

not go outside of mechanics. The description of Hicks' ballistic balance, with a "comparison of masses," is particularly to be noted as an example of the treatment given the subject by the author.

POPULAR ESSAYS UPON THE CARE OF THE TEETH AND MOUTH. By Victor C. Bell. Published by the author. 1894. Pp. 103. Price \$1.25.

It really seems to us as if this book were one which might have considerable utility. It treats of the general sensible care of the teeth, home remedies, and an excellent chapter is given in conclusion on "quackery," which is really an appeal for good work, and as such must be recommended. The book has no index, but, perhaps on account of its shortness, it hardly needs one.

TELEGRAPHIST'S GUIDE TO THE NEW EXAMINATIONS IN TECHNICAL TELEGRAPHY. Together with an appendix dealing with dry and secondary cells, universal battery system, direct reading battery instrument, duplex (bridge method), new system of morning testing, fast speed repeaters, etc. By James Bell, A.I.E.E. Certified Teacher City and Guilds of London Institute. London: Electricity. Pp. 101. Price 60 cents.

PRACTICAL TELEGRAPHY. By F. E. Wessels. A book for self-instruction. 1895. Pp. 24. Price 50 cents.

The Locomotive, a monthly publication of the Hartford Steam Boiler Inspection and Insurance Company, has just completed its 15th volume. Its inspectors' reports of examinations of boilers, with the defects found therein, and its notes on boiler explosions, render this little work an especially valuable one to engineers, when it is remembered that the boiler inspections number as many as from ten to twelve thousand per month. In 122,893 boilers examined last year, 597 were condemned, and dangerous defects were found in 12,390. As might be looked for in such a publication, it contains much valuable information on boiler construction and preservation.

SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE, 1895.—(No. 116.)

TABLE OF CONTENTS.

1. A cottage at Bronxwood Park, Williamsbridge, N. Y., recently erected for Dr. Geo. P. Shirmar, at a cost of about \$2,500. Perspective elevation and floor plans. A pleasing design. A. F. Leicht, Esq., architect, New York City.
2. An elegant plate in colors showing a cottage at Bronxwood Park, Williamsbridge, N. Y., recently erected at a cost of \$3,200. Perspective view and floor plans. Mr. A. F. Leicht, architect, New York City. A neat design.
3. A cottage at Flatbush, L. I., recently erected for W. K. Clarkson, Esq., at a cost of \$5,000. Perspective elevation and floor plans. Mr. Christopher Myers, architect, New York City. A picturesque design.
4. A modern cottage at Bedford Park, New York City, recently erected at a cost of \$3,000. Perspective elevation and floor plans. A picturesque design. Mr. Edgar K. Bourne, architect, New York City.
5. The Bedford Park Congregational Church. Two perspective elevations and floor and basement plans. Cost complete, \$7,000. Mr. Edgar K. Bourne, architect, New York City.
6. A Colonial cottage recently erected at New Dorp, S. I., at a cost of \$3,675, complete. Perspective elevation and floor plans. Messrs. Child & De Goll, architects, New York City. An attractive design.
7. A residence at Germantown, Pa. Two perspective elevations and floor plans. Cost complete, about \$10,500. Messrs. Child & De Goll, architects, New York City.
8. The New Theater, San Luis de Potosi, Mexico. Architect, Don Jose Noriega.
9. Design for a window decoration.
10. The residence of E. P. Sandford, Esq., at Montclair, N. J. Two perspective elevations and floor plans. An elegant design. Architect and builder, Mr. E. P. Sandford, Montclair, N. J.
11. A cottage in the English half-timbered style recently erected for F. E. Kirby, Esq., at Glen Ridge, N. J. Perspective view and floor plans. E. Rollin Tilton, designer, New York City.
12. Miscellaneous contents: The Hanging Gardens of Babylon.—Perspective drawings.—Concrete roofs.—Points of support.—Architects' estimates.—An improved hot water heater, illustrated.—A new invention for raising water, illustrated.—Improved paving.—The Bommer spring hinge, illustrated.—A mixing regulator for gas machines, illustrated.—Adjustable sliding door track and hanger, illustrated.—Woodworker's improved vise, illustrated.—African mahogany.—A new steam and hot water heater, illustrated.—Powers' improved automatic chimney top, illustrated.—Improved wood working machinery, illustrated.

