# An Exhibit of the History of Medicine.

and Physicians is to be held at Düsseldorf, September anatomy, distillation, alchemy, astrology, magic, etc.) 19 to 24. In connection with this congress, there will The exhibitors are not put to any expense, the exhibi- of articles devoted to machinery, including shaping be several exhibits, one of scientific apparatus, one tion committee undertaking to pay all freights and the and polishing machines, forging presses, and engines, of scientific photography, and one illustrating the cost of fire assurance. The exhibition, which is located history of medicine and science. The last will be in the Kunstgewerbe Museum, was opened in July, and Hundred Years of Ginning and Baling Cotton" is an particularly interesting and will comprise the general history of medicine and special exhibits. The hibition closes on September 30. former class includes: (1) Ancient Phenician and Egyptian medicine; (2) Assyrio-Babylonian, Medo-Persian and Old Indian medicine; (3) Lydio-Trojan medical antiquities; (4) Greek and "Hellenistic" medicine; (5) Ibero-Etruscan and classical Roman medicine; (6) late Roman medicine, with its Gallo Roman offshoots in Rhineland and in Gaul; (7) Byzantine medicine; (8) Arabian medicine; (9) Chinese and Japanese medicine; (10) Frankish, Saxon and its Gothic medical antiquities; (11) mediæval medicine of other western countries; (12) the medicine of the Renaissance and modern times up to the end of last century. The medicine of Semitic and other nations will also be represented as far as possible, and an appeal is made to antiquarians and collectors throughout the world to assist in making the exhibition as completely representative as possible. The special class of exhibits will comprise material illustrating the following subjects: (1) Popular medicine, including that of savage peoples and that of civilized peoples. (2) Instruments of all kinds. (3) Geographical exhibits. (4) History of orders and associations for the care of the sick; knights, religious orders, associations of deacons and deaconesses and lay societies. (5) Plague medals, plague masks, and amulets against sickness. (6) Illustrations of hospitals, baths, physicians in the sick chamber, operations, dressers, dissections. (7) Medals and portraits. (8) Poetical scientists and scientific poets in Germany from the oldest times to the present day, with special reference to Goethe and his relations to Düsseldorf and the Rhine country. (9) History of medicine and the Lower Rhine, in the Duchies of ber of articles of interest. "The Town of Tsimo, in Heine memoria Italian Clause and Razz subdivided into articles of articles of interest." Julich, Cleve, and Berg, subdivided into exhibitions Shantung," is the subject of an article profusely illusrelating to (a) Laurentius Friesius, (b) Paracelsus, (c) trated with interesting engravings, taken from photo-Weyer, (d) Kortum. Here again an appeal is made graphs which were taken on the spot. "The Koontee, for portraits, medallions, photographs, and illustrated the Seminole Bread Root," is an interesting illustrated

works, among the latter especially such as are of older paper, by Mr. Charles H. Coe. "Improved Radio-

#### Duodecaplex Telegraphy.

Experiments are at present being conducted on the Paris-Bordeaux line with some very interesting machines, which the inventor, M. Mercadier, has been working on for many years. With these instruments, called duodecaplex, twelve Morse transmitters can work simultaneously on a single wire, each sending its signals to the proper receiver at the end of the line. This result is brought about by the use of alternating or, at any rate, interrupted currents.

Each transmitter receives its current through a tuning fork having a special note, its vibrations being electrically maintained. These vibrations furnish a current of the proper period to cause resonance at each application in the proper receiving circuit, which has its self-induction and capacity adjusted for this result. This receiver is a telephone (a monotelephone, as it is called by M. Mercadier) so constructed and arranged that the acoustic resonant qualities also help to damp out from the signals received everything not intended for it. These signals are read in the ordinary way by ear, aided by rubber tubes like those used on phonographs. The sifting out of the signals, it seems, is very perfect, each receiver giving no evidence of those signals not intended for it except a slight murmuring very indefinite and not at all bothersome.-Electrical World. .....

## The Current Supplement,

The current SUPPLEMENT, No. 1181, contains a num-

The seventeenth Congress of German Men of Science date than 1580 (receipt books, books about animals, graphic Apparatus" describes some of the latest forms of apparatus in use in Germany. 'There are a number taper hole widening machines, and other devices. "One exhibits will be received up to September 15. The ex- article by Mr.G. A. Lowry, describing the old methods of baling cotton, including primitive presses and cotton gins. "Love Jousts Among the Grouse" is the subject of a very interesting article by Dr. G. Archie Stockwell. It is a valuable contribution to the literature of natural history, and is exceedingly readable. "The Decrease of Bird Life in Thirty Years" is illustrated by a graphic table.

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Subscription. \$2.50 a year Single copies, 25 cents.

