

#### HINTS TO CORRESPONDENTS.

his turn.

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Books referred to promptly supplied on receipt of price.

of ¼ or ⅓ horse power, and I would like a frame, armature, etc. Can you refer me to anything that will aid me? A. The plans for a single-phase induction motor of 1/4 horse power can be found in "Electrical Designs," plans for a great variety of electrical appar-

Warren alternator seems to cause a hum in The more lamps that are turned on the louder: in a warm place than in a cool place. the hum, but there is a hum sufficiently loud ming sound is produced by the current itself, posit on wood or plaster patterns, the treat-and is the musical tone corresponding to the ment of such non-conductors necessary to number of alternations of the current per sec-ond. It can be heard on all alternating cir-, them waterproof. A. The process you desire cuits, and particularly well in an arc lamp is that of electroplating upon wood and other when the arc is long. It is produced by vibranon-conductors. The form is first made exwhen the arc is long. It is produced by vidra-non-conductors. The form is first made ex-tions set up by the current. Of course, the actly as it is desired to be in the finished wattmeter is not concerned in producing the article. It is then covered with plumbago sound, for you state that it is heard when the wattmeter is cut out.

please send me the formula for liquid to etch 1190, and 1204, price ten cents each, contain on steel? I want the one that saw manufacturers use on their saws. I have never seen it printed in the Query columns of the SCIENTIFIC AMERICAN, and would like very battery in cheapest manner. Can direct curmuch to have the receipt. A. For etching rent at 25 volts be transformed to 110 volts? brands and marks on polished steel surfaces, If possible, would it be best to have dynamo such as saws, knife blades, and tools, where and battery of 25 volts' capacity and transthere are many pieces to be done alike, pro-cure a rubber stamp with the required design transform a direct current from one voltage made so that the letters and figures that are to another it is necessary to use the current to be bitten by the acid shall be depressed in to run a motor, this motor to turn a dynamo the stamp. Have a plain border around the which is wound to deliver current at the new design, large enough to allow a little border voltage required. This arrangement is called a of common putty to be laid around the edge rotary converter. It is an expensive method. 2. of the stamped design to receive the acid. Wouldn't the battery for 25 volts be cheaper For ink, use resin, lard, oil, turpentine, and lampblack. To ¼ pound of resin put 1 tea- have one-half as many cells as the voltage of spoonful lard oil; melt, and stir in a tablespoonful of lampblack; thoroughly mix, and for 110 volts, 55 cells are needed. 3. If it add enough turpentine to make it of the con- couldn't be transformed, would it be best to sistency of printer's ink when cold. Use this have lamps and all at 25 volts? A. If your on the stamp in the same manner as when stamping with ink. When the plate is stamped, place a little border of common putty around and on the edge of the stamped ground. Then, Is there some way of using the osmium lamp pour within the border enough acid mixture to cover the figure, and let it stand a few moments, according to the depth required, then pour the acid off. Rinse the surface with clean water; take off the putty border, and clean off the ink with turpentine. Use care not to spill the acid over the polished part of the article. For the acid, 1 part nitric acid, 1 part hydrochloric acid, to 10 parts water by measure. If the effervescence seems too active, add more water.

(8379) J. G. B. asks: What causes the humming of telephone and telegraph wires? short circuit. The heat produced by a cir-What is the advantage of the alternating and cuit is expressed by the symbol C<sup>2</sup>R, or by the polyphase currents over the direct current? square of the amperes multiplied by the re-The humming of wires is due to the vibration sistance in ohms. There is more heat genof the wires. The vibration is caused principally by the friction of the wind. It is cured to radiate more heat because of its larger by an instrument called an anti-hum, which surface. Hence the shorter wire will become take up the vibration. onsists of a spring These currents admit of transformation by static transformers. Hence a high voltage can be employed upon the line and be changed INDEX OF to the voltages suitable for the service at the point where it is needed. A finer wire can thus be used in transmission and saving be effected in the price of many parts of the installation.

