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# SCIENTIFIC AMERICAN

## BUILDING EDITION

### NOVEMBER NUMBER.-(No. 37.)

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#### HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question.

quirles 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.

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

Winerals sent for examination should be distinctly marked or labeled.

(1) G. A. asks for a receipt how to make waterproof writing ink, an ink which will not by two hydraulic elevators). In excellent order. For blur if the writing is exposed to rain. A. Dissolve 2 ounces shellac in 1 pint alcohol (95 per cent), filter through chalk, and mix with best lampblack.

(2) D. H. A. asks: What is the best known substance or preparation that will waterproof canvas and make it mildewproof and proof against rot? What is the best known waterproof cement for canvas, that will make sewed seams in canvas waterproof? A. We recommend paraffine applied to the perfectly dry tissue and melted in with a hot sadiron, for both purposes, or 1 pint linseed oil and 1 ounce beeswax may be mixed and applied with a brush and allowed to dry before use,

(3) C. S.—Any conductor, carbon or metal, is heated by the electric current. Lime is a non conductor and will not be heated.

(4) W. B. asks what ingredients so use in dissolving gum shellac in water. A. Borax.

(5) W. W. W. seeks information as to the best methods of making magic lantern slides from dry plate negatives. By what is known as the "wet plate process" very good slides are easily made, but it is somewhat messy and is productive of blackened fingers. The glass plate, after being thoroughly cleaned, is coated with collodion, which can be bought ready made from dealers in photographic supplies, and next sensitized by dipping for a minute or two in nitrate of silver bath prepared as follows:

Nitrate of silver......437 grs. Distilled water..... 16 oz.

Saturate the solution with iodide of silver and then filter. If the bath is milky, set the bottle in the sun for two days, until the solution clears up. Then decant, and it will be ready for use. After sensitizing, the plate, while wet is at once exposed in the camera, then removed from the plate holder and immediately developed with the following solution:

| Protosulphate of iron | g oz. |
|-----------------------|-------|
| Nitrate of baryta 1   | oz.   |
| Water16               | oz.   |
| Alcohol 1             | oz.   |
| Nitrle seid 40        | drone |

After dissolving, filter out the white deposit and keep well corked. When developed, it is washed under the tap and fixed in a solution either of:

| • | Cyanide of potassium | 30 grs. |
|---|----------------------|---------|
|   | Water                | 1 oz.   |
| r |                      |         |

Hyposulphite of soda....... 50 grs.

The cyanide of potassium is a deadly poison, and is only advantageous to employ when it is desired to tone the slide to a blue color soon after fixing. When hyposulphite of soda is used, the plate should be thoroughly washed under the tap for two or three minutes. After fixing, the slide may be toned to a brown color by a solution of chloride of gold 1 gr., dissolved in 10 oz. of water, or instead a purple color, by a solution of 1/4 grain of bichloride of palladium to one ounce of water, in a clean porcelain dish or tray. The solution should be strawberry in color. The plate should be left in the tray until the film assumes a black color on both sides, when looked at byreflected light. The tones are more easily obtained when the slide is fixed with cyanide of potassium. Very good slow gelatino-bromide plates cau be purchased, known as lantern or transparency plates. These may be exposed in the camera, or by contact with Polishing granite.—Substitute for white pine.—The Several plates, 4 or 6, may be developed at one time in On the contrary, cold, moist air may be saturated with moniac sprinkled on tin will make it flow free and clear. hardy blue passion flower, illustrated. -Ivy on this developer, and are then removed as fast as deve- water and has little or no capacity for further absorploped.

(6) St. M. I. asks (1) for a simple method of purifying and decolorizing crude bitartrate of potassium as obtained from wine casks. I have a certain quantity on hand and would like to decolorize it. Indicate any method, but the simplest is preferable. A. The tartar, previously pulverized, is boiled with water in copper boilers. The solution when saturated is transferred to earthen pans, where it deposits on cooling a crystalline layer, nearly free from color. This is redissolved in boiling water, and the solution, having been mixed with 4 or 5 per cent of pipe clay, is evaporated to a pellicle. The clay precipitates with the cold oring matter, and the clear solution, as it cools, deposits the oil with alcohol. 2. Can you describe something to white crystals in crusts, which, upon being exposed to harden crayon pencil and charcoal drawings and the air on linen for several days, acquire an increased degree of whiteness. These constitute the crystals of tartar of pharmacy. 2. We find some difficulty in working the Toepler-Holtz frictional machine, and are skimmed milk over it. When well wet all over, raise into | A. Lime cannot always be removed from water by filunable to place the cause; for, a year ago, it worked after | a vertical position and allow it to drain, removing with | tration. Sometimes it has to be boiled to secure precipiturning but a few times, and now it requires quite a a feather the last drops from bottom edge. Dry care tation, sometimes it cannot be practically removed by length of time to charge it. If the plates are to be variable of t Wipe off with a warm dry cloth all parts of the ma- camel's hair brush,

chine. Dust as well as moisture interferes with its action. The varnish for the plates is alcoholic solution of shellac. 3. How many 1 gallon Bunsen cells are required to run two six-candle power lamps? A. About ten celle.

