Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue

Notes & Queries

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 This is for our information and not for publication.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.

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

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

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

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(5041) W. D. writes: You will oblige me by giving an explanation of the phenomenon described below. It was observed on the 16th of March, at a point on the eastern slope of the Blue Ridge, about half a mile from the base of the mountain. There were no well defined clouds over the sky, and no appearance of rain showers; bnt the sky was covered only with a light film of haze, not enough to obscure its blue color. The phenomenon was an arc of rainbow-like spectrum, distinctly green to yellow, but faintly defined as to the other colors of the rainbow. Its length was apparently 45°. Its position was between the zenith and the sun, apparently 10° from the zenith, and 45′ from the sun. It was convex toward the sun, the zenith being its apparent center. The phenomenon was first seen about 4 o'clock P.M., and lasted at least an hour. The above description agrees with the observation of more than twenty persons. A. The phenomenon described is a solar halo occasionally seen during peculiar conditions of the atmosphere and generally preceding a change of weather. They are supposed to be caused by the refraction and reflection of sunlight by flakes of snow in the upper atmosphere, the various forms of snow flakes producing the variation in the form of the halos. They are described in Kaemtz "Meteorology."

(5042) A. H. P. asks: 1. Why is the water on small bodies of land surrounded by salt water, fresh. And where does it come from? A. The water on islands surrounded by salt water is derived from the rain falling upon the island, except in some peculiar localities, in which it is derived from subterranean communication with the main land through deep gravel beds. 2. Does the fair weather wind blow from the north and the foul from the south in all regions? Why is it thus? A. Fair weather winds blow from both north and south in most regions where special conditions of climate do not prevail, as in the eastern United States. There are many localities where south and southwest winds are storm breeders, while the northeastern wind in the Eastern States is usually a storm wind. West of the Rocky Mountains the conditions are somewhat different, owing to the different direction of the coast line and the great mountain ranges from the coast line and mountain ranges of the Eastern States. The elevated plateau between the Rocky Mountains and Sierras also influence and localize the direction of storm winds. The story of storm winds is a long one for Notes and Queries. It is well illustrated and described in Hinman's "Eclectic Physical Geography."

(5043) C. E. E. asks (1) for some scale for sizes of wire in making electromagnets. What size wire for magnets for door bells, etc. A. The winding of the bell magnets is generally arranged with reference to the electromotive force of the battery and its resistance. The common rule is to make the resistance of the battery equal to the magnet and line wire. 2. I would like to know the size of wire for magnet for a 3 and 4 inch bell, and how large wire, and how large size should a magnet be for a quarter inch core? A. For a bell of the size named the cores of your magnet should be 7-16 of an inch in diameter, 2 inches long, and the depth of the winding should be equal to the diameter of the core. The rule in regard to the depth of the winding applies to your ¼ inch core.

(5044) A. S. writes: I desire to protect safe in office, which is ½ mile from residence, against burglars, by electric bells, by means of circuit breakers on office doors and windows. If an open circuit is used wire might be cut, if closed circuit it might be grounded. Is it possible to use one line wire for both open and closed circuit system by alternately making the line at intervals of 30 minutes an open and then a closed system through the agency of a clock or clocks or other mechanism, and thereby detect trouble within 30 minutes, if the line has been either cut or grounded. If it is impossible to do so, please state if it must take two lines, one open and the other closed system, and take the chances of burglars cutting the wrong or grounding the wrong wire and thereby give the alarm? A. Without doubt your best plan is to use both the open and closed circuit systems as you propose.

(5045) J. S. K. asks how to mould common sheet zinc into rods the size of electric light carbon pencils for use in electric batteries, and whether it would be necessary to clean the sheet zinc, or if when it is melted he could remove the foreign substance from the top. How can the mould be made and the moulding carried on in a cheap, simple manner? A. You can make a sand mould for your zinc castings and melt and pour the zinc as you would brass or any other metal. 2. Please state the price of mercury for amalgamation purposes. A. Metallic mercury is quoted at 82 cents per pound.

(5046) J. B., New York, asks: What is the largest boat I can build without requiring the service of a pilot? A. Sail boats and yachts do not require the service of a licensed pilot, nor a license.

(5047) B. W. R. asks: Do the propellers on a twin screw steamship run same way, or right and left? A. The twin propellers run right and left.

