Notes & Queries

M. J. will find the recipe for diamond cement on p. 90, vol. 30 (cementing whalebone to wood).—W. H. H. and T. E. C. will find directions for bronzing iron on p. 283, vol. 31, and for tinning iron on p. 362, vol. 31.—W. L. D. can make a magnet by following the directions on p. 218, vol. 31.—J. G. M. & Co. will find a recipe for paste for use on tin on p. 253, vol. 30.—J. E. H. can nickel plate steel by following the instructions on p. 174, vol. 30.—L. T. can repair his rubber boots by following the directions on p. 203, vol. 30.—C. McE. can make a carmine red ink by the recipe given on p. 200, vol. 30.—F. M. H. and many others will find directions for nickel plating on pp. 43, 90, 346, vol. 31.

(1) E. C. asks: 1. In the present Atlantic telegraph cable is, there a floating battery, or has there been one at any time since it was laid, in mid-ocean? A. No. 2. What is the size of the batteries used at the shore ends of the cable? A. Quart cells. 3. How small a battery is it possible to use and send a communication over the cable? How small a battery has been tried, which showed indications at the other end? A. A battery composed of a single percussion cap, in each case. 4. Would it be possible in taking up the cable, beginning in mid-ocean, to communicate with the shore, unless they first separated the cable or outer coating? A. It would not.

(2) N. N. asks: What is the best battery for running a revolving armature? A. A largesize Daniell, battery or the modification of it known as the gravity or Callaud battery.

(3) S. E. T. says: 1. I wish to convey water from a stream to a tank 1,000 feet distant and 30 feet higher than the stream. Will I get as good a supply of water with the same power if I lay a 3 inch pipe over the first 300 feet, a 2 inch pipe over the next 200 feet, and an 1½ inch pipe over the remainder, as with a 2 inch pipe over the whole distance? A. The data are not complete, but it would be better to have the pipe the same size throughout. 2. Will chestnut sticks, with a 2½ inch hole bored through them lengthwise, united with iron couplings, answer the purpose for pipe? A. Yes. 3. How many horse power will it require to give a supply of 10 gallons per minute? A. From 2 to 2½ times the power required to lift the water, neglecting friction.

(4) N. N.—A very pretty magnified view of an aquarium or other object is obtained through a telescope when the objective and eyepiece are very far apart, in a tube of extra length.

(5) I. F. J. asks: How can I repair an opera glass of which the plating is discolored and the ivory broken? A. Nickel plate the metal surface, and cover with morocco leather attached with marine or other glue.

(6) S. D. E. says: 1. Eight months of labor and patience have rewarded me with a splendid reflector. I used Draper's method of silvering on glass, as described in your answers to correspondents. Any one who follows the formula must succeed. My reflector is 12 inches in the clear, with 10 feet focus. I want to set the reflector at an angle, so that I can view direct instead of using an angle mirror; and I wish to leave the tube 2 feet longer than the focus, so that my head will not be in the way of the light. Will this answer? A. If your mirror gives sharp definitions, mount it as a Newtonian; if not, mount it as an aerial, as figured by Dick. 2. Please tell me what the focal distances and diameters of the two eyepieces should be (the focus spot by the sun covers about half an inch). A. To construct a battery of eyepieces, take the highest power, say 600, and divide it by 1·5=400, the next power; 400÷1·5=266÷1·5=177, ÷1·5=59; or begin with the lowest, say 60, and make each power ½ greater than the one below it. 3. How far should the first glass (next to reflector) be beyond the focus? Should it be plano-convex or double convex? A. Focus is within the Huyghenian eyepiece. See No. 48, October 17, 1874. A Ramsden or positive eyepiece, for micrometer or reticule, is constructed thus: The focus of the field lens=twice the focus of objective divided by the power required. Focus of eye lens is 0·555 or $\frac{5}{9}$ that of field lens. Distance apart is $\frac{4}{9}$ or 0·444 of focus of field lens. Equivalent single lens is ½ focus of field lens. Apertures are ⅓ of focal length. Image is $\frac{1}{10}$ of focus of field lens in front of it. Both lenses are plano-convex, the convex sides facing each other.

