Scientific American.

Business and Personal.

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"U. S." metal polish. Indianapolis. Samples free. For mud dredging engines. J. S. Mundy, Newark, N. J. Microbe Killer Water Filter, McConnell Filter Co.,

Agricultural patent for sale.—P. J. Ebersohl, Centerville Station, 111.

Cheapest Water Power.-See top of 1st column, page

170. Also top of 2d column, page 239. Bookbinding.-All classes of work. Magazines a

specialty. Haddon & Co., 139 Center St., New York.

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Patent for Sale-Stall for comfort and cleanliness of milk cattle. Agents wanted at 50 per cent commission. M. Schembri, 396 Van Buren St., St. Paul, Minn.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins By mail. \$4; Munn & Co., publishers, 36; Broadway, N. Y. For the ori inal Bogardus Universal Eccentric Mill. Foot and Power Presses, Drills, Shears, etc., address J.S. & G. F. Simpson, 28 to 36 Rodney St., Brooklyn, N. Y.

Patent Electric Vise. What is claimed, is time saving. No turning of bandle to bring jaws to the work, simply one sliding movement. Capital Mach. Tool Co., Auburn, N. Y.

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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 This is for our information and not for publication.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.

Luguiries not answered in reasonable time should be rejeated y correspondents will bear in mind that some answers require not a little research, and, though we endeavor to raply to all either by letter or in this department, each must take his turn.

Bu yers wishing to purchase any article not advertised in our columns will be furndished with addresses of housesmannfacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remoneration.

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.

(5974) J. E. E. asks: 1. Could storage battery plates be made porous by making them of lead and zinc melted together and afterward eating the zinc out with acid? A. It is doubtful. If you could get an alloy with a preponderance of zinc stable on cooling it might be done. 2. With what number and amount of wire should I wind a belt to ring over 75 rods of No. 12 galvanized iron wire with earth return? And how many cells gravity will it require? A. Use 4 cells gravity battery and wind bell to about 6 ohms resistance, say 4 ounces No. 24 wire.

spark the passage of a mass of electrified matter, or a current through rarefied air similar to a Geissler's tube? If neither, what is it? Is the arc of the arc lamp a similar phenomenon? Is there any work which systematically treats this and allied subjects? A. The electric spark is attributable to the heating of the air, and to the transferal of heated material of the electrodes. The voltaic arc proper is due largely to incandescent carbon vapor. Such subjects as these are treated in different works. No work can well be named which is restricted to such topics.

(5976) H. E. says: Kindly give me a recipe for destroying moths and worms, such as infest upholstered furniture and ruin carpets.

| | and approximately and a surpose. | | | |
|----|--|-------|--------|--|
| Δ. | Alcohol | 500 j | parts. | |
| | Naphthaline | 10 | 44 | |
| | Carbolic acid | 10 | 66 | |
| | Camphor | 5 | 44 | |
| | Essence lemon | 5 | 44 | |
| | Oils of thyme, lavender and savine (of | ľ | | |
| | each) | 2 | 66 | |

This can be used by sprinkling over furs, clothes, car pets, furniture, etc., or, better still, by application by a spray producer

(5977) P. M. asks (1) if the current from an induction coil would be of any use if it was constant. A. Yes; it might be desirable for some work. .2. Is the current from an induction coil the same as that of an alternating current dynamo? A. It is the same in general, but the form of the wave curve may be quite different. 3. Why cannot an alternating current be used to ring an ordinary bell? A. The alternations are too rapid.

(5978) T. R. E. writes: 1. I have a piece

for pyrites, you cannot solder it. 2. How can I drill a hole through it? A. For drilling, use a diamond drill. 8. Suppose a box car is running 20 miles an hour, doors shut tight. A man jumps on the floor with and against the motion; can he jump one way further than the other? A. The person jumping in a car can jump no further one way than another. 4. I have an incandescent 3 candle power lamp. Both wires got blown off close to the glass before using. Can I do anything with it? A. You can only connect with your lamp by arranging to press the ends of your conductors against the ends of the wire.

