

HINTS TO CORRESPONDENTS.

his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying

the same.

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

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

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 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 deming 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 violations set up by the current. Of course, the 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.

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 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 than one for 110? A. Yes. A battery should spoonful lard oil; melt, and stir in a tablespoonful of lampblack; thoroughly mix, and for 110 volts, 55 cells are needed. 3. If it 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 C²R, 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. the hotter. 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 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

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 power can be found in "Electrical Designs," 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 to 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, please send me the formula for liquid to etch 1190, and 1204, price ten cents each, contain instructions for this work.

(8384) P. W. S. asks: 1. I wish to install a 1 horse power dynamo and storage 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. lampblack. To ¼ pound of resin put 1 tea- have one-half as many cells as the voltage of the circuit. For 25 volts, 13 cells are needed; 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 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

INVENTIONS

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

October 1, 1901,

AND EACH REARING THAT DATE.

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

Abrading machinery, E. G. Thomas 6	83,66
Acetic anhydrid, making, B. Heymann 6	83,46
Air brake pistons and cylinder heads, tool	
for holding, Bates & Terry 6	83,54
Air compressor, C. R. Meston 6	83,61
Air heating and agitating apparatus. E. F.	
Porter 6	83.65
Alarm. See Burglar alarm.	•
Album, photograph, S. Forbes 6	83.85
Automobile muffler, S. D. Mott 6	83,86
Automobile underframe, H. M. Wells 6	83,67
Bag fastener, H. W. Howe	83.46
Bag fastener, traveling, B. F. Du Bois. 6	83,55
Dag lastener, travering, D. F. Da Doist. of	,00