(7) Z. T. R. says: I wish to convey the water of a spring to my dwelling, which is at a distance of 600 yards; the pipe will have to cross a creek and swamp, making the lowest point of the pipe 40 or 50 feet below the fountain head. The spring affords water enough to fill a 2 inch auger hole through a weir with a 6 inch head. What size of pipe will be required for the work, the discharge being 15 or 20 feet below the receiving point, and consequently at a head of 15 or 20 feet at the house all the time? A. A one inch iron pipe will serve your purpose, and, notwithstanding the friction of so long a line, give water enough for a family's use. The salts in the water will very likely coat it so as to prevent the rusting of the iron. The usual thickness of a one inch wrought iron pipe will be strong enough for the pressure at the lowest point. The exterior may be covered with a wash of coal tar. 2. Who makes the best pipes, to keep water free from all poisons and rust? A. Tin-lined lead pipe is supposed to be the best pipe for the purpose. All pipe should be laid below the reach of frost. The power of a water wheel is best ascertained by experiment.

(8) J. G. H. says: I have a sawmill boiler in which the distance from the bottom of the boiler to the top of the arch is 8 inches from the arch. The brickwork is gradually sloped. We fire with sawdust, but have to use some dry slabs to get steam enough. An engineer tells me that if I make the arch 10 or 12 inches from the boiler, and leave the space from the arch to the brick wall empty instead of filling it up, I will be able to burn more sawdust and refuse and keep up steam, without using slabs. I want to burn all the sawdust and refuse I can, and at the same time have steam enough. Which is the better way? A. We do not think that the change will produce any decided advantage, unless you make a combustion chamber, by admitting air into the space back of the bridge wall.

(9) D. N. B. asks: 1. Is it economy of fuel to buy a 10 horse power engine and work it up to 15 horse power rather than work a 15 horse engine at its nominal capacity? How much work could a well made nominal 10 horse engine be made to do without over working or straining? A. We cannot tell you anything about nominal horse power, as it varies with different makers; nor is it possible to give general rules for the most economical manner in which to run all engines, as it depends upon a number of variable quantities. 2. How might the relative value of coke and Illinois bituminous coal be stated for making steam? A. It can readily be determined by experiment. Keep account of the fuel consumed and word done. 3. What power of engine would you advise putting in, to run machines requiring (according to manufacturer's representations) an aggregate of 10 horse? A. An engine of 10 effective horse power.

(10) H. L. says: 1. I wish to construct a two inch achromatic telescope and use it both as a terrestrial and astronomical one. What would be the best object glass, and what length of focus should it have? A. See answer No. 27, October 24, 1874. 2. How should I construct the eyepiece to match? A. Put the smaller plano-convex lens next the eye. 3. What are the names, distances, magnitudes, and masses of about ten of the nearest fixed stars whose distance has been roughly ascertained? A. 61 *Cygni* has a parallax of 0″45″, distance 44 millions of millions of miles; diameter of orbit 17 times that of the earth; light period 7 years. Sirius and *α Lyræ* have each a parallax of ¼ second; they are about 800,000 times as distant as the sun. 4. Please give the rates at which they appear to travel in their orbits, and towards what star they appear to travel, as well as the rate at which others move away. A. Stars approaching us are: Arcturus, 55 miles per second, Vega 44, *α Cygni* 39, Pollux 49, *α Ursæ Majoris* 46 to 60. Stars receding are: Sirius 18 to 22 miles per second, Betelgeux 22, Rigel 15, Castor 23 to 28, Regulus 12 to 17. The two fourth magnitude components of *γ Virginis* revolve round their center of gravity in 169 years; major axis, 7″. *Xi Ursæ Majoris* fourth and fifth magnitudes, 61 years, 5″. *ζ Herculis* third and sixth magnitudes, period 36 years; major axis 2½″. 5. What time does it take Sirius's companion to go round him? A. Four hundred years, 10th magnitude; mass of satellite=half mass of Sirius. Sirius is over three million miles in diameter. 6. What are the diameters of Saturn's moons? A. Titan is larger than Mercury. It can be seen with 1 inch aperture, Japetus with a two inch. 7. In what constellations can I find five of the largest nebulæ that have been found to be gaseous? A. Great nebula of *Orion*: Right ascension, 5h. 29m., declination S. 5° 29′. Nebula in *Andromeda*: 4° long, 2½° broad, R. A. 0h. 36m., D. N. 40° 30′. Dumb bell nebula, R. A. 19h. 54m., D. N. 22° 22′. Annular nebula in *Lyra*: R. A. 18h. 49m., D. N. 32° 52′. Horseshoe nebula, R. A. 18h. 13m., D. S. 16° 17′. Two copies of SCIENTIFIC AMERICAN for 1 year and two of *Science Record* will cost $10.

