is customary to place crucibles in the muffle, back of the cupels, to keep them and the metal sufficiently cool for cupeilation; but the placing and adjustment of such crucibles requires a great expense of time and labor, which it is the purpose of this invention to obviate. A draft-partition is employed, having transverse draftopenings, one for each cupel, the bottom wall of the opening being below the top of the cupel in front of the opening. A tile-cover is employed, the ends of which project over the cupels and shield them from the heat in the back of the muffle and allow the cool air to collect and pass through the partition openings.

ORE-SEPARATOR .- WILLIAM HOOPER, Ticonderoga, N. Y. This device is designed to separate gold from sand or gravel without the use of water. A flexible bed is secured to an inclined frame and is inclined down to the sides. A series of separating-strips on the upper surface of the bed form channels to receive the heavier particles and direct them to the outer ends of the strips. Plates extending longitudinally of the bed at each side and above the strips form a central conduit. A second series of separator-strips of greater width than the first serve to direct the sand or tailings from each side of the bed to the central conduit.

REIN-SUPPORT .- JOHN G. RYCKMAN, Knappa, Ore To the bridle a strap is secured by one end, the other end being attached to the hames. A ring is secured to the central portion of the strap; and through the ring the driving-rein passes, whereby a support for the rein will be provided a short distance from and in front of the hames The attachment does not in any way interfere with the action of the reins upon a bit and renders it well nigh impossible for the reins to become entangled with or pass under the pole or tongue of the vehicle. The rein guard is adjustable to any size harness an1 contains no springs or bars to injure the horse.

EGG-SEPARATOR. - JOHN A. BURNS, Woodbine, Iowa. It is the object of this invention to provide an apparatus for separating eggs from the filling materialbran, oats, etc.-in which they are packed and shipped. The egg-separator has a hopper and a rocking cradle with a semicircular reticulated bottom. A slidable egg holder having a semicircular form is fitted in the cradle. In separating eggs, a woven wire cover is drawn over the cradle and egg-box, to hold the eggs while the box is heing inverted, the slidable holder being adjusted to prevent the spreading of the eggs. The filling passes through to the hopper and is discharged.

GASOMETER.-WILLIAM F. COOPER, Meriden, Conn The inventor of this gasometer has sought to dispense with the usual water-seal and to give the bell a larger range of movement to adapt it for acetylene generators. The invention consists in the special arrangement of two receptacles which telescope or nest, one within the other, and a peculiar connecting-skirt of impervious elastic material connecting the edges of the two members of the gasometer and forming an annular sheath in which the gas is contained in the form of an annular film.

BARREL-SHIELD.-WILLIAM A. FRASIER, Guthrie Oklahoma Territory. To provide a cover for barrels such as are used in grocery stores, the inventor has devised a shield of tin, zinc, sheet-iron, paper, or other suitable material, plated or japanned in colors and lettered to indicate the contents of the barrel.

CHOKE-BORE ATTACHMENT FOR GUNS.-RAN DOLPH P. CORY, St. Louis, Mo. This device is an improvement on a choke-attachment patented by the same inventor; and the present invention provides a means whereby the fastening strain in securing the choke-at tachment to the gun-barrel is exerted in lines parallel with the axis of the barrel and choke-section. choke-section links are pivoted, provided with latchdevices, the links being adjusted at their pivotsl connection with the choke-section by set-screws. In latched position the parts lie parallel with the length of the choke-section, so that the strains are not torsional but are exerted in straight lines.

SASH-HOLDER. - SCOTT A. MORROW and JARRET C. HALCOM, Commerce, Tex. In suitable recesses in the stiles of a sash, springs are held so that they will extend in a direction away from the stile and at an oblique angle to the side edges of the stiles. Friction-rollers on the free ends of the springs engage the guide-strip with their peripheries and the window-frame with their side faces. The holder acts as a guard against the admission of dust, air, or rain, and is hence particularly applicable to railway-cars.

