from a dealer in chemicals, dilute with five parts of hot water, mix thoroughly, and add excess of sulphuric acid. Filter off the silica, which will be precipitated, and wash with hot water.

(2452) S. J. R. asks how to harden tallow in order that it may be used in lumps to rub on lumber and skids. Summary: We get tallow of a very inferior quality sometimes, which is soft and falls to pieces almost as if rotten. We wish to know how to cheaply restore it to the consistency of first-class tallow? A. Try melting it and mixing it with paraffine wax. This is the simplest method we can suggest, if not too expensive

(2453) E. K. writes: I want to make a blackboard by covering heavy cardboard with some kind of slate preparation. Can you, through your paper, give me a good recipe for blackboard slating? A. Use a strong solution of shellac mixed with dry ivory black and ground pumice stone, and ultramarine blue, 1 gallon 95° alcohol, 1 pound shellac, 8 ounces black, 4 ounces blue, and 5 ounces ground pumice or fine emery is a good formula.

(2454) I. H. asks (1) for the formula for the preparation known as silicate for blackboards or a similar preparation. A. See preceding query. 2. Can you inform me as to what method I could adopt to prevent a safe lock being affected by the damp? Our lock becomes coated with verdigris, caused by dampness of safe door. A. We can only suggest having parts lacvaseline as a lubricant. Even used as a coating it will keep off verdigris.

(2455) A. L. asks how to soften hard water without chemical. A. Some hard water is softened by boiling. If a sediment forms, decant the clear

(2456) F. W. S. asks at what degree Fah. the following metals fuse: Gold 1000 fine, aluminum, silver, and brass. A. Gold. 2016° Fah. Silver. 1873° Fah. Aluminum, uncertain, and varying greatly like the one used in the simple electric motor. with purity of metal, 1290° to 1560° Fah. Brass varies so in composition that no melting point can be given. It will vary from 800° to 2000° Fah.

(2457) G. H. B. asks: 1. What chemical or other solutions are there that have fireproofing qualities? (For instance, to saturate cloth or paper.) A. Tungstate of soda and phosphate of soda are excellent, especially the first. Even common salt has some power, 2. What wash or paint, that adheres well when exposed to weather, has fireproof properties? A. For rough work a wash made of cement and water might be recommended. For a roof paint consult our advertising columns. 3. What ingredients added to common whitewash would greatly increase its adhering property? Iron oxide paint partly answers this, but I want a paint or stain for roof, preferably in green, that will hold, and I do not think the stains, now much used, are satisfactorily permanent, except in red. A friend showed me a number of barns built of rough hemlock boards. He made a thin glue sizing and gave them a wash of it, following immediately (when dry) with a coat of mineral (iron) paint. It gave the buildings a smooth finish, and paint lasted for years, and for that matter still lasts. I was surprised at its lasting quality and mentioned it to a house painter, he said it was a good and satisfactory way to treat such buildings. A. The government receipt for whitewash, already given in these columns, may be repeated: Slake 1/2 bushel of lime with boiling water, keeping it covered during the process, strain, and add I peck of salt dissolved in warm water, and 3 pounds rice flour boiled in water to a thin paste, 1/2 pound Spanish whiting, and I pound clear glue dissolved in warm water. Let it stand several days and apply hot. 4. Crude petroleum applied to wood has preservative qualities. Would green or other pigment added (forroof) give a permanent color? A. No pigment should be added to crude petroleum. 5. Could any ingredient be added to overcome the combustible nature of the petroleum?

(2458) G. M. C. asks: 1. Suppose dyname and motor are seven miles apart. What per cent should the motor develop if 100 horse power is put into the dynamo? A. From 60 to 70 per cent. 2. What size of wire should be used to carry the current to the mothe wire be insulated from the atmosphere? A. Pre- revolving plate three-eighths or one-half inch apart, as ferably, but not necessarily. 4. Is it necessary that it is nearly impossible to get the plate set firm enough increased if a high resistance battery is used to drive it? the resistance of the battery and external circuit are | coil of an induction coil enough? A. Yes. 8. Is the equal. 9. Should the battery cells be arranged in parallel or tandem? A. They should be connected in such a way as to secure the above E. M. F. and as large a current as necessary.

(2459) Jack asks: 1. The easiest and cheapest way to melt wrought or cast iron in small A. No successful method of electro-plating with plaquantities, say up to 10 or 12 pounds, also lead. I have tinum is known. 2. The best way to straighten pieces a small portable forge. A. Use a plumbago crucible, of iron wire about 2 inches long. A. The wire should with a little borax as a flux. You will probably not succeed in melting such large quantities, and certainly not the wrought iron. 2. The cheapest way for me to take impressions or copies of letters that I write, and wish to keep a copy or duplicate of on file for reference? A. Use copying ink and a copying book and press. Simple hand copying appliances are sold by stationers to take the place of presses. 3. In splitting logs or other large timber for fence posts, wood, etc. can I not use powder or dynamite, instead of wedges and mauls? If powder, will common gunpowder do? A. Yes. Bore holes and use gunpowder, not dynamite. Tamp the powder with fine sand or brick dust. Bore inch holes and insert from two to four inches of pow-

der. 4. Are there steamboats in use that use naphtha AMERICAN what is the thorough meaning of the astro- INDEX OF INVENTIONS MENT, No. 769. Light naphtha is generally to be considered unsafe.

(2460) C. C. asks: 1. What can I use to protect woods from dampness, and prevent warping in models made with it? A. Use only perfectly seasoned woods. Otherwise nothing will preserve the models. Shellac them with good orange shellac dissolved in aicohol. 2. What cement can I use to fasten together strips of cloth or leather on cloth, so as to stand washing in hot and cold water? A. Soak clear glue for ten fiame and still be pliable and porous. A. Tungstate of hours in water enough to cover it, dissolve by heating, and add tannic acid until it is thick and ropy, apply at once with pressure. 3. Explain how electricity may kill when a heavily charged wire breaks and comes in contact with the human body. A. By grounding through the system. This implies, of course, the existence of a second ground or it may be of a series of minute grounds or leakages whose aggregate is enough to cause a strong current to pass through the body. In alternating or pulsating current systems there is also an inductive action like charging and discharging a Leyden jar which will shock without the formation of a second ground. Death by such a shock is very improbable. A second ground of some kind may generally be assumed.

