

the part of the player to solve the puzzle in a comparatively short time.

HUNTING OR SHOOTING GARMENT.—F. PETMECKY, Austin, Texas. The inventor provides a coat, sweater, or like hunting or shooting garment for the use of hunters, marksmen, and other persons and arranged to take up and absorb the recoil of the gun, rifle, or like firearm and to form a cushion for protecting the user's shoulders against abrasion when carrying the firearm over the shoulder.

Pertaining to Vehicles.

TRUCK.—A. SCIAFER and G. WANER, Red Bluff, Cal. In the present patent the invention has reference to trucks, more particularly hand-trucks, and has for its object the provision of a novel construction permitting the truck to be wheeled up and down stairs or steps, as well as on a plane surface.

BICYCLE-PUMP.—A. GENNELLY and B. GILBERTI, Los Banos, Cal. This pump is adapted for inflating bicycle-tires, and an object of the improvement is to incorporate a pump in the frame of the bicycle, so that the pump will always be convenient for use and readily accessible and will obviate the necessity of carrying a separate pump, which would be liable to be mislaid or lost.

WHIFFLETREE-HOOK.—O. B. HAGA, Dogden, N. D. This invention refers to improvements in hooks for attaching harness-traces to whiffletrees, the object being to provide a device so constructed that the cockeye of a trace may be readily engaged therewith or detached therefrom, but cannot be accidentally detached.

BICYCLE.—T. SWINBANK, Senath, Mo. The invention relates to bicycles. The object of the inventor is to produce a bicycle having improved driving mechanism which will enable the driving forces to be advantageously applied to the driving mechanism. Advantageous means are provided for diminishing the vertical "gear," and applying the brake in this bicycle.

Designs.

DESIGN FOR A VESSEL FOR TABLE USE.—A. PAROUTAUD, New York, N. Y. This ornamental design for a vessel for table use shows a biscuit jar, with a handle at each end. One end of the handle of the oval-shaped cover is unique in differing in height with the other. The base of the jar is flanged and at four points gives slight indications of feet. Mr. Paroutaud has invented another design for a vessel for table use, a chocolate pot. It is somewhat elongated in height and its base, cover, and handle have almost the same characteristic sweep of lines that mark and give grace to the jar mentioned above.

DESIGN FOR A BADGE.—A. H. KOPETSCHNY, Jersey City, N. J. This ornamental design for a badge comprises a crescent and a bastioned tower. The latter has a key-hole-shaped window and door, and is clasped by the crescent at its sides, the base of the tower resting down on the inner circle edge of the crescent.

DESIGN FOR RIBBON.—G. A. MORGAN, New York, N. Y. Two groups of picture cards of the four denominations in playing cards, then four aces, and then the two groups again, are gracefully placed along the ribbon in this ornamental design. The various groups spread out in fan-shape in opposing directions. Small scroll work runs principally back of the aces.

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



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.

(10504) R. L. M. asks how to make transferring varnish. A. Mastic in tears, 6 1/2 ounces; resin, 12 1/2 ounces; pale Venice turpentine, 25 ounces; sandarac, 25 ounces; alcohol, 5 pints. Dissolve in a clean bottle or can in a warm place, frequently shaking it. When the gum is dissolved strain it through a lawn sieve and it is fit for use.

(10505) G. N. O. asks how to make gravel and tar walks. A. Take 2 parts very dry lime rubbish and 1 part coal ashes, also

very dry, and both sifted fine. In a dry place, on a dry day, mix them, and leave a hole in the middle of the heap as bricklayers do when making mortar. Into this pour boiling hot coal tar, mix, and when as stiff as mortar put in 3 inches thick where the walk is to be; the ground should be dry and beaten smooth; sprinkle over it coarse sand. When cold, pass a light roller over it; in a few days the walk will be solid and waterproof.

(10506) B. B. S. asks how to make glycerine of cucumber. A. White castile soap, 1/2 ounce; pommade de concombre, 1 ounce; rose water, 30 fluid ounces; glycerine, 2 fluid ounces. Cut the soap small and dissolve it in about 4 ounces of the water. Melt the pommade and put it in a hot mortar. Gradually add the hot soap solution, stirring until thoroughly mixed, then slowly add the rest of the rose water mixed with the glycerine. Keep well stirred until cool, then let stand for some hours, stirring occasionally. Properly manipulated, a perfect emulsion is obtained. When completed it may be perfumed as desired. The soap employed should be of good quality.

(10507) W. H. asks how to clean ink rollers. A. 1. Rollers should not be washed immediately after use, as they will become dry and skinny, but they may be washed one-half hour before using again. In cleaning a new roller, a little oil rubbed over it will loosen the ink, and it should be scraped clean with the back of a knife; it should be cleaned this way for about a week, when lye may be used. New rollers are often spoiled by washing too soon with lye. 2. To renew a hard roller.—Wash carefully with lye, then apply a thin layer of molasses. Let it stand all night, then wash with water, and let it hang until dry enough to use.