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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.

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Mineral sent for examination should be distinctly marked or labeled.

(6543) D. T. W. asks: What is the velocity of electricity, as in telegraphy? A. It depends on the delicacy of the receiving instrument and on the capacity of the line. It is fair to assume that the first faint and imperceptible disturbance goes with the speed of light (about 186,000 miles per second), but considerable time may elapse before.

(6544) Machinist, Memphis, writes: If an eccentric on an ordinary stationary engine is chucked in the lathe, got dead true on the outside, turned off $\frac{1}{8}$ or $\frac{1}{4}$ of an inch and the straps bored out to suit, will it change the throw of the valve or not? A. The size of the eccentric does not control the throw of the valve. The amount of eccentricity only is considered, whether it be a pin or a large disk.

(6545) C. A. M., Cal., writes: In laying a pipe line 40 miles long, using 2 inch and 3 inch pipe, which is the most practical method in laying the line, using 20 miles of each? Which will make the most friction, the 2 inch pipe at the pump end and the 3 inch at the outlet, or the 3 inch at the pump end and the 2 inch at the outlet? The pump will lift the oil 200 feet for the first half mile, then it will have a fall of 1,500 feet for 39½ miles. A. The 3 inch pipe should be laid at the pump end of the line. This will relieve the friction on the rising end of the siphon from the work of the pump, and allow the best condition for gravity flow on the long leg of the siphon. This will relieve the work of the pump to a small extent and yield the largest possible delivery at the discharge end.

(6546) B. H. T. asks: 1. Why does not more surface of plate give more current in cell? Text book says that the only difference size of cell makes is difference in internal resistance. A. It does give more current. Lowering the resistance implies at a constant voltage the development of more current. 2. What makes telegraph or telephone wire sing? A. The action of wind upon them, on the principle of the Aeolian harp. —Governments have done considerable in the way of affording State support to colleges and universities. As a rule, anything in the nature of a substantial support received by any individual in pure science is derived from a connection with one of these institutions. There have been some government prizes, but these are of comparatively little importance.

(6547) W. H. K. asks: Which will run the easier, a 26 inch or a 28 inch bicycle, both geared to 60 inch, weight considered the same, over ordinary roads? A. It is hard to answer this question authoritatively. We should decidedly incline to recommend the larger wheel. The larger sprocket on the rear wheel counts as an advantage, and for even gear the larger sprocket will go on the larger wheel.

(6548) D. R. W. asks: What is the best known (solid) non-conductor of sound? A. India rubber is about as good as any.

(6549) H. A. asks how to clean and make smooth the outside of an upright boiler, and what kind of paint is used to paint boilers, and make them shine? A. The boiler can be rubbed smooth with a piece of pumice stone and water, then painted with black japan varnish, or, what is more commonly used, coal tar varnish.

TO INVENTORS.

An experience of nearly 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 unequal 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