# RECENTLY PATENTED INVENTIONS.

Electrical Appliances, BATTERY-ELECTRODE.-HENRY E. WILKINSON, Mount Vernon, O. This invention is an improvement in grids or battery electrodes. The improvement provides a main or central plate and a pocket-plate secured thereto, having pockets formed with front sides which slope inwardly toward its bottom, and with ends arranged at angles to these front sides and converging downwardly. The active agent may be applied to the pockets in

any suitable manner, and when thus applied is freely exposed to the action of the electrolytic liquid. TELEPHONE-TRANSMITTER ARM AND AT-TACHMENT.-WILLIAM J. BARR, Ashtabula, O. Hitherto, telephone transmitter-arms have been pivoted or hinged to a haseadapted to be secured to a wall or other fixed support. In the present improved attachment, a moved downwardly, the wheels rotate to wind the base is provided with one or more integral trunnions. The transmitter-arm is detachably secured to the trun-

nions by means which insure a firm joint at all times and yet permit easy disconnection of the arm when required. The transmitter cup is integrally constructed with the arm. Economy in manufacture is one of the advantage claimed for this improvement.

## Bicycle Improvements.

BICYCLE-SUPPORT. - ABRAHAM W. LEWIS, AS bury Park, N. J. In this improved bicycle-wheel holder a curved bar is provided, vertically arranged and pivoted to a fixed support at the middle of its length, so as to rock and be capable of adjustment. A pair of clamping rings is arranged at the middle. At the end of the bar, bifurcated lugs embrace and hold the wheel rim.

BICYCLE CRANK-SHAFT -- SAMUEL A. DONNEL-LY, Chicago, Ill. The drive shaft provided by this inventor has integral with it opposite end cranks, and also force a loose floor board conveniently in engagement has seats for the cones and a back-stop between the with the one already fastened to the joist, so as to facilicones of greater width or thickness than the cone-seats. , tate nailing the board in place. The clamp has a frame Cones there are, with one or more recesses or wings, with a downwardly-extending flange, toothed at one such recesses or wings permitting the cones to pass from face and adapted to engage one side of a joist or like sup-their seats over the wide back stop and all exterior port. A lever is fulcrumed on the frame and carries a parts. The purpose of the enlarged, flattened ends of the cranks is to reinforce these ends, so that they will not spread by reason of the strains to which the pedal- the toothed flange. Near the other end, the lever carries studs are subjected. Unlike the one-piece cranks com-, a spring pawl. A segment forms an integral lateral exmonly in use, the crank-ends in this invention, it is ob-' tension of the frame, and is provided with teeth on its served, may be enlarged to the size of the widened crank- upper face to engage the pawl. The lever is further axle section, because the cone having the recesses to provided on its under surface with a guide engaging a pass over, the widened section on the crank-axle can also segmental recess on the under side of the toothed segpass over the enlarged ends of the crank. By this con- ment, whereby the lever is held against up-and-down struction of recessed cone and enlarged crank ends, a movement. The frame has a guideway and a bar carrystrong and durable construction is secured, that permits ing a presser foot, adapted to slide in the guideway. This a ready adjustment of the cones. BICYCLE STEADYING DEVICE.-FRANK BARTO. New York city. The purpose of this invention is the provision of a new and improved bicycle-steadying de- joist. vice, arranged for convenient attachment to a bicycleand adapted to hold the front or steering wheel normally in proper alinement with the rear or driving wheel, provide a machine so constructed that it will remove the The rider may turn the front wheel in any position and return the wheel to its alined position whenever the ears to an elevator, whence they are delivered to a he releases the pressure on the handle-bars, after steer wagon traveling alongside of the machine. In this maing the bicycle in the proper direction. tion comprises principally clamps of special construc-tion, which are secured to the members of the front fork, springs connected with the clamps, and a clip held ad- extend over the forward ends of the rollers. Feed-belts justably on the lower brace of the bicycle frame and travel along the inner faces of the shields and a trough apparatus is designed to draw wine, ale, or liquids likely adapted to receive the rear ends of the springs.

## Mechanical Devices.

WINDOW RAISING AND LOCKING DEVICE .-FRANS BRUNO, New York city. The purpose of this invention is the provision of a simple mechanism, comprising a spring-motor that will be automatically wound up or set by a downward movement of the sash mechanism dispenses with the usual weights. The device comprises a rack on a window-sash, a spring-operated gear-wheel to engage with this rack, a frame in which the wheel is mounted, and a pivot extended across a mortise in the window casing. This pivot passes through a holeat the upper portion of the casing arranged in the mortise, whereby the lower portion of the frame may be swung wholly out of the mortise. When the wheels are allowed to rotate, the springs will operate the wheels, and the rotary movement thus produced will raise the sash by means of the racks. When the sash is springs, thus placing the springs in proper tension to open the window again.

ILLUSION APPARATUS. - ATTILIO PUSTERLA, New York city. This invention provides an apparatus which produces on spectators the impression of traveling on land or water. In this apparatus, moving scenery is provided which comprises a number of sections or strips, supporting pulleys or disks of different diameters over which the strips pass, intermediate supports for the strips having individual supporting devices for the central portions of the strips, and means for moving the strips. The distance between the strips gradually increases from the center toward the disks, thus obtaining a better effect of objects receding into the distance.