(5048) H. C. T. writes: Can you explain where and how the terms "up north" and "down south" arose? Is it due to the inclination of the axis to the plane of the ecliptic, or purely a conventional term? A. The terms "up north" and "down south" probably originated in the Eastern States, and may have been suggested by the course of the rivers, which run in a southerly direction. The position of the pole star may also have had its influence in designating the north as "up north," and of course its opposite would be "down south."

(5049) A. H. says: The awning deck of my steam launch was covered with oilcloth. The oilcloth all cracked up, no doubt from the sun shining on it. Will you please inform me with what I can paint the oilcloth, so that it will not crack? I thought that probably a coat of boiled linseed oil would preserve it. The awning deck is stationary and the oilcloth is tacked on; therefore the paint put on the oilcloth need not be pliable when dry. A. Oilcloth cannot be saved from cracking when exposed to the sun. Any desired color in ground paint mixed with boiled linseed oil will renew the surface when worn or cracked.

(5050) J. H. asks: Will there be any difference in the hydraulic pressure of a pipe say one mile long, 10 inches diameter, one end 20 feet lower than the other, with both ends closed, and pressure applied by a steam pump at the center of pipe or any other point? A. There will be no difference in pressure due to the place of the pump connection; but the lower end will have about $8\frac{7}{10}$ pounds more pressure per square inch than the upper end, due to gravity or the hydrostatic weight of the water.

(5051) E. W. asks: Was not the discovery of the moons of Mars indicated by some astronomical knowledge before it really came to pass? I read in "Gulliver's Travels" a very accurate description of the two satellites, that seems to be too close to the facts to be merely a coincidence. A. The discovery of the moons of Mars was accidental, and not from any known physical condition or perturbation of the planet, although the absence of a satellite and its possiblities has been long discussed. The Gulliver story was only a romance that accidentally turned into a coincidence.

(5052) H. C. M. asks whether it is possible to build a storage battery to be supplied from a common incandescent electric light plant that would "store" sufficient electricity to operate a one horse power motor some two or three hours per day. A. You will find a storage battery that will answer your purpose described in "Experimental Science," also in the SCIENTIFIC AMERICAN, vol. 61, page 22; but we advise you to purchase your battery from a reputable maker.

(5053) E. F. B. asks: 1. How large should the plates of a storage battery, such as is described by C. L. Woolley, be to light three 16 candle power 20 volt lamps for about four or five hours? A. The plate should be 6 × 8 inches, and you will require 11 cells of battery. 2. Please explain the difference, if there is any, between putting all the plates of a storage battery in one cell and placing them only two in a cell. A. By placing all the plates of each cell together the resistance of the battery is diminished and its amperage is increased.

(5054) G. R. W. asks: 1. Is it possible to magnetize a piece of steel about one-fourth of an inch square, and how shall I proceed to do it? A. Harden the piece of steel at the ends only, and draw the temper to a purplish brown. Apply the steel to the poles of a strong magnet, or stroke the steel with one pole of the magnet from the center to the end, and with the other pole of the magnet from the center to the opposite end. 2. Could I revolve a piece of tin, about 1 inch in circumference, by the aid of this magnet? Which would be the best way to work the same? A. There is no way of doing this with the magnet alone.

(5055) S. H. writes: 1. If you have a number of the SCIENTIFIC AMERICAN containing explanation of difference between a universal focus lens (for a photo. camera) and one which requires focusing, will you kindly send it to above address? A. There can be no such thing as a universal focus lens. The lens known by that name is simply a wide-angled lens, the back focus of which is comparatively short. With such a lens a very slight movement of the plate or lens throws the image into or out of focus, and when it is adjusted at what might be called an average focus, the picture is likely to be as sharp as it would be if the focusing were done for each view. 2. What shape, diameter, and focus lens should I use in making a camera with universal focus, to cover a 3¼ × 4¼ plate? A. It is best to buy a wide-angled short focus lens from a reputable maker. The focus might be about 3¼ inches. You can get single lenses for about $3, and you can purchase a very good rectilinear lens for $12 or $15.

(5056) L. A. T. asks: 1. Have gasoline engines ever been used for thrashing purposes? If so, with what results? A. Gasoline engines have been used for agricultural purposes. We do not know that they have been applied to thrashing. 2. What advantage would they have over a steam engine? A. They would probably be lighter than a steam engine and boiler of the same power. 3. Why have they not been used more extensively? Successful engines are of practically recent date. 4. How many inches does the mercurial column fall for 1,000 feet of ascension? A. 1·117 inches.