May 28, 1895,

AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Acid, making phosphoric, J. Van Ruymbeke..... 540,124
Advertising match box, G. H. Millen..... 540,022
Air cooler, return, H. B. Roelker..... 540,023
Animal trap, J. B. Hulings..... 539,900
Annunciator, F. A. Jennings..... 539,870
Armature coil and making same, Persson & Thomson..... 539,881
Armature winding and making same, W. Hochhausen..... 539,943
Artillery carriage, H. Jakobson..... 539,944
Atomizer, S. Russell..... 539,961
Axle, axle-tree, and box of vehicles, J. Taggart et al..... 540,119
Axles, means for connecting motors to car, S. H. Short..... 540,029
Bail, bucket, W. D. Rudy..... 540,004
Baling press, C. D. Neeb..... 540,183
Band cutter and feeder, A. Johnson..... 539,814
Ba rel heater, Menzel & Emmitt..... 539,875
Battery. See Galvanic battery. Secondary battery..... 540,194
Bed, B. Ryan..... 540,194
Bed bottom attachment for invalids, Davis & Keith..... 540,016
Bed brace, J. F. Sachs..... 540,113
Bedstead, P. Finley..... 539,964
Bedstead, W. Hynes..... 540,103
Beer, drawing of, C. Kaiser..... 540,187
Bell, electric, C. B. Sterling..... 539,906
Belt, link, W. P. Taggart..... 540,139
Belt tightener, A. D. Chandler..... 540,138
Bicycle, F. M. Bowell..... 540,133
Bicycle handle, H. Beck..... 540,173
Bicycle pedal, J. A. Goepfer..... 539,855
Bicycle saddle support, E. C. Stearns..... 540,118
Binders, compressing and tripping device, for automatic self, W. Butterfield..... 539,852
Boiler. See Drop tube boiler. Steam boiler..... 539,941
Boiler furnace, steam, P. J. Grau..... 539,836
Boot or shoe outsoles, preparing, W. Tirrell..... 539,836
Boot or shoe uppers, machine for trimming, E. S. Harris..... 540,051
Bottle nipple, nursing, S. R. King..... 540,064
Bottle, non-leakable, Grossmann & Klemm..... 540,072
Bottle stopper, W. Painter..... 540,072
Bowling alley, W. H. Wiggins..... 540,038
Box. See Advertising match box. Jeweler's saw-dust box..... 539,845
Box strap, J. J. Wolf..... 539,845
Brake shoe, W. G. Key..... 540,067
Brake shoe, J. E. Worwick..... 540,203
Broiler, J. I. Conklin..... 539,857
Broom staffs or other handles, attachment for, R. W. Carrington..... 539,793
Brush, M. Hellwig..... 539,942
Brush, C. W. McLean..... 539,903
Brush cup, G. J. Wohltman..... 540,129
Buckle, backband, C. C. Krouse..... 539,955
Buildings, construction of portable, O. Abruzzo..... 540,084
Bulkhead door, watertight, L. Katzenstein..... 539,953
Bundling machine, F. C. Blaisdell..... 540,136
Bur or J. M. Babb, et al..... 540,089
Burner. See Garbage burner. Oil burner..... 540,099
Can opener, T. F. Haxerty..... 539,971
Can opening machine, W. N. Anderson..... 540,170
Candle holder, L. G. Kregel..... 539,937
Car coupling, J. C. Garavagh..... 539,932
Car coupling, H. Christie..... 539,938
Car coupling, J. E. Forsyth..... 540,057
Car coupling, T. F. Hudson..... 540,111
Car coupling, J. A. Roosevelt..... 540,124
Car door, G. M. McMahon..... 540,024
Car fender, H. Kelly..... 540,134
Car fender, B. Levesque..... 540,086
Car fender, J. W. Madden..... 539,901
Car fender, R. Mayolini..... 540,106
Car fender, safety, S. C. Kindig..... 540,063
Car fender, street, W. N. Taggart..... 540,120
Car fender, street, J. Tiley..... 540,035
Car lining, C. J. Beck..... 540,134
Carousel, M. T. Weston..... 540,127