FLOOR-CLAMP.-EDWIN C. INGERSOLL, Philadelphia, Pa. The floor-clamp provided by this inventor is more especially designed for the use of carpenters to depending jaw at one end adapted to engage the opposite side of the joist, at a point opposite the torward end of guideway is located at the outer side of the toothed flange and parallel therewith, whereby the presserfoot engages the board to be nailed at one side of the CORN HARVESTER AND HUSKER .--- JOHN TJOS-SEM, Paullina, Ia. The object of this invention is to ears from the standing corn, husk the ears, and convey The inven- chine a supporting frame is connected with inclined snapping and husking rollers mounted in the frame and having spirally grooved forward ends. Converging shields is carried on each side of the feed-rollers. In the bottom

the shields and by them is directed so as to pass between the snapping and husking rollers, the feed belts assisting the corn in its passage to the rollers and giving the corn a rearward inclination before it meets the rollers. The inclined position of the rollers serves to draw the stalks downwardly and rearwardly, thus snapping the ears from will be stripped from the ears, and the cleaned ears are delivered by the rollers to either trough and from thence to the elevator, from which the corn may be dropped into a near-by wagon.

formed by one operation in a very simple and effective manner. The punching tool is carried on a frame. On this tically, and is provided with a horizontal portion havthe horizontal portion of the slide and surrounds the horizontal portion of the slide. There are means in connection with the projection by which to impart recipthe horizontal portion of the slide and has a central openthe plates toward and from each other to grasp and release the work.

LOCK FOR FLUSHING-VALVES.-CHARLES H. SHEPHERD, New York city. By means of the lock palever is released by the float-lever unlocking the lock. a flushing-valve lever, a shaft carrying thearm, a toothed

of the troughs conveyer belts are located. One of the ment and rendering the liquid cloudy. The apparatus troughs empties into a hopper from which an elevator has a receptacle with a valved inlet for connection with leads. In operation the standing corn is received between , a barrel containing the liquid to be drawn. An airpressure inlet-pipe opens into the valved inlet to close the valve therein, to interrupt the communication between the barrel and the receptacle and to permit the air to flow into the receptacle and force the liquid to the fancet. This faucet has a connection with an air-pressure supply, with the air-pressure pipe and with the the stalks. The husks being caught between the rollers lower end of the receptacle to connect the air-pressure supply with the air-inlet pipe at the time the faucet is open, so that the air-pressure forces the liquid from the receptacle to and through the faucet.

MACHINE FOR WORKING BALLS. - HEINRICH PUNCHING MACHINE.-CHARLES SEYMOUR, De. MELTZER, Ratibor, Prussia, Germany. For working flance, O. In this invention novel means are provided for | roughly-prepared balls, the latter were hitherto kept in punching D-shaped openings in handles forshovels, forks, circular grooves and in describing always the same circuand the like, the arrangement permitting the opening to be ! lar line, they were worked either upon a flat grindingdisk or this working was effected by the walls of the finely toothed guide-grooves or in such a manner that the frame a bracket-shaped slide is mounted to move ver- balls were ground in oil and emery between the smooth walls of the groove. The result was that the disks ing an opening. A chute is attached to the bottom of grooved themselves or the disks inclosing the grooved guide-plates were moved in opposite directions, renderopening to conduct the chips therefrom, A U shaped ing it necessary that the grooves corresponded to the projection straddles the chute and is attached to the size of the ball. In the present invention, a frame is provided with which a bowl is connected. A stamp coacts with the bowl. A spindle attached to the stamp is rocal movement to the slide. A holder is mounted on slidable and revoluble and is connected with a lever engaged by a cam. An arm is pivoted to the lever and is ing registering with the slide opening. The holder also capable of holding the lever raised out of engagement has a horizontal guideway in its top face. Plates are with the cam. The balls introduced into the machine mounted to slide toward and from each other in this are rapidly and uniformly distributed around the revolvguideway. Clamping jaws attached to the plates hold the ing stamp, and itis not necessary to place them as formerly work between them. Means are provided for moving | -circularly into the grooves. Not only a single row, but several rows of balls may be worked simultaneously.

#### Miscellaneous Inventions.

FAS'TENER.-CHARLES V. WALTER, New York city. tented by this inventor, a raised flushing-valve lever may This fastener is particularly adapted for use in securing be set to lock in position until the tank is empty and the gloves and similar articles, but adapted as well to secure any article having overlapping flaps. The fastener con-The lock comprises a lever-arm arranged to connect with sists of stud and socket members. The socket member comprises a plate having its edges flanged or curve inward and under, and a plate having a scries of rectanguengage the wheel and lock the latter in position against lar apertures disposed along the line of strain and prorotation in one direction, the lever-pawl being adapted | jections on the body at opposite side edges of the apertures. These projections are bent over so as to clasp and hold the stock and the inwardly flanged members of the other plate. The stud member having a side projection

wheel on the shaft, and a spring-pressed lever-pawl to to be actuated from the float-lever of the tank to unlock the wheel and lever-arm.

