### RECENTLY PATENTED INVENTIONS. Electrical Devices.

MERCURY SAFETY ATTACHMENT FOR ELECTRIC CIRCUITS.—E. MIES, BUDESHEIM, Germany. The invention relates to that class of safety appliances which permit a sure and of short-circuit or overloading and which at once after the interruption of the current can be brought into perfect working order, and thus fully replace an automatic device. This mercury, and is adapted for use with hightension currents, where unprotected circuits may not be touched and contacts must be avoided, and is applicable to all systems of safety appliances.

### Engineering Improvements.

ROTARY EXPLOSIVE-MOTOR.—A PRIMAT, 38 Rue d'Hauteville, Paris, France. In this case the invention refers to a rotary motor of extremely small weight, the motive power of which may be either steam, petrol, alcohol, or gas. The motor is characterized by a kind of ring or rim, divided by radiating partitions in such a manner as to constitute by their combination with the pistons a certain number of cylinders-four, for example. When operated with petrol, alcohol, or gas, it may be constructed as a motor working with a cylinder of four phases and provided with four pistons or for two phases with two pistons.

### Household Utilities.

BABY-WALKER .- J. L. PHILLIPS, Washington, N. C. This invention relates to certain improvements in the construction and manner of suspending baby-walkers-that is to say, devices used for encouraging children to walk. The child is free to move around in various directions, but it is at all times supported, and is allowed to press only a small portion of its weight upon its legs.

#### Machines and Mechanical Devices.

DEVICE FOR OPERATING ELEVATOR-GATES.—H. J. GUTH, Evansville, Ind. The inventor seeks in the present improvement to provide means for positively opening or raising the elevator-gate on the ascending and descending movements of an elevator cage or car, said devices acting automatically to impart the required movement to the gate and some of the devices being in like manner moved out of operative position temporarily, so as to avoid Charles A. Scott, Granite Building, Rochester, N. Y. breakage, and thereby insure the operation of |the mechanism.

CHANGEABLE SIGN .- M. B. DISKEN, New York, N. Y. Mr. Disken's invention comprises a framing holding together a number of blocks of various shapes, the blocks being arranged in a master grouping and forming a solid mass when assembled. These blocks are independently movable into protruded or retracted positions and are of such form that by pushing and terms write to C. W. Parker, Abilene, Kan. some of the blocks in or out, as the case may be, any letter or figure will be described. The blocks are connected with certain mechanism by which the proper ones may be selected and

## Miscellaneous.

FLEXIBLE BAG.—Jesephine Müller, New York, N. Y. The purpose of this invention is to provide a construction of bag wherein a fabric is employed woven in a tubular shape and closed in weaving at one end, which fabric is folded upon itself in such manner that its open end is carried inward in direction of the closed end and its open end is concealed. Thus a bag is produced made in one continuous tubular length comprising an outer wall and an inner wall independent of the outer one, the two walls being without a seam at the mouth and sides of the bag and the outer wall without a seam at its bottom.

BOTTLE.-N. D. ASDELL, Lakeview, Ore. According to this invention the bottle is closed and sealed by a cork or other stopper inserted in the lower portion of the neck, and a laterally-projecting lever is connected with such a stopper, so that it may be used to dislodge the latter, and thus unseal the bottle. The fulcrum of the lever is movable, it being prefrailcrum of the lever is movable, it being preferably a soft-metal ball, and when dislodged lain plates for lining refrigerators. it serves to hold the lever in an abnormal position, from which it cannot be shifted,

REFRACTOMETER. - W. L. BURNAM, The inventor's Kansas City, Mo. object is to provide an instrument adapted to measure Write "Importers," c. o. "Scientific American," is cool, elastic, and tough? Something better eve troubles embodying in its construction three lenses, through all of which the eye examined looks at all stages of the test and without being required to look at an opaque object.. Two of these lenses are mounted adjacent to each other and are combined with means for adjusting them rotarily. The third lens or objective is adjustable toward and from the pair of lenses.

TOILET-PACKAGE CABINET. - F. H. DAWES, Johnstown, N. Y. The purpose in this for example, one thousand sheets and provide line engine 2% or 3 h. p. means for conveying them forward one after the other to an engagement with distributingrollers and to so locate the rollers that after the first sheet has been manually exposed through the medium of the rollers the action of withdrawing the exposed sheet will automatically cause a second to be exposed at the outlet-opening, this occurring each time a sheet

TEMPORARY BINDER.—A. L. HOLTON Norfolk, Va. This inventor's improvement is in the nature of temporary binders for use on note-books especially designed for use by stenographers; and the invention provides a combined temporary binder and a support for a book or tablet when used in taking notes and complete breaking of the current in the case | held in the hand by the writer instead of on a desk or other like support.

