

burner it is necessary ordinarily to furnish some means for heating the generator to volatilize the oil. The means usually employed consist of some form of torch for heating the generator when the lamp is first ignited. The object of the present invention is to provide a carbureter operated by the attendant, which will furnish a supply of carburated air or gas sufficient to heat the generator to its working temperature. The device may be applied to any lamp of the form using a generator heated by the flame of the lamp.

DESIGNS.

NECK-BAND FOR VESSEL-CARRYING DEVICES.—JOSEPH RITTENHOUSE, Philadelphia, Penn. The inventor twists a wire designed to fit a milk-bottle neck so that it will be provided with two eyes which receive the ends of a bail.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS ETC.

ELEMENTARY CHEMISTRY FOR HIGH SCHOOLS AND ACADEMIES. By Albert L. Arey, C.F.E. New York: The Macmillan Company, 1899. 12mo. Pp. 300. Price 90 cents.

The author has produced an excellent text book which compares very favorably with those of the same grade which we have examined. "Sulfur" never looks as well as sulphur, but it is perhaps well to bow gracefully to the new spellings, which seem to have come into chemical literature to stay. The diagrams admirably elucidate the text.

HOME PORK MAKING. By A. W. Fulton. New York and Chicago: Orange Judd Company, 1900. 16mo. Pp. 124. Price 50 cents.

The present volume is a complete guide to the farmer, the country butcher, and the suburban dweller in all that pertains to hog slaughtering, curing, preserving and storing pork product from scalding vat to kitchen table and dining room. The formulas are most practical. It is a work we can commend.

WATER AND WATER SUPPLIES. By John C. Thresh. Second Revised Edition. Philadelphia: P. Blakiston's Son & Company, 1900. Pp. 438. Price \$2.

A thoroughly practical work of value to all sanitary engineers and to others who deal with water supplies. English practice is of course described; but attention has been given to the subject in England, owing to the density of the population, that it is all the more valuable on this account.

FORAGE CROPS OTHER THAN GRASSES. How to Cultivate, Harvest and Use Them. By Thomas Shaw. New York: Orange Judd Company, Illustrated. 1900. Pp. 281. Price \$1.

The work has practical ring about it that betrays confidence. It will prove of immense value to every farmer who will give it careful study. Forage plants can be made to supplement perennial pastures. They are destined to occupy an important place in the near future in systematic crop rotation on every stock and dairy farm.

FORMULAS AND TABLES FOR HEATING. Being German Formulas and Tables for Heating and Ventilating Work for Those Who Plan or Erect Heating Apparatus. By J. H. Kinealy. New York: David Williams Company, 1899. Pp. 53.

This work will prove of value to all who have occasion to arrange heating and ventilating plants. Good work has recently been done in Germany, and we ought to receive the benefit of it.

THE DIURNAL THEORY OF THE EARTH. Or, Nature's System of Constructing a Stratified Physical World. By William Andrews. New York: Myra Andrews and Ernest G. Stevens, 1899. Pp. 551.

THE ART OF THINKING. By T. Sharper Knowlson. London and New York: Frederick Warne & Company, 1899. Pp. 130. Price \$1.

A valuable little book which makes us see how defective we sometimes are in the art of thinking. It is an excellent book for every one to read, and all will be sure to be benefited by it.

ESSAYS ON THE FOUNDATION OF EDUCATION. By Rev. J. Godrycz, Ph.D. Lansing, Mich. 1900. 12mo. Pp. 168.

The author deals with "Intellectual Education," "Methods of Teaching History," "Religious Education," "International and Civil Law," "Moral Education," "Physical Education," etc.

CATALOGUE OF THE ANNUAL ARCHITECTURAL EXHIBITION, 1899-1900. Philadelphia: T Square Club, 1899. Small quarto. Pp. 210. Price 50 cents.

This handsome volume is filled with excellent architectural designs, both projected and actually executed. It shows what remarkable architectural work is being done in the United States.