(5057) B. M. C. asks how to cover pulleys with paper. A. Scratch the face of the pulley with a rough file thoroughly, so that there are no bright or smooth places. Then swab the surface with a solution of nitric acid 1 part, water 4 parts, for 15 minutes; then wash with boiling hot water. Having prepared a pot of the best tough glue that you can get, stir into the glue a half ounce of a strong solution tannic acid, oak bark, or gall nuts, as convenient to obtain, to a quart of thick glue; stir quickly while hot and apply to the paper or pulley as convenient, and draw the paper as tightly as possible to the pulley, overlapping as many folds as may be required. By a little management and moistening of the paper, it will bind very hard on the pulley when dry, and will not come off or get loose until it is worn out. Use strong hardware wrapping paper.—From the "Scientific American Cyclopedia of Receipts, Notes, and Queries."

(5058) L. C. D. says: Will you please give me a formula for mayonnaise suitable for an article to be placed upon the market? A.

Powdered turmeric	1 oz.
Powdered tragacanth	1 oz.
Olive oil	8 oz.
Eggs	8 oz.
Water	5¾ pt.
Ground mustard	1½ oz.
Salt	8 oz.
Acetic acid (glacial)	2 oz.
Tincture of capsicum (Or according to taste)	½ oz.
Sugar	1 lb.

Mix the first three ingredients in a mortar capable of holding one gallon, then add the eggs, which have been whipped previously, and incorporate thoroughly until an emulsion is formed; next mix separately the mustard and water, allow to stand ten or fifteen minutes, or until the flavor is fully developed, then add the last four ingredients, mix, and add the liquid gradually to the contents of the mortar. It should make a smooth, uniform emulsion; finally, strain through cheese cloth. This is a seasonable preparation, and may serve not only for the delectation of the pharmacist himself, but would furnish an article of sale as well.—*Pharm. Era.*

(5059) C. N. asks: How is artificial malachite made? A. Artificial malachite, which is susceptible of a fine polish, is made by precipitating a solution of sulphate of copper in the cold by carbonate of soda or of potash. The precipitate, which is voluminous, should be washed and dried and made into a paste with plaster of Paris and water; allow the composition to harden.

(5060) H. S. S. asks for the best method of preserving eggs. A. Cold storage is probably the best method, but the following is largely used: In the common "liming" process a tight barrel is half filled with cold water, into which is stirred slaked lime and salt in the proportion of about one-half pound each for every pail or bucket of water. Some dealers use no salt, and others add a small quantity of niter—one-fourth pound to the half barrel of pickle. Into this the eggs, which must be perfectly fresh and sound, are let down with a dish, when they settle to the bottom, small end down. The eggs displace the liquid, so that when the barrel is full of eggs it is also full of the pickle. Eggs thus pickled, if kept in a cool place, will ordinarily keep good for several months. Long storage in this liquid, however, is apt to make the shells brittle and impart a limy taste to their contents. This may be in a great measure avoided by anointing the egg all over with lard before putting in the pickle. Eggs thus prepared are said to keep perfectly for six months or more when stored in a cool cellar.

(5061) G. M. S. asks: What causes fish to die in a small quantity of water in a vessel, if the water is not changed at short intervals? Is oxygen the life-sustaining substance, the same as in mammalia, or, if not, what is it? And can the substance consumed by the fish in the water be replaced artificially, or the deleterious matter removed which causes the death of the fish, so as to prolong life say 24 or 48 hours? A. Fish depend upon the oxygen dissolved in the water. As soon as the oxygen is exhausted the fish die. You can keep up the supply of oxygen by continually aerating the water, but it will be more practical to continually renew the water.

(5062) J. S. G. says: Please inform me of the best, strongest, and most durable disinfectant for household purposes. A. Various disinfectants are used for different purposes. 1. Roll sulphur, brimstone, for fumigation. 2. Sulphate of iron, copperas, dissolved in water in the proportion of 1¼ pounds to the gallon, for soil pipes, sewers, etc. 3. Sulphate of zinc and common salt, dissolved together in water in the proportions of 4 ounces sulphate and 2 ounces salt to the gallon, for cloth ing, bed linen, etc. Zinc sulphate is a strong poison.

