# Scientific American.

# April 15, 1899.

### RECENTLY PATENTED INVENTIONS. Agricultural Impiements.

CULTIVATOR. - JOHN MCL. WRIGHT. Oberlin Kan. This cultivator is so constructed that the weight of the driver will act to hold the shares out of contact with the ground. When no downward pressure is exerted upon the handles of the beams, the weight of the driver in the saddle will be sufficient to raise the plowbeams so that the shares will be removed from the round. By pressing down upon the handles, the shares may be buried in the ground to a previously determined extent.

#### Electrical Apparatus.

ELECTRIC SWITCH.-MAX H. CASPARI, Manhat tan, New York city. The switch consists essentially of a mercury-containing chamber having attached thereto the two poles or binding posts for the circuit-wires. The binding-posts are insulated from each other and are placed at different elevations. The mercury-chamber may be raised or lowered so as to cause the mercury to cover one or both of the poles in order to make the contact. By means of this device a clean contact-surface between the two parts of the switch is maintained,

#### Bicycle-Appliances.

BICYCLE-FRAME - JEREMIAH C. PARKER, Red Bank, N. J. This bicycle-frame belongs to that class in which the frame is so constructed that it may be adjusted for regulating the tension of the driving-chain. A split socket tube is carried rigidly at the lower end of the central brace, and receives the stem of the lower braces. By sliding the stem longitudinally in the socket-tube, the rear upper braces and the rear wheel will be moved to regulate the tension of the chain. The stem is held in a ljusted position by means of a clamp.

BICYCLE-GEAR .- CEPHAS WHITNEY and ALFRED C. LAZARUS, Kingston, Jamaica. The crank-shaft in this bicycle-gear is provided with the usual cranks, in the free end of each crank a shaft being journaled. On the outer end of the shaftarms are carried provided with pedals. An arm extends from the shaft at right angles thereto. An eccentric has its disk fixed to the bicycleframe and its eccentric-rod pivotally connected with the arm extending at right angles to the shaft. By this arrangement extended crank-arms are produced in which the extension is always at right angles to a line drawn through the center of the eccentric-disk and the center of the crank-shaft. Great leverage is hence obtained without causing the foot to move through a large circle.

#### Mechanical Devices.

FRICTION DRIVING DEVICE FOR SHAPING-MACHINES. - WENDELL P. NORTON, Torrington, Conn. The friction driving device patented by this inventor comprises two driving-pulleys loosely mounted to rotate in opposite directions. Between the drivingpulleys a friction pulley is arranged to be moved into frictional contact with the inner surfaces of the pulleyrims. Spring-arms connect the rim of the friction-pulley with the hub and are adapted to yield laterally and longitudinally. Thus there is obtained a uniform contact of the peripheral surface of the rim with the inner surfaces of the pulleys; and shock and jar are prevented.

FIRE-ESCAPE, - JAMES O. MILLER, Coolgardie Western Australia. In the fire-escape provided by the present invention there is mounted within a casing a cord-carrying drum having toothed wheels connected therewith. Reciprocating bars have projecting points engaging the teeth of the wheels, thus providing an escapement mechanism which regulates the speed of the drum's rotation under the weight of the user. The device may be used for descending from any height, and may be advantageously employed in mines and wells.

PAPER-CUTTING ATTACHMENT FOR BOX COVERING MACHINES.-IsrDor DREYFUSS, Manhattan, New York city. The invention provides improvements in machines for sutomatically cutting off strips of paper or like material, which are being glued on pasteboard or other boxes. The machine is so constructed that the cutters can be adjusted higher or lower and forward or back without requiring any regulation of the cutter-operating devices. The cutting de vice can be operated by hand at any time to cut out a defective piece of paper without in any way interfering with the automatic operation of the device.

INTEREST-INDICATOR. - CHARLES C. ADAMS Charlotte, N. C. The interest-inducator is so constructed that by depressing a key corresponding with the principal, mechanism will be operated to bring into proper adjustment figures representing the interest upon that principal for a series of periods, so that the operator can readily determine at a glance the amount of the interest for the desired period. The means whereby the desired results are obtained consist primarily of rollers carrying interest lists adapted to register with period lists.

