would have seemed just at hand. Many of these bodies have fallen to the earth, and may be seen in our museums.

(9788) L. E. S. asks: 1. Increase in distance requires *finer* wire, or a greater number of ohms resistance, in the telegraphic relay. Why is this? A. A greater distance requires a finer wire on a telegraphic relay in order to secure a greater number of turns of wire in the same space, so that the magnetizing power of the current may be as great as possible. The increase in the number of turns of wire is more important than the increase of resistance due to the finer wire. 2. Why is the glass front in the search light divided into *vertical strips of glass?* A. The glass in the front of a search light is divided into strips to reduce the loss if a crack is made by the heat. These need not be vertical. 3. A telegraphic cable crossing the ocean is broken. The broken place is some distance from shore. How can the distance from shore to the end of the broken cable be ascertained? What instrument is used? A. The distance to a break in a cable is determined by measuring the resistance of the cable to the break, at which point the wires are grounded, and hence have no resistance. Since the resistance per mile is already known, it is easy to calculate the distance to the break by dividing the measured resistance to the break by the resistance per mile. 4. What is the greatest number of volts that have been passed through the human body without harm? A. Volts are not passed anywhere in an electric circuit. Volts are the pressure which makes the amperes flow, and amperes do the harm to the person who receives the current. If the current has a high voltage, the shock is more severe. Men have received shocks from circuits with 2,500 volts on them without special harm, and again men have been killed when the voltage is only 500. The effect depends upon something more important than volts; that is, upon the resistance of the man who receives the shock. This is affected by the moisture or dryness of his skin and clothing, and to an extent perhaps upon his nervous condition. It depends also upon the time which the current acts upon the man. This answer relates to commercial circuits and heavy currents. When the current is that of an induction coil or high-tension transformer, such as Mr. Tesla used in his famous experiments, a million or more volts seem to be without any perceptible effect. A man may hold an incandescent lamp bulb in his hand, and the sparks fly for a long distance through the air to the lamp and light it to full candle power, while he feels nothing of the current which is passing through him. Your question then does not admit of a categorical answer.

(9789) C. P. P. asks: Will you kindly answer the following question through the column of notes and queries in your valuable paper: Which succeeds the other, day or night? A. In our calendar the day begins at midnight and the morning precedes the afternoon. The answer to your question, however, is, day succeeds night and night succeeds day in ceaseless round.

(9790) H. M. asks: 1. Could not the core of an induction coil be made longer and the secondary coil be placed beside the primary coil and not over it, and thus save considerable length of wire, and also number of turns of wire in secondary? A. Induction coils have been made with almost every possible relation of the various parts, with the result that it is a general agreement of experimenters that the usual mode of arranging is the best. The secondary coil is sometimes placed by the side of the primary in the transforming of alternating currents for lighting, but then the core is especially designed to save the lines of force. In coils for giving sparks the core should not be unnecessarily long, since the object is to secure as sudden a demagnetization of the core as possible. You would better conform to the proportions of coils as given in the best books. Take Norrie's "Induction Coils," for a guide. We can furnish it for $1. 2. Do the outer coils of the secondary add as much strength to the coil as do the turns of wire wound nearest the core? A. The outer turns of secondary wire have not the same value in producing current as do the turns near the primary. The mode of securing a small-sized secondary is to use the finest possible wire. No. 36 to 40 is employed. 3. How is the magnetic resistance of a piece of iron calculated? If I know the ampere turns how may I know the strength of the magnet? A. The magnetic resistance, or reluctance, as it is called, is equal to the length of the circuit divided by the product of the permeability by the area of cross section of the iron. The tractive power of a magnet in pounds is found by the formula,

$$\text{Pounds} = \frac{TC \cdot M \cdot \sqrt{A}}{2661\, L}$$

in which TC is the ampere turns, M is the permeability, A is the area of cross section of poles, and L is the mean length of magnetic circuit. 4. What voltage will a five-bar telephone generator furnish? A. The ordinary telephone generator will give from 65 to 75 volts. What a five-bar generator gives we are not able to say. 5. Why is it that a generator requires more power to turn its armature when delivering heavy current than when on open circuit? A. The generator requires more power to drive its armature when it is delivering current because it is then doing work. An engine running free does not require much power, but when heavy machinery is connected to it, it requires much steam to drive it. 6. Can you give me the formula for constructing a tangent galvanometer so that certain degrees deflection will equal certain value of current? A. A deflection of a certain number of degrees always represents the same current in a given tangent galvanometer. You do not require any special formula to determine the current for any deflection. Use the ordinary formula for the tangent galvanometer, and substitute the natural tangents for tangent *a* in the formula. Calculate the corresponding current in each case. Form a table of these currents for each angle, and keep it for reference. You will then save the trouble and labor of making the calculation for each reading; we mail you a copy of our Supplement Catalogue, in which you will find mention of articles on the construction of galvanometers.

