

ENGINEERING INVENTIONS.

An electric attachment for locomotives has been patented by Mr. Norman F. Chase, of Montrose, N. Y. The invention covers a novel combination and arrangement of parts whereby a person at the side of a track or at a station may cause certain devices upon the locomotives to be operated for signaling the engineer, and so that danger signals, etc., may be effective.

A railway rail bracket has been patented by Messrs. John Waterman and Nelson A. Gray, of Villisca, Iowa. It is formed with a head having bolt holes near its opposite ends and having the shank united at one end with the head centrally between the ends of the latter, and with a longitudinal rib, being intended especially for use in connection with guard rails.

A boiler has been patented by Mr. James A. Cauldwell, of Owego, N. Y. It is a sectional boiler formed of a series of hollow rings resting one upon another with their apertures in alignment, the space within the rings forming the fire and combustion chamber, the bolts by which the several sections are held together being so formed and placed that the sections and the bolts will expand about equally.

A railroad tie has been patented by Mr. Charles W. Yost, of Middletown, Pa. It consists of a bed plate having at each end an upturned tongue and slots, in combination with chain plates with a slot, a tongue, and pendent locking tongues, with device for locking the chains to the bed plate, so that the rails cannot spread and the chains give strength to the tie and relieve the bed plate of direct wear of the rails.

AGRICULTURAL INVENTIONS.

A seeder and cultivator has been patented by Mr. James Montgomery, of Munster, Ill. It is adapted more particularly for dropping seed grain between rows of corn stalks left standing after harvesting the corn crop and immediately harrowing in the dropped seed by cultivator plows to assure proper growth of the grain.

A harrow attachment has been patented by Mr. Calvin Kessler, of Pendleton, Oregon. The harrow is made with U-shaped perforated bars adapted to be raised and lowered upon the tooth bars, by means of which the teeth can be cleaned without stopping, or by lowering the bars so that the teeth will not project, they are made to serve as runners to permit the harrow to be readily transported from place to place.

MISCELLANEOUS INVENTIONS.

A biographical photograph card has been patented by Mr. George W. Fountain, of Cameron, Mo. Combined with a photograph card having a recess and a slot or opening is a blank having ears and a finger tab, whereby a short biographical record may be preserved in connection with a photograph.

A device for adjusting clothes lines has been patented by Mr. August W. R. Liebau, of New York City. It is a novel device by which the length of traveling clothes lines is adjusted, whereby they may easily be stretched or eased, and securely held in such adjustment, with provision also for carrying a large surplus line.

A cotton-seed press has been patented by Mr. William C. McBride, of Brooklyn, N. Y. Two hydraulic presses are located one above another, with a fixed plunger between them, the lower press raising a truck with perforated pipes leading into apertures, and there are various other novel details of construction and arrangement of parts.

A slope grader and ditching machine has been patented by Mr. John C. Sage, of Gainesville, Ga. Combined with a truck are outer and inner rollers, adjustable shovels, and other novel features of an improved ditching machine, the invention being an improvement on a former patented invention of the same inventor.

A windmill has been patented by Mr. Hiram Watkins, of Pueblo, Col. Combined with a vertical main shaft is a horizontal drum wind wheel having pivoted blades, which may be adjusted by an attendant at the base of the tower, there being a vertically reciprocating cross head on the shaft connected with and operating a gear wheel, with other novel features.

A reciprocating printing machine has been patented by Mr. Thomas H. Cole, of East Albany, N. Y. It has a revolving bed adapted to serve as an inking pad upon one face and platen upon the other face, the type carrier being operated up and down by a crank and pitman, and motion being communicated to the bed therefrom.

A book holder and cover has been patented by Messrs. Frank X. Cline and Alexander Cornstadt, of Portland, Oregon. It is a device which may be used for filing pamphlets, letters, and bills, and also as a cover or case for protecting books, or a number of books or pamphlets, and for carrying them from place to place.

A boot jack has been patented by Mr. James H. Kennedy, of Eola, La. It has a V-shaped notch for receiving the heel of the boot, and a loop formed of a metallic rod passing around the front of the boot jack and clamped to its sides, grooved edges of the boot jack forming guides for the looped rod, which engages the front part of the boot.

Improvements in accordions form the subject of two patents issued to Mr. John F. Stratton, of Brooklyn, N. Y. The inventions cover various novel details, including an extra set of keys, key valves, reeds and reed valves, added to the regular set of melody keys, and tuned to permit the player to perform, in connection with the regular set, all the notes in the scale, the same note to be sounded both by pushing and drawing the bellows, whereby the performer can execute in the melody all the notes and chords in the scale with a corresponding harmonious bass in the accompaniment.

NEW BOOKS AND PUBLICATIONS.

FOOD ADULTERATION AND ITS DETECTION. By Jesse P. Battershall, Ph.D., F.C.S., Chemist United States Laboratory. New York; E. & F. N. Spon. 1887. Pp. 328.

This work, on account of the competence of its author and of the elegant style of its production, is to be welcomed as a valuable addition to the chemical literature of this country. Dr. Battershall, for many years chemist in charge of the United States Laboratory in the appraiser's department of the Custom House, has had many very difficult problems in proximate analysis presented to him for solution. In these years many food products and similar substances have been examined by him to ascertain their purity and nature. In the work before us this experience is applied to one of the most difficult subjects of analytical work, the detection and determination of impurities and adulterations in food. The range of the work is extensive. The general headings into which the subject is divided are too numerous to give here in full. Tea, coffee, and other bases for beverages and beverages themselves are treated of at length with their adulterations. Milk and its products, flour, bakers' chemicals, sugar, pickles, olive oil, spices, and miscellaneous products, are included. The book closes with two chapters of peculiar value. One gives the bibliography of the subject, a laborious compilation of periodicals, official reports, and books on food adulteration. The last chapter is devoted to legislation. It gives the various United States laws and statutes of individual States on the subject of adulteration. The book is beautifully illustrated with colored plates illustrative of tea leaves and the spurious leaves mixed with them, and with a number of photomicrographic plates of butter and milk slides. Too much credit cannot be given to author, publisher, and engraver for the conscientious way in which they have all done their work. Although largely devoted to American practice, the book will undoubtedly have a good circulation abroad, and we hope it is the precursor of many future editions.

