RECENTLY PATENTED INVENTIONS.

Mechanical.

SHINGLE EDGER.—Harvey G. Richardson, Tacoma, Washington. This invention provides a new and improved shingle edger, which is simple and durable and which is arranged for cutting the shingles accurately to any desired width, and without danger of the operator being liable to be injured by the saws. The invention consists principally of a feed carriage for feeding the shingles to the saws, and rollers for drawing the shingles through the saws after the feed frame is at the end of its inward movement.

ADJUSTABLE FOOT REST.—Rufus D. Brown, Gardner, Mass. This invention is intended to provide a new foot rest for general use in rooms, preferably, however, in connection with a hot air register or other heating medium, and it is so constructed to enable the user to readily change the position of the foot rest as desired. For this purpose the foot shelf or platform is provided with arms in which the shelf is mounted to turn, the arms being connected with each other and adapted to be engaged by a hook fastened on a transverse shaft carrying a treadle under the control of the operator.

BABY JUMPER.—John Elbert Ring, Chatham, N. Y. The object of this invention is to provide a spring support for cradles, adapted to be applied to a floor or the tread of a stoop, etc. It is so arranged that, when the child makes the least movement, it will give the cradle a vertical and side movement. It consists of a pole provided with a fastening device at the heel, a fixed fulcrum adjacent to the heel, and a baby carrier or cradle suspended from the free end of the pole. The pole is reinforced by an adjustable, flexible rod, capable of bending throughout its length. The construction of both the cradle and support is simple, durable and economic.

Miscellaneous.

CLOCK CASE.—Adam Schieffer, New York City. The object of this invention is to provide a case for cheap clocks, as the ordinary nickel alarm clock. It consists of an ornamental front which masks all the clock except the dial. The clock is placed in the case from the back, and is secured by flat metal clips mounted pivotally. When mounted in the case, the winding and setting arrangements are not disturbed.

BICYCLE SKIRT.—Jacob Berlfein, New York City, and Henry Diamond, Brooklyn, N. Y. This improvement consists of a bicycle habit for ladies which is attractive in character and which is so constructed as to afford free movement to the limbs of the wearer. It comprises trousers and a divided skirt within which the trousers are secured. The skirt is provided at the divided portion with vertically disposed plaits or folds, the lower portions of the skirt, at each side, being provided with a strap and buckle. With the aid of the straps and buckles, the back breadths of the skirt can be drawn forward to prevent the folds or plaits from catching in the machine.

POTTERY WARE STOVE.—Julius Salomon, Berlin, Germany. This invention is an improvement in pottery ware domestic stoves. It consists of a single piece, so that it can be transported without being taken apart. It is a stove having an outer shell integral from end to end, a fire chamber and inner longitudinal passages or flues, also made integral from end to end and extended downward below the fire chamber.

VALVE STOPPER FOR BOTTLES.—John Bazant, Jr., New York City. The object of this invention is to provide a bottle which cannot be refilled. It comprises an outer shell having its upper end turned inward and provided with an outlet opening, a valve casing in the outer shell having a valve opening in its lower end and having perforations in its wall, a ball valve in the casing and a movable closure in the upper end of the valve casing, the said closure being of greater diameter than the opening through the outer shell, and having a thickness greater than the space between the upper end of the valve casing and the upper end wall of the outer casing, so that the closure cannot be wholly withdrawn from the valve casing.

PLACKET FASTENER.—James Determan, Brooklyn, N. Y. This placket fastener comprises two stays arranged to have movement in the same plane, and a fastening device the members of which are carried respectively by the stays and project from the inner edges thereof toward each other, the members engaging by a movement of the stays toward each other and in the plane of the stays and disengaging by the movement of the stays away from each other, the object being to facilitate the engagement and disengagement of the fastener.

Designs.

DESIGN FOR CARPET.—Eugene Crowe, Brooklyn, N. Y. The body and border also, if one is used, are decorated with floral figures, each figure comprising foliate sprays grouped together and bent upon the lines of a compound curve, and a rose is placed at each side of the foliate sprays, the upper portion of the foliate sprays at each side falling gracefully upward above the upper portions of the side sprays.

DESIGN FOR CARPET.—Eugene Crowe, Brooklyn, N. Y. The body and border, if one is used, are decorated with composite scrolls the component parts of which are a panel scroll figure, a lower curved foliated figure connected therewith, a second foliated figure continuing the curve of the lower figure, and a third foliated figure which extends from the second corresponding figure and is curled in the space between the panel scroll and the intermediate foliated figure.

