

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM ENGINE VALVE.—Joshua Rose, Twickenham, England. This invention relates to slide valves, and provides for prolonging the period of the expansion of the propelling fluid for all points of the cut-off in engines whose steam admission is effected or controlled by a single valve, by allowing the steam, during certain periods of the valve travel, to hold one part of the valve stationary on its seat while the other part of the valve is actuated positively, the invention also covering other novel features.

Railway Appliances.

RAIL.—Michael A. Glynn, Havana, Cuba. This rail is made with a scalloped flange, and is adapted for use in connection with a sleeper having a transverse dovetail slot to fit the widened portions of the rail flange, whereby the rails and sleepers may be quickly adjusted in position, and will not be liable to be accidentally displaced.

Mechanical.

WINDER FOR SPINNING SPINDLES.—Ernst Gessner, Aue, Germany. This invention covers an improved form of the guiding piece of winders in continuous spinning machines forming the subject of a former patent issued to the same inventor, so as to make the winder of as little weight as possible to make it capable of running at a high speed.

NIPPLE HOLDER.—Daniel A. Holland, Boston, Mass. This invention provides means whereby a section of pipe from which the nipple is to be cut may be firmly held to place while the completion of the nipple is being effected, while the device is so constructed that the nipple when finished may be conveniently removed in perfect shape.

Agricultural.

CULTIVATOR AND PULVERIZER.—Charles C. Crumb, Burlingame, Kansas. This is an implement designed to remove all weeds from the surface of the ground, and pulverize and leave the soil fine and mellow, the pulverizing or cultivating surfaces being interchangeably arranged, permitting the soil to be thrown toward or away from the plants, and the machine being quickly adapted to any irregularities in the depth of the rows.

Miscellaneous.

ALBUM.—Thomas Kelly, New York City. This is a device consisting of a hollow base with compartments closed by a lid, the latter supporting the book containing the pictures, affording a secret drawer for loose pictures, while one of the covers can be used as a writing desk.

THRILL COUPLING.—Olaus A. Dahl, Mona, Iowa. The thrill iron of this coupling is pivoted upon conical bearings capable of being readily oiled, while the parts may be easily tightened when worn, the construction being simple, durable and economical, and the coupling being also a thorough anti-rattler.

WHIP SOCKET SUPPORT.—Alexander E. Tulloch, Leadville, Col. A bracket with a stem having an integral lateral flange is provided by this invention, the flange being downwardly bent and split in its end portion, making a simple and neat bracket support for the attachment of a whip socket to a vehicle body or seat.

TANNER'S TOOL.—Robert H. Houk, Morris, Ill. This invention covers a novel form of clamping device adapted to hold hides of different thicknesses for suspension in the tan pits or elsewhere, the points of the jaws being arranged to come together to hold the hide without cutting a hole therein, whereby the necessity of cutting loops or punching holes in the hides is avoided.

TRICYCLE.—Frank Searle, Virginia City, Montana. This invention covers a novel construction and combination of parts in a machine designed to be very powerful, and to be readily propelled by the operator manipulating crank arms with the hands, the steering being accomplished by the feet of the rider.

BLACKING BRUSH.—James S. Moore, Bar Harbor, Me. This brush is so made that the blacking may be located in its back and completely hidden from view when not in use, means being also provided for conveniently drawing the blacking out from the back of the brush, without its being detached, and for its effective application in a neat and convenient manner to the dauber.

CARBONIZING APPARATUS.—Adolf Silverberg and Cunibert Detering, Bedburg, Germany. Combined with a revolving drum and hollow shaft, to which is fixed a retort, under which is a fireplace, is an acid receptacle, a tube from which opens into the retort, whereby the quantity of acid introduced may be regulated as desired and the vaporized acids will be prevented from escaping.

STRINGED MUSICAL INSTRUMENT.—George W. Van Dusen, Norwood, N. Y. This invention covers novel features of construction of string supports relatively to the plate or frame and sounding board of the instrument, being applicable more particularly to pianos, and designed to maintain perfect pitch and harmony of tone from the strings, irrespective of changes of temperature or long-continued use of the instrument.

MAIL INDICATOR AND ADVERTISING BOARD.—Thomas B. Peacock, Topeka, Kansas. This is a board with movable slides for advertisements, while embedded intermediately in the board is a box with a transparent front wheel, a series of cubical blocks having different letters on their faces being arranged in the box to indicate undelivered mail.

KEY BOARD ATTACHMENT.—Casper De Vitbiss, Shellsburg, Iowa. This is a device to be removably attached to any cabinet organ or piano, to furnish means for the mechanical execution of any tune the attachment is adapted to play by periodical movement of the keys of the musical instrument.

COPY PRESS.—Richard A. Brown, New York City. Combined with a bed on which a platen is held to slide is a hollow slotted paper-carrying cylinder with an exterior pad adapted to contact with the platen, the press giving the impression of a letter by one revolution of a crank arm, while the cylinder will carry a stock of copying paper, which is automatically dampened and cut to a proper length as the impression is taken.

AUTOMATIC GATE.—Alibert Edwards, Lanesville, Va. This is more particularly a roadway gate, of simple and inexpensive construction, to be easily operated by a passing vehicle or by a person riding on horseback, the devices patented being also applicable for use with railroad gates by placing the triggers provided adjacent to the track to be operated by the car wheels.