(7) W. J. M. asks: 1. What is the vulcanized fiber washer that clamps the glass disks to the bosses in a Wimshurst influence machine composed of, and how made? A. They are made of India rubber, sulphur, and other substances. You'can buy it in large or small pieces of dealers in electrical supplies. 2. I have a Holtz machine, and the amalgam in using is mercury, tin, and zinc. I am told there is a better amalgam which is of an old gold color. Can you tell me how to make it? A. It is bisulphide of tin, the old aurum mussivum, formed by sublimation from an amalgam of tin 1 part, mercury 6 parts. Of this amalgam 18 parts are mixed with 6 parts salammoniac and 7 parts sulphur. The bisulphide of tin remains behind in the retort. No amalgam should be used on a Holtz machine. 3. Are dry cells which are made in Germany equal to the Leclanche cell? Can you inform me what they are composed of a A. Dry cells are of rather high resistance. Gelatin or agar-agar jelly is used in them instead of water. 4. What chemical is it you apply to a file so you can file glass? A. Turpentine and camphor or simple water. -We can give no information as to the gas lighter you

(8) J. H. K. asks: 1. Will the motor described in Scientific American. March 17, run an ordinary tricycle and about what speed? A. It should develop a speed of about 8 miles an hour. The trouble would be to get a compact and light battery. 2. Is there any good paste to make paper adhere to a brick wall exposed to the weather? A. Shellac is the best we can recommend, and that is imperfect. Tack muslin over the wall and stick paper to that. 3. I have read with a great deal of interest the articles on speed of railroad trains, and would like to know the fastest time ever made, and where and when? A. On the New York, West Shore and Buffalo Railroad, between Churchville and Geneva Junction, on July 9, 1885, a special train attained a speed of 87 miles per hour. It ran 422.6 miles in 9 hours and 23 minutes

(9) D. J. B. - You cannot keep the bright color of polished iron on the hot parts of an engine without constant attention and wiping with engine Oxalic acid may help the cleaning, but the acid left on the bright surface favors oxidation. For cleaning, use tripoli, rotten stone, or pulverized pumice stone, with engine or kerosene oil. Neglected or dirty spots may be removed with a scraper and fine emery paper, and afterward rubbed with oil. Every part of bright work around an engine should be wiped with oil. Moisture immediately discolors a clean bright surface. Polish the lubricator with rotten stone and oil only, and only when necessary. Too much polishing soon makes it look old from wear.

(10) G. asks how to make the preparation whereby solder will readily affix itself to other metal than tin; for instance, brass wire, etc. A. Use a solution of chloride of zinc and chloride of ammonium, or what is called tinner's acid, which you can make by dissolving zinc in hydrochloric acid to saturation. Add 10 to 20 per cent water and as much sal-ammoniac as the bulk of zinc dissolved.

(11) C. F. R. asks a formula for giving green color to finished steel. A. We know of none that will wear well. The sulphide of lead process gives a film of variegated colors, which may be covered with lacquer. The article must be perfectly clean, with a dead finish, then dip in a solution of 1½ ounces hyposulphite sods in 1 pint water, in porcelain dish, to which add 11/2 ounces acetate of lead previously dissolved in 1 pint of water. Mix and heat the whole to nearly boiling, 200°. Boil the article in caustic soda and water strong enough to clear of grease or finger marks, rinse in boiling water. Dip in the hot solution and examine until the desired color is obtained, which may be seconds or minutes. The effect runs through several colors in

(12) Yacht.—The determination of the draught lines of a yacht is not an easy matter for an amateur. The weight of all the materials composing the hull, rigging. ballast, and furniture of the yacht must be computed from the details of the design, and the displacement of an equal weight of water computed within the lines of the boat. For the details of construction we refer you to Scientific American Sup-PLEMENT, Nos. 42 and 67, also "Model Yachts and Model Yacht Sailing," by Walton, which we can mail for \$1.25.

(13) P. H. G. asks (1) why steam exhausted into the atmosphere on a cold day lasts much a negative. Then they are developed in solution of longer than the same amount exhausted on a hot sumhydrochinon 15 grains, sulphite sodium 50 grs., water | mer's day. A. In a hot, dry air the steam is instantly 11/2 ozs., carbonate of potassium 30 grs., and fixed in a absorbed by the air and becomes transparent, warm, solution of hyposulphite of soda 1. oz. to 8 of water. dry air having a large capacity for holding moisture. Then the exhaust floats away in What is the cause of that peculiar roar which often issues from elevated road locomotives? A. The roar you refer to is probably that caused by the vibration of the safety valve in blowing off. As it is held by a spring only, it at times vibrates or chatters when the steam pressure is just enough to barely lift the valve.

(14) V. M. C. writes: 1. Can you descripe any process by which drawing paper can be made perfectly transparent temporarily, that is, to have it ome back to its regular appearance and condition again after the process, when required? A. Treat with castor oil, and it will be transparent : lafterward dissolve out sketches so that they will not fade soon or rub off; some-

(15) J. D. B. and E. R. C. ask: 1. The inedients, and their proportion, for the best cement to attach bicycle tires to their wheels? A. You can make a very strong and tough cement by dissolving 1 part pure India rubber in 12 parts benzine, then adding 20 parts shellac, and heat carefully away from fire until the shellac is dissolved and the benzine has evaporated. 2. Is there any work published treating of the manufacture of bicycles? A. No, except as you will see the different styles described in trade catalogues. 3. Is there a work on japanning or enameling, giving description of best arrangement of drying ovens, etc.? A. You will find an article on japans and japanning in Scientific American SUPPLEMENT, No. 316. Also see "Workshop Receipts," third series, which we mail for \$2.

(16) B. M. P .- Tell your friend the finest stationary engines made in the world, for  $\epsilon$ conomy, durability, and elegance in design, are made in the United States of America. English engines are often bulky and clumsy. French engines are frequently erratic in design and fragile in construction.

(17) D. M. M. asks if there is any way to extract the oil from lamb's wool in alcohol. What proportion of alcohol to wool should be used? Will the result besolid like lard or look more like the alcohol? I have tried the experiment of boiling both together, but it does not seem to change either. Perhaps you will tell me why. A. For extraction of oil we should advise the use of ether and a continuous fat extractor. On exposing the ethereal solution to the open air, the ether will spontaneously evaporate, leaving the oil. We doubt if you extracted much with alcohol, as the latter is readily diluted by any water in the wool. Such an extractor as we refer to is described in Scientific Ameri-CAN SUPPLEMENT, No. 628. The oil will probably be yellow and thick as butter.