(5979) E. W. M. asks: 1. Is there any erious difficulty in charging a storage battery of 30 cells, arranged in three parallel series of ten each, and discharging them all in series, provided all the cells are as nearly alike as possible and the several series as nearly as possible of the same resistance? A. There is a diffi-Steam Hammers, Improved Hydraulic Jacks, and Tube culty. It is advisable to charge them in three series, one series at a time, if you cannot charge the whole number in series at once. 2. Will not tin plate answer well for the disks of a dynamo armature? Will they be better for removing the tin? A. Yes. They would be better without the tin. 3. If an alternating current at constantly varying E.M.F. be passed through a converter. will the E.M.F. on the secondary circuit be constant or will it vary in proportion to the primary? A. The secondary current will vary with the intensity of the primary current, and, the currents depending on the E.M.F., the potentials will also vary. 4. In what wayare low voltage Edison lamps uneconomical, do they require more current or do they burn out quicker? A. They are not uneconomical except as requiring larger con ductors for a given candle power.

> (5980) W. A. S. asks how to stain a gun barrel. A. Clean the barrel thoroughly, then sponge with the following solution which is made up by weight: Antimony protochloride, 4 parts; sulphuric acid, 2 parts; empyreumatic pyroligneous acid or gallic acid, 1 part. Apply several coats until the barrel is dark enough.

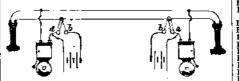
(5981) C. W. T. says: We have a number of small water motors here, and I desire to get at spoken of in your last Scientific American? A. Lake the amount of water used by them. What is the volume of discharge in cubic feet or gallons, due to 50 pounds pressure, or a head of 118 feet, from respectively 1-16 inch. 1/8 inch and 1/4 inch nozzles, of the kind usual in small motors? A. The 1-16 inch nozzle will discharge 0.1073 cubic foot or 0.7777 gallon per minute. The 1/4 inch 0.443 cubic foot, or 3:322 gallons. The 1/4 inch 1:772 cubic feet, or 13:29 gallons.

(5982) F. M. B. asks how to make a cheap single coll electric sounder and the materials needed. A. Make a core of bits of iron wire each 2 inches long, the bundle being 1/4 inch thick. Glue paper around it and wind with four or five layers No. 20 wire. As armature use an iron nut soldered to the end of a spring. Bend the lower half inch of the spring at a right angle and screw to base board. Mount the magnet horizontally on a block screwed to the board.

(5983) A. M. R., Toronto, asks for the best method of dealing with water supply pipes to pre vent condensation of moisture in passing through warm apartments, or secondly (if it cannot be prevented) the best plan to protect wall or ceiling from the dripping of the water. A. Thorough felting of the pipes, the s as with steam pipes, will prevent dripping of water.

(5984) J. K. asks: If the balance wheel on machinery run by an electric motor was changed from the main shaft as now run, making 40 revolutions per minute, to the intermediate, making 120 revolutions per minute, what would be the gain in power to overcome loads suddenly thrown on the main line, as compared to the present arrangement? A. It would have nine times

(5985) F. H. W. asks if there is any way that two hand telephones (receivers) can be connected by two wires only, and no ground, between two stations, and to signal with a two-point switch at each station, without using a push button with the battery and bell call; there are to be a set of batteries and bell at each station. What I want to accomplish is to have or give the signal to the distant station by simply moving the switch over and back. As the line is not very long (about 100 feet), I do not care to use a magneto, and if it can bedone by only two wires, and no ground, with a two (5975) I. A. H. asks: Is the electric pointswitch, I should like to know the way; otherwise I will use three wires, as there is no good means to make a ground connection. A. The annexed cut will give you an idea of the method of connecting up the required circuit. The normal position of the switch would be on the



point, a, connected with the bell. When it is desired to call, the switch arm is moved over to the contact, b: after the call is answered, the switch arm at either end of the telephone line is thrown off from the point, b, and left open. As soon as the conversation is finished, the arms are returned to the point, a.