(11) J. McD. asks: 1. Is there any place in America or Europe where crude petroleum is used for making gas? A. There have been many attempts to employ it, some of which are still in progress. 2. Does such process pay economically, in comparison with coal? A. As yet, the various inventors have not succeeded in perfectly overcoming the practical difficulties.

(12) A. A. N. asks: Is there any way of preparing the sympathetic inks which are visible only when heated, such as solutions of Co $(NO_3)_2$, $CoCl_2$, etc., so that they can be used for printing or stamping? A. We do not know of any such method.

(13) J. G. S. asks: How can I make a cheap paste for putting up paper exposed out of doors, making it impervious to any kind of weather? I should like it to form some kind of hard surface similar to varnish. A. We know of no material that will answer all these requirements.

(14) C. W. asks: 1. Are the saltpeter deposits in the Big Bone Cave, Tenn., extensive? A. It is probable that saltpeter has been obtained by lixiviation of the earth in the cave. 2. Is it true that large quantities were obtained here for the rebel army? A. The amount, though considerable, would not cause this source of supply to supersede others.

How can I preserve guns with least trouble? A. Cover the iron with a mixture of tallow and white lead.

How must I treat brier root to prevent splitting, and how can I color it for a pipe bowl? A. Boil the wood for an hour or two in water, and dry slowly. To color, hold near the fire so as to gently warm, and by means of a feather coat the surface with dilute aqua fortis; oil and polish.

How can I dye hair switches dark brown? A. To a saturated solution of sulphate of copper (blue vitriol) add ammonia until the precipitate which falls is redissolved. For a mordant, to be first applied, use a saturated solution of ferrocyanide of potassium.

(15) J. B., of Wells, England, says: On removing a sheet of tin which had been placed immediately behind a looking glass plate (exposed to the sun) I discovered several circular spots, varying from two to four inches in diameter, with a dull silvery appearance and very smooth. If this was a coating of silver, can you explain how it was conducted from the plate to the tin, as the mercury on the plate did not come in contact with the tin, except at the edge of the plate? A. They were probably spots produced by a small amount of mercury volatilized from the back of the mirror, acting upon the tin.

I have two small pine trees (which I brought from America last winter) and wish to preserve. One especially is looking sickly, although both have grown a little. They were planted in a rich red soil in a low situation. Can you tell me what locality or soil would be most congenial to their growth? A. In this country, pine trees do not grow in rich, moist bottom lands, but upon arid, sandy solis.

(16) S. asks: What is a solvent of oxidized linseed oil? A. Turpentine.

(17) J. H. asks: What is a durable cement, for cementing burlaps to the edges of a frame made of building paper? A. Edmond Davy prepares a cement, which is well spoken of, by melting in an iron vessel equal parts of common pitch and gutta percha. It is kept liquid under water, or solid to be melted when wanted. It is not attacked by water; and it adheres strongly to wood, stone, glass, porcelain, ivory, leather, paper, feathers, wool, hemp, and linen fabrics, and even to varnish.

