

series of leaf-carrying frames mounted to swing from one side to another. Each frame is adapted to hold a leaf of music so that the several frames may be manually thrown to turn the different leaves. The music-leaf turner may be manipulated with great ease, and may be folded very compactly.

SEWING-MACHINE ATTACHMENT.—CARL F. CAIN and HERMANN SANGINETTE, Brattleboro, Vt. This attachment consists of a gage especially adapted to insure the stitching of a seam of predetermined width, or to locate a line of stitching a predetermined distance from the edge or seam of a garment or from a line of stitching. The gage bears a scale in inches and fractions of an inch, and is so constructed that it may be accurately set before it is applied to the bed-plate of the machine. The attachment may be placed in position on the plate or removed therefrom without dislodging the scale-bar.

PNEUMATIC SHOE-STUFFER.—FRED G. WHITE, Aurora, Mo. The shoe-stuffer provided by the present invention is especially designed to give a shoe the desired shape to display it in a shop-window. The stuffer consists of an inflatable bag in the form of a shoe, which bag is provided at the toe with a hood which receives a rod whereby the toe can be pushed into the shoe.

ROTARY BRUSH.—NEIL CAMPBELL, Jersey City, N. J. In this invention a broom-head for rotary street-sweepers is provided, which comprises peripheral and radial webs having axially-extending and aligning perforations receiving connecting ribs. The ribs space the broom-material between them. Backing boards secured to the radial webs within the ribs support the inner ends of the broom-material and hold it in place. With this construction the broom may be made of sufficient strength to withstand hard usage. The broom-head is easily repaired and thus no inconsiderable expense is saved.

TRAP-NET.—ABNER S. CHASE, Marshalltown, Iowa. The trap-net is composed of two sections, the upper of which has a line connected with its upper portion. This upper section has additional lines connected with its lower portion and reeved through the lower section. By drawing on the first-named line the upper section may be lifted from the lower section, and by drawing on the second-named lines the two sections may be drawn together.

ATTACHMENT FOR SPECTACLE-TEMPLES.—LEO F. C. GIEBERICH, Manhattan, New York city. It sometimes happens that the fine wire forming the hook of the spectacle temple embeds itself in the soft tissues of the skin and thus produces painful irritation. The inventor of this attachment overcomes the difficulty by providing the hook with a protector formed of cork rolled into tubular form with a plurality of layers, the outer one of which is secured to the preceding layer to give the protector a permanent form.

HINGE FOR COUCHES, BEDS, OR ADJUSTABLE CHAIRS.—AMBROSE HUTTINGER, Cleveland, Ohio. The present invention is an improvement upon a similar hinge patented by the same inventor and seeks to simplify the previous construction. The hinge-sections are reconnected with two frames. One of the sections is toothed. A locking-lever is pivoted to the frame of the other section and is arranged to engage the toothed section. A releasing-lever is pivoted to the locking-lever and is arranged to hold it out of engagement with the toothed, hinged section. The invention dispenses with the necessity of a foot-lever, and enables the head portion of a couch, bed, or chair to be adjusted to any inclination.

LABEL-CABINET.—CLARENCE A. KNAPPENBERGER and HENRY H. BARNES, Jr., La Harpe, Ill. To construct a druggist's label-case for use in finding and applying the right labels to bottles and packages is the purpose of this invention. Druggists usually employ thread-cases or improvised sets of drawers for this purpose, with the result that it is not possible readily to determine which drawer contains the label sought. In this label-cabinet, an outer case, having trunnions on the inside and back of the front edge, and holders consisting of a front part having a glass panel, are provided. Grooves in two end pieces receive the trunnions within the case. Means are provided for separating and retaining the labels. When a label-holder is turned down or opened, the labels are made easily accessible; when the holder is turned up, it acts as a door to close up the opening in the front of the case.

ANIMAL-TRAP.—FRANK J. HEDA, Vesta, Neb. The trap is constructed of a length of wire coiled to form a casing, the wire having its resilient end extending longitudinally along the outer side of the casing. A trigger is attached to the casing and serves to hold the spring end of the wire in proximity to the casing. A loop is carried by the spring end of the wire and projects normally into the casing to impale the animal when the trigger is released.

