

low clay, the dampness and bad odor only became apparent some five years after the filling in. A. Place vertical furring strips on the wall 12 inches apart, and lath and plaster it anew. 3. Could the dampness of the wall have been caused by grass growing alongside the wall on the outside? A. We think not. The dampness most probably comes up from the bottom of the wall by capillary attraction.

(25) A. C. asks: How can I make a steam siphon pump to raise water about 8 feet, using nothing but pipes and fittings? A. Such pumps, as ordinarily constructed, require nozzles of a peculiar form, and we scarcely think that you can accomplish the same object with common pipe fittings.

(26) H. & S. ask: 1. Do the journals of the crank shaft of an engine support the whole weight of the flywheel, or is it partly taken off by the centrifugal force? A. The whole weight of the wheel is in running balance. If it is unbalanced the centrifugal force will take off weight at one part of the stroke, and increase it at the other. 2. Our flywheel is 9 feet in diameter, with a rim 4 x 5 inches, which weighs 1,500 lbs. It is made in 12 segments, and bolted on 6 wooden arms 3 1/4 x 5 1/2 inches, made secure in a center by 12 bolts. Are we safe in running her at 100 revolutions? Size of engine is 10 x 20 inches, crank shaft 5 inches in diameter. A. Yes, if the wheel be well built.

(27) T. A. H. asks: What is diastase? A. During the germination of seeds, the starch undergoes a species of fermentation and is converted into a mixture of dextrin and sugar, in which state it is assimilated by the young shoots. This conversion is due to the action of the peculiar ferment termed diastase, which exists in all germinating seeds during the act of growth, being probably merely albumen or gluten in a peculiar stage of decomposition. An impure solution of diastase may be obtained readily from malt or freshly germinated barley by grinding it, moistening it with half its weight of warm water, allowing it to stand for a few minutes, and pressing out the liquid. Malt does not contain more than 1/10th of its weight of diastase. Diastase is not a commercial article.

(28) E. W. M. says: 1. Can you inform me through your valuable paper how an artesian well is sunk? A. Sometimes a drill like an auger is used. In rock, a drill is necessary. 2. Are drive pipes sunk in the same way as artesian wells? A. In the driven well, a tube is sunk as fast as the hole is bored. 3. How do you ascertain when you have struck water? A. The presence of water can be ascertained by sounding, or by the aid of a small pump. It is by no means certain that an artesian well can be struck in any locality simply by boring.

(29) A. W. G. asks: Can you tell me what will render horn transparent, or nearly so, and sufficiently soft to be cut with a knife? It must harden again when dry. A. Try muriatic acid.

(30) G. H. asks: 1. I wish to bring water from a spring 3,000 feet distant. There is a fall of 15 feet, and there will be a head of 2 feet where the water enters the pipe. What quantity per day would be conveyed through a pipe 1 inch in diameter, and to what height would the water be thrown at the lower end? A. The height to which the water will rise at the discharge end of the pipe will depend upon the velocity. According to Weisbach's formula, if the pipe is straight and smooth, you can raise the water about 14 feet for a discharge of 1/7 of a U. S. gallon per minute, or you can discharge about 2 1/4 gallons per minute at the lower level of the pipe. 2. Will iron gas pipe answer? A. Yes.

(31) J. E. D. asks: How high will water rise from a 1/4 inch or 1/2 inch jet if brought 1,200 feet in 1 inch pipe, with a fall of 18 feet? How many gallons per hour would flow through said jets? A. With a well shaped discharge jet, 1/4 inch in diameter, you can probably throw a stream from 10 to 12 feet high, and discharge about 60 U. S. gallons per hour.

(32) S. D. P. Jr. says: Is it a settled fact that our best turbines yield a greater percentage of power from the same amount of water than overshot wheels of the best construction, especially where the stream is variable? A. In the case of a variable stream, experiments seem to show that there is an advantage gained by using a good turbine. When the head and discharge are constant, the principal advantages of turbines over overshot wheels consist in less weight and greater velocity, so that less gearing is ordinarily required.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

G. A. C.—It is fool's gold (sulphide of iron).—H. M.—The scales are common potash mica. They are mixed up with sand and a little felspar.—J. K., Cal.—It is sulphate of lime.—J. K., Texas.—It is soda.—C. E.—It is dolomite.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On Steamships, Rigging, etc. By R. B. F.
On Naval Appointments. By C. J. W.
On Solar Phenomena. By C. T. G.
On an Intra-Mercurial Planet. By W. M. R.