BELT-REGULATOR .- OSCAR K. SLETTO, Fergus Falls, Miun. This belt-regulator is adapted for use upon , adapted to enter the apertures. threshing machines and their driving engines, and is so FOLDING UMBRELLA. - FRANK G. GROVE and constructed that the guide-pulley or idler may be vertically and laterally adjusted relative to the driver nulley. The device is furthermore designed to prevent the belt vibrating in the wind, thus avoiding side-wear, and causing the belt to run true and without undue friction. The belt-regulator comprises a hanger provided with a tubular section having exterior teeth, a frame mounted to revolve upon the tubular section of the hanger, a pawl carried by the frame and arranged for engagement with the teeth of the hanger, a guide-pulley | hold the runner when the umbrella is closed and which mounted on the frame and adjusted by means of a latch carried by the guide-pulley support and adapted for engagement with the teeth of the hanger.

APPARATUS FOR DRAWING LIQUIDS .- ALEX. RITTER, Basle, Switzerland. This new and improved ment with that section. to foam or leave sediments, without disturbing the sedi- Ill. This computing scale is designed to indicate both

FRANK E. STOVER, Luray, Va. The folding umbrella of these inventors is considerably simplified in its framework. Its telesconic ribs are so constructed that when drawn out to their full length and the runner carried upwardly on the stick, the action of the contracting portions of the two ribs will be such as to hold the ribs immovable and render the telescopic or sectional ribs as strong as a one-piece rib. The folding stick is provided with a spring at its lower section, which is adapted to may be conveniently placed therein. This spring serves to limit the movement of the lower section of the stick and lock this lower section either when drawn from the upper section of the stick or when carried to an engage-

COMPUTING SCALE.-CLARK CORBIN. Carbon Cliff.

125

the weight and net price of commodities. The beam of the scale has a weight scale at its lower portion and a value scale at its upper portion. A price-beam is loosely suspended at its ends from the weight and value beam A weight is mounted to slide on the price beam. An adjustable price weight is also used, comprising a beam and two price weights arranged above the weight and value beam and movable along the top edge thereof. A carriage is movable on a bar supported on the frame of the scale. The adjustable weight is connected with a hanger on the carriage.

MUSIC-HOLDER. - OLAYES I. BYE, Hillsborough N. D. The purpose of this invention is to provide a simple and cheap music-holder which may be directly attached to the instrument so as to hold the music at all times in clear view of the performer, whether he move about or remain stationary. The music holder consists of a frame constructed of wire or light metal and pro vided with a spring-held slide adapted to clamp and hold the music, and with a hook which may be placed within the sound-port usually found in guitars and similar instruments.

SUGAR-CRYSTALLIZER. -EDWARD P. EASTWICK. Jr., New Orleans, La. . The purpose of the present invention is the provision of an apparatus for crystallizing sugar in motion that will give a more complete move ment to the mass than has hitherto been attained. The apparatus is so constructed as to avoid the grinding and breaking of the grains usual in crystallizers commonly employed, by reason of the arms, spirals or paddles scraping against the inner surface of the cylinder. In this improved device, the cylinder and its agitators turn together, thus effecting a thorough mixture of the masse-cuite without any tendency to in jure the grain of the sugar.

NECK-YOKE.-SAMUEL J. MCDONALD, Gallatin, MO In this invention, the center ring or loop has a swivel connection with the cross-pole of the neck-yoke, thus enabling the center ring or loop to adjust itself to any necessary position. The parts are so assembled as to operate freely with a minimum of wear and means are provided to prevent rattling. The center ring or loop is constructed so that it will not leave the tongue should the traces or tugs of the harness become broken,

MILITARY EQUIPMENT.-HENRY J. ROSE, Hythe and WILLIAM GILBERT-COOPER, Dover, England. 'This invention provides an equipment for military and sporting purposes by means of which equipment a knapsack or handbag, great coat, canteen, pouch and the like can be carried with the utmost convenience and least dis comfort. The knapsack or bag is carried on a back frame to which braces are fastened, passing over the shoulders down in front of the body and thence to the back, where they are made fast. A stay-strap adjustably connects the braces in front of the body below the chest serves to keep the braces clear of the armpits, assists in supporting and distributing the weight carried. and maintains the whole equipment in position without the assistance of the usual waist-belt.

SKIRT.-BERTHA E. MARTIN, Asbury Park, N. J. The skirt provided in this invention is a bicycle-skirt, having the appearance of an apron front. The skirt is designed not to blow up over the knees and to be used upon drop frame or diamond frame bicycles, the skirt hanging gracefully whether the rider be mounted or unmounted. The skirt is made so that the front portion may be securely held while the back portion is dropped at the waist. The skirt is particularly adapted to bicycle saddles, since it is prevented from pulling or drawing at any part while the wheel is in motion, at the same time admitting all necessary freedom and elasticity.

PASSAGEWAY FOR BULKHEADS. - DALLAS DU BOIS, Montclair, N. J. In this invention, a device is provided whereby communication may be obtained between one compartment and another, at the same time maintaining a waterproof and fireproof division between the compartments. When the door in one compartment is opened, the door in the other compartment is closed. Both doors, however, may be sealed when desired. The openings of the opposing partitions are out of registry with each other, and between the partitions a car is mounted to travel and provided with opposing openings. A person desiring to pass from one compartment to another, enters the car. The car is then moved by actuating the proper devices, until the opposite door-opening in the car is brought in registry with the door-opening in the opposite partition, whereupon the person may step out into the opposing compartment.