(10508) R. L. M. asks for a varnish for gun barrels. A. To make a good varnish for gun barrels, take: Shellac, 1 1/2 ounce; dragon's blood, 3 drachms; rectified spirit, 1 quart. Apply after the barrels are browned.

(10509) W. P. G. asks how to make a pot pourri. A. Spread thinly the fresh collected flowers on porous paper placed in shallow trays, and expose them to the sun or warm air until sufficiently dry, then lightly crumple them up small between the hands, and the other dry odorless ingredients being added, with or without a little essential oil of the same kind as the dried flowers, thoroughly mix the whole together. Sometimes essential oils only are added to the dry flowers, but the fragrance of the product is then much less durable. As the basis of his finest dry pot pourri, the Continental perfumer usually substitutes either reindeer moss or ragged hoary evernia, in very coarse powder, for the dried flowers.

(10510) M. G. W. asks how to make printers' rollers. A. 1. Take an equal quantity of good glue and concentrated glycerine; soften the former by soaking in cold water, then melt it over the water bath, gradually adding the glycerine. Continue the heat until the excess of water has been driven off, meantime constantly stirring. Cast in brass or bronze molds well oiled. 2. To 8 pounds transparent glue add enough water to cover it; let it stand with occasional stirring seven or eight hours. After twenty-four hours, all the water should be absorbed. Heat in a water bath, as glue is always heated as soon as melted, and when both rise, remove from fire, and add 7 pounds molasses that has been made quite hot. Heat with frequent stirring for half an hour. The molds should be clean and greased. Pour into molds after it has cooled a little, and allow to stand eight or ten hours in winter, longer in summer. Some use far more molasses, three to four times above quantity, and less water. In this case, after soaking one to one and a half hours, the glue is left on a board overnight, and then melted with addition of no more water, and three or four times its weight of molasses added. Two hours' cooking is recommended in this case. 3. Resin soap and small quantities of oil and earthy matters are occasionally introduced. The heating must be continued until the greater part of the water has been expelled, when the composition is ready for casting in copper molds, oiled and warmed.

NEW BOOKS, ETC.

THE ENGINEERING INDEX. Vol. IV. Five Years, 1901-1905. Edited by Henry Harrison Supplee, B.Sc., and J. H. Cuntz, C.E., M.E., in co-operation with Charles Buxton Going, Ph.B. New York: The Engineering Magazine, 1906. Large 8vo.; pp. 1,234. Price, \$7.50.

The fourth volume of the Engineering Index represents the continuation of the work originally started by the late Prof. J. B. Johnson in the Journal of the Association of Engineering Societies in 1884, and turned over by that association to the Engineering Magazine at the close of 1895. The previous volumes, published respectively in 1893, 1896, and 1901, covered with increasing fullness and thoroughness the field of technical engineering periodical literature; and in the present volume every care has been taken to maintain and advance the standard set by its predecessors. The classification is substantially the same as that introduced in Vol. III. The use of cross-reference entries has been extended, so that every facility is afforded in the search for any article. This volume contains more than 50,000

entries as against 40,000 for Vol. III. The comprehensive extent of the index may be understood, when it is mentioned that the list of periodicals indexed covers 250 technical and engineering journals in six different languages, one-fourth of these being languages other than English. Much of the value of the index is due to the fact that it is a guide to the vast amount of information otherwise practically buried in the numerous files of engineering publications in the reference libraries of the world.

ELECTRONS, OR THE NATURE AND PROPERTIES OF NEGATIVE ELECTRICITY. By SIR OLIVER LODGE, F.R.S. London: George Bell & Sons. 8vo.; cloth; 230 pages. Price, \$2 net.

Anything published over Sir Oliver Lodge's name is by nature authoritative, so the treatise under discussion should be given a place in all scientific libraries without delay. It covers the field of matter and electricity, as viewed in the light of the recent discoveries in radio-activity and the kindred phenomena; from the experimental, as well as from the purely theoretical standpoint. Whenever it is possible the methods used to arrive at conclusions are described in detail, making the book useful as a laboratory guide to the experimenter, as well as indispensable to those who are following the theory alone.

QUALITATIVE ANALYSIS AS A LABORATORY BASIS FOR THE STUDY OF GENERAL INORGANIC CHEMISTRY. By WILLIAM CONGER MORGAN. 8vo.; cloth; 351 pages. Price, \$1.90 net.

A very excellent work on qualitative analysis, embodying as it does both a description of the various compounds and their constituent elements, with a system of analysis possessing many refinements of methods. Directions for making up reagents and tables of great convenience complete the work.