(2461) F. P. C. writes: I noticed in the July 19 issue your request to amateur electrical workers. quered, or if they are exposed to friction in working, try | I will relate some of my electrical experiences. I made the simple electric motor according to the directions given in Supplement, No. 641, and met with success. It developed about one man power. I used it for running fly fans, but the large battery required proved rather expensive. Later on I made a motor to run on the Thomson-Houston incandescent current. I used cast iron fields, and wound both fields and armature with No. 28. The armature heated badly on 110 volts, so I rewound the armature with 32; then it did not heat, but developed very little power. I used an armature I would have had better success if I had used the Siemens armature. Later on I made an induction coil similar to the one described in SUPPLEMENT, No. 160. Instead of bare, I used covered wire, and wound each layer the full length on the coil, insulating each layer with one thickness of paraffined paper. After mounting it with condenser and all, I connected two cells of a large plunging bichromate battery. It gave about fiveeighths inch sparks. I wound only one pound on the secondary coil. Afterward, hoping to obtain a larger spark, I used more battery. It gave a longer spark at first, then afterward it would give only one-fourth inch spark. I am afraid the extra battery burnt it out. I shall rewind it. A. You will find it advantageous to rewind your coil in two sections, as described in SUP PLEMENT, No. 160.

> (2462) D. E. W. asks: 1. In Notes and Queries of a back paper you say the simple electric motor can be changed to a dynamo by shifting the commutator brushes on the other side. Please explain. A. It is necessary to shift the brushes on account of the change in the direction of the rotation of the commutator cylinder. In addition to this change, the field magnet should be made of soft cast iron. 2. Will it hurt the working capacity of the motor if I paint the Russia iron of the field magnet with asphaltum varnish? A. You can paint or varnish the parts referred to without detriment. 3. Would it be dangerous to attempt to stop the motor by taking hold of the pulley? Could it be stopped in this way? A. The principal danger would be of burning your fingers by the friction of the pulley. of the bowl? A. Use a second bowl placed on top of Of course there would be danger of injury by the current if the machine were placed in a lighting circuit. 4. What would be the lighting capacity, when run as a dynamo? A. Very small; probably 4 or 6 candle power. 5. Will the motor operate a 1 gallon ice cream freezer? A. With sufficient current it would. 6. Would it do to coil making spark enough to light one gas jet. A. Use operate the motor by Brush arc light circuit? A. The E. M. F. is unnecessarily high; the machine is not designed for a current of that kind.

(2463) P. P. K. asks: Can I make the tubular shaft and the center (solid) one in the Wimshurst induction machine, also the washer and nut to fasten the revolving plate with, of iron? A. Use well tor? A. It depends upon the current used. 3. Should seasoned hard wood for your hubs. 2. Can I set the there be a return wire from the motor to the dynamo?, with nut one-sixteenth inch thick? A. You cannot ex-Why not use the earth? A. A return wire is necessary pect good results without setting the plates near toon account of danger of grounding along the line gether. 3. How large should the brush sockets be, and through workmen or others. 5. About what is the how many? A. The brush sockets should be one-resistance in ohms of motor described in Supplement, eighth or three-sixteenths diameter. Four are required. No. 641? A. About 4 ohms. 6. About how many volts 4. How can I get window panesstraight? Nearly every are necessary to run it successfully? A. An E. M. F. pane is a little curved and unfit for revolving plate. of 6 to 8 volts. 7. Would it make any difference if the A. You can select flat panes of glass at any large esfield magnet of this motor was forged from soft iron? tablishment dealing in the article. 5. Will the machine A. You can use either wrought or cast iron. 8. Why is work better if it is made air tight? A. If made air it necessary that the resistance of the motor should be tight and kept dry within, its working will be improved. A. The greatest amount of work can be realized when Yes. 7. Is 22 turns per inch of 35 wire on the secondary platinum contact on the spring necessary? A. Yes, Can I use a soft iron rod instead of the wire bundle? A. No. A bundle of soft iron wire is required.

> (2464) W. F. G. asks (1) if there is any method of electro-plating brass and iron with platinum. be straightened in long lengths by means of the machine known as the wire straightener. Short pieces are sometimes straightened by rolling them between heavy flat plates of iron. 3. In boiling carbon plates in paraffine steam arises and covers the whole plate with a thin film. Will this not interfere with the working of the battery? And if so, how can it best be prevented? A. Carbon plates should not be boiled in paraffine. The end only of the plate should be heated foreign countries may be had on application, and persons and filled by dipping into melted paraffine, or by rubbing a piece of paraffine over the heated portion of the plate.

(2465) W. J. H. says: Would you please tell me through the next number of your SCIENTIFIC | WAY, New YORL.

for making steam? If so, please inform me about them. nomical term Milky Way and about what time this term How it answers, what it costs, etc. A. For naphtha came into use or whom it was first known to? I have (crude petroleum) firing of boilers, see our Supple- been a subscriber to the Scientific American for nearly two years through a news dealer, and I consider it one of the finest scientific papers there are. A. The "Galaxy" or Milky Way is from  $\gamma \alpha \lambda \alpha$  a Greek word signifying milk, and was so named by the early Greek astronomers from its irregular milky whiteness, not then supposed to be stars, but of a cloudy substance. The Latins called it Via Lactea.

> (2466) A. A. A. asks for a solution that felt may be dipped in, that will make it fireproof against soda is about the best fireproofing chemical. The trouble will be in adequately impregnating the felt with the solution.

> (2467) J. L. D. writes: I have a drum wo feet by three feet. How can I fill it with common illuminating gas, without the use of water in the drum, or without exhausting the air from the drum? A. Blow gas into and through it, the inlet pipe delivering it as near the top as possible. In a short time it will displace the air.

> (2468) W. F. S. asks: 1. Can plaster of Paris be made hard by some mixture so it will not break easily and will not lose its color? A. Yes. Mix it with 3 to 10 per cent of powdered marsh mallow root, 2. Will you please tell me how to make some hard white cement? A. Use above mixture. 3. Can this be moulded in plaster of Paris moulds? A. Yes. 4. If so, what will prevent it from sticking to the moulds? A. Oil the interior surface of the mould,

> (2469) W. F. B. asks (1) how to soften a rubber stamp that has grown hard. A. It cannot be done. 2. What to use to dilute hektograph ink that will not flow well. A. Use water or alcohol.

