Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion. If the Notice exceeds four lines, One Dollar and a Half per line will be charged.

Notes & Queries

F. B. N., who asks about the carpet-eating bug, see p. 307, vol. 35.—C. A. D. will find the answer to his query in any work on Natural Philosophy.—P. H. R. had better consult his family physician.—C. H. McK. will find full information about suction pumps in No. 20, first series of "Practical Mechanism."—A. K. Q. can ascertain how high the water will rise by survey. He does not state how much fall there is in the distance he mentions.—T. M. is informed that he will find the description and cut of the electric candle in vol. 36, No. 22. The candles are not made in this country.—O. H. Y. had better correspond with makers of band saw machinery.—Novice, London, Canada.—You can lay your tiles upon a floor of cement.—J. V. C. and H. B. are referred to "Smee's Electro Metallurgy."—J. H. S.—We know nothing of the instrument you mention.—J. L. G. is referred to his family physician.—W. H. P. had better insert a notice in the "Business and Personal" column for information concerning the market for mohair.—M. M. M. does not tell us how large a cylinder he wishes to cast. If small, brass or Babbitt metal would answer.—P. C. is informed that his article is too vague for publication.—Chemist is informed that we know nothing of the compound mentioned.—J. S.—You are probably correct. The tree protects the building from being struck by lightning.—J. V. E.—The powder you refer to is not yet manufactured in this country.

(1) W. G. S. says: I have among my photo-chemicals a bottle with the mark *Essence Grasse*. Can you tell me what it is, and what it is used for? A. We do not know of any reagent so called. The title refers to a thick, fatty oil or liquid.

(2) J. E. is informed that the vacuo method of filtration is entirely feasible; but where large bodies of water are to be filtered, as for the supply of cities, it has the objection of being very expensive, from the extra steam power required and the necessity of frequently changing the filtering materials. Besides this, water thus filtered is rendered unpalatable and unfit for immediate use by the removal of much of its dissolved gases, etc. For these reasons preference is generally given to the system of reservoirs, wherein the water is allowed to remain quiescent for a sufficient length of time to deposit most of the matter held in suspension, and admit of the more complete oxidation of such organic matter as it may contain by contact with the air.

(3) B. S. asks: Should boilers used only for heating be left with water in them during warm weather? A. No; the water should be drawn off in the spring.

(4) J. F. D. asks: Please give me a recipe for making a colored lime-wash, to be used as a substitute for paint for the exterior of a frame building. The color required is brown. A. Add to the lime-wash a strong solution of sulphate of magnesia, and color to suit with Vandyke brown.

(5) N. K. says: A favorite dog has put our family into possession of (in both senses) ten millions (estimated) of fleas. The dog has been given to a friend (with due warning, of course), but the dog's late companions are still with us in scarcely diminished numbers. Will you please say how we can best succeed in obtaining their room instead of their company. The dog was kept generally in the cellar, and the coal heap especially has "millions in it." A. Soap water; carbolic acid in dilute alcoholic solution; flowers of sulphur either used as a powder or mixed by agitation with water containing a little glycerin; dilute solutions of sulphate of magnesia—any powder or solution containing tannin, as dried sumac, tea, and Persian insect powder. These are the least objectionable exterminators. A little of the carbolic solution may be mixed in with the soap water, and this used as a wash, or sprinkled in infested localities. Flowers of sulphur contain sulphurous acid, which is fatal to the insect, but it must not be used on or near colored woolen fabrics, as it is liable to injure the colors. Sulphate of magnesia solution (in water) may be used as a wash. Sumac powder, etc., give excellent results. The sulphur mixture mentioned, or carbolic acid shaken up with about 20 parts of water, and sprinkled in the cellar, will soon depopulate the coal heap.

(6) An apprentice asks for the best method of laying tile pavement? A. If you have reference to tile laying upon floors, it is done by cutting in boards between the floor joists, and supporting them upon cleats nailed to the sides of the joists. A pavement of bricks in mortar is then laid upon the boards, finishing flush with the top of the joists. A bed of rich cement mortar is then spread over the whole, and the tiles carefully set in a thin grout upon the cement bed.

(7) D. W. Van B. asks: Can you inform me as to the time when the first movable steam fire engine was used? It is stated that a machine was used in Europe in 1851, and was used to supply hand engines. It was taken to the river and water forced through hose to the hand machines. Were steam engines used in this country prior to that time? A. Captain Ericcson built a steam fire engine at Braithwait shops about the year 1836.

(8) H. D. S. asks: Will a solution of chloride of zinc and sulphate of nickel, used for nickel plating iron and steel, serve for nickel plating brass or zinc. The process was described on p. 408, vol. 36. A. Not very well, unless the article is in contact with pieces of zinc, or, what is better, zinc powder, also immersed in the solution. Small pieces of brass work can be plated in this way.