METALLURGY OF CAST IRON. A Complete Exposition of the Processes Involved in its Treatment Chemically and Physically from the Blast Furnace Through the Foundry to the Testing Machine. A Practical Compilation of Original Research. By THOMAS D. WEST. Cleveland, O.: The Imperial Press, The Cleveland Printing Company, 1906. Eleventh edition; 12mo.; cloth; 594 pages, 153 illustrations. \$3 postpaid.

It is hard to conceive of a more important subject than the one treated of by Mr. West in his book. With iron so extensively used, there is scarcely a field in the technical world in which a knowledge of this metal is not only useful, but necessary.

As Mr. West has had the widest and most intimate association with the iron industry, his work must be taken as authoritative on all subjects with which the smelter and foundryman has to deal.

Covering, as it does, among others of equal importance, the vital questions of melting, testing, mixing, and chemical composition, the work has proved itself well nigh indispensable, as is shown by the fact that it is now in the eleventh edition.

INDEX OF INVENTIONS

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United States were Issued

for the Week Ending

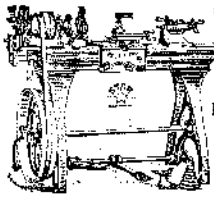
April 9, 1907.

AND EACH BEARING THAT DATE

(See note at end of list about copies of these patents.)

Table listing inventions with names and dates. Includes items like Abdominal guard and supporter, Acids, bromin derivative of fatty, E. Fischer, 849,471; Adding machine, G. N. Hinckman, 849,476; Adjustable wrench, G. E. Woodbury, 849,765; Advertising device, C. M. O'Brien, 849,493; Agitator, B. Solis, 850,069; Agricultural implement, H. C. Weaver, 849,646; Air brake mechanism, C. G. Luncheon, 849,550; Air filter and cooler, L. F. Pawley, 849,568; Alloy, A. H. Smith, 849,927; Amusement device, P. Boyton, 849,970; Anchor post and stretcher, E. Underwood, 849,441; Anti-pig-rooting device, T. W. Box, 849,969; Augur, packing, E. E. Ziegenfuss, 849,452; Automatic coupling, P. Lanche, 850,090; Automatic sprinkler, Thurlow & Fraser, 849,938; Automobile top holder, C. W. Coops, 849,598; Automobiles, differential clutch mechanism for, F. W. Hegeland, 849,474; Axle, G. A. Weaver, 849,850; Axle construction, front, G. E. Babcock, 849,652; Back spacing mechanism, W. W. 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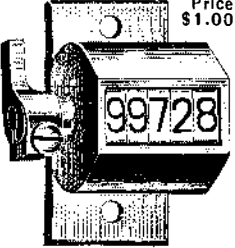
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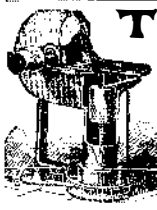
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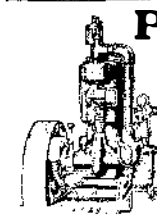
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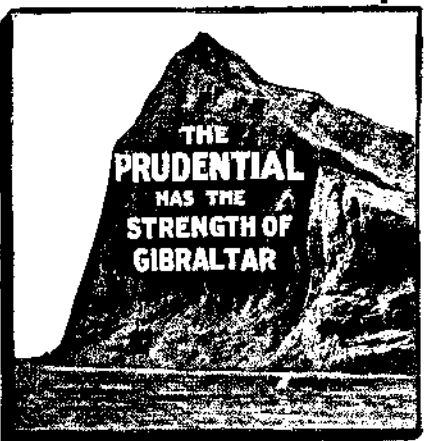
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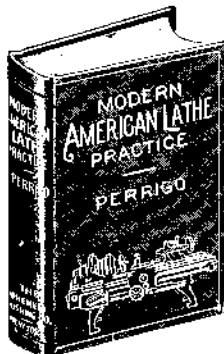
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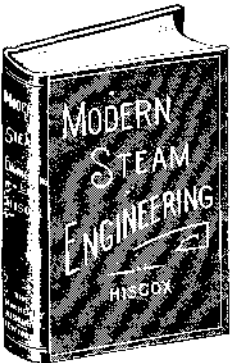
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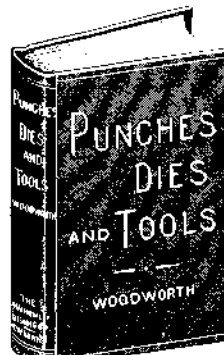
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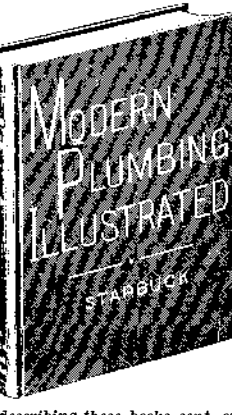


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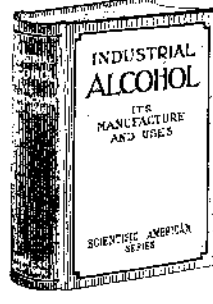
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