Business and Personal.

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tricity 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.



HINTS TO CORRESPONDENTS.

Minerals sent for examination should be distinctly marked or labeled.

(7996) R. S. A. asks: Which will run the "simple electric motor" the most number of (clock) hours - a battery of 16 volts and 4 ampenes, or a battery of the same voltage and 40 amperes? Also, how does an ampere-hour correspond with the clock-hour? A. The battery with 40 amperes of current will last ten times as long as one of 4 amperes, if the current is drawn out of each at the rate of 4 amperes per hour. An hour is the same for clock or battery. An ampere-hour is a current of 1 ampere of electricity flowing for one hour. The idea is just the same as when we speak of water flowing through a 1-inch pipe for an hour; a fixed quantity will flow through in one hour. The quantity of water which can flow through a pipe is controlled both by the size and the length of the pipe; so the amperes are controlled by both the size and length of the wire which carries the

(7997) C. C. writes: Could you state about what would be the total cost of the "Simple Steam Engine" shown on page 314 of your issue of November 17? How much ower has it? I am interested in this little machine and would be pleased if you could furnish me with the information. A. This simple engine to which you refer has only a fraction of a horse power, but of course one of almost any power could be made on the same plan. The materials for the small one including boiler would cost three or four dollars. The cost of materials for a larger one would depend of course upon the

(7998) H. C. C. writes: In the article on "The Electric Chime," I do not quite catch the portion relating to the cam and lever. And will you describe a little more fully how made, what made of, and how connected to the wire. A. The cam is made of two plates of brass, one sawed out to form the double groove and soldered to the other. The lever simply makes a connection between the two springs when the cam pushes it between them

(7999) W. & Co. ask: Would the mandrel-drawn steel tubing mentioned in a recent article in your paper be suitable, without boring, for steam cylinders up to a diameter of, say, two inches? A. The cold-drawn steel tubing is true and suitable for small steam cylinders.

(8000) G. G. P. asks: Has there ever been a relay or repeater for the telephone invented by INDEX OF INVENTIONS any one? If so, will you please give a general description of it, so that the principle upon which it works may be understood by your readers. A. Yes, there have been several invented. The idea is to connect the receiver of one line to the transmitting microphone of another, so that the message as it is received shall be immediately transmitted along the second line. Mider, "American Telephone Practice," price \$3 by mail, has a chapter or this topic, giving the various methods by which it has been attempted to accomplish this very desirable object. Of the relay Miller says: "It has not shown its ability to [See note at end of list about copies of these Patenta.] transmit speech between two distant points any better than or quite as well as could be done by direct transmission without the use of the relay at all." That is the condition of the problem to-day.

(8001) J. C. H. asks: What fluid is used in Edison-Lalande battery ? A. The fluid is caustic śoda or caustic potash, 30 or 40 parts in 100 of water.

(8002) E. H. asks how to make a dry battery to run a small motor ? A. The plates of a dry cell are zinc and carbon as in all Leclanche cells. The dry cell is a Leclanche cell with some porous material in which the liquid is held absorbed so that it will not run out. The liquid may be only a solution of sal ammoniac. The absorbent may be plaster of Paris, mixed with something to make it more porous. In some cells this is oxide of zinc. Most of the dry cells are made by secret formulas. The cell itself is made of zinc. The carbon usually oc-

cupies at least half of the space in the cell. One formula is said to be : oxide of zinc, 1 part ; sal ammoniac, 1 part; plaster, 3 parts; chloride of zinc, 1part; water, 2 parts; all by weight.

(8003) L. F. asks: What is the candle power of ordinary coal oil lamps having wicks 34, 1, 11/4 and 11/2 inches wide, and a student lamp, having a wick 234 inches in circumference? A. The candle power of these wicks varies greatly in different burners. The only way to proceed is to measure each lamp when it is in its best condition. The results will be from 5 to 50 or perhaps more candles. Nearly every text book of physics describes the method of measuring candle power. Avery's "School Physics," price \$1.40 by mail, is a good guide in the experiment.

(8004) P. S. asks: I would like to make a dynamo ont of the "Simple Electric Motor" described in Experimental Science (page 497). How many volts and amperes can I expect from it? How many incandescent lamps, and what candle power? When wound as a dynamo, can I use it as a motor? Have you a Scr-ENTIFIC AMERICAN SUPPLEMENT describing a dynamo and motor that will light some incandescent lamps and is very simple and easy to make as I have not very many tools? A. 1. The simple electric motor is a dynamo if it be driven by an engine. Every dynamo is a motor when electric current is sent through it, and every direct current motor is a dynamo when driven by power. It will give nearly the same current as is used to drive it, and will light a few small incandescent lamps. 2. The simple electric motor is the easiest to build without a machine shop. The dynamo described in Supplement, No. 600, is able to light eight 16 candle

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.