(2470) F. A. R. asks for a simple receipt or making furniture polish to clean old furniture. A. I think The simplest preparation is a mixture of 1 pint turbentine and 4 ounces finely scraped beeswax. A more complicated formula is: Beeswax 1/4 pound, linseed oil and spirits of turpentine each 1/2 gill. Either of these may be colored with alkanet root. For the latter, 1/4 ounce of the root should be melted up with the wax first. For the first, 1/2 ounce of the root may be added.

> (2471) C. H. H. asks (1) how to destroy the musty smell which we have so frequently in brick houses. A. To destroy this odor, keep the house well ventilated, allow no trees to grow near it, in order that plenty of sunlight may fall upon the walls. 2. The best work on designs for farm barns. A. We recommend and can supply "Barn Plans and Outbuildings," \$1.50.

> (2472) J. C. B. asks for a recipe for mildew-proofing awning. A. The following is the simplest. Dissolve separately 5 parts each of acetate of lead and of alum in sufficient water. Heat and mix warm. After standing pour off the clear solution, leaving the white residue of sulphate of lead, into 500 parts of water containing a little isinglass. Saturate awning by soaking for 24 hours in this solution. Many other formulas are given.

> (2473) L. J. E. asks for a formula for finger nail polish. A. Use putty powder, true oxide of tin, perfumed with otto of lavender and colored pink with cochineal if desired.

> (2474) G. L. S. asks: 1. How can the color in a meerschaum pipe be made to go to the top the regular bowl. This will color the upper edge. 2. Is thereany particular method to follow in coloring a meerschaum? A. No; simply use it for smoking, and clean occasionally, as directed in query No. 2364. 3. Please give directions for making a small induction a spark coil made by winding 3 or 4 pounds of insulated wire around a bundle of small iron wires, six inches long and an inch or so thick.

> (2475) P. C. N. asks (1) how to treat horn so it will become soft and pliable. A. Immerse in hot water. 2. How to prevent buckskin from becoming hard by washing. A. The only treatment is to waterproof it. This may be done by working neats foot oil and tallow into it by rubbing.

(2476) N. A. D. asks for an approved method for determining the air-dry weight of wood pulp such as is used in newspaper manufacture. A. Expose a weighed sample to the air, and weigh it until it reaches constant weight.

(2477) F. W. P. & F. E. E. ask: 1. What is a good liquid formula for cleansing and preserving the teeth and sweetening the breath? A. Any number of formulas can be given. The following is said to be very good: Carbonate of potash 1/2 ounce, honey 4 ounces, alcohol 2 ounces, water 10 ounces, flavor to suit with oil of rose and of wintergreen. 2. What is good to apply to the face after shaving, to keep it from getting re or festering around the roots of the hair? A. Cyanide of notassium 6 grains, glycerine 16 ounce strong camphor water 216 ounces, mix. This is poisonous and should be compounded by an apothecary. Only fresh cyanide of potassium should be used.

(2478) W. D. T. writes: I would like a receipt for cleaning straw hats. A. Brush over with soap and water; after washing off the soapsuds sponge with a weak solution of oralic acid

## TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for pa-tents at home and abroad, enable us to understand the aws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere aynopsis of the patent laws of the United States and all contemplating the securing of patents, either at home of abroad, are invited to write to this office for prices, which are low, in accordance with the times and our ex-MUNN & CO., office SCIENTIFIC AMERICAN, Sol Broad-

For which Letters Patent of the United States were Granted

September 23, 1890.