WIRE FENCE AND FENCE POST.—Samuel H. Gregg, Crawfordsville, Ind. Three patents have been granted this inventor on the above subject, the improvements combining in one fence some of the advantages of both a barbed and smooth wire fence, and avoiding the objectionable features of both. The strands are made of unannealed spring wire, preferably spring steel, but the wire is crimped to make it more plainly visible, and also to allow for expansion and contraction, while between the posts are stays usually arranged about five feet apart, and secured to anchor posts or plates driven into the ground. The terminal posts are designed to be made at a small cost and easily set in place, while their peculiar construction is such as to admit of the ready connection therewith of simple wire-tightener means, which can be readily put in position and detached from the post.

HOOP FOR COOPERS' WARE.—Leonard L. Frost, Barada, Neb. This hoop has at one edge an inwardly projecting portion or flange and a plain opposite edge, the lower edge of the hoop being designed to rest in yielding contact with the face of the receptacle in connection with which it is employed, being more especially designed for use with pails and tubs.

HOGSHEAD MAKING MACHINE.—Robert E. King, Louisburg, N. C. This machine has a central bed piece to which horizontal semicircular formers are hinged carrying at their free ends fastening and compressing devices the machine requiring but little skill in adjusting the staves, and being one in which it is impossible for the staves to collapse while hooping the hogshead.

SINGLE TREE SUPPORT.—Robert C. Allen, Grove City, Pa. This invention consists of a block adapted to carry the singletree, a strap for supporting the block from the cross bar of the shafts, and arms connected with the block and pivoted on the axle of the vehicle, the device being especially designed for one-horse vehicles having bent shafts, and calculated to relieve the animal from all strain on its back.

WARDROBE TRUNK.—Sarah M. McCormack, Cold Spring, N. Y. This is a combined wardrobe and trunk, having two sections hinged together at the top, each section provided with shelves and drawers, and an elastic packing strip being secured to the outer surface of the sections and extending across the top above the joint between them.

OVERALLS.—Isaac M. Appel, Baltimore, Md. Two patents have been granted this inventor, the garment having the front portion of the leg folded upon itself above and below the knee, forming triple thicknesses at and adjacent to the knee portion in front, but not showing upon the outside, while there are also knee re-enforce pieces, forming also braces, which can be readily cut and easily applied, made with strips of different lengths to fit different sizes of overalls.

SCISSORS SHARPENER.—Wales E. Woodruff, Essex, Conn. This device has a box clamp with a seat or recess in its top for a file, the seat being beveled to the angle usually given to the cutting edge of scissors or shears blades, while a top plate has a bearing coinciding with that of the seat, the outer edge of the top plate forming a straight edge or guide for the blade.

CONVERTIBLE FURNITURE.—Frank A. Thomas, Brooklyn, N. Y. This invention provides an article of furniture designed to be used as a chair, cradle, or lounge, at pleasure, there being a main body and a sliding section, each composed of intermeshing sliding slats at the back and bottom, with a removable back section to form the front of the cradle, and means for preventing accidental extension and detachment of the parts.

WINDOW SHADE AND CURTAIN POLE.—Rinaldo A. Batte, Norfolk, Neb. This invention covers a novel construction and combination of parts providing a simple and efficient window shade support, with peculiar means for adjustment of the shade thereon, and also affording a bracket on which the hangers of a curtain pole may be held.

EGG BOILING DEVICE.—Jacob Verdamm, Alkmaar, Holland. This device consists of loosely connected vertical wire links and a yoke loosely suspended thereby and having rings at its ends, for holding or retaining eggs while being boiled in a kettle.

HOUSEHOLD WATER HEATER.—Henry C. Steinhoff, Union, N. J. This is an attachment for stoves or kitchen ranges, consisting of an efficient system of water pipes applied independently of the ordinary water back, and adapted to heat water and maintain its circulation through radiators, no change being required from the ordinary setting, and the device being operated by the manipulation of a damper.

HAND FOR DOLLS.—Matthew W. Alderson, Bozeman, Montana. According to this invention the hands of the doll are preferably made integral with hollow forearms of a jointed arm, combined

with which is a pivotally mounted finger section and an elastic cord extending through the arm and normally holding the fingers closed by its tension, permitting the doll's hands to hold articles.

COMPLEXION MASK.—Nettie E. Jenkins, Auburn, N. Y. This is a medicated mask or glove of purely vegetable substances, designed to heal, purify, soften, and beautify the skin, and is made of a compound possessing the merits of rubber, yet free from the disadvantages attending the use of that material.

LEATHER DRESSING.—John M. Jolly, Marlin, Texas. This is a stuffing or filling compound in which are employed neat's foot oil, beeswax, extract of logwood, borax, castile soap, and other ingredients, in specified proportions, in order to soften and polish as well as preserve leather, being particularly applicable as a dressing for harness, boots and shoes, etc.

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.

ELECTRO-CHEMICAL ANALYSIS. By Edgar F. Smith. Philadelphia: Blakiston, Son & Co. 1890. Pp. 116. Price \$1.

This work is exactly what it purports to be, a laboratory guide for the utilization of the electric current in analysis. Under each metal is given a brief extract of the literature relating to its analytical determination by electricity, so that the work, small and compact as it is, is really of very great value, and embodies all leading authorities. It has numerous illustrations which add to its attractiveness.

A SISTER'S LOVE. By W. Heinburg. Translated by Margaret P. Waterman. Illustrated. New York: Worthington Co. 1890. Pp. 319.

This novel, in printing, binding, and numerous illustrations, fully maintains the high standing which the Worthington series of novels has won in the publishers' world.