Bayers wishing to purchaseany 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.

Miscreals sent for examination should be distinctly. (8005) P. D. B. asks: Will you please publish a recipe for making batteries to be used upon a gasoline motor bicycle? A. A good dry battery is best adapted to igniting the vapor in a gasoline engine. These can be purchased much cheaper than they can be made. Their construction can be learned from Carhart's Primary Batteries, price \$1.50 by mail. A storage cell is described in Scientific American Supplement, No. 792, and the Electric Ignition of Gas Engines is the sub-

(8006) H. G. V. L. asks: 1. Which is the best for X-ray screens—barium platinocyanide or tungstate of calcium? A. Barium platinocyanide is better for fluorescent screens than calcium tmigstate; by some it is pronounced to be 75 per cent better. Its chief point of superiority is that it does not retain its glow so long after the rays have ceased to strike it as calcium tungstate does. 2. Where can barium platinocyanide be had, and what quantity would be needed to make a screen say 8 by 10 inches? A. Either of these substances can be had from dealers in X-ray apparatus. See our advertising colums. The dealer will tell you what quantity to use per square inch. 3. Have an actinometer with scale from 0° to 80°. Do not know how to get the specific gravity, say sulphuric acid 1.82, or sulphuric and water. for electrolytic breakers or batteries? A. Put your actinometer in sulphuric acid of known density, or in a mix-ture of the proper proportions, and observe the reading. Afterward it will only be necessary to bring the fluid to the density which will support the actinometer at the same mark.

(8007) McK. asks: Why are our prevailing winds westerly? The earth's revolution would naturally cause the winds to blow in the op osite direction. A. The prevailing winds of your part of the world are westerly because you live in the zone of the anti-trade winds, which prevail from 30° to 60° north and south latitude. Winds are not caused by the earth's rotation on its axis. They are modified in their direction by that rotation. They are caused by the heat of the sun. The subject is too extensive for treatment in a note. The reader is referred to Waldo's "Elementary Meteorology," price \$1.75 by mail; and for a complete presentation of the subject to Ferrell's "Treatise on the Winds," price \$4 by mail.

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

DECEMBER 4, 1900,

AND EACH BEARING THAT DATE.