SEEGER AND GUERNSEY'S CYCLOPEDIA OF THE MANUFACTURES AND PRODUCTS OF THE UNITED STATES. New York: The United States Industrial Publishing Company, 1899. 8vo. Pp. 1356. Price \$10.

That the earlier edition has been in constant use in our office for some years in answering manifold queries as to manufacturers of all kinds of goods is a sufficient guarantee of the great excellence of the work. Its value has been demonstrated almost daily particularly in the consideration of cases where manufactured goods are made in small quantities or are of odd, out of the way articles. The arrangement is admirable, and access is rendered easy by means of a fine analytical index.

Business and Personal.

- Marine Iron Works. Chicago. Catalogue free.
"U. S." Metal Polish. Indianapolis. Samples free.
Yankee Notions. Waterbury Button Co., Waterbury, Ct.
For bridge erecting engines. J. S. Mundy, Newark, N. J.
Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.
Ferracuta Machine Co., Bridgeton, N. J., U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery.
Inventions developed and perfected. Designing and machine work. Garvin Machine Co., 141 Varick St., N. Y.
The celebrated "Hornby-Akroyd" Patent Safety Oil Engine is built by the De La Verne Refrigerating Machine Company. Fort 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.
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 house 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.

(7828) F. A. writes: I have read of a machine so constructed as to show the motion of the earth. It consists of a pendulum supported on a framework. How heavy would the pendulum have to be, and how long the rod to pendulum to construct a small model that would work with satisfaction? Could one be made with a pendulum weighing say three or four pounds and the rod about two feet long? A. The experiment is called Foucault's experiment from its inventor. The pendulum should be as long as possible, though with one 16 to 20 feet long you would probably succeed. The ball should be as heavy as convenient, ten to twelve pounds. A strong steel wire should be used to support the weight. The support at the top should be as rigid as possible. The space within a stairway several stories high is well adapted to the experiment. One was hung in Bunker Hill Monument, 222 feet high. The ball is made to swing exactly north and south, at the start. In even five minutes its deviation may be noticed, the south end of the swing falling to the west of the meridian. In this latitude the deviation is about 9 degrees in an hour. A valuable article on this topic is found in the SCIENTIFIC AMERICAN SUPPLEMENT, No. 627, price 10 cents.

(7829) G. B. asks: What becomes of the latent and active heat contained in air or water when the oxygen therein combines with other substances, as in malting, fermenting, spontaneous combustion, putrefaction, fermentation, in all which a rise of temperature takes place? Is not the latent heat the source of supply? And also animal heat, is it supplied by the same cause, that is, the latent heat supplied in oxidizing the blood? I am led to this way of thinking by the effect produced on air by depriving it of its latent heat; it becomes "liquid air." A. The heat given off when the various changes described above take place is due to the chemical combinations which occur. There is no liquefaction of the oxygen in any of these cases, but there is chemical action. This is a source of heat. The latent heat of air or water is given off when they change their state to the liquid or solid form.

(7830) W. F. asks: What magnifying power (number diameters) a microscope should possess to reveal spermatozoa and the consumption germ? A. For observing such objects, an objective of at least one-fifth inch focal length is required, and an eighth should be had if possible. The eighth inch with a 2-inch eyepiece gives a magnifying power of 425 diameters; with an inch eyepiece, 780 diameters; and with a half-inch eyepiece, 1,300 diameters. This is enough for any purpose.

INDEX OF INVENTIONS

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

FEBRUARY 13, 1900.

AND EACH BEARING THAT DATE.