A BOY'S HISTORY OF THE UNITED STATES. Worthington & Co., New York. Price 50 cents.

A RUSSIAN COUNTRY HOUSE. Translated from the German. Illustrated. Worthington & Co., New York.

INCANDESCENT ELECTRIC LIGHTING. A description of the Edison system. D. Van Nostrand & Co., New York. Price 50 cents.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER NUMBER.—(No. 62.)

TABLE OF CONTENTS.

1. Plate in colors, illustrating a handsome residence at Plainfield, N. J., erected at a cost of \$20,000. Perspective elevation, floor plans, sheet of details, etc. Messrs. Rossiter & Wright, New York, architects.
2. Handsome colored plate showing a summer cottage recently erected at Grand Point, Mich., from plans furnished by Munn & Co., New York. Floor plans, perspective view, sheet of details, etc. Cost complete \$1,200.
3. The Hackley Public Library Building at Muskegon, Mich.
4. An attractive and economical church for a country village. Cost \$5,000, perspective view and ground plan.
5. A cottage at West Brooklyn, N. Y. Floor plans and photographic view. Estimated cost \$2,500.
6. Country house at Wayne, Pa. Cost complete \$9,000. Perspective elevation and two floor plans.
7. An attractive cottage in Buena Park, Chicago. Estimated cost \$4,500. Photographic view and two floor plans.
8. Residence at Graceland, Chicago. Estimated cost \$4,000. Photographic view and two floor plans.
9. Photographic view and two floor plans of a handsome residence at Auburn Park, Chicago. Estimated cost \$7,000.
10. A picturesque example of a bungalow at Bellagio. Cost £900. R. A. Briggs, London, architect. Plans and elevation.
11. Attractive country house at Narberth Park, Pa. Cost complete \$18,000. Two photographic views and floor plans.
12. Miscellaneous contents: Some of the merits of the ARCHITECT AND BUILDERS EDITION of the SCIENTIFIC AMERICAN.—How to catch contracts.—Improve your property.—The education of customers.—The SCIENTIFIC AMERICAN a help to builders.—Setting back houses in new streets.—Plumbers' materials.—"Adamant" wall plaster.—Inside window blinds, illustrated.—Employers' liability and accident insurance.—An improved scroll saw, illustrated.—Embellishments of suburban station grounds.—Repeated building from the same plans.—Mortar colors for builders.—Builders' ornamental iron work.—Improved spring hinges, illustrated.—Improved two-speed boring machine, illustrated.—Oil and wax in painting.—Mineral wool in house construction, illustrated.

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For Sale—New and second hand iron-working machinery. Prompt delivery. W. P. Davis, Rochester, N. Y.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

For best hoisting engine. J. S. Mundy, Newark, N. J.

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Wanted—Second hand Barnes patent foot power engine lathe. Address R. F. Mason, Valdosta, Ga.

Best Ice and Refrigerating Machines made by David Boyle, Chicago, Ill. 135 machines in satisfactory use.

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Wanted—A first class foreman for our general wrought iron shops. Must be thoroughly competent and experienced in iron and steel roof, truss, and bridge work. Permanent situation to the right man. Address, stating experience and references, Scherpe & Koken Architectural Iron Co., St. Louis, Mo.

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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.

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.

(2610) H. E. McC. asks how to tan calf skins thoroughly on both sides by the use of chemicals or otherwise, and produce the best results. A. You cannot learn how to tan calfskins well by any treatise or book. It is a technical trade requiring knowledge, experience and acquired skill. We sell a large, fully illustrated book, Davis on "Tanning," containing much information on the making of calfskins and other kinds of leather. Price \$10 by mail, postage paid.

(2611) W. H. D. asks: Would you kindly inform me through your paper what kind and size battery to use on silver plating solution? A. Use four or six cells of Bunsen battery. See SUPPLEMENT, No. 310.

(2612) A. M. F. asks: What is the whitish powder that adheres to rubber belting and uncolored rubber goods in general, when new, and what is its use in rubber making? A. Talc or some equivalent used to prevent India rubber adhering to the moulds in which it is vulcanized.

(2613) C. A. S. asks: What ingredients would you recommend for hardening and waterproofing mechanically ground wood pulp? A. We would suggest a solution of shellac in wood alcohol.

(2614) R. A. asks: 1. What causes the foliage to change color in the autumn? Is it a chemical change? A. It is a chemical change. 2. How many elements are there at present known? A. 67; but the number may be modified at any time from new investigations. 3. Is not the idea of sight without light erroneous, that is, can a cat or any other animal see in the dark, and what makes their eyes appear luminous in apparent darkness? A. There must be some light for sight to exist. A cat's eyes reflect light. In absolute darkness they are invisible. 4. What form of battery (and how constructed) is best for a small pocket battery used for running an incandescent electric light scarf pin? A. Use a small storage battery, which is best bought. 5. What battery is best for doing small jobs of gold, silver and copper plating (two or three pints of solution), also for nickel plating? What are some of the best books on electro-metallurgy? A. Smees or Daniell batteries are good. See SUPPLEMENT No. 310. We recommend Watt's "Electro-Deposition of Metals," \$3.50. 6. What takes place when soldering (both hard and soft solder)? Is an alloy a mechanical or a chemical combination? A. An alloy is supposed to be formed with the surface of the metal united. The exact status of an alloy is hard to fix. It probably partakes of both characters. 7. How can rubber (such as rubber bands, etc.), be united? A. If unvulcanized, by simply cutting

and pressing together the fresh surfaces. Otherwise it cannot be satisfactorily done. 8. How can I get a price list of chemicals? A. Address any wholesale drug house.