(9791) F. C. B. asks for a padding paste. A. Glue, 4 pounds; glycerine, 2 pounds; linseed oil, ½ pound; sugar, ¼ pound; aniline dye, q. s. The glue is softened by soaking it in a little cold water, then dissolved together with the sugar in the glycerine by aid of heat over a water bath. To this the dye is added, after which the oil is well stirred in. It is used hot. Another composition of a somewhat similar nature is prepared as follows: Glue, 1 pound; glycerine, 4 ounces; glucose sirup, about, 1 ounce; tannin, 48 grains. Give the compositions an hour or more in which to dry or set before cutting or handling the pads.

(9792) A. G. H. asks how to restore crape. A. Black crape may be freshened and made to look almost equal to new if treated in the following way: Lay over the ironing table a piece of black cambric or cloth of any kind, and pin the piece of crape smoothly through to the blanket, stretching it out to its original size. Wring another piece of black cambric out of water and lay it over the crape, patting it down with the palm of the hand. Now take hot flatirons and pass them over the wet cloth, letting them just touch the cloth, but allowing no pressure to come upon the crape. When the cloth has become dry from the heat of the iron remove it, but let the crape remain pinned down until all the moisture has evaporated and it is perfectly dry. The crape will now feel and look like new. A long veil can be renovated in this way, making sure that the part redressed comes under the edge of the wet cloth.

(9793) F. J. H. asks how to make koumyss. A. Fresh milk, 12 ounces; water, 4 ounces; brown sugar, 2½ drachms; compressed yeast, 24 grains; milk sugar, 3 drachms. Dissolve the milk sugar in the water, add to the milk, rub the yeast and brown sugar down in a mortar with a little of the mixture, then strain into the other portion. Strong bottles are very essential, champagne bottles being frequently used, and the corks should fit very tightly; in fact, it is almost necessary to use a bottling machine for the purpose, and once the cork is properly fixed it should be wired down. Many failures have resulted because the corks did not fit properly, the result being that the carbonic gas escaped as formed and left a worthless preparation. It is further necessary to keep the preparation at a moderate temperature, and to insure the article being properly finished, the bottles are to be gently shaken each day for about ten minutes to prevent the clotting of casein. It is as well to take the precaution of rolling a cloth around the bottle during the shaking process, as the amount of gas generated is great, and should the bottom be of thin glass or contain a flaw it may give way. Some few days elapse before the fermentation passes into the acid stage, and when this has taken place the preparation is much thicker. It is now in the proper condition to be used.—Pharmaceutical Era.

(9794) J. H. P. asks how to paste labels on cork. A. Gum tragacanth, 1 ounce; gum arabic, 4 ounces. Dissolve in water, 1 pint; strain, and add thymol, 14 grains, suspended in glycerine, 4 ounces; finally add water to make 2 pints. (2) Rye flour, 4 ounces; water, 1 pint; nitric acid, 1 drachm; carbolic acid, 10 minims; oil of cloves, 10 minims; glycerine, 1 ounce. Mix the flour and water, strain through cheese cloth, and add the nitric acid. Apply heat until suitably thickened, and add the other ingredients when cooling. This paste is suitable for almost any kind of labels, and it will adhere to almost anything.

(9795) F. J. C. says: Please give me a formula for library paste. A. A good white library paste may be made by any of the following processes: 1. Water, 1 quart; alum, ¾ ounce. Dissolve and add enough flour to bring to the consistence of cream, and then bring it to a boil, stirring all the time. 2. Starch, 2 drachms; sugar, 1 ounce; acacia, 2 drachms; water, sufficient. Dissolve the gum, add the sugar, and boil until the starch is cooked. 3. Rice starch, 1 ounce; gelatin, 3 drachms; water, ½ pint. Heat with constant stirring, until the milky liquid becomes thick and glassy, when the paste is ready for use. Any of these pastes may be preserved by adding a little oil of cloves, or carbolic acid, salicylic acid, or formaldehyde.