Designs.

ADVERTISING-TABLE.—ELLA F. DOUGHERTY, Staunton, Va. The table consists of a frame and legs supporting the top. On the top are supported two pockets, between which a hollowed block containing an ink-well is placed. In front of each pocket a smaller pocket is secured.

SPOON.—AUGUST MILLER, Taunton, Mass. The chief feature of this design is to be found in the peculiar ornaments of the spoon, ornaments which consist principally of scrolls and fleurs-de-lis.

HEATER.—JAMES S. MACKENZIE, North Bend, O. The design provides a heater which is adapted to fit between the stove and stove-pipe. Through the heater, pipes run, which conduct air from the atmosphere through the heater and to the room in which the stove is placed. Heated air is thus constantly supplied with no additional expense in fuel.

SAFETY-PIN.—SILAS P. TOMKINS, Tilly Foster, N. Y. The safety-pin is provided with a hook adjacent to a longitudinal member of the pin. The safety-pin is primarily designed for use on horse-blankets, the hook being slipped over a part of the harness to prevent the blanket's blowing about.

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.

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.

For mining engines. J. S. Mundy, Newark, N. J. "U. S." Metal Polish. Indianapolis. Samples free.

Gasoline Brazing Forge, Turner Brass Works, Chicago. Yankee Notions, Waterbury Button Co., Waterbury, Ct. Handle & Spoke Mch'y. Ober Lathe Co., Chagrin Falls, O.

Machinery designed and constructed. Gear cutting. The Garvin Machine Co., Spring and Varick Sts., N. Y.

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

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

Roche's "New Standard" Electric Necktie Pin. Works like a charm. Midget Battery. The electric light is a beauty and a wonder. Sent postpaid for \$1.00. Agents wanted. Wm. Roche, 259 Greenwich St., New York.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway New York. Free on application.

Notes & Queries

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. 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 price. Minerals sent for examination should be distinctly marked or labeled.

(7598) C. M. D. answers T. E.'s query No. 7551, as to whether a dynamo works well in a low temperature, as follows: A dynamo will work better at a low temperature than at a high one. The lower temperature keeps the iron cores and especially the copper conducting wires cool, securing greater conductivity. The same applies to the outside wiring. A Thomson-Houston arc generator shows the difference very markedly by the position of its regulator armature on hot or cold nights. On warm nights full load would bring armature nearly flat on stop, while at zero the same machine would have a surplus good for one or sometimes two 45 volt lamps—arcs. [The above statement is of course true, though, in answering the original query, it was not necessary to go into this matter at all, since the only point raised was whether cold weather would prevent a dynamo and storage battery from working. The temperature coefficient of copper is about 0.002 per degree Fah., that is, copper improves two-tenths per cent for each degree it is cooled. The night temperature in this city between the hottest and coldest nights is about 90 degrees. For 100 degrees the conductivity of the copper is about twenty per cent higher in the coldest night of winter than in the hottest night of summer. This is the whole difference in capacity of a series wound machine, such as is the Thomson-Houston; but in a shunt wound machine the difference is still greater.]

(7599) H. W. C. asks: 1. What substance, if any, is opaque to the lines of force coming from a permanent magnet? A. An iron screen surrounding a magnet furnishes so easy a path for the lines of force that few or none leave it to pass through the air. 2. How is the compass on a modern steamship protected from the magnetic influence of the steel and the dynamos? A. For the protection of ships' compasses against the iron about them, see SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 527, 534, 709, 760, price 10 cents each. 3. What is the best shaped burner for a Trouve acetylene lamp and where can I get a burner of that kind? A. A two-pronged burner with the jets directed against each other, and the acetylene burning in the air between the jets, is found to work satisfactorily. 4. How can I take off and use the electricity that is found on the belts in a machine shop when the machinery is running? A. A comb such as is used in all static machines will draw the electricity from a belt.

