

thus be hermetically coupled, even though they be of different diameters.

PACKAGE FOR PERCOLATING COFFEE.—HENRY M. HUMPHREY, Plainfield, N. J. This invention provides an improvement upon the Humphrey percolator-package which has been described in our columns. The improvements embody a metallic seal for the mouth of the coffee-containing bag, which seal can be partially bent over so as to open the mouth and provide a hook for suspending the bag from the edge of the coffee-pot. Hot water is then poured into the bag and permitted to percolate through the coffee and into the pot.

GATE.—OLAUS B. JACOBS, Roland, Iowa. The invention provides a barrier for gateways in stock-fences or other inclosures that will permit the larger stock to pass through, but will effectually retain hogs, sheep, and other short-legged animals. The gate or barrier comprises a frame and palings in series in the frame, the frame having passage-ways between them and spaced and arranged to permit the passage of animals having long legs and to constitute a barrier for animals having short legs.

MEDICAMENT-CARRIER.—CHARLES M. JONES and ALEXANDER LE ROY HARVEY, Baxter Springs, Kan. This surgical appliance consists of a flexible band between the ends of which a connecting elastic strip extends. Cover-straps are secured over the outer faces of the ends of the band and over the flexible strip to secure the flexible strip to the band.

CHURN.—WILLIAM F. FRIBLEY, Bourbon, Ind. The cover portion of the churn is provided with a funnel portion having a top comprising two segmental frames pivotally connected at one side to swing relatively to each other. Each of the sections has a strainer; and through openings formed in the sections a dasher rod is movable, having connection with a mechanism, the operation of which requires but little muscular power.

CHURN-DASHER.—WILLIAM H. SWAN, Kankakee, Ill. The churn-handle is provided with a set of rotary dashers so constructed that in churning, the dashers will rotate in opposite directions and their motion will be automatically reversed by the up-and-down movement of the handle. The churn can be filled nearly to the top since the dasher does not splash the cream.

SKIRT AND BELT SUPPORTER.—ALICE M. TULLY, Manhattan, New York city. The supporter consists of a safety-pin adapted for engagement with a waist and provided with a hook, and a second safety-pin adapted for engagement with a skirt-band and having an eye arranged for insertion over the hook whereby to hold the waist and skirt detachably connected. The point of the hook is adapted to enter the inside of a belt whereby the belt is held in place and the eye is prevented from coming off the hook so long as the belt is in place.

SHOE-DISPLAYING DEVICE.—DONALD S. BET-CONE, Indianapolis, Ind. The device is particularly adapted for the use of traveling salesmen and is inclosed in a trunk for shipment. The invention consists of a wheel having shelves to which shoes may be fastened and which may be secured to the wheel either in tangential or radial positions, according as it is desired to display the shoes or prepare the device for shipment.

BUNG.—JACOB CONRAD, Chicago, Ill. This improved barrel-bung can be readily applied and used with or without a bushing, and is designed to prevent the opening of the barrel during transit. The bung has a cylindrical casing loosely fitting in the hole and having internal threads receiving a hollow screw with inwardly-extended ribs running longitudinally therewith and adapted to be engaged by a key. Beyond the casing the inner end of a screw projects, which end loosely receives a rivet carrying a presser-plate. A yielding gasket loosely surrounds the inner portion of the screw and casing and is engaged by the presser-plate, so that as the screw is drawn into the casing the gasket is expanded to close the bung-hole. The bung-hole can be opened only by the key.

WATER-HEATER.—MICHAEL E. HERBERT, Jr., 240 to 252 Root Street, Chicago, Ill. The device is a water-heater for baths and domestic purposes. It employs a water-jacketed feeding-magazine and comprises a boiler made in two main parts, the upper of which has a pendant annular water-chamber and the lower of which incloses or forms the fire-box. These two parts are connected by a series of vertical pipes.

WAGON-BODY LIFTER.—HON. ORLO H. DRINK-WATER, Cottonwood Falls, Kan. The wagon-body lifter comprises sills and a toggle-arm having its side bars pivoted at their upper ends to the pivoted toggle-arm. Rollers operate on the sills. Great power can be exerted to lift the body from the running gear, the running-gear itself being caused, to transmit the power. The lifter is adapted for bodies of different sizes.

CALCULATOR.—WILLIAM D. CONKLIN, Rutherford, N. J. The calculator is designed to reckon wages, the wage per hour, day, or week, and the number of hours of service given. The calculator comprises a base-plate provided with sets of guideways arranged one above the other and at right angles to each other. Imperforate plates slide in the lower set of the guideways; and each bears numbers representing the amounts of pay due for a certain number of hours and indexed to indicate the hours served. Perforated plates slide in the upper set of guideways, each indicating the amount of wages for a given time. A perforated face-plate is placed above the sliding plates.

Designs.

BOX.—LEOPOLD AUERBACH, Manhattan, New York city. The box is designed to contain candy, is cylindrical in shape, and is covered by a medallion on which the head of Columbus is produced.