(5063) W. A. C.—I noticed in your number March 25, 1892, a description of the process of using old tin cans. Can you give me any information about utilizing scraps of tin? 1st. Can the tin be separated from the iron by simply heating and melting it off in a reverberatory furnace? 2d. If acid is used to dissolve the tin, how are the iron products separated from the tin products? 3d. How is the tin salt then made commercially available? A. The tin cannot be separated from the iron by heat. The tin scrap is boiled in weak hydrochloric acid until the tin is dissolved. The tin solution is made into perchloride or tin salt, as used by dyers, and into oxide for polishing. Any form of tin salt is salable in the chemical trade.

(5064) A. P. G., writing from Meridian, Miss., says: One of the firms of this city, in connection with their business, run a small gasoline engine, the boiler of which is made of heavy sheet copper, and is 18 inches long by 9 inches in diameter. The water was all blown out of the boiler night before last and left dry. Yesterday morning their helper lit the gas as usual, not knowing the boiler was dry. The gas had burned some little time before he noticed that he had no water. He started the pump by hand, and the boiler immediately collapsed. The center puckered and lapped and contracted to 1¼ inches hollow, while the boiler was dented and warped all over. What caused it? A. The water could not have been entirely blown out of the boiler, enough being in to fill it with steam, which condensed when the cold water was pumpedin, producing a vacuum, and the inward pressure of the atmosphere, nearly 15 pounds to the square inch, caused the collapse of the boiler.

(5065) C. L. writes: 1. I take the liberty of asking for information in regard to a set of storage cells made by myself. My cells consist of lead plates, 5 inches × 6 inches, placed in round jars, 6 × 8, such as used for the ordinary gravity cell. The plates are three-sixteenths inch in thickness, having about 50 one-half inch holes drilled in regnlar order. I have filled these holes and covered the surface of the plates with a thick paste of red lead and dilute sulphuric acid for the negative and litharge and acid for the positive plates. Is this proper, or should red lead be used for all the plates? The first cell consisted of three negatives and two positives. This cell was charged with the current from four gravity cells, and would run a Porter motor No. 2, requiring two volts E. M. F. and two amperes, about one hour. I have since constructed two more cells, using in one cell four negatives and four positives, and for want of sufficient plates used four negatives and three positives for the second cell. After charging these cells and adding the first mentioned cell, they still will only run the motor the same time—one hour. Any one of the cells will run the motor one hour. Please explain why the three do no more work than one. Is it necessary to only fill the holes in plates or also coat the plates? A. Your arrangement of cells is not favorable to the most economical working of the motor. The voltage of one cell is sufficient for the motor; by increasing the voltage you only facilitate the exhaustion of the battery. If you connect your cells in parallel, 3 cells of battery will probably run the motor three times as long as the single cell, as you will still have only two volts. 2. Does the thickness of the plate have anything to do with the successful operation of the cell, and how many amperes ought the above cell to supply? To charge the three cells, I use twelve 6 × 8 gravity cells. After filling holes and coating plates, I placed thin sheets of cardboard, the same size as the plates, between them, holding the paste in position until hardened, which took about 24 hours. I then removed cardboard and separated the plates by means of fiber strips about one-eighth inch square and bound all together with heavy rubber bands. A. The thickness of the plate is favorable to the durability of the battery; otherwise there is no advantage in having a thick plate. Your battery should yield from 4 to 12 amperes.

(5066) T. S. H. S. asks: Is it possible to get sufficient heat from steam to bake the enamel on bicycles in a reasonable time? If so, is it used extensively? What is the best method to apply steam to heat an oven, say 6 feet × 6 feet × 4 feet? The temperature should be not higher than 300° Fah. If a lower temperature (say 250°) is used, how long will it take to properly bake enamel on bicycles? Would it be more economical than gas? Any information as to what has or is being done in this line will be very acceptable. A. Steam heat is in general use for baking japanned or enameled ware. For the hard japans for bicycles a temperature of 275° should be used, and higher steam pressure than usual is required to control the heat, as there is considerable margin between the heat of the steam in the boiler and the heat delivered from the pi es in the oven. With 85 pounds boiler pressure and a short distance between boiler and oven, you can obtain the desired temperature in a close oven, as you describe, with a gridiron or flat coil on the floor of 150 feet ¾ inch pipe and 75 feet ¾ pipe on the three sides, near the bottom, the fourth side being for the door. Each coat of japan should be baked for six hours, although the time depends much upon the quality of the japan. It may not be more economical than gas, but is far more, if not absolutely, safe. To make gas heat perfectly safe from setting fire to the japan vapor is ex ensive.

