

ENGINEERING INVENTIONS.

An indicator for boiler feeds has been patented by Mr. William H. Rodgers, of Whitestone, N. Y. It has an alarm mechanism normally held set by a fusible plug, two signal disks being arranged in connection therewith, so mounted that when the pump or injector is working, the safety disk will be exposed and the danger disk covered, and *vice versa*.

A fire extinguisher for railroad cars has been patented by Mr. George W. Oborn, of Columbus, Ohio. The invention consists in connecting the stoves and lamps with a tank of fire extinguishing liquid, and the tank with the air brake drum or cylinder by a valved pipe, so that in case of accident compressed air will force the extinguishing liquid upon the fire.

A car heating and ventilating apparatus has been patented by Mr. Jacob T. Earnest, of Jacksonville, Fla. In combination with an air blower and closed water tank with spray pipes, the invention covers various other novel features of an apparatus for supplying railroad trains with pure air, either heated or cooled, and suitably moistened, while also removing the vitiated atmosphere.

A draw gear for railway cars has been patented by Mr. Chas. H. Starr, of Logansport, Ind. It consists essentially of a pair of flanged channel irons, in the flanges and sides of which are transverse gains or slots to receive the bolts by which the draw spring cage and the bolster bearing are bolted to position, the channel irons being arranged for connection with the draught sill.

A rail joint has been patented by Mr. John V. Koss, of North Yakima, Washington Ter. It consists of a chair having a fixed rail and sliding rail sections, with intervening spring joints, and other novel features, to provide for the expansion and contraction of the rails, and has especial reference to keeping switch rails in order, and preventing them from becoming jammed and out of order.

A railway signal has been patented by Mr. Charles D. Tisdale, of Boston, Mass. It is a semaphore, to be operated by a weight under control of an electro-magnet, a hollow post being adapted to contain the operating mechanism of the semaphore, a lamp being supported by the post to throw light through windows of the semaphore arm, while there is a removable handle for turning the shaft and winding the weight cord.

MISCELLANEOUS INVENTIONS.

A cough mixture has been patented by Mr. George Wood, of Crawford, Col. It consists of extract of blood root, essence of anise, essence of sassafras, essence of lobelia, and other ingredients, compounded and administered in a special manner set forth.

A clasp has been patented by Mr. William Bloomberg, of New York City. The invention consists in a peculiar form of blank employed in constructing the main jaw of the clasp, for holding suspender ends without stitching, and uniting them to the suspender buckle.

A ship's log has been patented by Mr. Oscar Kustel, of San Francisco, Cal. This invention covers a novel construction and combination of parts in a device wherein the distance sailed or steamed by a vessel in a given time will be recorded in knots, and the record will be open to inspection at all times.

A handkerchief holder has been patented by Mr. Stephen M. Griswold, of Brooklyn, N. Y. This invention provides an article in the form of a brooch, with a pin, to hold a handkerchief as in a clasp, while the device may be made in gold or silver or other material to make an attractive ornament.

A collar and cuff drier and dampener has been patented by Mr. John G. Dixon, of New York City. This invention provides means whereby collars and cuffs may be carried in quantities through a suitable heated chamber, and subject to exposure equally on both sides, and afterward be automatically sprinkled equally on both sides, ready for ironing.

A thill coupling has been patented by Mr. Joel S. Pardee, of New Troy, Mich. It is a simple and inexpensive coupling which may be quickly engaged with or disengaged from a stud on a vehicle thill or pole, to allow either thills or a pole to be used for harnessing one or more horses, while also arranged to be an effective anti-rattler.

An automatic weighing scale for liquids has been patented by Mr. Paul Witteck, of Butler, N. J. It has a reversible measure, with means for automatically supplying the matter to be weighed to the measure and automatically emptying the measure when filled, the invention covering various novel features of construction and the combination of parts.

A cork holder for bottles has been patented by Mr. William Beardsley, of Beacon, Iowa. It consists of a cap piece with an enlarged central portion to form a cap or hood over the cork, and with opposite side arms or extensions adapted to engage a compensating neck band, which may be arranged around bottle necks of different sizes.

A method of manufacture of felt hats, caps, etc., has been patented by Mr. Frederick W. Cheetham, of Hyde, Chester County, England. It consists in first forming the complete body or form according to whether it is to be soft or stiff, then working or felting a covering of fine short staple wool upon the coarser body, finally finishing it.

A sweat pad has been patented by Mr. Charles J. Gustavson, of Salt Lake City, Utah Ter. It has one or more openings or slots extending through it, combined with a hook having both ends made alike, and adapted to have either end seated in the slot, to constitute a reversible pad for protecting the neck and shoulders of a draught animal.

