Notes & Queries

A. J. R. will find directions for preparing liquid glass (silicate of soda) on p. 225, vol. 23.—R. K. is informed that making malleable iron castings is described on p. 138, vol. 29.—R. F. will find a recipe for cement for china on p. 346, vol. 24.—F. C. will find directions for enameling iron saucepans, etc., on p. 149, vol. 28.

(1) E. G. T. says: I have a small telegraph apparatus for learners, consisting of a key and sounder, the current being obtained from a simple battery of zinc, copper, and blue and white vitriol. How could I make it work an electric light? What material would be required, and how should I arrange it? A. See p.35, vol. 33.

(2) W. C. asks: 1. Which will be the stronger of the following? Three cells of Bunsen, zincs ⅛x6x14 inches, carbons ¾x2x9 inches, porous cups 8 inches high, 3 inches diameter, and $\frac{4}{15}$ inch thickness; or a Grenet battery of 8 cells, zinc plate ¼x2x4½ inches, and carbon plates ¼x2x4½ inches? A. On short circuit, the Bunsen. On long circuit, the Grenet. 2. Can the electric light be produced with one of the above batteries? A. Yes, with either. Use 50 cells Bunsen or 100 Grenet. 3. Is the middle plate of a Smee cell sometimes made of carbon? If so, is it as good as the silver coated with platinum? A. Yes. 4. Where can I find directions for making induction coils? A. On p. 219, vol. 32.

(3) E. G. S.—There would be no action in a battery of zinc only, arranged as you propose.

(4) A. B. says: I have a telegraph line of ½ of a mile in length, with two relays on it made of No. 24 cotton-covered copper wire, 1 lb. of wire in each relay. The battery is of the Lockwood and Callaud pattern, six jars each. The current is strong enough to produce a very disagreeable sensation on the tongue when it is placed between the wires of the main line. The relays will not work with sufficient force to operate the sounder that is attached to the local battery. One jar of the local battery will work the relay on a 2 foot circuit very well; but if I put my tongue between the wires of the local battery, I cannot discover any current passing. What is the matter with the relays, and what shall I do to make them work? A. Do you use a ground for a return wire? If so, try another wire in place of the ground.

(5) A. G. Jr. says: In *Science Record* for 1873 some one recommends chromium as a negative metal in galvanic couples. I see in the market lead plates, covered with a film of what purports to be chromium, and apparently coated by deposition. If chromium can be so deposited, what salt of the metal is there that can be used? A. The chromium is not deposited upon the lead electrically, but is pulverized mechanically, and then pressed into the lead.

(6) G. H. says: Can a lightning rod lose its properties as a conductor, after standing 7 or 8 years and becoming considerably tarnished from exposure? Is it more dangerous to use such a rod than none at all? I ask these questions because our factory was recently struck by lightning, the electricity leaving the rod after passing down a short distance and entering the building, where it expended its force among a lot of iron castings, which lay upon the floor directly opposite that part of the wall to which the rod is attached. Its action upon these castings is shown by small spots, where the iron seems to be eaten as if by some acid, though the roughened surface is somewhat brighter and looks as if a small quantity of molten tin had been dropped there. I cannot find that the fastenings of the rod are out of order, and therefore wonder why the electricity should leave it, unless its conducting qualities are impaired. Would repolishing the rod restore its officiency? A. The age of the rod would not affect its usefulness, unless the joints had lost, by rust, their conducting power, or the rod was diminished in size by rust. We would be glad to have you examine the portion which goes into the earth, and let us know whether it is still perfect, how deep it runs into the ground, and what the condition of the earth about it is in regard to moisture: also whether the rod contains any joints, or whether it is one continuous rod. What metal is the rod composed of?

(7) G. B. asks: Of what shape must I construct a magnet in order to gain the most power? A. Of horseshoe shape. 2. What power can be got per square inch? A. This is proportional to the size and number of turns of the wire and the strength of the battery. 3. What ratio does the power diminish as the distance is increased? A. As the square of the distance.