_	6		
ns,	Bag for holding hams, W. Hinkelman	683,760	For
_	Bag for holding hams, W. Hinkelman Bandage rolling machine, W. D. Kilbeurn. Barrel 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, O. Morland. Bit stock, angle, H. Politsch	683,774 683,578	Fol Fol
n- Li-	Bed bettem, spring, H. H. Brewn Bed spring support. J. Ruebusch	683,636 683,803	Foo Fri
гу	Belt, apparel, W. R. Arneld Bicycle suppert, R. Helmer	683,720 683,463	Fu
on es	Binder, multiple carbon sheet, • Morland. Bit stock, angle, H. Politsch	683,782 683,794	
ere ur-	Boiler tube cleaning compositions, feeding apparatus for, H. C. Frasier	683,879	Ga Ga Ga
as	Bit stock, angle, H. Politsch	683,497 683,724	Ga
er	Book, scrap, N. G. Wright	683,632 683,489 683,754 683,778	Ga
he est	Bottle, non-refillable, P. Lesch Bottle stopper, F. B. Thatcher	683,778 683,522	Gea Gla Gla
as	therefrom, device for holding, G. P.	683,768	Gla
ch ol.	Innes Bottles, jars, etc., detector device for, E. J. Brown Bottles non-refillable, device for rendering,	683,841	Glo Gol
he	Bottles non-refillable, device for rendering, H. J. Myers	683,883	Gra
en	Box fastener, Booth & Reichard Box pocket partition, L. Hirschfeld	683,889 683,761	Gu:
A.	Bottles non-refillable, device for rendering, H. J. Myers. Box fastener, F. Moellenbreck. Box fastener, F. Moellenbreck. Box pecket partition, L. Hirschfeld. Brake head, N. H. Bavis. Brick burning kiln, J. P. B. Fiske. Bricks, furnace linings, crucibles, etc., manufacturing, Rawson & Littlefield. Bridge, F. G. Vent. Brush, sink, C. A. Fogarty. Buckle, belt, C. Resenberger. Bumping pest, P. Scanlin. Burglar alarm, electric, A. J. Noreen. Burners, apparatus for supplying combusti-	683,73 0 683,643	Ha Ha
va- he .	ufacturing, Rawsen & Littlefield Bridge, F. G. Vent.	683,795 683,627	Ha Ha Ha
ıb- ıse ;	Buckle, belt, C. Resenberger Burning next P. Scanlin	683,743 683,577 683,5 2 2	Ha Ha
. 14 .	Burglar alarm, electric, A. J. Noreen Burial casket, F. Warther	683,657 683,714	Ha
elt ry	ble liquid under pressure to. L. Van		Ha
he ne.¦	Butler's knife, J. M. Stryker	683,867	Ha
ial at	Cabinet lock, Ferry & Laing	683,693 683,852 683,562	Ha Ha He
is	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. Cans, etc., apparatus for facilitating the filling and weighing of, T. W. Talia- ferro. Car brake, J. Hultz.	683,814 683,656	He Hi
n d or	Can testing machine, W. S. Case Cans, etc., apparatus for facilitating the	683,679	Hi
on or-	filling and weighing of, T. W. Talia- ferro Car brake, J. Hultz.	683,811 683,856	Hi Ho Ho
ng ter i	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. Amein. Car mover, A. J. Maine. Car replacer, G. R. Dodd. Car safety bar, mail, R. D. Smith. Car wheels, apparatus for truing up tram or like, Cuttler & King.	683,710 683,565 683,718	Ho Ho
	Car draft gear, railway, G. P. Ritter Car fender, E. Amrein	683,576 683,719	Ho Ho
ld ' on ¦	Car mover, A. J. Maine	683,684 683,510	Ho Ice Ice
ng le-	Car wheels, apparatus for truing up tram or like, Cuttler & King	683,554	Inc
at-	Carbureter, B. A. Guy	683,751 683,596	Inc Ins Iro
to i	Cash register, J. P. Cleal	683,725 683,877	Jac Joi
ire: ier	Carding machine alarm attachment, Eadle & Boston Cash register, J. P. Cleal Cash register, T. Carney Casting apparatus, metal, S. W. Vaughen Casting journal box linings, mold for, F. M. Weld Cellulose stock from cottonseed hulls and	683,824	Jou Ke
ex- ed	Cellulose stock from cottonseed hulls and products thereof, manufacturing, T.	693 795	Ke Ke Lai
go	M. Weid Cellulose stock from cottonseed hulls and products thereof, manufacturing, T. Newsome Centrifugal lubricator, F. Schneider Chain lock and burglar alarm, combined, N. D. Weils	683,504	La
th.	Centrifugal lubricator, F. Schneider. Chain lock and burglar alarm, combined, N. D. Wells Chatelaine, O. A. Lehman Cheese box, W. H. Stout. Cheese paste and making same, papainized, E. D. Bell Churn, J. New	683,535 683,611 683,517	La
lO, lin	Cheese paste and making same, papainized, E. D. Bell Churn, J. New	683,429	La
to	Churn, J. New Churn, D. F. Hagerty Clear holder, safety, R. Thempsen Clear pocket, O. L. Parmenter Clear wrapper cutter, J. R. Tyson. Clear wrapping machine, E. Pisko Clears, manufacturing, P. H. Ertheiler Circuit controller, W. W. Cowen. Cistern cleaner, J. Runkles Clamp. See Raji clamp.	683,483 683,752 683,625	La: La: La:
