

Business and Personal.

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ATLANTA, GA., Dec. 24, 1881.

H. W. Johns Mfg Co., 87 Maiden Lane, New York. DEAR SIR.— . . . The warehouse (300 x 300) in Columbus, Ga., covered with your roofing, ordered by Col. W. L. Salisbury, some ten years ago, is now apparently as good as new. Yours truly, J. T. WARNOCK, M. D.

A chance to make from \$10 to \$30 per day. Agents wanted for the Rapid Bottle Cleaner in every State of the Union. This invention has been patented not only in the United States but in all the important countries of Europe. Terms to active agents very liberal. See page 230, present number of the SCIENTIFIC AMERICAN. Address Charles Von Der Linden, Rhinebeck, N. Y.

Take your copies of drawings with the Heliographic or Blue Process; most profitable. Circulars at Keuffel & Esser's, New York.

Pure water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc. by the Multiford System of the Newark Filtering Co., 177 Commerce St., Newark, N. J.

American Fruit Drier. Free Pamphlet. See ad., p. 325.

Something new and interesting in Keyless Drawer Locks. See adv. of D. K. Miller Lock Co., top of page 325.

Mr. G. Boyé, U. S. Consular Agent at Bonaire, W. I., desires to receive estimates for well boring machinery. Also for corn shellers; also thrashing and cleaning machines.

For Sale at a Bargain—A fast Steam Launch, 24 feet long, 6 feet beam. Extra good engine and boiler. Address Lock Drawer 11, Geneva, N. Y.

Wanted—A first-class second-hand or new Barley Mill, Address B. D., Box 1110, Kingston, Ontario, Canada, stating make, capacity, lowest cash price.

Wanted, a mechanical Draughtsman, acquainted with stationary engine and general machine work. Machinist preferred. Address T. E. J., P. O. Box 772, New York.

"T. New, 32 John St., New York, has sold and applied over fifty million feet of his Prepared Roofing, the major part being placed upon manufacturing establishments."—SCIENTIFIC AMERICAN.

Agents Wanted.—None but intelligent and energetic need apply. Must furnish good recommendations, or no notice will be taken of applications. Exclusive territory given. Agents are now making from \$10 to \$15 a day. Address, for terms, The Infallible Coin Scale Co., 267 Broadway, New York city.

Improved Skinner Portable Engines. Erie, Pa.

Jas. F. Hotchkiss, 84 John St., N. Y.: Send me your free book entitled "How to Keep Boilers Clean," containing useful information for steam users & engineers. (Forward above by postal or letter; mention this paper.)

Steel Stamps and Pattern Letters. The best made. J. E. W. Dorman, 21 German St., Baltimore. Catalogue free.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Combination Roll and Rubber Co., 27 Barclay St., N. Y. Wringer Rolls and Moulded Goods Specialties.

Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock, 20 to 23 Market St., Chicago, Ill.

Wood-Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O.

Cope & Maxwell Mfg Co.'s Pump adv., page 263.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Split Pulleys at low prices, and of same strength and appearance as whole pulleys. Vocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

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

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y.

4 to 40 H. P. Steam Engines. See adv. p. 285.

Supplee Steam Engine. See adv. p. 221.

Saw Mill Machinery. Stearns Mfg. Co. See p. 286.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 304.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 304.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 305.

Steam Pumps. See adv. Smith, Vaile & Co., p. 306.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying bouses are used. See p. 306.

Ball's Variable Cut-off Engine. See adv., page 284.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'Frs, 23d St., above Race, Phila., Pa.

Drop Forgings of Iron or Steel. See adv., page 326.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Paragon School Desk Extension Slides. See adv. p. 324.

Brass & Copper in sheets, wire & blanks. See adv. p. 325.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 16,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Tight and Slack Barrel machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 326.

Diamond Engineer, J. Dickinson, 64 Nassau St., N. Y.

Latest and best books on Steam Engineering. Send stamp for catalogue. F. Keppy, Bridgeport, Conn.