Note.-Copies of any of these patents will be furnished by Munn & Co. for ten cents each. appliance is based on the well-known use of Please state the name of the patentee, title of the invention, and date of this paper.

# Business and Personal Wants.

READ THIS COLUMN CAREFULLY,—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. In every case it is necessary to give the number of the inquiry.

MILINI & CO. MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 4504.—To manufacture and market patented article on royalty.

AUTOS.-Duryea Power Co., Reading, Pa.

Inquiry No. 4505.—For manufacturers of barrel making machines.

Morgan Emery Wheels. Box 517, Stroudsburg, Pa. Inquiry No. 4506.—Formanufacturers of cement work tools, etc.

"U. S." Metal Polish. Indianapolis. Samples free. Inquiry No. 4507.-For manufacturers of oil filters.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St Chagrin Falls, O.

Inquiry No. 4405.—For manufacturers of small table fans and large ceiling fans worked by clock-work mechanism and spring power.

Mechanics' Tools and materials. Net price catalogue

Geo. S. Comstock, Mechanicsburg, Pa. Inquiry No. 4509.—For manufacturers of racing shells.

Sawmill machinery and outfits manufactured by the

Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 4510,—For parties to whom to apply for second-hand upright engines, portable boilers, portable fallway track for construction, and construction dump cars.

For metal articles, any kind, made any shape, write us. Metal Stamping Company, Niagara Falls, N. Y. Inquiry No. 4511.—Wanted address of instrument makers.

Let me sell your patent. I have buyers waiting.

Inquiry No. 4512.—For manufacturers of woven hose, same as garden hose without rubber on it.

Automobiles built to drawings and special work done promptly. The Garvin Machine Co., 149 Varick, cor. Spring Streets, New York.

Inquiry No. 4513.—For manufacturers of machinery for making gents' collars, also for firms making ing celluloid goods.

The largest manufacturer in the world of merry-go-

Inquiry No. 4514.—For manufacturers of pressed brick machines.

We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc., all engineers to have one, stationary and ma-Metal Novelty Works, 43 Canal Street, Chicago.

Inquiry No. 4515.—Wanted a "Humatone," a musical instrument which produces a whistling noise.

Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The celebrated "Hornsoy-Akroyu ratem calcay on have misunderstood my meaning. I asked chine Company. Foot of East 138th Street, New York. chine Company. Foot of East 138th Street, New York. Inquiry No. 4516.—For manufacturers of porcelain or agate buttons.

Contract manufacturers of hardware specialties, machinery, stampings, dies, tools, etc. Excellent marketing connections. Edmonds-Metzel Mfg. Co., Chicago.

Inquiry No. 4517.—For parties to manufacture a file eraser.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machine where none is required. Second, we believe ery and tools. Quadriga Manufacturing Company, 18 that a license would be required to run a South Canal Street, Chicago.

Inquiry No. 4518.—For makers of glass paper weights 2½ x 4 inches and % inch thick.

WANTED.-A gas producer engineer or draftsman familiar with construction and operation of gas producer. State experience. Weber Gas and Gasoline Engine Co., Kansas City, Mo.

Inquiry No. 4519.—For manufacturers of small silver-toned bells.

American inventions negotiated in Europe. Hamburger, Equitable Building, Berlin, Germany.

An established firm of importers in London, England, invite correspondence from firms of good standing having specialties suitable for the British or colo-

Inquiry No. 4521.- For canal-making machinery or drainage canal tifeet deep.

Inquiry No. 4522.-For manufacturers of alarm door knobs.

Inquiry No. 4523.-For manufacturers of glass-ware and mirrored plate glass.

Inquiry No. 4525.—For manufacturers of cutlery, furniture, pianos, cycles, lamps, and iron bedsteads. Inquiry No. 4526.—Wanted addresses of manuacturers of advertising novelties.

Inquiry No. 4528.—For manufacturers of steel and brass springs, racks. ratchets, pinlons, machine screws and worm genring, also nuts.

Inquiry No. 4529.—For manufactarers of steel tubing, type, castings, rods, and spindles. Inquiry No. 4530.—For manufacturers of perforated metals to order.

Inquiry No. 4531.—For manufacturers of type-writer platens, die plates and taps, malleable castings, gutta-percha and celluloid and bone knobs for type-writers.