Also inquiries and answers from the following: T. D.—R. W.—J. B.—G. M.—G. H.—D. L.—W. B.—G. J. D.—R. A.—S. O.—N. S. R.—C. S. P. F.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they

may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Who buys rabbit, raccoon, and muskrat skins? Who sells velocipedes? Who sells street car locomotives? Who makes match machinery? Who sells distilling apparatus?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending October 10, 1876.

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Table listing inventions with names and dates, including Acoustic telegraph, Adze eye hammers, Air brake, Air chamber for elevators, etc.

Table listing inventions with names and dates, including Furnaces, feeding steam to, Merryweather et al., Furrow gage, B. B. Hawse, Generation, sulphurous acid, W. Maynard, Girder, metallic, C. P. Haughian, Glue, preparing, J. H. & C. D. Ross, Grain meter, J. Fry, Grain separator, G. Leach, Grain vessels, unloading, G. Milson, Graining roller, E. A. F. Hart, Grate for limekilns, W. Gwynn, Grater and slicer, M. L. & C. M. Clinton, Gravity battery, M. W. Parish, Grinding mill, J. M. Collier, Grinding mill, B. G. Martin, Harness hames, eye for, G. J. Letchworth, Harness mounting, S. S. Sargeant, Harrow, C. L. Pierce, Harvester guard finger, J. Smith, Hat box board cutting machine, W. Jenkins, Hay elevator, J. Anderson, Heater, I. D. Smead, Heater for hot houses, J. F. Higgins, Heating stove, T. White, Hog trap, E. K. Jenkins, Hoisting and pumping, J. R. Weber, Horse hay rake, H. Myers, Horse hopple, J. F. Riesgraf, Horse muzzie, J. W. Gedney, Horses, detaching, J. H. Rogers, Horseshoe, E. Murrain, Horseshoe, V. Thust, Hydrant, D. T. Perkins, Hydraulic lift, J. Canan (r), Hydrocarbon, treating with, W. Adamson, Hygrometer, A. Meucci, Ice casket, Stewart & Gwaltney, Ice tool, F. Stafford, Ironing apparatus, J. T. Walker (r), Jigger, A. Rowse, Joint for paper packages, W. H. Murphy, Journal box, P. Sweeney, Key fastener, S. A. Hoadley, Key fastener, Whittemore & Slattery, Kitchen boiler, J. G. Knapp, Knob roses to locks, S. W. Drowne, Lampwick, A. Angell, Lifting jack, Scott & Goebel, Liquids, apparatus for delivering, H. C. Berry, Lock for doors, etc., H. Essex, Lock for drawers, etc., F. H. Young, Lockwork for clocks, J. W. Williams, Lubricating compound, J. W. Bartlett, Lubricator, T. Haynes, Lumber, compound, D. M. Cummings, Marine engine governor, Sangster et al., Metals, etc., coating, J. J. McCullough, Milk cooler, H. More, Milk pail, H. H. Kingsbury, Milk safe, C. Beam, Motor for cars, etc., A. P. Thayer, Mowing machine, J. Pine (r), Nail plate feeder, R. Van Amburgh, Netted under garment, C. H. Moeller, Nut lock, D. R. Baird, Nut lock, T. Weaver, Oil feeder, Carroll & Mott, Oiler for cans, J. H. Heal, Organ action, R. E. Letton, Ornamental lumber, etc., G. C. Setchell, Paper box, R. Trautmann, Paper-cutting machine, T. B. Dooley, Paper-feeding machine, Schofield & Baker, Paper-rolling machine, C. T. Bischof, Parlor fountain, J. Hegerty, Parlor skate, C. W. Saladee (r), Passenger register, Brown & Goodfellow, Permutation padlock, D. A. Root, Photographic printing frame, T. L. Ray, Pinch bar, M. G. Collins, Pipes, bending metal, J. McWilliams, Plow, J. R. Bucher, Plow, J. R. Newton, Plow, M. E. Ronat, Poison bottle, J. W. Bowles, Pottery kiln, W. S. Colwell, Printing press, W. W. Belknap, Printing telegraph, H. Ennis, Printing type, Stephenson et al (r), Projectile, C. G. Kellogg, Puddling furnace, S. Caddick, Pulverizing machine, E. S. Blake, Railroad rail, J. T. Clark, Railroad rail chair, W. S. Davis, Railroad switch, W. Buchanan, Railroad switch chair, D. C. Pierce, Railway gate, J. E. Akins, Reclining chair, L. V. Cobb, Refrigerator, I. Allegretti, Refrigerator, J. C. Jewett (r), Rein holder, J. E. Bryan, Reins, supporting, C. R. Hicks, Riding saddle, Gathright & Watson, Road scraper, B. Slusser, Rocking chair, W. Shaub, Rotary cultivator, S. Tadlock, Rotary knitting machine, W. H. H. Hollen, Safe, Farrel & Weimar (r), Sash pulley, H. S. Pomeroy, Scaffold, M. M. Harvey, School desk, W. B. Cogger, Screw-nicking machine, C. D. Rogers, Scroll-sawing machine, A. H. Shipman, Seed planter, J. H. Lee, Sewing machine, G. Funk, Sewing machine shuttle, W. Reid, Shaft coupling, G. E. Rider, Shoe, C. Hue, Show box, Kelly & Walker, Shutter worker, S. W. Merry, Sleeping car, W. Fette, Smoke consumer, D. G. Power, Snow plow, W. Cooke, Snow plow, W. Resley, Soap-making compound, Lewis & Menzies, Sphygmograph, E. A. Pond, Spice box, J. H. Adams, Spring bed bottom, J. Barron, Spring cleat for vessels, A. B. Cruickshank, Spring mortar, volute, R. Rhett, Stair builder's tool, T. Simonson, Steam carriage, J. M. Lauck, Steam engine, A. A. E. Lessignol, Steam generator, J. B. Herreshoff, Steel and iron, plate, C. P. Haughian, Stocking and skirt holder, A. Warren (r), Street lamp, J. W. Bartlett, Street lamp, W. R. Underhill, Stud, ear and other, A. Hessels, Sulky plow, J. L. Laughlin, Swimming plate, hand and foot, R. H. W. Dunlop, Table cutlery, J. D. Frary