Draughtsman's Sensitive Paper, T. H. McColtin, Phila., Pa. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 324.

Hand and Power Bolt Cutters, Screw Plates, Taps in great variety. The Pratt & Whitney Co., Hartford, Ct.

Catechism of the Locomotive, 625 pages, 250 engravings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 B'way, N. Y. Patent Key Seat Cutter. See page 325.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) K. C. writes: We nickel plate small steel goods, and the articles, when taken from solution, are black, and the anodes red. The articles are highly polished before plating, we think they should be nearly so after plating. We have a 6 gallon solution and 4 Smee batteries, zinc plates 5x8 inches, and 50 square inches of anodes. What is the cause of the articles being black? A. See "Nickel-plating," in SUPPLEMENT, No. 310.

(2) C. M. R. asks: How is the hard, smooth, black finish put on wooden handles such as are used on dinnerpails? It looks as if they had been dipped, and it must be cheap. A. See "Japans and Japanning," SCIENTIFIC AMERICAN, Vol. xiv., No. 10.

(3) N. S. C. asks: What must I do to prevent the gelatin of my printing pad from peeling off and adhering to the paper? A. Use more gelatin and a little soap.

(4) W. G. N. asks: Why is not a pulley that is in balance when standing still in balance when in motion? A. Because of unequalized centrifugal force.

(5) J. H. C. writes: We have some interest here about the following question: Is the pressure as great on a tank 5 feet long, 4 feet high, and 6 inches wide, as it is on a tank 5 feet long, 4 feet high, and 2 1/2 feet wide? A. Pressure per square inch is the same in both cases if the water be maintained at the same height.

(6) A. D. F. asks: 1. Which is the best style of steam engine for a small lathe, sewing machine, and work requiring about half horse power, oscillating, vertical, or horizontal? A. Vertical direct acting. 2. What size boiler will it take to run an engine 2 inches diameter by 4 inches stroke? A. It depends upon the amount of power you wish to obtain from the engine. 3. Which is the best style of boiler? A. Vertical tubular. 4. Do you give full directions and illustration for building the above in any of your papers? A. There can be no such directions given that will supply the place of experience. 5. How can I make a cheap and simple attachment to my foot lathe slide rest to make it feed automatically? A. Use a "star" wheel on the screw of the rest, and operate by a clamp or "dog" on the work.

(7) W. J. F. asks: 1. What is the process for silvering glass specula? A. For the process of silvering glass see SUPPLEMENT, No. 224. 2. Are astronomical oculars ever constructed on the principle of the compound microscope? A. The eyepieces for microscopes and telescopes are alike in optical construction, for general observation, and are of the type long known as the Huyghens eyepiece. For special work, as for micrometers, a Ramsden eyepiece is used for its value in giving a flat field. 3. I have heard lately that a Georgian has discovered a method for the manufacture of telescope lenses from the "virgin drip" of rosin. What is this virgin drip? A. Virgin drip lenses can be nothing more than lenses made from pure clear rosin, which can be ground and polished like glass, but is too frail to be of any value in optical work. Small single lenses have been made by placing a drop of melted rosin on Canada balsam in a hole in a thin piece of metal; the fluid, assuming a globular shape and drying, becomes a tolerable lens where no better can be had.

(8) E. B. C. writes: I want to have the discharge pipe of a large force blast blower connected with the smoke stack in order to get rid of the fine dust discharged by the blower. Suppose the smoke stack to be 5 feet diameter, and 100 feet high, and the discharge pipe from the blower to be 18 inches, and enter the stack say 50 feet from the breeching, what effect will it have upon the draught? Also, say, 25 feet and 65 feet. My theory is that at 35 feet it will retard the draught materially, but at 65 feet have a tendency to increase it. A. If the end of the blower pipe is turned up, and the velocity of the blast is greater than the velocity of the natural draught, the draught will be increased in every case. 2. Why is it that in looking from the underside of two 18 inch saws revolving at the rate of 2,500, the further one of the two has the appearance of just revolving, say, not to exceed ten revolutions per minute? In looking over the top side there is nothing of the kind to be seen. The same is noticeable in looking at two revolving pulleys. Looking horizontally through the arms the further of the two has the appear-

ance of just revolving, while the near one is at good speed. A. It is due to the interruption of the light by the teeth of the first saw. You see the teeth of the second saw in a rapid succession of positions which advance slowly and give the appearance of a slow revolution. The zootrope illustrates this principle.