(9796) W. B. K. asks for information concerning vanilla extract. The National Druggist, of St. Louis, has published the following formulas for preparing three grades of vanilla essences, translated from the Zeitschrift für Kohlensaure Industrie: I. Vanillin, 20 parts; absolute alcohol, 600 parts; water, 450 parts. Dissolve the vanillin in the alcohol and add the water. II. Musk, 1 part; potassium carbonate, 1 part; vanilla beans, 60 parts; boiling water, 240 parts; alcohol, 720 parts. Mix the vanilla, cut fine, the musk and potassium salt, and pour over them the boiling water. Let them stand until quite cold, then add the alcohol and set aside for 14 days. Finally strain, express, and filter the percolate. III. Vanilla in fine bits, 250 parts; alcohol, 2,500 parts; water, 1,500 parts. Mix the alcohol and water and pour one-third of the mixture over the cut beans. Put into a vessel with a tight cover, place in the water bath and keep for one hour at 60 deg. C. Pour off the liquid and set aside. To the residue in the vessel add one-half of the remaining alcohol and water, and treat in the same manner. Repeat the operation with the remainder of the liquid. Remove the vanilla to an extraction apparatus, pack and extract with 250 parts of alcohol and water mixed in the proportion indicated above. Mix the results of the three infusions, filter, and wash the filter with the result of the percolation, allowing the percolate to run through and mingle with the original filtrate. To prepare a sirup with either of these essences, mix 15 parts of the essence, 8 parts of caramel solution, and 4,500 parts of the sirup, in which 15 parts of gelatin have been previously dissolved by the aid of gentle heat.

(9797) E. G. asks: I would like to receive information on the following subject through the columns of your paper. Does it make any difference how the contact is broken on a jump spark coil, that is, will it make any difference in the secondary spark? A. The mechanism for breaking contact in the primary coil does not make much difference to the spark, provided the break is made suddenly.

(9798) C. L. T. asks for a formula for Japanner's gold size. A. Gum animi and asphaltum, each 1 ounce; red lead, yellow litharge and umber, each 1½ ounces. Reduce to a fine powder, mix and put them with a pound of linseed oil into a pipkin, and boil gently, constantly stirring until thoroughly incorporated. Continue the boiling until it becomes as thick as tar, as it cools. Strain through flannel, and keep for use, carefully stopped up. When wanted, grind with as much vermilion as will give it an opaqueness, and dilute sufficiently with oil of turpentine to work freely with a pencil. Or, take linseed oil, 1 pound; gum animi, 4 ounces. Boil the oil, and add gradually the gum animi finely powdered, until dissolved. Let the mixture boil to the consistence of tar on cooling, then strain while warm through a coarse cloth for use. Previous to being used, it must be mixed with vermilion and oil of turpentine, as above. This size may be used on almost any substance, and no preparation of the work is necessary, beyond having an even and perfectly clean surface. To use the size, put a proper quantity prepared as above into a saucer. Then spread it with a brush over the surface to be gilded, or draw with it, by means of a pencil, the designs intended, carefully avoiding to touch any other parts. Let it remain until fit to receive the gold, which is to be determined in the same manner as in oil gilding, by the finger. Then go over the work with a soft camel's hair pencil. The whole being covered, it must be left to dry, and then the loose powder lightly brushed off. When gold leaf is used, the method of sizing is the same, but the operation requires more nicety. There are various sorts of gold powders—pure gold powder, Dutch, mosaic, etc., any of which can be procured at the artists' color shops ready for use. When the whole has been gilt, any parts uncovered may be repaired by wetting with a camel's hair pencil, and covering the part with gold, avoiding, as much as possible, touching the perfect gilding, as it frequently causes it to turn black.

(9799) A. L. B. asks how newspaper pictures can be transferred. A. Prepare a liquid by dissolving 1½ drachms common yellow soap in 1 pint of hot water, adding, when nearly cold, 3¼ fluid ounces spirits turpentine, and shaking thoroughly together. This fluid is applied liberally to the surface of the printed matter with a soft brush or sponge (being careful not to smear the ink, which soon becomes softened) and allowed to soak for a few minutes; then well damp the plain paper on which the transfer is to be made, place it upon the engraving and subject the whole to moderate pressure for about one minute. On separating them a reversed transfer will be found on the paper.