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١	De la Harpe	663,220
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J. J. Wood	Mon wringer, D. M. Rogerson. 683,105 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 683,355 Muscla instrument tone finder, stringed, C. E. Ropp. 683,105 Muzzle, J. C. Todd. 683,105 Muzzle, J. C. Todd. 683,105 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calloun. 683,255 Necktie fastener, C. Reynolds. 683,105 Necktie fastener, C. Reynolds. 683,105 Nodle or dumpling cutting device, Denney & Silvers
J. J. Wood	Mon wringer, D. M. Rogerson. 683,105 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 683,355 Muscla instrument tone finder, stringed, C. E. Ropp. 683,105 Muzzle, J. C. Todd. 683,105 Muzzle, J. C. Todd. 683,105 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calloun. 683,255 Necktie fastener, C. Reynolds. 683,105 Necktie fastener, C. Reynolds. 683,105 Nodle or dumpling cutting device, Denney & Silvers
J. J. Wood	Mon wringer, D. M. Rogerson. 663,18 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Rotary motor. Spring motor. Mowing machine. J. I. Newburg. 663,35 Musical instrument tone finder, stringed, C. E. Ropp. Muzzle J. C. Todd. 663,16 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calbour, See Covered nail. Napkin ring and holder, combined, Brown & Calbour, See Covered nail. 663,16 Necktie fastener. C. Reynolds. 663,36 Necktie fastener. T. E. Wolf. 663,37 Nocktie retainer, T. E. Wolf. 663,38 Nocket retainer, T. E. Wolf. 663,38 Nocket gage. A. M. Frankel. 663,38 Nocket gage. A. M. Frankel. 663,38 Nut actional, W. C. Wrensch. 663,30 Nut septional, W. C. Wrensch. 663,30 Nut sapping machine. A. H. Riggs. 663,30 Nut sapping machine. A. Riggs. 663,30 Nut sapping machine. A. Riggs. 663,30 Nut
J. J. Wood 683,27 Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans 683,400 Electric traction apparatus, H. Dolter 682,913 Electrical apparatus for controlling signal or other circuits, H. A. Parrish 683,130 Elevator, J. Bush	Mon wringer, D. M. Rogerson. 683,118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 663,256 Musical instrument tone finder, stringed, C. E. Ropp. Muzzle J. C. Todd. 683,108 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calhoun. 683,257 Necktie fastener. C. Reynolds. 683,198 Necktie fastener. C. Reynolds. 683,198 Noodle or dumpling cutting device, Denney & Silvers. 683,257 Nose gage. A. M. Frankel. 683,268 Nut or pipe wrench. W. S. Armstrong. 682,901 Nut, sectional, W. C. Wrensch. 683,268 Nut, sectional, W. C. Wrensch. 683,268 Nut, bleaching, D. Farrell. 683,268 Nuts, bleaching, D. Farrell. 683,268 Nuts, bleaching, D. Farrell. 683,268 Nuts, bleaching, D. Farrell. 683,268 Pail, milk, A. G. Brugger. 683,289 Pail, milk, A. G. Brugger. 683,289 Pails, etc., apparatus for making, R. C. Hill. 683,283
J. J. Wood. Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans. Electric traction apparatus, H. Dolter. Electrical apparatus for controlling signal or other circuits, H. A. Parrish. Elevator, J. Bush. Elevator, J. Bush. Elevator safety gate, Hitz & Blaker. See Explosion engine. Gas engine. Revolving cylinder engine. Engine. See Explosion engine. Gas engine. Religines, electric igniter for explosive, M. S. Napier. Engine cab, traction, G. F. Conner. 663.147 Engines, electric igniter for explosive, M. S. Napier. Engraving machine, C. H. Field. Explosive and envelop fastener, W. O. Brown, Jr. 683.227 Envelop, partitioned duplex, F. A. Walter. 653.237 Explosives, making, A. C. Girard. Explosives, making, A. C. Girard. Explosives, making, A. C. Girard. 653.388 Farm gate, F. Barden. 663.389 Faucet, beer, J. B. Jones. 683.389 Faucet, beer, J. B. Jones. 683.387	Mon wringer, D. M. Rogerson. 663,118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 663,358 Musical instrument tone finder, stringed, C. E. Ropp. Muzzle J. C. Todd. 663,108 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calloud Rotary of
J. J. Wood 683,207 Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans 683,460 Electric traction apparatus, H. Dolter 682,921 Electrical apparatus for controlling signal or other circuits, H. A. Parrish 683,130 Elevator, J. Bush 682,931 Elevator safety gate, Hitz & Blaker 683,228 Engine. See Explosion engine. Gas engine. Revolving cylinder engine. Gas engine. Respire regulator, traction, G. F. Conner 663,147 Engine regulator, traction, G. F. Conner 663,328 Engraving machine. C. H. Field 683,388 Engraving machine. C. H. Field 683,302 Evaporating pan, F. I. Scard 682,976 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Eyelet bole machine, O. L. Nutter 683,347 Faucet, measuring, G. Sparrow 683,347 Faucet, measuring, G. Sparrow 683,347 Feed box, R. C. Jarvis 683,044 Fibrous material and product thereof, manuface	Mon wringer, D. M. Rogerson. 663,118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 663,358 Musical instrument tone finder, stringed, C. E. Ropp. Muzzle J. C. Todd. 663,108 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calloud Rotary of
J. J. Wood 683,207 Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans 683,460 Electric traction apparatus, H. Dolter 682,921 Electrical apparatus for controlling signal or other circuits, H. A. Parrish 683,130 Elevator, J. Bush 682,931 Elevator safety gate, Hitz & Blaker 683,228 Engine. See Explosion engine. Gas engine. Revolving cylinder engine. Gas engine. Respire regulator, traction, G. F. Conner 663,147 Engine regulator, traction, G. F. Conner 663,328 Engraving machine. C. H. Field 683,388 Engraving machine. C. H. Field 683,302 Evaporating pan, F. I. Scard 682,976 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Eyelet bole machine, O. L. Nutter 683,347 Faucet, measuring, G. Sparrow 683,347 Faucet, measuring, G. Sparrow 683,347 Feed box, R. C. Jarvis 683,044 Fibrous material and product thereof, manuface	Mon wringer, D. M. Rogerson. 663,18 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Rotary motor. Spring motor. Mowing machine. J. I. Newburg. 663,25 Musical instrument tone finder, stringed, C. E. Ropp. Muszle J. C. Todd. 663,16 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calloud Rotary and holder, combined, Brown & Calloud Rotary Rotar