FOLDING COT. - JAMES H. MARTINDALE, FOR Worth, Tex. The object of the invention is to improve the corner irons or brackets connecting the end and side bars and the legs, so that these parts will be rigidly held in their operative position. The frame is so constructed that the legs may be folded inwardly into longitudinal alinement with each other upon the nuder sides of its end bars; and the removable side bars are formed in two hinged parts of equal length with each section of about the length of the end bars, so that when the side bars on edge, one end fastened in a wall from which the stick arc removed, folded, and laid parallel with the end bars projects horizontally with a weight hung from the outer

ant.

## SOMETHING TO REMEMBER.

Some of the simplest things in the world are the most efficacious. Now, for instance, if you are afraid of lightning, here's a very simple safeguard to remember-simply put on your rubbers and then stand up so that your clothes won't touch anywhere. Whether you're indoors or out of doors you're perfectly safe, for rubber is a nonconductor and you are completely insulated. This is worth remembering.

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"I inerals sent for examination should be distinctly marked or labeled.

(7726) H. P. W. asks: Which will stand the heaviest current of electricity, silver, platinum, or Mushet steel, without fusing or burning up? A. Platinum has the highest melting point of any of the metals ordinarily used in electrical work. It will therefore carry the heaviest current without melting, the wires being of the same size.

(7727) W. R. M. asks the use of and market value of columbium, niobium, or titanium minerals. A. The cost of niobium or columbium, as it is sometime called, is \$7.50 for a 15 grain phial. Titanium costs \$2.50 for a 15 grain phial.

(7728) C. G. writes: 1. I have a small motor which runs fairly well, but as a dynamo it will give no current at all. Could you tell me why it will not generate a current ? A. The reason your small motor will not generate current when run as a dynamo is that its current is too weak to magnetize the fields. This is usually the case with such motors. They were not designed for generators. 2. Explain why a deal is stronger on its edge than on its flat. A. Your second question regarding the strength of a deal is not easily answered in a few words. Imagine a stick 2×10 inches

then be dissolved in alcohol, ether, or water, according to the effect which it is desired to produce, a slightly different effect being produced by each of the solu tions. Apply the solution of platinum with a camel's hair brush, and repeat the operation as often as may be necessary to increase the depth of tone. A single application is frequently sufficient. The ethereal or alcoholic solution of platinum must be kept in a well stoppered bottle, and in a cool place. The aqueous solution of platinum should be applied hot. 2. Oxidizing Copper and Brass.-Immerse the articles in a solution of 2 ounces iron nitrate and 2 ounces sodium hyposulphite to 1 pint of water, until the desired shade of oxidation is acquired, then wash, dry, and brush.

### NEW BOOKS. ETC.

THE PSYCHOLOGY OF REASONING. Based on Experimental Researches in Hyp-notism. By Alfred Binet. Chicago: The Open Court Publishing Com-pany. 1899. Pp. 188. Price 75 cents. The publishers have done a signal service in translating the works of Binet and other great psychologists and sending them out in cheap form. We feel sure that this book will appeal to a large number of our readers who are interested in both psychology and hypnotism. THE SALMON AND SALMON FISHERIES OF ALASKA. Report of the Opera-tions of the United States Fish Com-mission Steamer "Albatross," for the Year ending June 30, 1899. By Com-mander Jefferson F. Moser, U. S. N. Washington : Government Printing Washington : Government Printing Office. 1899. Pp. 178. Like all publications of the United States Commission of Fish and Fisheries, it is a most interesting volume, and is freely illustrated with half-tone engravings. The salmon fisherles have obtained such enormous proportions that the commission is wise in bringing out a monograph on the subject which is exhaustive and import-THE SOLUBLE FERMENTS AND FERMEN-TATION. By J. Reynolds Green, Sc. D., F.R.S. Cambridge : The University Press. American Publishers : The Macmillan Company. 1899. Pp. 480. Price, \$3. Various problems connected with the phenomena of fermentation have received remarkable attention during the past few years by many investigators, and the present volume puts in a compact form all the results which have been obtained up to the present time, and it is a remarkably valuable book, and had been needed for some time. The very latest discoveries, such as that of Büchner, of Zymose, are fully noted. Fortunately, there is an index, and had the book been made without this index. it would have been seriously injured. SAJOUS' ANNUAL AND ANALYTICAL CY-CLOPEDIA OF PRACTICAL MEDICINE. Vols. II. and III. By Charles E. de M. Sajous, M.D., and one hundred associate editors. Each volume 600 pages. Philadelphia, New York and Chicago: The F. A. Davis Com-pany. 1899. Price \$5. Very clearly and concisely written, giving a digest of the latest and best facts bearing on the several subjects treated of. Volume II. covers notes between "Bromide of Ethyl" and "Diphtheria." Volume III. "Disloca tions " to " Infantile Myxœdema." A book invaluable for physicians. TO INVENTORS. An experience of fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere A synopsis of the patent laws of the United States and all foreign countries may be bad on application, and per-sons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business, Address MUNN & CO., office SCIENTIFIC AMERICAN, 631 Broadway, New York. INDEX OF INVENTIONS For which Letters Patent of the