Cart, street cleaning, J. H. Byram..... 539,853
Cartridge belt, J. B. Williamson..... 539,970
Cartridge loading machines, crimper for, G. M. Peters, F. McGinnis..... 540,221
Caster, C. W. McGinnis..... 540,070
Ceiling board, Stillwell & Broman..... 539,832
Chain pins, machine for making, C. M. Spencer..... 539,964
Chair attachment, H. V. Swan..... 540,034
Change maker and coin assorter, registering, S. J. Taylor..... 539,885
Check register, J. A. Small..... 539,831
Check rower, G. D. Haworth..... 539,915
Chimney top, E. Finch..... 540,018
Chip breaker, S. J. Leonard..... 539,919
Cigar tip cutter, L. C. Miner..... 539,817
Cigarette machine, W. Hughes..... 540,210
Cigarette machine, J. Voron..... 539,838
Clamping device, Aylworth & Leslie..... 540,204
Clasp. See Letter clasp..... 539,916
Clasp, C. M. & G. W. Hilliker..... 540,108
Clasp, T. N. Parker..... 540,108
Cloak, plow, N. P. Bolin..... 539,788
Cloth wringer and shrinking machine, J. Feiss..... 539,833
Clutch, friction, H. B. Stone..... 539,797
Coal conveyor or chute, F. Collins, Jr..... 539,797
Coal dust and air for combustion, method of and apparatus for mixing, C. Schmitz..... 540,114
Coat and hat rack, F. W. Carnell..... 540,044
Coat hanger, D. B. Stott..... 540,044
Cock, stop, C. M. Jarvis..... 540,195
Coin-controlled apparatus, G. F. W. Schultze..... 540,178
Combination table, F. J. Mercet..... 539,990
Concentrator, U. S. Grant..... 539,879
Conductor, C. R. Munn..... 539,879
Conducting mechanism, J. Spencer..... 539,838
Cooker, steam and water, W. L. Swan..... 539,925
Cooler. See Air cooler..... 540,048
Cores, machine for covering fibrous or metal, P. & W. Deissler..... 539,785
Corn shock loader, F. H. Austin..... 540,033
Costume, theatrical, G. Casparian..... 540,045
Cot, folding, C. A. Blomberg..... 540,041
Coupling. See Car coupling. Thrill coupling..... 539,796
Coupling, T. J. Close..... 539,937
Coupling, T. J. Close..... 539,937
Crank of varying length for driving cycles, etc., jointed, A. Prunier..... 540,189
Cusher. See Stone crusher..... 539,861
Culinary utensil, J. E. Epp..... 539,874
Cup, H. C. A. Grey..... 539,888
Cultivator, tooth, D. K. Yorkey..... 539,888
Cup. See Brush cup..... 540,075
Cutter. See Band cutter. Cigar tip cutter. Pipe and bolt cutter..... 540,075
Cutter head, S. J. Shimer..... 539,836
Die for sheet metal mangle, J. Graves..... 539,927
Digging. See Potato digger..... 540,217
Disinfecting device, J. H. Werner..... 539,836
Displaying effect of dress materials, pattern card for, Pecheux & Paulet..... 540,217
Door check, S. Frisbie..... 539,883
Door check, W. A. Gay..... 540,019
Door hanger, H. L. Ferris..... 539,987
Door or shutter holder, C. W. Blackburn..... 539,930
Doors, device for opening or closing double sliding, W. R. Sneed..... 540,077
Drainage mechanism, F. Brown..... 540,143
Dredging machine bucket, J. M. Seward..... 539,962
Drier. See Tobacco drier..... 539,945
Drill making machine, M. C. Johnson..... 540,158
Drive wheel for elevators, carriers, or the like, G. S. Fouts..... 540,158
Drum, J. D. Bailey..... 540,130
Earthenware, porous, Mitchell & Swink..... 540,130
Electric alternating currents, app r tus for determining differences between phases of two, M. von Dollo-Dobrowsky..... 540,153
Electric cable, W. D. Gharky..... 539,539

