

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 7/10 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 3/4 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 diorite.

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 various inventions and their patent numbers, including items like Acoustic telegraph, Adze eye hammers, Air brake, etc.

Table listing various inventions and their patent numbers, including items like Furnaces, feeding steam to, Furrow gage, B. B. Hawse, Generation, sulphurous acid, W. Maynard, etc.

Table listing various inventions and their patent numbers, including items like Tag fastener, S. Baldwin, Teaching music, T. J. Allison, Tinfoil ingots, making, H. Selling, etc.

DISCLAIMER.

170,021.—WIRE FENCES.—T. Seabury, St. James, N. Y.

DESIGNS PATENTED.

- 9,580.—TYPES.—D. W. Bruce, New York city.
9,581.—TYPES.—D. W. Bruce, New York city.
9,582.—TYPES.—J. M. Conner, Greenville, N. J.
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.
9,589.—BELLS.—J. J. Lynch, Washington, D. C.

[A copy of any one of the above patents may be had by remitting one dollar to MUNN & Co., 37 Park Row, New York city.]

SCHEDULE OF PATENT FEES.

Table listing patent fees: On each caveat, \$10; On each Trademark, \$25; On filing each application for a Patent (17 years), \$15; etc.

THE VALIDITY OF PATENTS.

We recommend to every person who is about to purchase a patent, or about to commence the manufacture of any article under a license, to have the patent carefully examined by a competent party, and to have a research made in the Patent Office to see what the condition of the art was when the patent was issued. He should also see that the claims are so worded as to cover all the inventor was entitled to when his patent was issued; and it is still more essential that he be informed whether it is an infringement upon some other existing patent. Parties desiring to have such searches made can have them done through the Scientific American Patent Agency, by giving the date of the patent and stating the nature of the information desired. For further information, address MUNN & CO., 37 PARK ROW, New York.

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