DESIGN FOR CARPET.—Eugene Crowe, Brooklyn, N. Y. The body and the border also, if one is used, is decorated with linear foliated scrolls. In detail each linear scroll figure comprises an arched foliated scroll having one end carried well down below the body and returned upon itself to present a folded leaf, the folded leaf having floral decorations, as has likewise the body portion of the scroll. The design is too elaborate to permit of intelligent description without an engraving.

DESIGN FOR A DRAUGHTING INSTRUMENT.—Frank O. Tappan and Lillian A. Eggleston, Toledo, O. The leading feature of this design consists in the elongated body curved and broadened at one end and having a straight member projecting from the body inward from said curved end and at the side toward which the end curves.

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.

NEW BOOKS AND PUBLICATIONS.

YE THOROUGHBRED. By Novus Homo. Three interviews: I. Man as an Animal. II. Man as a Magnetic Battery and an Electro-Telegraphic Machine. III. Man Americanized. The Great Republic, its Status, Dangers, Duties, and its Future. New York: The Health Culture Company. 1896. Pp. 129. Price, paper 50 cents, cloth $1.

HOME CARPENTRY FOR HANDY MEN. A book of practical instruction in all kinds of constructive and decorative work in wood that can be done by the amateur in house, garden and farmstead. By Francis Chilton-Young. With upward of 550 illustrations from the pen and pencil of the author. London, New York, and Melbourne: Ward, Lock & Bowden, Limited. 1895. Pp. vii, 772. Price $3.

This very handsomely made book we feel deserves to be highly recommended to our readers. In its nearly 800 pages, as may be imagined, about everything in this line must receive some attention. Accordingly we find its subject matter treated from the standpoint of the house, the garden and the farm, each division covering very fully the different lines of work which may there arise. It is very elaborately illustrated and by no means the least interesting part of it will be found in the presentation of English tools, it being, of course, written from the English standpoint. Thus, we find shown an English hammer without the claws, while, for drawing nails, we find presented a picture of a pair of pincers, although the claw hammer is described as having "a forked or claw-formed head which renders it useful to gardeners for taking nails out of a garden wall."

MENUISERIE. Avec 132 figures dessinées par l'auteur. Paris: Librairie J. B. Bailliere et Fils. 1896. Pp. 376. Price $1.

What we have said about the preceding work applies largely to the present one if the word "French" be substituted for "English," for in the present book we have an excellent review of carpentry from the Continental standpoint. It is to be regretted to a certain extent that the tools of carpentry do not receive fuller treatment. An especially interesting section, and one which will be of considerable value in manual training schools, is that devoted to wood joints, in which are given dovetailing and mortising of the most curious and ingenious descriptions. The work, very properly, is assumed to be for the many who understand tools, yet want to know what to do with them; which, after all, is perhaps the better and most practical treatment of the subject.

A DICTIONARY OF CHEMICAL SOLUBILITIES, INORGANIC. By Arthur Messinger Comey. London and New York: Macmillan & Company. 1896. Pp. xx, 515. Price $5.

On opening this book it has a familiar appearance to an old time chemist. Its two column pages with full faced type headings of the different paragraphs and titles remind one of Storer's Dictionary of Solubilities. It is, indeed, a successor to that famous work, and in many ways shows the features thereof; but the present volume is restricted to inorganic substances. To all who know Storer it is needless to recommend the book in any other terms than by saying it is a worthy successor to the old author. To those who do not know Storer we can simply say that the book will be found an indispensable adjunct to their chemical library. The author seems to have taken much pains with the work. Merely as a repertoire of formulæ it is exceedingly valuable, and the fact that it has been brought up to a recent date, March, 1894, gives it high value. It is the first book of the kind published since Storer's work, thirty-six years ago.

JOHNSTON'S ELECTRICAL AND STREET RAILWAY DIRECTORY FOR 1896. Containing lists of electric light central stations, isolated plants, mining plants, street railways (electric, horse and cable), telegraph companies, district messenger companies, telephone companies, manufacturers of and dealers in electrical and street railway apparatus, machinery and supplies. New York: The W. J. Johnston Company. Pp. 828.