(5067) J. W. N. again writes: On April 15, J. W. N., No. 4886, you were good enough to answer an inquiry I made concerning hollow walls. I would like now to ask, Should not a brick wall of say 8 to 12 inches, with two thicknesses of heavy tarred felt nailed on the inside immediately to the brick, then furred with 2 inch

furring and then the usual lath and plaster, be as warm or warmer and much cheaper than any hollowwall? And also do you think t at plastering a rough coat on to the brick wall inside, then felting, then furring, then the usual lath and plaster, would answer the purpose better—namely, keeping out the cold and being cheaper? And would not the same methods of finis ing a brick wall inside apply to a stone wall? A. The methods you suggest will, no doubt, be somewhat cheaper, but will not give as good an insulator, for the reason that in saving the cost of the inner 4 inch wall, you lose not only the value of the 4 inch wall as an insulator, but also the air space, which by itself is better than the tarred felt or the plaster; besides, the two thicknesses of tarred felt would become a nuisance to most people, as the tar odor would penetrate the whole house for a long time. The plaster upon the inside and felting would only add a half or three-fourths inch to the thickness of a solid wall and complicate the putting on of a substantial furring by hiding the brick courses and make the nailing of the strips uncertain. Cheapness may be good in some places, but in your severe climate no dwelling should have less than 12 inch walls.

(5068) C. D. asks: 1. What is the most economical battery for silver plating? I want to do some plating in one gallon solution. Give description, dimension, and mode of construction of battery. A. For silver plating on a small scale, probably the Smee battery is the best. These batteries are made in different sizes. You might make or purchase one with two zinc plates, 4× 8 inches, ¼ of an inch thick, and a platinized silver plate, 4 × 8 inches, or, in lieu thereof, a platinized carbon plate. The zincs must be thoroughly amalgamated. The solution used is acid 1 part, water 10 to 11 parts. 2. I want, for sake of novelty, to have an electric light in my workshop. What battery and how many cells are necessary? I intend to use an ordinary incandescent lamp. I don't intend to use steady. A. We think you will find lighting your shop with incandescent lights with a current derived from primary batteries will prove expensive and troublesome. If you use a 20 volt lamp, you might be able to light it by the use of 14 or 15 Bunsen cells. 3. How is that battery made from tomato cans? A. We would not recommend it for electric lighting. It is described in "Electric Toy Making," $1 by mail.

(5069) M. O. G. — For carbon paper: Melt 10 parts lard, 1 part of wax and mix with a sufficient quantity of fine lampblack. Saturate unglazed paper with this, remove excess and press. Use tissue paper. A rather fine pointed bone stylus is excellent for tracing designs, etc.