(8) J. M. says: I tried to make ground connection by taking two pieces of sheet tin, 1½ feet square: I soldered copper wire to them and buried in moist earth, about 3 feet in ground, and it would not work with about 100 feet of wire. What is the reason? A. Your plate was too small. 2. I made a battery in the following manner: 1 quart jar with coil of copper in bottom, and a zinc fitting the jar, with hole in center and suspended along the copper, with wire attached. A wooden cup was put in the jar with holes in the bottom for the blue vitriol. I let it stand about 4 hours, and it gave a current. Is such a battery in use, and what do you think of it? A. Your battery is a modification of the Daniell. We cannot see that it has any peculiar merit. 3. How is the electric light made? A. See p. 35, vol. 33.

(9) W. R. D. asks: 1. What is the most practicable method of electrotyping by means of zinc? A. See p. 405, vol. 32. 2. How is silver platinized? A. By an electrotype process.

(10) M. D. asks: 1. What size of objective and eyepiece would suit a tube 4 feet long? A. The size of the object glass depends on its approach to perfection. When achromatic and of the proper curves, it may be 3 or 4 inches in diameter for a tube 4 feet long; but the only way, and that followed by all astronomers, is to try the glass, and, if it is not satisfactory, to reduce the size with diaphragms until a sharp image is obtained. 2. How can the object and eyepieces be neatly and correctly attached? A. Neat and correct mounting can only be done by turning the tube on the lathe, as the glasses have to be perfectly centered, which means that the optical center of the curve must coincide with the axis of the tubes, and this is of primary importance. Of course the focal length of the object glass must be a little less than the length of the tube; while that of the eyepiece may be shorter, in proportion as the object glass is better in quality. An inferior objective can bear only a weak eye glass, that is, one of long focus. 3. What is an approved elementary treatise on astronomy? A. Herschel's "Astronomy," published by Appleton, is one of the best.

(11) H. P. T. asks: Is there anything gained in a Callaud or gravity battery by covering the zinc with unsized paper? Does it reduce the working strength of the battery? In case of accidental disturbance and mixing of the solutions, does it prevent the deposition of copper upon the zinc? I find after long use that the paper is covered here and there with crystals of copper; but upon removing the paper I cannot see any trace of copper upon the zinc. A. If the gravity battery is properly put together, so that the fluids do not mix, there will be no local action. The paper will do no harm and not much good.

(12) A. B. says: I have been trying to invent a process which would assimilate circles to right lines, in other words, to do away with the tedious process of referring numbers to logarithms and back again in ordinary trigonometrical calculations. My idea is to do away with degrees, minutes, and seconds in the circle, and to reduce all parts to decimals. Therefore I propose that the circumference of a circle shall be 1,000 or 10,000 or 10,000,000, and all the parts correspond in decimals. Is this practicable? If not, why? A. This method is practicable, and was used in the beginning of this century in France, when attempts were made for a thorough introduction of the decimal system, making a day 10 hours long, the week to 10 days, etc. At that time tables were calculated and published, in which the quadrant of the circle was divided into 100 degrees, the degree into 100 minutes, the minute into 100 seconds, so that the quadrant was divided into one million parts; but it met with no favor, as the natural division of the circle is into 6, which is no divisor of 10. Your system is worse, as dividing the whole circle into 1,000 parts gives 250 for the quadrant. If you study thoroughly the use of logarithms in trigonometrical calculation, you will see that it would be a retrograde step to do away with them, as they simplify the calculations enormously, and admit of a great saving of time. You will need your tables of sines and tangents just as much without logarithms as with them, and without them no trigonometry is possible. You may calculate them for decimal degrees, but the change does not amount to much, and does not involve any fundamental principle, as they cannot be dispensed with.

(13) A. K. says: 1. In constructing a small electromagnetic motor, in which two electro-magnets cannot be successfully applied, I intend to substitute one of them by a well magnetized iron bar. Will said bar magnet, working on a pivot in such a manner as to bring one of its poles in contact with a pole of the electromagnet, be attracted and repulsed regularly whenever the poles of the electro-magnet are changed, or will it lose its polarity after a while and be attracted by a negative as well as a positive pole? A. Iron will not retain magnetism. 2. Will the repulsion be of the same power as the attraction? A. Yes. 3. Will an oblong-shaped core answer instead of a round one, as commonly used for electro-magnets? A. Yes.