(8380) A. C. A. asks: 1. What would be the best material to use for the armature of a helix? A. Iron is the only material of any value whatever as the armature of an electromagnet. 2. What size wire and how much shall I use to get the strongest pullmuch shall I use to get the strongest pull—
2-inch movement, using eight dry cells? A.
We do not know what you wish to do, nor what current you have to do it with, but a motion of two inches is very large for any ordinary electric power to produce. The size of wire depends entirely upon the quantity of current which is to flow through it. 3. About what internal resistance has the average dry cell? A. All degrees of resistance from a strongest pull—

Abrading machinery, E. G. Thomas. 683,667

Abrading machinery, E. G. Thomas. 683,667

Fertilizer distributer, J. A. Larson. 683,673

Fertilizer distributer, J. A. Larson. 683,673

Fertilizer distributer, J. A. Larson. 683,673

File box, cashier's, J. T. Hicks. 683,465

File or drawer lock, D. A. Beckwith 683,635

File or drawer lock, D. A. Beckwith 683,629

File rescape, N. Stephens. 683,629

Fire escape, N. Stephens. 683,636

Fireproof construction, C. A. Ralph. 683,426

Fireproof construction, A. S. Reavis. 683,636

Automobile muffler, S. D. Mott. 683,635

Automobile muffler, S. D. Mott. 683,636

Bag fastener, H. W. Howe. 683,635

Fire proof partition, A. S. Reavis. 683,799

Fireproof partition, A. S. Reavis. 683,636

Fireproof construction, A. S. Reavis. 683,636

Fireproof partition, A. S. Reavis. 683,636

Fireproof construction, C. A. Ralph. 683,636

Fireproof construction, A. S. Reavis. 683,636

Fireproof construction, A. S. Reavis. 683,636

Fireproof construction, C. A. Ralph. 683,636

Fireproof construction, C. A. Ralph. 683,636

Fireproof construction, C. A. Ralph. 683,636

Fireproof construction,

few ohms up to a very large number of ohms according to the condition of the cell

(8381) C. M. writes: 1. As per in structions in one of Sloane's Electrical Library, I made some chloride of silver battery cells in test tubes, using a saturated solution of ammonia chloride and sealing the tubes 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.

of ammonia chloride and sealing the tubes thoroughly with paraffin wax. The cells were made several days ago and give a good current; in fact, they are all I would desire as a battery cell. But they are in such a nasty condition, ammonia chloride creeping all over the tubes and connections in spite of all the care I took to seal them. Can you suggest any other solution that would answer as any other solution that would answer as well? A. Ammonic chloride is a salt which creeps very badly, and is difficult to control. The glass tubes should be paraffined before they are used for perhaps an inch from the top, both on the inside and outside. fill them and seal with paraffine. 2. Please tell me why the zinc is amalgamated. A Zinc is amalgamated to render it the equiva-Minerals sent for examination should be distinctly marked or labeled. local action to which commercial zinc is (8376) A. D. writes: I want to make ject. 3. Would it be of any advantage to fuse a small alternating current induction motor the silver chloride? A. Yes.

(8382) O. H. H. asks: Does ice melt little assistance in regard to the winding, faster in a cool, damp cellar or in a warm, dry room? Have had different opinions on the same and would like to know the correct one. A. The melting of a substance is proportional to the difference of temperature between that price \$2 by mail. The same book contains, substance and the place where it is. There is no connection between the melting of ice and the moisture of the place where it is, or (8377) C. M. N. writes: A 75-kilowatt rather the place where ice is kept will soon be saturated with moisture, since ice evaporthe wattmeters in this town, and I wish to ates at all temperatures without becoming learn the best means of preventing the same. liquid. Ice will for these reasons melt better

(8383) W. G. A. asks: You would to disturb people in sleeping apartments of confer a favor by giving me any information private residences even when no lamps are which you may have necessary for the making on and meter is not operating. A. The hum- of metal signs by electrolysis of copper deto render it a conductor, and afterward covered with copper in an electroplating bath. (8378) W. H. De W. says: Will you! Scientific American Supplement Nos. 310, instructions for this work.

(8384) P. W. S. asks: 1. I wish to install a 1 horse power dynamo and storage than one for 110? A. Yes. A battery should the circuit. For 25 volts, 13 cells are needed; needs are small it would be better to use a battery and light the lamps directly. Battery lamps can be purchased for low voltages. 4. mentioned in Scientific American, August 10? Give information or address to get such. A. We do not know that these lamps are yet upon the market.

