

## ENGINEERING INVENTION.

A steam generator has been patented by Mr. Alfred Musil, of Steyr, Austria-Hungary. It is a rotatory generator, in which the water is subjected to the action of the heat in comparatively thin layers within receptacles presenting extended heating surfaces, there being but few joints requiring to be made steam tight, and the configuration of the parts being such that they will best resist strain.

## AGRICULTURAL INVENTION.

A fender has been patented by Messrs. Walter McCoy and James McArthur, of Miltonvale, Kansas. It is an improved fender for corn, comprising a draught bar and a shield loosely connected therewith, a chain or similar support sustaining the weight of the draught bar and relieving the shield of the pressure, efficiently protecting the plants over which the shield or fender passes.

## MISCELLANEOUS INVENTIONS.

A staple driver has been patented by Mr. Willis W. Bloodworth, of Molino, Fla. The invention covers a novel construction and arrangement of parts in a device for driving staples when building wire fences, the wire being held in position while the staples are driven over it.

A grinding and polishing material has been patented by Mr. Charles M. Lindsey, of Pittsburg, Pa. This invention covers a process of making such material of pulverized steel, the steel being first heated to a high temperature, then immersed in a bath of water, salt, and soda, and the crystals subsequently pulverized.

A toggle fastening for buttons, etc., has been patented by Mr. Charles V. Richards, of Skowhegan, Me. It is a needle-pointed toggle, so made as to not only form a slotted and crooked fastening, but also to puncture and make its own passage through the garment or fabric when attaching the button or article to its place.

A process of making pyrosulphates has been patented by Mr. Heinrich Baum, of Mannheim, Germany. It consists in heating the acid sulphates of the alkali metals, as also of ammonia, in a vacuum, to temperatures below brown heat, or between 200° and 400° C., it being feasible to perform the operation in cast iron vessels.

A bow resining attachment for violins has been patented by Messrs. Edwin M. and Ernest S. Comstock, of Cascade Valley, N. Y. It consists in a resin dust box supported near the strings of the violin, so that its vibrations when in use will cause the resin to fly on to the strings and bow, and make the usual resining by hand unnecessary.

A bobbin catch for spinning machines has been patented by Mr. Isaac L. Allen, of Brooklyn, N. Y. It is a thimble-like catch inserted within or through the head of the bobbin, and having an interior flange on its outer end, reducing the cutting and wear of the button and its catch, while the catch or thimble may be turned in its seat to change the weaving surfaces.

A carpet stretcher has been patented by Mr. Andrew McFarland, of Thomaston, Me. Combined with a lever and brace having a longitudinal slot, with a guide bar mounted to ride in the slot, is a spring-actuated clamp with an eye embracing the guide bar, a shoe and slip ring, with other novel features, whereby great power, efficiency, and convenience in use are obtainable.

A gauge attachment for scroll sawing machines has been patented by Mr. Frank R. Schloer, of Baltimore, Md. It is adjustably supported in accordance with a novel construction above the work passage or support, and adapted for use in sawing circular and irregular forms, being calculated to save time and labor and insure greater accuracy and neatness of work.

A tapered nail has been patented by Mr. John Hyslop, Jr., of Abington, Mass. This invention covers a new article of manufacture consisting of a nail having the longer dimension of its point about parallel with the longer dimension of the upper part or head portion of the nail, so the nail can be driven easily and truly without splitting the work, and will hold well.

An oil vapor heater has been patented by Mr. William W. Batchelder, Jr., of Boston, Mass. It is of that class in which a wick draws up the oil, which is vaporized at the wick by a small initial flame and then passes as unconsumed vapor to the burner proper, the device preventing the escape of bad odors, increasing the heating capacity, and regulating the vaporization of the oil.

An elevator hatchway has been patented by Mr. Edwin Spencer, of Brooklyn, N. Y. This invention provides a series of plates or platforms beneath the car, and independent thereof, adapted to close the hatchway at each story as the car ascends, and a second series of plates carried by the car, independent of the first series, adapted to cover the hatchway at each story as the car descends.

A thill coupling has been patented by Mr. Frank L. Burton, of Erie, Pa. It has an anti-rattler and pivot-holding device of an elastic plate or plates placed between the coupling clip or axle and the thill iron eye and forcing the eye to the pivot, a flange plate connected to the elastic plates bearing against the end and side of the pivot to prevent endwise displacement and rotary motion thereof.