United States were Issued for the Week Ending

# SEPTEMBER 26, 1899.

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end dars, and the removable side dars are formed in two		Adhesive, G. J. Gruendler	Fire extinguishing system, automatic chemical,
hinged parts of equal length with each section of about	answered in a few words. Imagine a stick $2 \times 10$ inches	Advertising apparatus, I. MacFarland	H. Bush
the length of the end bars, so that when the side bars	on edge, one end fastened in a wall from which the stick	Advertising sample exhibitor, D. C. Meeban 633,963 Air drill, A. P. Schmucker	Fly, artificial, A, Manchester
are removed, folded, and laid parallel with the end bars	projects horizontally with a weight hung from the outer	Alkaline silicate, making soluble, F. Henkel 633.841	Folding box, W. D. Best 633,782
	end. The upper half of the stick will be stretched by	Alloy, W. Van Wart et al 63,743	Folding table, C. F. Kade
		Auger. earth, C. Densmore	pliance for, B. Muller
	the bending due to the weight, while the lower half will	from, O. Loew	Fumigating and extinguishing fires in closed
bars.	be compressed by it. The leverage of this bending is	Back pedaling brake, McAnulty & Van den	compartments, method of and apparatus for,
	half the height of the stick, or 5 inches. If the stick	Berghe	'I'. A. Clayton
Designs.	were placed on its side instead of on its edge, the lev-	Bait, artificial, R. B. Cantrell	Furnace. See Calcining furnace.
	erage of bending would be but one inch under the same	Baling press, cotton, M. Swenson	Furnace wall cooling device, G. R. Johnson
BADGE HERMANN SCHAEFFER, Brooklyn, New	circumstances, and the stick would bend much more	Ballast device, J. P. Pool	A. de Castro
York city. The leading feature of the design consists of	easily. You will find this fully demonstrated in any	erty	Games, field board for reporting football, A. A.
a bust picture of Dewey surrounded by a wreath, at the	book on the strength of materials.	erty	Irwin
lower portion of which is a spread-eagle, anchor-arms,	book on the strength of materials.	Bearing, thrust, A. H. Lighthall	Garment supporter, R. Gorton
and two crossed cannon.	(7729) C. F. T. writes: I write to ask	Bedstead fastening, K. Kohn	Gas and air mixer, Bulley & Johnson
	if in your opinion lightning rods are any protection to	Bedstead fastening, K. Kohn	Gas generator, acetylene, M. D. Compton
DOOR OR WINDOW SECURERGEORGE E. JOHN-		Bicycle, E. A. Bolus	Gas generator, acetylene, J. M. Hull 633.844
son, Brooklyn, New York city. The device is designed	buildings. A We are very certain that lightning rods	Bicycle, T. J. Psimenos	Gas, train lighting apparatus for compressed
to be inserted between the jamb and door or between	when properly put up are a great protection to any build-	Bicycle gear, W. K. Cowan	acetylene, Lipschutz & Toltz
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NOTECopies of any of these patents will be furn-	(7731) R. M. asks how can I oxidize	Strip holding and exhibiting box.	Harrow, Blount & Guice
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ished by Munn & Co. for ten cents each. Please state		Brace. See Body brace. Bracket See Lawn shalf bracket	Heater. See Feed water heater. Hot water
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of this paper.	(platinum chloride) to dryness. The dried mass may	Brick making machine, S. Obermeyer 633,891	(Continued on page \$38)