(8385) J. M. A. asks: I have two electric line circuits. One is 3 feet long and another 1,000 feet long, of No. 8 copper wire, each of 98 per cent conductivity. I run a current of 100 amperes through each circuit. Which of the two circuits would the temperature of the wire (taken at any point of the two circuits) be the greatest? A. In the the hotter

#### INVENTIONS

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

October 1, 1901,

AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

_	Smerican.		
,	Bag for holding hams, W. Hinkelman Bandage rolling machine, W. D. Kilbeurn. Barterl finishing machine, G. E. Smith. Battery plate separator, H. C. Porter. Bed bettem, spring, H. H. Brewn. Bed spring support, J. Ruebusch. Belt, apparel, W. R. Arneld. Bicycle support, R. Helmer. Binder, multiple carbon sheet, • Morland. Bit stock, angle, H. Politsch. Beiler furnace, water tube, W. W. Shilling Boiler tube cleaning compositions, feeding apparatus fer, H. C. Frasier. Book, S. E. Rhedes. Book or paper holler, J. L. Carr. Book grap, N. G. Wright. Beot tree, W. R. Pelten. Bettle, non-refillable, Heller & Ives. Bottle, non-refillable, P. Lesch.	683,760 683,774	For
-	Barrel finishing machine, G. E. Smith Battery plate separator, H. C. Porter	683,578 683,494	Fol Foc
-	Bed bettem, spring, H. H. Brewn  Bed spring support, J. Ruebusch  Belt. apparel. W. R. Arneld	683,636 683,803	Foo Fri Fue
y 1	Bicycle support, R. Helmer. Binder, multiple carbon sheet, O. Morland.	683,463 683,782	Fu
s e	Beiler furnace, water tube, W. W. Shilling Boiler tube cleaning compositions, feeding	683,794 683,5 <b>●</b> 6	Ga:   Ga:   Ga:
s	apparatus for, H. C. Frasier	683,879 683,497	Gas
y r	Book of paper holder, J. L. Carr.  Book of paper holder, J. Carr.  Book	683,632 683,489	Ga:
e t	Bottle, non-refillable, Heller & Ives Bottle, non-refillable, P. Lesch Bottle stopper. F. B. Thatcher	683,754 683,778 683,522	Gea Gla Gla
s	Bottles and allowing liquids to be drawn	683,768	Gla
1 .	Innes. Bottles, jars, etc., detector device for, E. J. Brown Bottles non-refillable, device for rendering,	683,841	Glo Gol
e e		683,883 683,781 683,889	Gra Gra
ı e	H. J. Myers.  Box fastener, F. Moellenbreck  Box fastener, Booth & Reichard  Box pecket partition, L. Hirschfeld  Box pecket partition, L. Hirschfeld  Brake head, N. H. Daris.  Brick burning kiln, J. P. B. Fiske.  Brick burning kiln, J. P. B. Fiske.	683,889 683,761 683,730	Gu
.   	Bricks, furnace linings, crucibles, etc., man-	683,643	Ha Ha Ha
e  -	uracturing, Rawson & Littleheld Bridge, I'. G. Vent Brush, sink, C. A. Fogarty	683,795 683,627 683,743	Ha Ha Ha
е	Buckle, belt, C. Resenberger	683,577 683,5 <b>0</b> 2 683,657	На
t	Burial casket, F. Warther	683,657 683,714	' На '
y e	Butler's knife, J. M. Stryker	683,867	Ha Ha
. ¦	Butter cutting and molding apparatus,  M. Lary  Cabinet lock, Ferry & Laing. Calcium carbid, preparing, E. W. Lancaster Calculating device, E. W. Themas.  Cams or like hubs upon their shafts, device for securing, E. H. Møyle.  Can testing machine, W. S. Case.	683,693 683,852	