A thill coupling has been patented by Messrs. Henry and John Knupp, of Warren, Pa. Combined with a pivoted thill iron and anti-rattler placed next thereto are opposite plates clamping the anti-rattler, one of the plates having a lug overlying the head of the thill iron pivot, the device obviating rattling, preventing loss of the pivot, and promoting the durability of the entire coupling.

A bailer has been patented by Mr. David F. Brown, of Washington, Pa. This invention relates particularly to bailers with a body or tube the lower end of which has a valve-seated opening, a valve for closing the opening, and a dart or stem fixed to the valve and extended out of the tube or body, being especially designed for bailing the sediment out of oil and artesian wells.

A drag saw machine has been patented by Mr. Cornelius W. Wright, of Democracy, Ohio. It is a portable device having a longitudinal beam having a pin at one end to engage the log, and supported by hinged legs at the other end, an operating lever being pivotally supported in the hinged legs, and standards pivotally connected to the beam supporting the saw in working position.

A machine for making paper tubes has been patented by Mr. Thomas Granger, of New York City. Combined with a mandrel having one end unsupported and an endless belt arranged in connection therewith are fixed rollers and rollers carried by swinging arms, one pair of the arms having extensions carrying a paste-applying roller, with other novel features, the machine being of simple construction and designed to make paper tubes quickly.

A clock has been patented by Mr. Henry A. Russell, of Boyne City, Mich. The invention covers a novel attachment adapted to carry multiplying gearing, whereby clocks made to run only a short period can be readily made, at but slight expense, to run for a much longer time without winding up, as, for instance, a thirty-hour clock can be made into an eight-day clock, or longer, and the attachment can be applied to clocks run by springs or weights.

## SCIENTIFIC AMERICAN BUILDING EDITION.

## DECEMBER NUMBER.

## TABLE OF CONTENTS.

1. Elegant Plate in Colors of a Suburban Dwelling costing about Nine Thousand Two Hundred and Fifty Dollars, with floor plans, specifications, sheet of details, etc.
2. Plate in Colors of a Dwelling erected near Wareham, Mass., at a cost of Twenty-eight Hundred Dollars, with full specifications, floor plans, sheet of details, etc.
3. The Shakespeare Memorial at Stratford-upon-Avon.
4. Perspective view and floor plans of a Residence to cost Eight Thousand Dollars.
5. Engravings of Five Tasteful Residences recently erected at Glenridge, N. J., varying in cost from Four Thousand to Six Thousand Five Hundred Dollars.
6. Perspective view, detail drawings, specifications, roof, and floor plans of a Two Thousand Five Hundred Dollar California House.
7. Engravings showing interior and front view of Chateau of Castelnaudary. M. Aubry, Architect.
8. Lea Hurst, Derbyshire, the home of Miss Florence Nightingale.
9. Elevations and floor plans of Homes of Factory Operatives at Willimantic, Conn.
10. Bathing House and Saloon at Vittel. Built by Charles Garnier, Architect, of Paris.
11. Floor plans and perspective sketch for a Cottage costing about Five Thousand Five Hundred Dollars.
12. Perspective view and floor plans of a Cottage costing Four Thousand Two Hundred Dollars.
13. Front and rear perspectives, with plans, for a Handsome Stable being erected in Brooklyn, N. Y. Cost, Five Thousand Five Hundred Dollars.
14. Perspective view and floor plans of a Residence for Five Thousand Dollars.
15. Perspective view and plans of a Neat Dwelling costing Four Thousand Two Hundred Dollars.
16. Half page engraving of the John Crouse Memorial College for Women, Syracuse University, Syracuse, New York.
17. Plans for a French Cottage, Hotel de Peintre, Meudon.
18. Miscellaneous Contents: Optical Refinements in Architecture.—Testing Pile Protecting Compounds.—Our Forestry Problem.—Bamboo Tree.—Fire-proof Structures, illustrated.—Construction of Chimney Flues.—Roadside Plantations of Trees in Belgium.—An Egyptian Temple.—The White Ash.—Ornamental Keystones, three illustrations.—Sawdust, how Utilized.—Fire Bricks.—Improvements in Making Portland Cement.—Typhoid Fever Carried by Well Water.—An Unsafe Church.—Cedar Pavements.—Hemlock for Paving Purposes.—Collapse of Walls of Burning Buildings.—Relative Value of Wire and Cut Nails.—How to Build an Ice House.—Look to your Drain Pipes and Wells.—Arch Construction.—New Form of Chimes for Churches, illustrated.—Painting.—Removal of Chimneys.—The Back Yard.—Pine Woods.—Sketch of Thomas Ustick Walter.—Roburite, a New Explosive, with illustrations.—Iron Beams in Place of Wood.—Gangways v. Staircases.—How we have Grown.—A Great Building.—Proportions of Rooms.—How a Marble Statue is Made.—The Wainwright Horizontal Feed Water Heater, illustrated.—An Improved Double Surface Planer, illustrated.—How to Make a Cheerful Fireplace, illustrated.—The Sounding Board in St. Paul's Cathedral.—Gleason's Double Surface Planer, illustrated.—The Popular "Fortune" Hot Air Furnace, illustrated.—An Improved Hand and Foot Power Band Saw, illustrated.—Plants for Room Decoration.