(7600) H. P. G. writes: Please inform me how to make a simple electric friction machine? A. You will find full instructions for making a Holtz machine, which gives the same kind of electricity in far greater power than the friction machine, in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 278, 279, 282, price 10 cents each, with many experiments which may be performed with it.

(7601) J. S. C. asks: How is it we can speak any word at any rate of vibration in the musical scale? For instance, I can say boy or any other word in f, a very slow rate of vibration, or in e, a much more rapid rate; in fact, from the very lowest to the highest rate of vibration per second, showing that it is not the number of vibrations per second. A. You do not speak a word at any rate of vibration in the musical scale. The tone is formed by the vocal cords in the larynx at any rate of vibration which their tension allows. This tone is formed into words by the mouth, nose, tongue, teeth, lips, and palate, and in this form it issues from the mouth. If the mouth is held motionless, any tone

can be sung, but no words can be formed so long as the vocal organs are not allowed to move.

(7602) R. G. asks: What size wire by B. & S. gage correspond to No. 20 and No. 18 American gage? A. No. 20 American wire gage corresponds to No. 21 B. & S. gage. No. 18 A. W. G. corresponds to No. 19 B. & S.

NEW BOOKS, ETC.

We have just received from the United Correspondence Schools of 154-158 Fifth Avenue, New York city, some of their instruction papers. We have examined them carefully and we certainly approve of both systems which are used and the matter which is taught. They are eminently practical, and are particularly valuable to the student from the fact that all the material which is not germane to the subject is entirely eliminated. Of course, a correspondence school can never take the place of a scientific school or university, but at the same time there is a very large class of people who have not the time nor money, nor possibly the inclination, to spend three or four years in a school where they are often obliged to study things which will be of no immediate value to them. This Correspondence School begins in the proper way in making students obtain a practical knowledge of arithmetic, algebra, logarithms, geometry, mensuration, etc., before proceeding to the study of principles and applications of the subject being taught. The Schools give instruction in electrical engineering, mechanical engineering, civil engineering, sanitary engineering, architecture, art, sheet metal working, pattern making, etc. The method of teaching is entirely without text books, all of the instruction papers being furnished by the School, and they are accompanied by the question papers which contain inquiries on the subject contained in the instruction papers. As soon as the answers are received by the School they are examined with the utmost care. All answers are corrected in red ink, and the work is returned to the student with such suggestions and criticisms as will enable him to better understand the subject. In this way mistakes are pointed out and the material furnished is explained to the satisfaction of every individual student. Experience has shown that written comments on a man's work are more valuable and lasting than verbal ones, and the students will have the satisfaction of knowing that the criticisms are made by competent men.

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 unequalled 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 Granted

FEBRUARY 14, 1899,

AND EACH BEARING THAT DATE.