HINGE FOR DOOR-HANGERS.—JOHN C. GABEL, Jr., Onarga, Ill. The hinge is of novel construction and provides a means for suspending the carriages of sliding-doors, especially freight car doors. The hanger is designed to be used in connection with a sliding-door devised by the same inventor.

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(7734) H. E. B. asks for a list of the twenty-four inventions and discoveries of highest rank made during this century, alluded to in Horace C. Hovey's article on the American Association for the Advancement of Science, in our issue of September 2. A. The list, as enumerated by Prof. Edward Orton, in his address before the association, is stated to be as follows:

- 1.—Railroads, 15.—Molecular Theory of Gases, 2.—Steamships, 16.—, 3.—The Telegraph, 17.—, 4.—The Telephone, 18.—The Periodic Law in Chemistry, 5.—, 19.—, 6.—, 20.—The Glacial Epoch, 7.—, 21.—The Antiquity of Man, 8.—, 22.—Organic Evolution, 9.—The Phonograph, 23.—Cell Theory and Embryology, 10.—The Roentgen Rays, 24.—Germ Theory of Disease, 11.—The Spectroscope, 12.—Anesthetics, 13.—Antiseptic Surgery, 14.—Conservation of Force, ease.

He remarked that he had quoted from Alfred R. Wallace's classification. Wallace's numbers 5, 6, 7 and 8 are thus filled:

- 5.—Lucifer Matches, 7.—Electric Lighting, 6.—Gas Illumination, 8.—Photography.

Prof. Orton added Lord Kelvin's "Vortex Theory of Matter" and the "Nebular Theory." The latter, as in the same range with Wallace's No. 19, "The Meteoritic Theory." His No. 16 is the "Velocity of Light Directly Measured," and his No. 17 is "The Uses of Dust." He called attention to the obvious fact that the personal equation of the author of such a list would appear in the selection of the great advances.

(7735) J. K. L. asks: If a person wishes to become an electrician and knows nothing of the subject, what book should he start with? A. If a person knows nothing of electricity, the best book to study first is probably Thompson's "Elementary Lessons in Electricity and Magnetism," price \$1.40 by mail. This book employs no mathematics beyond algebra. We are inclined to think that the best course for one who wishes to gain a working knowledge of electricity in order to be an electrician is to take the course in one of the best correspondence schools. He will there be taught practically rather than theoretically. This is almost the only course open to one living remote from colleges, or one so situated that he cannot stop working and earning while he is learning his new subject.

(7736) J. S. writes: I wish to get a chemical in powder or liquid form, that will absorb heat quickly, and when heated, to retain a high temperature for say twenty-four hours or so when confined. Will you kindly send me the best formula? A. We do not know any substance which will heat quickly and also retain heat for a very long time. The two requirements are antagonistic to each other. Sodium nitrate fused will give off a great deal of heat in cooling, but it will corrode the vessel in which it is contained. Air slaked lime may be raised to a very high temperature.

(7737) H. B. asks: Which is the best iron to use on transformers and alternating current motors? A. Any good soft wrought iron is suitable for the core of a transformer.

NEW BOOKS, ETC.

CHRISTIAN SCIENCE AND OTHER SUPERSTITIONS. Being selected from "Faith-Healing, Christian Science, and Kindred Phenomena." By J. M. Buckley, LL.D. New York: The Century Company. 1899. Pp. 128.

METRIC TABLES. By Sir Guilford L. Molesworth. London and New York: Spies & Chamberlain. 1899. 24mo. Pp. 86. Price 80 cents.

This is the third edition of a handy little book on metric tables. The equivalents are arranged so that they can be readily handled by those who have to convert measures.

THE TEACHING BOTANIST. A Manual of Information upon Botanical Instruction. By William F. Ganong, Ph.D. New York: The Macmillan Company. 1899. 12mo. Pp. 270. Price \$1.10.

As its title implies this work is addressed to the teaching botanist and serves as a manual of information upon botanical instruction and deals with its elementary presentation as a science. The work will certainly prove of great value to all teachers of botany, giving as it does clear instruction as to scientific drawing and description, laboratories and their equipment, botanical collections, botanical books and their use and many other interesting things which it would be difficult for the teacher to find in convenient form.

PHYSICAL NATURE OF CHILDREN AND HOW TO STUDY IT. By Stuart H. Rowe, Ph.D. New York: The Macmillan Company. 1899. 12mo. Pp. 206. Price \$1.

The tests which the author outlines may be made in a comparatively short time and will be a great help in solving some of the individual problems which present themselves to every teacher. The book deals with sight, hearing, manner, ability, enunciation, nervousness, fatigue, diseases, habits of posture, movement, etc. When we examine a modern book on pedagogy like the present volume, it is a revelation of modern methods of instruction, and we can but feel that the older methods must have had a great deal of cruelty connected with them, because the teachers themselves were unfamiliar with the physical nature of children. The book is a most admirable contribution to the literature of teaching.

TO INVENTORS.

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