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

The new material, "Linenoid," Westfield, Mass.

For pumping engines. J. S. Mundy, Newark, N. J.

"U. S." metal polish. Indianapolis Samples free.

Improved iron planers. W. A. Wilson, Rochester, N.Y.

Heading machinery. Trevor Mfg. Co., Lockport, N. Y.

Microbe Killer Water Filter, McConnell Filter Co., Buffalo, N. Y.

Wanted—Light machinery or specialties to build. P. G. Fleming's Machine Works, Elizabeth, N. J.

Pipe frame truck baskets, steel and wooden trucks, etc. L. M. Moore, Rochester, N. Y. See page 399.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon. 24 Columbia St., New York.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wie, Syracuse, N.Y.

Wanted—To buy patent or right to manufacture an article of general use. Wm. L. Elder, Indianapolis, Ind.

Carborundum—hardest abrasive known. Send for prices of wheels, powder, etc, The Carborundum Co., Monongahela, Pa.

Emerson, Smith & Co., Ltd., Beaver Falls, Pa., will send Sawyer's Hand Book on Circulars and Band Saws free to any address.

For Sale—Puttying tool patent. See page 76. Address for terms and particulars, Theodore Witte, Chilliwhack, British Columbia.

Models and experimental work. Small articles made in quantity for the trade. For catalogue, etc, write L. G. Winn Mfg. Co., Indianapolis.

Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps. acid blowers, filter press pumps, etc.

The "Olin" Gas and Gasoline Engines, from 1 to 10 horse power, for all power purposes. The Olin Gas Engine Co., 222 Chicago Street, Buffalo, N. Y.

Party having new U. S. and Can. pats. wants business partner in manuf. and for sale of rights. Staple goods. Solid business. G. H. Gere, Grand Rapids, Mich.

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

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y.

Competent persons who desire agencies for a new popular book of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office. 361 Broadway, New York.

Notice to Inventors of devices in wood wishing assistance in patenting, making, or marketing their inventions. Communicate with the subscriber, who has a large factory, where all kinds of hard and soft woodworking is done. Johnson, care of Scientific American, N. Y. City.

☞ 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.

(5739) O. V. S. asks: 1. I want to make a motor from the hand power dynamo described in SUPPLEMENT, No. 161, for running sewing machine. I am making drum armature with 12 coils. What size wire must I use on field and armature to run from storage batteries, each cell having 8 plates 4½×8? A. Wind the field to a resistance of 5½ ohms, with No. 21 wire. Wind the armature to a resistance of 6 ohms. Use wire of size to give this resistance. 2. What is the amperage of such a cell? A. One and one-half amperes. 3. When cell is formed, how many gravities will it take to charge it? A. Two and one-half in series for each cell, and enough in parallel to give nearly 1½ amperes of current. 4 How long will it take to charge? A. Ten hours if you have current enough. 5. Can I run a 1 gallon plating bath with 1 cell, nickel plating? A. Yes. 6. How many storage cells will it take to light a 2 candle power lamp two hours each night, batteries being charged during daytime with gravity cells? A. Three cells. 7. In making plates for storage battery should they be punched full of holes and filled with red lead? A. You may do so. See our SUPPLEMENT, Nos. 845, 838, 159, also SCIENTIFIC AMERICAN, No. 2, vol. 61, No. 20, vol. 69, No. 9, vol. 68, for storage batteries. 8. How long will the plates last when in constant use? A. With care, for several year. If not rightly treated, they may deteriorate in a few days.

(5740) M. E. C. asks: 1. I have motor wound for the incandescent circuit of 110 volts, 2 amperes. I wish to use it on an arc light circuit of 2,000 volts, 9½ amperes, the voltage at the point where the motor is to be inserted being 1,000. Could I accomplish this by a branch circuit? A. Between the points of attachment of your branch a resistance of 1⅛ of that of the field magnet of your motor must be placed. This is approximately 40 ohms. The resistance must be capable of passing 7½ amperes. 2. Would it do to solder the smaller wires at points of connection? A. Twist and solder. 3. Is it possible to run an alternating motor by a battery current passed through an induction coil? If so, are such motors manufactured, and by whom? A. Yes. Address the Westinghouse Electric Company, Pittsburg, Pa.