PENCIL HOLDER AND SHARPENER.-CONSTANT E. COUSY, New York city. To provide a holder in which the pencil may be readily advanced as it wears and at the same time permits the sharpening of the point, this inventor employs a spirally grooved case having a longitudinal slot. A socket is provided capable of holding the pencil and of moving in the case. A ring encircles the case and is connected with the socket by a web. A nut works on the groove of the case and bears against the ring to advance the ring and parts con-

HOOK.-EUNICE R. MORTON. Revere. Mass. This hook consists of a bar, from the upper end of which rise the spaced side members of a loop, from the middle portion of which extends upwardly the shank of a hook ranging in an opposite direction to a hook-plate depending from the upper edge of the bar first mentioned and from between the side members of the hook.

Note.-Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.

# Business and Personal.

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Minerals sent for examination should be distinctly marked or labeled.

(7474) F. W. M. says: I take the liberty of sending you a cutting of an ash tree I have, with a growth which I believe are eggs, and asking you what it is and for a cure. Last year this same tree, later in the season, had numerous small insects on some of the branches which looked like mould or moss, and which I corched off, and now think perhaps they were a more advanced stage of the same thing I inclose. A. Mr. F. H. Chittenden, acting entomologist of the Department of Agriculture, says: The object sent on a cutting of an ash tree is an egg mass of the orchardtent caterpillar (Clisiocampa americana, Harr.) It is a common species in orchards throughout the northern Atlantic States and Canada, and the peculiar habit of its larvæ of construct ing tents or webs on the trees upon which they feed is well known to most fruit growers. These tents are used as shelter, and the larvæ retire into them when not engaged in feeding on the leaves. This habit of tent build ing furnishes an easy means of destroying the insect over limited areas, as in gardens and orchards, as it is not a difficult matter to cut off and burn these nests with their contained larvæ. The same object can be accomplished by scorching them with a torch, but it is more advisable to cut away the infested portions, as they destroy the good appearance of the trees. This is the simplest and easiest method of controlling the insect. It is also possible to detect most of the egg masses in the winter time and remove and destroy them. Still another method of control consists in the use of arsenical washes, The best time for the application of these washes, or sprays, is when the eggs first hatch, and to determine this point a few egg masses should be collected and kept

as that of the core of the magnet. No allowance is here made for the leakage of the magnetic lines; so that the actual result in any case will be somewhat less than is given by the formula. Much depends upon the accuracy with which the armature fits upon the poles of the magnet. The full calculations of the lifting power of an electromagnet may be found in S. P. Thompson's "Electromagnet," price \$6 by mail. The formula expressed as a rule is: Multiply the number of turns of wire by the number of amperes of current. Multiply this product by 400 for full saturation, and this in turn by the square root of the total area of the poles of the magnet. Divide the final product by 2661, and this quotient by the mean length of the iron circuit. The result is the lifting power in pounds.

Bra

Bri

(7476) J. H. L. writes: I wish to call your attention to the difference between an eighty gear on a bicycle or a sixty, backpedaling down a hill. it require any more strength to hold a large gear down a hill than it does a small one? A. It requires less pressure on the pedals of a low gear bicycle than on those of a high gear, in going down hill.

# NEW BOOKS, ETC.

AN ELECTRICAL THEORY EXPLANATORY OF THE SOLAR SYSTEM. By " Delta." Published by the author. 1898. Pp. 12. Cloth. 12mo.

This is a reprint from the Electrical Review of January 21, 1898, and embodies a theory that is at least ingenious.

DIE SCHLEIF-, POLIR-, UND PUTZMIT-TEL für Metalle aller Art. Glas, Holz, Edelsteine, Horn, Schildpatt, Perlmutter, Steine, u. s. w. Von Victor Wahlburg. Vienna, Buda-pest and Leipsic: Verlag von A, Hartleben. With 91 illustrations. Pp. 304 Price \$1 25 Hartleben. With 9 Pp. 304. Price \$1.25.

The second edition of "Die Schleif-, Polir-, und Putzmittel " has given the author an opportunity thoroughly to revise and enlarge his work, and to eliminate all that seemed antiquated when viewed in the light of improved methods. After having exhaustively treated the various polishing substances in the order of their hardness, the author passes to a description of the manufacture of polishing papers and cloths, of emery disks, rings, cylinders, etc. The polishing machines commonly used are illustrated by many engravings which constitute a desirable adjunct to the book. To the cleansing of various objects and to the manufacture of cleansing materials, such as salves, pastes, powders, etc., the author has devoted much care. Taken as a whole, the work will form a desirable acquisition to the libraries of technical schools and of mechanics.

We have received a new catalogue of photographic lenses, shutters, and accessories issued by the Bausch & Lomb Optical Company, of Rochester, N.Y. It is one of the finest catalogues which it has been our good fortune to examine. The lenses themselves are notionly described and illustrated in a thoroughly scientific nanner, but excellent examples of the work which is done with them are given. The intaglio plates and the half tones scattered through the book give an excellent idea of the range of the various lenses. The views in the factory show what patient care must be exercised in manufacturing high class lenses. The catalogue will be sent to any one who is interested in photographic lenses or shutters.

