

a clear circulation under the building, and keep the ground as dry as possible under the condition of a wet soil. If a layer of concrete or sand and hydraulic cement can be spread under such a building, it will greatly help to keep the lower story dry and preserve the timber from decay.

(5039) Amateur asks: In computing horse power of steam boiler what proportion of shell is considered heating surface? A. All of the shell exposed to the fire and heated gases. 2. Does the horse power of boiler increase in same ratio as steam pressure, i. e., if a boiler is 30 horse power with 60 pounds, will it be 40 horse power with 80 pounds steam? A. Yes. 3. With boiler pressure at 80 pounds, what is the pressure in cylinder of slide valve engine in motion? What makes the difference? A. The cut-off of the valve, which prevents the following of the steam to the full stroke, makes the mean pressure. 4. How can the power a slide valve engine is exerting under varying loads be found without the use of indicator? Boiler pressure at 80 pounds. A. By a dynamometer. For excellent articles on dynamometers in general see our SUPPLEMENT Nos. 264, 359, 376, 436, 684, especially the two first named ones.

(5040) J. B. D. asks: What is a good roof paint that will last five years at least, on either iron or shingle roofs, one I can prepare myself? A. The most durable paint for roofs is red oxide of iron or Prince's metallic paint (dry); mix it with raw linseed oil for shingle roofs, first coat thin, so as to spread easily with the brush. When this has well dried, which may be several days, paint with the same paint mixed with boiled linseed oil, just thick enough to spread well with a brush. For iron roofs use boiled linseed oil with the same paint for both coats.

NEW BOOKS AND PUBLICATIONS.

HOW TO BECOME EXPERT AT FIGURES; OR, ROWLAND'S VEST POCKET COMPENDIUM OF SHORT CUTS AND BUSINESS POINTERS FOR EVERYBODY. Compiled by W. D. Rowland. New York: W. D. Rowland, publisher. Pp. 113. Price 25 cents. No index.

Many people would be much better at figures than they are were the methods of doing quickly only shown. This little book purports to give these methods and does so with considerable success. In addition to the purely arithmetical part of it, notes of banking, commerce, and business in general with business hints are included. At the end a number of pages ruled for a cash account are given, with a note of how to use the same.

TO INVENTORS.

An experience of forty-four 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 May 9, 1893 AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

Table listing inventions with names and dates, including items like 'Abrading device, portable electric, A. J. Nellis', 'Adding machine, B. H. Phillips', 'Air and gas, apparatus for mixing, Thayer & Weld', etc.

Table listing inventions with names and dates, including items like 'Car coupling, J. T. Pougher', 'Car coupling, Kenshaw & Burden', 'Car coupling, J. B. Riddle', 'Car coupling, J. Timms', 'Car coupling, W. J. Walker', etc.

Table listing inventions with names and dates, including items like 'Ladder and truck, M. Roessler, Jr.', 'Ladder, fire, Blake & Gilhaus', 'Ladder, step, B. J. Harrison', 'Lamp, electric, J. Waring', 'Lamp, electric arc, M. Krueger', etc.

Table listing inventions with names and dates, including items like 'Swift, J. P. Cronin', 'Swing, W. R. Wilcox', 'Swing, double lever, W. R. Wilcox', 'Switchboard apparatus, multiple, C. E. Scribner', 'Switchboard system, multiple, C. E. Scribner', etc.

TRADE MARKS.

Table listing trade marks with names and dates, including items like 'Agricultural implements and handles for same, Markt & Company', 'Ale and lager beer, Burkhardt Brewing Co.', 'Antidote for poison and remedies for blood and liver diseases, Anti-Poison Medicine Company', etc.

DESIGNS.

Table listing designs with names and dates, including items like 'Badge, C. A. Gay', 'Ball-bearing for vessels, A. R. Pritchard', 'Bottle, Hoffmann & Dillman', 'Braid, J. W. Schloss', 'Carpet button, stair, Walker & Warren', etc.