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|     | Bicycle<br>Bicycle<br>Block.  | lock, K. P<br>See Hat b                      | H. A. Got<br>D. Lacy<br>D. Ashbrod<br>Meier<br>ring carbor<br>orp<br>arke   | ing blo                    | ck.                                    | •••••          | 436,844<br>436,800             |
| Ī   | Blow to<br>Boiler.<br>Boiler, | ster, coin-<br>See Stear<br>D. Best          | controlled<br>n boiler.<br>guard bolt   | . J. M.<br>                | Akers                                  |                | 436,819<br>436,933             |
| t   | Bolt, G<br>Book b             | See Finger<br>. S. Smith.<br>acking ma       | chine, C. W<br>receipt an   | Zeltner                    |  |                | 437,054<br>437, <b>0</b> 66    |
|     | Book, a<br>Book, a            | h<br>hipping re                              | ceipt, J. H<br>ce, Ritter a<br>is, rotating   | owe                        | ra, H. 1.0                             | wen-           | 436,983<br>436,786             |
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| 9   | Car cor                       | struction,<br>upling, J. I                   | G. L. Harv  | 7еу                        | •••••                                  | <b></b>        | 436,893<br>437,092             |
|     | Car cou                       | ipling, B. I                                 | R. Hooks .<br>Kramer  | ••••••                     |  |                | 437,117<br>436.859             |
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| t   | Car, sle                      | eping, J. E<br>eel, J. A. I<br>eel, J. Mul   | acroix  | rt                         |  |                | 436.890<br>436,897<br>436,876  |
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| -   | Case.<br>Chair.<br>way        | See Clock o<br>See Conve<br>chair.           | Ayers G. L. Harr G. L. Harr G. L. Harr J. Godsey. Hooks Kramer J. Martin Sommerfel H. Emeri Harr J. Bovenpe Ligan Lig | ir. Ra                     | il chair.                              | Rail-          |                                |
|     | Chuck,<br>Churn<br>Churn      | car wheel,<br>motor, W.<br>power, J. S       | ertible cha<br>N. S. Bou<br>Omer<br>S. Dickey<br>ng clamp,<br>M. Lane   | ton                        | •••••••••••••••••••••••••••••••••••••• | ••••           | 436,886<br>436,992<br>437,100  |
| 3   | Clamp.<br>Clock,<br>Clock c   | See Sprii<br>alarm, A. I<br>ase, A. M.       | Omer S. Dickey  | •••••                      |  | ••••           | 436,922<br>436,919             |
| 7   | Clock i<br>Clock r<br>Clock s | tey, A. M.<br>bendulum,<br>ynchronize        | Lane<br>G. P. Reed<br>er, A. G. W   | isema                      | D                                      |                | 436,921<br>436,941<br>437,168  |
| •   | Clocks,<br>Coal or<br>Coke a  | duplex es<br>rock drill,<br>nd gas, apr      | capement :<br>Wantling<br>jaratus for   | for, C.<br>& Jubi<br>wakin | B. Hibbar<br>1801<br>g, C. N. Tr       | d<br>Աղաք      | 436.783<br>436.815<br>436.882  |
| 1   | Collar (<br>  Concen          | norse, C. A<br>or cuff, wat<br>itrator, C. 1 | i. Ludewig<br>erproof, J.<br>E. Seymou  | W. H                       | yatt                                   | •••••<br>••••• | 436,787<br>436,787<br>436,807  |
|     | Contac                        | t device, el<br>g vessel, E                  | lectric, J<br>A. Peck.  | naerso<br>L Hopi<br>∵ ∷∵∺  | es                                     |                | 436.874<br>436,903             |
| •   | Cores,<br>Corn h              | mould for<br>usker. J. S.<br>gin, roller     | Cuttell<br>F. H. Cha  | v. N. R                    | eddout                                 |                | 436,776<br>437,172             |
| 8   | Coupling                      | See Ca                                       | r coupling  | Elec                       | tric wire c                            | oup-           | 437,130                        |
| l   | Crutch<br>Cuff ho             | G. W. Do                                     | e   | 4 K S V II .               | ••••                                   |                | 437.074                        |
| 1   | Cultiva<br>Cultiva            | tor gang,<br>tor shovel                      | W. P. Snei  | op<br>lerson.              |  | •••••          | 436,957<br>436,911<br>496,959  |
| 1   | Cycle v<br>Dials, a<br>Door c | vheel, A. H<br>spindle for<br>heck, W. S     | I. Overman<br>timepiece,<br>hipsey  | м. ⊽.                      | B. Ethridg                             | ;е             | 436,99.5<br>436,973<br>436,809 |
| 3   | Door se<br>Drawin<br>Driil.   | scurer, A.                                   | D. Norton.<br>eingline. L   | . O. VI                    | ncent                                  |                | 4864H0<br>437,068              |
| ė   | Drinkii<br>Dynam<br>Ecrase    | ng fountair<br>os, speed i                   | n, automat<br>regulator f   | or, J. I<br>or, S. E       | . Houston<br>L. Nutting<br>cwhinnie    | •••••          | 437.031<br>436,901<br>437,148  |
| -   | Elastic<br>Electri<br>Electri | woven fat<br>c conduit,<br>c heater. I       | e, J. G. Ho e, J. G. Ho e, J. G. Ho e, J. G. Ho e, J. Wood  | , Jr., &<br>nd, C.<br>n    | Sawyer<br>E. Loth                      |                | 436,872<br>437,126<br>436,864  |
| 8   | Electri<br>Electri<br>Electri | c light sha<br>c machine<br>c wire cou       | de holder,<br>or motor,<br>pling, J. J.   | I. J. A<br>dynam<br>liinpi | twood<br>o. M. Maye<br>ney             | r              | 437.008<br>437.160<br>437.116  |
| l   | Electri<br>Electri<br>Ra      | c wire cou<br>cal appara<br>wson             | pling, F. R<br>tus, impre   | Jones<br>gnating           | g parts of,                            | F. L.          | 436,857<br>437,044             |

Rawson.

Engine. See Explosive engine. Gas engine.
Hoisting engine. Rotary engine. Rotary
steam engine. Steam engine. Traction en-

Engline, A. J. Bates.
Engline, A. J. Bates, turning point attachment for, A. E. Francis
Eraser, G. F. Deunerlohr.
Eraser, blackboard, H. E. Gardiner.
Eraser, state, S. S. Sloan.
Explosive engline, J. W. Eisenhuth.
Explosives, manufacture of, H. S. Maxim.
Eyeglass holder, J. H. Knowles.
Eyerlasses, J. King.
Eyerlasses, Emons & Bishop.
Fyerlasses, Emons & Bishop.
Fabric, See Eliastic woven fabric. Wire fabric.
Fare register, J. H. Rose. 436,863 436,863 436,936 436,898 436,831 437,121 436,971 Fare register, J. H. Rose.
Feed water, heating, C. H. Uhler.
Fence, M. T. Swope.
Fence post, C. A. Peterson
Fence post, E. Sims. Jr.
Fence posts, wire fastener for, W. Helfenberger.
Fence stay, wire, M. S. Tarkington
Fence, wire, E. Sims.
Fiber cleaning andipolishing machine, vegetable,
W. F. Falconer.
File, paper, J. M. Willis. 436,870

Floer cleaning and polishing machine, vegetable,
W. F. Falconer.
File, paper J. M. Willis.
Finger guard bolt, D. Woehrle.
S7,072
Fire alarm, J. H. Earles.
Fire alarm, portable electric, Upton & Dibble.
Fire alarm, portable electric, Upton & Dibble.
Fire ascape, J. D. Carr.
Fire escape, T. W. Mann
Freight, apparatus for handling coal, ore, or other, Thew.
Goetz, R. Thew.
Fuel, artificial, W. B. McClure.
Fuel, artificial, W. B. McClure.
Fuel, manufacturing artificial, W. B. McClure.
Furnace charging and discharging apparatus, M.
P. Higgins.
Furnace linings, apparatus for repairing, G. W.
Goetz.
Goetz.
Goetz.
Goetz.
Goetz.
Goetz.
435,703
436,856

P. Higgins.
Furnace linings, apparatus for repairing, G. W. Goetz...

Gaure. See Ring gauge. Spectacle gaure.
Game apparatus, W. C. Kanther...
Game counter, S. B. Jenkins.
Game counter, S. Stieglitz
Garment supporter, W. H. Plumb
Gas, apparatus for making hydrogen, J. W. Tallmadge. manke. 436,812
Gas, apparatus for the manufacture of oil, D. E.
'Feal.... Teal