(9) C. E. asks: How can I imitate silver gray in water colors? A. White tempered with a mixture of black and blue is commonly employed. Use flake white, ivory black, and Prussian blue.

(10) K. F. says: We use on our two horse cultivators a plow or plate that seems to be made of iron with a thin plate of steel welded or laid on the front, and made very hard. Our blacksmiths have difficulty in sharpening them. They sometimes crack when heating, and sometimes fly to pieces when put in the water after sharpening. Can you tell us how to manage them? A. Heat them to a low red heat, dip in water at 100° temperature and containing 1 lb. salt per gallon; dip edgeways, and hold quite still at the bottom of the water until cold. A depth of two inches of oil floating on the water would perhaps assist you.

(11) J. D. E. says: 1. I am making a plate electric machine, and have the plate already cut out. Do the edges need to be ground smooth? A. It is better to have them rounded. 2. Of what material should the rubbers for exciting the plate be made of? A. See (No. 9) p. 171, vol. 35. 3. Can you mention a good and short method for drilling a hole through plate glass? A. See Ans. No. 5, p. 186, vol. 36.

(12) D. M. F. says: I am using a small cast iron tank to contain kerosene. It has been japanned, but the oil works its way through the iron, notwithstanding the japan. Can you tell me what will stop this? A. Try a sizing of glue in acetic acid.

(13) H. L. L. says: I desire a cheap shelter for say 250 to 300 tons of hay or straw, and I wish to construct it at once. A. The usual graduated roof shelter will answer the purpose. This consists of a roof of thatch or shingles, pyramidal, on a strong frame, supported at each corner on stout pins, passed through holes in timber posts set well into the ground. The roof may be about 15 feet square, and the posts 20 feet high—these latter may have lateral braces or ties, extending diagonally across the square at the bottom. As the hay is removed from the top of the stack, the roof is lowered down and the pins shifted into lower holes, thus always affording a close shelter to the hay.

(14) S. H. asks: Is there any radiator or heater (steam) made which operates without the removal of the air from its interior? A. We do not know of any. It is essential to the success of a radiator that the dead air within it be displaced either by steam or water.

(15) J. A. B. asks: Can you give me a recipe for a cement to mend a broken marble slab? A. Take gum arabic 1 lb., make into a thick mucilage, add to it plaster of Paris 1½ lb., sifted quicklime 5 ozs. Mix well. Heat the marble and apply the mixture. You had better put supports under the slab.

(16) T. F. P. says: I have samples of the enamel which are used in enameling. How can I use them? A. Mix together equal parts of oxide of manganese, oxide of copper, and oxide of cobalt. Use a soft glass, and fuse enough of the mixture into it to give the desired depth of color; then grind this to a fine powder, and apply with water as a paste; after which dry and fuse. For white, fuse with the glass oxide of tin and antimony, as before. Alumina and oxide of lead may also be used.

(17) J. G. A. asks: Can you tell me where the difficulty is in launching a boat off a vessel at sea, and did the United States Government adopt any apparatus when they had the trial about two years ago? A. The difficulty lies in detaching the boat to keep it clear of the tackle when it strikes the water, for if one end detaches before the other, it is apt to swing from the detained end and turn over. We do not think that any boat detaching apparatus has been exclusively adopted by the United States Government, though several have been reported upon.

(18) E. E. L. asks: Is there anything that can be used in place of muriatic acid for soldering iron with soft solder? A. Sal ammoniac will answer.

(19) W. A. B. says: I recently saw a statement that the relative traction of a belt on a wooden or iron pulley was as 47 to 24. Now, is this a fact? Will a wooden pulley do twice the work of an iron one? If so, why? A. There is a difference in favor of wooden pulleys, but cannot state its amount.

(20) R. K. asks: 1. Can you give me a mixture of something that will stick a piece of lead in the centers of locomotive driving axles without burring them with a chisel, as doing so injures the centers. A. The lead will stick in of itself when well hammered in. 2. Is there any rule to get the throw of locomotive eccentrics, or can I find it in any book? A. See "Auchincloss" on the slide valve.

(21) W. T. asks: I would like to know what makes steel crack in hardening? A. Improper heating or dipping and taking the article out of the water too soon are the principal causes. Sometimes the steel is improperly forged, or overheated in forging. Much also depends on the shape of the article when finished.

(22) H. F. H. asks: What is the best preparation to put on a greenhouse floor of wood, so as to render it impervious to moisture and prevent it from warping and cracking? Also what is the preparation to paint hot water pipes in a greenhouse to prevent rust? A. Cover your floor with a thin layer of hydraulic lime or cement. Paint your pipes with a covering of asphaltum varnish, made by dissolving asphaltum in turpentine by a gentle heat.