J. J. Wood 683,207 Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans 683,460 Electric traction apparatus, H. Dolter 682,921 Electrical apparatus for controlling signal or other circuits, H. A. Parrish 683,130 Elevator, J. Bush 682,931 Elevator safety gate, Hitz & Blaker 683,228 Engine. See Explosion engine. Gas engine. Revolving cylinder engine. Gas engine. Respire regulator, traction, G. F. Conner 663,147 Engine regulator, traction, G. F. Conner 663,328 Engraving machine. C. H. Field 683,388 Engraving machine. C. H. Field 683,302 Evaporating pan, F. I. Scard 682,976 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Explosives, making, A. C. Girard 683,349 Eyelet bole machine, O. L. Nutter 683,347 Faucet, measuring, G. Sparrow 683,347 Faucet, measuring, G. Sparrow 683,347 Feed box, R. C. Jarvis 683,044 Fibrous material and product thereof, manuface	Mon wringer, D. M. Rogerson. 683, 118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg Musical instrument tone finder, stringed, C. E. Ropp Muzzle. J. C. Todd. 683,108 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calhour Calhour. Necktie fastener. C. Reynolds. 683,257 Necktie fastener. T. S. Wolf. 683,318 Nodle or dumpling cutting device, Denney & Silvers. Nose gage. A. M. Frankel. 683,267 Nut. or pipe wrench. W. S. Armstrong. 683,227 Nut. sectional, W. C. Wrensch. 683,287 Nut. sectional, W. C. Wrensch. 683,287 Nut. bleaching, D. Farrell. 683,287 Nut. bleaching, D. Farrell. 683,287 Nut. bleaching, D. Farrell. 683,287 Pails, etc., apparatus for making, R. C. Hill. 683,287 Pails, etc., apparatus for making, R. C. Hill. 683,287 Pails, etc., apparatus for making, R. C. Hill. 683,287 Pan. See Evaporating pan. Gold pan. Paper box. T. L. Neumann. 663,281 Paper box. C. G. Shipler, Jr. 663,132 Paper box. G. E. Simon. 663,198 Piano player, automatic, E. M. Skinner. 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198 663,198
Betrieve of the state of the st	Mon wringer, D. M. Rogerson. 683, 118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg Musical instrument tone finder, stringed, C. E. Ropp Muzzle, J. C. Todd. 683,108 Nail. See Covered nail. Napkin ring and holder, combined, Brown & Calbour See Covered nail. Necktie fastener. C. Reynolds. 683,257 Necktie fastener. T. S. Wolf. 683,318 Noodle or dumpling cutting device, Denney & Silvers. Nose gage, A. M. Frankel. 683,267 Nut or pipe wrench. W. S. Armstrong. 683,227 Nut. sectional, W. C. Wrensch. 683,287 Nut. sectional, W. C. Wrensch. 683,287 Nut. sheaching, D. Farrell. 683,388 Pails, etc., apparatus for making, R. C. Hill. 683,389 Pails, etc., apparatus for making, R. C. Hill. 683,389 Pan. See Evaporating pan. Gold pan. Paper box. C. G. Shipley, Jr. 683,138 Paper box. C. G. Shipley, Jr. 683,138 Paper box. C. G. Shipley, Jr. 683,139 Paper box, G. E. Simon.
J. J. Wood. Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans. Wilson & Evans. Electric traction apparatus, H. Dolter. Electrical apparatus for controlling signal or other circuits, H. A. Parrish. Elevator, J. Bush. Elevator, J. Bush. Elevator, J. Bush. Elevator safety gate, Hitz & Blaker. Engine See Explosion engine. Gas engine. Revolving cylinder engine. Fanine regulator, traction, G. F. Conner. 663.147 Engine regulator, traction, G. F. Conner. 663.148 Engraving machine. C. H. Field. 563.388 Engraving machine. C. H. Field. 663.149 Envelop partitioned duplex, F. A. Walter. 663.282 Exposion engine. H. W. Struss. 673.044 Explosion engine. H. W. Struss. 673.045 Explosivess making. A. C. Girard. 673.146 Explosivess making. A. C. Girard. 673.146 Explosivess making. A. C. Girard. 673.146 Explosives making. A. C. Girard. 673.146 Explosives making. A. C. Girard. 673.146 Explosives making. A. C. Girard. 673.146 Explosion engine. H. W. Struss. 673.147 Explosion engine. H. W. Struss. 673.148 Explosion engine. H. W. Struss. 673.147 Explosion engine. H. W. Struss. 673.148 Explosion engine. H. W. Struss. 673.146 Explosives making. A. C. Girard. 673.147 Explosion engine. 673.147 Explosion engine. 673.148 Explosion engine. 673.148 Explosion engine. 673.148 Explosion engine. 673.147 Explosion. 673.148 Explosion. 673.148 Explosion. 673.149 Explosion. 673.141 Explosion. 673.141 Explosion. 673.142 Explosion. 673.141 Explosion. 673.142 Explosion. 673.143 Explosion. 673.141	Mon wringer, D. M. Rogerson. 683, 118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 663, 256 Musical instrument tone finder, stringed, C. E. Ropp. Musical instrument tone finder, stringed, C. E. Ropp. Musical instrument tone finder, stringed, C. E. Rops. Musical instrument tone finder, stringed, C. E. Stopen for the finder fin
Electric or electromagnetic waves of high frequency, controlling mechanism by means of, Wilson & Evans. Electric traction apparatus, H. Dolter. 683, 460 Electric traction apparatus, H. Dolter. 682,921 Electrical apparatus for controlling signal or other circuits, H. A. Parrish. 683,128 Elevator, J. Bush. 682,913 Elevator, J. Bush. 682,913 Elevator safety gate, Hitz & Blaker. 683,228 Engine, See Explosion engine. Gas engine. Revolving cylinder engine. Engine cab, traction, G. F. Conner. 683,127 Engine regulator, traction, G. F. Conner. 683,147 Engine regulator, traction, G. F. Conner. 683,147 Engine regulator, traction, G. F. Conner. 683,147 Engine selectric igniter for explosive, M. S. Napier. 683, 888 Engraving machine. C. H. Field. 683, 888 Engraving machine. C. H. Field. 683, 902 Evaporating pan, F. I. Scard 692,976 Explosives, making, A. C. Girard. 693, 946 Explosives, making, A. C. Girard. 693, 148 Explosives, making, A. C. Girard. 693, 148 Explosives, making, A. C. Girard. 693, 158 Faucet, beer, J. B. Jones. 693, 157 Faucet, measuring, G. Sparrow 683, 209 Feed box, R. C. Jarvis Fender. See Car fender. Fibrous material and product thereof, manufacturing solid substances from, W. Gelinek. 683, 209 Fired procket, A. M. Hamilton. 683, 209 Fired procket, A. M. Ha	Mon wringer, D. M. Rogerson. 683, 118 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine. J. I. Newburg. 663, 256 Musical instrument tone finder, stringed, C. E. Ropp. Musical instrument tone finder, stringed, C. E. Ropp. Musical instrument tone finder, stringed, C. E. Rops. Musical instrument tone finder, stringed, C. E. Stopen for the finder fin
Betrieve of the state of the st	Mon wringer, D. M. Rogerson. 683,184 Motor. See Fluid motor. Hydraulic motor. Marine motor. Rotary motor. Spring motor. Wind motor. Mowing machine, J. I. Newburg. 663,285 Musical instrument tone finder, stringed, C. E. Ropp. Nockite fastener. C. Reynolds. 663,195 Nockite fastener. T. E. Wolf. 663,195 Nockite rectainer. T. E. Wolf. 663,195 Nockite fastener. T. E. Wolf. 663,195 Nockite fastener. C. Reynolds. 663,295 Nut sectional, W. C. Wrensch. 663,295 Nut sectional, W. C. Wrensch. 663,295 Nut septender. 663,195 Nuts. bleaching. D. Farrell. 693,195 Nuts. bleaching. D. Farrell. 693,195 Nuts. bleaching. D. Farrell. 693,195 Nuts. bleaching. D. Farrell. 693,295 Pail, milk. A. G. Brugger. 693,395 Pain See Evaporating pan. Ged Dan. Paper box. T. L. Neumann. 693,285 Pan. See Evaporating pan. Ged Dan. Paper box. G. E. Simon. 693,118 Phonograph. F. Myers. 693,193 Pan inking device, draughtsman's, H. W. H. Powel. 693,194 Phonograph. F. Myers. 693,194 Phonograph. F. Myers. 693,195 Pinn payer automatic. E. M. Skinner. 693,195 Pinn payer such matic. P. E. Stevens. 692,985 Pin. See Safety pin.