PHOTOGRAPHIC DEVELOPING APPARATUS .-ALBERT GOODER, Brookville, Pa. This film-developing device consists essentially of a tray containing the de veloper, in which tray, frames are mounted adjustable relative to each other and relative to the tray. Rollers are located within the tray and upon the frame, and serve as supports for the film. The device may be adjusted to accommodate any size camera-film, and is designed to prevent scratching of the bromid emulsion.

PIANO-HAMMER. - JOHN OSTER, Jr., Newport Ky. This piano-hammer comprises a rotatable elastic disk clamped peripherally by spring clamping-jaws received and embraced by a socket-holder. The jaws are held and locked down in the socket to grip the disk. Should any portion of the felt or other ela astic materia become hard from frequent impact, the disk may be readily loosened and turned. There are, moreover, no projecting parts on the side of the disk to cause interference between the hammers, or objectionable noise in playing.

HACK-CLAMP .- JAMES G. B. ROUSE, Way Cross Ga. The invention is in the nature of an improved clamp for holding turpentine producing and gathering tools-such as hacks, pullers, or scrapers--when it is desired to cut out the tool. The clamp comprises a body having a flat bearing edge provided with means for securing the body to a tree or post. The front edge has a seat portion and a clamping slot and screw. When the clamp is in position, a reamer may be applied to the seat of the clamp in order to cut out the tool.

MONEY-ORDER-BLANK PROTECTOR, CUTTER, AND HAND-REST.-GEORGE JOHNSON, Jersey City, N. J. By providing a device comprising a base, sup porting-posts carried on the base, and a hand-rest having transverse arms for extending over the face of a block of money-order-blanks and engaging the posts, this inventor enables a postmaster conveniently to fill out a money-order-blank and to separate the several parts from one another and the filled coupon from the block.

LANTERN-HOLDER.-GEORGE A. CORNISH, Gillette, N. J. This invention is a device for holding lanterns so that the rays of light will be effectively shed therefrom. The means by which this end is attained consist primarily of a wire structure forming arms and hooks by which the lantern is held in place.

TILTING-CHAIR. -ALFRED E. QUINLAN, Sheboy gan Falls. Wis. This tilting-chair is provided with a post on which a yoke and a vertically-disposed bearing are mounted to turn. The bearing 1s formed with longitudinal flanges terminating in lateral arms arranged to support the pivot for the yoke at one side of the bearing and below the upper end thereof. The entire device can be readily applied to a chair-seat. By the arrangement described, the bearing is well above the pivot, on which the rocking takes place, thus reducing friction on the bearing surface.

CHART FOR DRAFTING GARMENT-PAT-TERNS.-MARIE TUCEK, Manhattan, New York city. The purpose of this invention is to provide a garment drafting pattern designed accurately to draft the outlines of ladies' waists and skirts and arranged to permit an easy and convenient adjustment of the various parts. The device consists of pivotally-connected sections slidably or otherwise adjustable to one another, the necessary graduations being marked on the sections.

#### Designs.

MINERS' CANDLESTICK. - WILLIAM H. PLEAS-ANTS, Victor, Col. The essential features of this design consist of a candlestick having a shank, and spiral convolutions at one side of the shank, which embrace the candle. At the other side a hook rises vertically. A transverse member emanates from the convolutions and has a return-bend which joins the shank of the hook.

DISPLAY-BOX,-MAX W, BECTON, Manhattan, New York city. The box is designed to display fountain-pens or similar articles, and is, therefore, longitudinally divided into compartments for the reception of the articles to be displayed.

LOCK-BAR FOR COVERS .- HERMAN KAHN, Troy N. Y. The principal feature of this design is found in a body, having at its ends lips decreasing in thickness in opposite directions, and projections rising from the upper face of the body. The device is especially serviceable in locking the covers of jars, which operation the previously-mentioned projections facilitate.

