158	
Bicycle, folding, M. B. Ryan	569.354	
Bicycle handle, C. O. Spurr	569.436	
Bicycle handlebar, adjustable, B. Porter	569.349	
Bicycle lock, C. B. Woodbury	569.594	
Bicycle saddle, Drury & Sims	569.326	
Bicycle stand. F. Giacinto	569 493	
Bicycle Support, J. S. Lynch	589,289	
Bicycle support, J. S. Lynch	569,519	
Blind holder, J. W. Woodward	569,479	
Block Signal, L. C. Smith	569,246	
Block signal system, J. E. Donbavand	569.551	
Post Cos Steemboot		
Bog cutter, J. B. Cannon	569,170	
Boiler. See Steam boiler. Watertube boiler.	1210	
Bog cutter, J. B. Cannon  Boiler, See Steam boiler. Watertube boiler.  Boiler, V. Karavodin	569.287	
Roller, N. L. Warren	569 A77	
Boiler Ing. T. C. Best	569 164	
Boiler lug, T. C. Best. Boiler or other furnace, E. W. Jones.	569 207	
Boilers, device for feeding anti-in crustation com-		

<del></del>		
003) H. L. S. asks for a method for re-	Bookkeeper's posting guide, E. H. Wintermute,	Harne
ng tattooed marks from the body. A. A writer in chemical News has stated that if the tattooing is	Bookkeeper's posting guide, E. H. Wintermute, 17. Root or shoe heel cushion, C. P. Shaw. 660,560 Buring and cutting tool, W. T. Smith. 683,433 Boring and turning mill, G. W. Moreton. 265,544	Harve
ormed with some carbonaceous matter, the marks	Bottle, C. P. Lundquiste	Harve Hatch Hay f
be made to disappear by being first well rubbed with we of pure acetic acid and lard, then with a solution	Bottle, C. P. Lundquiste	Heat e
stash, and finally with hydrochloric acid. A der- logist should be consulted if possible.	Box corners, apparatus for applying metal strips to, O. & M. Schubert	Ga Heate Heate
7004) D. A. asks: How can the fingers	Box cover brace or support, C. R. Georg 569,193 Bracket. See Curtain pole bracket. Transmitter	Heel t
est cleansed if stained in photographic development,	bracket. Brake. See Air brake. Car brake. Vehicle brake.	Hemm Hinge
cially when they have been wet with old or dirty ? A. Paint the blackened parts with tincture of	brake, J. F. Burgin	Hoist Hydro Ice cra
e, let it remain until the skin becomes red, then y ammonia, when the stain will disappear. This	H. W. Potter 569,515 Brush rotary tooth Courtright & Purdy 569,409	Incan- Indica
ment should not be used if there are any recent cuts are bands.	Bullion, softening base, G. A. March	Ink w Jack. Tr
1005) A. G. says: Can you give me	Brake, W. H. Sauvage. 589,476 Branding sheep or other animals, appliance for, H. W. Potter 569,515 Brush. rotary tooth, Courtright & Purdy 569,409 Buckle, barness, J. R. Mole 569,584 Bullion, softening base, G. A. Marsh 569,238 Bungs, etc., machine for making, E. E. Elder. 569,258 Bungs, etc., machine for making, Elder & Taylor, 569,555 Bung making machine, Elder & Kelly 569,389 Burial casket. W. C. Kpapu 569,339	Kiln f fel Kitch
name of any manual on plaster moulding or any in-	Burial casket, W.C. Knapp	Knife Knitti
ation on the finishing up of plaster with paraffine as are finished in the plaster shops? A. The polish	Button, J. E. Kenna	Knitti Knitti Lace
laster figures is said to be produced by immersion in ed paraffine or wax, and rubbing smooth.	Calciner and smelter, combined, Best & Meanor. 569,537 Calculator, W. A. Copeland et al. 569,544	Lamp
006) F. T. says: Please give me a	Calculator, W. A. Copeland et al. 569,544 (Lamera, photographic, J. M. Edlot 569,328 (Car brake, R. G. Woodward 569,311 Car coupling, A. D. Alden 569,481	Lamp D. Lante
ula for darkening copper without injuring it. I have e electros of half tones which I want to blacken and	Car coupling, A. D. Alden.       568,481         Car coupling, B. J. Ed wards       569,374         Car fender, C. Fink       569,330         Car fender, G. A. Henry       569,168         Car safety guard. A. J. Brown       569,168         Cars, strainer for air brakes of, T. B. Hunt.       569,269         Carbureter, C. W. Ingrabam       569,460         Cardboard scoring machine, C. W. Hobbs.       569,200         Carneter's age       1, Jonesa         Carneter's age       1, Jonesa         589,558	Last c Lastin Lastin
fill hollows with magnesia to use all as a picture.	Car safety guard. A. J. Brown 569,168 Cars, strainer for air brakes of, T. B. Hunt. 569,203	Lat be