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

Table listing inventions with names and dates. Includes entries like: Accordion, J. Galleazzi, 619,558; Acid, xanthopurpurin sulfo, M. H. Isler, 619,574; Advertising apparatus, T. Hansen, 619,301; Agricultural boiler, convertible, H. M. Crippen, 619,283; Air brake, vehicle, R. E. Wynn, 619,381; Air heating apparatus, H. Higginbottom, 619,483; Alarm, See Burglar alarm; Animal trap, T. I. Hall, 619,566; Armor plate, C. F. Flodquist, 619,295; Balance and ready reckoner, combined spring, W. S. Andrews, 619,490; Bale tie, wire, E. S. Lenox, 619,561; Baling press, C. G. Overmyer, 619,686; Barrel, R. T. Harprows, 619,686; Baton, police, W. N. Bean, 619,268; Battery, See Faradic battery. Secondary battery; Battery switch, R. Macrae, 619,324; Battering machine, P. Kubica, 619,318; Beading or cording machine, E. & R. Cornely, 619,367; Bearing adjustment, ball, H. H. Thompson, 619,367; Bearings, device for inserting balls in, M. Hogue, 619,484; Bed bracket, J. C. Woodward, 619,550; Beer, manufacturing, P. Kropf, 619,317; Belt fastening device, G. W. Southwick, 619,514; Belt slide, O. A. Lehman, 619,492; Bicycle brake, W. H. Crossley, 619,335; Bicycle crank shaft, W. H. Penney, 619,499; Bicycle driving mechanism, G. Johnson, 619,421; Bicycle driving mechanism, A. F. A. Roxendorff, 619,507; Bicycle frame, T. J. Lindsay, 619,322; Bicycle handle bar, adjustable, A. S. Vose, 619,452; Bicycle integral crank hanger and rear fork, W. H. Fisher, 619,550; Bicycle parcel carrier, W. H. White, 619,376; Bicycle pump, W. M. McKown, 619,602; Bicycle support, F. J. Ward, 619,646; Bicycle support or rest, H. W. Roby, 619,686; Boiler, See Agricultural boiler; Boiler lubricator, steam, E. E. Gordon, 619,563; Boilers, gas fuel burner for steam, E. L. Bush, 619,274; Book, manufacturing, P. W. Paulson, 619,691; Book, mileage, H. E. Bateman, 619,532; Boring bar, W. H. Turton, 619,450; Boring machine, multiple, J. C. Neville, 619,333; Bottle, E. B. Phillips, 619,433; Bottling machine, W. M. Fowler, 619,474; Bottle, non-refillable, J. L. Jackson, 619,310 to 619,312; Box, See Display box. Paper box; Bracket, See Bed bracket. Swinging bracket; Brake, See Air brake. Bicycle brake. Car brake. Carriage brake. Fluid pressure brake. Wagon brake; Brakes, device for actuating fluid pressure, M. W. Hibbard, 619,480; Brakes, operating fluid pressure, M. W. Hibbard, 619,570; Branding device, electric, Fellows & Van Hoesen, 619,471; Branding device, electric, H. Van Hoesenbergh, 619,519; Bug gathering and destroying machine, J. N. Morgan, 619,330; Burglar alarm, electric, J. Tomney, 619,448; Burial casket face plate, W. Hamilton, 619,567; Burner, See Gas burner. Hydrocarbon lighting burner; Rutton, G. J. Capewell, 619,277; Camera, magazine, W. D. Robinson, 619,635; Can, See Sheet metal can; Cans, bottles, jars, etc., means for closing, J. P. McElman, 619,582; Car brake, W. W. George, 619,582; Car coupling, W. L. B. & E. A. Carter, 619,387; Car coupling, Garber & Beall, 619,559; Car coupling, J. O. Stow, 619,699; Car, freight, W. A. Caswell, 619,670; Car heating apparatus, J. Frauvelier, 619,402;