(9800) J. B. C. asks for a benzine varnish and polish. A. Various kinds of resin can be carefully melted, according to the variety of the varnish or polish to be produced, in hermetically closed kettles under addition of boracic acid and, after cooling, moistened with methylic alcohol. The liquid gums thus treated are completely soluble in benzine. The following gums enter into use: White or yellow shellac, sandarac, mastic, Manila gum lac, stick lac, etc., either alone or mixed together, according to whether the polish and varnish is to be light colored, yellow, or red, dull, or transparent. The percentage of boracic acid, gum, and methylic alcohol varies according to the quality of the resins employed and the destination of the varnish and polish, but in no case must the quantity of boracic acid exceed 5 per cent of the resin quantity employed, and the proportion of methylic alcohol should not, even in case the hardest and most scarcely fusible gums are employed, make up more than the weight of the resin amounts to. The contents of solid substances in the varnishes should not be less than 15 per cent and not less than 8 per cent in the polishes. According to the inventor, the benzine varnishes can not only entirely take the place of the spirit lacquers and polishes, but even afford the advantage of facilitating and accelerating the work, on account of the quicker evaporation of the benzine.

(9801) C. L. asks for a formula for red paint used on magnets. A. The "paint" used on magnets is usually non-conducting shellac varnish, carrying cinnabar. Try the following formula: Cinnabar, pulverized, 3 parts; Venice turpentine, 2 parts; shellac, pale, 1 part; alcohol, 95 per cent, sufficient. Melt turpentine and shellac, remove from fire, let cool down to about 140 deg. F., and add 10 parts of the alcohol. Rub up the cinnabar with sufficient alcohol to mix a paste, and add it to the melted mixture. Put on a water bath for a few minutes, and stir continuously, until a smooth, homogeneous fluid is obtained. Remove from fire, and stir until cold. Preserve in well-stoppered vials, and when desired for use return to the water bath, and heat until the liquid can be applied with a brush. The magnet should be warmed before applying.

NEW BOOKS, ETC.

Der Eisen-Beton und seine Anwendung im Bauwesen. Von Paul Christophe. Berlin, 1905. Verlag: Tonindustrie Zeitung. 916 illustrations. Pp. 575. Full morocco levant. Crown 8vo. Price, $8.50.

Although originally published in 1902, it cannot be denied that the work before us is a most exhaustive and valuable contribution to a subject of ever-growing importance. Mr. Christophe's work is divided into five parts, in the chapters of each of which an enormous amount of material, which he was able to gather in his capacity of engineer, has been admirably distributed. In the first part, general principles and methods of construction are discussed. In the second, methods of application are treated. In the third, the preparation of material is discussed. The fourth division is devoted to theoretical considerations, and the fifth is a thorough review of the advantages and disadvantages of reinforced concrete.

Modern Electrical Construction. By Henry C. Horstman and Victor H. Tousley. Chicago: Frederick J. Drake & Co., 1905. 16mo.; pp. 345. Price, $1.50.

This work is intended as a reliable and practical guide to the beginner in electrical construction. The rules of the National Electrical Code adopted by the National Board of Fire Underwriters are contained in full and are used as a text with proper explanatory matter interspersed. The book is thoroughly practical and is well illustrated.

The Outlook of Nature. By L. H. Bailey. New York: The Macmillan Company, 1905. 8vo.; pp. 296. Price, $1.25.

The contents of this volume consist of four lectures delivered last January at the Colonial Theater, Boston, as a part of the University course, under the auspices of the educational committee of the Twentieth Century Club. The lectures are on the following subjects: "The Realm of the Commonplace"; "City and Country"; "The School of the Future," and "Evolution: A Quest of Truth."

The Sanitation of a Country House. By Dr. Harvey B. Bashore. New York: John Wiley & Sons, 1905. 12mo.; pp. 102. Price, $1.

This small volume contains many useful hints on the proper sanitation and beautifying of a country place. Its author has had a great deal of experience in his capacity of inspector for the State Board of Pennsylvania. Not only is the subject of sanitation and proper sanitary arrangements of a country house and its surroundings gone into, but the book also describes the proper method of constructing a sanitary camp. The book is very completely illustrated by some fifteen half-tone plates. We recommend it most heartily to all dwellers in the country.

Plane and Spherical Trigonometry. By P. A. Lambert and H. A. Foering. New York: The Macmillan Company, 1905. 12mo.; pp. 104. Price, 60 cents.

The authors believe that this textbook will develop in the student the ability to think out and apply the relations between the trigonometric functions. Tables of the functions are not included in the book, as the authors consider it better that the student should use separate tables. The whole work is so arranged that it encourages the student to use his reasoning powers, not merely to memorize.