BOX.-RICHARD M. COLGATE, West Orange, N. J. The box is rectangular in shape and is ornamented by decorative panels. At one surface circular intaglio figures triangularly disposed are arranged. The box is designed primarily to contain soap.

ERRATUM .- In our issue of March 25, 1899, we de scribed in these columns a new surgical splint invented by Robert W. Barton, whose address was given as Marion, Kansas. The address should have read Marion, Arkansas.

NOTE.-Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please send

## 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

Marine Iron Works. Chicago. Catalogue free.

"U. S." Metal Polish. Indianapolis. Samples free. Gasoline Brazing Forge, Turner Brass Works, Chicago Yankee Notions. Waterbury Button Co., Waterb'y, Ct. Handle & Spoke Mchy. Oher Lathe Co., Chagrin Falls, O. Schwaah Stamp & Seal Co., Milwaukee. Send for cat'g Small Accumulators. A new book. Illus. Cloth, 50c. Spon & Chamberlain, 12 Cortlandt St., New York.

Gear Cutting of every description accurately done The Garvin Machine Co., Spring and Varick Sts., N. Y. Order White Metal & Brass Pattern Letters & Figure

of H. W. Knight & Son, Seneca Falls, N. Y. Drawer 1115. Patent for Sale .- Book-rest and ball and socket joint. Entirely new idea.) Geo. W. Morrison, 8014 Frankford

Ave., Phila. For Sale or on Royalty-Patents Nos. 435.805 and 584. 219-game apparatus. R. F. de Grain, 643 G St., S. E Washington, D. C.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is huilt by the De La Vergne Refrigerating Machine Company. Foct of East 138th Street, New York.

The hest book for electricians and beginners in elec-tricity is "Experimental Science," by Geo. M. Hopkins.

By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y. Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

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 the repeated; correspondents will be arin 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

Winerals sent for examination should be distinctly marked or labeled.

(7638) A. L. N. asks: 1. Should the condenser for an induction coil be in the primary or in the secondary circuit ? If in the primary, should the condenser be between the coil and the zinc or between the coil and carbon of the battery ? A. The condenser of an induction coil is not to be put in either the primary orthe secondary circuit. The condenser is connected across the primary circuit. Attach one side of the condenser to the same place as the wire from the zinc of the hattery and the other side to the same place as the wire from the carbon side of the battery. It thus receives the extra current which originates in the breaking of the primary circuit. 2. In a SUPPLEMENT you write that a magnet made of tubes, and every tube inside the largest one wound with a layer of wire, is many times stronger than one made out of a solid piece; hence, would it be a good idea to put some of the iron wires in the core of a coil between each layer of the primary circuit? A. No; it would be a very bad idea to build the primary of an induction coil on the basis of an electro-magnet, 3. Have you published any article about making liquid air? If so, in which SUPPLEMENT ? A. There are twenty articles on liquid air in as many SUPPLEMENTS. We can send them to you at 10 cents each. 4. What substance would be best to mix in lard to get a good corn cure? A. Purchase corn cures ready prepared of your druggist. We have no formula for a corn cure, using lard.

(7639) E. J. W. asks: 1. What is the compound that is used in dry hatteries? A. There are many formulæ for the paste used in dry cells. The active material is usually ammonic chloride dissolved in water and mixed with an inert substance to hold it in place between the zinc and carbon plates. 2. Can a  $4 \times 5$ photographic lens (single or double view) be used for a magic lantern ? A. Yes; any lens can be used to project a slide which will cover a photographic plate of the size of the slide. 3. How do you find the distance that the lens should be from the plano-convex condensing lenses ? A. The distance is usually found by experi-

#### 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 had on application, and persons 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, 361 Broadway, New York.