SCIENTIFIC AMERICAN BUILDING EDITION.

OCTOBER NUMBER.

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- 1. Elegant Plate in Colors of a Residence of moderate cost, with floor plans, specifications, sheet of details, etc.
2. Plate in colors of a Country Store and Flat, with specifications, floor plans, sheet of details, etc.
3. Design of a one-story Southern Residence, with floor plan. Cost, Five Thousand Dollars.
4. Perspective and floor plans for Dwelling for a narrow lot. Cost, thirty-five Hundred Dollars.
5. Illustration of a two-story and attic Dwelling erected at Arlington, N. J., with floor plans. Cost, Two Thousand Eight Hundred Dollars.
6. Drawing in perspective, with floor plans, of a Double House of moderate cost. A pleasing design.
7. A Twelve Hundred and Fifty Dollar two-story attic House. Perspective and floor plans.
8. Perspective drawing, with a floor plan, of a House at Flushing, N. Y. A comfortable and substantial dwelling, costing about Eight Thousand Dollars.
9. View of the new United States Court House and Post Office at San Antonio, Texas.
10. Handsome design of a new Dry Goods Store erected at Winona, Minn.
11. Illustrations of small sea-side Cottages at Lion-Sur-Mer, Department of Calvados, France.
12. Page engraving showing Main Entrance Gate, Chateau at Bougival. M. Pasquier, Architect.
13. Views of a Church at La Capelle, France. M. Charles Garnier, Architect.
14. New Church at Stratton, in Hampshire, England.
15. Design of a Sideboard in Walnut.
16. New Exhibition Building of glass and iron, at Madrid. Half page engraving.
17. Villa St. George's, at Saint Lo. Half page engraving.
18. A City Residence in Mannheim. Werle & Hartmann, Architects.
19. Miscellaneous Contents: Cost of Brick and Brickwork.—United States Mail Chutes for Interiors of Buildings, illustrated.—An Improved Saw Filing Machine, illustrated.—Improved Device for Working Window Shutters, illustrated.—Drawing and Engineering Instruments.—Tests of Portland Cement.—Painting Brick and Stone Buildings.—Frosted Glass.—Action of Frost on Cements.—Oil of Bay for Flies.—Decorative Novelties.—Colored Mortar for Brickwork.—How to Clean and Polish Top Leather Screens.—Blinds.—To Transfer Prints to Wood.—Rules for Gas Fitting.—Bichloride of Mercury as a Disinfectant.—Chinese Brick-making.—The Long Leaf Pine.—New Galvanizing Process.—Earthquake Foundations.—Care in respect to Fire.—Healthy Habitations and Defective House Construction.—The Effect of Sea Water on Concrete.—Vassar College Sewerage.—Preservation of Stone.—Improved Surface Planing Machine, illustrated.—The "Auburn" Boiler for Steam Heating and the Woodcock Patent Shaking Grate, with illustrations.—Ebonizing.—Design in Architecture.

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The Knowles Steam Pump Works, 113 Federal St., Boston, and 33 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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Curtis Pressure Regulator and Steam Trap. See p. 157. The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

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We quote as above from a review by the Railroad Gazette of one of the earlier editions of Trautwine's "Civil Engineer's Pocket Book." Reviewing the 9th edition, or twenty-second thousand, the first of the "new editions" (1885), the same journal said:

"... 'The additions and substitutions are so numerous and so well chosen that there is hardly an important topic of the volume which has not been affected by them and improved.'"

Still further improvements appeared in the edition of 1886, and in those of the present year.



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.

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Minerals sent for examination should be distinctly marked or labeled.

(1) G. H. asks (1) if hydrogen gas is better than coal and water gas for balloons. A. Hydrogen gas is far superior in lifting power to coal gas, and still more to water gas. It leaks out from a balloon, however, much faster than either. 2. What is the cheapest way to manufacture it, and how to obtain it pure? A. The general way of making it is to dissolve zinc or iron scraps in sulphuric acid and collect the gas evolved. It may also be made by passing steam over red hot iron turnings contained in a tube. 3. How much in weight will a cubic foot of hydrogen gas lift? A. 1,000 cubic feet of hydrogen will lift about 44 pounds.

(2) J. W. K. writes: I have an electro-magnet that will attract a weight of two pounds suspended at a distance of 1/4 inch from the poles of magnet. Now, what I would like to know is, what the loss would be in attractive power if the poles of the magnet and armature were nickel plated? A. The loss would be very slight.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

September 20, 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 Accordion, Adjustable table, Aluminum, Ambulance, Animal trap, Axle box, Axle box, H. W. Nott, Baling press, Baling presses, Bale weighing attachment, Banjo, Bath tub, Battery, Bed lounge, Bed, sofa, Beds, crib attachment, Bell collar, Bell cord coupling, Bell door, Belt, driving, Belt shifter, Bin, Binnacle, Boiler, Boiler cleaner, Book holder and cover, Boot, fabric, Boot jack, Boots or shoes, gibbon, Bottle jacket, Bottle stopper, Bottle stopper, Box, Brace, etc.