This is a very complete directory, whose general purposes are disclosed on its title page, which we have quoted in full. To those doing business in electrical supplies or to those requiring electrical supplies the book will be of very considerable value, and we have no doubt there will be a large demand for it from the growing world of those interested in electrical industries.

A POSTAL DICTIONARY. Being an alphabetical hand book of postal rates, laws, and regulations, for all who use the mails. Eighth edition. 1896. Buffalo, N. Y.: The Matthews-Northrup Company. Pp. 102. Price 15 cents.

This excellent little work presents in very compact shape a concise statement of postal matters such as the everyday mortal needs to know. It is arranged in alphabetical form, and is therefore adapted for quick and accurate reference. Its size is supposed to adapt it for the pigeon hole of a desk, and it will find a home in many such a receptacle,

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.

(6859) W. R. G. says: Will you please give me the formula for rendering phosphorus in such a condition that it can be applied to a surface with the aid of a brush, so that it can be seen in the dark? A. Phosphureted oil is the best means of exhibiting the luminous properties of phosphorus. A small piece of dry phosphorus, about the size of a pea, is placed in a test tube with a little pure olive oil. The test tube is held in the water bath until the oil becomes heated and the phosphorus liquefies; it is then shaken until the oil will take up no more phosphorus, and after allowing the oil to become clear, it is poured off into a small glass vial provided with a glass stopper. Only a small quantity of this oil in the bottom of the vial is necessary. When it is shaken about so as to coat the sides of the vessel, and the stopper is removed so as to let the air get in, the oil coated sides of the glass become at once luminous, and continue so as long as the stopper remains out. Characters written on paper with oil thus prepared (freshly) appear in the dark very brightly. Phosphureted ether is prepared by digesting phosphorus in ether for some days in a tightly stoppered bottle. A piece of sugar dipped into this ethereal solution and then thrown into water makes the surface of the latter appear quite luminous in the dark. Young experimenters must remember that phosphorus is very dangerous to handle when out of water, and often inflames spontaneously when exposed dry in the air.

(6860) E. I. N. says: Will you please give me a recipe for making tableting glue for putting up tablets of paper and a recipe for making mucilage? The same will be appreciated by your subscriber. A. Tablet glue.—For 50 lb. of the best glue (dry) take 9 lb. glycerine. Soak the glue for ten minutes and heat to solution and add the glycerine; if too thick, add water. Color with aniline. Mucilage.—A strong aqueous solution of reasonably pure dextrine (British gum) forms a most adhesive and cheap mucilage. Alcohol, or rather diluted wine spirit, is usually employed as the solvent where the mucilage is to be used for gumming envelopes, postage stamps, etc., in order to facilitate the drying, and acetic acid is added to increase the mobility of the fluid. The strong aqueous solution is more adhesive than that prepared with alcohol, for the reason that it contains a greater proportion of the gum. To prepare this, add an excess of powdered dextrine to boiling water, stir for a moment or two, allow to cool and settle, and strain the liquid through a fine cloth. The addition of a little powdered sugar increases the glossiness of the dried gum, without interfering greatly with its adhesiveness. The sugar should be dissolved in the water before the dextrine is added.

(6861) W. K. W. asks: 1. There is a mill being wired here for incandescent lighting. They are going to use 125 volts at switchboard, and 115 volt lamps, and are going to allow for a 10 volt drop. The lamps are 20 candle power. I would like to know if, where the drop is greatest, or 10 volts, if these lamps are going to take more current than they would near the dynamo, where the voltage is higher. If so, how much more current? A. The lamps will need more current for lower voltage in inverse ratio. 2. In a plant where there are five dynamos of 300 amperes apiece, why don't they use say one or may be two machines of greater capacity, instead of more machines? A. It is good practice to have plenty of duplication. Otherwise a single machine would do the work. 3. Can a dynamo of 110 volts and 300 amperes be made to deliver more current by reducing voltage by running slower? A. No. It needs rewinding. As the speed is reduced the output of current is less. 4. In a divided circuit how much current goes by each branch? A. In divided or branch circuits the current in each branch varies inversely as the resistance. See Sloane's "Arithmetic of Electricity," $1 by mail. Thus for 3, 5, 10, 11, and 12 ohm branches with 65 amperes approximately 27.16, 8, 7½, 6¾ amperes would be passed respectively.