(5741) H. A. J. asks: Will you please answer the following questions? What kind of wire is the core of an induction coil made of, and how many feet of wire will it take for both primary and secondary, also how much of each? I would like to make a shocking battery to give from 50 to 100 volts. A. You will find excellent articles on induction coils in our SUPPLEMENT, Nos. 160, 166, 229, 569; a coil is very seldom made for so low a voltage. Those described by us run up to thousands of volts. A simple spark coil with iron wire core ½×6 inches, wound with two or three pounds No. 20 wire, with a circuit breaker, would answer your purpose.

(5742) A. H. B. says: Suppose a reservoir elevated 50 feet has two discharge pipes each 3 inches in diameter, perpendicularly from the bottom. One pipe 1 foot long, the other 40 feet long, both discharge into the open air. Will one pipe empty it quicker than the other, and if so which one? Also what would be the result if the pipes were ¼ inch in diameter, same length? A. The long pipe will empty the reservoir the quickest in both cases. The short tube has only the hydrostatic pressure of the head of water in the tank, while the long tube has the suction due to a vacuum in addition to the hydrostatic head of the reservoir, less the retardation due to friction of the water in the pipe, which is small.

(5743) J. D. asks: 1. Can caustic soda be substituted instead of caustic potash in the caustic potash batteries described in "Experimental Science"? A. Yes. 2. If so, what would be the current and E.M.F. of a pint cell using this solution? A. About the same as for caustic potash, from ½ to 1 volt, and low internal resistance.

(5744) W. S. L. asks: What zinc surface is necessary in a bichromate battery to produce one amp re of current? That is, what surface must be exposed to the fluid? A. This depends on the external resistance. With low resistance, a zinc plate of two or three square inches immersed area would answer. Large carbon plates operate to prevent polarization and so tend also to maintenance of a high potential, with consequent current.

(5745) W. J. S. asks if there is anything through which a horseshoe magnet will not draw; for instance, if you put a needle on one side of a glass and the magnet on the other, the needle will follow the magnet. A. A plate of iron will, by absorbing most of the lines of force, cut off the attraction of a magnet for iron on the other side of it.

(5746) J. T. asks how carbons are plated with copper, as I wish to make carbon brushes for exciter for dynamo. I find that carbon works better than copper, not wearing the commutator so much. A. Electroplate by regular process, in a copper sulphate (blue vitriol) bath.

(5747) M. N. J. writes: 1. Suppose an oscillating body making 40 oscillations per minute, requiring 2 pounds pressure at each oscillation. If the motive power be supplied by compressed air, pumped by an ordinarily strong person, what percentage of time would it require to keep the body moving?—the compressed air to be pumped into a tank and power applied by some form of valve and piston action. A. You must give the distance the force must be applied through, whether the body is to be pushed for an inch or a foot, or for what extent of motion. Mere pressure requires no energy. 2. Has the idea any great disadvantages to overcome? A. None that we can see. The clock pendulum and escapement are an example.

(5748) R. H. asks: 1. How is the unicycle described on page 20, January 13, 1894, steered? A. Unicycles are steered by balance. Shifting the center of gravity to one side turns them in that direction. 2. Also please state of what and how hard rubber is made. See our SUPPLEMENT, Nos. 249, 251, and 252, for an excellent treatise on the manufacture of all kinds of India rubber.

(5749) G. W. D. asks: Would it be practical to run a cream separator with a motor and furnish the electricity by a gravity battery and a storage battery? If so, what would be the cost, and could a person not an expert put it in? Where can I get them, and could I make the gravity battery? A. It would be practical, except that a great many gravity battery cells would be required. To charge a single cell at the full rate 50 gravity cells per square foot of positive plate would be needed. You could make the gravity battery. A cert in amount of expert knowledge is needed, especially in running the storage battery.

(5750) H. C. R. asks for the best substance, wood or compound, that would give the greatest amount of expansion when immersed in water at boiling temperature. Object, to secure a limited pressure from said expansion. A. A zinc rod gives the greatest amount of expansion among the metals. A hard rubber rod of same length will have a greater amount of expansion.

(5751) M. C. C. writes: 1. Will the inclosed sample of wiregive good results if used in making core of armature for motor described in SUPPLEMENT, No. 641? A. Yes. It would be well to oxidize and shellac it first. 2. How many pounds of No. 16 wire does the field require? A. 3½ pounds. 3. How many pounds of No. 18 wire does the armature require? A. 2½ pounds. 4. Is it single or double covered (cotton) magnet wire? A. Double covered is preferable. 5. How many convolutions are there in each layer of field magnet? A. 34 feet. 6. What is the resistance of motor as a series machine? A. 2 ohms if wound with No. 16 wire on armature, 2·6 ohms if with No. 18. 7. Could I change it to a shunt machine by simply changing the size of wire in field and not in armature, and if so, how much? A. The motor is described as shunt wound. The winding has to be adapted to the potential maintained or to the combination of external resistance and potential, according to circumstances.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

January 23, 1894,

AND EACH BEARING THAT DATE.