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

- Acetone, preparing haloid derivatives of. L. Lederer. 643,144
Acetylene generator. R. L. Beck. 643,243
Acid, nitroamidantbraquinone sulfo, O. Bally. 643,451
Acids, purifying sludge, warning & Brecke nridge. 643,578
Addressing machine, envelop or wrapper, C. A. Belknap. 643,394
Advertising coach, M. A. Michales. 643,517
Air brake, C. L. V. Mundhenk. 643,421
Air compressor, W. D. Hooker. 643,135
Air purifying and drying apparatus, Birdsall & Krum. 643,396
Alarm. See Burglar alarm. Fire alarm.
Automatic lubricator, R. S. O'Brien. 643,303
Automobile fender, C. E. Belcher. 643,370
Automobile vehicle gearing, L. H. Dyer. 643,595
Back pedaling brake, H. S. Baker. 643,450
Back pedaling brake, F. P. Hinkley. 643,600
Bag. See Sample or conveying bag.

- Bait, artificial, Votaw & Thomas. 643,573
Banana shipping case, F. Schmitz. 643,163
Banjo tailpiece, G. A. Rapp. 643,159
Barrel locking mechanism, F. A. Hollenbeck. 643,601
Basket stapling machine, J. C. Titus. 643,568
Bearing, roller, H. B. Gillette. 643,122
Bearings, cutting machine for making ball, K. 643,381
Bed bottom, R. Schmidt. 643,208
Bed, sofa, A. D. Tomlinson. 643,210
Bedstead, B. R. Blaisdell. 643,589
Belt fastener, A. L. Eaton. 643,348
Bicycle brake, P. J. Farmer. 643,231
Bicycle crank shaft, W. H. Fauber. 643,545
Bicycle support, J. Schira. 643,510
Bicycle support, E. J. Tierney. 643,566
Bicycles, parcel rest and seat annex for, Gabriel & Atkinson. 643,373
Binder, temporary, Kendig & Coleman. 643,580
Blind slot adjuster, J. K. Morgan. 643,361
Blind slot retainer, E. A. Thrall. 643,565
Boat driving gear, J. A. Freund. 643,490
Boiler. See Wash boiler.
Boiler, E. J. Sabin. 643,207
Bolster, W. F. Voss. 643,572
Bookbinding, gummed cloth for, C. H. Crowell. 643,594
Book rest, E. H. B. Hughes. 643,188
Book rest, J. G. Vogt. 643,493
Boring instrument, J. J. Tynan. 643,260
Bottles, antirilling device for, C. H. Whitaker. 643,216
Box. See Match box. Paper box. Steam box.
Box fastener, A. Jarolimek. 643,296
Box machine, G. Taggart. 643,279
Box making stamp, V. B. Smith. 643,531
Brake. See Air brake. Back pedaling brake.
Bicycle brake, Car brake. Wagon brake.
Bridge gate, P. Gfroerer. 643,407
Brush, H. Zias. 643,441
Brush, fountain mucilage or paste, J. F. Walker. 643,174
Buffing machines, apparatus for making abrasive covers for Rogers & Winslow. 643,235
Buggy tops, mechanism for raising or lowering, C. R. Hesselstine. 643,132
Bunsen burner for liquid hydrocarbons, R. Adam. 643,097
Burglar alarm, J. T. Friend. 643,405
Burner. See Bunsen burner. Gas burner. Hydrocarbon burner.
Burner, N. H. Bledsoe. 643,105
Burning refuse, receptacle for, A. W. Cox. 643,583
Button, A. Hall. 643,409
Button, C. S. E. Spoerl. 643,242
Button machine, N. Barry, Jr. 643,585
Button making machine, N. Barry, Jr. 643,586
Button, separable collar, W. H. H. Wertz, Jr. 643,579
Can cover, garbage, M. Fischer. 643,489
Can washing machine, J. Des Brisay. 643,479
Cane carrier, sugar, J. E. Tallet. 643,558
Car brake, railway, G. S. Fanning. 643,487
Car coupling, G. A. Martin. 643,232