Table listing inventions with names and dates. Includes entries like: Car truss rods, adjustable bearing for railway, J. J. Souder, 619,357; Carbon clamp for electrical purposes, Bachmann & Vort, 619,263; Carpet sweeper, H. B. Cornish, 619,261; Carpet sweeper, C. King, 619,580; Carriage brake, J. G. Ecken, 619,683; Carriage, musical, E. L. Cady, 619,543; Cartridge implement, C. V. Burch, 619,273; Case, See File case; Chain, sprocket, R. M. Keating, 619,315; Chuck for press plungers, C. Gabriel, 619,57; Churn and butter worker, combined, H. L. Ferris, 619,201; Clamp, See Carbon clamp. Seat post clamp; Cock, automatic cylinder, S. M. Carlisle, 619,391; Coffee, apparatus for cooling roasted, D. B. Fraser, 619,257; Commutator retaining band, J. R. Grindrod, 619,290; Compass, ship's or similar, L. Kellstab, 619,618; Composition of matter, C. Rath, 619,615; Conveyor and distributor, belt, Bartlett & Overstrom, 619,463; Cork extractor, H. J. Williams, 619,468; Corset, J. C. Mackey, 619,580; Corset stiffener, F. Morrison, 619,331; Cot, folding, A. R. Isaacs, 619,485; Couch, A. G. Hofstatter, 619,406; Coupling, See Car coupling. Shaft coupling. Thrill coupling. Train pipe coupling; Coupling and antirattler, combined, J. M. Bergold, 619,271; Coupling for ropes, cords, etc., F. Pretzel, 619,343; Cover for vessels, reservoir, B. T. Johnson, Jr., 619,318; Crane for derricks, etc., G. W. Banker, 619,235; Cream separator, centrifugal, W. Johnson, 619,457; Cultivator, S. L. Allen, 619,382; Cultivator, two-row, W. L. Caldwell, 619,386; Cutter, B. A. De Costa, 619,397; Cutting apparatus, Veitgaard & McDonald, 619,520; Cycle, etc., C. W. Atkinson, 619,635; Cycle, J. W. Baird, 619,458; Cycle driving mechanism, J. T. Pedersen, 619,656; Cycle framings, brazeele joint for, W. Frazer, 619,556; Cycle rack, J. M. Poytt, Jr., 619,444; Damper, H. M. Powers, 619,432; Damper, automatic, E. V. Rice, 619,675; Dental restorator, T. G. Lewis, 619,586; Dish heater, M. Walsh, 619,372; Display box, A. M. Hance, 619,300; Display fastener, swivel, Chapin & Rubens, 619,671; Distilling apparatus, petroleum, F. W. Mann, 619,593; Door, F. Cross, 619,676; Door opening, closing, and locking device, E. B. Slonacher, 619,626; Door operating mechanism, H. Rowntree, 619,550; Door, storm, O. Cobb, 619,674; Dredge winder, Maddrix & Godman, 619,591; Dredger and elevator, A. W. Cram, 619,675; Dredging apparatus, McDougall, 619,461; Dredging bucket, H. J. Kromann, 619,581; Dress protecting edging, E. M. Scheid, 619,328; Dye and making same, black trisazo, C. Ris, 619,503; Dye and making same, yellow, M. Ulrich, 619,518; Dye, making yellow phosphen, Julius & Tkatech, 619,577; Egg case, H. H. Baxendale, 619,483; Electric machine, dynamo, S. S. Foster, 619,246; Electric meters, mechanical time switch for two-rate, J. H. Gerry, 619,476; Electric motor, T. D. & F. W. Hollick, 619,307; Electric motor, C. L. Rosenqvist, 619,620; Electric motor, alternating current, C. L. Rosenqvist, 619,621; Electric protective system, J. Tomney, 619,449; Electrical heater, C. W. Jones, 619,314; Electrical switch, A. Brier, 619,465; Electrical transmission of sound, F. M. Bell, 619,299; Elevator, C. E. Ege, 619,429; Elevator gate, J. E. W. Foxall, 619,400; Engine, See Rotary steam engine; Engine igniter, gas, W. L. Crouch, 619,306; Engines, incandescent igniter for explosive, C. R. Bolling, 619,384; Extractor, See Cork extractor. Spice extractor; Eyeglasses or spectacles, A. Kahn, 619,578; Fan motor, prepayment electric, Fish & Cox, 619,293; Faradic battery, duplex, J. H. Robertson, 619,440; Fasteners, tool for setting members of separable die, G. E. Adams, 619,651; Feed water heater and purifier, W. H. Smith, 619,513; Fence, Krumenolt & Godfrey, 619,454; Fence machine, wire, E. S. Scofield, 619,355; Fence making machine, wire, J. C. Perry, 619,492; Fence making machine, wire, A. Smith, 