(5986) C. W. H. asks (1) whether a magneto telephone will work on the same line with an elec tric telephone? A. Yes. 2. Also please give a diagram of a magneto telephone on a line 1.000 feet long with common electric bells for calls. Please give the diagram with the smallest number of line wires possible. A. See reply to query above.

(5987) J. S. M. asks: 1. On a common slide valve engine, cylinder 12+18 inch, how large ought the steam and exhanst pipe be? Is it best to have the exhaust pipe larger than the steam pipe? If so, how much larger? A. The speed of the engine is also an indication of the size of the steam and exhaust pipe. If your engine is to run at 80 revolutions and under a 214 inch steam pipe and 8 inch exhaust pipe will be the proper size. If a high speed engine of from 125 to 150 revolutions per minute, a 8 inch steam and 31/2 inch exhaust pipe will be of pyrites I overheated trying to solder a scarf pin to it. the proper sizes. 2. How fast can a cast iron band wheel Is there any way to get it back to its bright color again ? 7 feet diameter, rim 14 inches wide, and 11% inch thick, be A. You cannot restore the color and luster. Use cement | run with safety ? A. The band wheel as stated, if a solid

asting and sound, may be run at a velocity of 400 revo lutions per minute with safety. If a split pulley with a bolted rim, it should not be trusted for more than onehalf the velocity above stated. 8. Will lime in a boiler cause the tubes to leak? If so, what is the best remedy? A. Lime does not make boiler tubes leak, unless it should become so thick as to cause the tubes to become overheated and by their expansion disturb the joints. Boilers in limestone districts should be treated to a dose of caustic soda or lye, say at the rate of a pound for each 5 horse power, as often as once a month, kept in the boiler for a day's working and the boiler then thoroughly cleaned. See Davis' book on "Boiler Incrustation," \$1.50 by mail. 4. Some boiler makers tell me that in putting new tubes in a fire box boiler it is best to let the tubes extend out past the tube sheet 1/2 or 3/4 inch; expand to them without beading them. Others say it is best to have them the proper length and bead them down on tube sheet. Which is the best and most durable way? A. Tubes of locomotive boilers at the fire box end, if well expanded and projecting ends turned slightly out, should project no more than 1/4 of an inch. If left longer, they are liable to be burned and become ragged on the edge. Close beading the end of the tube is old style, and should be abandoned. The beading tends to disturb the perfect joint made by expanding. 5. What is caustic soda, and where can I get it? There is not a merchant in all this country that can tell what it is or where it can be bought. A It is sold as canetic lye or caustic potash. It is sodium

(5988) W. W. W. asks: 1. What is the principle on which cream separators work, that is, how is the milk separated from the cream? A. The difference in specific gravity causes the separation. Long standing or centrifugal force may be applied. 2. What is the best way to learn electrical engineering-to take a college co rue or to enter an electrical establishment? If the latter is the better, please tell me what course to adopt to get into one. A. Go to a college. For courses in factories apply to the General Electric Co., Lynn, Mass., and Schenectady, N. Y. 8. Where is Lake Copais, Copais is situated in Greece.

TO INVENTORS.

An experience of forty-tour 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 unequaled facilities for procuring patents everywhere. As ynopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, at ther at homeor 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.

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April 17, 1894,

AND EACH BEARING THAT DATE.