Farmer's Cyclopedia of Agriculture. By Earley Vernon Wilcox, Ph.D., and Clarence Beaman Smith, M.S. New York: Orange Judd Company, 1904. Small 4to.; pp. 619, 477 illustrations. Price, $3.50.

Believing that a digest of the results—for it is results that the farmer is after—obtained by farmers and experimenters is greatly needed, the authors undertook the publication of this work. The volume contains a large amount of valuable information which has been culled from the farming papers, the Bulletins of the American Agricultural Experiment Stations, and from work done in foreign stations, and by individuals, as well. The book treats fully of agricultural science and practice with regard to field, orchard, and garden crops, spraying, soils, the feeding and diseases of farm animals, dairy farming, and poultry raising in the United States and Canada. It is divided into eight main parts, which treat of Field Crops; Garden Crops; Fruits and Nuts; Cattle and Dairying; Live Stock; Poultry; Fertilizers, Soils, Drainage, and Irrigation; and Miscellaneous subjects. The cultural details of all common plants are given, and full directions are supplied for raising all sorts of crops. The various fungous diseases and insect pests that attack these crops are also fully described.

CLAY MODELING AND PLASTER CASTING. Edited by Paul N. Hasluck. Philadelphia: David McKay, 1905. 12mo.; pp. 156. Price, 50 cents.

This is a very complete little handbook, that goes fully into the details of clay modeling. The tools and materials used are fully described, and the various processes of molding are gone into in detail. A chapter on Modeling the Human Figure will no doubt be found useful to young sculptors. The book is a compilation of matter published in Work, and any further information not contained in its pages may be had by addressing the editor of that journal.

RELIGION AND LUST. By James Weir, Jr., M.D. Chicago: Chicago Medical Book Company, 1905. 8vo.; pp. 233. Price, $1.50.

In the third edition of this monograph, the author has confined himself almost wholly to a discussion of the psychical correlation of religious emotion and sexual desire, having eliminated certain of the psychical problems embraced in the first two editions and added instead a bibliography. The book also contains considerable data additional to the thesis of the work, as well as foot notes. All notes and quotations found in the book have been carefully verified and edited. The author feels confident that the work gives the truth of the subject as nearly as it is possible to obtain it.

PRACTICAL PLUMBERS' WORK. By Paul N. Hasluck. Philadelphia: David McKay, 1905. 12mo.; pp. 150. Price, $1.

This is a complete handbook for the practical plumber, containing, in a form convenient for every-day use, a comprehensive digest of information contributed by experienced craftsmen to the columns of the Building World. The information is concise and complete, and it is made doubly valuable by the large number of illustrations, of which there are 298.

MODEL SAILING YACHTS. Edited by Percival Marshall. London: Percival Marshall & Co., 1905. 12mo.; pp. 144. Price, 50 cents.

The volume forms the fourth of Marshall's Practical Manuals. It is a very complete handbook on the construction and sailing of small model sailing yachts. Besides containing useful advice to the tyro on choosing and sailing his boat, the book contains more advanced information by experts—information which will be of benefit to the man who has had more experience in the construction of model yachts.

THE BOOK OF THE AUTOMOBILE. By R. T. Sloss. New York: D. Appleton & Co., 1905. 8vo.; pp. 372. Price, $3.

This is one of the most complete works on the automobile and its uses that has come to our notice. Starting in with the usual historical review, the author next discusses the various types of motors, transmissions, and various forms of chassis employed. Separate chapters are given to the various types of gasoline motors which have been and are now being manufactured; various types of automobile steam engines are discussed. A very helpful chapter is entitled "How to Choose an Automobile." The author goes into the cost of upkeep of various types of machines over a period of several years, besides other chapters on "How to Run an Automobile," "How to Care for an Automobile," and "The Automobile in Commerce and Sport." The book contains a chapter on touring, which is well illustrated and which has a map showing the 1904 St. Louis tour. A list of all the prominent American cars with full specifications will be found in the book which is completed by a suitable index and which has also a valuable glossary of English, French, and German terms.

THE ELEMENTS OF RAILWAY ECONOMICS. By W. M. Ackworth, M.A. Oxford: The Clarendon Press, 1905. 12mo.; pp. 159. Price, 70 cents.

The author of this text book is well known by his previous works on the "Railways of England" and the "Railways and the Traders." In the present volume he considers railways and railway business from the economic point of view. The author discusses railway capital, expenditure, and income, as well as the ever-present question of railway rates. Although only a first installment of the complete work which the author had planned, this book will be found to go into the subject very thoroughly and to give considerable interesting information.