#### TO INVENTORS.

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Boat, D. Abern	608,565
Boat, D. Abern Bolt. See Lock bolt. Bolt. 1', P. Russell.	608,717
Bottle, non-refillable, S. W. Durham	608,957
Boit, T. P. Russel	608,879
Box beam, box girder, and box post, metal, C.M. Horton.	608,861
Horton and Brachine, F. P. Rosback Box blank making machine, F. J. Ubri Box nailing and printing machine, F. P. Ros- back	608,796 608,8 <b>9</b> 9
Box nailing and printing machine, F. P. Ros-	608,917
Brake. See Air brake. Shoe brake. Vehicle	000,911
Brakes, device for actuating fluid pressure, R.	
Fitzgerald Bridges, etc., construction of tension members for, G. Lindenthal. Bridle, safety, J. Harmond.	608,661
for, G. Lindenthal Bridle, safety, J. Hammond	608,690 608,672
Broom case, G. Hacker Broom clamp, J. Hiett	608,671 608,773 608,860
	608,860
Button fastening device, J. F. Dunn	608,588
Button setting machine, S. Dpton Buttonhole casing, G. J. Gissing	608,593
Button fastening device, J. F. Dunn Button setting machine, S. Upton Buttonhole casing, G. J. Gissing Cable carrier, J. T. Cowley Cakes, etc., device for ornamenting, L. Fer-	608,994
Cakes, etc., device for ornamenting, L. Fer- raioh. Can opener. M. F. Connett. Can coupener. M. F. Connett. Car coupling, R. H. Jowling. Car coupling, A. L. Humphrey. Car coupling, J. P. Paulissen. Car coupling, W. Shanklin. Car stept bridge, J.H. Burkhart. Car stept bridge, J.H. Burkhart. Car stept bridge, J.H. Burkhart. Car stept bridge, J.H. Burkhart. Case. See Broom case. by Equated carrier. Case See Broom case. Breglass case. Refrig- erating sillpping case. Cash bolder, M. R. Jaley. Change delivering device, J.S. Johnston. Checking device. W. M. Shutt. Chuck for woetworking machinery, lathe, C. H. Barllett.	608,958 608,665
Can opener. M. F. Connett Cane crusher. A. L. Marshall	608,575 608,885
Car coupling, R. H. Dowling.	608,764 608 PG5
Car coupling, J. P. Paulissen	608,708
Car fender, D. Guarino.	608,598
Car step lifter, T. Millen	608,618
Carrier. See Cable arrier. Elevated carrier. Case. See Broom case. Eyeglass case. Refrig-	
Cash bolder, M. R. Daley	608,654
Change delivering device, J. S. Johnston Checking device, W. M. Shutt	608,778 608,920
Chuck for woodworking machinery, lathe, C. H. Bartlett	608.636
Cigar machine, J. Reuse.	608,636 608,915
Bartlett. Cigar machine, J. Reuse. Cigar making machine, J. Reuse	0001749
Clay products, machine for making, w. w. wai-	
lace. Cleaning, apparatus for chemical, A. F. Platt Clip. See Hat clip. Clopt. Jack Hunghapa & Hirth	608,937 608,792
Chp. See Hat Chp. Clock, alarm, Junghans & Hirth Cloth winding machine, J. E. Windle. Clothes line prop. extensible, J. W. Wood Clothes pin, duplex, J. R. Holt. Clutch, friction, W. J. Elliott Coat and vest holder, D. W. Axene Cock draught, B. Krall.	608,867
Cloth winding machine, J. E. Windle Clothes line prop. extensible, J. W. Wood	608,817 608,629
Clothes pin, duplex, J. R. Holt Clutch, friction, W. J. Elhott	608,629 608,986 608,977
Coat and vest holder, D. W. Axene	608,633
Coin freed apparatus, A. E. Box.	608,750
Collar turning and ironing machine, W. C. Sbaw	609,720
Cooker, steam, W. J. Thomson.	608,806
Cooking utensil, S. Kaufmann	608,952 603,868
Cooking utensil, portable, A. Westheimer Coop and trap, combined folding, W. A. Neal	608,738 608,705
Cornstalks. means forextracting pith or cellulose from. F. T. Wright	608,630
Cotton gin, M. Swenson	608.729 608.982
Counter, score, H. De Wallace,	608,586
Coat and vest holder, D. W. Axene Cock, draught, B. Krall Collar and socket machine, C. D. De Forest Collar and socket machine, C. D. De Forest Collar turning and ironing machine, W. C. Shaw Conver, ing apparatus, J. T. Cowley608,576 to Cooker, steam, W. J. Thomson Cooking utensil, Portable, A. Wely Cooking utensil, portable, A. Westheimer Coop and trap. combined folding, W. A. Neal Cornstalks, means forextracting pith or cellulose from. F. T. Wright. Cotton gin, M. Swenson	COO 747
