

Business and Personal.

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Acme engine, 1 to 5 H. P. See adv. next issue.

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

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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 This is for our information and not for publication.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.

(4537) W. B. R. asks: Why does the air end of an air pump such as is used on locomotive engines sometimes get hot when pumping air? What makes the sound that we hear when a locomotive engine exhausts in the stack? A. The air pump on a locomotive is an air compressor. The compression of air and gases develops heat. Any volume of air contains a certain amount of heat, the exponent of which is the temperature. When the volume is suddenly compressed into a part only of its original volume, the same quantity of heat remains, but in a smaller space, which causes the temperature to rise in proportion to amount of compression. The sound of the exhaust the smoke stack is from the vibration of the air, due the suddenness of the operation, the exhaust acting like an explosion.

(4538) W. E. K. asks (1) how to obtain formic acid. A. In various ways; the dry distillation of oxalic acid is the simplest. It is made by the oxidation of gum and other organic substances by mixing 1 part of organic matter with 3 parts of manganese dioxide and 2 parts of water; 3 parts of sulphuric acid 50 per cent are added and in a short time the mixture is distilled. 2. How to take grease stains from the handle of the piano keys. A. Cover with glass and expose to the sun. 3. A cure for pimples. A. Consult a physician. Try washing the face with solution of Rochelle salts.

(4539) W. P. asks (1) for the best method to fasten rubber to steel without using rivets or similar devices. A. Use bicycle tire cement or marine glue. 2. Is there any difference between a series or shunt dynamo, provided everything is in the same proportion as near as possible to construct them, in regard to the E.M.F., that is, let both machines be of the same size and run at the same speed. A. The series dynamo gives the highest E. M. F. on open circuit, the shunt on closed circuit. As regards maximum E.M.F., they may be considered identical.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

September 20, 1892.

AND EACH BEARING THAT DATE.

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

Table listing inventions with patent numbers, including: Advertising apparatus for cash registers, Aerated liquids, apparatus for the manufacture of, L. G. & S. M. Chinnery, Agricultural machine, J. F. Thompson, Air compressor, coin-operated automatic hydrant, J. S. ...

Table listing inventions with patent numbers, including: Game apparatus, S. N. Johnson, Game counter, F. A. Gilbert, Game for amusement, J. S. Malin et al., Gas apparatus for the manufacture of, McBride ...

Table listing inventions with patent numbers, including: Saddle tree, R. C. Barry, Sanding apparatus, Wallace & Penfield, Sawing up slabs, etc., machine for, Matfett & Weir, Scale, pendulum, D. Olmsted, Scraper, road, J. B. Palmer, Screen, See Window sash, etc., ...

DESIGNS.

Table listing designs with patent numbers, including: Lens for illuminating tiles, etc., J. Jacobs, Memorial shield, W. Mayer, Paper weight, L. J. Heffernan, Pencil sharpener, S. A. Davis, Suspender ring, F. W. Shillito

TRADE MARKS.

Table listing trade marks with patent numbers, including: Beer, lager, National Brewing Company of Baltimore County, Maryland, Candy, chocolate, and cocoa for confectioners' use, Ode & Gerberaux, Cloaks and suits, ladies' and misses', A. Popkin & Co., Confectionery, A. L. Causse Manufacturing Company, Corsets, with and suspenders, Coronet Corset Company, Gens, artificial, F. H. Sadler & Co., Hoes, forks, rakes, and other agricultural hand implements, Iowa Farming Tool Company, Insulated wire, electric, Eastern Electric Cable Company, Lard, substitute, S. H. Read, Leather, boots, shoes, and other foot wear, East New York Boot, Shoe, and Leather Manufacturing Company, Magazine Monthly, Great Divide Publishing Company, Measures and rammers, powder, Hartley & Graham Co., Medicated lotions and eye waters, K. P. Stericker, Medicines, cough, Dr. Seth Arnold Medical Corporation, Paper, envelopes, and fine card-board, writing, Hard & Pike, Pills, capsules, and tablets, McKesson & Robbins, Remedies, a line of, J. Williams, Jr., Remedy for catarrh and all diseases of the throat, lungs, and bowels, E. M. Davis, Remedies, temperamental, H. Fatty, Sedlitz powders, J. G. Gibson, Tobacco, plug, J. F. Penn, et al., Underwear, including hosiery, J. S. Lowrey & Co.

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished from this office for 25 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York. Canadian patents may now be obtained by the inventor for any of the inventions named in the foregoing list, provided they are simple at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.