A sewing machine has been patented by Mr. Charles P. Bostian, of Milton, Pa. Two needles

are carried by the needle bar at an angle to the width of and both entering the same race, with mechanism for bringing the points of the needles into position within the race for the single shuttle to take both loops, thus making simultaneously a double row of stitches.

A wall covering composition has been patented by Mr. Carl Straub, of Syracuse, N. Y. It is made of wood fiber, cement, and a hardening acid, compounded in proportions and manner described to make a composition only about half as heavy as mortar, but more elastic, and of uniform density or hardness.

A button machine has been patented by Mr. Albert Wittig, of New York City. It consists of a press with revolving bed carrying dies and having a cutting block for supporting cloth for covering buttons, being designed for the use of tailors, etc., to enable them to provide buttons covered with the material of which the garment is made.

A suspender attachment has been patented by Mr. Charles H. Scales, of Toronto, Ontario, Canada. It is an improvement in buckles for connecting the continuous doubled straps forming the ends of self-adjusting suspenders to the webs, while allowing the straps to run freely, securing the ends from displacement when not attached to a garment.

A gate roller and hinge has been patented by Mr. James G. Swarthout, of Stone's Prairie, Ill. It has a roller wheel with ball bearing, on which the roller may turn and swing in opening and closing a gate supported on the roller, forming a gate roller and hinge supported in and connected with two hinge posts, so that the gate may be moved endwise or swung around.

SCIENTIFIC AMERICAN BUILDING EDITION.

MAY NUMBER.—(No. 31.)

TABLE OF CONTENTS.

1. Elegant plate in colors of a double house for two thousand five hundred dollars, with floor plans, sheet of details, etc.
2. Plate in colors of a cottage costing five thousand dollars, with floor plans and sheet of details, etc.
3. Page of engravings giving a general view of the successful operations of moving the great Brighton Beach Hotel at Coney Island.
4. Perspective elevation and floor plans of a house costing six thousand dollars.
5. Design for a house to stand on a knoll or high ground. Perspective and floor plans.
6. Perspective view and ground plan for the Orange Heights Hotel, now erecting on Orange Mountains—Arthur D. Pickering, architect.
7. Half page engraving of the new United States Post Office at Springfield, Mass., and new United States Post Office and Court House at Los Angeles, Cal.
8. Drawing in perspective of the elegant residence of Dr. S. F. Hanse at Minneapolis, Minn.
9. Sketch of a dwelling in Rochester, N. Y., cost about six thousand five hundred dollars.
10. Perspective and floor plans for a country house of moderate cost.
11. Elevations and floor plans for a frame dwelling. Cost about five thousand dollars.
12. Illustrations giving a perspective view and floor plans of a cottage for fifteen hundred dollars.
13. Repairing the foundations of a large grain mill and elevator at Providence, R. I.—Half page engraving.
14. Floor plans and perspective view of a substantial dwelling. Cost eight thousand dollars.
15. A dwelling for two thousand five hundred dollars. Perspective and floor plans.
16. Perspective and floor plans of two modern dwellings, costing eight thousand dollars and two thousand eight hundred dollars respectively.
17. Plans and perspective elevation for a two thousand two hundred dollar house.
18. Illustration showing the beautiful dwelling and grounds of Timothy Merrick, Esq., Elmwood, Holyoke, Mass.
19. Elegant residence of Dr. J. S. Hurlbut, Esq., School Street, Springfield, Mass.
20. Miscellaneous contents: Relative strength of stones and bricks.—Echoes and reverberations in rooms.—Dimensions of the most important of the great cathedrals.—Boston hot water distribution.—Roofs for mills.—Combined rain water cut-off and filter, illustrated.—The genesis of a tornado.—A millstone recipe.—Lumber trade notes.—Warning and ventilating.—Grant memorial competition.—The Arkansas dry kiln.—Paint for fresh cement.—Foreign made joinery.—Floor paints.—Large dams.—Preservation of timber.—How to ornament a vase.—Enemies to varnish.—Filling for floors.—Wooden water pipes.—Ready mixed paints.—The Ridgway refrigerator system, illustrated.—A sanitary heating apparatus, illustrated.—The Prentice patent metallic hip shingle.

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NEW BOOKS AND PUBLICATIONS.

LA GALVANOPLASTIE, LE NICKELAGE, LA DORURE, L'ARGENTURE, ET L'ELECTRO-METALLURGIE. Par Emile Bouant, Professeur au Lycee Charlemagne. Small 8vo, pp. 303. With 34 figures inserted in the text. Paris: Librairie J. B. Bailliere et Fils. 1887.