(6862) C. S. B. says: I desire to obtain a formula for the preparation of a copying ink which will copy on the ordinary copying tissue without the aid of water or letter press. It is called the dry process of copying.

A. 1. Black:

Nigrosine C. P. fine	10 oz.
Glucose A	1½ "
Hot water	1¾ pt.
Glycerine	1¼ oz.

Dissolve the nigrosine by trituration in the hot water, then add the other ingredients and strain through a piece of silk. If too thick when cold, dilute to the proper consistence with water.

2. Blue:

Cotton blue (aniline) C. B.	6 oz.
Glucose A	1 "
Glycerine	¼ "
Hot water	2 pt.

Proceed as directed for black ink (above). In preparing these inks it is essential that the water should be kept quite hot while the operation of trituration is performed. The trituration should be continued until all of the dye has been taken up by the water. The straining must be performed hot, otherwise the filtering cloths quickly become clogged. In purchasing nigrosine and aniline blue, obtain, if possible, the purest quality. Cheap grades of these dyes are almost invariably heavily adulterated with dextrine.

(6863) L. N. says: Will you kindly give me directions in the earliest possible issue of the SCIENTIFIC AMERICAN for taking the gloss from photographs, so that I may obtain a good surface to paint on? A. Mount the print in the ordinary way, avoiding lumps. Roll, and afterward sift on the surface finely ground pumice powder. With a circular motion rub gently with the palm of the hand. Proceed until the surface desired is obtained. The use of plain paper is recommended.

(6864) J. E. W. asks: 1. In case a telephone grounded circuit is struck by lightning or becomes crossed with an electric light wire, will the current always take the nearest way to the ground? A. It will tend to take all paths to ground, of both high and low resistance. 2. What is the composition used for fusible wire and plugs in electric work? A. Lead, zinc, tin or fusible alloy may be used. 3. How can two or more electric bells be put on one circuit and be made to ring reliably? A. Use enough battery to do the work or a powerful enough magneto. 4. In telephone construction for exchange work, where the lines do not exceed one mile in length in metallic circuits, is there any advantage to be gained in the transposition of the lines, as is done on long distance circuits? A. It may be highly advantageous, depending on the nearness of interfering circuits.

(6865) A. F. O. asks: Can I charge my storage battery by the commercial street current (direct), voltage 220, with rheostat that gives 10 amperes? There are 5 cells of 2 volts each. Should I connect directly with street wires or interpose the resistance? How shall I know when to stop? A. The process will be uneconomical. Use a rheostat to cut down the current to 5 amperes per square foot of positive plate. Stop charging when gas evolves or when the specific gravity of the solution has reached the standard at which you work.

(6866) J. F. P. asks: Will you give me a prescription and the directions through Notes and Queries (or by mail) for making the jelly for a hektograph? A. An illustrated article on this subject is given in our SUPPLEMENT, No. 438, to which we refer you. You will find a fuller tested formula in our Cyclopedia of Receipts, Notes and Queries. Price $5.

(6867) S. A. S. asks: In a given amount of air how many degrees of heat are consumed before the air reaches its maximum expansion, and how much has the volume of air increased? A. There is no known limit to the expansion of air. It increases in volume 1-273 part of its volume at 0° C. for each degree C. rise in temperature.

(6868) W. T. H. asks: I have a boat built on the plan of St. Lawrence River skiff, 18 feet long, pointed at both ends, 25 inches deep at bow and stern and 16 inches amidships. In center of boat is a seat and immediately in front of this seat is the center board, 32 inches long, projecting into the water fan shape, like a folding board. I wish to use a sail on this boat, and would like to know where it should be placed, assuming I use a 100 foot sprit sail. A. The location of the sail is largely fixed by "good practice." Its center of resistance, depending on its shape, should be a little aft of the center of the centerboard. By trimming your boat by the bow or stern you can make her carry any helm you wish when on a wind.

(6869) T. F. asks: What will harden resin and Venice turpentine, so that they can be softened with steam again? I want to use them for putty for picture frames. A. 1. Dissolve 1 pound of glue in 1 gallon of water; in another kettle boil together 2 pounds of resin, 1 gill of Venice turpentine, and 1 pint linseed oil; mix all together in one kettle, and continue to boil and stir them together until the water has evaporated from the other ingredients; then add finely pulverized whiting till the mass is brought to the consistence of soft putty. This