ge	Cigar pocket, O. L. Parmenter	683,790 683,713 683,493	Lav Lav Lea
ır- s?	Cigars, manufacturing, P. H. Ertheiler Circuit controller, W. W. Cowen	683,453 683,444	Leg
no 1s-	Clamp. See Rail clamp. Clevis, W. • Berry	683,722	Let Lie
To ge	Clevis, W. • Berry. Clipper, H. L. Hills. Clipper, grass, C. E. Goransson. Cloth cutter, Willcox & Terbush. Clutch, friction, H. A. Tuttle. Clutch, friction, F. Lehmann.	683,466 683,746 683,538	Lig
nt no	Clutch, friction, H. A. Tuttle	683,525 683,563	Liq Lit Loc
ew a	Clutch, friction, Hinkley & Claussen. Clutch mechanism, D. B. Bullard. Clutch, traction engine, M. J. Todd. Coal or rock drill, I. Wantling. Coin courted mechanism.	683,591 683,815	Ma Ma
2.	Coal or rock drill, I. Wantling Coin actuated mechanism, F. Bronori Concentrating belt, W. F. Bowers Conductor cleaner and carrier, A. H. Stew-	683,628 683,678 683,547	Ma Ma
er ıl d	Conductor cleaner and carrier, A. H. Stewart	683,515	Me Me
of d;	Conduit threading aparatus, T. A. Callahan Contact shoe carrier, J. F. Bjurlund	683,845 683,839 683,604	Me Me
it to	art threading aparatus, T. A. Callahan Contact shoe carrier, J. F. Bjurlund	683,745 683,887	Me Me
ur	Crutch, J. A. Moore	683,769 683,568	Me Me Mil
a ry	Curtain note and shade fixture W. I.	683,548	Min Mo
4. np	Cushion spring and support, W. H. Bates. Cut out block, H. •. Swoboda	683,428 683,579	Mo
ıst eh.	McCandless Cushion spring and support, W. H. Bates. Cut out block, H. A. Swoboda. Cutting instrument, F. W. Starr. Cycle saddle clips, manufacture of, E. & H. T. Phillips. Cyclograph, R. Modjeski. Earts articulator.	683,8 9 683,793	Mo Mo
et		683,780 683,640 683,696	Mu Mu
vo		683,46 €	Mu Mu
n d re,	Prainage apparatus, vacuum cylinder, J. B. Allfree Dredge bucket, J. O. Wright. Dredging machine, E. A. Stinson. Dressing table, S. Brentnall. Drill frame, adjustable. W. F. Reardon. Drill gage, Schramek & Kytlica. Drills, spring lift for disk, C. Mochring. Dust extractor, J. Byington. Dye from cottonseed and making same, T. Newsome.	683,870 683,516	Mu
a it.	Dressing table, S. Brentnall	683,549 683,797 683 664	Na: Ne
er- he	Drills, spring lift for disk, C. Moehring Dust extractor, J. Byington	683,567 683,436	Nip No
he ir-	Pye from cottonseed and making same, T. Newsome Electric brake E. A. Henry	683,786 683,601	No
he	Newsome Electric brake, E. A. Henry. Electric meter, V. Arcioni. Electric tramways, device for taking off current for, A. Reinecke. Electrical apparatus controller, G. W. Schilling.	683,831	Nu Nu
re- en-		683,663 683,709	●aı ●il
ole ' er	ing Electromagnet, E. B. Ellicott. Electromassage device, L. J. Chapman Elevator. See Grain clevator.		•re
ne	Elevator, A. Robinson. Elevator brake, C. E. Thomas. Elevator safety device, C. W. Baldwin. Elevators, electric operation of, J. D. Ihlde. Embossed article, G. McCulloch.	683,624 683,624	Pac Pac
i	Elevators, electric operation of, J. D. Ihlde. Embossed article, G. McCulloch Engine mixing device, explosive, N. A.	683,689 683,784	Pap
S	Engine mixing device, explosive, N. A. Guillaume Excavator, G. W. King	683,749 683,649	Par Par
	Guillaume Excavator, G. W. King Explosive engine, E. J. Woolf Eye cap and lid closer, C. B. Dolge Eyeletting machine, M. H. Pearson.	683,886 683,556 683,488	Par
	ufacturing Anderson & Holstein	683,425	Paj Paj
	Fan air diffuser, M. D. Degge	683,447 683,471 683,762	Paj Paj
E.	Feed water heater and purifier, E. G. T. Colles Feed water regulater, H. H. Westinghouse Fences, machine for weaving cross wires in F. Erglaston		Par Par Per
.s.]	in, E. Eggleston	683,685	Per Per
66≢	Ferrule, F. G. Fish	683,672 683,559 683,777	Pho
164 546	Fences, metalic clip for wire, A. W. Wellman Ferrule, F. G. Fish Fertilizer distributer, J. A. Larson. File box, cashier's, J. T. Hicks. File or drawer lock, D. A. Beckwith.	683,777 683,465 683,835	Pho
314 359	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 escape, N. Stephens. Fireproof construction, C. A. Ralph. Fireproof construction, A. S. Reavis. Fireproof partition, A. S. Reavis. Fireproof structure, A. S. Reavis. Firing key, electrical automatic safety hand contact, T. J. Moriarty. Fish hook, W. Guindon.	683,529 683,667 683,426	Pho
5 3}	Fireproof construction, A. S. Reavis	683,800 683,798	Pho
60 673 68	Firing key, electrical automatic safety hand contact, T. J. Moriarty	683,616	Pic Pil
557	Fish hook, W. Guindon	683,750	