(18) H. W. asks: What is the best preparation to put upon the wood floor of a public building which is daily much used? A. In cases of this kind, the general practice is to use some cheap durable paint.

(19) J. H. A. asks: 1. Will oil in which steel is repeatedly hardened lose its hardening property? A. No. 2. Which is the best kind of oil for hardening steel? A. Common machine oil may be used; but for fine work, olive or cotton seed oil will be more satisfactory.

(20) J. W. asks: What materials are used to make amber-colored glass, beside manganese? A. Different shades of yellow may be imparted to the glass by the addition of the oxides of silver and antimony, and by finely divided charcoal; also by the presence of peroxide of iron in quantities not exceeding one per cent. The tints may be tempered by the addition of minute quantities of the purple of Cassius.

(21) J. K. asks: If a mixture of steam and air, after passing through red hot pipes, were admitted, by means of the draft, to a coal fire, would it insure a more complete burning of the smoke than if air alone were so used? A. It would be a dangerous experiment, as such a mixture (if a sufficient amount of heated iron were presented to the steam to liberate a part of the hydrogen) might be rendered explosive.

Why do the rays of the sun warm the air more in the valleys than they do on the top of high mountains? A. The air receives its warmth by contact with the earth; as the valley offers to the lower strata of air greater surface, the contact is more frequent and intimate. Something is also due to evaporation.

(22) H. A. G. asks: 1. Are glass tumblers made in molds? A. Yes. Many forms of glass ware are made by blowing into molds. 2. How is window glass made? A. In the manufacture of common window glass, the workman dips an iron tube into the melted mass, a portion of which adheres to it. This is blown into a pear shape, which becomes elongated by swinging like a pendulum. By reheating, blowing, and rolling, it is worked into the form of a cylinder, which is cut off around the top and bottom and split down the side. After again softening in the furnace, it is opened and spread out into a flat plate. 3. There is a recipe for crystal glass which states: White sand 15, red lead 10, refined ashes 4, and niter 1, parts. What are these parts? A. Parts by weight.

(23) D. H. R. asks: How can I relieve canaries from the attacks of a very small red parasite? A. Allow the birds to bathe frequently, and keep the cage very clean, with plenty of sand at the bottom.

(24) H. E. B. asks: 1. In re-sharpening files will any other kind of battery answer the same purpose as the Bunsen? A. Yes. 2. Will a zinc and porous cup battery, excited by nitric and sulphuric acids, be sufficient, and how many cups are needed? A. No doubt any kind of battery will answer the purpose, provided the electromotive force be equal to that of twelve Bunsen cells, the number employed by Mr. Werdermann in his experiments. 3. Are the files placed horizontally or in a perpendicular position? Should the positive pole connect with every file separately in the bath, or do they project above the bath and make a dry connection with the positive pole? A. Perpendicularly. The handle end of the file should project above the liquid, and connection may be made by means of a binding screw with the positive pole (copper or carbon) of the battery. 4. Will a small battery of medium strength be sufficient to sharpen a few files at a time, or even one, with a longer period of immersion? A. Possibly. The experiment is easily made.

(25) J. J. B. asks: I have been making some magneto-electric apparatus, and to insulate the wire I wrapped it with silk thread. Is there not a cheap silk thread made especially for this purpose? A. Yes. The wire is covered with raw silk floss, called untwisted silk for covering telegraph wire.

(26) I. J. S. asks: 1. Is there any way which will effectually destroy magnetism in the steel parts of watches, except passing them through the fire? A. There is no practicable method of destroying it. 2. Why do watchmaker's small tools get magnetized when there is no magnet about the shop? A. It is possible but not probable that the tools may have become magnetized by friction. It is more likely that your tools have accidentally got in contact with a magnet.

(27) M. D. says: Will you give me the simplest process of nickel-plating small objects like surgical instruments? A. Use chloride of nickel for a solution with a nickel positive electrode, and proceed as in silver plating.