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The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 36 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

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The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application. Lathes for cutting irregular forms a specialty. See ad. p. 349.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

Curtis Pressure Regulator and Steam Trap. See p. 364. Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

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## NEW BOOKS AND PUBLICATIONS.

TWELVE TIMES TWELVE. By Miss M. A. Lathbury. Worthington & Co. Price, \$1.75.

This consists of illustrations of child life in facsimile water color prints. The drawings are accompanied with well selected verses from the best poets.

CANADA STATISTICAL ABSTRACT AND RECORD FOR THE YEAR 1886. Published by the Department of Agriculture. Ottawa. 1887. Pp. 467.

In this work, compiled by Mr. Sydney D. Ropes, a very full statement of data referring to the Dominion is given. History, constitution, finance, tariff, arts and products, and many other topics are treated. To those interested in our neighbor, the work will be of great value. The cheerful statement of her net public debt—\$23,159,107 on June 30, 1886, making an increase of

\$26,751,415 since June 30, 1885—offers an argument that annexationists should ponder well over before desiring to take possession of so encumbered an estate. The fisheries for 1885 are put at a produce value of \$17,722,973, and for 1886, \$18,979,288. The full statement of fish produce is given in great detail. These figures show that Canada has a very big bone of contention for her interests to be settled by Mr. Chamberlain and his conferees.

NATURAL LAW IN THE BUSINESS WORLD. By Henry Wood. Boston: Lee & Shepard; New York: Charles T. Dillingham. 1887. Pp. 222. Price 30 cents.

This is a cheap reprint of what has proved a very popular book. The author deals with questions of economic science, and treats them largely from the conservative side. A special appeal for the increase in its circulation that appears on the cover makes it clear that it was designed for a special purpose—the confutation of some of the theories that have within the last few years been offered to the world. The work is acceptable, and well worthy the perusal of all interested in the maintenance of the present order of things.

A HISTORY OF PHOTOGRAPHY. By W. Jerome Harrison, F.G.S. New York: Scovill Manufacturing Company. 1887. Pp. 136.

This interesting work deals with the history of the photographic art from the earliest times. The dry plate and the many efforts at the production of a dry plate process receive much attention. The work done in color photography, and the probable outcome for the future, are fully treated by the author. Paper negatives and built-up prints from several negatives are described. The subject of orthochromatic photography and the more recent achievements in composite portraiture and in instantaneous work, involving the systematic study of the motion of animals, by Marey and others, seems to be outside of the author's scheme, and little or nothing is said of them. It is a work which every intelligent worker should possess and study. It has as frontispiece a characteristic portrait of the author reproduced by Moss type from a negative by Harold Baker, of Birmingham, England.

THE CHILDREN OF SILENCE; OR, THE STORY OF THE DEAF. By Joseph A. Seiss, D.D., LL.D. Philadelphia: Porter & Coates. 1887. Pp. 208.

This little work is a succinct account of the world of the deaf and dumb. The census of the deaf mute population of different countries discloses who are the subjects of the treatise. The causes, congenital and adventitious, of deafness are fully considered. The sad condition of those thus affected is eloquently depicted. The labors of the early instructors in this field are summarily given, from the 13th century down. Modern institutions are catalogued in tabular form; their size, method of teaching, and other particulars are given, and a synopsis of the more extended tables closes the work.