(18) D. T. S. asks: 1. Whether or not there is any way of preserving (permanently) the beautiful polish of which copper is susceptible. A. Varnishing with shellac while the metal is warm and absolutely free from the least particle of grease is a good method. 2. Can you give recipes for making gold and silver inks? A. Gold or silver leaf are rubbed up with honey and diluted with water.

(19) A. G. B. asks how to make cake tencil ink, and used by wetting brush with water. A. Mix and dissolve hot, 1 part gelatine in 1 part water, and add and stir in sufficient coloring matter; 3 parts lampblack and a little indigo is a good mixture. To above 1 to 2 parts of glycerine may be added to make

(20) C. I. M. asks for a receipt for a stove blacking. A. 2 parts copperas, 1 part boneblack, 1 part black lead, mixed to consistency of cream with water. Two applications are recommended.

(21) C. A. B. writes: I should like to know the most simple method of accurately determining the amount of tannin in the various tan liquors used in tanning leathers? A. The determination of tannin is sometimes attempted by the use of the hydrometer. The only correct methods require considerable skill in chemical analysis. Sometimes pieces of raw hide are weighed dry, soaked in the solution, dried, and weighed, and the increase in weight is called tannin. This is not a very accurate method.

(22) S. C.--The outside of finished bells are turned at a slow speed with very hard tools or scrapers. Dipping the castings in water before they are cold (300° to 400° temperature) will throw off the sand, If the metal has been poured very hot and the sand burnt in, an acid bath may be used, of nitric acid 1 part water 4 parts.

(23) P. P. D.—Steam and the water in the boiler at 95 pounds pressure both have a temperature of 320° Fah. At 125 pounds pressure the temperature of both will be 352° Fah. Water can be heated to any temperature by confining it.

(24) W. H. G.-If you cannot wash off the fiy specks with soap and warm water on a cloth, there is no way that an amateur can refinish lamp work with any satisfaction. To do this, the lamp must be taken apart and the brass work boiled in caustic soda to remove all oil and varnish; then rinse in hot water and dip in strong nitric acid for a few seconds only, when it will come out clean and bright, then rinse clean in boiling water. Dry in sawdust, brush off, and lacquer with thin shellac varnish. The metal must be warm and perfectly free from grease.

(25) K. K. W.—The rust on the inside of your shot gun can be removed by rubbing with a perforated cork glued on a stick of wood. The cork is to be trimmed with a sharp knife to fit tightly in the barrel. Then with oil and ground pumice stone, or tripoli, polish the inside of the barrel until it is free from rust.

(26) H. S.—A little pulverized sal-am-There is nothing but an alloy of other metal that will es than its

(27) S. C.—The best covering for pulleys is leather. Roughen the pulley with an old file. Use the best glue, with its dry weight of glycerine made in the ordinary way. Glue the leather to the iron pulley and lap from two to three inches. Tough paste board does well while it lasts. Leather is the cheapest by its durability.

(28) H. C. J. asks whether it requires greater velocity for arifleball to go through two 1 inch boards nailed together or through one 2 inch board. A. The penetration of shot is favored by a division or lamination of the resisting medium. The two 1 inch boards together require the least velocity for perforation.

(29) G. B. C. asks: Can you tell me of thing easily applied and able to give satisfaction in any filter or material for one that will filter lime water general? A. Lay paper in a shallow dish, and pour and remove every trace of lime from it, leaving it pure?

(30) T. D. B. asks: 1. How to stain a sole leather bag somewhat abraded a dark mahogany color. A. Mix 15 grains alkanet root, 30 grains aloes 30 grains dragon's blood, all in powder, with 500 grains alcohol (95 per cent). Moisten the bag with dilute nitric acid (1 acid to 5 water by volume) and then apply above solution. Repeat until dark enough. 2. I wish to calculate the power of a flow of water which flows in a broad, thin stream over a dam. A. Determine the "head" measured from level of main body of water above the dam to the level of the top of the dam, then multiply length of dam by 3.33, and multiply this by the square root of the cube of the head expressed in feet and decimals. The result will be in cubic feet. See Trautwine's "Engineer's Pocket Book," page 265. 3. What is the resistance approximately of carbon in sectional area such as is used in arc lamps and how to calculate the resistance at different temperatures? Carre's circular carbons 1 millimeter (0.04 inch) diameter have 50 ohms resistance per meter (39:37 inches) The resistance diminishes as the temperature increases Between 0° and 100° C. the coefficient of reduction is 1-1912. This you can easily reduce to Fahrenheit's scale.

(31) T. A. R.—There is no way to bend wood better or cheaper than by steaming. Gun stocks, if bent at all, are steamed and bent in the rough The trimmings are put on after the stock is finished.

(32) M. F. S. asks how to solve the following questions: No. 1. A clerk spends 20 per cent of 663% per cent more than 1/2 of his salary, and thereby saves \$533. What is his salary? No. 2. A cabinet maker directed his salesman to mark a set of furniture so that, by allowing 20 per cent on the marked price, he would realize a gain of 25 per cent. The salesman marked the set by mistake \$200, or at a loss to the dealer of 20 per cent of the sale. At how much less than the required marking price were the goods marked by mistake? A. Solve No. 1 by following equation: Let x = salary; then:

 $x-(\frac{1}{2}) \times \frac{1}{5} + \frac{1}{2} x = 533$ x = \$1,453.63.Solve No. 2 by following equations: Let x = proper marking price, then y = cost.