Crucible furnace, self beating, R. Baumann Crusher. See Cane crusher. Cultivator, H. Otenh ouse Cultivator, disk. A. L. Brock Cushion. See Rocker cushion.	000,111
Cultivator, disk. A. L. Brock.	608,830
Cuton for water spouls or other conduits, H.	
Epple. Cutter. See Fruitor flower stem cutter. Cutting and delivery mechanism, L. C. Crowell Cycle saddle, R. W. Jamieson. Damper regulator, E. K. Hutchison.	608,765
Cutting and delivery mechanism, L. C. Crowell Cycle saddle, R. W. Jamieson	C08,582
Damper regulator, E. K. Hutchison Demijohn, G. Beccaro	608,966 605,824
<ul> <li>Damper regulator, E. K. Hutchison.</li> <li>Demijohn, G. Beccaro.</li> <li>Dentijohn, G. Beccaro.</li> <li>Dovetaling machine, T. J. Ryland.</li> <li>Dowel pin pointing machine, C. F. Stewart.</li> <li>Draught equalizer, G. S. Hoffman.</li> <li>Drill. See Ridge drill.</li> <li>Drum, heating, C. P. Vernier.</li> <li>Dust collector, E. R. Draver.</li> <li>Dust receptacle or pouch, W. A. Bartholomew.</li> <li>Eaves trough hanger and Screen attachment, F.</li> <li>P. Dick.</li> </ul>	608,984 608,994 608,994 608,924 608,776
Dowel pin pointing machine, C. F. Stewart	608,924
Draught equalizer, G. S. Hon man Drill. See Ridge drill.	000,110
Dust collector, E. R. Draver.	608.935 608,587 608,635
Eaves trough hanger and screen attachment, F.	008,030
P. Dick Electric cable, H. A. Reed	608,844 608,911
P. Dick. P. Dick. Electric cable, H. A. Reed. Electric conductors, supporting clip for over- head, W. A. Bartley. Electric meter and motor, Davis & Conrad. Electric motor, W. H. Powell. Electric regulator, automatic, R. Skeen. Electric regulator, automatic, R. Skeen.	608,637
Electric meter and motor, Davis & Conrad Electric motor, W. H. Powell	608,842 608,711
Electric regulator, automatic, R. Skeen Electrical resistance, switch for varying. E. F. H.	608,721
H. Lauckert. Electrodynamic apparatus for operating clipping, brushing, or other mechanisms, W. P. Free- man	608,878
brushing, or other mechanisms, W. P. Free-	608 768
man Elevated carrier, H. H. Drew. Elevator, C. H. Newhall. Elevator governor and safety attachment, J. W.	608,768 608,656 608,789
Elevator governor and safety attachment, J. W.	
Trammell Embroidering machine, R. Loeb End gate lock, N. C. Murray Engine. See Internal combustion engine. Rotary	608,931 608,781
Engine. See Internal combustion engine. Rotary	605,892
engine. Engine attachment, gas, J. H. Wiehl	608,944
Envelop, reversible, E. A. Burlingame Envelop, safety, F. C. Cuckson	608,944 608,752 608,583 608,640
Eyeglass case, H. E. Bemis	608,640 608,568
Feed water supply, engine, E. S. Hough Weeding trough A. A. Innis.	608,679 608,863
Fence building appliance, wire, G. Kentch	608,608 608,753
Engine, international combustion lengther total y engine, attachment, gas. J. H. Wiehl. Envelop, reversible, E. A. Burlingame. Evvelop, safety F. C. Cuckson. Evelop, safety F. C. Cuckson. Feed water supply, engine, E. S. Hough. Feed water supply, engine, E. S. Hough. Feedewater supply, engine, E. S. Hough. Fibering approximation of the superscript of the sup	
chinery for preparing, J. Good	608,981
Filtering apparatus, R. Douglas.	608,663 608,655 608,946
Finger ring exhibitor, M. Adams Fire extinguishers, sprinkler bead for automatic,	608,946
G. E. Hibbard Fireplace back or fining, J. A. Dickson	608,677 608,763 608,847
Floor laying machine, J. C. Dukes Flower pot, A. N. Free	608,847 608,064
Frame. See Spinning frame.	608,590
ment D Tilden	608 907
ment, D. Tilden Furnace. See Assayer's furnace. Cracible fur- nace. Smelting furnace. Smoke consuming furnace.	000,007
nace. Smelling furnace. Smoke consuming	
Furnace, F. Bolmare	008.82
L'annue and manhaim a faire that for the second second	008,993
Furnace, P. Boimare. Furnace, H. E. Wallis. Furnaces. rocking fire bar for, A. Pilatt. Game board, L.J. Scovell Garment hanger. E. H. Foote	608,995 608,712 608,918