Electric heater, C. J. Reed..... 540,073
Electric machines, brushholder for dynamo, E. Thomson..... 540,085
Electric meter, Thomson..... 539,886
Electric motor, J. B. Alwager..... 539,849
Electrical connection, F. Heald..... 539,855
Electrical distribution system, E. G. P. Oelschlaeger..... 540,216
Electrical exchange, A. E. Keith, et al..... 540,168
Elevator. See Grain elevator. Water elevator..... 540,169
Elevator safety device, W. F. Kidder..... 539,929
Embroidering machine thread guide, L. Abeles..... 539,868
Emery wheel, manufacture of, W. R. Hausman..... 539,868
Engine. See Gas or gasoline engine..... 539,926
Engine steering device, traction, F. M. Theisen..... 539,926
Exercising apparatus, I. G. Kheiralla..... 539,872
Explosive compound, F. G. A. Broberg..... 540,141
Eyeglass nose piece, J. L. Porseb..... 540,138
Eyeglasses, W. N. Blanchard..... 540,040
Fare register, Margraff & Leisner..... 539,816
Fence machine, O. P. Pierson..... 540,027
Fence post, G. F. Bauer..... 540,085
Fence posts, means for securing chains to, F. P. Rosbach..... 540,192
Fence, wire, J. M. Gross..... 540,161
Fender. See Car fender. Plant fender..... 539,884
Filter, S. J. Sullivan..... 539,892
Filter, water, D. H. Erdman..... 539,892
Fire escape, J. W. Madden..... 539,856
Fire extinguisher, S. Banfill..... 539,877
Flambeau, Gavin & McDonald..... 539,969
Flooding, walls, etc., structural arrangement of, E. L. Pease..... 540,186
Flue cleaner, hammer, W. H. Tebeau..... 540,081
Forceps, castrating, N. Farish..... 540,092
Forming machine, J. Clark..... 539,856
Fruit knife, W. S. Cooper..... 540,147
Funnel, H. Strater..... 539,965
Furnace. See Boiler furnace. Hot water furnace. Metallurgical furnace..... 539,871
Galvanic battery, H. T. Johnson..... 539,943
Game apparatus, H. H. Sargent..... 540,197
Game board, F. C. Stockdell..... 540,197
Game illustrating apparatus, base ball, M. D. Compton..... 540,089
Garbage burner, domestic, Taylor & McLaughlin..... 540,080
Gas or gasoline engine, G. W. Roth..... 539,923
Gate, J. M. Crews..... 540,047
Gear cutting and milling machine, automatic, F. H. Bultman..... 539,792
Gear, driving, Crepar & Hunter..... 540,208
Generator. See Steam generator..... 540,144
Gold separator, W. Canfield..... 540,144
Gold separator, electromagnet, Gibbons & Murray..... 539,804
Grain cleaning and scalping machine, Royal & Giles..... 540,193
Grain dampener, W. H. Hill..... 539,812
Grain elevator, and weigher, E. E. Haugen..... 539,812
Guitar, L. P. & P. Weyder..... 539,819
Hammer, foot power, A. S. Lockrem..... 539,815
Hammer, power, R. B. Boynton et al..... 540,140
Hammer, Rawson & Lake..... 540,190
Handle. See Sled iron handle..... 540,014
Harrows, J. C. Beck..... 539,830
Harvester, corn, C. S. Sharb..... 539,829
Harvester reel, M. Schneider..... 539,829
Hasp lock, C. T. Gibson..... 539,805
Hats, method of and means for blocking and banding felt, R. Eickemeyer..... 540,219
Hay derrick, Ogilvie..... 539,897
Heater. See Barrel heater. Electric heater. Water heater..... 540,079
Heater and purifier, E. R. Stillwell..... 540,079
Heaters with hot water, apparatus for supplying storage, J. F. McElroy..... 540,215
Heating apparatus, J. Demarest..... 539,978
Heating apparatus, combination, J. Demarest..... 540,126
Heel, W. Wass..... 539,824
Hitch, three horse, C. N. Perkins..... 539,965
Hoisting and conveying apparatus, C. W. Nason..... 539,921
Hoisting bucket, C. Pay..... 540,136
Hoisting bucket, J. H. Smith..... 540,136
Hook. See Coat and hat hook. Safety hook..... 540,077
Hoops, sizing and nailing barrel, L. Weidmann..... 540,187
Horseshoe calk, J. W. Miller..... 540,023
Horseshoe calks, rolled metal bar for use in making, G. W. Wemple..... 539,841
Horse spreader, M. B. Morehead..... 540,083
Hose nozzle, Stanton & Moreton..... 540,218
Hot water furnace, E. F. White..... 540,128
Hub, box, and spindle, vehicle, D. M. Loucks..... 540,172
Incubator, N. McAlister..... 540,107
Index, Hall & McChesney..... 540,060
Indicator. See Measure indicator. Station indicator..... 539,802
Inkstand, B. Flitsam..... 539,802
Inkstand lid closing attachment, T. L. Harlow..... 539,809
Jack. See Lifting jack..... 539,909
Jack, H. W. Armstrong..... 539,909
Jeweler's saw, box, T. Bradshaw..... 540,205