(2615) G. A. asks: 1. What is the highest altitude ever reached by a rarefied air balloon, and also a gas balloon? A. Accurate data are not obtainable for rarefied air balloons. In Coxwell and Glaisher's famous ascent of September 5, 1862, with a gas balloon, the height of 37,000 feet was probably attained. This is the highest altitude ever reached. 2. Can you recommend me to some good articles on aeronautics and balloon making? A. We refer you to our SUPPLEMENT, Nos. 726 and 749, and for an excellent illustrated account of the history of ballooning to our SUPPLEMENT, Nos. 738 and 739. 3. Is there any school on the Pacific coast where aeronautical engineering is taught? A. No. 4. Can you supply me with a book on the subject? A. We can supply May's Ballooning, \$1. The book you mention in your letter is out of print.

(2616) J. G. H. writes: 1. I want to make an electrophorus as mentioned in "Experimental Science." Instead using a vulcanite disk, I want to make one composed of resin, shellac, and Venetian turpentine. Please let me know the proportions, how to go about making it, also is there any danger of explosion from the turpentine? A. Use 6 parts of resin, 4 of shellac, and 1 of Venice turpentine. Work at a low heat; there will be some danger of fire. 2. What kind of battery is the most useful for one who wants to make different electrical experiments? A. Probably a plunging bichromate battery would suit your purpose. The bottle form commonly known as the Grenet battery is very convenient. 3. I have an old style phonograph for which I am unable to get any suitable tin foil (12 square feet per pound). I have been to several foil manufacturers, but what they have is either too thin or too heavy. Can you tell me where I can get the right kind, also by what name is it known? The last that I used is called "sand blast foil," but it seems altogether too stiff. A. By going directly to the tin foil manufacturers you can get any grade of foil you want. Some of the dealers who call themselves manufacturers do not really make the article.

(2617) Reader asks: In the simple electric motor is it necessary to have the wire on the twelve coils wound even, provided all the coils have the same length? If so, what is the reason? A. It is advisable to wind the wire as compactly as possible, on account of making the space between the armature and field magnet as small as possible. A motor will operate with more or less efficiency, whether the wire is wound evenly or not.

(2618) A. F. writes: Can you tell me if the piece of metal I sent you is the same as non-magnetic watch movements are made of, and if all of said metal will draw steel filings, if left on a magnet for a few hours, as this sample does? This is a piece of shield sold as non-magnetic, but it is attracted by the magnet. A. The metal you send is nothing but iron. As a magnetic shield it is the only serviceable metal. For non-magnetic work iron, on the other hand, must be rigorously excluded. The conditions in the two cases are exactly opposite. The metal best suited for a magnetic shield is the worst for non-magnetic movements.

(2619) W. L. R. asks what to add to the ordinary starch paste to make it permanent. I make it of a little water and common gloss starch, for mounting pictures, but it dries in about eight days. A. You must keep it in a tightly closed vessel. If it did not dry, it would be useless. See SCIENTIFIC AMERICAN, October 11, 1890, page 227, and also November 1, 1890, page 281, for pastes.

(2620) H. H. writes: 1. Will shaving cause pimples on the face of a young man in good health? A. It should not. 2. What will cure the same? A. Wash with a solution of Rochelle salts in water. 3. I find that bisulphate of mercury will make a silver-like polish on brass. Will this polish last? A. It will destroy the brass and will rapidly deteriorate. It should never be used.

(2621) P. M. asks what the musical artists use on their hands to make the sound when they play on musical glasses, tumblers partly filled with water. A. Powdered resin may be applied to the finger tips to give a greater "bite" upon the glasses.

(2622) C. H. R. asks: 1. In what number of the SCIENTIFIC AMERICAN can I find a description of the Stiletto? A. We refer you to the SCIENTIFIC AMERICAN of June 20, 1885, and of May 4, 1890. The latter article describes her as altered into a torpedo boat. 2. What is the rate of speed in miles attained by the speediest ocean steamers? A. From 23 to 25 miles an hour. 3. Would it be possible to attain same speed in a 50 or 60 foot boat built on approved speed lines by using specially designed engines? A. Yes, but only by using very high power.

(2623) B. R. B. writes: Will you inform me what is meant by dyeing on cotton mordanted as for the alizarine test? Would it not do to pass the cotton through a solution of alum to which soda ash has been added? A. For an alizarine mordant on cotton use a bath of 24 parts alum and 6 parts gray tartar for 100 parts of cotton. Boil for two hours, steep for twelve hours and dry for a day. With 3 parts alizarine, an equal weight of sumac, 1/2 part flavine and 2 parts chalk may be used. Add the alizarine last. Many other mordant formulas may be used. Your mordant would doubtless answer. We can supply excellent works on dyeing, such as Bird's "American Practical Dyer's Companion," price \$10.

(2624) R. C. asks: What would be the effect of using an alternating current dynamo in connection with a storage battery? A. Practically no result would be reached. An alternating current does produce certain electrolytic effects, but it would not answer for charging a storage battery.

(2625) H. W. A. writes: I have a plaster cast, which from age and careless usage has become discolored. Is there any way in which it can be restored to its original whiteness? A. Only by painting or calcining. A thin wash of plaster of Paris and water might answer.