(1) 
$$y = x - \frac{1}{5}x - \frac{x - \frac{1}{5}x}{5}$$
  
(2)  $y = 200 - \frac{260}{5} - \frac{200 - \frac{290}{5}}{5} = 192$ 

Or by analysis they may thus be solved: 1. He spende

 $\frac{66\%}{5}$  of his salary plus  $\frac{66\%}{5}$  of his salary, and what is left

amounts to \$533. Taking it by percentages, what he spends reduces to 50 per cent + 13.33 + per cent = 63.33 + per cent. Subtracting this from 100 gives 36.66 +per cent of his salary left unspent, which is equal to

or 1,453.90 within limits of errors due to continued fractions. This is one solution, but the problem is worded so badly that several meanings may be drawn from it. 2. The suit marked at \$200 was sold at \$200 less 20 per cent, or \$160. This gave a loss of  $$160 \times 20$  per cent or \$32. Thus the goods cost \$192. They were to be marked so that the selling price should give a profit of 25 per cent; \$192  $\times$  25 per cent gives \$48. The selling price should have been, therefore, \$240. To this 25 per cent must be added for the marking price, or 240  $\times$  25 per cent, giving \$60. The marking price should have been \$300.

(33) Benzine asks: 1. How can I color a solution of rubber in benzine, black and brown? A. Use asphalt or coal tar. 2. Does dragon's blood dissolve in benzine? A. Yes. 3. Would be glad to know through your valuable paper of a few colors that dissolve in benzine. A. Alkanet root extracts are peculiarly available for coloring benzine.

(34) L. M. R. writes: I have an incomplete Bunsen 6 by 8 inch battery, a zinc plate 21/2 in. wide being substituted for the zinc cylinder. Will you please inform me how much and what kind of acid I must use to complete the battery? A. For porous cup use following solution: Mix 1/2 part by weight of sulphuric acid with 3 parts water carefully and allow to cool. Dissolve six parts by weight bichromate of potash in 16 parts by weight of water by boiling, when cool mix two solutions and stir well. Use when cold. For glass jar use water.

(35) C. H. asks: How to transfer a printed illustration on paper to a glass magic lantern slide. A. Soak the print in soft water, varnish or float the glass plate with dammar varnish or Canada balsam. Allow to nearly dry; when still tacky carefully press the wet print upon it, and let all dry. Then with a wet finger you can rub off the paper, leaving the ink. A second coat of varnish will improve it.

(36) W. McP. asks: 1. Before a rain, the atmosphere contains moisture. The atmosphere and moisture weigh more than the atmosphere alone. Why then does the barometer not rise instead of falling? A. A falling barometer indicates the center of a storm disturbance, a rising one indicates its margin. These changes correspond with the rotary movements of the air. and not to the presence or absence of watery vapor in the air. 2. Can an electro-magnet be constructed in the form of a ring? If so, what parts correspond to the poles? A. It can be magnetized so that one end of a given diameter will be north and the other end south. or it may be magnetized so that it will exhibit no polarity until broken, when the ends will become magnetic poles. 3. Are street cars propelled by electricity a success? If so, why are they not more generally used? If not, where does the trouble lie? A. Yes; they are being rapidly introduced all over the country. 4. How fine a wire must be used in the secondary coil of an induction coil? A. No. 36. For induction coil construction we refer you to our SUPPLEMENT, No. 160, which we can send you for ten cents.

(37) J. C. K. asks the most economical and most effective point at which to set compound engines, where there is a coupling between them. to get best results. A. Set the cranks at right angles

#### TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and all foreign countries may be hadon application, and persons contemplating the securing of patents, either at home or which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 361 Broad way, New York.

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November 13, 1888.