t	Calcium carbid, preparing, E. W. Lancaster Calculating device, E. W. Thomas.	683,562 683,814	He
1	for securing, E. H. Møyle	683,656 683,679	Hir
r 1	Gans, etc., apparatus for facilitating the		Hii Hii Ho
3	Car brake, J. Hultz	683,811 683,856 683,710 683,565	Ho Ho
r	Car deer, grain, G. Young	683,718 683,576 683,719	Ho Ho
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3	Car brake, J. Hultz. Car brake, J. Hultz. Car brake, Street, W. T. Shryock. Car deer, Martinek & Hulsker. Car deer, grain, G. Young. Car draft gear, railway, G. P. Ritter. Car fender, E. Amrein. Car mover, A. J. Maine. Car replacer, G. R. Bodd. Car safety bar, mail, R. B. Smith. Car wheels, apparatus for truing up tram or like, Cuttler & King.	683,510 683,554	Ice Im Inc
-	Carbureter, B. A. Guy	683,751	Ind
3.	Cash register, J. P. Cleal	683,725 683,877	Jac Joi
e i	Casting apparatus, metal, S. W. Vaughen Casting journal box linings, mold for, F. M. Weld Cellulose stock from cottonseed bulls and	683,885	Jou Ket Ket
1	products thereof, manufacturing, T.		Ke Lai
•	Centrifugal lubricator, F. Schneider	6 <b>83,5€</b> 4	Lac
١,	N. D. Wells Chatelaine, O. A. Lehman Cheese box, W. H. Stout.	683,535 683,611 683,517	Lai
1	Cheese paste and making same, papainized,	683,429 683,483	Laı
0	Churn, J. New Churn, J. F. Hagerty. Cigar holder, safety, R. Thempsen. Cigar pocket, O. L. Parmenter. Cigar wrapper cutter, J. R. Tyson. Cigar wrapping machine, E. Pisko. Cigars, manufacturing, P. H. Ertheiler. Cignuit controller. W. W. Cowen.	683,483 683,752 683,625 683,790	Las
e -	Cigar wrapper cutter, J. R. Tyson. Cigar wrapping machine, E. Pisko.	683,790 683,713 683,493	Lav Lav
?	Cigars, manufacturing, P. H. Ertheiler Circuit controller, W. W. Cowen Cistern cleaner, J. Runkles Clamp. See Rail clamp.	683,453 683,444 683,8 <b>0</b> 4	Leg Let
-	Clipper H L Hills	683,722 683,466	Lic Lig
e	Clipper, grass, C. E. Goransson. Cloth cutter, Willcox & Terbush. Clutch, friction, H. A. Tuttle. Clutch, friction, F. Lehmann. Clutch, friction, Hinkley & Claussen.	683,746 683,538 683,525 683,563	Liq Lit
o V	Clutch, friction, F. Lehmann. Clutch, friction, Hinkley & Claussen Clutch mechanism, D. B. Bullard	683,563 683,647 683,591 683,815	Loc Loc <b>M</b> a
1	Clutch mechanism, D. B. Bullard	683,6281	Ma Ma Ma
r	Coin actuated mechanism, F. Bronori Concentrating belt, W. F. Bowers. Conductor cleaner and carrier, A. H. Stewart	683,678 683,547 683,515	Me
f	art Conduit threading aparatus, T. A. Callahan Contact shoe carrier, J. F. Bjurlund. Conveyer, Hunt & King	683,845 683,839	Me
t	Corset, M. A. S. Golden	683,745 683,887	Me Me Me
r a	Cradle, awning, E. E. Bernsdorff. Crossing gate, Jenkins & Smith. Crutch, J. A. Moore. Cuff holder, W. E. Bradt. Curtain pole and shade fixture, W. J.	683,837 683,769 683,568	Me Me Mil
7	Cuff holder, W. E. Bradt	683,548 683,700	Mir Mo
•	Cushion spring and support, W. H. Bates. Cut out block, H. O. Swoboda	683,428 683,579 683,809	Mo
t ·	Curtain pole and shade inture, W. J. McCandless Cushion spring and support, W. H. Bates. Cut out block, H. O. Swoboda. Cutting instrument, F. W. Starr. Cycle saddle clips, manufacture of, E. & H. T. Phillips. Cyclograph. R. Modieski.	683,793 683,780	Mo