(2626) M. T. asks: 1. Can parchment paper be sized? A. It can be sized, but the parchmentizing process renders it so impervious that sizing is not needed. 2. What is it used for? A. It is used largely for covering jars of pickles, bottles of liquids, etc., by stretching and tying over the corks. It can be bought of different qualities.

(2627) J. H. M. asks: 1. Is there any freezing mixture that retains its coolness permanently? A. No. 2. What one retains its coolness longest? A. Of ordinary substances, ice.

(2628) C. H. M. asks: 1. What will dissolve aniline color dye, besides alcohol? A. Water dissolves most aniline colors. 2. Will you give me a receipt for making black and colored inks? A. For inks we refer you to our SUPPLEMENT, No. 157. 3. A good mucilage. A. For mucilage use a solution of gum arabic in water flavored with a little oil of cloves.

(2629) W. H. asks: What treatment is necessary to extract tannin from new oak vessels in order to prepare them for the storage of wine? A. The tannin can be extracted by solution in water, or can be precipitated by washing the barrels with a solution of 1 pound sulphate of iron and 3 pounds sulphuric acid, followed by thorough washing out with water. Or rinse out with 4 gallons water and 6 ounces sulphuric acid and wash thoroughly.

(2630) H. S. B. asks if anything can be done to soften rubber mackintoshes, silk finish, when they have become stiff and hard. A. Probably nothing effectual. Try sponging with ammonia.

(2631) W. E. S. asks for the ingredients and manner of making sticky fly paper. A. Sticky fly paper may be coated with one of the following mixtures: a. Resin 9 parts, rapeseed oil 4 parts. b. Resin 8 parts, turpentine 4 parts, rapeseed oil 4 parts, honey 1/2 part. c. Resin 1 pound, molasses 3/4 ounces, linseed oil 3/4 ounces, boil until thick enough.

TO INVENTORS.

An experience of forty 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 unequalled 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

For which Letters Patent of the United States were Granted

November 25, 1890.

AND EACH BEARING THAT DATE.

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

Table listing inventions with names and page numbers. Includes items like 'Adding and recording machine, D. E. Felt', 'Adjustable pattern for draughting garments, M. Lennart', 'Advertising article, W. L. Force', 'Air brake, G. B. Williams', 'Air cushion, W. B. White', 'Air device for medicating, W. R. Macdonald', 'Annunciator, C. W. Holtzer', 'Anti-corrosive and anti-fouling compound, M. E. Dejonge', 'Armature body, C. A. Lieb', 'Armatures, winding dynamo, C. E. L. Brown', 'Axe helve, H. Hall, Jr.', 'Axle for railway cars, divided, G. E. Chase', 'Bag lock, E. Oldenbusch', 'Bar, See Mowing machine finger bar', 'Baseball score card, A. Hunter', 'Battery, See Galvanic battery. Secondary battery', 'Battery connection, electric, H. J. Brewer', 'Bearing surfaces, composition for, K. W. Heddes', 'Bed and cabinet, combined folding, E. Skinner', 'Bed folding, G. H. W. Ladd', 'Bed folding, H. W. Ladd', 'Bed folding, F. E. Morris', 'Belt, driving, C. H. Douglas', 'Bicycle, G. H. Chappell', 'Bicycle seat attachment, R. S. Greenwood', 'Bl. See Bridle bit', 'Blind, stop, T. Heebe', 'Blind stop, V. G. Schreck', 'Block, See Car block. Meat block. Paving block', 'Blooms, manufacture of, Eynon & Seaman', 'Blotter, H. S. Wait', 'Blotting pad, T. L. Lacombe', 'Boat or canoe chair, T. H. Chubb', 'Boiler, See Steam boiler', 'Bookbinding, A. C. Bauman', 'Book holder, J. F. Holloway', 'Book holder, folding, W. F. Holloway', 'Bottle packing case, K. G. Cherbonnier', 'Bottle stopper, H. B. Stewart', 'Bottle stopper, locking, W. W. Guptill', 'Bottle stopping apparatus, Haselhorst & Vogel', 'Bottle stopping machine, W. H. Jr. & W. H. Foye, Sr.', 'Box, See Casting box. Waste box', 'Box fastener, R. W. Gillespie', 'Box straps, S. C. Cary', 'Box straps, making coiled metal, S. C. Cary', 'Box straps, method of and machine for making metal, S. C. Cary', 'Box straps, reel for metal, S. C. Cary', 'Bracket, See Extension bracket', 'Brake, See Air brake. Insulated brake. Safety brake. Sled brake', 'Brake heads to brake beams, device for securing, H. B. Robischang', 'Brick kiln, J. C. Anderson', 'Bridge, suspension, G. W. & F. P. Stedman', 'Bridle bit, O. H. & W. A. Orendorf', 'Broom head, S. H. Williams', 'Brush or broom support, J. A. Volz', 'Buckle, J. M. Guilbert', 'Buckle, suspender, G. Cook', 'Buildings, conductor for flat roofed, C. Fluor', 'Bung and bush, H. J. Jones', 'Burner, See Gas stove burner. Lamp or oil burner', 'Button, separable, A. Eisen', 'Cable grip, traction, W. Phenix', 'Calendar, H. S. Frensis', 'Candle holder, T. Wohlmueth', 'Cane mill, Sanders & Buchanan', 'Car, H. W. Libbey', 'Car block, A. Deets', 'Car coupling, J. A. Alexander', 'Car coupling, G. Hardy', 'Car coupling, J. A. Dow', 'Car coupling, D. F. McCarthy', 'Car coupling, C. S. McMillen', 'Car coupling, E. Mohr', 'Car coupling, Phelps & Lucas', 'Car coupling, Watson & Mileham', 'Car coupling, H. A. Wintwright', 'Car heater, railway, W. C. Baker', 'Car, railway, M. Ohlson', 'Car, sleeping, J. P. Hindman', 'Car starter, V. H. Forbes', 'Car wheel, W. Hales', 'Cars, heating apparatus for railway, E. A. Leland