fuel, E. Ott	662,957
Furnace for preventing smoke and economizing fuel, E. Ott	663,033 663,384 662,948
Game board, A. C. Fuld	663,336 663,249
Garment hanger, L. A. Farnham.	663,264
Garment hanger, A. Boucher Garment hanger, L. A. Farnham. Gas apparatus, acetylene, W. H. McGoldrick Gas burner, acetylene, J. W. Bray Ges engine, A. D. Gerretcop.	663,293 662,909 663,001
Gas generator, acetylene, W. F. Anson	663,324 563,007
Gas generator, acetylene, W. Hinge	663,169 663,240 663,201
Gas apparatus, acetylene, W. H. McGoldrick. Gas burner, acetylene, J. W. Bray. Gas generator, acetylene, W. F. Anson. Gas generator, acetylene, C. M. Bridges. Gas generator, acetylene, W. Hinge. Gas generator, acetylene, W. Hinge. Gas generator, acetylene, W. Remington. Gas generator, acetylene, A. F. Shriver. Gas generator, acetylene, A. Wegmann-Hauser. Gas generator, acetylene, A. Wegmann-Hauser. Gas making apparatus, R. M. Dixon. Gas producer. E. J. Doff Gas requiator, C. Jacobson Gas returt discharging machinery, G. A. Bronder Gasket and gasket securing mechanism, R. M. Dixon	663,312 663,054
Gas making apparatus, R. M. Dixon	662, 923 662, 923 662, 938
Gas retort discharging machinery, G. A. Bronder Gasket and gasket securing mechanism, R. M.	663,213 663,330
Gate. See Elevator safety gate. Farm gate.	600 000
Gate, G. Shine. Gate, G. Shine. Gate, W. S. Witten Gear, reversing, Tuck & Wassmann. Glass cutting machine, C. Dugon. Glassware articles, machine for finishing, A. H.	663,366 663,378 663,372
Glass cutting machine, C. Dugon	662,924
Heisey. Gold extracting machine, G. Webster. Gold pan. D. B. Newkirk. Governor attachment, high-speed, Loeper &	663,023 663,375 663,296
Governor attachment, high-speed, Loeper & Hausdoerfer	663,235
Governor for explosive engines, speed, B. F.	663,183
Stewart. Governor, static, B. V. Nordberg. Grate, H. Wilson. Grate bar, G. S. Sergeant.	663,298 663,298 663,377
Gravel separator, A. Beargeon	663.377 663.365 663,212
Grinder for sickles of mowers, reapers, etc., E. A. Johnston	663,278
A. Johnston Guns, ammunition conveyer or rammer for, G. A. Schoeller Hair fasteuer, B. B. Lederer	663, 24 2 662,949 662,993
Handle bar, J. T. McGuire	663,195 663,061
Harrow, disk, S. S. Sims. Hat fastener, M. Clausen. Hat sweet Verhoeven & Westerman	662,981 663,063 663,311
Hay rake, C. O. Mason	663,288
Hair fasteuer, B. B. Lederer. Hammer, pneumatic, D. S. Waugh. Handle bar, J. T. McGuire. Harrow, H. J. Case. Harrow, disk. S. S. Sims. Hat fastener, M. Clausen. Hat sweat. Verhoeven & Westerman. Hay rake, C. O. Mason. Header or harvester finger guard bar, G. T. Willis. Hearing tube, B. A. Price. Hot water heater. Water heater. Hide working cylinder, N. Leidgen.	663,318 662,393
Hide working cylinder, N. Leidgen	663.097 663.260
Hinge, C. G. Deming. Hoist or lift. B. Tucker. Horseshoe. nailless. J. F. Rupert. Hose attachment for stopping flow, G. E. Mc- Clalland	662,971
Hot air furnace, J. H. Montgomery	663.191
Hub and axle, elastic, F. Schmitz	663,047 662.907 663.302
Hot water neater, G. Strong. Hub and axle, elastic, F. Schmitz. Hub and spigot pipe and joint, R. Boeklen. Hub, vehicle, F. F. Stowe Hydraulic motor, G. F. Gemmill. Hydrocarbon burner, W. R. Jeavons. Hydrocarbon, liquid, Taylor & Ray. Ice cream packing and shipping can, multiplex, S. Goldsmith. Icon. See Prending iron. Sed iron.	663.337 662,941
Hydrocarbon, liquid, Taylor & Ray Ice cream packing and shipping can, multiplex, S. Goldsmith	663,370 663,076
Iron. See Branding iron. Sad iron. Ironing board, M. E. Holden. Ironing table, Wren & Grant	663,274
Jar. See Metal jar. Jar capping machine, E. S. Young.	663.401
Jar. See Metal Jar. Jar capping machine, E. S. Young. Jar closure, F. M. Weir Joint. See Rail joint. Railway rail joint. Knife. See Putty knife. Knife switch. J. A. Wright. Lacing books, gang machine for setting, L. A.	663,314
Knife switch, J. A. Wright	663,209
McGrath	663,387 663,349 643,042
Lamp bracket. W. J. Frost. Lamp cover. H. S. Tompking	663.121 663.306
I amp, electric arc, Gilbert & Lundin	662 931
Lamp, electric arc. Johnson & Wunderlich	662,346 662,995
Lamp, electric arc, Johnson & Wunderlich Lamp, electric arc, O. N. Wiswell Lamp, electric arc, J. J. Wood Lamp, petroleum, M. Gervais	662,346 662,995 662,996 662,930
Lacing hooks, rang machine for setting, L. A. McGrath. Jadder, step, W. J. Glidden Ladder, step, C. Rivers. Lame bracket, W. J. Frost. Lamp cover, H. S. Tompkins. I amp, electric arc, Gilbert & Lundin. Jamp, electric arc, Johnson & Wunderlich. Jamp, electric arc, O. N. Wiswell. Lamp, electric arc, J. J. Wood. Jamp, petroleum, M. Gervais. Lamps, incandescent body for electric glow, A. Just. Just. Jampblack making apparatus, P. F. Reardon.	663.346 662.995 662,996 662,930 663.095 663.396
Jamp, electric arc, Johnson & Wunderlich	662,346 662,995 662,996 662,930 663,095 663,176 663,331 663,013
Jamp, electric arc, Johnson & Wunderlich	663,346 662,995 662,996 662,980 663,095 663,176 663,331 663,277 662,991
Jamp, electric arc, Johnson & Wunderlich	663,346 662,995 662,996 662,996 662,990 663,396 663,376 663,371 663,331 663,277 662,991
Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Van Luvan. Leveling, plu mbing, and angle messuring instrument. J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan.	663.395 663,176 663,331 663,013 663.277 662,991 663.262 603,096
Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Van Luvan. Leveling, plumbing, and angle measuring instrument, J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan, 683,111. Liquid separators, device for assembling or disassembling the parts of centrifugal, J. J.	663.396 663.176 663.331 663.013 663.277 662.991 663.262 603.096
Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Van Luvan. Leveling, plumbing, and angle measuring instrument, J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan, 683,111. Liquid separators, device for assembling or disassembling the parts of centrifugal, J. J.	663.396 663.176 663.331 663.013 663.277 662.991 663.262 603.096
Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan. Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Yan Luvan. Leveling, plumbing, and angle messuring instrument, J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan. G63, Ill. Liquid separators, device for assembling of disassembling the parts of centrifugal, J. J. Berrigan. Lock. See Mail bag lock. Sash lock. Seal lock. Loom, R. Crompton.	663.396 663.176 663,331 663.018 663.277 662,991 663.262 603,096 663,115 663,114 663,066 663,357
Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan. Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Yan Luvan. Leveling, plumbing, and angle messuring instrument, J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan. G63, Ill. Liquid separators, device for assembling of disassembling the parts of centrifugal, J. J. Berrigan. Lock. See Mail bag lock. Sash lock. Seal lock. Loom, R. Crompton.	663.396 663.176 663,331 663.018 663.277 662,991 663.262 603,096 663,115 663,114 663,066 663,357
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Lampblack making apparatus, P. F. Reardon. Land clearing implement, T. E. Kirk. Lasting machine, H. H. Denovan. Lathe attachment, automatic, J. B. Clyne. Lawn sprinkler, L. Horvath. Level, spirit, J. H. Van Luvan. Leveling, plumbing, and angle measuring instrument. J. S. Bogardus. Life preserver, H. C. Lavery. Liquid separator, centrifugal, J. J. Berrigan. Liquid separator, centrifugal, J. J. Berrigan. Liquid separators, device for assembling or disassembling the parts of centrifugal, J. J. Lock. See Mail baglock. Sash lock. Seal lock. Loom, R. Crompton. Loom of C. N. New comb. Loom picker, Forques & Lavoie. Loom buttle check, Tubby & Broomhead Low water alarm, J. E. McKay. Lumber making artificial J. A. Wheeler. Lye from the exterior of lye containing cans, machinery disconnecting apparatus, A. Maul. Magnetic separator, F. Theilengerdes. Mail bag lock, W. R. Gordon. Mail bag or pouch, J. B. May Mail crane hook, N. McQueen. Mantle su pport, J. Lueb. Map, chart. etc., topographic, M. C. Krarup. Marine motor, A. T. Otto. Match composition, S. A. Rosenthal.	663, 316 663, 316 663, 331 663, 277 662, 991 662, 991 663, 036 663, 115 663, 114 663, 066 663, 135 663, 126 663, 139 662, 128 663, 129 663, 237 662, 294 663, 297 663, 297 663, 297 663, 3045
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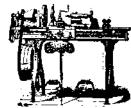