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| •  | Bicycle, W. E. Smith   |   | F                                       |
| ,  | Bicycle saddle, A. H. Overman  Bin. See Flour and meal bin.  | 392,821   | F                                       |
| 5  | Bitters, C. E. & E. Bizzozero  | 392,776   | F                                       |
| r  | Board. See Wash board.   | 200 000   | E                                       |
| 9  | Boats, rolling seat for, E. J. Kerns<br>Boiler. See Sectional boiler.  |   | ľ                                       |
| •  | Book, G. D. Barnard  |   | F                                       |
|  | Boot or shoe fastening, C. W. King  Boring machine, H. Longwell  |   | F                                       |
| ,  | Bottles, safety device for druggists', A. Geyer<br>Box. See Axle box. Cracker box. Fire alarm  |   | F                                       |
| •  | box. Spindle box. Brake. See Air brake. Car brake. Carriage  |   | F                                       |
| ,  | brake. Brake block, P. P. Rickenbacher   | 202 204   | ŀ                                       |
|  | Brick machines, cut-off table for, J. Fergusson  | 392,952   | F                                       |
|  | Brick machines, cut-off table for, J. Fergusson Broom clasp, M. C. Eichhorn Buckle, A. J. McCord   | 392,791   | . G                                     |
| ]  | Buffing machine, E. B. Allen   | 392,707<br>392,808  | G                                       |
|  | Building blocks, tiles, bricks, etc., composition for the manufacture of, G. S. Lee  |   | G                                       |
|  |  |   | ١.                                      |
| •  | Burglar alarm, L. K. Johnson   | 392,805   |   |
| ľ  | Burner. See Oil burner.<br>Burnishing machine, C. J. Blakelÿ   | 392,944   | G                                       |
| ľ  | Burner. See Oil burner. Burnishing machine, C. J. Blakelÿ Button fastening machine, A. Schillmoller Buttonhole cutter, L. A. Carson  | 392,944<br>392,761<br>392,717   | G                                       |
|  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Buttonhole cutter, L. A. Carson. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp.   | 392,944<br>392,761<br>392,717<br>392,647<br>392,853   | 6                                       |
|  | Burner. See Oil burner. Burnishing machine, C. J. Blakely Button fastening machine, A. Schillmoller Button for the cutter, L. A. Carson Button setting machine, Temple & Bolton Can ending machine, J. H. Clapp Cant hook, M. N. Rankins Canting logs and operating sawmill dogs, device   | 392,944<br>392,761<br>392,717<br>392,647<br>392,653<br>392,752  | 6 |
|  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Buttonhole cutter, L. A. Carson. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard.  | 392,944<br>392,761<br>392,717<br>392,647<br>392,853<br>392,752  | 6 6 6                                   |
|  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller Button fastening machine, A. Schillmoller Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton  | 392,944<br>392,761<br>392,717<br>392,647<br>392,853<br>392,752<br>392,841<br>392,740<br>392,745   | 6 6 6 6 6 6 6                           |
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| 1  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button fastening machine, A. Schillmoller. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, Shotton & Barnes. Car coupling, J. H. Davis. Car coupling, A. J. Elliott. Car coupling, A. R. Heath.  | 392,944<br>392,761<br>392,717<br>392,647<br>392,853<br>392,752<br>392,841<br>392,740<br>392,745<br>392,829<br>392,787<br>392,829<br>392,787   | 6 6 6 6 6 6                             |
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| fi. Lit.st., e.,   | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Buttonhole cutter, L. A. Carson. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car coupling, J. H. Davis. Car coupling, J. H. Davis. Car coupling, A. R. Heath. Car coupling, Pickard & Melson. Car heating apparatus, J. H. Sewall. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al.   | 392,944<br>392,761<br>392,617<br>392,653<br>392,752<br>392,841<br>392,745<br>392,829<br>392,787<br>392,596<br>392,801<br>392,968<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,644   | 6 6 6 6 6                               |
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| The List person early car  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Buttonhole cutter, L. A. Carson. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, J. Mutton. Car brake, Shotton & Barnes. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Melson. Car heating apparatus, J. H. Sewall. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Wallace. Carriage, J. T. Clarkson. Carriage brake, J. B. Crosby. Carriage turtain fastener, A. R. Tully. Carrier. See Egg carrier. Cart, road, M. Copenhaver. Cart road, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth &  | 392,944<br>392,761<br>392,647<br>392,653<br>392,755<br>392,841<br>392,745<br>392,829<br>392,787<br>392,968<br>392,968<br>392,968<br>392,867<br>392,968<br>392,876<br>392,868<br>392,868<br>392,968<br>392,968<br>392,968<br>392,968<br>392,968<br>392,968   |   |
| fin. Litt. st. ,e., ine. r. /c   | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button hole cutter, L. A. Carson. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car coupling, J. H. Davis. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Melson. Car heating apparatus, J. H. Sewall. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Wallace. Carriage, J. T. Clarkson. Carriage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Carrier. See Egg carrier. Cart. road, M. Copenhaver. Cart. road, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth & Lietze. Centrifugal machine, O. Braunn.   | 392,944<br>392,761<br>392,647<br>392,853<br>392,752<br>392,841<br>392,745<br>392,873<br>392,787<br>392,596<br>392,801<br>392,801<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,767<br>392,644<br>392,870<br>392,909<br>392,622<br>392,922<br>10,966                                       |   |