SPON'S HOUSEHOLD MANUAL. A Treasury of Domestic Receipts and Guide for Home Management. E. & F. N. Spon, London and New York. 1887. Pp. vii, 988.

The title of this work pretty well indicates its scope. The dwelling and its surroundings, water supply, sanitation, ventilation, lighting, etc., its furniture and decoration, are fully treated. Thieves and fire, the larder, cooking and preserving food, the management of the nursery, and all imaginable home topics, are all among its subjects. Home recreations and medicine, games, the playground, workroom, library, and laundry, receive attention, while in out of door operations the farmyard and garden are included. A chapter on domestic law, landlords and tenants, lodges, servants, etc., is calculated more for the English horizon than for our country. Where needed, illustrations are given, and the book may safely be recommended to all householders.

## Notes &amp; 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.

(1) F. T. asks: What is the best and most simple method of lining brass boxes (such as car journal bearings) with lead or a low grade of Babbitt metal, without the aid of grooves or holes in the brass, so that the lead, etc., will adhere firmly to the box? A. There is no way known to us of lining a brass journal box, except by tinning or employing the grooves and holes as suggested by you, nor do we see the value of building up a car journal box with anything but the best Babbitt, which will hold by flushing with tin.

(2) S. asks how window glass is measured in the box. A. A box of window glass contains 50 square feet of glass without regard to size.

(3) A. L. F.—Gas and electric light fixtures can only be brightened by taking apart and dipping in boiling caustic soda to remove dirt and old varnish. Wash in hot water, then dip in strong nitric acid for a few seconds, wash in boiling water, dry in

sawdust, and burnish the parts required to be bright; after which, the surface can be lacquered with clear shellac varnish. We do not recommend this for amateur practice. It requires some experience to bring out the work clear.

(4) B. A. asks for directions for making the composition for selfinking pad for rubber stamps. A. The usual composition consists of, 2 to 4 drachms aniline, of desired shade. 15 ounces alcohol and 15 ounces glycerine. The solution is poured on the cushion and rubbed in with a brush. Another formula includes 1 part gelatine, 1 part water, 6 parts glycerine, and sufficient coloring matter.

(5) W. M. asks (1) how to make a good root beer, similar to Hier's. A. Take 10 gallons water, heat to 60° Fah., then add 3 gallons molasses, let it stand two hours, pour it into a bowl and add powdered or bruised sassafras and wintergreen bark, of each 2 pounds, yeast 1 pint, bruised sarsaparilla root 1/2 pound, add water enough to make 25 gallons in all. Ferment for twelve hours, then bottle. 2. How to make a cherry floor stain. A. Take rain water 3 quarts, annatto 4 ounces, boil in a copper kettle till the annatto is dissolved, then put in a piece of potash, the size of a walnut, keep it on the fire for half an hour longer, then bottle for use.

(6) L. P. asks (1) how prepared gypsum for calcimining and whitening is manufactured. What is the best and cheapest way to pulverize the gypsum forming plaster of Paris, also the best way for calcining it? A. It is ground between burr stones until it is reduced to a fine powder. This is calcined by being heated in kettles or stills, the escaping water producing a movement like ebullition. 2. How can I test lime rock to tell whether it will make hydraulic lime or not? A. By testing for silica. To be a good hydraulic cement, it must contain at least 10 per cent of silica. A. 3. What is red pipe clay good for? Will it make paint if ground fine? A. Any colored oxide mixed with linseed oil can be used as a paint, but if it requires too much oil, then it is practically valueless. Pipe clay can be used for the cheaper grades of pottery.

(7) F. B. desires a good receipt for stopping a crack or small hole in a large sink. A. Take of litharge 20 parts and 1 of burnt lime in fine, dry powder. Make into a putty with linseed oil.

(8) W. C. V. asks a recipe for a good liquid blueing for laundry work. A. Take 1 ounce of soft Prussian blue, powder it and put in a bottle with 1 quart of clear rain water, and add 1/4 ounce of oxalic acid. A teaspoonful of this is sufficient for a large washing.

(9) R. S. H. asks: What can be done to renovate and brighten the gilt frames of pictures and mirrors that have become rusty and dingy? A. You may improve them by simply washing them with a small sponge moistened with spirits of wine, or oil of turpentine, the sponge only to be sufficiently wet to take off the dirt and fly marks. They should not be wiped afterward, but left to dry of themselves.