619,628; Fence, wire, L. C. Grant, 619,403; Fertilizer and making same, C. H. Thompson, 619,333; Fertilizer, apparatus for making, A. Nitsch, 619,335; File case for cards, F. Macey, 619,323; Filter, J. J. Hewell, 619,599; Firearm cartridge ejector, A. E. Grimes, 619,565; Fire escape, elevated drawbridge, A. Riecke, 619,439; Fire extinguisher, W. H. Robinson, 619,619; Fireproof building, J. A. McKim, 619,430; Floor cloth machine, W. G. Thomson, 619,634; Floor dresser, L. A. Baumann, 619,464; Flour packer, W. W. Huntley, 619,419; Flower bed curbing, F. Schaefer, 619,352; Fluid delivery apparatus, automatic, T. L. Vanrius, 619,451; Fluid pressure brake, M. W. Hibbard, 619,481; Foot rest, adjustable, P. N. Cook, 619,467; Fork, I. Hirsch, 619,306; Fruit seeding machine, G. Pettit, Jr., 619,683; Furnace, G. L. Taylor, 619,700; Furnace, See Boiler furnace; Furnace grate, T. E. Martin, 619,494; Furniture fastening, J. Tiltonson, 619,516; Galvanometer, A. A. Dittmar, 619,679; Gaine, C. H. Gaine, 619,433; Gas, apparatus for collecting carbonic acid, H. S. Elworthy, 619,398; Gas burner, R. Schlumberger, 619,623; Gas generator, acetylene, H. C. Sergeant, 619,519; Gas holder, H. C. Sergeant, 619,510; Gas mains, means for localizing explosions in, E. F. Ouch, 619,552; Gas producer, Burch & Kason, 619,538; Gas producer, R. Talbot, 619,631; Gaseous media, apparatus for heating or cooling, A. Slucki, 619,512; Gate, A. H. Johnston, 619,622; Gate, J. Johnston, 619,622; Gear case, Chevalier & Vasseur, 619,672; Gearing, changeable speed, L. D. Ferris, 619,551; Generator, See Gas generator. Steam generator; Glass articles, apparatus for forming, J. J. Power, 619,694; Glass grinding and polishing machine, F. F. Fischer, 619,339; Gluten compound, W. Painter, 619,336 to 619,338; Glycolic ester and making same, A. Einhorn, 619,549; Governor, steam, L. Parkinson, 619,336; Grader, elevating, S. F. Welch, 619,374; Grader and roller, combined land, J. M. Robinson, 619,504; Grainer, wood, E. D. Gochnaur, 619,288; Grater, M. D. Keele, 619,429; Grinding machine, M. Schutz, 619,354; Grizzly separator, rotary, R. H. Postlewaite, 619,341; Halterfastener, G. Smith, 619,629; Hammer, W. H. Penny, 619,638; Hanger, See Harness hanger. Picture frame hanger; Harness hanger, U. Grignon, 619,405; Harness hitching device, J. P. Field, 619,292; Harrow, W. M. Digby, 619,285; Harvester, corn, Whitney & Steward, 619,377; Harvester reel, A. J. Bartlett et al., 619,531; Head rest, A. W. Browne, 619,272; Heater, See Dish heater. Electrical heater. Feed water heater. Hot water heater. Water heater; Heating, drying, or airing apparatus, H. Hargreaves, 619,407; Heel attaching machine, F. F. Raymond, 2d, 619,707; Hinge, C. H. Shannon, 619,356; Hinge, double acting spring, O. C. Moore, 619,680; Hoe, C. Snyder, 619,630; Hook and eye, I. H. Paul, Jr., 619,706; Horse detacher, A. Kupper, 619,483; Horse detacher, P. A. Nolan, 619,532; Horses from vehicles, automatic device for detaching, V. Wisniak, 619,457; Horseshoe, metallic rim rubber tread, D. B. Stephens, 619,361; Hose holder, W. H. Trammel, 619,517; Hot water heater, A. F. Buttrick, 619,542; Hub and axle connection, wheel, F. E. Garner, 619,561; Hydraulic motor, W. Haywood, 619,479; Hydrocarbon lighting burner, T. Wilson, 619,380; Incandescent light, Welsbach or similar, L. Moss, 619,599; Incandescent mantles, machine for folding and inserting shirring strings into, H. E. White, 619,375; Incubator, C. Von Guin, 619,521; Indicating and recording mechanism for measuring fluids in motors, etc., J. E. Thebaud, 619,632; Indicator, See Office indicator; Insect ring shield for trees, A. Henderson, 619,409; Insecticide, C. M. Porter, 619,612; Insulating, alternating current circuits, C. P. Steinmetz, 619,390; Insulator, telegraph, L. B. Frantz, 619,555; Ironing board, E. G. Hummel, 619,573; Ironing machine, O. E. Braconier, 619,703;

(Continued on page 126)