	Folder cutter, J. Dick	683,448 683,532 683,744 683,511 683,747 683,736 683,626
	Friction brake, J. G. Ebken. Fuel and making same, E. Ø. Trusdell Fur plucking or unhairing machine, I. Dresdner Game device, A. B. Lefler. Gome table, H. Meyers	683,449 683,610
)	Game device, A. B. Lefler. 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.	683,587 683,470
	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 tig, G. H. Weichert. Gold saving apparatus, A. Marcotte. Grain binder belts, device for securing flaps of, B. R. Benjamin. Grain elevator, fireproof, F. W. Cooley,	683,694 683,773 683,617 683,653
	adherent points to backs of, P. Semmer Glove finger tip, G. H. Weichert	683,863 683,869 683,613 683,430
	Gun, air, Bennett & Burrow. G83,441 to Hame, H. Diflo Hame hook, H. Diflo Harness pad, J. M. Connor. Harvester, corn, J. S. Kurtz. Harvester reel, S. Nixon. Havester, sheaf binding, J. B. Leather-	
	Harvester, corn, J. S. Kurtz. Harvester reel, S. Nixon. Harvester, sheaf binding, J. B. Leather- barrow Harvesters, etc., seat for, H. W. Avery, 683,634,	683,850 683,473 683,484 683,609
	Harvesting machine twine tension device, W. H. Holmes	683,561
	Hay rack coupling, F. R. Eral Hay rake, horse, J. H. Cox Hearing, electric appliance for treatment of defective, W. H. Loop.	683,833 683,452 683,445 683,564
	Atherton Hay gathering and loading machine, M. Beck Hay rack coupling, F. R. Eral Hay rack, horse, J. H. Cox Hearing, electric appliance for treatment of defective, W. H. Loop. Heater. See Feed water heater. Hinge, E. H. Doane	683,683 683,439 683,706 683,552 683,475
	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. Insuffator, 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.	683,766 683,570 683,450 683,482
	Hot air furnace, W. Williams. Ice cream freezer, G. D. Campbell. Impact engine, G. White. Incubator, E. W. Andrews.	683,434 683,674 683,791 683,846 683,537 683,830
	Indicating mechanism, J. P. Coleman. 'Insuffiator, W. F. Baury. Ironing board, J. C. Krieller, Jack adjuster, J. Bawson. Joint coppening, lock, H. A. Tinkham.	683,849 683,589 683,608 683,681 683,670 683,633
	Labeling meats, G. E. Howard	683,765
	Lander jack, W. Tamm Lamp bracket, A. R. Fergusson Lamp burner, incandescent, Hurwitz & Schapire	683,812 683,455
	Lamps, manufacture and repair of incan- descent electric, F. Fanta. Lantern attachment, buggy, J. P. Crosby. Last, F. W. Kittlinger Lathe, vertical turret, E. P. Bullard, Jr. Lawn sprinkler, H. Gibbs.	683,558 683,446 683,606 683,592 683,646
	Lawn sprinkler, H. Gibbs. Lawn sprinkler, rotary, H. Gibbs. Leather washing machine, E. C. Amidon. Leg defects, apparatus for treating, W. Emge Letter sheet, E. Reach Licorice, machine for pressing and rolling sticks of, T. H. Bauchle et al	683,645 683,586 683,738 683,796
	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	683,721 683,432 683,874 683,572
	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. Otis. Loom stop motion, F. Pick. Mail box, etc., J. McLane. Mantle support, J. Irons. Match box, M. Byall Match holder and striker, C. L. Webster. Measuring instrument, electrical. H	683,658 683,491 683,481 683,648 683,551 683,629
	Measuring instrument, electrical, H. •. Rugh 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.	683,622 683,668 683,810 683,580
		683,519 683,875 683,532 683,501
	Meter. See Electric meter. Milk, making modified, A. Sauer. Mining machine, H. C. Sergeant. Molds, apparatus for drying and coating. Patterson & Wickland Molds, coating and drying, Patterson & Wickland Motor, H. Thomson Mowing machine cutting apparatus, G. R. Hardison	683,864 683,487 683,486 683,523
!	Musical instrument, mechanical, P. Welin Musical instrument calf playing attachment	683,461 683,467 683,825
ı	Musical instruments, winding or rewinding mechanism for mechanical, A. E. Whitehead Mute, G. W. Remalia.	683,717 683,496
	Nail plates, battering machine for wire, H. Wisher Needle, N. Mersch Nipper and meter, combined, E. M. Coleman Non-conducting covering, D. Q. Stephens. Notes of spiral note disks, apparatus for forming, F. Kluge Nut lock, C. C. Harrell. Nut lock, H. B. Hoppood	683,541 683,655 683,726 683,514
 	forming, F. Kluge Nut lock, C. C. Harrell. Nut lock, H. R. Hopgood Nut lock, A. Roussel Oar lock, W. C. Wilson Oil and product therefrom, preparing, T. Newsome	683,472 683,462 683,764 683,802 683,540
1	Ore sampling machine attachment, A. C. Calkins Oxygen and nitrogen from mixtures thereof, separating, R. P. Pictet	683,787 683,844 683,492
1	Package tie, R. Meacham, Jr. Paddle wheel, H. S. Kline Paper hangers' table attachment, U. S. Tinkham Paper hangers' use, straight edge and clamp for, F. W. Grunden	683,476 683,776 683,524 683,748
	J. Wezel	683,536
	feeding sheets of, Landfear & Keyes. Paper pulp, making, T. C. X. A. Berget Paper receptacle, S. L. Parmenter. Paper strips, machine, A. Skofsrud. A. Green Paper weight, W. Bright Parer, apple, H. A. & W. Tripp. Penholder, J. V. Washburne. Petholeum products, making, Dyson & Gaskell	683,865 683,687 683,888 683,817
		683,715 683,763 683,735
	Phonograph machines, carriage traveling gear for, T. H. Stevens Phonographic records, apparatus for duplicating, Aylsworth & Miller Phonographic records, duplicating, Miller & Aylsworth Photographic plate holder for cameras, G. F. Fraley Photographics papers mic views, means for	683,712 683,676 683,615
	Pasquarelli Picture frame, E. M. Silverberg. Pile fabric, double, H. Sarafian.	683,560 683,573 683,711 683,708
۴	(Continued on page 238)	