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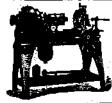
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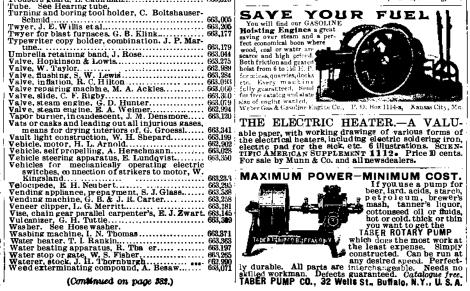
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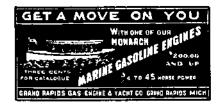
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	Wood barking machine. J. H. Baker et al	663,211
	Wooden stoppers, manufacture of, L. L. Le	
	Franc	663,234
	Woodworking machinery, L. M. Messinesi	
	Woodworking machine, B. Orbison	663,391
	Wrench. See Nut or pipe wrench. Reversible	
	wrench.	
	Wrench, R. Carter	6:3,328
	Wrench, R. Carter	R413 163
	Wrench, J. Lee, Sr	Gra 302
	When sh C D I Debentage	669 000
	Wrench, S. B. J. Robertson	004,900
	Wringer. See Mop wringer	
	Yoke and polethimble, neck, F. E. Yates	CC3,378