Car coupling, C. A. Tower. 643,613
Car coupling, J. Willis. 643,580
Car coupling, O. Yates. 643,182
Car coupling, automatic, E. Best. 643,104
Car coupling for mines, H. Hughes. 643,504
Carriage, H. H. H. Wertz, Jr. 643,586
Car draft rigging, W. Case. 643,590
Car fender, Porter & Barnes. 643,199
Car side guard, C. J. Reilly. 643,201
Car step, extension, B. E. Pines. 643,155
Car wheel, noiseless, L. Hogeland. 643,139
Car wheel, R. Brockman. 643,337
Carbureter, V. J. Rey. 643,306
Carbureter, W. S. C. Russell. 643,206
Carriage, motor, E. A. Sperry. 643,257
Carriages, adjustable spring for baby, G. A. Smith. 643,385
Carrier. See Game carrier.
Carriage, R. H. Gibson. 643,495
Case. See Banana shipping case. Display and sample case.
Cask or barrel supporting apparatus, C. Lampitt et al. 643,298
Casks or barrels, apparatus for pitching internal surface of, C. A. Neubecker. 643,523
Caster, A. B. Blain. 643,481
Caster socket, G. D. Clark. 643,483
Chair. See Rocking chair. Swinging chair.
Clamp. See Boxing clamp. Shaft clamp.
Clasp. See Strap connecting clasp.
Clay, porcelain, etc., machine for molding in, J. B. von Koenig. 643,417
Cleaner. See Dish cleaner.
Clevis, plow, W. G. Landers. 643,510
Clock, electric, H. Iversen. 643,506
Clothesline support, W. B. Robinson. 643,160
Clothes pin, C. L. Prime. 643,533
Clothes wringers, machine for making wire, J. Drummond. 643,224
Coffee pot, G. W. White. 643,433
Controller, T. von Zweigbergk. 643,442
Copying paper, moistening, F. G. J. Post. 643,234
Corn popper, P. J. Becker. 643,103
Corn sheller, C. G. Cooper. 643,181
Cotton bed, S. T. Hutchinson. 643,137
Cotton bed, spring locking device, C. E. Smith. 643,277
Cotton opening machines, lap roll tension for, F. H. L. James. 643,295
Cotton press, H. M. Parker. 643,152
Coupling. See Car coupling. Hose coupling.
Crate, swinging, J. F. Grimmer. 643,367
Crate, folding, Taylor & Moore. 643,562
Cream separator, W. J. Gould. 643,351
Creamer, centrifugal, O. Anderson. 643,218
Current meter, alternating, G. A. Scheeffer. 643,162
Lock. See Electric lock.
Cushion fabric, window, J. Lacy. 643,242
Cut off and filter, automatic, M. M. Hitt. 643,355
Cutter. See Fruit or vegetable cutter. Meat cutter. Paper cutter. Stalk cutter.
Dam, retaining wall, breaker, etc., J. S. Field. 643,488
Darning. See Sewing machine.
Dental tool, for expressing mercury from amalgam, D. Aiken. 643,443
Derrick, portable, J. B. Lord. 643,360
Desk for hanging over the shoulders, reading or writing, H. Schnell. 643,164
Digger. See Earth digger. Potatodigger.
Disinfecting machine, J. F. P. 643,424
Disinfecting telephones, etc., device for, W. H. Taylor. 643,309
Display and sample case, Underwood & Hawkins. 643,570
Display holder, hat, S. E. Griggs. 643,266
Door catch, M. J. Thuestad. 643,612
Door frame and adjustable jamb therefore, S. S. Colt. 643,399
Door lock, sliding, J. A. Eastman. 643,245
Door sliding, E. A. Schmitt. 643,307
Draft equalizer, two horse, G. L. Eason. 643,404
Draw bar supporting mechanism, J. A. Yerk. 643,315
Drier, E. M. McCue. 643,314
Driers, apparatus for discharging water and air from cylinder, A. G. Paul. 643,198