(23) E. H. L. says: I am making a safe to keep valuable papers in, and wish to put in a filling that will make it fireproof. What is the best preparation for that purpose? A. The preparation usually employed for filling safes is calcined plaster of Paris mixed with water to the consistency of thick cream, and allowed to harden. It would be advisable to coat the surface that would come in contact with the wet filling with the asphaltum varnish recommended to H. F. H. This will prevent rusting the iron plates of the safe.

(24) F. M. says: Tobacco stalks or stems, as stripped from leaf tobacco by cigar makers, can be had very cheap in Cuba. Is there not some use or application for them, chemically or otherwise, beside the manufacture of snuff? A. We know of no extended use for such product.

(25) W. G. F. says: Please tell me how to braze with brass and use hard and silver solder with blowpipe? A. To braze with hard or silver solder, file the metal clean and smooth where the intended union is to be, bring them in close contact, apply the solder in small pieces and fuse, using borax as a flux. 2. How can I restore temper to spring steel when once drawn or heated? A. To restore the temper of steel, it must be hardened and then drawn to the requisite spring temper.

(26) D. L. asks: Can I ignite gunpowder by using a galvanic battery? A. If a fine platinum wire be interposed between the wires that are connected with the poles of the battery, it will be heated sufficient to ignite gunpowder.

(27) W. R. asks: How can I make a good branding ink for branding bagging—such as is used for baleing cotton? I have been using an ink made from lampblack and kerosene, but this blurs very badly and gives our bagging a dirty appearance. A. Try common bootblacking. Dampen your brush with water to use it. If there is acid in the blacking it will eventually injure your brass stencil plates.

(28) O. P., of Kosloff, Russia, asks: How can I color polished steel a dark blue? A. See reply to B. T., in this number.

(29) W. T., of Montreal, is informed that the address of the publishers of the work on Gravestones is A. T. Bickwell & Co., 27 Warren street, New York city.

(30) W. H. C. says: Perhaps the following mode of fluting reamers, cutters, taps, etc., may be new and useful to some mechanics, especially those that possess a lathe with slide rest. I leave a work to be fluted in lathe centers, and with tool of the desired shape of flute fastened in the tool post, work the slide rest back and forth, feeding the tool in to the required depth. Mine is a back geared screw cutting lathe, and I have very satisfactorily and with dispatch fluted reamers, etc. A snap catch fitting tooth of back gear holds the work while cutting. The gear also acts as index wheels which can be divided into 4ths, 8ths, 10ths, 16ths, etc. The heads of lathes that are not back geared can easily be divided up for all ordinary work.

(31) C. F. makes inquiry about seasoning lumber, and is answered that the most successful builders, piano manufacturers, etc., generally season their lumber in the natural way, by stacking it in their yards for two years or more, which in the majority of instances is the most satisfactory in the end. There are cases where water soaking is adopted to drive out the sap. The logs are left in the water for six months, then taken out and sawed into boards, and the latter stacked up to dry. In this case, it is claimed, the water rapidly dries out and takes the sap with it.

(32) F. M. says: Can you give me any cheap method for renovating tarnished gilt frames? Any color or material will do, provided it is simple and cheap. A. The cheapest is to cover the surface to be gilded with oil size thinned with spirits of turpentine. Gold, in powder, is then gently dabbed in with a little pod of soft leather. The work can be varnished.

(33) C. E. L. asks: What can I mix with asbestos that will make it as pliable as leather after it is pressed in any form? A. Try mixing it with rubber and then vulcanize.

(34) F. L. asks: Can you inform me how to tin small cast iron articles? A. Immerse the articles in a bath of sulphuric acid for a time sufficient to obtain a bright surface, then dip in muriate of zinc, remove and plunge in a bath of melted tin.

(35) J. R. asks: What is the number of locomotives built in the United States that have been shipped to Russia? A. We cannot ascertain.

(36) J. Y. asks: Please give me a recipe for making a good black ink that will copy? A. Add sugar 1 oz. to 1½ pint of good common writing ink.

(37) J. K.—A brass founder will give you the information relative to gongs. Oil can be colored by putting alkanet root into it.

(38) J. B. asks: What can I use to keep patterns from sticking in plaster of Paris moulds? A. If the patterns are so made that they have a sufficient draught, coat them with thin shellac varnish.

(39) H. Y. C. asks: Where do the oyster and other shellfish get the lime from which to make their shells? A. The lime salts are held in solution in the water, and derived from it by the animals.