	DESIGNS.	
	Automobile steeringgear, Yokefor, W. C. Baker. Ale frame for motor vehicies, W. H. Smith Axle shield, G. Y. Lowe. Badge, J. Russell Badge, G. C. Van Hoden Bicycle trame. motor, M. Fleming Bottle, C. J. Kilmer Bottle, G. W. & H. F. Klumpp Buckle, H. W. Potteiger Carriake body brace bar, J. P. Johnson	33,650 33,649 33,624 33,651 33,651 33,650 33,631
1	Chair top, H. A. Atwood Crucible, G. M. Tucker Dish or similar article, covered, C. J. Ahrenfeldt Dishrecting apparatus casing, E. Taussig Fork, corn, W. Northgraves Garment supporters. metallic loop for. G. E.	33,664 33,632 33,629 33,633 33,626
	Adams. Garment supporters, metallic member for, G. E. Adams. Glass, sheet, C. C. Hartung. Glass, sheet, E. Walsh, J. Gun carrier, O. Thorn. Harn ess loop, double, N. Cole Key ring and bottle seal brea ker, W. S. Lord, Jr.	23 672
	Key ring and bottle seal brea her. W. S. Lord, Jr. Motor base frame. J. A Secor. Nut lock washer, J. F. Tiner. Paper, wrapping, G. A. C. Goetting. Plate, C. J. Seiter. Plate or plaque, G. R. Pohl. Sad iron bandle. C. P. Mosher. 33,555 to	33,641 33,639 33,667
	Sign, C. W. Shonk. Spoons, etc., handle for, C. Osborne. Stove, gas. E. B. Adler. Stove, gas. H. Adler. Telephone transmitter arm base, W. J. Barr.	33,668 33,655 33,653 33,654 33,640
	Tire, vehicle, T. Beach. Toy, F. W. G. Boettcher Trousers hanger, C. E. Kramer. Trunk protecting plate, M. N. Drucker Water closet bowl, H. M. Haldeman Wheel, O. L. Leach Wind wheel, F. Duyall.	33,665 33,643 33,642 33,648
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Shoes, ladies'. A. Hamburger & Sons. 35,548