Table listing inventions with names and dates, including Tag fastener, S. Baldwin, Teaching music, T. J. Allison, Tinfoil ingots, making, H. Selling, Toy gun, R. D. Townsend, Toy money box, J. Hall, Toy pistol, O. C. Butterveck, Track clearer, W. Dunbar, Transplanter, Bernard & Millvton, Trunk, C. M. Jenkins, Tube expander, A. Work, Tug for harness, safety, P. McFadden, Underground tube for propulsion, A. S. Hallidie (r), Valve for traps, G. Butler, Vehicle axle, J. M. Stone, Vehicle seat, W. F. Clark, Vehicle spring connection, H. W. Livingston, Vehicle, two wheeled, T. Snow, Ventilating bins, M. Randolph, Vise, C. Barnes (r), Washing machine, J. F. Blair, Washing machine, B. F. Fowler, Water column, A. R. Roberts, Water gage, T. J. Nottingham, Wheel cultivator, L. H. Hodges, Wick adjuster for lamps, J. L. Howard, Windmill, Burnham & Ruggles, Window screen, T. J. Cope, Wire bale tie, C. F. Washburn, Wood grinder for paper pulp, J. O. Gregg, Wood pavement, H. F. Williams, Wrench, M. Vassar, 2d.

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9,583.—BADGE.—V. Fountain, Jr., W. New Brighton, N. Y.
9,584 to 9,587.—INKSTANDS.—H. J. Miller, N. Y. city.
9,588.—PAPER BOXES.—J. E. Taylor, Springfield, Mass.
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