(28) J. M. D. asks: Do you know of anything that will cut off the attraction of a magnet? A. Place a brass plate between the poles of the magnet and the armature.

(29) W. T. B. says: I have learned from several that there is a mode of increasing negative electrical attraction, relative to the positive, in other words, of having a great attraction and slight repulsion. Is this so? A. It is probably erroneous.

(30) S. D. asks: What is the explanation of the term squaring the circle? A. Calculating the exact superficies of a circle whose diameter or radius is given, so that the side of a square of the same area may be known.

(31) C. W. says: Please state the composition and properties of croton chloral. A. Ordinary chloral is an aldehyd; it is the hydride of trichloracetyl, C_2Cl_3OH. Croton chloral is the hydride of trichlorocrotonyl, $C_4H_2C_3H$, or the aldehyd of crotonic acid, C_4H_6OH, in the radical of which three atoms of hydrogen have been replaced by three atoms of chlorine. Anhydrous croton chloral is a colorless, oleaginous liquid, having a peculiar odor, recalling that of ordinary chloral. It is insoluble in water, but, like ordinary chloral, it combines with water to form a crystallized hydrate. The hydrate of croton chloral crystallizes in white mucreous spangles. It is slightly soluble in cold water, more freely soluble in warm water, and extremely soluble in alcohol. It dissolves more readily in glycerin than in water.

(32) F. M. H. asks: Will five Calland batteries be enough to plate with? A. Yes.

(33) N. B.—If the moon's node be less than 9° 30' from the center of the earth's shadow, there will certainly be an eclipse of the moon. If the sun be more than 12° 4' from the node, there cannot be an eclipse. The moon crosses the ecliptic 19° further west each year.

(34) W. M. D. asks: 1. In what manner are the connections usually made or attached to the pendulum of a regulator beating seconds, to convey a current of electricity to another clock? In other words, how can I make and break connections at each second, and at the same time take no power that would disturb the pendulum as regards its rate? A. The pendulum in swinging passes through a small cup of mercury. 2. What form of battery will convey a weak current for a year without attention? A. The Leclanché or the gravity battery.

Has mercury any effect on platinum when brought in contact with it? A. It will adhere to the platinum, but will cause no injury.

(35) W. T. H. asks: Is it darkest just before daylight? A. No.

What is a good cement to stick rubber coat seams together with? A. Dissolve a small quantity of pure rubber in hot naphtha.

(36) W. E. S. says: I think my eyes are getting weak, but am not sure. Will you please tell me how I can test them? A. By comparing with some one whose eyes are undoubtedly good.

(37) F. H. W. asks: 1. How can I make a soft iron core for a magnet? A. Bend a rod of iron into the shape of a horseshoe. 2. Should the wire be wrapped tight around the soft iron? A. Yes. 3. Would a battery made of a common tin can lined with lead, with zinc hung in the top, make a battery of any strength? A. Yes. 4. What fluid should I use for such battery? A. Put crystals of sulphate of copper in the bottom of the can, and fill with water.

(38) S. H. B. asks: Will the Leclanché battery answer for an electrical clock in which the impulse is to be given to the pendulum at each return to one side, the pendulum beating in half seconds? A. Yes.

(39) W. H. M. asks: Is electricity a substance? A. That question still remains to be solved. The present opinion seems to be rather inclined to regard it as a force.

(40) T. C. H. asks: Will you please give me a good recipe for separating silver and gold when melted together? A. Melt the alloy, and while in a fused state pour it from some hight into a vessel of water to which a rapid rotary motion is given. By this means the metal may be obtained in a finely granulated state. Add to the metal thus obtained a quantity of chemically pure nitric acid, and heat gently. When the solution ceases, which may be known by the discontinuance of effervescence, the liquid may be poured off. If any grains appear entire, more acid must be added until the silver is all dissolved. The remaining gold will have the appearance of black mud or powder, which must be thoroughly washed and melted. The silver is recovered by precipitation with muriatic acid and reduction. The precipitate of silver must be well washed with boiling water, and may be fused with niter or fested off with lead.