Teal

Gas burner, coal oil, G. Beck,
Gas generator, C. W. Gibson,
Gas generators, stand pipe for ammonia, Poschinger & Voot

| 220   |  |                              |
|---|--|------------------------------|
| Gas meter, J. W. Culmer   | 437,020<br>437,098                               | Refi<br>Refi<br>t            |
| Gate, E. H. Boyce. Generator. Generator. Glass, annealing oven for plate, R. G. Guptill Glass rolling mechanism, plate, R. G. Guptill Glassware. machine for pressing and blowing, E.   |  | Reg<br>Rein<br>Resi<br>Rhe   |
| Glassware, machine for pressing and blowing, E. & J. A. Jones   | 436,790  | Ring<br>Roc<br>Roll          |
| Glassware, machine for pressing and blowing, E. & J. A. Jones.  Glazed structures, sheet metal bar for, W. F. Mills.  Glove fastener, A. G. Mead  Glove fastener, A. J. Shipley.  Governor, J. F. Kirby.  Grain binder cord holder, H. E. Pridmore.   | 437,129<br>437,161<br>437,004<br>436,938         | Root<br>Rota<br>Rota<br>Rub  |
| Grain binder cord holder, H. E. Pridmore  | 436,909<br>436,813<br>437,087                    | Rule<br>Rule<br>Sad<br>San   |
| Grip or clamp, J. W. Crawford. Grooved switch, W. H. S. Wright. Guard. See Counter guard.   | 4:6,967<br>436,944                               | Sast<br>Sast<br>Sast         |
| Gums, envelopes, etc. moistening device for, R. E. Booraem  | 436,822<br>436,899<br>436,965                    | Saw<br>Saw<br>Scal<br>Scal   |
| Gunstock, skeleton, H. M. Quackenbush   | 436,997<br>437,140<br>437,064                    | Scal<br>Scal<br>Scar         |
| Hanger. See Pipe hanger.<br>Harness, Lovett & Purcell.<br>Harrow, disk, C. La Dow.  | 437,159<br>437,124<br>436,798                    | Scre<br>Scre<br>Seat<br>Seet |
| Glove fastener, A. J. Shipley. Governor, J. F. Kirby Grain binder cord holder, H. E. Pridmore. Grain binder cord holder, H. E. Pridmore. Grate, J. Tontz. Grinding mill, W. Buchholz. Grinding mill, H. H. Coles. Grip or clamp, J. W. Crawford. Grooved switch, W. H. S. Wright. Guard. See Counter guard. Gums, neveloes, etc. moistening device for, R. E. Boractic, H. S. Maxim. Gun, breech-loading, J. M. & M. S. Browning. Gun, breech-loading, J. M. & M. S. Browning. Gunstock, scieton, H. M. Quacken bush. Gypsum, calcining, J. Sickler Hame hook, J. H. Watson. Handle. See Lock handle. Velocipede handle. Hanger, See Pipe hanger, Harness, Lovett & Purcell. Harrow, disk, C. Las Dow. Harvester, Cott, J. Armstrong, Harvester, corn, W. W. Burson. Harvester, cotton, G. Beekman Harvesting machine, J. C. Harding, Hasplock, combination, W. J. Mundt. Hat block, G. F. Larkin. Hat block, G. F. Larkin. | 436.885<br>436.823<br>436.770                    | Sew<br>Sew<br>Sew<br>Sew     |
| Hasplock, combination, W. J. Mundt Hat block, G. F. Larkin Hat bodies, apparatus for dipping, H. M. Chitten-  | 437.084<br>436,833                               | Sew<br>Sha<br>She            |
| den Hat or bonnet fastener, L. Rosenfeld  | 487.046<br>437,132<br>437,146                    | Ship<br>Sho<br>Sho<br>Sign   |
| W. Wiesebrock   | 437,069<br>437.088                               | Solo                         |
| Hat or bonnet fastener, L. Rosenfeld  | 200,020  | Spe<br>Spir<br>Spo<br>Spr    |
| Hook, See Cant, book, Hame book, Lacing   |  | Spr<br>Star<br>Star          |
| hook. Horseshoe, A. N. Green. Horseshoe, G. W. Rice. Hydrocarbon oil, apparatus for burning, J. S. Hull. Hydrocarbon oil burner, J. T. Black.   | 436,803  <br>436,918<br>437,013                  | Stat<br>Ster<br>Ster         |
| Hull. Hydrocarbon oil burner. J. T. Black Incandescent burner, C. B. Harris. Indicator. See Heat indicator. Station indicator. Wafer closet indicator. Inbaler. K. W. Wissebrock  | 437.114  | Stir<br>Stor<br>Stor         |
| Inhaler, F. W. Wiesebrock Injector, D. Best Inkstands, adjustable pen rest for, H. C. Thom- son (r) Insecticide, Farwell & Rhines Iron. See Carriage wear iron. Iron in cunols furnaces, remelting, H. J. Graf  | 436,932<br>11,112<br>436,848                     | Stor<br>Sup                  |
| lack Soc Lifting look Bagging to ok   | 2011100  | Swi<br>Swi                   |
| Joint. See Pipe joint. Key. See Clock key. Kneading or mixing device, dough, F. C. Davis Knife. See Pocket knife. Knife. W. P. Bailey Knitting machine thread guide, J. Power   | 437,099  | Tar<br>Tar<br>Tel            |
| Knitting machine thread guide, J. Power Knitting machines, yielding cam stop forstraight H. M. Jecura<br>Lacing hook, H. T. Sperry Lacing hook, H. T. Sperry Lamp electric as to tool for finishing, C. Hamm  | 436,996<br>436,982                               | Th<br>Tin                    |
| Lamp chimneys, etc., tool for finishing, C. Hamm<br>Lamp, electric arc, A. Wagniere<br>Lamp, safety, J. Thorne  | 437,154<br>436,814<br>437,061                    | Toy<br>Tra<br>Tra            |
| Lasting machine, K. S. Combs  Lasting machine, Combs & Goodhue  Lasting machine, I. N. Forbes  Lasting machine, I. N. Forbes  Lasting machine, I. W. Forbes   | 436,772<br>436,778<br>436,853                    | Tri<br>Tro                   |
| Lamp chimneys, etc., tool for finishing, C. Hamm Lamp, electric arc, A. Wagniere Lamp, safety, J. Thorne Lamp, safety apparatus, oil, J. Stark Lasting machine, E. S. Combs Lasting machine, Combs & Goodhue Lasting machine, I. N. Forbes Latch and lock combined, D. E. Grant Lathes, speed changing mechanism for, L. K Whiton Laurdry table, M. McClure Lawu synable, M. McClure Lawu synable, M. McClure Lawu synable, D. A. Hovt.   | 437,069<br>436,839                               | Tru<br>Tul<br>Tw             |