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. his turn.

Buyers wishing to purchase any article not advered in our columns will be furnished with dresses of houses manufacturing or carrying

the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

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.

(9161) G. R. B. says: Will you kindly oblige me by answering the following question in your Notes and Queries of the SCIENTI-FIC AMERICAN? What is the specific heat at about 250 deg. F. of syrup of such a consistency, that is, containing such an amount of water that when cooled to about 100 deg. F. it will become a thick pasty mass which will just be able to flow? I have consulted various works as have been at my disposal, and am unable to find any reference to the specific heat of sugar or syrup at any stage of its manufacture. A. We would say that we do not know of any exact data giving the specific heat of sugar syrup at different temperatures and different densities. We doubt if such data exist. This specific heat probably does not differ very greatly from that of water. It is a simple matter, however, for you to determine this for yourself by mixing a known weight of syrup at a known temperature with a known weight of water at a lower temperature, stirring the mixture and carefully noting the temperature of the same. It will be necessary for you to allow for the heat given to the vessel containing the water. It would be well for you to use a thin copper vessel for this purpose, because then the heat which it would absorb could be accurately calculated. formula to use is as follows: (Weight of cool water × weight of copper vessel × .0933)  $\times$  increase in temperature = specific heat of syrup × weight of syrup × decrease in temperature in syrup. This is a very simple experiment, and if carefully performed, with an accurate thermometer, will give you just what you want.

(9162) F. A. E. says: Does a stationary engineer have to have a license in all States or not? For example, I work in a weaving shop; could I run an engine (stationary) without a license or does the law compel rine? Must I have a license to run a turbine steamer 20 feet long or not in the State of Connecticut? On a former date I wrote to you The celebrated "Hornsby-Akroyd" Patent Safety Oil in regard to alco-vapor engines. You must said alcohol motor tests. Please let me know if you have a paper on what I want or if you can tell me where to get it. Could you tell me how to case-harden cast iron and steel? A A license is required for every stationary engineer in nearly all States of the United States. We do not happen to know of one turbine steamer in the State of Connecticut. You can get definite information on this point, however, by addressing the Secretary of State. We do not know what information you desire regarding alcohol vapor engines. So far as we are aware, there are no such engines in this country which are a commercial success. Iron and steel may be case-hardened by heating them to a cherry-red heat, covering them with powdered potassium cyanide, keeping them at this heat for some time with the cyanide continually in contact with the surface of the iron, and then plunging them rapidly into cold water or brine.

(9163) W. M. R. says: Can you give me the name of a substance than rubber or cork, if you know of such a substance. Will you kindly give me the pull in pounds necessary to straighten a hook made of steel 1/2 inch broad, 1-16 inch thick and bent to form a loop 5-16 inch in diameter, pull to be exerted by a ring working in the loop? Inquiry No. 4524.—For manufacturers of porce- A. It is difficult to answer your question in an and earthenware. cool, elastic, and tough, without knowing the purpose for which you wish to use it. Porcelain is such a substance. Celluloid is another. But possibly neither of these will meet your requirements. The force necessary to straighten out a hook 1/2 inch wide, 1-16 of an inch thick, bent in the form of a loop 5-16 of an inch in diameter, will be about 180 pounds. This will vary somewhat with the character of the steel. We have figured on an open-hearth steel, with a tensile strength of about 70,000 pounds per square inch. If tool steel were used, the force required would be about twice as great. A factor of safety should be allowed,

if this is to be used in construction, which would reduce this figure to about 1/4 or 1-6 of the amount given above.

# INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

August 18, 1903,

## AND EACH BEARING THAT DATE.

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

5		
1	Acid in natural phosphates soluble in citric	
l	ermann	736,730
•	Acids, apparatus for condensing and mixing, F. I. du Pont	736,625
ľ	Acid in natural phosphates soluble in citric acid, rendering the phosphoric, G. Hoyermann  Acids, apparatus for condensing and mixing, F. I. du Pont.  Air brake systems, device for heating, J. W. Geary  Alloys directly from ores, making nickel iron, N. V. Hybinette.  Anticorrosive composition, A. P. Cuthriell.  Antifouling composition, A. P. Cuthriell.  Ars, dirupting, F. E. Case.  Arm rest, G. Smith.  Arm rest, G. Smith.  Armature coil, F. A. Merrick.  Ash can, J. W. M. Hipwell.  Astrakhan, imitation, M. Lewin.  Axes, hatchets, or the like, making, A. Schmidt.  Axie lubricator, car, C. R. Cleghorn. 736,689, Baby jumper, M. B. Davidson.  Baling press, W. R. Colman  Baling press, W. R. Colman  Baling press, J. T. Rodgers, et al.  Baling press, J. T. Rodgers, et al.  Baling press, J. T. Rodgers, et al.  Baling press, J. Edmiston.  Barrel or keg, S. J. Edmiston.  Bartery, See Secondary battery.  Bearing, center, J. E. Norwood.  Bed slat fastener, A. N. Webb.  Bed slat fastener, A. N. Webb.  Bed slat fastener, A. R. Willson, Jr.  Bench, See Draw bench.  Benching machine, C. Flinn. 736,834,	736,840
1	Alloys directly from ores, making nickel iron, N. V. Hybinette	736,400
	Anticorrosive composition, A. P. Cuthriell	736,699 736,698
- '	Arcs, dirupting, F. E. Case	736,913
-	Armature coil, F. A. Merrick	736,417
-	Astrakhan, imitation, M. Lewin	736,396 736,412
t -	Schmidt	736,637
r	Axle lubricator, car, C. R. Cleghorn.736,689, Baby jumper, M. B. Davidson	736,819 736,826
1	Baling press, W. R. Colman	736,496 736,550
9	Baling press automatic folder or tucker, P. and L. Trabue	736.653
)	Balustrade, K. T. Horn	736,399
r	Battery. See Secondary battery.	796 590
	Bed slat fastener, A. N. Webb	736,569
r	Bell indicator attachment, C. E. Munroe.	736,894
t	Bench. See Draw bench.	736,905
,	Bending machine, C. Flinn736,834, Benzin pan, Howard & Ungeheuer	736,835 736,729
•	Binder, Blackburn & Swartwout Binder, expansion back, E. T. A. Akass	736,482 736,340
s	Binder, loose leaf, E. T. A. Akass Blackboard, A. E. A. Opitz	736,342 736,431
f 1	Blast furnace, G. W. Bollman	736,353 736,365
•	Blind stop, C. L. Koenig	736,408 736,747
-	Boat, folding, I. O. Perring	736,623 736,617
r l	Boiler, W. D. Boyce	736,354
	Book rack, pass, M. J. Robinson	736,879
-	Bottle, non-refillable, W. S. Palmer	736,434
1	Bottle stopper, E. A. Nugent	736,430 736,466
) 1	Bottle washing and rinsing machine, C. C. Parker	736,769
,	Bedstead fastening, W. S. Walker Bell indicator attachment, C. E. Munroe. Bell tsupporting device, F. R. Willson, Jr. Bench. See Draw bench. Benching machine, C. Flinn	736.708
f	Box filling machine, W. H. Wyman Braiding machine, J. Lundgren	736,668 736,856
-	Brake shoe, T. M. Bell	736,350
ı	Brick kiln, C. Cebulla	736,492
t	Brooder, I. Morrow	736,423
	Brush appliance, tooth, C. R. Lane	736,831
	Bucket, clam shell, J. C. Slocum. 736,795, Buffing head, F. J. Kane	736,796 736,736
ı	Buggy attachment, C. Brown Buoy, body indicating, H. Condren	736,814 736,692
	Bushing expander, G. Staiger	736,647
1	B. Allen	736,471 736,728
	Cameras, focusing view finder for photo- graphic E. H. Williamson, Jr.	736.899
Ē	Can filling machine, P. Mitchell	736,762 736,686
ı	Car coupling, automatic, O. C. Moore	736,864
1	Buttonhole cutting and stitching machine, E. B. Allen Cabinet, kitchen, L. Hockman Cameras, focusing view finder for photographic, E. H. Williamson, Jr. Can filling machine, P. Mitchell. Car brake, beamless, J. S. Cary Car couplings, automatic, O. C. Moore Tomilinson Car door, W. T. Spillane Car draw gear, railway, J. F. Courson, 736,823,	736,892
