warehouses or granaries, but may be used for handling coal or other commodities. The box or bucket has a hinged bottom and securing link, while the bail has a projecting steering arm which may be adjusted to and secured in any desired position, a tripping rope serving also as a steering rope.

TOBACCO STEMMING MACHINE.—Milton C. Baughan, Richmond, Va. This invention provides a mechanism whereby the spread leaf is folded and carried forward, turned at right angles to bring it into alignment with the belts of infeeding devices, and is then stemmed in a manner closely resembling the way the work is done by hand, the tobacco being handled from the point or tip end of the leaf. The stem is effectually removed, whether it be intact and unbroken from end to end or broken or cracked in one or more places.

MUSICAL INSTRUMENT PEDAL.—Frank H. Dernell and Phillip H. Brehmer, Rutland, Vt. This invention provides an organ pedal attachment for pianos which may be disconnected in a ready and convenient manner and folded up to occupy but little space, the attachment being so made as not to detract in the least from the appearance of the instrument and enabling any one who has a piano to secure church organ practice at home.

ATTACHMENT FOR STRINGED INSTRUMENTS.—Justus L. Kelman, Maroa, Ill. For guitars, mandolins, banjos, etc., this inventor has devised an attachment to permit the performer to conveniently press a number of strings and readily sound the chord when the corresponding stringe are picked. Arranged in a suitable frame are sets of pressers, each adapted to press a set of strings into chord position, bars actuating the pressers and keys actuating the bars, sets of levers engaging the bars being actuated from the keys, and each lever being provided with adjustable blocks for engagement with the corresponding bar.

CLASP.—Jennie Walker, Brooklyn, N. Y. This is a device more especially designed for use with shoestrings, laces, etc., the clasp holding the bow of the lace at one or more points so that it will not become untied. It comprises a body on which are fastening devices, a cover entirely embracing the body, and the edges of the cover, together with the bottom of the body, being arranged for contact with the surface to which the clasp is applied. The clasp is smooth upon all sides, having neither end nor side projections or roughnesses of any kind to catch in the clothing.

SASH LOCK.—Richard A. Haegelin, St. Joseph, Mo. This is a strong and simple device for conveniently locking the sash closed or in any desired position, supporting it equally at both sides and preventing rattling. It consists principally of bolts adapted to engage with their free ends the window frame, toggle levers connected with the bolts, and a device for opening and closing the toggle levers toward or from each other, to carry their free ends out of or into engagement with the window frame.

STOVE.—Chauncey T. Andreas, Bayfield, Wis. This is an improvement in stoves having air heating tubes or flues arranged in the combustion chamber, there being two series of vertical air flues arranged opposite each other within the casing, a rear vertical outlet flue having two lateral openings at the bottom, a central opening at the top, and a central air inlet at the front, which extends down to the bottom of the combustion chamber.

COOKER.—Annis B. Eighmy, Clifton Springs, N. Y. A main chamber and a water chamber in this cooker are separated by a vertical partition, the chambers having a common bottom beneath which is a hot air chamber. The main chamber has a diaphragm to support vessels, a vertical air tube extending above the diaphragm, and a second diaphragm being placed above the air tube, with other novel features, the cooker being provided with compartments and receptacles which may be used for boiling, baking, steaming, and any process ordinarily followed in cooking.

WATER CLOSET FLUSHING ETC.—William A. Eberhart, Asbury Park, N. J. The apparatus provided by this invention comprises a tank having a discharge pipe to the upper end of which is secured a cap, but spaced from the pipe sufficiently to allow water to flow between the pipe and cap, while a vertically movable inverted cup has guided movement on the cap, the apparatus being designed to secure the positive discharge of the full quantity of water it is intended to supply at each flushing operation.

APPLYING REMEDIES.—Paul J. Fouquier, San Francisco, Cal. This invention comprises a simple appliance for holding lozenges, pastils, medicines, antiseptics, etc., in the mouth in such manner that they may be retained there for a considerable length of time until they are gradually dissolved or inhaled.

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, ETC.

VALVES AND VALVE GEARING. A practical text book for the use of engineers, draughtsmen and students. By Charles Hurst. With numerous illustrations and four folding plates. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 1897. Pp. 135. Price $3.