HOW TO KNOW WILD FRUITS. By Maud Gridley Peterson, with illustrations by Mary Elizabeth Herbert. New York: The Macmillan Company, 1905. 8vo.; pp. 340. Price, $1.50.

This book contains descriptions and drawings of various wild fruits. The author has dealt only with those plants which bear attractively-colored fruits. These fruits are generally the more noticeable ones, and they do not develop until the blossoms entirely disappear. Each illustration is furnished with a description which tells the kind and structure of the fruit and which will thus aid in determining the family to which a plant belongs; while the arrangement is such that each family of a species is grouped by colors. Approximately 200 plants found in England and America are described. The book is prefaced with a suitable guide to the plant families and species described in it.

EFFECTS OF TROPICAL LIGHT ON WHITE MEN. By Major Charles E. Woodruff, A.M., M.D., Surgeon in the United States Army. New York: The Rebman Company, 1905. 8vo.; pp. 358.

The author commenced the writing of this work in an attempt to prove or disprove the theory announced by Von Schmaedel in a paper read before the Anthropological Society, in Munich, during 1895, that skin pigmentation of man was evolved for the purpose of excluding the dangerous actinic, or short, rays of light which destroy living protoplasm. This theory gave, at once, the reasons for the evolution of nigrescence and blondness, the reasons why Europeans have always failed to colonize in the tropics, and why blonds disappear when they migrate from their northern homes; and it finally gave rise to practical hygienic rules for white men compelled to reside in the tropics. As the suggestions contained in this paper were of such inestimable value provided the theory was correct, a systematic search was instituted for data; and the discoveries made in this search prove the correctness of the theory. In the present work Mr. Woodruff brings forth these discoveries and attempts to prove the theory conclusively. The subject, though a very interesting one and of great importance to all blonds in the United States, has never before been treated exhaustively, and popular scientific literature has generally ignored the real issue. Among the headings of chapters in this work are the following: Ether Waves, Their Action on Protoplasm; Difference Between Plants and Animals; Natural Defenses of Animals from Light; Known Effects of Light on Man; Actino-Therapy; Evolution of Blondness; Results of Insufficient Pigmentation; and Practical Rules for White Men in the Tropics. An index puts the information contained in the book instantly at the reader's disposal.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending September 19, 1905

AND EACH BEARING THAT DATE

[See note at end of list about copies of these patents.]