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

Adding machine, Burridge & Marshman 513,452
Adjustable screen, J. E. Symes 513,468
Air brake attachment, T. L. Richardson 513,145
Air brake mechanism, automatic, G. S. Jeffries 513,267
Air purifier, return, D. W. Marmon 513,123
Album, easel, W. A. Holman 513,108
Amalgamating and concentrating apparatus, A. Tornaghi 513,158
Annunciator system, A. L. Vogt 513,352
Bag, J. W. Hill 513,323
Band cutter, J. O'Connell 513,366
Band cutter and feeder, Reiley & Myers 513,143
Battery. See Secondary battery.
Beating-out machine, Forster & Taylor 513,385
Bed, invalid, J. Eggert 513,310
Bedstead and couch, M. Rittberger 513,419
Bell, electric, C. Turnbull, Jr 513,219, 513,220
Bell for pneumatic tubes, electric call, L. Strouse 513,345
Bell, staff, F. Smith 513,152
Belt, G. E. Zeltmacher 513,448
Belt, electric, W. C. Fuller 513,387
Bench. See Foot bench.
Berth, ship's, E. Lawson 513,190
Bicycle, J. A. Richards 513,144
Bicycle gearing, D. C. Frazeur 513,101
Bicycle support, J. A. McGinnis 513,243
Billiard table, bookcase, and desk, combined, S. A. Faribault 513,314
Blackboard and desk, combined, H. E. Butler 513,080
Block. See Building block.
Blower, powder, R. S. Knode 513,189
Boat. See Life-boat.
Boiler. See Steam boiler.
Bolt, Grubb & Peeling 513,182
Book covers, machine for making, C. J. Coles *et al* 513,453
Book, mercantile check and advertising, J. McKinley 513,436
Book support and leaf holder, J. M. Lloyd 513,402
Boot tree clasp, A. D. Warner 513,253
Boring and mortising machine, portable, E. K. Thoden 513,348
Boring machine, H. W. Crane 513,088
Box strap and corner iron, R. C. Snowden 513,210
Braid, G. Quambusch 513,278
Brake. See Car brake. Rail brake. Safety brake. Vehicle brake.
Breast compressor, T. R. Chambers 513,086
Brewing vat, H. Strater 513,215
Brick machine, P. L. Simpson 513,444
Bridge, suspension, W. H. C. Greer 513,389
Broiler or toaster, F. Groos 513,103
Brush, stencil, L. W. Baldwin 513,071
Bucket mechanism, drop bottom, G. H. Hulett 513,327
Buckle attachment, S. C. Anderson 513,068
Building block, O. B. Schmall 513,423
Calculator, logarithmic, J. Billeter 513,172
Can. See Valved can.
Capo tasto, F. R. & R. Whelan 513,165
Car and train pipe coupling, combined, W. N. Sewell 513,249
Car brake, S. V. Bahme 513,228
Car brake, G. F. Brandau 513,298
Car brake, G. M. Brill 513,229
Car coupling, J. Evans 513,088
Car coupling, E. Hays 513,395
Car coupling, L. D. Murphy 513,131
Car door, E. L. Phipps 513,414
Car door, freight, J. J. Mulligan 513,336
Car, dumping, E. A. Trapp 513,446, 513,447
Car for elevated structures, Kirchner & Chase 513,268
Car, fruit, H. A. Smith 513,208
Car grip, cable, W. H. Russell 513,283
Car, railway, H. K. Ingram 513,235
Car ventilator, A. A. Miller 513,407
Cars, electric motor for street, B. G. Lamme 513,401
Carts, combined holder and support for tip, C. P. McClanathan 513,132
Cash register and indicator, C. J. Ryberg 513,443
Castings, making steel, N. Washburn 513,163
Chair foot rest, rocking, L. E. Armstrong 513,169, 513,170
Chenille fabric, woven, C. A. Schmidt 513,284
Chopper. See Cotton chopper.
Churn, Davis & Sawyer 513,361
Churn, R. R. Wayland 513,375
Churn power, M. M. Taylor 513,156
Circuits, means for neutralizing self-induction in alternating, Thomson & Rice, Jr 513,349
Circuits, method of and apparatus for preventing phase displacement in alternating, C. P. Steinmetz 513,370
Clamp. See Hose clamp. Rubber dam clamp.
Clasp. See Boot-tree clasp.
Clasp, W. B. Draper 513,094