Drill. See Grain drill.
Driving mechanism, W. J. Thompson. 643,564
Dye, from galloyannin, blue, A. Steiner. 643,536
Dye, from galloyannin, red, A. Steiner. 643,537
Dye, yellow acridinif, F. Ullmann. 643,539
Earth digger and scraper, combined, B. F. Shurt. 643,240
Electric distribution systems, safety device for, E. M. Hewlett. 643,133
Electric energy, means for controlling and indicating the supply of, C. F. Loubery. 643,228
Electric fender, J. A. Peterson. 643,401
Electric furnace, A. J. Peterson. 643,254
Electric meter, Barker & Ewing. 643,332
Electric traction motor, Richter & Eschler. 643,276
Electric traction, surface contact stud for, W. Kinsland. 643,414
Elevator, J. Fletcher. 643,536
Elevator gate operated lock, J. Fletcher. 643,598
Elevator safety device, J. Fletcher. 643,597
Elevators, automatic safety device for, G. A. Newell. 643,270
Engine. See Fluid pressure engine. Rotary engine.
Engine igniter, explosive, F. J. Macey. 643,513
Envelope, E. E. Myers. 643,333
Envelope, against surreptitious opening, method of and means for protecting, W. P. Horton Jr. 643,376
Extension handle for culinary articles, P. Fromholz. 643,282
Faucet for aqueduct, gas measuring, W. F. Fritz. 643,292
Feed stop mechanism, E. E. Harbaugh. 643,569
Feeder, calf, I. H. Hall, Jr. 643,287
Fence, L. S. Morgan. 643,332
Fence, picket, L. Trabue. 643,300
Fences, machine for weaving cross wires in, T. F. Carpenter. 643,109
Fender. See Automobile fender. Car fender.
Fender, F. G. Kammerer. 643,411
Filter, G. W. Woodworth. 643,181
Filter, G. W. Woodworth. 643,181
Filter, submerged, D. J. Bliss. 643,463
Filter, water, D. J. Bliss. 643,462
Filtering and rinsing, washing apparatus for, F. Sochrek, Sr. 643,337
Fire alarm, pyroxilin automatic electric, J. de Froment. 643,491
Fire escape, Walker & Horner. 643,575
Fire escape device, E. P. Feiker. 643,286
Fire extinguisher, M. E. Ogden. 643,252
Fishing rod reel, T. Ross. 643,538
Flail S. R. Divine. 643,196
Fluid pressure engine, A. H. Crookford. 643,474
Fly exit for screens, H. N. Sheek. 643,335
Fodder binder, J. T. Atkin. 643,391
Folding table, D. W. Lloyd. 643,511
Forms, coating, Lanwer & Ruping. 643,269
Food, garment, E. M. Schrader. 643,443
Framing joint, E. M. Schrader. 643,443
Fruit butter, apparatus for making, F. Moss. 643,962
Fruit or vegetable cutter, J. Blonde. 643,106
Furnace. See Electric furnace. Heating furnace. Smoke consuming and fuel economizing furnace.
Furnace for baking enamels, glassware, and porcelain, A. J. A. Berthelmer. 643,458
Furnace grate, zinc, J. D. James. 643,507
Furnaces, revolvable grade for bagasse, Payne & Joubert. 643,153
Furniture, B. K. Blaisdell. 643,588
Game or puzzle, J. C. Teller. 643,170
Gas and dominoes, machine for keeping count of, J. W. Marler. 643,515
Garment supporter, Bigger & Leonard. 643,317
Garment tab, S. A. Saeger. 643,258
Gas burner, F. J. Byrne. 643,320
Gas burner cut-off, automatic, F. H. Oehlke. 643,363
Gas burner, oil, G. T. Phelps. 643,304
Gas burner, gas heating, J. L. Campbell. 643,495
Gas burning apparatus, S. W. Stott. 643,259