Acid and making same, benzoyl-salicylic, E. Bloch ... 799,706
Advertising device, A. A. Warren ... 800,036
Amusement device, A. Debattista ... 799,976
Ankylosis of the knee, apparatus for treating, R. R. Norwood ... 799,664
Annealing furnace, A. Ridd ... 800,018
Antisiphon trap, J. J. Smith ... 799,874
Auger, square, F. Bryan ... 799,889
Automobile steering mechanism, C. O. Barnes ... 799,703
Automobile tire covering, B. Nathan ... 799,662
Automobiles, control of, H. Lemp ... 800,118
Bag holder, J. C. Downing ... 800,087
Bale tie, Witt & Hollinger ... 800,042
Baling press, A. Hailey ... 799,729
Baling press, F. A. Lake ... 799,739
Baling press, L. L. Parr ... 800,049
Balls, machine for winding the cores for golf, Cochrane & Jackson ... 800,076
Band brake, A. Grieves ... 799,728
Barrage, J. A. Boyce ... 799,708
Battery grid or element, secondary, W. Gardiner ... 800,128
Bedstead bed rail fastener, metallic, J. Nelson ... 800,006
Belt shifter, I. S. Newton ... 799,663
Belt shifter, automatic, J. F. Ochard ... 800,120
Bending tool, X. Kern ... 799,654
Bicycle, water, Z. Payette ... 799,667
Binder, temporary, T. Lee ... 799,992
Binding posts, connecting wire to, W. Mills ... 799,748
Block signal system, H. N. Sporborg ... 799,807
Block signal system, H. E. White ... 799,816
Blocking and cultivating machine, T. McEwing ... 800,005
Blotter, ruling, J. L. Wood ... 799,818
Board. See End board.
Boat, submarine torpedo, J. J. Harpain ... 800,101
Boats, buffer for, F. Grimm ... 799,645
Boats, means of escape from sunken submarine and similar, Cable & Spear ... 799,714
Boiler water heater, J. Miller ... 799,864
Book back making apparatus, A. J. Kroencke ... 800,115
Book mark, G. S. Budge ... 799,775
Book support, G. Enander ... 800,090
Boot, E. G. Stearns ... 799,685
Boring drill, H. J. Blaske ... 799,968
Bottle cap, H. A. Oberholtzer ... 799,665
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Bottle, nursing, E. H. Simonds ... 799,806
Bottle protector, H. F. Thompson ... 800,030
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Bottle stopper fastener, J. A. Astarita ... 799,622
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Brake mechanism, J. W. Miller ... 799,797
Brick handling machine, A. Dupuy ... 799,838
Broiler, gas, S. T. Willson ... 799,956
Building block, J. S. Culley ... 799,636
Building construction, G. F. Fisher, 799,784, 799,843
Buildings, traveling attachment for, T. McConnell ... 799,865
Bung, locking, G. W. Phillips ... 799,802
Button, cuff, H. L. Mainland ... 799,998
Cabinet, E. F. Fischer ... 799,725
Cabinet, kitchen, J. F. Wilmot ... 800,040
Cable head hanger, F. M. Winn ... 799,957
Camera, photographic, A. D. Davis ... 800,081
Can filling or other machines, can feed device for, C. H. Ayars ... 799,962
Cap making machine, Beck & Drushel ... 799,624
Car brake, T. A. Steele ... 799,688
Car construction, metallic, T. R. Brown ... 799,969
Car coupling, C. B. Botkin ... 800,063
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Car door, sliding, I. K. Walton ... 799,812
Car draft rigging, railway, J. F. O'Connor ... 799,867
Car, dump, F. S. Ingoldsby ... 799,650, 799,651
Car fender, J. W. Seibert ... 800,121
Car, freight, H. S. Hart ... 799,646
Car grain door, S. R. Helck ... 799,789
Car loading and unloading appliance, stock, W. J. Ray ... 799,868
Car, railway freight, W. A. Holbrook ... 799,905
Car wheel, J. R. Davies ... 799,893
Car wheel, steel, F. W. Hudson ... 799,907
Cars, system of ventilation for railway, L. J. Harris ... 799,984
Cars, tandem spring draft rigging for railway, J. F. O'Connor ... 799,866
Cartons, device for cutting, scoring, folding, and pasting, E. A. L. Roehl ... 799,942
Carving machine, J. H. Behee ... 799,825
Cement building block, hollow, H. D. Brooke ... 800,067
Cement molding machines, pattern frame for, J. B. Petrie ... 799,754
Chair. See Dental chair.
Checkrein attachment, L. Moretti ... 799,920
Checkrein loop retainer, V. Miller ... 799,918
Cheese, J. R. Meyers ... 799,863
Chemical apparatus, D. Genese ... 800,097
Chuck and tools therefor, tool, J. Gessert ... 799,787
Chuck, drill, T. S. Carroll ... 799,630
Churn, L. W. Schomber ... 799,872
Cigar bunches, machine for forming, binding, and storing, A. S. Koch ... 799,991
Cigar cutter and match holding and delivering device, combined, R. E. Jack ... 799,909
Circuit breakers, electromagnetic lock for automatic, J. D. Hilliard, Jr ... 799,790
Clamp, G. M. Henry ... 800,105
Clock, calendar, W. S. Shirk ... 799,679
Clothes sprinkler, H. G. Smith ... 799,761
Clutch, electromagnetic, H. H. Cutler ... 799,720
Coating machine, G. P. Reuhl ... 800,016
Coherer, W. W. Massie ... 800,119
Coin actuated mechanism, E. Richter ... 799,673
Collar protector, O. L. Harries ... 799,731
Comb, G. N. Steere ... 799,762