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| Book rack, G. W. Parker. Boot or shoe uppers, machine for creasing, G. Knight. Borting machine, Meggenbofen & Courtright. Bottiles, machine for removing tinfoil from, E. Bottiles, machine for removing tinfoil from, E. Rantz. Bottiles, machine, R. Kolliker. Box. See Ballot box. Collapsible box. Twine box. Box cover, adjustable, G. W. Stoker. Bracket and card bolder, McArdle & Furay. Brake. See Car brake. Brick machine pould, J. Leonbardt. Brick machine plunger, J. Leonbardt. Bridle, J. R. McLeod. Broiler, W. Halles. Brush, revolving cleaning, W. R. Nightingale. Building, C. A. Praray. Burglar alarm, McLaughen & Gaihart. Burglar alarm, McLaughen & Gaihart. Button flushing machine, H. A. Berger. Calculating machine, B. R. Stallard. Caddy, four, A. Palmer. Calculating machine, S. R. Stallard. Can brake, F. E. Gilling. Car coupling, J. La Burt. Car coupling, J. La Burt. Car grain door, box, C. F. Langell. Car grain door, box, C. F. Langell. Car starter and brake, C. H. O. Leverkus. Car starter and brake, C. H. O. Leverkus. Cars. Seetty wrench for unloading, T. Nicholson. | 518,567 518,262 518,822 518,827 518,527 518,527 518,527 518,527 518,527 518,407 518,407 518,407 518,528 518,244 518,528 518,244 518,528 518,244 518,528 518,244 518,528 518,244 518,528 518,244 518,528 518,527 518,52 |
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| Book rack, G. W. Parker. Boot or shoe uppers, machine for creasing, G. Knight. Borting machine, Meggenbofen & Courtright. Bottiles, machine for removing tinfoil from, E. Rantz. Bottles, machine, R. Kolliker. Box. See Ballot box. Collapsible box. Twine box. Box cover, adjustable, G. W. Stoker. Bracket and card bolder, McArdle & Furay. Brake. See Car brake. Brick machine pould, J. Leonbardt. Brick machine plunger, J. Leonbardt. Bridle, J. R. McLeod. Broiler, W. Halles. Brush, revolving cleaning, W. R. Nightingale. Building, C. A. Praray. Burdling machine, Hutchinson & Tyler. Burglar alarm, McLaughen & Gailant. Button flushing machine, H. A. Berger. Calculating machine, B. R. Stallard. Caddy, flour, A. Palmer. Calculating machine, S. R. Stallard. Candy, flour, A. Palmer. Calculating machine, S. R. Stallard. Can See Oil can. Sheet metal can. Car coupling, J. La Burf. Car coupling, J. La Burf. Car careffice of the Car Stallard. Car franke, F. E. Gilling. Car coupling, J. La Burf. Car careffice of the Car Stallard. Car franke, F. E. Gilling. Car careffice of the Car Stallard. Car franke, F. E. Gilling. Car careffice of the Rapples. Car coupling, J. La Burf. Car careffice of the Car Starter and brake. Car year of the Car Starter and care. Car starter and brake. Car ventilator, G. A. Royden. Cars, sacter weench for unloading, T. Nicholson, Jr. Care. Peerserving case. | 518,567 518,262 518,262 518,262 518,262 518,567 518,567 518,567 518,401 518,402 518,401 518,402 518,204 518 |
| Box. See Ballot box. Collapsible box. Twine box. Box cover, adjustable, G. W. Stoker. Bracket and card bolder, McArdle & Furay. Brake. See Car brake. Brick machine mould, J. Leonbardt. Brick machine plunger, J. Leonbardt. Brick machine plunger, J. Leonbardt. Bridle, J. R. McLeod. Broiler, W. Halles. Brush, revolving cleaning, W. R. Nightingale Building, C. A. Fraray. Butding machine, Hutchinson & Tyler. Burglar alarm, McLaugheu & Gaihart. Burlal casket, Stein & Rapplayea. Burner. See Gas burner. Hydrocarbon burner. Button fluishing machine, H. A. Berger. Calculating machine, S. R. Stallard. Caddy, flour, A. Palmer. Calculating machine, S. R. Stallard. Can See Oil can. Sheet metal can. Car brake, F. E. Gilling. Car coupling, J. La Burt. Car coupling, J. W. Ramsey. Car electric motor, H. P. Brown. Car grain door, box, C. F. Langell. Car starter and brake, C. H. O. Leverkus. Car sent of Cars. Cars. Cars. C. C. Leverkus. Cars. Cars. Controller for electric railway, W. H. Knight. | 518,401 518,202 518,522 518,522 518,522 518,527 518 |