In this little volume, Professor Bouant, after a brief exposure of the history and present state of the electrolytic arts, proceeds to a description of the various processes employed in electrolysis, electro-chemistry, and electro-metallurgy. The directions and formulas for each process are given in minute detail and with re-

markable clearness, and any one who follows them to the letter will undoubtedly obtain successful results, and that too with the simplest of appointments. The electrolytic arts, in fact, are peculiar in that they need no very extensive establishments for their development, but may be practiced in the humblest of shops or in the laboratory of the amateur. In view of the fact that the applications of electrolysis and the other branches of electrochemistry are daily becoming more numerous, this little work will prove a valuable and welcome addition to the library of the practical metallurgist, as well as to that of the amateur.

Old South Leaflets. This is the title of a series of pamphlets on various subjects of importance. Their titles sufficiently identify their purpose and aim. No. 1. Constitution of the United States. 2. Articles of Confederation. 3. Declaration of Independence. 4. Washington's Farewell Address. 5. Magna Charta. 6. Vane's "Healing Question." 7. Charter of Massachusetts Bay, 1629. 8. Fundamental Orders of Connecticut, 1638. 9. Franklin's Plan of Union, 1754. 10. Washington's Inaugurals. 11. Lincoln's Inaugurals and Emancipation Proclamation. 12. The Federalist, Nos. 1 and 2. 13. The Ordinance of 1787.—etc. Price, five cents per copy, one hundred copies, three dollars. Published by D. C. Heath & Co.

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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.

(1) J. E. W. asks how to splice a belt in order to make it run as near like an endless belt as possible—not the old, rough way of splicing. A. Use the toughest yellow glue prepared in the ordinary way, while hot, stirring in thoroughly about 20 per cent of its weight of tannic acid, or extract of tan bark. Apply to the splice and quickly clamp together. The splice should be made of scarfed edges extending 3 to 6 inches back, according to thickness of belt. The surface to be perfectly clean and free from oil.

(2) E. V. H. desires a recipe of some preparation that will make leather waterproof. A. There is no way of making leather absolutely waterproof. Good tanning and currying, with the grain or hair side out, and the frequent use of stuffing makes leather nearly waterproof.

(3) M. M.—The word lye is used to indicate the solution of a caustic or carbonated alkali, such as caustic soda, soda ash, or carbonate of potash.

(4) H. J. M.—For Babbitting small boxes, use a spindle of iron turned smooth, for the journal. Set the box and spindle in proper position in moulding sand as dry as will stick together. Ram the sand gently to close the opening between box and spindle, and pour the metal. If the box is solid the spindle may be very slightly tapered, and by gently rapping it sideways, it will easily drive out.

(5) J. W. T.—The following combined toning and fixing bath is recommended:

Chloride of gold.....	1 grain.
Phosphate of soda.....	15 "
Sulpho cyanide of ammonium.....	25 "
Hyposulphite of soda.....	240 "
Water	2 ounces.

Dissolve the gold first in a small quantity of water, then add as above. See our book catalogue. The book by Ellerslie Wallace is recommended.

(6) J. L. V. asks a receipt for making compressed yeast. A. This yeast is obtained by straining the common yeast in breweries and distilleries, until a moist mass is obtained, which is then placed in hair bags, and the rest of the water pressed out until the mass is nearly dry. It is then sewed up in strong linen bags for transportation.

(7) W. W. McV. desires a receipt for making good dark mahogany stain for elm wood. A. Boil ½ pound of madder and 2 ounces logwood chips in a gallon of water, and brush well over while hot. When dry, go over them with a pearlash solution having the strength of 2 drachms to a gallon.

(8) D. F. W. asks how vaseline is purified for barbers' use. A. The residuum from which vaseline is made is placed in settling tanks heated by steam, in order to keep their contents in a liquid state. After the complete separation of the fine coke it is withdrawn from these tanks and passed through the bone black cylinders, during which process the color is nearly all removed, as well as its empyreumatic odor. See Crew's "Practical Treatise on Petroleum," which we can send you, post paid, for \$4.50. See also SCIENTIFIC AMERICAN SUPPLEMENT, No. 153.

(9) A. E. S. asks the best preparation for waxing silk thread for binding gut snells on to very small fish hooks. A. Yellow beeswax is ordinarily used. Shoemaker's wax is very good also. The following mixture will render it waterproof. Take 2 parts boiled oil, 1 part good size, put into a bottle, shake well and it is ready for use. Apply with a fannel, expose to the air and dry.