| Lawn sprinkler, T. Scheen Lawns, metallic edging for, W. Bicknell   | 436,942<br>436,821                               | Tyl<br>Tyl<br>Tyl            |
| Lifting lack, J. W. Aired Lifting lack, H. Wilson Lock. See Bicycle lock. Hasp lock. Lock handle. N. G. Sorensen  | 436,943  | Tyl<br>Tyl<br>Un             |
| Lifter. See Transom lifter. Lifting jack, J. W. Alfred. Lifting jack, H. Wilson. Lock. See Bicycle lock. Hasp lock. Lock handle. N. G. Sorensen. Locomotive driver brake, G. A. Boyden. Locom, G. A. & J. F. Greere Lubricator, C. C. Rueger. Lumber assorter, J. B. Mahaffey. Match. W. M. Nix. Match splints, machine for making, G. E. Norris Measure, rotary, W. C. Wells. Measuring device, grain, M. Cashin. Meter. See Gas meter.  | 436.937<br>436.927<br>436.934                    | Un<br>Ute<br>Va<br>Va<br>Ve  |
| Match, wal. M. M. M. M. Match, walley, Match splints, machine for making, G. E. Norris Measure, rotary, W. C. Wells.  Measuring device, grain, M. Cashin  | 436,991<br>437,065<br>437,093                    | Ve<br>Ve<br>Ve<br>Ve         |
| Mill. See Grinding mlll. Ore mill.  Mop and wringer, combined. C. A. Chisholm  Motor. See Churn mytor. Thermo motor.  | . 437,143  | Ve<br>Ve<br>Ve               |
| Mntor, J. F. Weddendorf. Mower, P. & L. P. Lorenz Mower, J. A. & A. A. Peterkin Mowing machine, B. Branson. Mowing machine, R. 11. Dixon Nailing machine, A. H. Wolcott. Nautical magnetic tracer apparatus, F. Aram  | . 436,947<br>. 436,878<br>. 436,912              | Ve<br>Vir<br>Vic<br>Vis      |
| Nailing machine, A. H. Wolcott. Nautical magnetic tracer apparatus, F. Aram buru Oil burner, G. P. Way  | 437,169  | Wa<br>Wa<br>Wa<br>Wa         |
| Oil transporting tank and wagon, H. McFarland.<br>Optical instrument, coin-controlled, E. J. Colby.   | . 436,840  | We                           |
| Organ, reed, J. Peloubet Osteotome, electro, M. J. Roberts Ovster beds, machine for removing star fish from   | . 437,131<br>. 436,804                           | WI<br>WI                     |
| S. M. Corwin. Paint or varnish, apparatus for polishing, F. Har rington. Pallets, fastening for escapement, A. M. Lane  | . 496,892<br>. 436,920                           | Wi<br>Wi<br>Wi<br>Wi<br>Wi   |
| Paint or varnish, apparatus for polishing, F. Har rington. Pallets, fastening for escapement, A. M. Lane. Pans, making muffin or bake, C. L. Wagandt. Paper hanging machine, P. McQueney. Paper holder and cutter, roll, S. C. Jobes. Paying block, D. E. WcDowell. Pegging jack, J. F. Fiske Pen for swine, breeding, B. F. Osborn. Pertorating machine, L. H. Stellmann.  | . 436,924<br>. 436,789<br>. 436,989              | Wi<br>Wi                     |
| Photomechanical printing plates, producing, R   | l  | Wi<br>Wi<br>Wa               |
| Photographic apparatus, coin-operated, C. H. C. Foge et al.   | . 437,104  |                              |
| ton. Pigtrough, S. E. Smith. Pipe covering, steam, Palmer & Baier. Pipe hanger, E. V. Clemens.  | . 436,956<br>. 436,956<br>. 487,041<br>. 437,018 | Ba                           |
| Photographic camera shutter, F. A. Hethering ton Pigtrough, S. E. Smith Pipe covering, steam, Palmer & Baier Pipe hanger, E. V. Clemens Pipe joint, E. V. Clemens Pipe joint, E. V. Clemens Pipe jointing apparatus, J. F. Fischer Pianter and fertilizer distributer, corn and cotto seed, T. M. Varbrough   | 437,019<br>436,915<br>436,914                    | Bu<br>Ca<br>Ca               |
| seed, T. M. Yarbrough. Planter, seed, J. H. Gardner. Plow evener, J. A. Kenney. Plow, wheel, W. H. Melder. Pocket knife, B. Von Bultzingslowen et al. Polishing and buffing device, W. Church. Popcorn balls, mould for making, Wiatt & Pickeling.  | . 437,075<br>. 436,871<br>. 437,032<br>. 436,985 | Pa<br>Pe<br>Pe               |
|   | . 436,888<br>. 436,868<br>. 436,818              | Ru                           |
| Power. See Churn power.   | ).<br>43/3,843                                   | Bu                           |
| O. Smith.  Power transmitting apparatus, T. A. Edison.  Press. See Baling press. Hay press. Power press.  |  | I D:                         |
| Pressure governor, fluid, G. Kimball  | <b>4</b> 37,078<br>436,931                       | Gi                           |
| Printing press attachment. W. E. Freer. Printing presses, ink fount for, Cormack & Whi  | 437,105<br>t-<br>436,847                         | Li                           |
| Whitlock  | 436,846<br>436,817<br>436,769<br>436,802         | Ni<br>Pa                     |
| Pulley, split, 11. C. Lewis Pump, measuring. L. D. & P. W. Miller Puzzle, block, J. A. Rueg er Rack See Show sack   | 437,125<br>437,162<br>437.002                    | Re<br>Sh                     |
| Rail chair, A. J. Maxham<br>Rail chair, girder, A. J. Maxham<br>Rail joint fastener, C. G. Patterson.   | 436,988<br>436,987<br>436,995                    | W                            |
| Railway, electric. R. M. Hunter. Railway, electric. H. W. Libbey Railway frog, A. M. Grubbs Railway gate, J. B. Carey Railway, pneumatic, J. B. Kelley. Railway, signal, mechanical and electrical, B. I  | 437,158<br>436,923<br>436,906<br>437,089         | th<br>an<br>Co               |
| Railway, pneumatic, J. B. Kelley. Railway signal, mechanical and electrical, B. 1 Davidson. Railway time plate. C. D. Halsey. Railway time signal, B. R. Davidson. Railway rails, brace char for, M. M. Suppes. Bailway, fog signaling appa rafus for, I. F. Taylo  | 36 946<br>486,777<br>437,153                     | ingo                         |
| Railway time signal, B. R. Davidson   | 436.913<br>436.959<br>or 436.64                  | ea<br>fu                     |