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| Cash drawer and manual recorder, E. H. Minnigh 51 Cash register, indicator, and recorder, H. Cook. 51 Cash register, indicator, and recorder, W. T. 52 Cash Stevens & Baker. 55 Ceak, Stevens & Baker. 55 Ceiling, metallic, C. C. Moore. 55 Centerboard, boat, J. Couch. 55 Chain, R. A. Breni 56 Chain drive, T. Corscaden. 55 Chain making machine, R. G. Barnes et al. 55 Chain reat, L. Bent. 56 Chimney c will reall steven 56 Chimney c will reall should be considered as a consideration of the constant of the const | 18,2 64 18,344 |
| Cask, Stevens & Baker | 18. 267 18.547 |
| Centerboard, boat, J. Couch 5. Chain, R. A. Breul 5. | 18,364 18,484 |
| Chain making machine, R. G. Barnes et al. 5. Chair seat, R. L. Bent. 5 | 18,441 18,339 |
| Chimney c wi, Faulhaber & Roch. 6 Chlorine, making, W. Donald. 518,445, 5 | 18,399 18,446 |
| Chopping Knite, F. H. Kundell. Cigar tip cutter and dice throwing apparatus, R. E. Rabiger. Cigarette machine, L. L. Maxfield. Cleat, ceiling, H. P. Ball. Cleat, ceiling, H. C. Wirt. Cleat, S. E. Bricker. Cilp for letters, accounts, etc., E. Keller. Clock, electric tower, C. D. Warner. Clothes litie swinging support, B. M. Erstey. Clothese wringer and washtub, combined, C. F. & W. Lewis. | 18.469 |
| Cleat, ceiling, H. P. Ball. 5. Cleat, ceiling, H. C. Wirt. 5. | 18,201 18,214 18,301 |
| Clip for letters, accounts, etc., E. Keller. 5 Clock, electric tower, C. D. Warner. 5 | 18,252 18,337 |
| Clothes wringer and washtub, combined, C. F. & W. Lewis | 18, 412 18, 48 0 |
| COCK, gas hurner, G. A. Ries | 18,530 11,415 18,270 |
| Compensator, W. Daves | 18,488 |
| Cooler for cinder notches, S. R. Fellows | 18,421 18,426 |
| | 18,561 18,358 |
| Corn separator, nusker, and fodder slitter, C. H. Taylor. Corn sbocks, device for loading, G. W. Collins. Cotton, machine for handling and cleaning seed, W. E. Elam. Couch, swinging, J. Keller. Counters, bars, etc., combined arm rest and guard for, W. C. Huss (r). Coupling. RecCar compling. Crimping machine, S. W. Jamison. Cup, funnel, and stopper securer, combined, A. C. McAlplu. Cupola furnace, J. Blakeney. Current motor, universal phase alternate, T. Duncau. | 18,316 |
| Counters, bars, etc., combined arm rest and guard for, W. C. Huss (r). | 11,414 |
| Crimping machine, S. W. Jamison | 18,249 |
| Cupola furnace, J. Blakeney | 18,482 |
| Current motor, universal phase alternate, T. Duncant Duncant Co. D. Hask ns. Cuttor. See Cigar tip cutter. Paper cutter. See Cigar tip cutter. Paper cutter. Deflector, light, D. E. Hawkins. Servick, W. R. Close. Seek, wall, J. F. Figgins. Dies browing device, C. S. Grove. Dies chrowing device, C. S. Grove. Dish cleaner, F. H. West. Dish cleaner, F. H. West. Door tanger, M. C. Richards. Door tanger, M. C. Richards. Door ston, W. M. Costs. Dress protector, O. H. Still. Drop press, G. W. Peck. Drygoods board, G. Tetreau. Drying chambers, apparatus for hanging webs in folds in, Mather & Christie. Dust pan, L. A. Pow ers. Dreing apparatus, S. Dreing apparatus, A. Dreze. Rasel, G. Faint. Egg tray, F. F. Bischoff. Electric current recorder, J. W. T. Olan. Electric current recorder, J. W. T. Olan. | 18,244 |