(40) H. K. asks: Can you give me a recipe for straightening amber mouthpieces? A. Heated oil will soften amber and make it pliable. To melt it requires a heat of 517° Fah.

(41) W. E. T. says: Having seen a notice of Professor F. Sacc's (Neufchatel, Switzerland) process for curing meat by submitting it to the action of acetate of soda, I should like to know the *modus operandi*. A. The mode of operation is very simple. Arrange the meat in a barrel, deposit about and on it powdered acetate of soda to about the quarter of the weight of the meat. In summer the action takes place immediately; in winter it is necessary to place the vessels in a room warmed to about 68° Fah. The salt absorbs the water of the meat; after 24 hours the pieces are turned, and the lower placed uppermost. In 48 hours the action is finished, and the pieces are packed in barrels with their brine, or dry in the air. If the barrels are not full, it suffices to fill up with the brine made by dissolving one part (by weight) of the acetate of soda in 3 parts of water. The pieces may be of ordinary size, and when required for use may be freed from the salt by washing in running water. The dry acetate of soda may be recovered from the brine by evaporating off the water over a fire.

(42) G. M. C. asks: How can I color buck and goat skins black? A. Soft water, 5 gallons; bring to a boil, and add 8 ozs. of logwood extract, pulverized; boil three minutes, remove from the fire, and stir in 2½ ozs. gum arabic, 1 oz. bichromate of potash, and 80 grains of prussiate of potash.

(43) H. C. asks: Please give me directions for polishing shells? A. The outer skin of sea shells can be removed by washing with a rag dipped in hydrochloric acid, then wash in warm water, and polish with rottenstone or fine tripoli powder, applied with a little oil on a bit of soft rag. Where there is opportunity to do so, rub with lump pumicestone moistened with water, and finish as above.

(44) D. C. R. is informed that he can paint his smokestack with coal tar or asphaltum varnish. The varnish can be made by dissolving the asphaltum in turpentine with a gentle heat. Apply with a brush.

(45) J. D. P. & Co. say: We have a six inch belt which we gave two or three coats of lard oil, and now cannot use it because it slips on the pulleys. A. Wash your belt with a weak alkali or soda water, and then in clean water. Let it dry thoroughly before put-

ting on the pulleys. Some mechanics apply oil and powdered resin to belts to make them hug the pulleys, but the process is not cleanly nor beneficial to the belt. Dry powdered resin might do, but clean belts, tightened sufficiently to hold to their duty, are preferred by good workmen.

(46) B. T. says: Please give me a composition to put on pistol barrels to make them dark blue. A. No composition is used. The barrels are first nicely polished and then burnished. The work is then immersed in powdered charcoal, wood ashes, or even fine sand, heated over a fire. Keep the work equally heated, and after a sufficient time the required color will be obtained, when the work must be removed from the heating material. It would be advisable to send such work to some manufactory of firearms, where experts are employed.

(47) F. A. R. asks: Can you give me a simple way of making ice? A. See p. 82, vol. 33, for a description of Carré's freezing apparatus. The principle therein embodied is simple. It would probably meet your wants.

(48) T. A. informs M. A. that by dissolving 1 oz. cyanide of potassium in 1 quart of soft water he will have a dip in which he can wash his spoons and instantly remove the sulphide of silver. The solution must be kept in a bottle that is tightly corked and labeled poison.

(49) W. S. L. says, in reply to T. McC., who asked if there is any liquid that will dissolve glue without the application of heat or water, that whisky or alcohol will do this; and on the evaporation of the whisky the glue will become exceedingly hard.

(50) W. D. P. informs M. H. H. that he can make a good wash for brick walls of water lime or cement and skimmed milk, and says it will be good for ten years.

(51) A. E. S. is informed that hats are sized with lac solution and stiffened with a thin size of glue. For rubber cement see back numbers of the SCIENTIFIC AMERICAN.

(52) C. H. B. says: How can I etch on brass, and how can I join a brass tube, as I do not want to soft solder it? A. Dilute nitric acid may be used for etching on brass. The etched surface will not be of brass but of copper, as the zinc dissolves much more rapidly than the copper, and to some extent, by galvanic action, protects the latter. This cannot be avoided. To join the tube, braze it with spelter solder, using borax as a flux.

(53) J. R. B. says: I want a recipe for making a good lacquer for brass? A. Use shellac varnish tinged with saffron, annotto, or aloes, and apply with a brush to the work, which has been previously warmed. This will give a golden color to the metal.

(54) E. C. H. is informed that he will find an exhaustive article on cone pulleys in "Wrinkles and Recipes," p. 128. Exposing the saw to the heat of the sun will not cause the saw to lose its temper. In casting the Babbitt metal the trouble probably lies in there being no vent, and the confined air caused the imperfect filling. Drill a small hole in the upper portion of the box, so as to let out the confined air.