Clock system, electric, Gerry & Schmidt 513,469
Clothes, drier, O. M. Shannon 513,285
Coal drill, M. Hardsock 513,320
Cock, stop and waste, H. Mueller 513,272
Coffee stirrer, I. M. Ginn 513,179
Coffee substitutes, preparing, H. Trillich 513,252
Coil, resistance, H. P. Davis 513,457
Coil, self-induction, C. F. Scott 513,425
Coin slot machine, C. P. Young 513,224, 513,225
Coke oven, T. Bauer 513,257
Collar and stiffener therefor, S. D. McElroy 513,337
Color harmonizer, E. Kreutzer 513,399
Combination lock, J. T. Hoile 513,325
Commutator for dynamo-electric machines, H. L. Fee 513,460
Conveyer, L. Patterson 513,276
Cooker and baker, combined steam, C. Messick 513,405
Cooler. See Cream cooler.
Corn cutter, W. R. Clark 513,087
Corn cutting device, Courtright & Powell 513,380
Cornet mouthpiece, W. H. Talmadge 513,346
Cotton chopper and cultivator, combined, Bosley & Organ 513,074
Coupling. See Car coupling. Car and train pipe coupling. Gas and electric coupling.
Crate cover and fastener, C. E. & J. F. Weaver 513,353
Cream cooler and soda fountain, F. W. Merrill 513,127
Crusher. See Rock crusher.
Crushing or grinding mill, H. J. R. Pamphilon 513,197
Cultivator, W. Hewitt 513,185
Currency strap, R. Spurgin 513,211
Curtain fixture, F. H. Bassett 513,171
Curtain fixture, W. Meyer 513,406
Curtain stretcher, lace, A. P. Bohlinger 513,073
Cutlery, table, J. C. Richberg 513,146
Cutter. See Band cutter. Corn cutter.
Dental engine bracket arm, adjustable, J. E. Stanton 513,214
Dental handpieces, adjustable angle attachment for, Furman & Holland 513,178
Dental plugger, Foster & Hoffman 513,362
Desk, K. Lee 513,465
Desk lid support, C. Dorff 513,382
Dishcloth holder, H. F. Wheeler 513,223
Disinfecting apparatus, B. McEvoy 513,411
Distances, instrument for ascertaining, De Ziegler & Hager 513,377
Door stop, H. C. Lippincott 513,333
Douche and bath contrivance, washing, T. E. M. Bulow 513,173
Dress shield, R. Raphael 513,416
Drier. See Clothes drier.
Drill. See Coal drill. Radial drill.
Drying kiln, Kinney & Hobby 513,188
Duplex engine, E. E. Clark 513,303
Dust collector, J. K. Miller 513,434
Dust or shavings collector, H. L. Day 513,090
Duster, G. W. Griswold 513,390
Dyer's vat, T. A. Harris 513,321
Easel, G. W. McCann 513,195
Electric conductors, means for cooling, H. A. Rowland 513,422
Electric elevator, N. P. Otis 513,134
Electric light cut-off, J. B. Stewart 513,260
Electric light fixture for music stands, W. J. Kelly 513,113
Electric machine, dynamo, G. F. Dieckmann 513,459
Electric machine, magneto, H. H. Taylor 513,342
Electric meter, C. Gudgell 513,391
Electric meter, J. C. Henry 513,264
Electric motor controlling device, J. E. Stanton 513,213
Elevator. See Electric elevator.
Elevators, electric safety device for, R. W. Magrane 513,122
Engine. See Duplex engine. Rotary engine. Steam engine.
Exhibitor, goods, English & Hinnant 513,383
Fabric. See Chenille fabric.
Fan, automatic, J. T. Vann 513,288
Fare recorder, A. Katzky 513,462
Farrowing booth for brood sows, W. Johnston 513,186
Faucet, D. Devlin 513,092
Faucet, measuring, P. B. Bassett 513,069
Feedwater, heating, G. M. Mullen 513,409
Fence, J. C. Groseclose 513,104
Fence machine, W. T. Supinger 513,371
Fence post, Bronson & Helland 513,451
Fence post, C. M. Kiler 513,115
Fence post support, C. P. Reist 513,200
Fence, rail, M. S. Smith 513,344
Fermentation, apparatus for preventing, J. R. Power 513,199
File and the like provided with pins and devices for securing papers thereon, paper, M. Kragen 513,331
Filter, attachable, T. C. Andrews 513,292
