

Business and Personal.

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Saw Mill Machinery. Stearns Mfg. Co. See p. 221. Suplee Steam Engine. See adv. p. 221.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 237.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 237.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 238. 4 to 40 H. E. Steam Engines. See adv. p. 238.

Ball's Variable Cut-off Engine. See adv., page 252.

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Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 205.

Improved Skinner Portable Engines. Erie, Pa. Patent Key Seat Cutter. See page 252.



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) G. B. M. asks: What solution is used by manufacturers to fasten the caoutchouc on clothes wringers? A. See receipts for marine glue, page 2,510, SUPPLEMENT No. 158.

(2) C. D. R. writes: 1. I am interested in a water ditch for placer mining in the State of Oregon, and I have a question that I have failed to have answered satisfactorily as yet; but I am informed that you have a book that will give me the necessary information. If so, I want it. A. Beardmore's "Hydraulic Tables" will give information on these subjects. 2. I wish to run 150 to 200 inches of water, miner's measure (that is, water running through a 2 inch orifice with 6 inches from the center of the orifice to the level of the water, called a pressure of 6 inches), through a pipe from the side of one hill across a depression to another hill. The water leaves the pipe 20 feet lower than it enters, and has to move 3,200 feet in the pipe, and passes down hill 1 1/2 feet, and up hill 115 feet; thus there is 20 feet pressure. Now, what size pipe will it require to convey across this depression 150 inches of water; also, what sized pipe for 200 inches, and how heavy iron should it be made of? The friction is the thing that bothers. Will it make any difference to make the first half, or the half in which the water goes down hill, a little larger than the other half? A. A miner's inch is equal to the discharge of 1,562 cubic feet per minute under a head of 6 inches over the top of opening, 1 inch square; hence two miner's inches=3.124 cubic feet per minute. According to calculation a 3 1/2 inch diameter pipe, under the conditions given, will discharge 3.7 cubic feet per minute. Your pipe should be same diameter the whole length; and put together so as to have a smooth, even bore, otherwise the pipe should be larger. If the discharge opening is 2 inches square, it is four miner's inches, not two; in which case the pipe should be 3 1/2 inches diameter.

COMMUNICATIONS RECEIVED.

On a Maple Sugar Bush. By H. H. On Railroad Ties. By W. A.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were

Granted in the Week Ending

April 4, 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.

Table listing inventions with names and dates, such as Air and gas burner, combined, J. Lewis 255,875; Air compressor, W. Wang 255,901; Air machine, cold, H. F. Starbuck 255,895; Alkali, putting up caustic, B. T. Babbitt 256,095; Arm, artificial, D. W. Kolbe 255,796; Auger, earth, C. A. F. Peters 256,039; Bag fastener, C. W. Bradford 255,923; Baling band, hay and cotton, W. S. Gordon 255,983; Balloon, C. P. Fest 255,963; Ballot box, T. F. Dodge 255,951; Bar. See Boring bar; Battery. See Thermo-electric battery; Bed bottom, spring, T. Burdick 255,837; Bed, folding cot, C. J. Sundbeck 255,897

Table listing inventions with names and dates, such as Beer cooler, L. J. Birgler 255,758; Bicycle, A. F. Curtin 255,775; Binder, temporary, Brower & Adams (r) 10,073; Board. See Game board; Boiler. See Steam boiler; Boiler furnace, G. R. Ricketts 256,051; Bolts, apparatus for brushing polygonal, F. Stansfield 256,066; Boneblack revivifying kilns, cooler for, F. Wetton 255,828; Bookbinding, A. J. Megee 256,022; Boot and shoe soles, taps, and heels, manufacture of, J. L. Thomson 256,077; Boots and shoes, metallic counter support for, V. B. Morton 256,030; Boots and shoes, spring heel for, M. B. Kerr 255,871; Boring bar, L. R. Faught 255,846; Bottle stopper, C. Sedgwick 255,821; Bottle wrapper, Mark & Martinek (r) 10,069; Bottles, cushion protector for, J. M. Thorpe 255,900; Box. See Ballot box. Locomotive fire box; Box fastener, W. M. Ducker 255,952; Boxes, combined label holder and handle for, Croak & Moran 255,841; Bracket. See Curtain bracket; Brake. See Car brake. 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Murphy 255,805; Lamp bowls, centering and attaching sockets to, A. G. Paul 255,807; Lamp burner, E. L. Bryant 255,929; Lamp, electric, N. S. Keith 255,794; Lamp, electric, C. D. Jenney 255,999; Lamp, electric, J. J. Wood 256,091; Lamp, hanging, E. C. Lawrence (r) 10,075; Lathe for turning irregular forms, E. Myers 256,042; Lead, apparatus for the manufacture of red, N. B. Gregg 255,970; Lever, interlocking, H. F. Cox 255,774; Lifting jack, J. O. Joyce 256,002; Lightning arrester, A. R. Prescott 256,046; Link bending machine, metal, Evans & Green 256,104; Links, manufacture of open, D. Huits 255,866; Load binder, S. S. Conklin 255,941; Lock. See Nut lock. Nut and bolt lock; Locomotive fire box, Kearney & Hawley 255,869; Loom shedding mechanism, R. B. Goodyear 255,850; Loom shuttle, S. A. Dudley 255,958; Lounges, folding leg fixture for extension, J. Graeser 255,781; Lubricator, W. K. Rhodes 255,813; Malt drying apparatus, G. F. Burkhardt 255,769; Measuring beat supplied from steam, E. 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