(55) P. R. says: Please give directions for plating small brass articles with either silver or nickel without a battery. A. A cheap method of silvering is to mix 1 part of chloride of silver with 3 parts pearlash, 1½ common salt and 1 part whiting. Clean the articles well and apply the plating mixture by rubbing it with a cork or a roll of soft leather. When silvered, wash thoroughly and wipe dry. For information about nickel plating without a battery see directions for so doing at end of article on "Nickel," in *Appleton's American Cyclopedia*.

(56) J. W. S. asks: Can you tell me how I can take a duplicate, in type metal, of bookbinders' hand stamps, also of embossing stamps? A. You can produce copies of the stamps by casting or stereotyping in plaster moulds. It would be better to obtain them by the electrotype process. Various cyclopedias will give you information of the first, and you can obtain books devoted to the second process.

(57) H. J. B. asks: What preparation can I use to reprime rim-fire cartridge shells that have been used once, so they may be loaded again? A. Perhaps the composition used for percussion caps will be best adapted to your purpose, which is fulminate of mercury mixed with half its weight of niter. After the fulminate is inserted in the shell, cover it with a film of thin shellac varnish.

(58) J. B. J. asks if phosphor bronze will bear the explosive force of gunpowder equally as well as decarbonized steel, etc., and is referred to Nos. 45 and 48 of the SCIENTIFIC AMERICAN SUPPLEMENT, where he will obtain the desired information.

(59) J. G. M.—You are probably correct in regard to your idea of the fruit you mention.

(60) W. H. B., London, Canada, is informed that if he will address a letter to the institute he will receive circulars that will give him all information.

(61) O. H. N. informs A. J. that he has an invention for throwing a paddle wheel off its center.

(62) D. R. is informed that the largest shipments of canary birds are made from Germany. He may correspond with Louis Ruhe, 98 Chatham street, New York city.

(63) A. A. B. is informed that the oriole is a very difficult bird to rear in confinement. Inexperience in management and improper food was the cause of the death of the birds.

(64) C. G. H. asks: What will remove the stain of nitric acid from black wooled goods? A. Wash with a strong, hot solution (in water) of carbonate of alumina. If this does not remove the stain it may be concluded that the acid has destroyed the coloring matter—this is usually the case. If the yellow stain remains, the only remedy will be to re-dye the material.

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

Correspondents sending minerals should number or otherwise designate each specimen, and legibly mark the package containing them with name and address of sender.—W. S.—The hard stone is a red porphyry, the one containing bright specks of pyrites is quartzite. The large one contains silicate of alumina, iron, and lime.—Miss E. M. K.—You failed to number or otherwise designate the minerals. The large one contains orthoclase and biotite, the smallest the same. The others are orthoclase, kyanite, milky quartz, muscovite and some biotite, and tourmaline.—F. K.—It contains alumina, lime, and oxides of iron and chromium.—E. M.—The powders sent were found mixed. The mixture contains sulphate of quinia and chalk, milk sugar, and a phosphate.—The minerals in a tin box marked Eagleswood (no letter) are mostly hornblende. The red substance is a zinc ore. It contains oxides of zinc and manganese. The large crystal is carbonate of lime—calcite.—E. A. S.—We cannot tell anything about your minerals without having seen them.

COMMUNICATIONS RECEIVED.

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

On Ashes. By J. M. B.
On Formulas of Problems. By H. M.
On Curving a Base Ball. By H. C.
On Guns and Armored Vessels. By J. M.
On a Perpetual Motion. By C. M. L.
On Reducing Silver Ore. By I. H. H.
On the American Toad. By C. F. S.
On the Mind. By J. H. R.

Also inquiries and answers from the following:

W. H. R.—A. C. F.—J. E. T.—N. B. H.—P. C.—C. M.—T. A. P.—A. M. S.

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.

Inquiries 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 makes the best magnetic motor? Who makes crucible steel? Who makes or sells ice machines? Who sells the best modern books on engineering. Who deals in lithographic printers' materials? Who sells books that treat upon lithography?" 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.