nected	therewit	h.
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#### Designs,

WIRE-FENCE.-ALBERT HENLEY, Lawrence, Kans. This design consists of a series of horizontally disposed trapezoidal figures in which the parallel sides are approximately vertical, of the same length throughout the same rows and of gradually increasing length from row to row. The other two sides of each figure are of the same length throughout and converge from one of the parallel sides toward the other, producing meshes of trapezoidal form, uniform in length laterally throughout the fence, but increasing width vertically from edge to edge of the fence.

BOT'I'LE. - HERMAN TAPPAN, New York city. circular base is provided for this bottle, from which base rises a cylindrical body slightly tapering inwardly at its. npper end, terminating in a neck formed with raised spirals and ending in a reduced cylindrical mouth.

JET FOR LIME LIGHTS.-JOHN A. MANTZ, JERSEY City, N. J. The leading feature of this design consists in a boss, from one side of which extends a bend of the base portion and from the top of which boss rises upwardly and forwardly a spout terminating in a contracted mouth.

	under	observation	out of	doors.	Mr.	Chittenden	has
	mailed	to our corre	sponden	t a copy	of Fa	rmers' Bul	letin,
No. 19, in which he will find full directions for the pre-							
	paratio	on and applic	ation of	arsenica	d spra	iys.	

(7475) F. G. G. asks: Is there any rule by which I can find the strength of an electromagnet, having given the size of the core and wire, the number of coils, and the amount of current? A. A practical for

rmula for this case is
тсм
$\sqrt{10} = - \sqrt{4}$
2661 L
T=number of turns of wire on magnet.
C=current in amperes.
M = magnetic permeability of the iron.
A=area of poles in square inches.
L=mean total length in inches all round the iron cir-
it.

Belt, Bicy Bicy The value of M varies greatly with the Quality of the ron and the degree of saturation. For strong saturation of well annealed wrought iron its value may be as low as 400, and its value may rise as high as 3,000. For a horse-shoe magnet the area to be taken is that of both poles. The mean total length is half the sum of the inside and outside distances around the core and armature. The armature should have as large an area of cross section

Awl, sewing, G. F. Summers 608,926	Gas generator, acetylene, C. Keny	008,809
Bag fastener, A. H. Propper 608.909	Gas heater valve, A. E. Detwiler	008,974
Bag holder, N. F. Becker	Gas or oil motor for bicycles, W. Morava	608,968
Bag holder, W. D. Graves	Gas producing apparatus, acetylene, T. Hen-	
Bag holder and weigher, combined, J. E. Otto 608,900	nessy	608,985
Baking pan, compartment, L. A. Tuell 608,930	Gate, See Mine gate. Railway crossing gate.	
Bale tile, F. H. Daniels 608,840	Gate, Flesher & Crisler	
Ballot box. L. M. Foster 608.662	Gate, E. Grist	608,670
Barrel, metal. J. Harmatta 608,172	Gates, opening or closing, W. J. Moore	608,702
Bath apparatus, shower, W. R. Baker 608947	Gear, roller tooth variable, T. Foster	608,851
Batteries and composition for producing same,	Generator. See Gas generator. Steam genera-	
plate for secondary galvanic, C. Marschner 608.614	tor.	
Battery. See Storage battery.	Glass and apparatus therefor, production of cor-	
Bearing, anti friction, E. Rivett 608,916	rugated sheet, W. L. Pilkington	008,905
Bearing, ball, Harper & Grohmann	Glass holder, J. Kirby, Jr Glassware articles, apparatus for making, C. N.	608,610
Baring, bicycle, W. R. Fox	Glassware articles, apparatus for making, C. N.	000.000
Bearing, roller, R. G. Petway 608.709	Brady Glassware manufacturing apparatus, T'. Coleman	608,828
Bearing, vehicle wheel, W. Meeker 608,698	Glassware manufacturing apparatus, T. Coleman	000 05 4
Bearings, machine for assembling ball retainers	et al Glove fasteners to garments, machine for attach-	008,794
for ball, E. Klahn 608,611	Give fasteners to garments, machine for attach-	000 000
Bed, invalid, A. McKnight 608,619	Ing, E. Flagg Gold separating machine, W. A. Darling	000,910
Beehive, J. F. Wessel 608,943	Grating machine, A. B. Hostetter	608 611
Beer, etc., process of and apparatus for gasing,	Gun lock safety attachment, P. M. Wood	
J. L. Alberger 608,744	Hackling machine, J. Good	
J. L. Alberger	Handle. See Tool handle.	000,000
POSL	Hanger. See Eaves trough hanger. Garment	
Belt, waist, J. Penderg ast 608,903	hanger.	
Bicycle, G. G. Bieber. 608.825	Harvester, cotton, G. S. Lee	608.689
Blevele, F. J. Wadman	Hat clip, E. Anderson	
Bicycle chain brush attachment, F. G. Kinnard. 608,600	Hat holding device, R. Piesbergen	68.710
Bicycle gear, D. L. Harshner	Hat sweat hand, C. Stader	608.724
Bicycle gearing, E. H. Godfray	Hay stacker, J. Dain, Jr	608,653
Bicycle bandle, E. Anderson 608,566 Bicycle handle bar, G. J. Bungay	Heat retainer, F. Kahn	608,684
Bicycle locking or securing device, T. Gilmer 608,769	Heater. See Water beater.	
Bicycle pedal toe clip, C. O. Nelson	Heating air for therapeutic or other purposes,	
Bicycie saddle, L. M. Hildreth 608,857	apparatus for, W. Taylor	608,928
Bicycle support, J. Booth	Heating and evaporating liquids, A. G. Hoff-	
Bicycle supporting device, E. Russ,	mann	608,775
Board. See Game board. Plaster board.	(Continued on page 126)	

(Continued on page 126)

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608,804 608,571