(14) D. R. S. says: Please give me minute details of how to make and mount a telescope, such as is used on rifles for long range firing. A. We would not advise you to try to make such a telescope unless you are an optician. The lenses generally used for this purpose are made and mounted in France, and it is difficult to compete with their makers as to quality, and impossible as to price. A tube about one foot long is required, and attached to it are a French objective at one end, and a sliding eyepiece at the other end.

(15) H. E. asks: 1. Can a field or marine glass be obtained that will enable an observer to recognize the face of a person at a distance of two miles? A. No field glass can have that power; a large astronomical telescope is needed for this purpose. 2. Can a binocular telescope accomplish this? A. A binocular telescope is necessarily of limited size; but if long enough, it will serve the purpose a little better than a single one.

(16) W. C. M. asks: 1. On what principle is the Baumé hydrometer constructed? We tested a sample of oil with five hydrometers, and they all showed differently. A. There are four kinds of hydrometers. The first is that of Baumé, which must indicate zero in pure distilled water in relation to liquids heavier than water, and 10° in relation to liquids lighter than water. In the second kind, the specific gravity of distilled water is assumed at zero in both scales, either for heavy or light liquids. This is adopted in the *Pharmacopœia Batava*. The third is that of Cartier, which is like that of Baumé except that the degrees are larger, every 20° of Cartier being equivalent to 22° of Baumé. The fourth is the centesimal hydrometer of Gay Lussac, which is made for use in alcohol only. To test any of these hydrometers for accuracy, without having a recognized standard to compare them with, requires a hydrostatic balance. Baumé for heavy liquids must indicate zero in distilled water of 60° temperature; and in a salt solution, of 1·16 specific gravity and at the same temperature, it must indicate 20°. Baumé for light liquids must indicate 10° in distilled water, and 30° in a mixture of water and alcohol, of a specific gravity of 0·88. The hydrometer of the *Pharmacopœia Batava* for heavy liquids must indicate the same as Baumé, but that for light liquids must show zero in distilled water and 20° in the mixture of water and alcohol of 0·88 specific gravity. In Cartier's hydrometer, the specific gravities mentioned must correspond with those of Baumé *minus* 2° nearly, that is, the indications of Cartier are nearly 2° less for every 20°. Gay Lussac has based his alcoholometer on the principle of placing zero for water and 100° for absolute alcohol, while 100° corresponds with 44° of Cartier, and 47° of Baumé. Half alcohol and half water, having a specific gravity of 0·917, must correspond with 23° of Baumé, 13° of the *Pharmacopœia Batava*, 21° of Cartier, and 56° of Gay Lussac. It will be seen that this testing is troublesome, and it is best to procure a reliable standard to compare your hydrometers with.

(17) L. D. T. asks: 1. What is the best way to build a brick cistern, so as to filter the water perfectly? A. See p. 362, vol. 32. 2. How deep does an 8 foot diameter cistern want to be to hold 100 barrels water? A. About 12 feet.

(18) W. L. says: 1. We keep water up stairs to use in case of fire, but it has to be changed often. What can be put in to keep it from smelling bad? A. It will be better to continue to change. 2. The steam pump draws the water now from the well, about 18 feet, with a 2½ inch plunger of 10 inches stroke, running at 62 per minute. Flow of water is about 208 feet per minute, through iron pipe 1¼ inches in diameter. The pipe is large enough to keep tank full of water, and sometimes we have to shut off to keep from running over. If we should lay 1¼ inch iron pipe to the river, down a gradual descent of about 16 feet, then down to bottom of river 8 feet, making in all about 24 to 25 feet raise, and about 360 feet in length, will it work well? A. Yes, if properly laid.

(19) M. T. W. says: Can you give me a formula for making a cheap concrete of lime, sand, cement, or any other suitable material that will pack in an inch space between planks 2x4 inches, and resist the action of heat, cold, and the atmosphere? A. In France, asphalt is extensively used for this purpose, especially where the plank is laid on the ground, for cellar floors, etc., in which case no sleepers are used.