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

June 12, 1877,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Air carbureting, L. Mann	191,767
Alkaline wastes, W. W. Harding	191,759
Animal matter, treating, W. C. Marshall (r)	7,742
Ash sifter, Darke & Smith	191,754
Auger, hollow, G. N. Stearns	191,817
Axle nut, O. B. Thompson	192,031
Bag fastener, H. Redden (r)	7,735
Bag holder, M. B. Hudson	191,965
Belting machinery, J. Brady	191,920
Billiard cue, W. Hill	192,044
Bill, apparatus for framing, O. C. Brown	191,828
Bit stock, D. Powers	191,815
Bit stock, B. S. Parker	192,018
Boat, portable, C. F. Prentice	192,007
Boat, submarine, Henis & Pike	191,760
Boilers, T. Craney	191,939
Book clasp, Muller & Hilpert	191,992
Boot lasting machine, Copeland, *et al.*	191,937
Boot sole machine, J. Kimball	191,764
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Bosom pad, J. C. Tallman, (r)	7,737
Breech-loading firearm, D. Kirkwood	191,862
Brick machine, W. A. Graham	191,800
Broom, J. Davidson	191,940
Burial casket, A. H. Nirdlinger	191,995
Car axle box, L. D. Webster	191,786
Car axle box, W. E. Wilcox	191,820
Car bumper, A. W. Weikert	192,039
Car coupling, D. R. Halter	191,860
Car, dumping, H. S. Bower	191,827
Car frame, F. J. Kimball (r)	7,730
Car starter, A. J. Curtis	191,839
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Car starter, H. Schreiner	191,890
Car window, G. S. Roberts	192,014
Carbon in retorts, W. Karr (r)	7,739
Carbonic acid gas generator, O. Zwietusch	191,912
Carriage body, I. Wilkins, Jr.	191,909
Carriage top, J. B. Ashelman	191,822
Cartridge, pyrotechnic signal, J. J. Ditwiller	191,843
Chair brace, J. Collins	191,835
Chair, opera, R. H. Ormsby	191,774
Chandeliers, Taylor & Bruen	192,030
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Cigar machine, W. Broseker	191,922
Coffee roaster, Tinsley & Hackman	191,900
Corn planter, J. O. Bennett	191,915
Corner stake, S. D. Bonner	191,919
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Cultivator, Messenger & Erwin	191,990
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Cultivator, Tartt & Wilson	192,029
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Current wheel, W. J. Perkins	192,000
Curry comb, M. Sweet	191,784
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Cutter head, C. R. Patterson	191,878
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Desk, J. I. Stewart	191,893
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Engine, electro-magnetic, W. E. Sawyer	191,781
Engine, pulp, E. Sumner	191,898
Engine, traction, G. Rogers (r)	7,736
Eyeglass, G. Johnston	191,972
Eyeglassholder, S. F. Merritt (r)	7,743
Faucet, G. Gorman	191,848
Faucet, R. Hathaway	191,852
Faucet vent, A. Luhrs	191,982
Feed steamer, Rice & Gortner	192,010
Feed water heater, C. F. Barrett	191,747
Feed water heater, W. Lowe	191,868
Felted fabric, Daniels & Tuttle	191,840
Fence, J. Garrett	191,847
Fence, barbed, A. J. Nellis	191,993
Fence, barbed, C. L. Topliff	191,818
Fence post, H. Delano	191,941
Fence post, R. Dewey	191,944
Fence strip, W. G. Barnes	191,913
Fence post, J. Plane	191,881
File holder, W. T. Nicholson	191,811
Fire escape, R. Gilchriest	191,953
Fire escape, H. Huth	191,762
Fire escape, J. C. Peppler	191,777
Fire escape, Roch & Colas	191,886
Fire extinguisher, J. M. Pollard	192,005
Fire extinguisher, A. E. Hughes	191,803
Fire kindler, C. H. Hayden (r)	7,740
Fires, extinguishing, C. M. Martin	191,872
Fishing line reel, F. J. Philbrook	191,813
Fly fan, J. Baird	191,823
Folding machine, S. D. Tucker	191,819
Foldingmachine, S. D. Tucker	192,034
Folding machine, S. D. Tucker	192,035
Fruit dryer, J. Zimmerman	192,043
Fruit gatherer, I. Clark	191,833
Furnace, Austin & Hosford	191,746
Gas carbureter, W. H. Winn	191,789
Gas apparatus, P. Bradley	191,921