t substance is put on metal (brass) to imitate the of wrought iron work? A. You can produce a	Carbureter, C. W. Ingrabam 569,460 Cardboard scoring machine, C. W. Hobbs 569,200 Carperter's gage, L. Joneas 569,558	Lawn Leaf Leaf
black surface on both copper and brass by using ince platinum tetrachloride dissolved in 1 ounce of	Carperter's sage, L. Joneas	Level
r. The metal must be chemically clean.	Chair fan attachment, rocking, G. Herfurth 569,497 Chair fan attachment, J. E. Moudy 569,568 Check draft, order, etc., self-identifying, E. L. C. Ward 569,364 Chuck, expansible, J. O. Smith 569,364 Clgarettes, manufacture of, N. J. Evans 569,184	Listin et Lock
7007) G. G. Y. writes: I am putting up	Check draft, order, etc., self-identifying, E. L. C. Ward	Locor Loom Lubri
e of eight stations. I want to use the Bell receiver ransmitter, there being two at each station, making	Cigarettes, manufacture of, N. J. Evans	Lubri   Matcl
een in all. Now the question is, will a person hear message just as plain at one place as at another?	Clamp. See Basin clamp. Clasp. See Lace clasp. Cloth evening device, J. H. Northrop. 569,586 Clutich, automatic safety spring, J. Annan. 569,396 Coat and hat holder, J. F. Main. 569,422	Mattr Measi
message will have to go through each one. We	Coat and hat holder. J. F. Main	Medic
e up a line where there are two at each end and it ksall O. K. How many can we put on the line	Cock for water service systems, Istop, J. Slaymaker.         569,304           Come changing device, A. L. Levin.         569,214           Collar, adjustable, J. Atkinson.         569,534           Collar pad, R. C. Van Derveer.         569,302           Colors on fiber, producingazo, F. Storck.         569,332           Commode, E. W. Jenkins.         569,205           Coup, chicken, W. W. Mendenball.         569,205           Cotter pin press.         W. R. Tilton.         569,527	Metal Metal Metel
re we overload it, or cause the sound to be indis- t? A. The message will be heard as well at one place	Collar pad, R. C. Van Derveer	Mill. m Miter
another; if the telephones are in series, the opera-	Coup, chicken, W. W. Mendenball	Mıxei Moist
will be impaired as more telephones are introduced. exact number that can be used cannot be stated	Cotter pin press W. R. Tilton	Motor Music Music
can readily experiment with the proposed con- ions before erecting your line. Try a through me-	coupling	Music Nail
circuit with the telephones in parallel with each	Outling iron N Romman 569 536	Neck   Neck   News
r, arranged like incandescent lamps. 7008) E. A. O. asks if there would be	Curtain fixture, E. L. Slight 569 552 Curtain pole bracket, G. P. Neal 569,563 Cutter. See Bog cutter.	Nozzl Nut f Nut l
advantage in using mica plates instead of glass plates	P. Danckwardt	Office Oil b
he Wimshurst influence machine. A. Possibly, if could get perfect sheets of adequate size. The ex-	Cyclometer, C. H. Clawson	Oil oi H Oil, p
ment would be interesting and worth trying.	worth	Oil w
7009) J. J. K. asks how to make the dation for a walk and what proportion of cement	Dental plate polishing tool, P. B. Barnes	
sand to put on it so as to make it good in all thers. A. The foundation for a walk (not a street	Display cabinet, combination, T. E. Wood 569,367 Doll walker, H. R. Hinckley	Organ tt Oven
walk) may be made with a layer of very coarse gravel	Dowel pin and joint, H. H. Hockwell	Padi
nely broken stone 3 to 4 inches thick, with a coat ent 1 part, sand 2 parts, 1 inch thick. The gravel or	Drought regulator F M Treat 500 954	Paint
ten stone bed should be wet and well rammed to make walk permanent. For street sidewalks a thicker bed		I Pagg
ravel or broken stone should be made.	Drive machanism for machines in series succes	Pen, Perfe Phot
7010) G. E. B. writes: I have had made	Dye and making same, alizarin, R. Brasch	Pile's
rder a few 10 candle power 10 volt incandescent lamps e run by batteries.    1.    Will you     kindly inform me as	Dye aid making same, altzarin R. Brasch 599,405 Dye aid making same, blue, H. Laubmann 599,418 Dye aid making same, green alizarin R. Brasch 599,405 Dyeing phenetidin red. Ullrich & Gallois 599,353 Dyeing skeins, apparatus for, Gleason & Bower . 598,433	Pile'd Pin. Pin a Pipe.
rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and	Dye and making same, green alizarin, R. Brasch. 599,465 Dyeing phenetidin red. Ullrich & Gallols. 599,465 Dyeing skeins, apparatus for, Gleason & Bower. 569,463 Easel, G. L. R. Dahlberg. 593,410 Electric bond, M. J. Wightman 599,266	Pipe
rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and half amperes to each lamp. 2. Would six cells, 2 s each and 5 amperes and 100 ampere hours each, be	Electric bond, M. J. Wightman 509.206 Electric circuits, cutout for. L. W. Downes 569.373 Electric generation, method of and means for. S. H. Short 569,591	Pipe Pipe Pipe
rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and chalf amperes to each lamp. 2. Would six cells, 2 s each and 5 amperes and 100 ampere hours each, be dicient and for how long? A. The six cells, if able to ntain the voltage and amperage stated, would answer;	Electric bond, M. J. Wightman 509.206 Electric circuits, cutout for. L. W. Downes 569.373 Electric generation, method of and means for. S. H. Short 569,591	Pipe Pipe Pipe
rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and -half amperes to each lamp. 2. Would six cells, 2 s each and 5 amperes and 100 ampere hours each, be teient and for how long? A. The six cells, if able to	Electric bond M. J. Wightman  Electric circuits, cutout for L. W. Downes	Pipe Pipe Pipe Pisto Pisto Plan Plan
rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and chalf amperes to each lamp. 2. Would six cells, 2 s each and 5 amperes and 100 ampere hours each, be dicient and for how long? A. The six cells, if able to ntain the voltage and amperage stated, would answer;	Electric bond M. J. Wightman  Electric circuits, cutout for L. W. Downes	Pipe Pipe Pipe Pisto Pisto Plan Plan
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rder a few 10 candle power 10 volt incandescent lamps e run by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and half amperes to each lamp. 2. Would six cells, 2 s each and 5 amperes and 100 ampere hours each, be icient and for how long? A. The six cells, if able to ntain the voltage and amperage stated, would answer; sumably for ten hours, possibly for less.  TO INVENTORS.  In experience of nearly #fity years, and the preparation more than one hundred thousand applications for pars at home and abroad, enable us to understand the sand practice on both continents, and to possess un-	Electric bond, M. J. Wightman  Electric crouts, cutout for. L. W. Downes. 563,263  Electric generation, method of and means for, S.  Electric generation, method of and means for, S.  Electric generator, magneto, C. H. North. 563,385  Electric beater, G. B. Fraley. 563,265  Electric motors, system of control for, E. A.  Sperry. 569,305  Electric snap switch, C. G. Perkins. 563,239  Electric snap switch, G. B. Thomas. 563,239  Electric switch, G. Emmett. 569,300 to 563,432  Electrica distribution system, G. T. Woods. 563,433  Electrical transformers, automatic cutout for, A.  G. Booth. 563,538  Electromagnetic, J. Wayland. 563,538	Pipe Pipe Pipe Pipe Pisto Pisto Pisto Plan Plan Plow Pock Prec Pres Pres
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rder a few 10 candle power 10 volt incandescent lamps er un by batteries. 1. Will you kindly inform me as he amount of amperes needed? A. Allow three and half amperes to each lamp. 2. Would six cells, 2 seach and 5 amperes and 100 ampere hours each, be icient and for how long? A. The six cells, if able to ntain the voltage and amperage stated, would answer; sumably for ten hours, possibly for less.  TO INVENTORS.  In experience of nearly fifty years, and the preparation more than one hundred thousand applications for paras at home and abroad, enable us to understand the sand practice on both continents, and to possess unaled facilities for procuring patents everywhere. A opsis of the patent laws of the United States and all eign countries may be had on application, and persons	Electric bond M. J. Wightman Electric circuits, cutout for, L. W. Downes	Pipe Pipe Pipe Rice Pitcl Pian Plan Plan Plock Pres Pres Prin Prin Prin Proj Proj
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