Kitchen cabinet, J. M. Brooks..... 540,206
Knife. See Fruit knife..... 539,819
Knitting machine, F. A. Nye..... 539,819
Knitting machine, A. Townsend..... 539,857
Knitting machine, circular, B. M. Denney..... 540,151
Knitting machine, thread-supplying device, J. G. Brewin..... 539,791
Lace machine, twist, E. Cope..... 539,936
Ladder, clothes rack, and ironing board, combined, J. C. Milfin..... 540,179
Lamp, electric arc, J. A. Mosher..... 539,877
Lamp, hanging, J. C. Van Cleaf..... 539,869
Lamp shade, electric, A. S. Marten..... 539,869
Lamps, producing incandescing bodies for electric, K. O. E. Trobach..... 539,838
Lantern for bicycle riders, W. K. L. Dickson..... 539,791
Lantern frame, C. L. Betts..... 539,973
Last blockfastener, E. E. Goss..... 540,065
Latch, gate, S. V. Beam..... 539,991
Leaf turner, H. Kramer..... 540,122
Lens, H. D. Taylor..... 539,835
Letter clasp, Nedroschi & Walters..... 539,835
Letter sign, R. F. Levy..... 539,867
Level, block, F. O. Proctor..... 540,138
Lifting jack, G. Lane..... 539,866
Light. See Search light..... 539,944
Linotype machine, P. T. Dodge..... 539,944
Linotype machine, O. Merzthal..... 539,963
Linotype machine, leading mechanism for, L. F. Linotype..... 539,992
Linotype machines, matrix and expanding spacer for, J. Place..... 540,002
Liquid sampling device, G. Tagliabue..... 540,121
Liquors containing gas under pressure, apparatus for retailing, L. Nathan..... 539,904
Lock. See Heat lock. Permutation lock..... 540,025
Lock-controlling mechanism, R. A. Palmer..... 539,969
Lock strike, J. B. Wells..... 539,969
Locomotives, device for controlling draft in, M. P. Bagstad..... 540,133
Loom temple, E. S. Simpson..... 540,072
Machine, M. N. D'Andrie..... 539,889
Malt turning and stirring machine, J. F. Donfield..... 540,220
Match safe and separator, J. Henry..... 540,001
Matrix, separable, J. Place..... 540,002
Mattress, M. Rude..... 540,112
Measure indicator, J. H. G. Zunner..... 540,130
Mechanical movement, Brammer & Plagman..... 539,846
Mechanical movement, A. N. Woodard..... 540,146
Metallurgical furnace, M. R. Conley..... 540,146
Meter. See Electric meter..... 540,211
Miner's spooling tool, N. E. Varney..... 540,211
Mining machine, F. S. Dobson..... 540,131
Mirror, album, etc., folder, P. Wiederer..... 539,838
Monument, F. M. Hawkins..... 539,838
Motor. See Electric motor..... 540,059
Musical instrument, automatic, D. Imhof..... 540,059
Nut lock, J. J. Kime..... 539,813
Oil burner for lamps or stoves, E. Humphrey..... 539,813
Oil tank heating apparatus, Carrington..... 540,083
Oilers, flanged cap for, S. K. Wilmut..... 539,974
Ordnance breech mechanism, J. B. G. A. Canet..... 539,795
Ores, treating certain, J. J. Christmas..... 539,810
Oven, A. Harshush..... 540,006
Padlock, W. F. Frost et al..... 539,805
Paper box, H. C. W. Grey..... 539,805
Paper coating and printing machine, J. E. Gledhill..... 540,097
Paper feeding machine, J. J. Allen..... 540,131
Paper folding machine, T. C. Dexter..... 539,981
Paper, etc., waterproof, rendering, Hornung & Paper..... 540,164
Paper with emulsion, machine for coating, C. B. Woodward..... 539,848
Passenger register and recorder, electric, J. W. Ellis..... 540,090
Pen feed bur, fountain, F. Farwell..... 540,017
Permutation lock, R. Moe..... 539,818
Photograph attachment, L. Glass..... 539,907
Piano action, A. T. Strauch..... 539,907
Pipe, H. F. Williams..... 540,202
Pipe and bolt cutter, H. W. Oster..... 539,880
Pipe holder and vise, combined, E. F. Fitzgerald..... 540,083
Piston, H. D. Baggart..... 539,869
Planing machine, J. J. Olson..... 539,968
Plant fender, D. S. Mue..... 540,214
Planter, corn, R. Boyd..... 540,015
Planter, potato, H. W. Ellenhart..... 540,157
Pneumatic dispatch apparatus, carrier for, B. C. Pockethook, L. M. Wilfert..... 539,842
Pocket for garments, safety, H. Mason..... 539,902
Poke, animal, J. H. Heaton..... 539,811
Pole, wagon, J. Graves..... 539,897
Post. See Fence post..... 539,897

Potato digger, C. N. Covill.....	510,148
Press, See baling press.....	
Printer's galley, E. L. Holmes.....	540,056
Printing attachment, multicolor, T. J. Turley.....	540,123
Pulp, moulding fibrous, J. A. Wheeler.....	539,928
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