Fire apparatus, J. B. Hunter 513,265
Fire escape, flexible metal, T. Prushey 513,139
Fire extinguishing apparatus, J. B. Hunter 513,266
Fire extinguishing apparatus, M. Vinning 513,351
Fireplace frame, J. H. White 513,255
Flue cleaner, C. E. Davey 513,176
Flue stopper, adjustable, W. G. Rau 513,141
Folding machine, circular, J. R. McDonald 51 3435
Folding stand, T. A. Clarke 513,304
Foot bench, folding, A. Epstein 513,311
Fork holder, safety, G. Sasse 513,202
Furnace. See Smoke consuming furnace. Smoke preventing furnace.
Furnace, E. L. Ford 513,100
Furnace, mechanical stoker, R. Newton 513,244
Gauge. See Lock marking gauge.
Game apparatus, football, T. Knight 513,116
Gas and electric coupling, W. J. Kelly 513,112
Gas lighter, electric, W. L. Brown 513,300
Gas motor igniter, W. F. West 513,289
Gate. See Sliding and swinging gate.
Gate, W. R. Wieland 513,355
Glass decorating apparatus, F. E. Gnant 513,180
Gold and silver from cyanide solutions, apparatus for precipitating, C. Carter *et al* 513,174
Gong, electro-mechanical, N. H. Suren 513,251
Grain dump, Seeley & De La Matyr 513,205
Grate bar, C. Turnofsky 513,373
Gun barrel, Kingsland & Sanger 513,398
Gun, breech-loading, J. M. Browning 513,301
Gun carriage, K. Haussner 513,263
Hame hook, R. B. Swann 513,217
Hammer, power, L. D. Howard 513,326
Hammer, stonecutter's bush, J. O'Donnell 513,196
Harp for bicycles, wind, I. Armer 513,168
Harrow, circle, H. Jaenisch 513,329
Harrow, disk, T. Boggs 513,072
Harrow disk, C. S. Sharp 13,287
Harrow spring tooth, M. J. Todd 513,372
Harvester, corn, J. B. & G. T. Tuckerman 513,161
Harvester elevator, F. A. Judie 513,397
Hay loader, J. L. & P. C. McCreary 513,410
Head-block air cushion, W. E. Dean 513,091
Heater. See Oil heater.
Heating apparatus, steam, H. C. Simmons 513,369
Heel stiffeners, machine for cutting, G. F. Moore 513,242
Hoisting and conveying machine, D. I. Calhoun 513,082
Hoisting apparatus, C. Pay 513,135
Hook. See Hame hook. Whiffletree hook.
Hopper of dressing or separating machines for flour, etc., J. M. Rishworth *et al* 513,280
Horseshoe, B. F. Fink 513,428
Horseshoe bending machine, H. F. Darby 513,455
Horseshoe fastening, E. T. Covell 513,360
Horseshoe swaging machine, H. E. Darby 513,456
Hose clamp, S. J. Hart 513,322
Hub, C. G. Berger 513,258
Hydraulic presses, shears, etc., mechanism, for controlling the operation of, E. W. Naylor 513,133
Identification device, J. Saudek 513,150
Index, W. H. Schuyler 513,343
Index, telephone, A. N. Webb 513,164
Indicator. See Street or station indicator.
Inhaler, W. B. Spencer 513,153
Injector, P. Brownley 513,378
Invalid rest, C. H. Parliaman 513,246
Jack. See Lifting jack.
Jewelry and small ware, producing reflecting properties in, J. Esser 513,312
Joint. See Rail joint.
Journal box, F. G. Botsford 513,075
Kiln. See Drying kiln.
Kneader, dough, J. M. Crowley 513,175
Knife. See Tobacco knife.
Knitting machine holddown, H. C. Rightmire 513,441
Knitting machine presser wheels, etc., adjustable supporting device for, A. & I. Tompkins 513,157
Knitting machines, automatic electric stop motion for, J. Buchel 513,259
Lamp, electric arc, W. Jandus 58,111
Lard coolers and purifiers, indicating device for, W. H. Deemer 513,381
Lathes, construction of, C. A. Windmuller 513,356
Lattice or truss girder, H. Joly 513,187
Lead, apparatus for the production of white, Morris & Bailey 513,130
Letter, sign, G. J. B. Rodwell 513,281, 513,282
Life-boat, A. Schonemann 513,424
Lifting jack, A. L. Stanford 513,155
Liquefying pressing apparatus, D. N. Melvin 513,411