t	Cyclograph, R. Modjeski.  Dental articulator, H. D. Cross.  Dental drill, L. Maillard.  Distribution system, W. S. Gould.  Drainage apparatus, vacuum cylinder, J.  R. Allfree	683,780 683,640 683,696	Mu Mu Mu
ì	Distribution system, W. S. Gould  Prainage apparatus, vacuum cylinder, J. B. Allfree	683,460 683,424	Mu
,	B. Allfree Dregge bucket, J. O. Wright Dregging machine, E. A. Stinson. Dressing table, S. Brentnall Drill frame, adjustable. W. F. Reardon. Drill gage, Schramek & Kytlica. Drill gare, Schramek & C. Moebring.	683,87 <b>0</b> 683,516	Mu
ì	Drill frame, adjustable, W. F. Reardon  Drill gage, Schramek & Kytlica	683,549 683,797 683,664 683,567	Nai Nee
e	Drills, spring lift for disk, C. Moehring  Dust extractor, J. Byington  Dye from cottonseed and making same, T.	683,436	Nip Noi Noi
e -		683,786 683,601 683,831	Nut
e -	Electric brake, E. A. Henry. Electric meter, V. Arcjoni. Electric tramways, device for taking off current for, A. Reinecke. Electrical apparatus controller, G. W. Schilling.	683,663	Nu Nu •ai
e !	Electrical apparatus controller, G. W. Schlifting  Electromagnet, E. B. Ellicott.  Electromassage device, L. J. Chapman	683,709 683,451 683,680	●il ●re
r' e	Electromassage device, L. J. Chapman Elevator. See Grain elevator. Elevator, A. Robinson	683,68 <b>0</b> !	•xy
!	Elevator brake, C. E. Thomas Elevator safety device, C. W. Baldwin	683,624 683,677	Pac Pac Par
1	Embossed article, G. McCulloch	683,689 683,784	Par
,	Excavator, G. W. King Explosive engine, E. J. Woolf	683,749 683,649 683,886 683,556	Pap
I	Eye cap and lid closer, C. B. Dolge Eyeletting machine, M. H. Pearson Fabric covered ernaments or moldings, man-	683,488	Par Par
	Engine mixing device, explesive, N. A. Guillaume  Excavator, G. W. King  Explosive engine, E. J. Woolf.  Eye cap and lid closer, C. B. Dolgc.  Eyeletting machine, M. H. Pearson.  Fabric covered ornaments or moldings, manufacturing, Anderson & Holstein  Fan air diffuser, M. D. Degge  Fare register, W. G. Kirchhoff.  Feed water heater, Hitchcock & Hayden  Feed water heater and purifier, E. G. T.  Colles  Feed water regulater, H. H. Westinghouse	683,425 683,447 683,471	Par Par
	Feed water heater, Hitchcock & Hayden Feed water heater and purifier, E. G. T.	683,762	Par
	Colles Feed water regulater, H. H. Westinghouse Fences, machine for weaving cross wires	683,440 683,630	Par Per Per
וֹנ	In, E. Eggleston	683,685 683,672	Pet
4	man Ferrule, F. G. Fish Fertilizer distributer, J. A. Larson. File box, cashier's, J. T. Hicks File or drawer lock, D. A. Beckwith. Filter, rain water, S. J. Vance. Fire segges N. Stephens	683,672 683,559 683,777 683,465	Pho
6 1	File or drawer lock, D. A. Beckwith Filter, rain water, S. J. Vance	683,835 683,529 683,667	Pho
9	Fire escape, N. Stephens Fireproof construction, C. A. Ralph Fireproof construction, A. S. Reavis	683,667 683,426 683,800	Pho
3 3 3 3	Fireproof construction, C. A. Ralph	683,798 683,799	Pic Pile
3	contact, T. J. Moriarty	683,616	_ 110