INDEX OF INVENTIONS For which Letters Patent of the United States were Issued

for the Week Ending APRIL 4, 1899,

l	APRIL 4, 1099, AND EACH BEARING THAT DA	T.F.
	See note at end of list about copies of these pat	
	the second s	
	Adding and recording machine, H. Hollerith Advertising device, E. Cherry Advertising machine, electrical, H. W. Cox.	622,470 622,416
	Air bed or cushion. J. J. Lane	
	Amaigamating ores of gold and silver, J. E. Sut-	
	Annealing open hearth or Bessemer steel, E. D.	622,2(15 622,332
	Artists' tablets, folding support or holder for, W.	622,301
l	C. Shinoneck. Audiphone, electrical, R. Hutchison Audographic register, L. Ebrlich Ax head, E. Roberts Ax head, B. Roberts Axle cutter, W. B. Sberman. Back caseling buck C. R. M. Florr.	622,640 622,368 622 454
l	Ax head, E. Roberts Axle cutter, W. B. Sberman	622.395 622.548
	Back pedaling brake, G. E. McElroy Bag. See Traveling bag. Bag fastener, J. A. Moore	622,523
l	Barbots over for vessels, combined, a s Barbots over rotary clamp, J. Fleming. Bearing lubricated, C. R. Meston Bedstead, Invalid, L. Zucker Bedstead, Invalid, f. Zucker Bedstead, Invalid, H. Rendt, C. Larsson & Kollen	622,615 622,247
۱	Bedstead, invalid, L. Zucker	622.317 622.562
l	Bell ringing mechanism W R Livermore	622 212
	Bicycle Dangle Dar, W. E. Kelly	622.450
	Bicycle saddle, Hitchcock & Galbraith Bit. See Expanding bit.	622,357
l	Boats in upright position, device for holding, T. Emerson	
l	Bottle filling apparatus, J. Jackson Bottle holder, nursing, A. J. Bradbury	622,483 622,414
I	Bottles nuchine for securing neck wires to Sin-	622,376
	nickson & Meyer. Bowling alley, J. N. McIntire	622,550 622,653
	Box. See Letter box. Paper box. Braces, W. Halstenbach Bracket W. C. Homen	622,349 622,226
	Bracket, G. W. Kirchhoffer Brake. See Back pedaling brake. Vehicle brake.	622,370
	Brake shoe, W. D. Sargent Brick drier, O. Howl.	622.397 622,626
	Bottle, non-refillable, E. L. Ewbank. Bottle stopper, A. Lieber. Bottles, nachine for securing neck wires to, Sin- nickson & Meyer. Bow, See Letter box. Paper box. Bracket, W. C. Homan. Bracket, G. W. Kirchhoffer. Bracket, G. W. Kirchhoffer. Bracket, G. W. Kirchhoffer. Brake. See Back pedaling brake. Vehicle brake. Brake deck W. D. Sargent. Brick drier, O. Howi. Brush, dusting, H. H. Ham Buckle, hame tug, G. W. Moores. Bullet or projectile, R. L. Wyatt. Buros, dutomatic signal, J. C. Smith. Burper. See Gas burner. Incandescent burner.	622.621 622.509 622.582
	Buoy, automatic signal, J. C. Smith Burner. See Gas hurner. Incandescent burner.	622,283
	Burner. See Gas hurner. Incandescent burner. Torch burner. Bush, hung hole, W. J. Ritter Butter worker, J. T. Killin. Cabinet, grocer's, W. E. Hewit. Cabinet, grocer's, W. E. Hewit. Calcining furnace. T. Calvert. Cancera, grocer's, W. E. Hewit. Camera, fuetographic, D. B. Depue Camera, hietographic, D. B. Depue Camera, photographic, L. Wreede Can. See Powder distributing can.	622,266