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Dredger, steam vacuum, Hussey & Harsen 497,427
Dredging machine, I. R. Taylor 497,735
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Dust pan, W. N. Bates 497,401
Eaves trough coupling, J. M. Davidson 497,466
Electric conduit sections, manufacturing, J. F. Cummings 497,535
Electric light and power stations, shunt for, E. Weston 497,482
Electric machine and motor, dynamo, W. K. Freeman 497,468
Electrical conductors, underground conduit for, J. F. Cummings 497,536
Electrical distribution, system of, W. Meissner 497,755
Elevator, J. Earich 497,711
Elevator, T. W. Heermans 497,520
Elevator controlling mechanism, T. Hill 497,719
Elevator indicator, J. H. McGill 497,431
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Excavator and scraper, B. F. Smith 497,389
Explosives, vacuum drying apparatus for, E. Passburg 497,683
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Eyeglass case, R. B. Swift 497,734
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Feed apparatus, M. S. Burdick 497,703
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File, paper, C. H. Farmer 497,538
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Filter, F. K. Way 497,481
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Fog signal striker, W. R. Close 497,534
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Fruit drier, C. E. Cbrisman 497,308
Fruit or vegetable cutter, J. D. Miller 497,675
Fruit or vegetable sorting machine, F. B. Pease 497,599
Fruit picker, G. E. Hawes 497,573
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Fuel, composition of matter for saving, H. Carter 497,627
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Gas, manufacturing hydrogen, H. S. Blackmore 497,700
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Harvester, corn, H. L. & W. E. Smith 497,390
Harvester cutter bar, C. D. Hillabold 497,320
Harvester picker stem, cotton, G. N. Todd 497,462
Hat supporter, W. Applegath (r) 11,336
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Horseshoe nail machine, W. H. Dayton 497,493
Hot air furnace, W. H. Rogers 497,345
Hydrocarbon burner, Carner & Roselle 497,565
Hydrocarbon orgas furnace, S. H. Brown 497,750
Hydrocarbon vapor burner, H. Ruppel 497,459
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Igniting material, C. H. Wolf 497,699
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Indicator lock, Doremus & Brooks 497,640
Insulating plates, making mica, C. W. Jefferson 497,324
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Kitchen cabinet and sifter therefor, C. P. Staton. 497,461
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Lamp, electric arc, F. H. Thompson 497,558
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Land, machine for working stubble, E. Hovey 497,576
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Lathes, rod feeding device for turning, C. M. Conradson 497,631
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Letters, making sign, J. J. Callow 497,303
Lever, etc., hand, E. Einfeldt 497,641
Life-raft, G. B. Hussey 497,375
Lifting jack, L. J. Kelly 497,409
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Loom, temple, W. I. Stimpson 497,692
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Match splint cards, machine for making, P. Beer 497,746
Matrix making machines, type die for, C. L. Redfield (r) 11,335
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Measurer, automatic grain, J. E. Buxton 497,424
Measuring instrument, electric, A. H. Hoyt 497,521
Measuring instrument, electrical, O. Frolich 497,539
Mechanical movement, G. E. Frink 497,315
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Mining, hydrothermal, C. W. Beehler 497,513
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Motion, mechanism for converting, S. Sloan 497,478
Mower, lawn, E. R. Stabler 497,420
Music sheet for mechanical musical instruments, R. M. Hunter 497,323
Non-conducting covering, R. H. Martin 497,382
Nozzle, J. B. Thies 497,480
Numbering machine, F. Sanders 497,729
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Nut lock, N. Bosmann, Jr 497,531
Nut lock, J. L. Hudson 497,666
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Ores, treating complex or sulphide, Ingalls & Wyatt 497,473
Oven, sponge or bread raising, Silvey & Shiflet 497,609
Overflow, waste, and trap for basins, baths, etc., E. L. Burgom 497,465
Painting machine, Glass & Grafton 497,318
Pan. See Bake pan. Dust p
Paper folding machine, A. T. Bascom 497,745
Paper, ornamenting, S. Wheeler 497,421
Partition, fireproof, F. H. Mela 497,383
Pawl and ratchet mechanism, F. T. Farmer 497,467
Pen or pencil case, H. Penner 497,338
Pencil and making it, R. M. Shearer 497,350
Photographic magazine camera, G. D. Milburn 497,525
Photographic printing frame, J. Shutting 497,691
Piano keyboard, J. J. Decker *et al* 497,426
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Pill machine, J. R. Clark 497,532
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Pipe hanger beam clamp, A. Newbury 497,679
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Piston, G. S. Strong 497,358
Planer cutter, H. Ernsberger 497,713
Planter, combined cotton and corn, J. D. Schofield 497,688
Planter, corn, J. H. Peters 497,339
Pocket, safety, H. C. Diefenbach 497,638
Pole splitting machine, Murray & Robbins 497,333
Pole, vehicle, W. L. Pike 497,387
Pressure regulator, J. Acton 497,295
Pulley block, L. Grand pre 497,654
Pulley, self-locking, B. R. Sockman 497,731
Pump, A. Kroll 497,670
Pump governor, electric, C. R. Whittier 497,563
Pump, oil, Graham & Smith 497,653
Push button switch, F. S. McGregory 497,411
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Radiator, gas, H. Ruppel 497,460