| The Lister of the service of the ser | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button fastening machine, A. Schillmoller. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, J. Mutton. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Meison. Car heating apparatus, J. H. Sewail. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Wallace. Carriage, J. T. Clarkson. Carriage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Cartic, See Egg carrier. Cart, road, M. Copenhaver. Cart, road, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartidge, Johnson & Borland. Cartridge, Johnson & Borland. Contridugal machine, O. Braunn. Christmas trees or other articles, support for, R. Liangenbach.  | 392,944 392,761 392,647 392,647 392,752 392,841 392,745 392,859 392,859 392,859 392,876 392,864 392,876 392,876 392,870 392,703 392,968 392,876 |   |
| The list of the interrective of the contractive of  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button fastening machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, J. Mutton. Car brake, Shotton & Barnes. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Cariage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Carriage brake, J. B. Crosby. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth & Lietze. Centritugal machine, O. Braunn. Christmas trees or other articles, support for, R. Langenbach. Chuck, lathe, F. C. Hinman.  | 392,944<br>392,717<br>392,647<br>392,853<br>392,752<br>392,8241<br>392,745<br>392,829<br>392,787<br>392,596<br>392,801<br>392,801<br>392,803<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,909<br>392,622<br>392,922<br>10,966<br>392,583   |   |
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| The list of the interrective of the contractive of  | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car brake, J. A. Marchbank. Car brake, J. H. Davis. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Melson. Car heating apparatus, J. H. Sewall. Car seat, street, G. A. Metcalf. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Wallace. Carriage, J. T. Clarkson. Carriage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Carrier. See Egg carrier. Cart, road, M. Copenhaver. Cart. road, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth & Lietze. Centrifugal machine, O. Braunn. Christmas trees or other articles, support for, R. Langenbach. Chuck, lathe, F. C. Himman. Churn, cream testing, B. Kanable. Clamp. See Rail clamp. Clasp. See Broom clasp. Cloth steaming syd drying machine, F. Brelle.  | 392,944<br>392,717<br>392,647<br>392,851<br>392,752<br>392,841<br>392,745<br>392,829<br>392,876<br>392,801<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,767<br>392,909<br>392,622<br>392,922<br>10,966<br>392,710<br>392,583<br>392,876<br>392,876<br>392,909  |   |
| fire but ast. person entrock?even li   | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button fastening machine, A. Schillmoller. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, J. Mutton. Car brake, J. H. Davis. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Meison. Car heating apparatus, J. H. Sewail. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Carriage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Cart. road, M. Copenhaver. Cart. road, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth & Lietze. Centrifugal machine, O. Braunn. Churn, cream testing, B. Kanable. Clamp. See Rail clamp. Clapp. See Rail clamp. Clapp. See Broom clasp. Clotth steaming and drying machine, F. Brelle. Clutch and brake for baling presses, friction, C. E.   | 392,944<br>392,717<br>392,647<br>392,752<br>392,841<br>392,745<br>392,891<br>392,891<br>392,891<br>392,891<br>392,876<br>392,876<br>392,876<br>392,876<br>392,876<br>392,970<br>392,970<br>392,922<br>10,966<br>392,710<br>392,583<br>392,985<br>392,985  |   |
| The Lite of the contract of th | Burner. See Oil burner. Burnishing machine, C. J. Blakely. Button fastening machine, A. Schillmoller. Button fastening machine, A. Schillmoller. Button setting machine, Temple & Bolton. Can ending machine, J. H. Clapp. Cant hook, M. N. Rankins. Canting logs and operating sawmill dogs, device for, E. Beard. Car brake, J. A. Marchbank. Car brake, J. Mutton. Car brake, J. Mutton. Car brake, J. H. Davis. Car coupling, A. J. Elliott. Car coupling, A. J. Elliott. Car coupling, A. R. Heath. Car coupling, Pickard & Meison. Car heating apparatus, J. H. Sewall. Car seat, street, G. A. Metcalf. Car stop, W. Walker. Cars, hay rack for stock, E. A. Stare et al. Carbon battery, J. B. Wallace. Carriage, J. T. Clarkson. Carriage brake, J. B. Crosby. Carriage curtain fastener, A. R. Tully. Cartroad, E. C. McGrath. Cartridge, Johnson & Borland. Cartridge, Johnson & Borland. Cartridge loading machine, G. M. Peters (r). Case. See Bapana case. Show case. Casting and finishing machine, type, Barth & Lietze. Centrifugal machine, O. Braunn. Chirstmas trees or other articles, support for, R. Langenbach. Chuck, lathe, F. C. Hinman. Churn, cream testing, B. Kanable. Clamp. See Rail clamp. Clasp. See Broom clasp. Cloth steaming and drying machine, F. Brelle. Clutch and trays for baling presses, friction, C. E.  | 392,944<br>392,761<br>392,717<br>392,647<br>392,851<br>392,752<br>392,829<br>392,745<br>392,829<br>392,801<br>392,868<br>392,876<br>392,864<br>392,876<br>392,864<br>392,876<br>392,909<br>392,703<br>392,909<br>392,703<br>392,908<br>392,865<br>392,865<br>392,865  |   |