Table listing inventions with names and page numbers. Includes items like 'Cars, operating electric brakes for electrically propelled, W. M. Schlemmer', 'Cars, parcel carrier for street, J. S. Hagar', 'Carriage for electric railway, N. C. Bassett', 'Cart, road, M. J. Rourke', 'Cart, road, T. S. Watrous', 'Cartridge loading machine, E. A. Franklin', 'Case, See Bottle packing case', 'Cash register, H. A. Herr', 'Cash register, J. B. Fletcher', 'Casters or wheels to scales or other articles, means for attaching, J. A. Mead', 'Casting box, stereotype, T. A. Thorsen', 'Chain hook, R. M. Johnson', 'Chair, See Boat or canoe chair. Folding chair', 'Chimney, A. H. Risted', 'Chimney, cowli, Gira & Asterlin', 'Churn, S. D. Palmer', 'Churn closure, M. N. Castleman', 'Cigar boxes, moisture partitioner, F. G. Heydt', 'Clamp, See Dynamo brush clamp', 'Claw, Mounting', 'Clip, See Tug clip', 'Closet, See Water closet', 'Cloth cutting machine, P. Howe', 'Clothes drier, F. E. Garner', 'Clothes drier, W. Holt', 'Cork extractor, B. Torney', 'Cork screw machine for making, W. E. Clough', 'Cotton gin rib, C. G. Washburn', 'Coupling, See Car coupling. Shaft coupling. Thill coupling', 'Crate head, R. J. Patterson', 'Crimping machine, C. J. Cozeng', 'Crochet machine, M. Morrow', 'Cuff holder, J. B. G. Murray', 'Cultivator, J. Mallon', 'Cultivator, R. Simpson', 'Cultivator, tongueless, J. M. Long', 'Cultivator wheel, D. F. Hunt', 'Curry comb, A. P. Clements', 'Curry comb, J. Du Shane', 'Curtain fixture, D. T. Graham', 'Cutter, See Tube cutter. Tube and pipe cutter', 'Damper regulator, J. M. Snyder', 'Dehorning shears, W. A. Farmer', 'Die and die stock, T. Tideman', 'Door check, J. Bardsley', 'Door check, J. M. May', 'Drawer check, L. R. Torney', 'Drawer check, C. T. Kenney', 'Drier, See Clothes drier. Lumber drier', 'Drill support, F. Schoff', 'Drilling machine, portable, J. G. Downie', 'Drinks, apparatus for supplying hot and cold, J. H. D. G. G. G.', 'Dust collector, G. A. & J. P. Culver', 'Dyeing apparatus, J. F. Wilmot', 'Dynamo brush clamp, T. Reese, Jr.', 'Eaves trough clamp, M. F. Mahin', 'Egg tray, B. F. Whitaker', 'Electric fan, device for transforming and controlling, O. A. Enholm', 'Electric lights, means for hanging, T. J. Lynch', 'Electric wire suspending device, W. B. Marks', 'Electrical call, lighting, and alarm system, C. A. He', 'Electrical switch, G. Schuitz', 'Elevator apparatus, E. B. Cox', 'Elevator signaling apparatus, R. P. Garsed', 'Embossing machine, Valiant & Dancel', 'Emery grinding machines, journal bearing for, G. H. G. G.', 'Enamel, manufacture of translucent, J. Valer', 'End gate, Miller & Rowe', 'Engine, See Gas engine. Pumping engine. Steam engine', 'Engine indicators, device for operating steam, J. H. G. G.', 'Envelope, stamp, and finger moistener, A. Bunnell', 'Evaporating apparatus, liquid, J. A. Morrell', 'Evaporating liquids, J. A. Morrell', 'Extractor, See Cork extractor', 'Fanning mill, automatic, G. J. Schlosser', 'Farm gate, D. Walker', 'Feed water, heating, G. H. Burpee', 'Fence, J. F. Fulkerson', 'Fence, H. Hammond', 'Fencing, machine for making barbed wire, A. E. Gorse', 'Fermenting tank wine strainer, J. C. Jones', 'Fertilizer distributor, automatic, G. H. Hathaway', 'File package holder and binder, combined, W. G. G. G.', 'Filter, rain water, C. A. Bartliff', 'Filters, chemical feeder for, B. H. Coffey', 'Finger ring, H. Lehr', 'Fire extinguisher for railway carstoves, auto-hoek, J. A. G. G.', 'Fireproofing compound, H. W. Johns', 'Fish scaler, A. W. Kavel', 'Fishing boat, T. Stahl', 'Fishing rod support for boats, H. J. Welch', 'Fishing rods, reel seat for, S. M. Boone', 'Flour mills, feeder for, J. E. Welch', 'Fly net, N. Dutton', 'Fly trap for screen doors, W. A. Cox', 'Folding chair, J. W. Bowen', 'Frame, See Quilting frame', 'Furnace, See Smoke consuming furnace', 'Furnace for heating purposes, A. Jahant', 'Furnace, See Smoke consuming furnace', 'Galvanic battery, O. A. Enholm', 'Gambrel stick, W. H. Walker', 'Game, D. Haas', 'Game apparatus, J. S. Foster', 'Gas burners, making incandescing elements for, C. E. Harris', 'Gas engine, E. Quack', 'Gas lighter, automatic electric, L. S. White', 'Gas stove burner, W. L. Cort', 'Gate, See End gate. Farm gate. Railway cross-gate', 'Gate, C. Crawford', 'Gate, S. Smalley', 'Gate, W. Van Nostrand', 'Gear wheel, L. Atwood', 'Grain binder, H. Stoffel', 'Grate, C. S. Keith', 'Guard, See Muzzle guard. Rein guard', 'Guitar, A. E. Plonerson', 'Gun, breech-loading, M. B. Bye', 'Gun, magazine, J. M. & M. S. Browning', 'Gun, spring, G. W. Seebach', 'Hammock supporting structure, J. Sale', 'Hanger, See Basket handle', 'Hanger, See Taves trough hanger. Pipe hanger', 'Harness attachment, F. C. Kimball', 'Harness pad, E. Oelkuck', 'Harrow, J. T. Grant', 'Harvesting machine, D. O. Mahoney', 'Harvester, grain binding, J. Keller', 'Harvesters, binding attachment for, J. G. Gilmer', 'Hay rake, horse, B. W. Harmer', 'Head shade or hat, folding, R. Ray', 'Heater, See Car heater. Tire heater. Water heater and ventilator, combined, W. R. Macdonald', 'Heel burishing machine, G. W. Ceperley', 'Heel nailing machine, W. S. Jones', 'Hitching device, C. Lasman, Jr.', 'Housling machine, D. O. Mahoney', 'Holder, See Book holder. Candle holder. Cuff holder. Napkin holder. Paper holder. Sash holder. Shade holder. Tool holder. Twine holder', 'Hook, See Chain hook. Picture hook. Trip hook', 'Horse blanket fastener, W. R. Magraw', 'Horse detacher, H. Berg', 'House, See Smoke and dry house', 'Hydrocarbon oils, apparatus for burning, S. T. J. Bray', 'Ice pick, A. B. Schmeid', 'Indicator, See Speed indicator', 'Insecticide, F. Jones', 'Insulated brake, M. Wheelless', 'Ironing machine, Nelson & Kreuter', 'Jewelry, H. Lehr', 'Jug, See Tip-jug', 'Kettle, F. W. Judd', 'Kiln, See Brick kiln. Lumber drying kiln', 'Knitted fabrics, machine for cutting, N. H. Bruce', 'Knitting machine burr, J. S. Crane', 'Labeling machine, can, J. M. Van Meter