Lock. See Combination lock. Trunk lock.
Lock, J. J. Ridgway 513,279
Lock marking gauge, door, F. K. Etherington 513,813
Lubricator, C. C. Young 513,290
Malting apparatus, F. Knuttel 513,467
Meat, etc., machine for cutting, A. Scheithauer 513,342
Metal sulphide from hyposulphite solutions, precipitating, H. Hirschtag 513,324
Metal by means of electricity, process of and apparatus for melting, A. F. W. Kreinsen 513,270
Metallurgical plant, E. L. Ford 513,099
Meter. See Electric meter.
Meter for estimating the volume and density of alcohols, etc., A. V. L. Bedout 513,298
Microphone, A. Groper 513,181
Milk receptacle, J. M. Matthews 513,125
Mill. See Crushing or grinding mill. Rolling mill.
Mines, electrical apparatus for firing submarine, G. Bertolini 513,294
Mining machine, Beury & Cressey 513,296
Miter, level, and square, combined, Hatch & Wenger 513,183
Mixing materials, method of and apparatus for, T. A. Edison 513,096
Moulding machine, outside, C. D. Marsh 513,192
Monkey wrench, E. C. Wells 513,354
Mower, lawn, W. M. Ring *et al* 513,442
Mowers, grass collector for lawn, E. Anderson 513,358
Music leaf turner, S. H. Redmond 513,142
Musical instrument attachment, M. J. Betz 513,295
Nasal expander, W. A. Dayton 513,458
Nipples during threading, device for holding, J. H. Riley 513,147
Nozzle and sprinkler, combined, A. L. Young 513,291
Nut lock, E. Hays 513,393
Nut lock, J. Schirra 513,203
Nut lock, R. C. Snowden 513,209
Nut wrench, Hardy & Dunn 513,233
Oil heater, W. Masters 513,404
Ore concentrator belt, H. J. Summerhayes 513,216
Package carrier, W. H. Albach 513,449
Packing, J. Murphy 513,273
Packing, car door F. E. Canda 513,302
Padlock, Trosst & Slaymaker 513,160
Pail, R. B. A. Knop 513,269
Pan. See Saucepan.
Paper spool or bobbin, G. E. Grimm 513,317, 513,318
Pencil holder, S. L. Lazaron 513,239
Perambulator, L. Roberts 513,248
Phonograph, T. A. Edison 513,095, 513,097
Photographer's bath and printing frame, combined, F. Sandeman 513,049
Piano muffler or soft stop, E. M. Quint 513,341
Pistol, W. W. Kimball 513,237
Planter, check row corn, H. Pittman 513,198
Plow, F. S. Moore 513,335
Plow, G. Moore 513,408
Plow sweep, J. F. Reeder 513,417
Pneumatic tube systems, station for, H. C. Kelley 513,236
Post. See Fence post.
Post driver, C. T. Cannon 513,379
Power. See Churn power.
Press. See Printing press.
Printing from stencils, machine for, T. H. Stackhouse 513,212
Printing machine, platen, J. Winterton 513,357
Printing press, J. J. Pederson 513,136
Propeller, A. W. Case (r) 11,399
Propelling canal boats, electrical means for, J. Sachs 513,466
Pulley, split, L. S. Bache 513,359
Pulley, split, H. F. Kuhlmann 513,118
Pulp strainer, Cornell & McCulloch 513,454
Pump, C. E. Funk 513,315, 513,316
Pump, ejector, W. B. Nevill 513,412
Pump governor, air, J. T. Hayden 513,106
Pump, hydraulic air, E. H. Weatherhead 513,254
Puzzle, A. E. Harker 513,105
Radial drill, A. J. F. Mill 513,128
Radiator, electric, Hough & Burns 513,109
Rail brake, H. L. Simmons 513,207
Rail joint, E. P. Caldwell 513,081
Rail joint, M. C. Niles 513,275
Rail joint securing device, J. L. Pope 513,340
Railway joints, automatic locking device for, J. L. Pope 513,415
Railway rail, H. L. Stillman 513,445
Railway signaling apparatus, E. A. Winterbalder 513,376
Railway supply system, electric, H. S. Pruyn 513,440
Railway track sweeper, G. M. Brill 513,230
Railways, span wire for overhead electric, S. H. Short 513,426
Rain water flowing from roofs of houses, apparatus for separating air from, R. Habermann 513,429
Recorder. See Fare recorder.