|  |                                       | <u> </u>   |
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| Coal dust, utilizing, C. Kimplen   | 392,974<br>392,972                    | Heel trimming machine, A. Mo<br>Hinge, spring, L. M. Devore<br>Hogs, portable apparatus fo                                   |
| Collars, cufts, etc., manufacturing, J. R. France Coloring matter obtained from paraphenylen-diamine, etc., blue. E. Elsaesser                     |                                       | Amstutz  Hoisting device, G. L. McDanie Hoisting drums, bed plate a  |
| Copies of writings, drawings, and the like, apparatus for reproducing, G. H. Block   | 392,824                               | McLane  Hoisting machine, A. & J. Rob Holder. See Order holder. F  |
| Corset fastener, L. Sacanville   |                                       | low sham and screen holder<br>Hook. See Cant hook. Snap h<br>Hoop cutting machine, A. F. W                                   |
| Cracker box, L. J. Anger  Crusher. See Ore crusher.  Cultivator, wheel, J. F. Hall  Cultivators, sweep for corn and cotton, E.                     |                                       | Hoop sawing machine, J. W. B<br>Horse detacher, W. A. Bryant<br>Horses, device for hitching, E.<br>Horses, machine for groom |
| Cowan  |                                       | McNaughton<br>Houses, construction of, J. S. I<br>I-beams, channel bars, etc., m   |
| Cut-off for water pipes, automatic, G. P. Hern-<br>don   | 392,803                               | C. M. Carnahan Incrustation, electrical appara tion of, M. Kotyra  |
| per cutter.  Desk, advertising or order, H. M. Dexter  Desk and seat, automatic school, J. H. Stiggle-   |                                       | Indicator. See Station indicat Insulation of cores of dynamo- B. Bidwell   |
| man.  Die. See Leather cutting die.  Door check, Purviance & Hills  Door check, pneumatic, J. Muser  | 392,688                               | Iron. See Felly iron. Jack. See Wagon Jack. Knitting machines, thread for Gr. G. E. Nye                                      |
| Doors, apparatus for opening, G. H. Maetzel Doubletree equalizer, J. A. Haas Dredging machine, J. G. Falcon  | 392 <b>,62</b> 0<br>392 <b>,</b> 862  | Knives and forks, apparatus<br>Kleemann  |
| Dress shields, former for seamless, F. W. Smith, Jr  |                                       | Knotter, F. A. Cloudman<br>Lacing hooks, machine for sett<br>Ladder rails, finishing, J. H. M                                |
| Driving mechanism, frictional, J. M. Merrow  Dyeing, mordant for, C. T. Bazin  Dynamos, automatic governor for, E. B. Coburn                       | 392,659                               | Lamp, J. F. Place<br>Lamp, hanging, F. Rhind<br>Lamp socket, incandescent, T.  |
| Egg carrier, J. MoranElectric circuit, J. A. Barrett   | 392,775                               | Lamp switch, electric, C. G. Pe<br>Leather cutting die, A. D. Goe<br>Leg and foot protector, J. B. E                         |
| Electric motors, regulation of, W. Stanley, Jr<br>Electric motors, synchronizing, F. J. Patten<br>Electric motors, synchronizing system for, F. J. | 392,980                               | Lock. See Nut lock. Lock, L. K. Strang Loom, hand, J. Fichtner   |
| Patten Electrical circuit and apparatus guard, I. H. Farnham   | 392,724                               | Lubricator. See Axle lubricat<br>Lumber piler, P. O. Gustafson<br>Meat, packing cured, J. Cunni                              |
| Elevator, H. G. C. & L. A. Kreutzkamp<br>Elevator. C. H. Stilson<br>Elevators, speed governor for, Read. Jr., & Coyle.                             | 392,700<br>392,753                    | Mechanical movement, J. W. 1 Message and time recorder, J. Metal wheel, T. S. Page   |
| Embroidering machines, bead feeding attachment for, Strauss & West   | 392.893                               | Mill. See Fanning mill. Grin<br>Milling and gear cutting ma<br>for, T. Eynon   |
| Engine. See Rotary engine.  Envelope machine, G. R. Clarke  Evaporating pan, D. Jones  Evaporating pan, D. Jones                                   | 392,916                               | Money, etc., safety packet for,<br>Motion, mechanism for trans-<br>son et al   |
| Exhibitor for shirts, etc., Hardy & Baldwin<br>Expansion drill or cutter, S. W. Douglass<br>Fabric coating machine, H. G. Bunch                    | 392,797<br>392,592                    | Motor. See Water motor.  Mowing machine, W. Bayley.  Nailing implement, H. McCor  Nut for screw bolts, I. G. How             |
| Fanning mill, H. G. Blom   | 392,713<br>392,599                    | Nut lock, D. W. Throckmorton<br>Oil burner, hydrocarbon, W. C<br>Oil distributer for ships, etc.,                            |
| Felly iron, E. E. Renshaw.  Fence, J. B. Cleaveland.  Fence, D. Hyre.  | 392,637<br>392,948                    | Oil press, N. Littell<br>Opera, field, or marine glass, V<br>Order holder, J. F. Brown                                       |
| Fence, flood, E. B. Atkinson   | 392,709<br>392,887                    | Ordnance, mechanism for op<br>del<br>Ore crusher, J. M. Bryan  |
| Fence, portable, Smith & Shipley   | 392,83 <b>0</b><br>392,957<br>392,825 | Outrigger, A. N. Barnes<br>Oven, M. R. Von Pittoni<br>Oxygen, composition for dev  |
| File, paper, A. C. A. Perkes   | ,<br>392,604                          | E. P. Meyer  |
| Fire alarm box, auxiliary, E. L. Slocum  Fire extinguisher, T. G. Turner  Fire extinguisher and alarm, automatic, I. T.                            | 392,936                               | Paper bag, F. M. McCulla<br>Paper cutter, L. Ehrlich<br>Paper cutter, Tivy & Ehrlich   |
| Dyer Fire extinguisher, duplex percussion hand, E. A. Galbraith  | 39 <b>2,</b> 671                      | Paper holder and cutter, T. C.<br>Paving, composition of matter<br>Peat machine, Yeadon & Midd                               |
| Fishing fly book, C. G. Levison.  Flour or meal bin, C. W. Fishel  | 392,793<br>392,760                    | Picking and carding machine<br>ism for, Dickerson & Tinde  |
| Frame. See Harvester frame. Fuel, prepared, C. Kimplen Furnace. See Gas furnace. Straw or hay burn-  | <b>392,86</b> 9                       | Pipe. See Smoking pipe. Piston, P. Maltby Planter attachment, corn, R. A.  |
| ing furnace. Furnace, G. A. Clark. Furnace, S. S. Hersey.  | 392,947                               | Planter, corn, J. A. Mussetter<br>Planter, cotton seed, W. Radl<br>Plaster mixing machine, G. W                              |
| Fuse cap, W. H. FrazerGarment supporter, E. PlckhardtGas, electric machine for lighting and extinguish   | 392,915<br>392,634                    | Platform or step, F. H. Stanw<br>Plow, C. A. Burch<br>Plow, wheel, H. N. Keith   |
| ing, G. E. Thaxter   | •                                     | Smith  |
| Gas from waste pipes or sinks, device for preventing the escape of, H. Stone   | 392,645<br>392,897                    | Post holes, boring, D. Hess<br>Pot cover, A. G. Stilson<br>Press. See Baling press. Oil                                      |
| Gas lighter, electric, H. A. Cleverly  | 392,778                               | Press for butter or other pla  |
| Gate, H. C. Chivers. Gate, T. Tyson. Gate, W. R. White. Generator. See Steam generator.  | 392,987                               | Printing mediums or films, a   |
| Glass. See Opera, field, or marine glass. Glass cleaning machine, A. F. Fitz Gerald  |                                       | Puller. See Spike puller.<br>Pump and regulator, windmill  |
| Glycerine from spent soap lyes, recovering, M Highley  | . 392,919                             | Radiator, J. A. Prindle  |
| compounds containing the same, extracting A. Parkes  | 392,929                               |  |
| Grain binder, automatic, E. G. Watrous   | . 392,650<br>. 392,695                | Railway, electric, R. M. Hunt  |
| ford   | . 392,783<br>-                        | Railway gate, automatic. W. Railway switches and signals,  |
| Grate, fireplace, F. W. Merriam  | . 392,726<br>. 392,839                | Railways, conduit for electric<br>Railways, overhead conducte  |
| Hammock, R. Gemmell  | . 392,784<br>. 392,908                | Railways, etc., permanent<br>Kinch   |
| Harness coupling, J. P. Maw.  Harrow, E. E. Whipple  Harrow, rotary, W. A. & B. J. Smith  Harvester, M. Kane.                                      | . 392,654<br>. 392,697                | Recorder. See Message and t<br>Refrigerator building, J. F. H  |
| Harvester, M. Kane.  Harvester, W. H. Payne  Harvester frame, grain binding, J. S. Davis  Harvester, self-binding, L. W. Noyes                     | . 392,687<br>. 392,721                | Releasing device, C. P. & F. W. Riveting machine, G. D. Edm  |
| Harvester, self-binding, L. W. Noyes   | . 392,746                             | Roofs of barracks, means for porting the, C. H. Thomas   |
| Hats, manufacture of felt, C. Vero   | . 392,648<br>. <b>392,6</b> 90        | Ruler, J. H. Blake   |
| Heel burnishing tool, J. H. Busell   | . 392,716                             | Sash balance, Crontz & Moore   |
|  |                                       |  |