Table listing inventions with names and page numbers. Includes items like 'Ladders or tire escapes, step for ships', 'Lamp, incandescent electric, A. Bornholdt', 'Lamp for burning heavy hydrocarbon oils, F. M. Sims', 'Lamp, incandescent electric, A. Bornholdt', 'Lamp or oil burner, C. E. Bell', 'Lamp standard, E. L. Bryant', 'Lamps, manufacture of incandescent electric, A. Bornholdt', 'Lamps, suspension device for, E. L. Bryant', 'Lantern, F. Dietz', 'Lantern, signal, W. R. Musser', 'Lantern, signal, G. J. W. Zimmer', 'Lantern, signaling, J. W. Hayward', 'Lantern, tubular, L. F. Bert', 'Lantern, tubular, W. C. Winfield', 'Leather washer, T. Girgas', 'Lens grinding machine, R. B. H. Leighton', 'Liquid sprinkling and cooling apparatus, J. J. De Kinding', 'Liquids, concentrating and evaporating, J. A. Morrell', 'Lock, See Bag lock. Combination lock. Nut lock', 'Lock, J. Swihart', 'Locomotive, dummy, H. A. Ramsay', 'Locomotive, H. P. G. G.', 'Loom Jacquard mechanism, H. Hardwick', 'Loom shedding mechanism, E. Wright', 'Loom shuttle, A. D. Emery', 'Loom, Jerry, T. Holt', 'Lubricator, J. L. Grandison', 'Lumber drier, J. M. Embury', 'Lumber drying kiln, M. W. Ryan', 'Mason's guiding and gauging implement, J. I. Kelley', 'Matrix making machine, M. Howard', 'Measure, grain, M. A. Harmless', 'Meat block, W. W. Wilson', 'Mechanical movement, O. Tyberg', 'Metal boring machine, A. Tatem', 'Metal manufacturing carburized, Lash & Johnson', 'Metal plates or sheets, uniting, J. C. Bayles', 'Metal sawing machine, W. Steers', 'Meter, See Fluid meter', 'Mill, See Cane mill. Fanning mill. Rod mill', 'Mirror, N. R. Streeter', 'Motive power, apparatus with feathering blades for obtaining, H. A. Wet', 'Motor, D. Sany motor power', 'Motor, H. B. Deschler', 'Mowing machine finger bar, A. B. Smith', 'Mowing machines, tilting device for, G. H. Bartlett', 'Muzzle guard, I. G. Gross', 'Nail driving machine, Gooding & Ladd', 'Napkin holder, J. Chere', 'Necktie fastener, J. M. Guilbert', 'Non-conducting covering, H. W. Johns', 'Non-conducting sheet or mass, H. W. Johns', 'Nut lock, L. H. Redhead', 'Nut lock, W. M. Wotton', 'Obstetrical forceps, C. B. Lynd', 'Odometer, A. Wareham', 'Oil cup, J. N. Patton', 'Ore, reducing, J. Johnson', 'Organ, reed, G. W. Scribner', 'Organ stop action, A. S. Rand', 'Organ stop action combination, C. G. Mitchell', 'Oyster tongs, apparatus for operating, E. H. Pratt', 'Packing, piston rod, F. D. Toucy', 'Pad, See Blotting pad. Harness pad', 'Pail support, milk, G. E. Le Clair', 'Pails, suspending device for, G. C. Muessel', 'Paint brush, G. W. DeLonge', 'Paper holder and cutter, roll, G. Rein', 'Paper holder and cutter, roll, W. H. Tivy', 'Paper, package of toilet, O. H. Hicks', 'Paper safe, toilet, E. L. Moodie', 'Parchmentized fiber waste, treating, J. W. Barnes', 'Pattern, See Adjustable pattern', 'Paving block, A. B. Schofield', 'Pencil tip and sharpener, combined, A. Trego', 'Pepsin, making vegetable, V. Marcano', 'Pepones, making, V. Marcano', 'Petroleum, making, V. Marcano', 'Perforating characters, machine for, E. C. Phillips', 'Photograph cylinders, machine for paring and polishing, G. A. Beach', 'Photographs, stop and start device for, Goodwin & Burnett', 'Photographic apparatus, flash