Gas apparatus, P. W. Mackenzie	191,808
Gas, manufacture, J. M. Leighton	191,980
Gas, manufacture of, T. B. Redwood	191,883
Gas, manufacturing, J. H. Bowman	191,749
Gas, manufacture, M. W. Kidder	191,766
Gas regulator, S. S. Jones	191,860
Gas works, P. Munzinger	191,877
Gate, J. E. Q. Maddox	191,984
Gate, T. B. Piburn	192,003
Gate, F. Bau	192,009
Glass tool, Zimmerman & Beatty	191,793
Grain binder, J. E. Buxton	191 928
Grain binder, J. E. Buxton	191,929
Grain binder, W. H Payne	191,776
Grain scourer, J. S. Hillyer	191,854
Grain separator, J. L. & J. T. Metcalfe	191,991
Gun, spring, C. Palatini	191,998
Hame, H. Mason	191,904
Harness, J. F. Best	191,917
Harness, Cahoone & Teas	191,829
Harness pad, J. F. Knorr	191,977
Harrow, J. W. Greer	191,956
Harvester reel, H. S. Harris	191,960
Hat, M. J. Nascimento	191,772
Heating buildings, W. F. Flagg	191,952
Horse power, D. K. Hungerford	191,858
Horse rake, J. Hunsberger (r)	7,745
Horse rake, J. Hunsberger (r)	7,746
Horses, toe weight, S. A. Phelps	192,002
Horseshoe, W. M. Temple	191,785
Hose nozzle, Clifford & Gielow	191,934
Hose nozzle, C. F. Holloway	191,964
Hot air apparatus, C. Pottier	191,779
Hydrocarbon burner, W. L. Imlay	191,969
Hydrocarbon oils, J. Merrill (r)	7,733
Ice creeper, C. A. Kryter	191,863
Illuminating scale beams, J. W. Wood	191,910
Indexing, D. A. Roberts	191,885
Injector, W. H. Newell	191,773
Inking apparatus, J. G. Kurtz	191,864
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Lamp, E. C. McCloy	191,987
Lamp burner, J. Cain	191,830
Lamp chimney, G. Richards	191,884
Lamp extinguisher, G. D. Kilmer	191,976
Lamp refractor, Schaeffer & Pfrunder	191,888
Lamp shade, A. H. Duff	191,755
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Lathe cutting taps, G. R. Stetson	191,894
Leather folding machine, Corbett, Coy, & Wheeler	191,837
Leather splitting machine, J. Hodskinson	191,855
Level, S. Gissinger	191,954
Lifting jack, W. J. M. Batchelder	191,824
Liquid measure, W. K. Johnston	191,971
Lock, door, Keating & Taylor	191,861
Lock, latch bolt, J. G. Newell	191,994
Locks, hub for, J. Schade	192,020
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Loom shedding mechanism, H. Wolbold	192,040
Loom temple, J. E. Waterbury	191,907
Lubricator, A. S. Skinner	192,025
Marble, machine for cutting, R. R. Atchison	191,821
Mash, preparing, R. D'Heureuse	191,942
Mechanical movement, J. I. Ethridge	191,948
Mechanical movement, A. F. Harvey	191,961
Mercury condenser, Long & Castle	191,805
Metal plates, securing, W. G. Hyndman	191,763
Milk can, J. D. Tudor	191,903
Milk cooler, R. C. Greene	191,849
Millstone dresser, Cookson & Rastetter	191,938
Millstone driver, W. S. Armstrong	191,745
Mortising machine, Eddy & Stolzenbach	191,947
Motion, friction device, A. K. Rider	192,012
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Motor, weight, J. M. Cayce	191,930
Mucilage holder, J. V. Browne	191,751
Oar blades, M. Britton	191,923
Ore stamp, T. Schofield	191,889
Organs, reed pipe, W. A. Johnson	191,973
Packing case, W. Carter	191,831
Packing for piston rods, C. T. Sleeper	191,891
Paper bag machine, A. S. Dennison	191,943
Paper pulp from wood, Taylor & Outterson	191,899
Pavement, artificial, C. Hense	191,962
Pen, fountain, A. T. Cross	191,798
Pen, fountain, L. Fargue	191,950
Pencil, F. Sholes	191,816
Pencil paint, Holton & Field	191,856
Photographic printing frame, Walter & Durin	191,906
Pianoforte action, W. Muth	191,810
Picture frame, Bowers & Murphy	191,795
Pin box, J. Bryan	191,925
Pipe joint, G. Matheson	191,769, 191,770
Pitcher, C. Moyer	191,771
Plaiting machine, L. B. Berrien	191,825
Plaiting machine, J. E. Chapin	191,832
Plants, transplanting, C. Loskamp	191,806
Plow, McNutt & Furman (r)	7,732
Plow, A. Pirch	191,880
Post driver, M. Vanosdol	192,036
Potato and corn planter, J. Custer	191,838