ı	Car dor, W. T. Spillane	796 004
7	Car, mine, T. Stagg	736,561
ı I	Car stop, C. R. Claghorn	736,515
	Car underframing, railway, G. I. King Car unloading apparatus, C. R. Claghorn	736,739 736,690
7 .	cars, apparatus for controlling the working of electrically driven, A. Siemens	736,794
,	Cars, car strap for street, J. S. Navarro Carbonating apparatus, H. A. Hopkins,	736,620
,	736,521, Carpet cutting machine. J. Silberstein	736,523 736,644
L	Carpet stretcher and tacker, J. W. Quilling Carriage seat, folding, J. Broenen.	736,873 736,355
	Carrier. See Package carrier.	736,907
, 	Caskets over the boxes, device for carrying,	736,377
١	Casting mold, chain, Bone & Reid	736,678 736,419
•	Centrifugal machine electric driving apparatus I. Unit	798 007
ı	Chain, F. R. Willson, Jr.	736,397 736,904
[	Chair, D. R. Cotner	736,709 736,822
1	Chimney top and ventilator, J. F. Le Beau	736,493 736,748 736,771
-	Cigar case, O. L. Parmenter736,770, Cigarettes or like goods, machine for pack-	130,771
	ing, A. Gotfrey	736,592 736,502
1	Circuit breaker for jump spark coils, A. H. Deisher	736,703
,	Clipper, hair, W. J. Long	736,854 736,603
:	Carbonating apparatus, H. A. Hopkins, 736,521, Carpet cutting machine, J. Silberstein Carpet stretcher and tacker, J. W. Quilling Carriage seat, folding, J. Broenen Carrier. See Package carrier. Casing spear, E. C. Wilson Caskets over the boxes, device for carrying, G. H. Fuller Casting mold, chain, Bone & Reid Casting mold, chain, Bone & Reid Casting solid metallic bodies, B. A. Mick. Casting solid metallic bodies, B. A. Mick. Casting solid metallic todies, B. A. Mick. Casting solid metallic todies, B. A. Mick. Casting solid metallic bodies, B. A. Mick. Chain, F. R. Willson, Jr. Chair, G. A. Dutton. Chair, D. R. Cotter. Check hook and rein piece, T. L. Cooper. Chimney top and ventilator, J. F. Le Beau Cigar case, O. L. Parmenter 736,770, Cigarettes or like goods, machine for packing, A. Godfrey. Circuit breaker, T. E. Daniels, Jr. Circuit breaker, W. A. Kester. Clothes drier, W. A. Newcomer. Clothes washer, S. A. Newcomer. Clothes washer, S. A. Newcomer. Clothes under, J. K. Sharpe, Jr. Clutch, C. L. Grohmann. Clutch, electromagnetic friction, W. Schuster and H. Ast. Coat, M. Wenzel Coffee, treating, W. E. Baker.	736,777 736,497
. !	Clothes washer, S. A. Newcomer	736,870 736,450
	Clutch, C. L. Grohmann	736,517
,	ter and H. Ast	736,789 736,654
l	Coffee, treating, W. E. Baker	736,346 736,602
١.	Conveyor, F. R. Willson, Jr.	7:36,901
j	Conveying apparatus, F. R. Willson, Jr., 736,902,	736,903 736,848
1	Core making machine, W. M. McCallum	736,618
	Corn husker ear agitating guide, J. V. Ross Corn sheller, A. R. Montgomery	736,615
	Corn shocker, P. C. Knutson	736,526 736,756
	Crank and crank connection, T. L. & T. J. Sturtevant	736,457
	Cream separator, H. D. Zehrbach Cultivator, H. M. Phillips	736,570 736,872
	Curtain bracket, adjustable, Wiggins & Ouittmeyer	736,467
	Curtain clasp and holder, window, R. F.	736.867
	Curtain fixture, window, C. E. Heinrich.	736,391 736,619
	Conveying apparatus, F. R. Willson, 36,902, Copy holder, A. J. Harpole.  Core making machine, W. M. McCallum.  Corn husker ear agitating guide, J. V. Ross Corn sheller, A. R. Montgomery.  Cornet, H. C. Martin.  Crank and crank connection, T. L. & T. J. Sturtevant  Cream separator, H. D. Zehrbach.  Cultivator. H. M. Phillips.  Curtain bracket, adjustable, Wiggins & Quittmeyer  Curtain clasp and holder, window, R. F. Mutray.  Curtain fixture, window, C. E. Heinrich.  Cuttain fixture, window, C. E. Heinrich.  Cuttain fixture, window, C. E. Heinrich.  Cut off and self cleaning filter, automatic cistern, A. B. R. Harris.  Cut out, Hall & Eldridge.  Cycle safety apparatus, A. Kuhn.  Dampening and ironing machine, combined,  T. S. Wiles.	736 200
	Cut out, Hall & Eldridge	736,598
	Dampening and ironing machine, combined,	738 881
•		Toologe