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Railway rail and metallic cross tie, W. S. Ward 497,562
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Railway signal, electric, W. H. Jordan 497,408
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Railway switch, street, J. B. Gough 497,508
Railway tie, S. McElfatrick 497,678
Railway track structure, Samuel & Angerer 497,554
Railway trolley conduit, P. C. Just 497,377
Railways, closed conduit for electric, A. J. Martin 497,585
Railways, sectional contact conductor for electric, G. Westinghouse, Jr 497,436
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Range or stove, cooking, W. L. Culver 497,709
Rapping machine, E. L. Howe 497,498
Refrigerating ship, J. McIntyre 497,595
Refrigerator car, P. W. Ross 497,346
Refrigerator car ice tank, E. R. Hutchins 497,376
Refrigerator ice rack, F. E. Ranney 497,458
Regulator. See Pressure regulator.
Rheostat, P. Wright 497,366
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Roll dressing machine, G. Mesta 497,580
Rotary engine, D. Carskaden 497,403
Ruling machine, F. Hart 497,472
Saddle, riding, H. Hotze 497,665
Safe, sayings deposit, N. H. Lee 497,671
Sash adjuster, window, A. J. Barber 497,296
Sash bolder, S. R. Kirby 497,581
Sashes, etc., metallic bar for window, W. Henderson 497,543
Satchel harness, telescoping, H. Van Altena 497,736
Saw, E. T. Lippert 497,499
Saw swage, J. W. Turner 497,616
Sawing machine, W. E. Moffatt 497,676
Scalping machine, W. D. Gray 497,655
Screw, J. B. Adler 497,510
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Sewing machine, J. R. Scott 497,690
Sewing machine bobbin winder, A. Morley 497,476
Sewing machine cloth winding attachment, E. Calm 497,425
Sewing machine feeding mechanism, D. Flanagan 497,645
Sewing machine, overseaming, Merrow & Collins. 497,587
Sewing machine overseaming attachment, G. W. Kemp 497,668
Sewing machine take-up, D. Flanagan 497,646
Shaft support, vehicle, G. W. Pressey 497,602
Shafts, vehicle, G. A. Lambert 497,378
Shafting and coupling attachment therefor, flexible, Moffat & Virtue 497,590
Shears gauge, Oberle & Faller 497,412
Sheet metal cans, machine for making, A. W. Hartlove 497,542
Sheller. See Corn sheller.
Shirt, C. W. Prentiss 497,727
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Silk or other fabrics, machine for watering and finishing, Thommen & Rothenbucher 497,360
Skirt supporter, Brewer & Smith 497,516
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Smoke consuming furnace, W. Ackroyd *et al* 497,741
Smoke consuming furnace, C. A. Tinkham 497,392
Snow flanger, railway, G. H. Johnson 497,753
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Steam boiler, C. L. Seabury 497,432
Steam boiler or hot water heater, A. Boyce 497,625
Steam engine, direct-acting, W. A. Drewett 497,443
Steam engine stop mechanism, W. M. Wood 497,529
Steering gear, vessel's, Chase & Daly 497,706
Stone channeling machine, Z. Lassar 497,379
Stone sawing machine, W. P. Barclay 497,400
Stove caster, A. H. Seyller 497,557
Stove, oil, W. H. Wilder (r) 11,337
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Switch and signal setting and locking apparatus, J. H. Frischen 497,716
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Thrasher, traveling, C. Grattan 497,717
Tin plating, electro, L. Aronson 497,621
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Tire, pneumatic, E. Michelin 497,453
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Tires, repairing pneumatic, R. Cowen 497,634
Tobacco, curing, S. E. Haskin 497,572
Tobacco drying, cooling, and ordering apparatus, Mayo & Peple 497,586
Tobacco pipe, S. Shields 497,351
Tobacco stem flattening device, I. W. G. Wierman 497,437
Toilet article, combined, C. J. Kintner 497,451
Trimmer. See Wall paper trimmer.
Truck, electric car, C. S. Strong 497,356
Truck, store, S. M. & M. M. Duffe 497,444
Trunk, wardrobe, J. Rundback 497,414
Typewriting machine, E. A. Ford (r) 11,339
Typewriting machine, H. L. Wagner 497,560
Typewriting machine key, D. P. Wolhaupter 497,483
Umbrella, folding, R. E. Johnston 497,578
Valve, direct-acting engine, M. T. Davidson 497,442
Valve rod adjuster, B. D. Nortbrup 497,681
Valve, steam-actuated, R. L. Frost 497,470
Valve with governor attachment, brake, W. F. De Forest 497,405
Vanilloyl-carbonic acid and vanillin, making, G. De Laire 497,546
Vault cover, ventilating, C. H. Ross 497,388
Vehicle equalizing device, H. B. Cross 497,309
Vehicle seat, A. Delotter 497,311
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Vehicle spring, D. T. Ensign 497,372
Vehicle, spring, H. A. Moyer 497,548
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Ventilating wheel, M. R. Ruble 497,413
Vessel for shallow water navigation, C. G. Kellogg 497,325
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Wagon box fastener, M. A. Johnson 497,577
Wagon, lunch, C. H. Palmer 497,598
Wall paper trimmer, J. Reading 497,528
Washboard, H. Purcell 497,342
Washer, drier, and separator, G. H. Tench 497,615
Washing apparatus, floor, Tellefsen & Hughes 497,359
Washing machine, S. B. Bowles 497,701
Watch mainspring, J. B. Jobson 497,429
Watch, safety guard, I. C. Carmona 497,705
Water closet demonstrator, W. H. Lloyd 497,584
Water gauge safety attachment, G. Beinke 497,564
Water purifier and cooler, W. Allderdice 497,743
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Well, tubular, J. Burke 497,302
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Wire hanger, A. J. Wylie 497,479
Wire tightener, S. H. Stupakoff 497,733
Wood, etc., compound for preserving, W. A. Gayle 497,471
Wooden tubes, machine for forming, M. E Brigham 497,299
Wrench, F. B. Wells 497,618
Wringer. See Clothes wringer.

