

what to the break rolls. The flights of the conveyer are so constructed that the wheat will be carried from under the conveyer and thrown over the top to the opposite side, the grain being moistened by steam or water of condensation at a point above the conveyer, and the flights bringing the wheat in contact with the steam, while the grains are thoroughly mixed to render them all equally moist. The grains are also thoroughly warmed, the heat serving to maintain the moisture on the exterior of the grain.

CHURN OPERATING MECHANISM.—Zachariah A. Taylor, Bridgeport, Ala. For churning having a vertically movable dasher, this inventor has devised an operating mechanism consisting of a suitably mounted drive shaft geared with a countershaft whose gear carries a series of pins adapted to engage an arm on a vertically movable cross head, the pins thus raising the cross head as the gear is revolved, and the cross head, which is connected with the dasher, being quickly returned by means of springs. Owing to the regularity of the stroke, the cream is not splashed or wasted, and the butter is quickly formed. The mechanism is simple and designed to be operated by a treadle.

JAR CLAMP.—Frank H. Palmer, Brooklyn, N. Y. According to this invention a ring-shaped frame seated on the jar cover has downwardly extending arms carrying lugs adapted to engage a flange on the neck of the jar, and on the top of the frame are lugs in which is held a spring rod on which is fulcrumed a cam with a friction roller in its cam end. By means of the cam lever the clamp is readily applied, the spring rod yielding sufficiently to prevent the cracking or breaking of glass, porcelain, etc., when the cover is clamped on the jar.

SANITARY PAIL.—Charles M. D. Baron, New York City. This invention covers an improvement in the construction of a pail on which a patent was formerly granted to the same inventor, greatly lessening the cost of manufacture and providing an airtight cover for an ordinary pail, to be readily secured in place by means of the bail. The cover is light and strong, and the handle on the bail acts as a locking roller for the cover.

Designs.

GRIP FOR SKIRTS, ETC.—Ella L. Cole, New York City. To hold a belt in close engagement with a skirt or trousers, this device has one depending shank adapted to go outside the belt and another depending shank on which are twin spurs or hooks.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

ALASKA: Its History and Resources, Gold Fields, Routes, and Scenery. By Miner W. Bruce. Illustrated. New York: Frederick Warne & Company, 3 Cooper Union. Pp. 128. Cloth \$1.25. Paper edition 75 cents.

Many want to know about Alaska, what the much debated country is, what is its climate, its conditions of life and different industries. This desire, the present book, with beautiful illustrations and really attractive text, will excellently supply. There is much that is practical and popular in it, such as the descriptions of the Indians, with their mode of life, with their boats, clothing, etc., all of which is in the line of the most attractive kind of anthropology. The illustrations from photographs are especially good, and say a great deal for the clear atmosphere of the country. One of \$1.25, 10:30 P. M., speaking eloquently of the long Arctic twilight.

HOW TO DO BUSINESS. By Seymour Eaton, of the Drexel Institute, Philadelphia. Philadelphia: P. W. Ziegler & Company. Pages 334.

This is, in many senses, an up-to-date book, bright, original, and full of information not generally found heretofore in books of this class. Modern methods of banking and making collections; the business in negotiable papers, stocks, bonds, and other securities; insurance; importing, exporting, shipping, and warehousing; margin trading; business correspondence; short cuts in figures; doing business by telegraph, and modern bookkeeping ideas, form the subjects of some of the most important chapters. For a young man wanting to understand how business in general is conducted in the great commercial centers, this book, thoroughly mastered, affords a "short cut" to a most serviceable stock of information. Its author is Director of the Department of Industry and Finance of the Drexel Institute, and the book has questions for the subject matter of each chapter, thus adapting it for use in commercial schools and business colleges.

THE ENGINEERING INDEX. Vol. II. 1892-1895. New York: The Engineering Magazine. Pages 474. Price \$4.

This volume, and the one preceding it, form a classified index to the engineering literature in the periodical press for the past eleven years. The work was begun by the Association of Engineering Societies, and is now being carried out by the Engineering Magazine, it being designed to publish an annual volume hereafter.

A MANUAL OF STEAM BOILERS. Their Design, Construction, and Operation. By Dr. R. H. Thurston, Sibley College, Cornell University. New York: John Wiley & Sons. Pages 879. Price \$5.

This is the fifth edition, revised and enlarged, of a well known standard work for technical schools and engineers, designed to be a fairly complete, systematic, and scientific treatise, while yet meeting the practical wants of an engineer laying out work. Dr. Thurston is also the author of a "History of the Steam Engine," "Engine and Boiler Trials," "Materials of Engineering," and other works in this line, and for the past quarter of a century has been recognized as one of our leading authorities in mechanical engineering.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion: about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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Wet Tool Grinder, Sensitive Drills, for all light work, especially adapted for Bicycle work. C. N. Cady, Canastota, N. Y.

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Notes & Queries

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.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.