(41) C. L. W. asks: What will restore the color of a book slate which has turned white? B. Try a thin coat of lampblack in alcohol.

(42) I. F. M. asks: Would not the attractive force between two magnets with the opposite poles in contact be greater than that with which both magnets, with like poles adjacent, would attract an armature? In other words, would one magnet attract another of the same power with more than twice the force that it would the armature? A. No.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

C. I.—They are iron pyrites.—J. W. W.'s specimen did not come to hand.—I. S. B.—It is a fine sand, consisting mostly of silex and alumina. It can be used for grinding and polishing powder. It would not be easy to grind it finer, except by suitable steel rollers; but the finer particles could be separated from the coarser by suitable sieves and bolters, and then the coarser could be ground, if necessary.—L. G. D.—There is nothing peculiar about this earth, except that it is quite white from being unstained by iron; and that it is in a fine powder. It consists principally of silicate of alumina. —J. H.—Both the specimens contain sulphuret of iron.—J. T. T.—It is sulphuret of iron (iron pyrites).—J. H. M.—They are worms growing from germs in organic tissues, like the interior portion of feathers.—J. J. J.—Your specimen is fine sand with scales of mica. The powder marked P is a mixture of particles of metallic lead with oxide of lead, carbonate of lead, chloride of lead, and sulphate of lead.

C. F. A. asks: How can I construct the sliding or guiding parts of a self-supporting drawer, so that it may be drawn out its full depth, from under a bench?—E. J. Q. asks: 1. What is laminated steel? 2. A gunsmith in Boston says he can take any gun barrel and make a laminated steel barrel of it. Can it be done?—W. H. B. Jr. asks: How can I make artificial firebrick?—L. K. Y. asks: What is Vienna lime?—C. H. M. says: 1. It is observed that the putty used in stopping up the nail holes in boats where galvanized nails are used soon becomes soft and friable, and ceases to afford adequate protection. To what is the change due? 2. What can be used, in place of putty, that will remain hard and firm in covering galvanized nails while exposed to salt water? T. H. D. asks: 1. How can I get rid of the red spider which infests house plants? I have tried tobacco water and smoke, but without effect. 2. How can I get rid of moths in carpets?—J. C. asks: 1. How can I cause a quick fermentation, to prepare molasses for distillation? 2. How can I take the taste of molasses from the spirit after distillation?

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On Lining Engine Cylinders. By F. G. W.

On Splicing Large Belts. By T. G. B.

On Hydrophobia. By J. R.

Also enquiries and answers from the following:

W. A. T.—J. S.—T. F. M.—W. H.—H. D. D.—C. G.—A. J. B.—H. E. B.—G. B.—G. W.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of enquiries analogous to the following are sent: "Where can illustrations of new designs for furniture be obtained? Who sells the best feed water heater and filter? Why do not makers of glue advertise in the SCIENTIFIC AMERICAN?" All such personal enquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL.]

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FOR WHICH

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Granted in the Week ending

December 15, 1874,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

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Hoisting machine, H. Richmann 157,870
Horse checker, W. T. and J. B. Burton 157,712
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Horseshoe nails, pointing, Caryl & Lee 157,713
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Hosiery, stamping and striping, G. F. Salmon 157,766
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Ironing board, T. H. Eaton 157,680
Jack, lifting, L. M. Cutting 157,733
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Match composition, safety, G. C. J. Schneider 157,873
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Press, B. J. Day 157,799
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Telegraph, printing, J. E. Smith 157,880
Telegraph relay and sounder, W. S. Rose 157,764
Tin plate, making, T. H. Johns 157,687
Tube expander, holler, W. S. Sharpneck 157,875
Type setting machine, J. W. Paige 157,694
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Valve, stop, J. Demarest 157,800
Vehicle motor, Steel & Austin 157,884
Vehicle seat, E. L. Bradley 157,673
Vehicle seats, back for, M. Halfpenny 157,816
Vehicle wheel, J. A. Geer 157,748
Vehicle wheel, W. M. Hoffmann 157,825
Vehicle wheel hub, Clarke & Locke 157,735
Vehicle wheel tyre, J. T. Brayton 157,732
Vehicle wheel tyre, F. Corsa 157,798
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Wagon and carriage safety guard, T. Joyce 157,837
Wagon axle, J. Skeen 157,768
Wagon spring seat, J. Griffith 157,813
Wall paper striping machine, J. J. Janeway 157,834
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Windmill, W. C. Nelson 157,777