(10) H. C. D. writes: Can you give me a recipe for a laundry marking ink which will not wash or bleach out in the ordinary way of washing, and will flow freely from the pen, and will not need any preparation for setting it in either heat or chemical, but will be indelible from the minute it is put on the goods? A. Dissolve with the assistance of heat, 20 parts of brown shellac in a solution of 30 parts of borax in 300 to 400 parts of water, and filter the solution while hot. Then add to the filtrate a solution of 10 parts of aniline black soluble in water, three-tenths parts of tannin, one-tenth part of picric acid, 15 parts of spirit of sal ammoniac, and one-quarter ounce of water. To purify water see the "Purification of Drinking Water by Alum," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 491.

(11) H. L. H. asks if there is anything which will positively remove large moth patches or freckles from the face, without injuring the skin. A. There is probably nothing known that will positively eradicate freckles. Among the many cures recommended, the following has the merit of being harmless: Dissolve three grains of borax in 5 drachms of each, rose water and orange flower water.

(12) W. V. B. writes: I have quite a little silver dissolved in a solution of cyanide of potassium, which has been used for electroplating. How can I obtain the silver either as a nitrate or chloride, and will it be pure enough for photographic purposes? A. Precipitate with the battery and dissolve in nitric acid.

(13) F. K.—Asphaltum is the only gum we know of that will withstand the action of nitric acid.

(14) E. H. S. & Sons ask how glass is silvered. A. For this purpose a large, perfectly flat stone table is provided. Upon it is evenly spread a sheet of tin foil without a crack or flaw. This is covered uniformly to the depth of 1/4 inch with clean mercury. The plate of glass, perfectly cleansed from all grease and impurity, is floated on to the mercury carefully, so as to exclude all air bubbles. It is then pressed down by loading it with weights, in order to press out all the mercury which remains fluid, which is then received in a gutter around the stone. After about twenty-hours it is raised gently on its edge, and in a few weeks it is ready to frame.

(15) L. T. S. asks for a liquid glue containing no acid. A. Liquid glue may be made by dissolving glue in nitric ether. The following formula is stated to be very good: 1 part sugar is dissolved in warm water, 1/4 part slaked lime is added, it is kept at 145°-155° Fah. for some days, with occasional shaking, and is then decanted. 1 part of glue is dissolved in 4 or 5 of above clear solution, to which 2 to 3 per cent of glycerine and a few drops of lavender oil are to be added.

(16) W. A. P. asks the cheapest, simplest, and most practical way for an amateur to make a furnace to melt from 5 to 10 pounds of brass for casting. A. You can easily melt 5 to 10 pounds of brass in a blacksmith's forge. Use a blacklead crucible of the proper size. Build a fire chamber around the tuyere 2 1/2 times the diameter of the crucible, with fire brick, or common brick if you have no fire brick. Use no

mortar. Bank around the outside with forge ashes or cinder. Set the crucible 4 or 5 inches above the tuyere on the fire and fill in all round, and cover with a large piece of charcoal. Put in the metal after the fire is started. Keep the crucible lifted to its proper place as the fire settles. Do not blow too hard, nor heat the metal so hot as to boil it, which makes it spongy. Use a little powdered charcoal on the surface of the metal while melting, to keep it from oxidizing. Blow the charcoal off with a hand bellows when ready to pour.