| Derrick, W. R. Close. 5 Desk, wall, J. F. Figgins. 5 | 18,225 18,567 |
| Dish cleaner, F. H. West. 5 Dishplay rack, rotary, F. A. Jewett. 5 | 18,298 18,526 |
| Door danger, M. C. Richards. Door stop, W. M. Coats. Dress protector, (). H. Still. | 18,276 18,348 18,378 |
| Drypoods board, G. Tetreau | 518,353 518,379 |
| folds in, Mather & Christie | 518,509 518,273 518,458 |
| Dyeing apparatus, A. Dreze Easel, G. Faint Egg tray, F. F. Bischoff. | 518,228 518,544 518,841 |
| Electric current recorder, J. W. T. Olan | 518,841 518,534 518,359 518, 360 |
| Electric machi ne. coin-controlled. R. J. Merker 5 | 518, 463 518, 444 518, 21 8 |
| Elec ric machine regulator, dynamo, W. H. Elkins Electric machine regulator, dynamo, C. L. F. | 518.232 |
| | 518, 349 518,311 518,561 518,34 5 |
| Electric motor controller, W. Cooper Electric motors, cooling, E. Thomson | 518,34 5 518,29 1 |
| Electric switch, A. Ekstrom. Electric switch, J. B. Smith. Electrical contact mechanism. J. F. Blake | 518,231 618,471 |
| Elevator. See Hydraulic elevator. Elevator door operating mechanism, E. C. Jenk- | , |
| ins. Elevator gate, automatic, J. McLaughlin. Elevator legs, means for operating, J. H. Finley. Engine. See Rotary engine. Rotary steam en- | 518, 409 518,374 6 18,496 |
| | |
| Excavating and refilling, system of B. J. Coyle Exhibitor, casket or coffin, W. P. Sherman Fence machine, wire, W. P. Randall Fence, wire, J. & C. Lane | 518, 426 518,506 |
| Fender, See Car fender. Fiber brake, crusher, and cleaner, J. F. Lester. Fiber fedding machine, A. H. Morton. File for keeping records, D. E. Thomas. Firearm, breech-loading, E. Elder. Fire escape, W. S. Parman. Fire contractions of the fire contraction of the fire contractions of the fire contr | 518,250 518,419 |
| Fire escape, W. S. Parman. | 518,448, 518,272 |
| Fire escape, W. S. Parman. Fire extinguishing apparatus, A. L. E. Lechartier Fish culture, nursery pond for, C. A. Hoxsie. Fish pond, artificial, C. A. Hoxsie. Foot rest, C. B. Demarest. Furnace. See Cupola furnace. Reverberatory and regenerative furnace. Smoke consuming | 518,319 518,318 |
| Furnace. See Cupola furnace. Reverberatory and regenerative furnace. Smoke consuming | OTD ¹ #UM |
| furnace. Furnace, E. B. Coxe. Furnace, Engelbach & Bretherton. Furnace cast house, blast, Miller & George Furnace cast houses, mould for blast, Miller & | 518,578 518,493 |
| Furnace cast houses, mould for blast, Miller & George. | 518,417 |
| George. Furnace for treating refuse of cities, J. J. Storer. Garment, dancers, M. L. Fuller. Gas, apparatus for charsing liquids with, E. Rueff. Gaseous products in broweries, method of and apparatus for the recovery of waste, O. | 518,317 518,514 |
| apparatus for the recovery of waste, O. Zwietusch | 518,361 |
| Generator. See Thermo-electric generator. Glass, making rose-red, A. Spitzer. Grate, J. W. Smith. Gravestone or monument, O. W. Smith. | 518,336 |
| | |
| Hammock stretcher or spreader, R. C. Funke Hand bag, J. M. Allen Harness strap, G. A. Wbipple | 518,568 518,478 518,574 |
| Harp, W. J. Richie | 518,512 518,215 518,391 |
| Harrow, rotary, H. Cromer Harvester, corn, E. E. Witter. Hay loader, I. E. Stump. | 618,520 518,516 518,566 |