Gas generating apparatus, acetylene, F. L. Rand. 643,158
Gas generator, acetylene, H. J. Ennis. 643,296
Gas generator, acetylene, G. F. Simpson. 643,256
Gas generator, acetylene, Stewart & Updegraff. 643,555
Gas machine, acetylene, J. Walton. 643,576
Gas works valve, T. R. Beal. 643,283
Gasometer, J. Walton. 643,577
Gate. See Bridge gate.
Gate, U. A. Gregg. 643,325
Gate, D. Miller. 643,147
Gate, E. Bakestraw. 643,157
Gate, J. P. Parr. 643,569
Gate, B. F. Warner. 643,175
Gearing, electromagnetic variable speed and clutch, R. Kennedy. 643,413
Generator. See Acetylene generator. Gas generator. Steam generator.
Glass plates, making concavo convex, Dbe & Houze. 643,223
Glassware manufacturing machine, F. O'Neill. 643,263
Gold wasing machine, F. C. Pinnell. 643,233
Grading machine, road, E. C. Fread. 643,115
Grain drill, Ames & Labare. 643,446
Grain drill gear, Ames & Labare. 643,447
Grain drill shoe, detachable, E. J. Ames. 643,445
Grain drill shoe, detachable, Howe & Labare. 643,410
Grain drill shoe, detachable, N. M. Wig. 643,435
Grinding mill, Kelley & Rouse. 643,412
Grindstones, emery wheels, etc., roller for round pecking, C. A. V. Hallgren. 643,128
Gun, automatic, J. M. Garland. 643,119
Gun mechanism, automatic machine, F. M. Garland. 643,118
Hammer, H. L. & C. M. Green. 643,123
Hammer, drop, F. F. Bischoff. 643,461
Hammer fan mechanism, E. B. & C. W. Brown. 643,107
Handle. See Extension handle.
Harrow, T. Callender. 643,405
Harvester, J. J. Kennedy. 643,221
Hay rack, E. Troy. 643,217
Headlight, J. Kirby, Jr. 643,141
Heater. See Hot water heater. Water heater.
Heating furnace, A. Laughlin. 643,143
Heating plant, steam, J. Robertson. 643,535
Hoisting machine, S. Mattson. 643,516
Hoof protector, H. Gale. 643,246
Hook. See Miner's bucket locking hook.
Horseshoe, cushion, H. Paar. 643,272
Hose coupling, M. J. Konold. 643,358
Hot water heater, W. K. Hopler. 643,503
Hub, J. A. Cooper. 643,183
Hydrocarbon burner, J. Johnston. 643,602
Ice machine, plate, J. C. Kitton. 643,269
Incubators, thermostatic governor for, M. M. Johnson. 643,508
Indigo leuco compounds, manufacturing, A. H. S. H. 643,502
Influence machine, H. E. Watten. 643,367
Irrigation of arid land, L. L. Smith. 643,550
Jars, bottles, etc., closure for, A. L. Weisenbhaner. 643,215
Joint. See Framing joint. Tube joint.
Knife. See Saw knife.
Lamp, acetylene, W. P. Crary. 643,111
Lamp, acetylene gas, W. A. Barrows. 643,101
Lamp, acetylene gas generating street, W. C. Clarke. 643,222
Lamp burner, H. Greenwood. 643,496
Lamp, fumigating, F. S. West. 643,312
Lamp, incandescent, Fulton & Keen, Jr. 643,112
Lamp, miner's, W. A. Dunlap. 643,112
Lamp, pit or mini, R. C. West. 643,281
Lamp shade, R. T. Berggren. 643,335
Lamps, refracting attachment for bicycle, A. W. Hecht. 643,199
Lath, a prof. engine, W. E. Morratt. 643,184
Lathe bed and apron, W. Lodge. 643,190
Lathe, crank pin or eccentric turning, Tindel & Albrecht. 643,172
Lathes, speed changing gear for engine, W. Lodge. 643,191
Leaf gatherer, R. Smith. 643,386
Leather loop pressing machine, S. B. Beasecker. 643,316