light, W. H. Harbeck', 'Piano, W. Hirl', 'Piano action, C. H. Clemons', 'Pianoforte straining pin, H. B. Nickerson', 'Picture hook, L. A. Swann', 'Piles, protecting and preserving, F. Rives', 'Pin, See Pianoforte straining pin', 'Pipe, See Stove pipe', 'Pipe hanger, rain water, M. F. Mahin', 'Pipe joint, A. Wilbur', 'Pipe scales, J. A. Swann', 'Pipe threading device, J. C. Williams', 'Pipe wrench, W. E. Murbarger', 'Pipes, hub or coupling for ventilating, A. F. Curtin', 'Planer and shaper, F. I. Getty', 'Planter and fertilizer distributor, seed, N. F. Yorke', 'Planter, cotton, I. Bartley', 'Plow, F. Freck', 'Plow, J. D. Marley', 'Plows, cultivator attachment for double shovel, A. B. G. G.', 'Plumber's tool, M. E. Worden', 'Pokers or other implements, handle for, G. W. Warner', 'Pole tip, vehicle, G. W. Campbell', 'Power, See Motive power. Water power', 'Press, See Printing press', 'Printing machine, delivery apparatus, S. D. Tucker', 'Printing machine, dial, E. S. Bradford', 'Printing machines, cutting and winding mechanism for, J. C. Ford', 'Printing machine, ink fount roller mechanism for, W. H. C. G. G.', 'Printing press, J. L. Cox', 'Printing presses, brake and locking device for cylinder, J. Meinschock', 'Printing presses, throw-off mechanism for, G. C. G. G.', 'Pulley, J. Kidder', 'Pump attachment, W. W. Horr', 'Pump, centrifugal, P. Nezerax', 'Pump, double force, A. B. Eby', 'Pumping engine, compound, F. Moore', 'Pumping engine, compound, G. Westinghouse, Jr.', 'Pump valve, T. A. Swann', 'Pyrometer, Hensley & Grindley', 'Quilting frame, M. Whites', 'Railway appliance, E. D. Graf', 'Railway conduit, electric, N. Seibert', 'Railway conduit, electric, E. Wheatley', 'Railway conduit, electric, M. Wheelless', 'Railway crossing gate, Blithen & Alexander', 'Railway cut-out, electric, M. Wheelless', 'Railway, electric, H. W. Libbey', 'Railway rails, device for preventing the spreading of, C. B. Hutchins', 'Railway signal, automatic, C. Saussy', 'Railway sleeper and rail fastener, M. A. Glynnd', 'Railway switch and means for operating the same, F. C. Cash', 'Railway switch and signal operating mechanism, combined, I. Randolph', 'Railway switch signal, R. T. Bowne', 'Railway switches, detector appliance for, I. Randolph', 'Railway system, electric street, M. Wheelless', 'Railway system, electric, M. Wheelless', 'Railway tie, S. Vanstone', 'Railways, auxiliary contact for electric, M. Wheelless', 'Railways, cable winding mechanism for cable, J. W. Walker', 'Railways, contact trolley for electric, N. C. Bassett', 'Railways, electro-magnetic switch for electric, M. Wheelless', 'Railways, removable roller support for cable, J. W. Walker', 'Railways, steel box frame for cable, J. Walker', 'Railways, trolley for underground electric, S. E. Wheatley', 'Rake, See Hay rake', 'Refrigerating or freezing system, J. Erny et al.', 'Regulator, See Damper regulator. Windmill regulator', 'Rein guard for vehicle thills, A. E. Choquette', 'Rein support, P. C. Welsh', 'Reins, hardening, A. Kisse', 'Reinforcing, J. E. Tynge', 'Rifle and shot gun, combined, C. C. Brooks', 'Ring, See Finger ring', 'Rivet making machine, F. Danks', 'Rivet setting machine, M. N. Bray et al.', 'Rock drills, coupling for, A. Campbell', 'Rod mill, L. A. Kilmer