1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Folder cutter, J. Dick	683,448 683,532 683,744 683,511 683,747 683,736 683,626
3	Fuel and making same, E. O. Trusdell Fur plucking or unhairing machine, I. Dresdner Game device, A. B. Leiler. Game table, H. Meyers. Gas engine, multicylinder, J. Badeker Gas generator, acetylene, C. A. King. Gas heaters and cookers, burner for, E. W. T. Richmond. Gas lighter S. Boronow	683,626 683,449 683,610 683,566 683,587 683,470
7 1 2 9 1	Gas heaters and cookers, burner for, E. W. T. Richmond Gas lighter, S. Boronow Gate, T. D. Livingstone Gearing, frictional, F. M. Kiger.	
3	T. Richmond Gas lighter, S. Boronow. Gate, T. D. Livingstone Gearing, frictional, F. M. Kiger. Glass furnace gathering ring, S. McKittrick Glass grinding, smoothing, and polishing machine, plate, M. M. Maher. 683,652, Glass tiles, wall slabs, etc., forming flared adherent points to backs of, P. Semmer Glove finger tip, G. H. Weichert. Gold saving appgaratus, A. Marcotte. Grain binder belts, device for securing flaps of, B. R. Benjamin.	683,653 683,863 683,869 683,613
3	Grain elevator, fireproof, F. W. Cooley,	C#9 449
5	Gun, air, Bennett & Burrow	683,731 683,732 683,850 683,473 683,484 683,609
2	Harvesters, etc., seat for, H. W. Avery, 683,634, Harvesting machine twine tension device, W. H. Holmes	683,675 683,561
3	Hat brim curling and ironing machine, G. Atherton Hay gathering and loading machine, M. Beck Hay rack coupling, F. R. Eral Hay rack, horse, J. H. Cox.	683,544 683,833 683,452 683,445
2	Atherton  Hay gathering and loading machine, M. Betck coupling, F. R. Eral  Hay rack coupling, F. R. Eral  Hay rake, horse, J. H. Cox  Hearing, electric appliance for treatment of defective, W. H. Loop.  Heater. See Feed water heater.  Hinge, lock, Ritter & Rowland.  Hitching device, horse, J. Caldwell  Hook, H. C. Masters.  Hoops together without rivets, device for fastening, W. H. Hunt.  Horse blanket. J. E. McWilliam	683,564 683,683 683,439 683,706
	Hinge, lock, Kitter & Rowland Hitching device, horse, J. Caldwell Hook, H. C. Masters. Hoops together without rivets, device for fastening, W. H. Hunt	683,706 683,552 683,475 683,766
3 3 3 4 4	Horses blanket, J. E. McWilliam. Horseshoe pad, C. Ehlers. Hose coupling, H. F. Neumeyer. Hose guide, J. A. Britton. Hot air furnace, W. Williams. Ice cream freezer J. P. Perkins.	683,570 683,450 683,482 683,434 683,674 683,791
1	Ice cream freezer, G. D. Campbell. Impact engine, G. White Incubator, E. W. Andrews. Indicating mechanism, J. P. Coleman. Insuffator, W. F. Bazry.	683,791 683,846 683,537 683,830 683,849 683,589
2	Hook, H. C. Masters.  Hoops together without rivets, device for fastening, W. H. Hunt.  Horse blanket, J. E. McWilliam.  Horseshoe pad, C. Ehlers.  Hose coupling, H. F. Neumeyer.  Hose guide, J. A. Britton.  Hot air furnace, W. Williams.  Ice cream freezer, J. P. Perkins.  Ice cream freezer, G. D. Campbell.  Impact engine, G. White.  Incubator, E. W. Andrews.  Indicating mechanism, J. P. Coleman.  Insufflator, W. F. Barry.  Ironing board, J. C. Krieller.  Jack adjuster, J. Dawson.  Joint coupling, lock, H. A. Tinkham.  Journal bearing or box, M. J. Althouse.  Kettle, confectionery, R. F. Mackenzie.  Key gage, J. Ackerly.	683,608 683,681 683,670 683,633 683,474 683,871
	Kettle, confectionery, R. F. Mackenzie Key gage, J. Ackerly Key seat cutter, A. C. Van Houweling Labeling meats, G. E. Howard Labels and stamps to packages, machine for applying, Landfear & Keyes Ladder jack, O. W. Tamm Lamp bracket, A. R. Fergusson	683,765 683,651 683,812
	Lamp bracket, A. R. Fergusson.  Lamp burner, incandescent, Hurwitz & Schapire  Lamps, manufacture and repair of incandescent electric, F. Fanta.  Lantern attachment, buggy, J. P. Crosby.	
	Lathe, vertical turret, E. P. Bullard, Jr. Lawn sprinkler, H. Gibbs	683,606 683,592 683,646 683,645 683,586
į.	Leg defects, apparatus for treating, W. Letter sheet, E. Reach Licorice, machine for pressing and rolling sticks of, T. H. Bauchle et al Lighting vehicles by electricity, apparatus	683,738 683,796 683,721
3	sticks of, T. H. Bauchle et al. Lighting vehicles by electricity, apparatus for, B. Bernstein Liquids, means for elevating, C. H. Atkins Lithographing, E. L. Norden Locomotive, steam, S. etis. Loom stop motion, F. Pick. Mail box, etc. J. McLane. Mattle support, J. Irons. Match bok, M. Byall Match holder and striker, C. L. Webster. Measuring instrument, electrical, H. •	683,432 683,874 683,572 683,658 683,491
3		683,648 683,551 683,629 683,622
	Hugh Measuring instrument, electrical, N. H. Suren Mechanical movement, J. E. Sweet Metal bath, Taylor & Gantt. Metal pipe, J. H. Taylor. Metal pipes, uniting, G. H. Bailey.	683,668 683,810 683,580 683,519 683,875
5	Metal pipes, uniting, G. H. Bailey. Metal wheels, making, D. Baker. Meter. See Electric meter. Milk, making modified, A. Sauer Mining machine, H. C. Sergeant. Molds, apparatus for drying and coating, Patterson & Wickland	683,532 683,501 683,864
3	Moles, coating and erying, Patterson & Wickland  Motor, H. Thomson  Mowing machine cutting apparatus, G. R.	683,486 683,523 683,461
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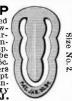


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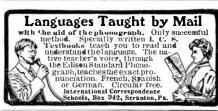
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ŀ	"Cole's Laxative Liver Pills," for medicine,	0,101	
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