(17) A. M. M. has a quantity of spoiled dry plates, and asks how to save the silver in the films. A. To recover the reduced silver, first get off the gelatine film by immersing the plates in a weak solution of hydrofluoric acid and water, dropping each film, as it is easily pulled off the glass, into a deep porcelain evaporating basin. Cover the films with hot water, then add a few crystals of common washing soda sufficient to make the solution alkaline, bring it to a boil, and stir well until the gelatine in the films is dissolved. No change of color will be observed until a small quantity of sugar is added. Then the solution first turns gray, brown, and finally black; continue the boiling for 15 minutes. Rest the solution for a few minutes, then extract a little of the black sediment in the bottom and test its solubility in nitric acid. If it does not dissolve completely, continue the boiling for half an hour, adding a little more washing soda. When it is found to readily dissolve in nitric acid, then pour off the brown colored supernatant fluid, and replace with water. Stir up the sediment so it may be well washed, and allow the sediment to settle. Continue washing in this way two or three times until the supernatant water is quite clear. Then the mass of silver sediment is converted into nitrate of silver by the cautious addition of dilute nitric acid. If the same is added too rapidly, the frothing up of the mixture liable to cause loss of silver. When the sediment is all dissolved, we have a solution of nitrate of silver, which should be evaporated to dryness over a sand or water bath. Afterward the crystals may be redissolved for use in making silver solutions. While useful, more especially for emulsions, this process may be used for films. 2. Why do ferrotype plates have a bluish color when taken out of the sensitizing silver bath? A. A bluish film is due to a bath too strong for the collodion, too cold a temperature of the bath, or because it is a new bath insufficiently iodized. A single solution for developing dry plates that will keep may be made as follows: Sulphite sodium (chem. pure) crystals 4 oz., warm distilled or melted ice water 6 oz.; when cooled to 70° add sulphurous acid water (strongest strength obtainable) 3 oz., pyrogallol 1 oz., carbonate of potash (chem. pure) 1/4 oz. The weights are avoirdupois, or 437 grains to the ounce. Place one and a half drachms of the above solution in a graduate, and fill with water up to two ounces, then pour the developer over the plate. Development should commence in less than a minute. In case the plate is underexposed, add half a drachm of the solution at a time, until the development proceeds faster. If the image flashes out quickly from overexposure, dilute the developer at once with a large quantity of water. The developer may be used on three or four plates in succession, and should then be thrown away. Keep the bottle of mixed developer well corked. The solution will work well as long as it is not thick and muddy.

(18) G. P. S. says: May we ask you to state in your paper the greatest distance which a projectile has been thrown from any gun—cannon—now manufactured? A. We believe the greatest range attained has been by means of the De Bange cannon—11 miles.

(19) J. F. M. asks if an iron or steel bushing one-eighth of an inch thick, made to drive in a brass hole, would have a tendency to get loose by heating to a cherry red heat, or could a brass bushing be used in an iron hole? A. The bushing will not remain tight after heating. The brass expands more than the iron, as 3 to 2. If the brass is inside the iron, it will be quite loose. If an iron bushing is driven in brass, it will be moderately tight after heating, because the brass expands away from the iron by heating and returns into contact by cooling.

(20) A. S. asks what material is used in laundrying cuffs and collars, to make them so glossy. A. The simplest preparation consists of the following: Pour a pint of boiling water upon 2 ounces of gum arabic, cover it, and let it stand overnight. Use a tablespoonful of this.

(21) A. M. desires (1) a receipt for a good cheap liquid stove polish. A. See answer to query 5 in SCIENTIFIC AMERICAN for November 12, 1887. 2. A preparation that will remove moss dirt and discolorations from marble. A. Mix quicklime with strong lye, so as to form a mixture having the consistency of cream. Apply it immediately with a brush and allow to remain for a day or two, and then wash off with soap and water.

(22) J. S. K. asks: 1. What is the composition of the enamel which is applied to bicycles? A. It is japan varnish. 2. A liquid to apply to a rubber coat which has been so damaged by heat that it is not waterproof? A. Coat it with a solution of rubber dissolved in carbon disulphide. See the article on this subject in SCIENTIFIC AMERICAN SUPPLEMENT, No. 251.

(23) R. M. D. asks a receipt for making a harness grease. A. Try the following: 1 quart neat's foot oil, 4 ounces beef's tallow, and 3 tablespoonfuls lampblack; add 4 ounces beeswax for use in summer weather.

(24) O. J.—See Notes and Queries, No. 4, May 28, 1887, and No. 17, March 12, 1887, about polishing agates, geological specimens, etc.

(25) J. A. G. asks how to manufacture a metallic paint from magnetic iron ore. A. The ore may be ground, dried, and mixed with linseed oil.

(26) J. B. R. wishes (1) a receipt for a cement for putting a leather facing on an iron wheel rim for a friction gear to scroll saw. A. There is nothing better for gluing leather to iron than good tough glue with a dozen drops of glycerine to the half

pint. The pulley or rim should be made perfectly free from oil and dirt and the face thoroughly scratched over with a file. Then treat with nitric acid 1 part, water 1 part, for a few minutes, to deaden the surface. Wash with hot water to free the surface from acid. Scarf one end of the leather band; glue and draw tightly around the rim, lap the thick end over the scarf and clamp. Afterward trim the surface even. 2. A receipt for a cement for putting a wood veneer face on an iron saw table. A. The same kind of glue is the best for veneer on iron, but nothing will withstand the ultimate shrinking of wood on iron, it is too rigid; better make the saw table facing thick enough to put on with flat head machine screws.]