|     |  |  | <u>«</u> |
|-----|--|--|----------|
| ï   |  | 457.100                                | ľ        |
|     | Refrigerator car. M. A. Garrett  | 437,107                                |          |
|     | Register. See Fare register.   | 437,009                                |          |
| ļ   | Resistance, artificial, E. M. Bentley  | 437,011                                |          |
| !   | Ring gauge, A. W. Engel  | 436.972<br>437.061                     | ۱<br>۱   |
| :   | Roll pass, M. M. Suppes  | 436,960                                | t        |
|     | Rotary engine, B. B. Bower. Rotary steam engine, G. Abrama   | 436,867                                | 1        |
| :   | Rubber shows, heel protector for, J. Siegel<br>Ruler and ink pad. combined, W. J. Boynton  | 437,049<br>436,887                     | !        |
| İ   | Ruler, parallel, B. E. Sawyer  | 436,842<br>436,951                     |          |
| 1   | Register. See Fare register. Rein holder, L. Larson. Resistance, artificial, E. M. Bentley. Rheostat, J. H. Gunning. Rheostat, J. H. Gunning. Rock drills, cylinder head for. G. J. Slining. Rock drills, cylinder head for. G. J. Slining. Rock drills, cylinder head for. G. J. Slining. Roll pass, M. M. Suppes. Roofing material, fabric, R. S. Merrill. Rotary engine, B. B. Bower. Rotary steam engine, G. Abrams. Rubber shoes, heal protector for, J. Slegel. Ruler and ink pad, combined, W. J. Boynton. Ruler, parallel, B. E. Sawyer. Sad iron, F. B. Thaler. Sand screen, P. Drendul Sash fastener, F. E. Drake. Sash fastener, J. Pinard Sash fastener, A. B. Richardson. Saw, circular, W. A. Miller. Sawing machine, J. H. Raymond. | 437.025<br>437,103                     |          |
| İ   | Sash fastener, Z. Pinard Sash fastener, A. B. Richardson   | 436,841<br>436,926                     | i        |
| i   | Saw, circular, W. A. Miller.<br>Sawing machine, J. H. Raymond.<br>Scafold, A. T. Sears   | 487,128<br>4.37,138                    |          |
| i   | Scafloid. A. T. Sears Scales, automatic grain weighing, Gunder & Pierce Scales, coin-controlled weighing, W. R. Smith Scales, nendulum, J. B. Martin.  | 430,806                                |          |
|     | Scales, coin-controlled weighing, W. R. Smith  | 437.166                                |          |
| į   | Scarf fastener Q E Surgi   | 497 (160                               |          |
| į   | Screen. See Sand screen. Screw,roof, D. B. Corley. Seat. See Car seat.   | 486,775                                |          |
|     | Screw, roof, D. B. Coriey. Seat. See Car seat. Seed hulls, treating cotton, E. Bohn. Sewing looped fabrics, machine for, N. H. Bruce. Sewing machine cover, E. H. Craige. Sewing machine looping device, W. E. Bennett Sewing machine shuttle, L. A. Miller. Sewing machine shuttle and shuttle carrier, P. Diehl Shaft attachment, wehicle, D. S. Field. Sheet metal notcher, J. H. Killer.   | 437,084                                | ı        |
|     | Sewing machine cover, E. H. Craige   | 437,142<br>437,145<br>437,083          | ľ        |
| :   | Sewing machine shuttle, L. A. Miller   | 436,837                                | ļ        |
| i   | Sewing machine shuttle and shuttle carrier, P. Diehl. Shaft attachment, vehicle, D. S. Field. Sheet metal notcher, J. H. Eller. Shipping can, C. D. Chase Showel. See Cultivator shovel. Show rack, T. F. McGann   | 437,023<br>436 945                     | İ        |
| i   | Sheet metal notcher, J. H. Eller   | 436,826<br>437,094                     | l        |
|     | Shovel. See Cultivator shovel. Showrack, T. F. McGann  | 437,036                                | ļ        |
|     |  |  | l        |
| ļ   | Soldering vent holes in can tops, machine for, J. G. Hodgson   | 436,785                                |          |
|     | Spectacle gauge, M. J. Hinden  | 477.020<br>477.022                     | i        |
|     | Spring clamp and fastener, C. McPike   | 436,838<br>437,037                     | ĺ        |
|     | Sprinkler. See Lawn sprinkler.<br>Stage scenery, J. F. Byrnes  | 437,016                                |          |
|     | Stage scenery, mechanical horse for, J. F. Byrnes<br>Stall floor, A. Goodyear  | 437.015<br>436,778                     | l        |
|     | Steam boiler, C. Otis  | 437,001<br>437,040                     |          |
|     | Stereotypes, adjustable drying frame for matrices  | 457,057                                |          |
|     | or moulds for, C. Ostermann  | 437,108                                |          |
|     | Stirrup, F. A. Goodridge.<br>Stove, base burning, A. H. Pegg<br>stovelbood, E. J. Smith<br>Stove oven, J. Jewett.<br>Supporter. See Garment supporter. Uterine   | 436,052                                |          |
|     | Supporter. See Garment supporter. Uterine  | * 10,100                               | Ì        |
|     | supporter. Switch. See Grooved switch. Switch. C.H. Hobson Swing, T. W. Bowen Syringe, hypodermic, Fergen & Macwhinnie Table. See Laundry table.   | 437 156                                | ļ        |
|     | Swing, T. W. Bowen Syringe, hynodermic, Fergen & Macwhinnia  | 457,014                                | l        |
|     | Table. See Laundry table. Tank. See Oil transporting tank.   | -011270                                | l        |
|     | Table. See Laundry table. Tank. See Oil transporting tank. Tapping machine. H. W. Honeyman Telephone exchange system, E. M. Bentley, 137,010.  | 457,157                                | ł        |