(9) H. C. P. asks: Will you give me a receipt for preparing a sail so that it will not mildew? A. See "Waterproofing," page 91, vol. xlv.

(10) A. D. asks: Will you please inform me concerning the idea of and the latest machinery employed in making what the people now call washing blue? A. There are quite a number of laundry blues in the market; some of these are composed of ferric-ferrocyanide, or Prussian blue rendered soluble by a slight excess of potassium ferrocyanide or oxalic acid; others are simply aniline blue (soluble), indigo sulphate, or ultramarine blue.

(11) C. C. G. asks: 1. What are the proper curves for tools to grind a crown double convex lens, and a flint plano-concave lens for an achromatic telescope of 4 1/2 inches aperture and 66 inches focus? A. The curves for objectives cannot be given with any degree of exactness without knowing the refractive and dispersive power of both kinds of glass that you intend using, as this is of the utmost importance in assigning the curves of four surfaces for both chromatic and spherical aberration. If this is to be your first trial, it will also have to be your school. Assuming that your glass is of medium density, and that you intend, as you state, to make the last surface plane, you may make the pair of flaps 24 inches radius. Grind and finish ready for polishing the first three surfaces and the last surface plain, then polish perfectly the first and last surfaces; half polish the second and third surfaces, and put the glasses together in their cell with glycerine, and make a trial for correction. If found under correct, deepen the central curves, altering the lap to 23 inches or 22 inches radius, regrinding and half polishing as before, and repeating if necessary until you are satisfied with the performance of your glass; then polish the inner surfaces and cement with Canada balsam. The other plan of proceeding, as practiced by the Clarks of Cambridge, was to make the first, second, and third curves alike, and alter the last surface for correction. We do not recommend this plan for a beginner, as the haziness of the image from a half polished surface will mislead your judgment; and it also increases the labor on the last surface if you finish it for each trial. 2. Has any article been published in SCIENTIFIC AMERICAN on grinding lenses? A. For article on grinding lenses we refer you to SUPPLEMENT, No. 141.

(12) J. B. B. writes: 1. I am compelled from disability to use a wagon to travel on, but am not strong enough to run it on an ordinary road, and am trying to devise a motive power to propel a road wagon large enough to carry two persons, as I am obliged to have an attendant when I go from home. As I cannot find the information desired in any book at hand, what size engine, bore, and stroke, at 100 pounds boiler pressure, would it require to propel a road wagon of light build, to carry two persons whose gross weight is not over 300 pounds, at speeds ranging from two miles, going up ordinary hills, to ten miles on ordinarily level roads in fair condition? A. Quite small engines could be used, gearing to the drivers or by using small driving wheels. We could not give size without more data. 2. Is it practical to use benzine or naphtha in a boiler in place of water to generate power to drive an engine? A. Benzine, naphtha, and all kindred volatile liquids are too dangerous. 3. Would an engine driven by gas, same as by steam, produce good results, and the difference in cost of running ten hours? A. A gas engine could not be used—takes too much room and is too heavy. We advise that you obtain and study the English experiments with road engines in "Gordon on Locomotion," and "Steam Power on Common Roads," by Young.

(13) F. N. F. writes: I have a couple of meerschaum pipes which are nicely colored, but when they are smoked the tobacco oil oozes through the pores in large beads and renders them disagreeable to handle. Can you inform me, through your Answers to Correspondents, how to remedy the evil? A. The pores of the substance may be filled by digesting it for several hours in a warm sirupy solution of water glass, and then allowing it to dry thoroughly in an oven or otherwise.

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending May 2, 1882. AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

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