(27) D. & H. ask the process and how to make solution used to color bronze hinges, locks, etc., a rich brown, the color of confectioner's chocolate. A. For a dipping brown, use to 1 pint of water 5 drachms perchloride of iron. The articles must be made perfectly clean and dipped in the hot solution until the required color is obtained; then dipped in clean hot water, dried, and lacquered. If only a varnish is required, use clear shellac varnish colored with dragon's blood, gum, and burnt amber.

(28) G. V.—For painting tin roofs use red oxide of iron (Prince's metallic paint) mixed with boiled linseed oil. Temper the color with lampblack if a darker color is required, or with white lead for a lighter color. If necessary to facilitate spreading with the brush, add a little spirits turpentine. This paint is tough, holds well, and if neatly done looks well. Coal tar paints are sometimes used, but are liable to chip in cold weather.

TO INVENTORS.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

November 22, 1887,

AND EACH BEARING THAT DATE.

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

Table listing inventions and their patent numbers, including items like Air ship, Amalgamator and separator, Ammonia apparatus, Animal power, Animal releasing device, Animal trap, Axe box, Back band hook, Bag, Baling press, Bar, Barrel opener, Battery, Bearing, anti-friction, Bearing, tumbler, Bancroft & Lewis, Bed bottom, spring, Bed, folding, Bed, sofa, Bed, sofa, Bed, spring, Beds, invalid attachment, Bell, G. W. Goff, Bleaching potatoes, Feathers, Blind, inside, Board, Boiler, Boiler cleaner, Boilers, means for and method of making corrugated headers for water tube, Book clasp, Books, manufacture of illustrated, Boots or shoes, manufacture of, Bottle cap, Box, Box fastener, Sumner & Moser, Brace, See Shoulder brace, Brake, See Car brake, Locomotive driver brake, Wagon brake, Bran duster, Bread, A. Schrader, Bridle blinder, Brooch pin, Broom clamp, Broom holder, Buckle or fastening for suspenders, etc., Bung, M. R. Maher, Bung, vent, C. Morrill, Bustle, G. O. Schneller, Bustles, hinge and tip for twin wire stays for, G. O. Schneller, Butter, making a compound resembling, W. J. Skiff, Button and fastener holder, J. F. Thayer, Button fastener, J. F. Thayer, Buttonholes, staying, S. A. West, Button, stud, lock, or other article of jewelry, L. B. Byrne, Buttons, making parts of, L. B. Byrne, Car brake, E. D. Dougherty, Car coupling, G. J. Selk, Car brake and starter, Vereker & Yeates, Car heater, railway, W. W. Whitcomb, Car heating appliance, J. W. Post, Car, motor, G. M. & J. A. Brill, Car, railway, J. A. Brill, Car, safety, J. J. Pratt, Car starter, D. L. Brown, Car wheels, machine for making rims of, J. J. Kirby