| 2                         | Hinge, spring, L. M. Devore  | 392,667                            |
|---------------------------|--|------------------------------------|
| 3                         | Amstutz  | 392,621                            |
| 77                        | McLane   | 392,815                            |
| 39 [                      | <ul> <li>Holder. See Order holder. Paper holder. Pillow sham and screen holder. Thill holder.</li> <li>Hook. See Cant hook. Snap hook. Wire hook.</li> </ul> |                                    |
| 12                        | Hoop cutting machine, A. F. Ward   | 392,94                             |
| 28                        | Horses, device for hitching, E. H. Turner<br>Horses, machine for grooming, Dellinger &   | 392,834                            |
| 90                        | McNaughton   | 392,788<br>392 <b>,6</b> 25        |
| 03                        | C. M. Carnahan   |                                    |
| 56                        | tion of, M. Kotyra   | 892,786                            |
| 92                        | B. Bidwell   | 392,660                            |
| 88<br>27                  | Knitting machines, thread feeding machanism for, G. 15. Nye  | <i>3</i> 92,685                    |
| 20<br>62<br>58            | Knives and forks, apparatus for cleaning, F. Kleemann  |                                    |
| 42                        | Knotter, F. A. Cloudman  | 392,719<br>392,831                 |
| 18<br>59                  | Ladder rails, finishing, J. H. McCully<br>Lamp, J. F. Place  | 392,823<br>392,969                 |
| 55<br>28<br>75            | Lamp socket, incandescent, T. Coad   | 392,666<br>392,633                 |
| 65<br>90                  | Leg and foot protector, J. B. Brodie   | 392,584                            |
| 80<br>67                  | Lock, L. K. Strang   | 392,646<br>392,859                 |
| 24                        | Lumber piler, P. O. Gustafson  | 392,949                            |
| 55<br>00<br>53            | Mechanical movement, J. W. Hoffman   | 392,838                            |
| 93<br><b>6</b> 6          | Mill. See Fanning mill. Grinding mill.  Milling and gear cutting machines, cutting tool  |                                    |
| 81                        | for, T. Eynon  | 392,682                            |
| 16<br>64<br>97            | son et al  Motor. See Water motor.  Mowing machine, W. Bayley  |                                    |
| 92<br><b>7</b> 9          | Nailing implement, H. McCornack  | 392,963<br>392,781                 |
| 13<br>399<br>325          | Nut lock, D. W. Throckmorton   | 392,802                            |
| 37<br>48                  | Oil press, N. Littell  | 392,618<br>392,8 <b>51</b>         |
| 33<br>109<br>887          | Order holder, J. F. Brown  | 392,754                            |
| 184<br>13 <b>0</b><br>157 | Ore crusher, J. M. Bryan Outrigger, A. N. Barnes Oven, M. R. Von Pittoni   | 392 <b>,661</b><br>392 <b>,901</b> |
| 325<br>50                 | Oxygen, composition for developing ozonized, J.<br>E. P. Meyer   | 392,742                            |
| 604<br>643                | Packing, metallic wire, J. A. Prindle  | -                                  |
| )36<br>)51                | Paper cutter, L. Ehrlich   | 392,857<br>392,895                 |
| ,<br>571                  | Paving, composition of matter for, G. S. Lee<br>Peat machine, Yeadon & Middleton   | 392,614<br>392,770                 |
| 959<br>793<br>760         | Piano pedal, O. Lestina  Picking and carding machines, feeding mechanism for, Dickerson & Tindell  |                                    |
| 759                       | Pillow sham and screen holder, E. H. Rose<br>Pipe. See Smoking pipe.   | <b>392,9</b> 33                    |
| <b>36</b> 9               | Piston, P. Maltby  | 392,911                            |
| 947<br>304<br>915         | Planter, cotton seed, W. Radley  | 392.652                            |
| 33 <b>4</b>               | Plow, C. A. Burch  | 392,780<br>392,613                 |
| 701<br>921                | Plush fabric, two-faced embossed chenille, W. T. Smith Poison distributer, J. Nelson   | 392,699                            |
| 345                       | Post holes, boring, D. Hess  | 392,918                            |
| 397<br>365                | Press. See Baling press. Oil press. Press, R. E. Boschert Press for butter or other plastic material, B. R.  |                                    |
| 778<br>718<br>9 <b>37</b> | Rapp Printer's drying rack, H. T. Koerner Printing mediums or films, adjustable frame for  | 392,735                            |
| 355                       | holding, P. G. Caspian   |                                    |
| 900<br>935                | Puller. See Spike puller. Pump and regulator, windmill, G. A. Carter Rack. See Printer's drying rack.  |                                    |
| 919                       | Radiator, J. A. Prindle<br>Radiators, foot rest for, E. G. Oche<br>Raft, log, H. R. Robertson  | 392,588                            |
| 929                       | Rail clamp, guide, W. P. Wylly   | 392,941<br>392,798                 |
| 688<br>650<br>695         | Railway, electric, B. Heywood  | 392,675                            |
| 783                       | Railway, electrical, O. Allen  | 392,772<br>392,682                 |
| 796<br>817                | Railway gate, automatic. W. S. Whiting   | 392,734                            |
| 726<br>839<br>803         | Railways, conduit for electric, H. A. Chase<br>Railways, overhead conductor for electric, E. E.<br>Ries  |                                    |
| 784<br>908                | Railways, etc., permanent way for, Cabry & Kinch   | 392 <b>,</b> 849                   |
|                           | Rake and tedder, combined, A. Wickey   |                                    |
| 307<br>887                | Reins, driving, M. S. Dickinson  | 392,789<br>392,764                 |
| 721<br>747                | Riveting machine, G. D. Edmeston   | 392,751                            |
| 746<br>725<br>648         | Rotary engine, G. H. Weston  | 392,653                            |
| 690<br>71 <b>5</b>        | Safety switch, C. I. Cooke   | . 392,907<br>392,904               |
| 716<br>97 <b>5</b>        |  |                                    |
|                           |  |                                    |