	Cabinet, W. D. Allison Cabinet, grocer's, W. E. Hewit	622.195 622.624
	Cabinet, kitchen, A. W. & T. J. Eales Calcining furnace, T. Calvert	622,335 622,327
	Camera, kinetographic, O. B. Depue	622,4.51 622,315
	Camera, kinetographic, O. B. Depue Camera, photographic, L. Wreede Can. See Powder distributing can. Cap string fastener, J. Moll Car bolster, G. L. Harvey Car coupling, J. P. Autrie Car door, J. M. Hopkins Car, dumping, M. J. McKinnon Car root, double. C. H. Hutchins (reissue)	622,250
	Car coupling, J. P. Autrie Car door. J. M. Hopkins	622,465 622,590 622,360
	Can. See Powder distributing can. Cap string fastener, J. Moll	622,382 11,729
	Car signal, revolving, J. J. Harrell Car speed indicator, street, O. E. Hausburg Carbon brush holder, R. E. Crockett	622,223 622,351 622,604
	Carbonating apparatus, C. Barus. Carbureter, G. W. Benedict	622.410 622.198
	Carbureter, L. L. Kelly Carding engine flat, R. W. Hunton	622,489 622,367 622,367
ļ	Carrier. See Parcel carrier. Cash receptacle. C. Hutchinson	622.229
	Cash register, J. P. Cleal Cash register, O. A. Gatrell	622.445 622.617
	Cell case machine, G. W. Swift, Jr Cellulose into a dense material, transforming	622,443
ļ	flbrous, H. Brunswig Cement, H. H. Pierce	622,325 622,387
1	Chair. See Detachable chair. Channeling device, Winkley & Alley	622.310
	Cheese cutter, A. J. Bartlett	622,196 622,461
Ì	Churn motor, W. L. Morris Clip or binder, U. Dudley	622,652 622,610
	Cloth sponging attachment, L. A. Thieme Clothes pin, S. J. Miley.	622,205 622,566 622,380
1	Channeling tool, hand, Winkley & Alley Cheese cutter, A. J. Bartlett. Chisel, turner's hand, Glardon-Jaquet & Berger. Churn motor, W. L. Morris. Ciloset, W. H. Burnett. Clothe sponging attachment, L. A. Thieme. Clothes pin, S. J. Miley. Cock or faucer, self closing, I. N. Glauber. Combustible compound, J. W. Leadbeater. Confectionery package, F. H. Roberts. Contact for controllers, G. H. Condit. Contance kill for baking pottery or burning cement, E. Gobbe.	622.342 622,374
	Confectionery package, F. H. Roberts Contact for controllers, G. H. Condit	622,531 622,396 622,606
	Continuous kiln for baking pottery or burning cement, E. Gobbe	622,219
	for. N. Pousolle	622.389
	A. Stephenson. Corset attachment, C. M. Barnum.	622,287 622,437
	Corn husker and fodder shredder, combined, E. A. Stephenson. Corset attachment, C. M. Barnum. Coupling. See Car coupling. Stovepipe coupling. Thill coupling. Cream separator, centrifugal, A. H. Reid	699 287
	Cream separator, centrifugal, A. H. Reid Crusher. See Stone, ore, etc., crusher. Cultivator and corn or cotton planter, combined, G. & F. E. Hoffmann.	386,070
	G. & F. E. Hoffmann	622 358