(20) A. H. asks: I have a kitchen 14 feet wide, with shed roof. The roof has 2 feet fall, and is slanting. Whenever we have a heavy rain, the water stops on it and comes through very badly. Is the roof too flat? A. Your roof is too flat for shingles. You had better raise it so as to give it a steeper pitch. Six inches to the foot is little enough.

(21) J. E. D. asks: Is there anything that will cut shellac except alcohol? A. Shellac is soluble in a hot solution of borax in water.

(22) E. H. asks: What is the best method of obtaining free gold from the ore? It is very soft, mined with pick and shovel only. A. First crush the ore very finely, mixing it water by agitation, and allowing it to run over a short inclined plane composed of sheet copper, the surfaces of which have previously been evenly colored by a film of mercury which adheres strongly to it. Through the strong affinity existing between the two metals (gold and mercury), the particles of the gold are arrested by the quicksilver, while the other substances accompanying it pass by without hindrance. The alloy of gold and mercury formed may be decomposed by placing it in an iron retort, the beak of which, or its connection, dips beneath the surface of some cold water in a suitable vessel. On the application of a strong heat to the retort, the mercury is vaporized, and, distilling over, is condensed beneath the surface of the water, while the gold remains behind in the retort. The above is one of the best methods in use; but if the gold is required in a very pure state, the following process may be employed: After finely crushing the ore, subject it to the action, for some time, of a hot mixture of muriatic and nitric acids, 3 parts of the former to 1 of the latter. To this solution, after decantation from the undissolved residue, add a strong solution of copperas in water, until no further precipitate forms. Allow to subside and decant the supernatant liquid. The precipitate consists of the pure gold in a minutely divided condition, to which, alone, its dark color is due. An excess of acid in the above operation should be particularly avoided, as it will only redissolve, in part, the precipitate formed on addition of the iron salt.

(23) L. C. T. asks: You recently gave me a recipe to form tannate of gelatin inside a keg. Please tell me the quantity of gelatin by weight to use to 3 quarts water, and the quantity of tannin by weight to 1 quart water? A. Use about 1¾ lbs. gelatin to 3 quarts water, and a saturated solution of tannin. 2. I presume the gelatin is a fine form of glue, and not that used for pastry purposes. A. You are right.

(24) C. C. & B. ask: What kind of stamping ink will not smear when used on leather glazed with oxalic acid, glue, and white of eggs? A. Try a strong solution of copperas in water.

(25) G. A. B. asks: 1. What kind of acid is used in soldering, and how is it prepared for use? A. Add zinc to a small quantity of muriatic acid, until no further solution takes place. 2. What kind of copper is used for making soldering tools? A. Ordinary copper, carefully tinned. 3. Is there anything better than copper to make soldering tools of? A. No.

(26) J. F. B. asks: How can I make olefiant gas? A. The gaseous products of the destructive distillation of the fatty or so-called fixed oils and resins are very rich in elayl gas (olefiant gas). As oils yield further only a small quantity of carbonic acid gas, and no sulphuretted hydrogen, oil gas does not require any purifying, and hence the apparatus may be very simple; while, owing to the high illuminating power, smaller gas holders, smaller pipes, and burners of different construction are required. One pound of oil yields 20 to 25 cubic feet of gas, equal to 90 or 96 percent.

(27) A. W. C. asks: Is there a remedy to prevent verdigris forming on copper cartridges when carried in the thimbles of a belt? A. Dip them for a moment, when clean, in an alcoholic solution of shellac. Allow them to dry completely before placing in the belt.

(28) S. W. S. asks: What is aluminate of soda? A. It is now prepared on a large scale, as it has been found a very useful form of soluble alumina, especially in dyeing and calico printing. The preparation of this compound is based on the solubility of hydrate of alumina in caustic potassa or soda lye, and the ready decomposition of the solution by carbonic and acetic acids, bicarbonate and acetate of soda, sal ammoniac, etc. The compound is generally formed by calcining either cryolite or bauxite, minerals containing a large per cent of alumina, with carbonate of soda, in a reverberatory furnace. It may be obtained on a small scale, by boiling alumina with caustic soda lye for some time.