| Hammock stretcher or spreader, R. C. Funke. Handbag, J. M. Allen. Harness strap, G. A. Wbipple. Harness strap, G. A. Wbipple. Harrow disk sbarpener, J. T. Barker. Harrow, pulverizing, J. Boston. Harrow, rotary, H. Cromer. Haryester, corn, E. E. Witter. Hay loader, I. E. Stump. Heater. See Sad iron heater. Heating apparatus, hot air, H. P. Judson. Netl. Netl. Netl. Heel, Morrison & Purser. | 518,250 |
| Hedgea mode of and appliance for plashing, M. Neil | 518,466 518,266 518,366 |
| Hinge, W. B. Deming Hitching device, horse, J. G. Engberg Hook. See Snap hook. | 518,300 518,360 |
| Hook, D. W. Holden Horsesbees, combination tool for punching and creasing, J. Whalin. Hub, metallic, J. H. Gray Hydraulic elevator, C. J. Dudley Hydraulic elevator, J. G. Stamp, Hydroarbon burner, A. J. Blackford. Ice cream free er, J. Schaller Incubators, thermostatic regulator for, G. Ertel. | 518,452 518,434 |
| Hub, metallic, J. H. Gray Hydraulic elevator, C. J. Dudley Hydraulic elevator, J. G. Stamp | 518,434 518,498 518,491 518,377 |
| Hydrocarbon burner, A. J. Blackford | 518,306 518,280 518,621 |
| Ice cream free er, J. Schaler. Inculators, thermostatic regulator for. G. Ertel. Insulators thermostatic regulator for. G. Ertel. Insulator strain, L. McCarthy Iron breaking machine, pig, Miller & George. Jute or other bagging, treating, Lebman & Kraus Keg rolling machine, W. Arnemann Knife. Hee Chopping knife. Peeling knife. Skinning knife. | 518,213 518,373 518,416 |
| Jute or other bagging, treating, Lebman & Kraus Keg rolling machine, W. Arnemann. Knife. See Chopping knife. Peeling knife. | 518,549 518,389 |
| Skinning knife. Skinning knife. Lamp, G. A. McCay. Last block fastener, C. W. Moore. Lawn sprinkler, S. S. Black. Line prop, W. C. Applerate. Lock. See Safe lock. Loom picker motion J. H. Paige | 518,531 518,500 |
| Lawn sprinkler, S. S. Black. Line prop. W. C. Applegate. Lock. See Safe lock. | 518,500 518,470 |
| T. o. tonding machine T. M. D. | 510,302 |
| Loudicator. See Axie in bricator. Lubricator. Lawrence & Blackford. Magnets of alternating current dynamos, meaus for exciting field. L. Bell | 518, 257 518 217 |
| for executing field, J. Bell. Matrix drying machine, E. & A. E. Hall. Measuring instruments, damping device for electrical, F. Holden | 518,569 |
| Measuring instrument for multiphase systems, electric, E. W. Mix. | 518,245 518,265 518,579 |
| Metallic tie and rail fastener. Armstrong & Wads- | 518,572 518,439 |
| worth Meter. See Cut-out meter. Electric meter. Mica. splitting, J. Fo Ida. Jr. Milk bottling machine, W. A. Clark. Milk can attachment. A. D. Richman. | 518,237 518,306 |
| Milk can attachment. A. D. Richman. Mikhing machine, Ferguson & Danks. Mill. See Ore crushing mill. Mirror, combination, P. Wiederer. Mould. See Tank mould. | 518,234 |
| Mould See Tank mould. Mould foundation, Miller & George. | 518, 382 518, 41 8 |
| Mould foundation, Miller & George Motor. See Current motor. Electric motor. Mower attachment, M. Szukalski. Mule and twiner, self-acting, J. R. Wain. Musical instrument, A. H. Beyer Musical instrument, F. A. Richter | 618,4 39 518,433 |
| Musical instrument, A. H. Beyer Musical instrument, F. A. Richter | ы к,219 518 ,329 |
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