TRADE MARKS.

Alteratives, tonics, and blood purifiers, Sawyer Medicine Co 23,037
Baking powder, W. J. Stone 23,048
Beer, lager, Bartholomay Brewery Company 23,039
Beer, lager, Bohemian Brewing Company of Chicago 23,040
Beer, lager, Wacker & Birk Brewing and Malting Company 23,041
Brandy, E. Martell 23,042
Clothes wringers, Bissell Carpet Sweeper Company 23,054
Coffee and tea, Wing Brothers & Hartt 23,044
Cosmetic, South Bend Medicine Company 23,026
Cotton goods, Massachusetts Cotton Mills 23,019
Cotton goods, bleached, brown, and printed, G. Willis 23,022
Dental remedies and specifics, M. L. Pine 23,027
Firearms, revolving, Smith & Wesson 23,056
Flour, wheat, Spangle & Yeager 23,049
Gloves, Fownes Brothers & Co 23,017
Hams, shoulders, breakfast bacon, and lard, sugar-cured, Swift & Company 23,050
Insulating varnish, Massachusetts Chemical Company 23,051
Jewelry formed of artificial flowers, ornamental. Fishel, Nessler & Co 23,016
Medicated beverage, Lundin & Co 23,035
Medicinal tea, E. B. Schoenike 23,036
Medicine for diseases of the blood and resultant disorders, Rogers, Moore & Bunting 23,034
Metals, anti friction and babbitt, New York Smelting and Refining Company 23,057
Milk for nursery and sick room use, pure, Walker-Gordon Laboratory Co 23,04
Mineral water, Waukesha-Lithia Spring Company 23,038
Oil, linseed, S. Kellogg 23,052
Perfumery, Oakley Soap and Perfumery Company 23,024
Perfumery and perfumed soap, J. L. Grossmith 23,025
Pills, M. De Tar 23,028
Pills, medicinal, P. B. MacNamara 23,029
Pop corn, shelled, J. L. Dougall 23,047
Printed and dyed fabrics, Arnold Print Works 23,021
Prints and cotton piece goods, Arnold Print Works 23,020
Remedies for cancer and other blood diseases, C. H. Mason 23,033
Remedies for coughs and diseases of the throat, Occidental Manufacturing Co 23,0 2
Remedy for chills, W. A. Perkins 23,030
Remedy for piles, J. Senior 23,031
Ribbons, Whitney & Co 23,018
Rubber goods, Eastern Rubber Manufacturing Company 23,023
Saddles, harness, robes, blankets, horse clothing, and like goods, Chickasaw Saddlery Company 23,053
Sirup, Bliss Sirup Refining Company 23,046
Spices and mustard, Wing Brothers & Hartt 23,045
Steel in sheets, strips, bars, and rods, Wilmot & & Hobbs Manufacturing Company 23,059
Steel suitable for files and other tools, tool, Jonas & Colver 23,058
Woodworking machines, Hall & Brown Wood Working Machine Company 23,055

DESIGNS.

Bottle, F. M. Winn 22,441
Carpet, T. L. Lawton 22,436
Curtain, etc., T. L. Lawton 22,435
Grate, cellar, F. A. Peter 22,448
Lamp base, F. C. Koenig ..... 22,442 to 22,444
Horseshoe, J. A. Wright 22,450
Plate, T. Haviland 22,440
Spoon, M. A. Fisher 22,438
Stove, cooking, C. Wipfler 22,447
Stove, gas or oil, A. C. West 22,445
Stove, heating, Schermerhorn & Weller 22,446
Table knife, P. McGuigan 22,439
Textile fabric, G. T. Garey 22,434
Type, font of printing, W. W. Jackson 22,437
Water closet cover, Hammann & Peet 22,449

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