(29) J. R. asks: What are the drawbacks if any, to the use of gasoline as an illuminating agent, as applied for that purpose in the automatic gas machine? A. They are mainly due to the dangerous character of the materials used; gasoline, naphtha, and similar volatile hydrocarbon oils. The vapors arising from these oils, being heavier than the air, have a tendency to accumulate in pools on the floors of the cellars or vaults where the oils are used, and becoming mixed with the air form a terribly explosive mixture, the ignition of which, from the careless dropping of a partially extinguished match, or flame of any kind, is often sufficient to destroy the building.

(30) R. R. Z. says: 1. You speak of a glaze or enamel called boro-silicate of soda. How is this made? A. Melt together pulverized felspar 27 parts, borax 18 parts, sand (fine, white) 4 parts, potash, niter, and potter's earth, 3 parts each. Then add 3 parts of borax reduced to a fine powder, also fine black oxide of manganese in the proportion of 48 grains oxide to 6 lbs. of the enamel. When fully fused, throw into cold water, and then remelt and again quench in water, as before. Repeat this until the enamel is fine and white. It is then ready for use. 2. Will it stand the action of hot 66° sulphuric acid? A. Yes.

(31) J. O. F. asks: What is the latest and most approved plan of tempering small springs? A. There is nothing better than dipping them in oil and blazing the oil off.

(32) M. W. H. asks: 1. Will tool steel make good steel springs? A. No; it is apt to break. 2 What kind of steel is best for springs? A. Spring steel. 2. Can springs be tempered in water or oil, so that they will be tough and limber? A. Yes: harden in water, temper with oil.

(33) W. H. C. asks: What is the best way to join a band saw? A. Braze it, taking care to hold the ends true.

(34) P. J. M. asks: What is the best means to secure a good casting, free from blowholes and defects, where you are obliged to cast into it some pieces of wrought iron, as done in a fly wheel with cast rim, wrought iron arms, and cast iron hub? A. Heat the wrought iron, and have a good dry mold, casting endwise whenever possible.

(35) J. S. M. asks: 1. Does it take more power to run beveled gears than it does to run spur gears? A. There is no practical difference. 2. Can you tell me the best way to find the proper size of a hole (in a face plate, for instance), in which a thread is to be cut? I have heard that it is best to measure the outside of the thread of the screw; and if it is 10 to the inch, the hole should be bored 1⅛ tenths = $\frac{9}{80}$ less, which will give a full thread to match. If the thread is 12, 1⅛ twelfths is right, and so on for every number of threads. A. We have never heard of the rule you give. Try it, and let us know the result.

(36) E. E. K. asks: Can india rubber valves which have been used in hot and cold water pumps be remolded for the same use? A. No.

(37) J. C. G. says: I have a grindstone 3 feet in diameter and of 5 inch face, that seems a great deal too hard for sharpening tools for working in wood. How can I soften it? A. Your only method is to keep water running over it, which will partially soften it.

(38) B. K. D.—If your self-operating water elevator only costs $2.50, you can very readily test the question of demand by putting it on sale.

(39) H. G. S. asks: On a gravestone of fine Italian marble, the engraver inadvertently cut a superfluous comma. How can I fill it in so as to be permanent, and show as little as possible? A. We can think of nothing better for the purpose than plaster of Paris, mixed with a small quantity pulverized mica.

(40) R. says: I have tried many of your ink recipes, and send you an improvement on one which I found in the SCIENTIFIC AMERICAN, and used many years ago. Black ink: No. 1. Take powdered cloves ½ oz., extract logwood 2 ozs., hot water 1 gallon; dissolve. No. 2. Take bichromate potash, powdered Prussian blue each 120 grains, prussiate of potash 80 grains. Dissolve in 1 pint warm water, then mix No. 1 and No. 2 together. The Prussian blue is the improvement; it flows freely and dries quickly. Sugar will spoil it. I have not known it to gelatinize or mold.