Linotype machine, D. A. Hensley. 643,289
Linotype machine, Hollivell & Elliott. 643,292
Linotype machine, J. MacKirdy. 643,329
Linotype machine casting mechanism, J. Place. 643,274
Liquid motor, Washington & Goodwin. 643,432
Lock. See Electric lock.
Locomotive, J. B. Tate. 643,500
Loom, J. H. Northrop. 643,271
Loom, H. Wyman. 643,339
Loom harness, W. S. Lackey. 643,509
Loom take up mechanism, A. W. Clement. 643,25
Loom warp stop motion, R. Crompton. 643,402
Loom warp stop motion, C. A. Littlefield. 643,299
Lubricator. See Automatic lubricator.
Mail bag gripping and delivering device, S. R. Patten. 643,529
Mains, street box for underground, C. H. Campbell. 643,108
Mangle, A. Kreuter. 643,368
Match box, Fearnought. 643,320
Match machine, C. W. Steele. 643,554
Match making machine, F. M. Clough. 643,470
Match receptacle, I. H. Taylor. 643,561
Match splint making machine, W. H. H. Sisum. 643,546
Measuring and comparing illumination, apparatus for, J. B. Janney. 643,184
Measuring device, A. Janney. 643,377
Meat cutter, E. F. Smith. 643,547
Meat foods, making, I. A. Timmis. 643,577
Mechanical movement, A. J. Robinson. 643,536
Metal bending machine, Henius & Herrold. 643,354
Metal hardening apparatus, C. W. Sponcel. 643,353
Metal, table for hooping coiled, W. A. Cowles. 643,472
Meter. See Current meter. Electric meter. Liquid meter.
Microphonic transmitter, G. F. Dupont. 643,484
Mill. See Grinding mill. Tube or pebble mill.
Milling machine, J. Windm. 643,185
Mill, J. A. Peer. 643,273
Miner's bucket locking hook, E. J. Richmond. 643,534
Mining machine, C. Robinson. 643,537
Motor. See Electric traction motor. Vehicle motor. Wave motor.
Motor operating plant, M. W. Quick. 643,156
Motor, adjustable ball bearing for lawn, J. Braun. 643,318
Music holder, P. Bennan. 643,456
Musical instrument, stringed, A. E. Bark. 643,452
Musical instrument, stringed, A. Gunkel. 643,125
Nail puller, W. L. Lubbock. 643,512
Napping machine, D. Gesner. 643,247
Needle, self threading, Bunnell & Nichols. 643,368
Nut lock, S. Harrell. 643,600
Nut lock, J. A. Nickerson. 643,615
Nut lock, D. Rhodes. 643,364
Nut lock washer, E. L. Edmonson. 643,485
Oven, baking, H. White. 643,372
Packing, H. White. 643,371
Paddle wheel, J. S. Allison. 643,444
Padlock, permutation, A. Ames. 643,448
Paper box, F. T. Misyaj. 643,200
Paper box, F. A. Stecher. 643,396
Paper coating machine, W. H. Waldron. 643,574
Paper cutter, J. E. Hill. 643,374
Paper holder, roll, J. E. Hill. 643,371
Paper manufacture, screen plate for, W. H. McCarrroll. 643,521
Paper or pulp vehicle tops, apparatus for making, T. W. McFarland. 643,422
Photograph, G. Bettini. 643,182
Photograph, G. Bettini. 643,182
Photographic dark room, portable, L. C. Cox. 643,419
Phtalein in phenol, solution of, C. E. Gassmann. 643,265
Picture, A. N. Polymath. 643,275
Pin. See Clothes pin. Safety pin.
Pipe. See Tobacco pipe.
Pipe joints, clamp for repairing leaks in, C. M. Ranker. 643,300
Planer, hand, F. Witzmann. 643,313
Planing machine, E. Holmes et al. 643,283
Planter, hand, C. Newman. 643,524
Plate lifting device, F. S. Snyder. 643,163

(Continued on page 126)