Soda sirup and root beer. Simmons & Hammond. 35,537

Tablets or remedies. headache, Neuralgyline Company. 35,542

LABELS.			
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" Derma (I. McG. A.) Tone." for a medicine. I. M.	7,943		
"Ferte's Celery Headache Tablets," for a tablet.	7,937		
E. P. Ferte "Genuine Pollawattee Tea," for Ceylon tea, Eppepens. Smith & Wiemann Company.	7.942		
pens, Smith & Wiemann Company "Hearts-Ease," for canned sugar corn, United States Printing Company "Honey Comb." for canned sweet corn, United	7,939		
States Printing Company "Inkerine Paste," for a paste, H. Mock	7.940 7,947		
" Laurel Label," for malt beverages, Toledo Brewing and Malting Company," Prize Medal," fortea, Milliken, Tomlinson Com-	7.934		
pany "Ptisan." for bottled beer, P. J. Serwazi "Red Cross Capillaris." for a hair tonic, Red Cross	7.936 7,933		
"Sozo," for a furniture polishing and cleaning	7,944 7,946		
compound, Sozo Supply Company	7.945		
"Three Boys." for tobacco, Finzer Brothers To- bacco Company" Tomatoes," for canned tomatoes, United States	7,931		
States Printing Company "Wheat Germ," for a food, W. T. Stover	7,941 7,938		

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Wilson	27
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Card Company	27
"Neverbreak." for corset clasps, J. A. Datz "The Indian Leather Company," for sole leathe	28
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