(41) M. M. says, in reply to C. P. B., who is troubled by sparks flying from the top of his chimney: There is a much better way to stop the evil than by the use of a screen. So arrange your flue that the draft shall be projected downward into a short chamber, of about 5 or 6 times the sectional area of the chimney flue. From this chamber, let the draft enter the chimney. The current of smoke passing through this chamber will be so slow that nearly all the dirt will settle out of it. If the bottom of the chamber is kept flooded with water, no dirt whatever will pass out of the chimney. I have seen a chimney, that was a complete nuisance to the whole neighborhood, made perfectly clean by the above plan. The draft will not be affected perceptibly. The draft might pass from the side of the chamber to the chimney, but it should be near the opposite end from where it enters.

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

G. P. L. R.—No. 1 is decomposed sandstone containing scales of mica. No. 2 is a white clay. No. 3 is a fossiliferous stone containing a large percentage of lime. No. 4 is celestine. No. 5 is a variety of hard fine grained sandstone. Specimens of New Jersey green sand can be obtained from Dr. G. H. Cook, State Geologist, New Brunswick, N. J.—O. C.—Send us a sample of your oil, and we will endeavor to help you.—A. B. L.—A qualitative analysis was made of your samples. No. 1 contains sulphide of lead and iron. No. 2 contains sulphide of lead, iron, and quartz and No. 3 is quartz and sulphide of iron. No. 4 is sulphide of iron with traces of arsenic. No. 5 is sulphide of iron and quartz. We do not consider them of much value. You will find the cost of working these mines too expensive, as fully 70 per cent of the minerals is quartz.—M. A. B.—They are the wings of red mites, sub-order *ascarina*.

COMMUNICATIONS RECEIVED.

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

On a Cure for Toothache.. By E. D. P.
On the Keely Motor. By J. R., by L. W. S., by J. W. C., by L. K. Y.
On Mechanical Motors. By J. E.
On the Chemical Firefly. By C. W. W.
On the Potato Beetle. By O. E. D., and by J. G.
On the Iron Horse. By F. H. R.
On the Cincinnati Exposition. By J. C. B.
On Dental Surgery. By ——.

Also inquiries and answers from the following:
J. E. W.—L. G. F.—R.—W. B. H.—M. O. H.—P. O'N.—H. F. N.—J. W. C.—T. H.—A. W. & Co.—J. M. T.—W. J. P.—J. E. C.—S. C. M.

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 inquiries analogous to the following are sent: "Who sells Baumé hydrometers?" Who makes field glasses and binocular telescopes? Who sells apparatus for making olefiant gas? Who makes rag boilers for paper makers' use?" All such personal inquiries 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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DESIGNS PATENTED.

8,452.—WRITING PAPER.—H. D. Cone, Stockbridge, Mass.
8,453.—COFFIN PLATES.—W. Parkin, Taunton, Mass.
8,454.—TYPE.—J. Herriet, New York city.
8,455, 8,456.—NUBIA.—J. Phipps, Philadelphia, Pa.
8,457.—CARPETS.—T. J. Stearns, Boston, Mass.
8,458.—STOVES.—J. VanWormer *et al.*, Albany, N. Y.
8,459.—STOVE.—N. S. Vedder, Troy, N. Y.
8,460.—STOVE.—A. Wemyss, Philadelphia, Pa.
8,461.—EMBROIDERY.—E. Crisand, New Haven, Conn.
8,462.—COOK STOVE.—J. Dwyer, Detroit, Mich.
8,463.—TYPE.—W. W. Jackson, Philadelphia, Pa.
8,464, 8,465.—GLASSWARE.—J. B. Lyon, Pittsburgh, Pa.
8,466.—TOY BLOCKS.—S. Lyman, Leominster, Mass.

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CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA, July 7, 1875.

4,950.—C. Dean, Crowland, Ont. Radiator for boiler flues. July 7, 1875.
4,951.—J. A. Wilson, Chester, Vt., U. S. Clothes wringer and bench. July 7, 1875.
4,952.—W. W. Price, Petitcodiac, N. B. Lantern and dinner kettle. July 7, 1875.
4,953.—T. Elliott, Smith, Ont. Hay rake and loader. July 7, 1875.
4,954.—C. G. Force, Jr., Cleveland, Ohio, U. S. Arches for sewers and for other purposes. July 7, 1875.
4,955.—Wm. Abercrombie, Hamilton, Ont. Door-relishing attachment. July 7, 1875.