Misceilaneous Inventions.

KNOCKDOWN BARREL.-PHILIS MAYOTTE, ES canaba, Mich. In certain industries, especially in that of beer brewing, it is a matter of considerable expense to return the empty kegs - an expense which might be greatly reduced by employing collapsible barrels. It is the purpose of the present invention to provide such a barrel. The inventor has therefore constructed his barrel, not with the ordinary strap hoops, but with stout chains, the ends of which are bolted together. By removing the chains the barrel falls apart,

LINE-GUARD FOR VEHICLE-POLES.-FLETCHEE M. BIRD, Wenatchee, Wash. The object of the invention is to provide a line or rein-guard for the tongue or pole of a vehicle, which will effectually prevent the inside check-lines of a double harnes from becoming entangled with or lodging upon the end of the pole or tongue of the vehicle in front of the neck-yoke ring. The guard is so constructed that it may be permanently secured to the pole or tongue in such a manner that it will not interfere with the bitching or unhitching of the neck-yoke, it being possible readily to slip the neck-yoke ring on or off the tongue or pole at pleasure.

the name of the patentee, title of the invention, the screen. It may be found from the formula of this paper.

#### NEW BOOKS, ETC.

A SELECT BIBLIOGRAPHY OF CHEMIS-TRY, 1492-1897. By H. Carrington Bolton. First Supplement. Washington: Smithsonian Institution. 1899. 8vo. Pp. 489.

A few years ago we received the first section of this work, and now we have a Supplement half as big as the parent volume. At the time we noted the original work we congratulated Prof. Bolton upon his wonderful achievement, and also complimented the Smithsonian Institution for the remarkable services which they have done to scientific literature in publishing such a notable volume, which could never be issued by any private publisher. In the preparation of the present Supplement Prof. Bolton has been fortunate in securing the cooperation of eminent men of science and letters in various parts of the world. They promptly responded, and have contributed more than 2,000 titles, including 760 Russian, 20 Finnish, and 13 Arabic. The same general method he used in the first volume has been adopted. The volume is a monument of American scholarship.

 $\frac{1}{D} + \frac{1}{d} = \frac{1}{F}$ in which D is distance of lens from screen, d is distance

of lens from slide, and F the focal length of the lens. 4. Can one large magnifying glass lens be used in place of a pair of plano-convex lenses for a lantern ? A. A magnifying glass can be used as a condenser for a lantern, if nothing better can be had. It answers well with sunlight, but is not powerful enough to bend in the widely divergent light from a lamp.

(7640) Reader asks: Is the line current. e. the current induced in the secondary of the induction coil, in a telephone circuit an alternating current or only a pulsating current ? A. An alternating current.

(7641) G. W. D. writes: 1 am desirous of procuring the best formula for making or casting phonograph cylinders for making records. Also instructions for casting same and any other information necessary for their successful manufacture and manipulation for my own personal use. Please inform me how such information can be got. A. The composition of the phonograph cylinder is a carefully guarded trade secret.

1	Cultivator, wheel, Haiman & Bishop	622.348
	Curette, E. W. Peery	622 384
1	Currycomb, J. A. Hackenberg	
	Curry cound, J. A. Hackennerg	022,091
	Curtain fixture, F. L. Meyer	022.008
	Curtain fixture. C. C. Thompson	
	Curtain stretcher, H. Hickman	622,356
	Cutter. See Axle cutter. Cheese cutter. Stalk	
1	cutter.	
	Cutting tool, H. Hill	622 625
	Cycle chains, revolving guard for, C. M. Brow-	0221020
	nell	622.442
	Contraction of the state of the	022.442
1	Cycle frame brazeless joint, H. S. Rainforth	622,537
	Cycle or other wheeled vehicle, J. Huck	622.477
	Cycle stand, H. W. Tondinson	622.642
1	Damping envelops, etc., apparatus for, C. Kanitz	622.654
	Dental engine, H. D. Hermany	622.467
1	Dental engine, Hood & Reynolds.	
1	Desk, adjustable school, A. C. Davis	629 647
	Detachable chair, G. Terlinden	699.0417
	Dianar ninlage A Schiff	499 9*9
	Diaper, piniess, A. Scull.	600 016
	Diaper, pinless, A. Schiff. Display rack, J. T. Xander. Ditching machine, W. W. Hunter.	022,110
	Ditching machine, w. w. Hunter	622.228
	Door check, J. Speirs	622,506
Ľ	Door check and holder, P. C. Greenawalt	622,620
	Door, pressure, T. Shaw	622,546
	Door spring, W. M. Thomas	622,567
1	Draughting apparatus, garment, E. E. Cunning-	
1	ham	622.419
1	Dredge, elevator, W. S. Russell	
1	Dredging apparatus, W. H. O'Hara	622.527
	Drier. See Brick drier. Grain drier. Mechani-	044,041
	cal drier.	
U,	Drill. See Miner's drill.	
4	Driving mechanism, H. B. Collins	622,207
	Drying apparatus, J. B. Adt	622.431
	Drying rack, portable, Slack & Riley	622.281
1	Dust receptacle, O. S. Snyder	622,284
4	Dye and making same, black, H. R. Vidal	

622,358 622553

(Continued on page 239)