Table listing inventions and their patent numbers, including items like Car window screen, Cars and similar structures, apparatus for heating, Cars, apparatus for heating and ventilating, M. B. Stafford, Cars, dust preventing apparatus for railway, C. Turner, Cars, heating device for railway, J. Henney, Jr., Carpet stretcher, C. T. Manter, Carpet stretcher, A. McFarland, Cart, road, M. Barnes, Cartridge shell, L. W. Lombard, Carriage irons, machine for upsetting, F. Schreidt, Carriage top irons, machine for rolling, F. Schreidt, Carriage top irons, machine for upsetting, F. Schreidt, Carriages, parasol holder for baby, G. W. Pearce, Case, See Violin case, Watch case, Casting machine, C. O. Yale, Casting pipes, mould for, J. A. Brinell, Cattle horn tip, P. Johnson, Centrifugal machine, S. S. Barrie, Chain, drive, J. Seibel, Chain making machine, E. B. Bullock, Chain wrench, M. Quinlan, Chair, G. M. Fiske, Chair seat, B. J. Buckman, Check, draught, or money order, E. Goodall, Churn, Backster, Jr., & Reiff, Cigar bunching machine, J. Von Ronne, Cigar cutter, F. B. Brock, Clamp, See Broom clamp, Rope clamp, Clamping device, S. F. Duncan, Clasp, See Book clasp, Suspender clasp, Cleaner, See Boiler cleaner, Flue cleaner, Clock, W. D. Chase, Clock, pendulum, H. O. Deuss, Clock striking mechanism, Ethridge & Waite, Clutch, E. L. Babcock, Clutches, safety lever for, J. Gould, Jr., Cock, injector feed, G. W. Wiswell, Coffee roaster, F. Maassen, Collar pad, horse, W. A. Shaffer, Concentrator, J. W. Parmelee, Conformer for thumbs, J. H. Fones, Cooler, See Milk cooler, Cop tube machine, Moss & Cook, Copying press, B. A. Dolan, Cord and rope, machine for making, T. B. Dooley, Core bar, collapsible, R. Morgan, Corkscrew, E. Becker, Corset stiffening, E. B. Cady, Coupling, See Car coupling, Electric coupling, Shaft coupling, Thill coupling, Crate fastener, F. R. Fisher, Crate fastener, Fisher & Robbins, Cross head, E. Hill, Cuff holder, H. C. Frank, Cultivator, D. J. Williams, Cultivator, W. C. Barker, Cultivator coupling, P. Rader, Cultivator, seeder, planter, and fertilizer distributor, combined, J. A. Ogletree, Curtain fixture, T. McGuire, Cutter, See Cigar cutter, Dental pliers, J. J. R. Patrick, Desk, T. C. Read, Display stand, A. Eske, Discount measuring glass and bank note examiner, combined, A. C. McMicken, Ditching machine, E. E. Renshaw, Door check, G. A. Howard et al., Door check, S. Wallace, Drilling machines, feed mechanism for, W. S. Rogers, Electric coupling, G. W. Taylor, Electric machine, dynamo, T. A. Edison, Electric motors and generators, prevention of sparking in, D. Higham, Elevator, See Hay or straw elevator, Portable elevator, Elevator and fire escape, C. Haas, Engine, See Steam engine, Expansion joint, G. H. Benjamin, Extractor, See Tent pin extractor, Fabric, See Woven pile fabric, Fatty substances by electricity, apparatus for purifying and separating, H. F. D. Schwahn, Feed water heater, C. W. Fowler, Fence, J. M. Bosart, Fence, A. J. Yarlot, Fence post, metallic, L. Turnberger, Fence, wire and picket, W. H. McGrew, Fence wire twisting and spooling machine, spur wheel, C. C. Hill, Fences, strip for metal, G. P. Fisher, Jr., Fencing, machine for making spur wheel, C. C. Hill, Fender, McCoy & McArthur, File, paper, E. E. Webster, Firearm, magazine, A. Burgess, Fire escape, W. C. Chamberlain, Fire escape and water tower, M. J. Hart, Fire extinguisher, L. S. Lewis, Fire extinguisher for railway cars, automatic, Matlock & Fritz, Fire kindler, J. S. Malkby, Fishing rod joint, T. Kirker, Flue cleaner, H. Kees, Flue cleaner, E. L. Mansfield, Fluid heating and cooling apparatus, A. G. Meeze, Folding machines, plaster attachment for, F. Wuelink, Foot power, J. H. Purdy, Frame hanger, adjustable, A. J. Wiegand, Fuel, process of and apparatus for producing and consuming gaseous, J. W. Mitchell, Furnace, See Smoke consuming furnace, Furnaces, attachment for boiler, Harris & Kafer, Gauge, See Micrometer gauge, Pressure gauge, Galvanic battery, H. J. Brewer, Game and advertising board, combined, W. W. & J. A. Le Seur, Gas heater water back, J. T. & E. E. Phillips, Gate, See Railway gate, Swinging and folding gate, Generator, See Steam generator, Glass, apparatus for cutting bevels, etc., on, L. De Coster, Glass bending and annealing furnace, C. H. Smith, Glove, D. S. Morrison, Glove fastener, D. A. Carpenter, Governor, steam and gas, T. Shaw, Grain binder, E. A. Peck, Grain meter and register, automatic, R. R. Howell, Grain polisher, J. Paul, Grain register, F. Stanton, Grain separator, J. F. Hatfield