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Concrete wall mold, A. S. Merriett ... 799,914
Conveyer, L. Abraham ... 799,771
Conveyer, C. W. Levalley ... 799,993
Conveyer, C. Finn ... 800,095
Cooker, steam, Brown & Grant ... 800,069
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Cord adjuster for holding surplus cord, H. C. Ayres ... 800,050
Core forming apparatus, J. F. Hay ... 799,847
Cores, making, J. F. Hay ... 799,846
Cotton chopper and harrow, Oglesby & Champion ... 799,932
Cotton picking machine, G. A. Lowry ... 799,742
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Cream treating machine, Nebel & Peterson ... 799,927
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Dam, waterworks, W. L. Church ... 799,830
Dams, flash board holder for, W. L. Church ... 799,828
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Dental device, W. S. Filley ... 800,093
Dental tool, A. W. Feltmann ... 799,724
Distillation of wood, etc., basket for, J. A. Mathieu ... 799,795
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Door, grain, J. W. Boling ... 799,626
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Doubletree hanger, M. Kurz ... 799,656
Dough breaker, P. F. Carroll ... 799,715
Drill socket, G. A. Sager ... 799,944
Driving mechanism, variable speed, H. A. Coombs ... 799,717
Drum, heating, J. K. Mohler ... 800,002
Ear trumpet, G. G. Lewis ... 799,659
Earthenware pipes, machine for making, H. Coulthurst et al ... 799,833
Edge iron, S. R. Bailey ... 799,774
Electric contact device, R. W. Farrington ... 799,896
Electric current regulator, P. Kennedy ... 800,114
Electric wiring, conduit for, H. C. Ayres ... 800,052
Electrical conductor conduit, H. C. Ayres ... 800,054
Electrical conductors, device for ceiling and unceiling, H. C. Ayres ... 800,049
Electrical conduit cover, H. C. Ayres ... 800,055
Electrical indicator, H. Lemp ... 799,117
Electrical instruments, means for supporting movable elements of, E. Hartmann ... 799,733
Electrical wiring, angular conduit for, H. C. Ayres ... 800,053
Electrolier, adjustable, H. C. Ayres ... 800,051
Electrolytic apparatus, G. L. Meaker ... 799,861
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End board, wagon, F. S. Converse ... 800,079
Engine reversing gear, steam, B. H. Brown ... 799,712
Engine vaporizer, hydrocarbon, F. I. Hitchcock ... 799,791
Envelop band cutting machine, E. A. Claus ... 799,890
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Explosive, E. Steele ... 799,687
Explosive, nitroglycerin, M. Bielefeldt ... 799,705
Eyeglasses, etc., holder for lenses of, G. H. Winslow, reissue ... 12,391
Eyelet and the like, W. G. Murphy ... 799,924
Eyelets and the like, manufacture of, W. G. Murphy ... 799,925
Fan motor, J. F. Thunell ... 799,952
Faucet, C. F. Beresford ... 800,125
Feed water regulator, Spanabel & Justison ... 799,947
Fence post, Gaylord & Conroy ... 799,643
Fence post, C. Warneke ... 799,813
Fencing tie, wire, J. J. Morse ... 799,921
Fender. See Car fender.
File, letter, C. A. Grunewald ... 799,788
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Filter, W. H. Little ... 799,994
Filter, J. W. Hill ... 800,107, 800,108
Filtering apparatus, J. B. Greer ... 799,983
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Firearm, automatic, A. O. von Augezd ... 799,884
Fish rod joint or union, C. A. Tredwell ... 799,810
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Flanging machine gage, C. B. Fairweather ... 800,091
Fountain, D. D. Lambert ... 799,657
Friction top can, Young & Symonds ... 799,821
Frogless switch, S. A. Renshaw ... 800,015
Fuse, electric, Snyder & Hardison ... 799,684
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Gas burner, incandescent, J. Hudler ... 799,649
Gas burner safety attachment, O. Friedrich ... 799,899
Gate, D. W. Bromley ... 799,888
Gate, P. H. Connolly ... 800,078
Gear, friction draft, G. Westinghouse ... 799,698
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Glove, boxing, H. A. Baker ... 800,058
Governor, J. A. Giles ... 799,727
Grader and ditcher, land, A. T. Reed ... 799,756
Grader, elevating, L. V. Brophy ... 799,826
Grain crib, Powell & Gray ... 799,755
Grain drill, H. J. Case ... 799,631
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Grain drying apparatus, A. R. Hagner ... 799,901
Graphophone modulator, F. N. Foster ... 799,898
Grinding and polishing cultivator disks and rolling colters, machine for, C. Youngstrom ... 799,700
Grinding machine, W. R. Fox ... 799,641
Grooming device, F. K. Moseley ... 799,799
Guanin, making, L. Weber ... 799,955
Gun lock, single trigger, A. D. Houldcroft ... 799,852
Gun, machine, J. Boeger ... 800,062
Hammer, drop, B. & J. Brett ... 800,065
Harrow, C. W. Bowland ... 799,886
Harvester and husker, corn, P. Fleming ... 800,094
Harvester, corn, E. J. Mundale ... 799,750