DESIGNS PATENTED.

7,922.—COFFIN HANDLE TIP.—A. B. Bailey, Cobalt, Conn.
7,923 & 7,924.—JEWELRY DROP.—L. S. Beals, Astoria, N. Y.
7,925 to 7,928.—BREASTPIN.—L. S. Beals, Astoria, N. Y.
7,929.—BRACELET.—L. S. Beals, Astoria, N. Y.
7,930.—SOAP.—D. S. Brown, New York city.
7,931.—GAS GLOBE GALLERY.—T. Trudeau, Ottawa, Ca.
7,932.—BUTTONS.—L. S. Davis, Waterbury, Conn.
7,933.—REVOLVING FIRE ARMS.—C. B. Richards, Hartford, Conn.
7,934.—INKSTANDS.—L. Rosenfeld, New York city.
7,935.—ADVERTISING WAGONS.—O. F. Sage, Boston, Mass.
7,936.—TYPES.—G. W. Witham, Philadelphia, Pa.

TRADE MARKS REGISTERED.

2,113.—CIGARS, ETC.—F. Dufoure, New York city.
2,114.—MEDICAL COMPOUND.—J. N. Quigley, Shippensburg, Pa.
2,115.—WHISKY.—G. P. Shoosson, Jersey city, N. J.
2,116.—CHAIRS.—Delaware Chair Company, Ohio.
2,117.—CANNED GOODS.—Evans & Co., Baltimore, Md.
2,118.—BAKING POWDERS.—H. F. Griswold & Co., Chicago, Ill.
2,119.—MUSTARD.—H. F. Griswold & Co., Chicago, Ill.
2,120 & 2,121.—TOBACCO.—Liggett *et al.*, St. Louis, Miss.
2,122.—CORSETS.—S. A. Moody, New York city.
2,123.—STARCH.—C. Morningstar & Co., New York city.
2,124.—STATIONERY.—Rowland & Co., Washington, D. C.
2,125.—CIGARS.—J. Schroeder & Co., Baltimore, Md.
2,126.—SOAP.—N. Sheldon, Providence, R. I.
2,127.—COCOANUT PREPARATIONS.—California C. N. Co., San Francisco, Cal.

SCHEDULE OF PATENT FEES.

On each Caveat $10
On each Trade mark $25
On filing each application for a Patent (17 years) $15
On issuing each original Patent $20
On appeal to Examiners-In-Chief $10
On appeal to Commissioner of Patents $20
On application for Reissue $30
On filing a Disclaimer $10
On an application for Design (3½ years) $10
On application for Design (7 years) $15
On application for Design (14 years) $30

CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA, DECEMBER 11 to DECEMBER 17, 1874.

4,166.—J. O. Grove, Bluffton, Wells county, Ind., U. S. Improvements in differential pulleys, called "Grove's Differential Pulley." Dec. 11, 1875.

4,167.—S. White, Belleville, Ont. Improvements on a machine for attaching horses to plows, harrows, etc., called "White's Suspended Whiffletree." Dec. 11, 1874.

4,168.—E. L. Fenerty, Halifax, Nova Scotia. Extension of Patent No. 180, called "An Improved Method of Making, Adjusting, and Fastening Skates." Dec. 11 1874.