|     | 437,010,<br>Thermo motor, internal combustion, J. Har-   | 437.012                                | ļ        |
|     | Tinning or retinning pans, machinery for, J.   | 436,781                                | 1        |
| ,   |  |  |          |
|     | Toy, Bandy & Cole Trace carrier, A. B. Clark Traction engine, D. Best. Transom lifter, E. Herg.  | 437.006<br>436,931                     |          |
|     | Transom lifter, E. Herz Trimmer. See Wick trimmer. Trough. See Pig trough. Truck, car, J. Taylor Truck, electric motor car, R. W. Goss. Trucks, corner iron for, W. B. Morris Tube. See Wick tube. Twine making machine, G. A. Lowry.  | 401,110                                | l        |
|     | Truck, car, J. Taylor  | 437,167                                | l        |
|     | Trucks, corner iron for, W. B. Morris  | 436,986                                | l        |
| 1   | Tube. See Wick tube. Twine making machine, G. A. Lowry Typewriting machine, W. J. Barron Typewriting machine, W. M. Carpenter. Typewriting machine, J. B. Gathright. Typowriting machine, H. R. Kennedy Typograph, J. R. Bright. Typograph, J. R. Rowers. Umbrella sticks, inscription device for, J. Mc-Laughlin.   | 436,908<br>436,820                     | į        |
|     | Typewriting machine, W. M. Carpenter   | 437,090<br>436,916                     | 1        |
| ,   | Typewriting machine, H. R. Kennedy   | 437,119<br>437,141                     | į        |
|     | Typograph, J. R. Rogers. Umbrella sticks, inscription device for, J. Mc-   | 437,139                                |          |
| l   | Laughlin Underwaist, G. M. Sigsbee Uterine supporter, A. T. Sherwood.  | 436,799<br>436,852                     | 1        |
| 7   | Valve, steam actuated, D. E. Kempster  | 4:36,861<br>436,830                    |          |
| 7   | Valve, steam actuated, D. E. Kempater. Valve, stop, G. Adam   Vehicle, C. J. Sullivan Vehicle curtain fastener, J. Watters. Vehicle top, R. D. Morrison Velocipede, R. Flachs   Velocipede hundle M. Hoyt  | . 436,9854<br>. 436,949<br>. 492 040   |          |
|     | Vehicle top, R. D. Morrison  | 436,900                                | 1        |
| •   | Velocipede, E. E. Hardy  | 436,873                                |          |
| 3   | Velocipede, E. E. Hardy Velocipede handle, M. Hoyt. Velocipede, railway, I. E. Stump. Velocipedes, electric signal for, C. G. Jiran Vending apparatus, J. Schofield. Veneer and board cutting machine, G. A. Oncken Vine securing device, J. Stangl. Violins, base bar for, M. W. White Vise, punch, and drill, combined, J. N. Sargent. Wall decoration, J. C. Haire. Walls, ornamentation of, M. B. Church. Washing machine, C. W. Leubner.  | 436,911<br>436,979                     |          |
| )   | Vending apparatus, J. SchoffeldVencer and board cutting machine, G. A. Oncken  | . 437,048<br>. 437,089                 |          |
| 3   | Vine securing device, J. Stangl. Violins, base bar for, M. W. White  | . <b>437.</b> 056<br>. <b>43</b> 6.963 | ļ        |
| Š   | Vise, punch, and drill, combined, J. N. Sargent Wall decoration, J. C. Haire   | . 43 <b>7.</b> 047<br>. 437,112        |          |
| 9   | Washing machine, C. W. Leubner   | . 437,095<br>. 436,794                 | i        |
| 9   | Washing machine, C. W. Leubner. Water closet indicator, J. Dibrberg Weighing machine, electrical, W. Snelgrove. Well sinking machines, point for, J. R. & W. B   | . 437,101<br>. 436,910                 |          |
| 3   | Well sinking machines, point for, J. R. & W. B. Coffin   | 436,889                                | ,        |
|     |  |  | ,        |
| 5   | Whiffetree, G. J. Smith  | . 437,127                              |          |
| 2   | Wick tube and attachment, J. McConnell   | 436,948                                | إز       |
| Š   | Window bead fastener. M. Lane  | 436.94                                 | )        |
| 4   | Wire fabric, J. Hancock  | 436347                                 | į        |
| 9   | Winding drum, J. M. Chaffield. Window bead fastener. M. Lane. Wire drawing drum, W. W. Shearer. Wire fabric, J. Hancock. Wire. method of and apparatus fordrawing, T. A. Edison. Wire stretchers, gripper for, C. La Grange. Wood charleling mech. guide for A. B. Cameron.  | 436.969<br>436.83                      | 9        |
| 200 |  |  | ;        |
| 0   | Wrench, C. W. Dixon<br>Yarn dressers, section tension indicator for, T. J<br>Sands   | •                                      |          |
| 1   |  |  |          |
| 5   | DESIGNS.   |  |          |
| ;   | Radge N S Roynton  | 20 150                                 | ı l      |

| DESIGNS.   |  |
|--|--|
| Badge, N. S. Boynton. Book or album leaf, E. G. Thorp Box, M. J. Bogert. Button hook, W. J. Keys. Cane or umbrells handle, A. Rosenstein 20,152to Cane or umbrella handle plate, F. H. La Pierre Music rack, W. P. Haynes Paddle, G. Rabert, Jr. Pen tip, C. W. Boman Pen case, C. W. Boman Rug, W. T. Smith Type, font of printing, H. Ihlenburg. | 20,166<br>20,167<br>20,164<br>20,176<br>20,168<br>20,161<br>20,157<br>20,158<br>20,168 |
|  |  |

## TRADE MARKS.

| Buttons covered with pure dye sewing silk braid,   |        |
|--|--------|
| Newell Brothers Manufacturing Co 18.451.           | 18,452 |
| Canned fruits and vegetables, C. Meyer & Co        | 18.45  |
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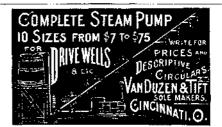
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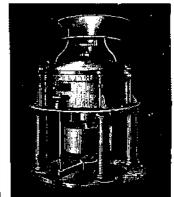


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