(6957) W. E. K. says: Will you kindly give me a recipe for preserving cider, in your Notes and Queries? A. Professional cider makers are now using calcium sulphite (sulphite of lime), instead of mustard and sulphurous oxide gas. It is much more convenient and effectual. To use it, it is simply requisite to add 1/2 to 3/4 of an ounce of the sulphite to each gallon of cider in the cask, first mixing the powder in about a quart of the cider, then pouring it back into the cask and giving the latter a thorough shaking or rolling. After standing bunged several days to allow the sulphite to exert its full action, it may be bottled off. The sulphite of lime (which should not be mistaken for the sulphate of lime) is a commercial article. It will preserve the sweetness of the cider perfectly, but unless care is taken not to add too much of it, it will impart a slight sulphurous taste to the cider. The bottles and corks used should be perfectly clean, and the corks wired down. A little cinnamon, wintergreen, or saffraas, etc., is often added to sweeten the cider in the bottle, together with a drachm or so of bicarbonate of soda at the moment of driving the stopper. This helps to neutralize the acids, and renders the liquid effervescent when unstopped; but if used in excess, it may prejudicially affect the taste.

(6958) H. R. S. says: Will you please publish the receipt for making a flour paste? A. T. A. Richardson, the architect, recommends to every 2 tablespoonfuls of the best wheat flour to add a teaspoonful of common moist or brown sugar, and a few drops corrosive sublimate; the whole to be boiled, and continually stirred to prevent getting lumpy, till of the right thickness. To prevent mouldiness, a few drops of some essential oil, as lavender or peppermint.

(6959) J. C. W. says: Would you be so kind as to send me your formula for browning blue prints with tannic acid and caustic potash, which came out in your valuable paper, at your earliest possible convenience? A. Immerse the blue print after it is dried in a solution of aqua ammonia containing 22 per cent am. gas, 2 parts; distilled water, 18 parts. Leave the print in this solution from two to four minutes, or until the blue color entirely disappears, then rinse in clear water, and plunge in a filtered solution of tannic acid, 2 parts; distilled water, 100 parts. Keep in this solution about twelve hours. If not as dark as desired, intensify by adding to the bath a few drops of ammonia water. Take out after a few minutes and wash thoroughly. The prints resemble sepia drawings. A greenish tone may be given blue prints by immersing after washing in a 1 per cent solution of sulphuric acid.

(6960) W. C. W. says: Will you please give me receipt for a good wine of coca? A. This is a French preparation. Its strength is about 1 in 30, and the doses a wineglassful. Coca wine is, roughly speaking, about one-sixth of the strength of the official liquid extract (Extractum Cocae Liquidum B. P., or Extractum Erythroxyl Fluidum U. S.). To obtain the liquid extract, coca leaves are exhausted by percolation (which differs from either decoction or infusion) with proof spirit. At the termination of the process the strength should be adjusted so that 1 ounce = 1 of leaves. The process of percolation is as follows: The leaves are placed in a vessel very like an elongated funnel, closed at its base by a porous diaphragm. This funnel fits into a receiver, and a small tube passes up its outer side and enters it near the top, forming a means of communication between the two. Spirit is now poured on the leaves, and the percolator closed. As the percolate filters slowly through into the reservoir, the displaced air passes up the tube, and so maintains an equilibrium in both vessels. The virtue of the coca leaves lies principally in the presence of the alkaloid cocaine. This, in the dried leaves, is supposed to exist as an inert salt, similar to many of the cinchona alkaloids in bark.

(6961) M. H. R. says: I have a 12 inch reflecting telescope, 72 inch focus. What diameter and strength of concave lens is required to make an amplifier, or "Barlow" lens to be used with the telescope, to enable me to take photographs of the moon? And will it make any difference as to which side of the lens is put next to the eyepiece? A. It will depend on the mount or tube of the telescope as to where the amplifier can be placed. The nearer the focus the smaller diameter it can be. As to focus, it will depend on how much amplification is wanted. The general size of a Barlow lens is 1 inch diameter and 6 inches focus. If it is correctly made for photographing, it will not make any difference which side is in.

(6962) H. S. writes: Some weeks ago there was published in your weekly an exhaustive article on the heat-resisting powers of different materials suitable for steam boilers and pipe coverings. I am in a dispute as to the merits of hair or asbestos covering. So I want to right myself before deciding. A. We give the relative values of different materials. We give following tests of Mr. G. B. Dumford, of Hamilton, Ont.

Table with 2 columns: Material and Per cent. Includes items like Combination of asbestos, hair felt, air space and wood (100%), Asbestos and hair felt and chopped straw (87%), etc.

(6963) F. F. says: Please be so kind as to inform me how to polish cattle horns. A. First scrape with glass to take off any roughness, then grind some pumice stone to powder, and with a piece of cloth wetted and dipped in the powder, rub them until a smooth face is obtained. Next polish with rottenstone and lineeed oil, and finish with dry flour and a piece of clean linen rag. The more rubbing with the stone and oil, the better the polish. Trent sand is used in the Sheffield factories. It is a very fine and sharp sand, and is prepared for use by calcining and sifting.

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INDEX OF INVENTIONS For which Letters Patent of the United States were Granted September 8, 1896, AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Large index table listing various inventions such as Advertising device, Aerial dancing apparatus, Air brake, Almond huller, etc., with corresponding patent numbers.

Continuation of the index table from the previous block, listing inventions like Brake shoe, Brick carrier, Brick rougher, etc., with corresponding patent numbers.