The author has succeeded in his expressed intention to deal with the subject of valve gearing in a simple and interesting manner. Without any unnecessary preamble, he commences with a clear explanation of simple valve gear and gives formulæ for finding the area of ports, the lead, cutoff, percentage of release and compression, etc. Chapter I deals with slide expansion gears, and then follow two chapters on link motions and other reversing gears. This concludes Part No. I. The second part is devoted to Corliss valves, and the four chapters deal successively with gears without trip motion; single eccentric gears with trip motions; double eccentric gears, with trip motions; and single eccentric gears, with large range of trip. The work is free from any elaborate theoretical discussions, and the explanations of the various types of valve gear are accompanied by diagrams and sectional views of the parts which render them easily understood. The book is admirably suited to the needs of the practical mechanic.

THE CALCULUS FOR ENGINEERS. By John Perry. London and New York: Edward Arnold. 1897. Pp. 378. Price $2.50.

This is an excellent work on the calculus for mechanical and electrical engineering students, and includes what has been the most important part of the regular course in the Finsbury Technical College. It has been supplanted by easy work from other authors. The chapters are devoted to the study of x^n; compound interest law, the harmonic function and general differentiation and integration. Another book on the calculus has been needed for some little time, and the present work fills a long felt want.

BILDER FRAN SVERIGE. Utgifna af Avenska Turistföreningen. Views of Sweden, published by the Swedish Touring Club. Leipzig: R. F. Koehler. Pp. 110.

This is a pamphlet filled with exquisite half tone illustrations of the scenery of Sweden, both in town and country. It is little wonder that Sweden is considered one of the choicest resorts for tourists which the civilized world has to offer. The Swedish Touring Club is to be congratulated in the production of this handsome book.

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(7212) W. H. M. writes: I have your "Experimental Science," by George M. Hopkins, from which I have made the simple electric motor, the hand power dynamo, induction coil, camera and telephone, with very gratifying success in each instance, and am now building the easily made telescope. 1. Now what I wish to know is this: On the astronomical eyepiece you say the eye lens should be ½ inch focus, the field lens 1½ inch focus, and distance apart 1 inch. Now is this distance measured from the plane face of each lens or from the convex side of the eye lens to the plane face of field lens? A. The 1 inch is the distance between the lenses, i. e., the clear space. 2. Also where can I get the necessary focus and distance apart of lenses for the stronger astronomical eyepiece that you suggest should be made for the instrument? I am using the 2½ inch meniscus lens for objective. A. The eyepiece is called in the books the Huygenian or negative eyepiece, in which the curved faces of both lenses are turned away from the eye. In this eyepiece the ratio of focal lengths of the lenses is always 3:1 and the distance between is half the sum of the focal lengths. For a stronger eyepiece you might use lenses whose focal lengths are 1 inch and ⅓ inch, and place them ⅔ inch apart. You will find these rules in the "Encyclopedia Britannica," vol. 23, page 143. This you can see in some library in your city, without doubt. 3. Where can I get information necessary to build a microscope? I mean, of course, a fairly powerful one that will show the animal life in water. A. We would suggest that the best way for you to get the dimensions of a compound microscope is to seek the professor of physics in one of the colleges or high schools, and tell him what you have done and wish to do. You will probably find him willing to help you and to allow you to measure and copy his instruments.

(7213) N. N. asks: Can you tell me if there is any way of preserving flowers so as to retain their color and shape? A. Valuable information on the subject of your query will be found in SCIENTIFIC AMERICAN, No. 23, vol. 66, also SUPPLEMENT, Nos. 745 and 1078. Price 10 cents each by mail.

(7214) W. L B. asks: (1) Can I obtain more voltage from a Leclanche battery by adding an extra amount of sal ammoniac to solution of standard strength? A. No. (2) What effect would it have? A. The solution should be saturated, and any extra amount would settle to the bottom of the cell in solid form. It injures the cell. (3) If I put in an extra amount of water, and sal ammoniac in proportion, will I obtain greater amperage; and if I put in only enough solution (standard strength) to cover but one inch of the zinc and carbon, will I have the same voltage as if the ordinary amount is used? A. Answer to both parts of question, yes. The voltage is the same, no matter how little, of only one or of both plates are in the liquid. The amperage increases proportionally to the increase in the area of the plates, because the resistance decreases in proportion to the increase in the area of the plates. (4) Will an ordinary one horse tread power be sufficient to run an eight light dynamo? and would the power be sufficiently steady? A. It would run the dynamo, but a horse power will not run a dynamo steadily enough to light lamps.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

SEPTEMBER 14, 1897,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

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