Potato digger, A. J. Robertson	192,013
Potato vines, removing bugs, J. M. Conrad	191,936
Press, household, W. Y. A. Boardman	191,918
Printers' rolls, composition, J. Clifford	191,933
Pulley block, J. L. Pope	191,814
Pulleys, grooved, W. W. Lobdell	191,981, 191,983
Pump, air, E. Burgin	191,927
Pump, T. B. Swan	192,028
Pump valve, chain, O. O. Witherell (r)	7,744
Pumping machinery, W. E. Worthen	192,042
Railway signal, L. B. Carver	191,753
Railway signal, J. I. Conklin, Jr	191,836
Railway switch signal, etc., Hall & Snow	190,958
Razor sharpener, roller, Jahne & White	191,859
Roll for reducing tubes, W. McKenzie	191,875
Rowlock, J. J. Currier	191,752
Rule, bevel, J. C. Rorick	192,017
Sad iron, T. H. McCaffrey	191,873
Sad iron, H. L. Wells	191,908
Sadi ron holder, J. R. Cluxton	191,935
Sash balance, N. J. Skaggs	192,024
Saw gage, T. Emery	191,799
Sawmill head block, H. Cleghorn	191,931
Saw mill head block, A. Rodgers	192,015
Saw mills, A. Rodgers	192,016
Sawingmachine, scroll, G. E. Lewis	191,765
Screws, forming threads on, Ibbotson & Talbot	191,968
Screw thread, machine, L. Bollman	191,826
Seal, metallic, E. A. Locke (r)	7,741
Seed planter, M. N. De Veara	191,845
Seed planter, F. B. Preston	191,882
Seed sower, J. Pearce (r)	7,734
Seeding machine, S. Dixson	191,945, 191,946
Sewage, treating, F. Hille	191,853
Sewingmachine, J. Keats	191,975
Sewing machine attachment, W. Randel	192,008
Sewing machine trimmer, Bradford & Pierce	191,750
Shafting box, J. B. Tomlinson	191,901
Shirt bosom protector, W. F. Brown	191,924
Shoe clasp, Hammond & King	191,768
Sink, G. Jennings	191,970
Skylight, S. M. Howard	191,802
Sled brake, E. M. Lawrence	191,867
Smoking pipes, S. K. Luce	191,869
Snap hook and buckle, F. J. Deisz	191,842
Snap hook and buckle, J. R. Hopper	191,857
Spool case, N. Waterbury	192,038
Stair rail machine, J. B. Bowden	191,748
Steam generators, E. D. Wood	191,791
Steam heater, R. G. Brown	191,796
Stirrup, S. J. Harkness	191,851
Stone, artificial, C. E. Peirce	191,999
Stove, A. Lynd	191,807
Stove, gas, W. McKenzie	191,988
Stove, portable lamp, M. T. Richardson	192,011
Stove pipe drum, J. Closs	191,834
Stove polish, E. L. Whiton	191,787
Stuffing box, C. T. Sleeper	191,892, 192,026
Sucker rod connections, tapping, A. D. Laws	191,979
Sugar apparatus, C. Plagge	192,004
Sulphurous anhydride, R. P. Pictet	191,778
Surgical tube, E. Pfarre	191,879
Syringe, J. S. Parsons	191,775
Tables, etc., device for packing, E. P. Wright	191,792
Tackle block, J. F. Harcourt (r)	7,728
Telegraph, C. H. Rudd	191,887
Thermometer, F. A. Stohlmann	191,897
Thrashing machine, W. M. Leyde (r)	7,731
Thrashing machine feeder, E. J. Marsters	191,985
Tinner's scrap, J. M. Sanders	191,780
Tobacco, D. C. Lyall	191,870
Tobacco, printing, D. W. De Forest	191,841
Tool handle, C. Groth	191,757
Tool handle, L. Landeker	191,866
Top, spinning, H. D. Forbes	191,756
Towel rack, Merritt & Eckenfels	191,989
Truck for moving buildings, Hulet & Murphy	191,966
Tubing, joint for, G. Matheson	191,768
Twine holder, A. Beausoleil	191,914
Twine holder, J. C. White	191,788
Umbrella support, B. B. Smith, Sr	191,782
Urinal, J. W. Osborne	192,045
Valve engine, E. O'Neill	191,812
Valve or water cock, globe, E. Hoehn	191,963
Valve, steam engine, H. E. Woods	192,041
Valve, steam safety, W. B. Mack	191,871
Vaporbath, G. W. Walker	191,905
Vehicle hub, M. C. Buffington	191,926
Vehicle, Throop & Doyle	192,033
Velocipedes, step for, J. Shaller	192,022
Vessels, sheathing, Warren & Fied	192,037
Wagon brake, M. Clifford	191,932
Wagon brake lever, P. Thomsen	192,032
Wagon seat, C. E. Stone	191,896
Wash for ingot molds, W. R. Jones	191,974
Washing machine, G. W. Benton	191,916
Washingmachine, A. P. Ladd	191,865
Washing machine, L. Sternberger	192,027
Washing machine, J. St. Tonge	191,902
Watch dust cap, G. Hunter	191,967
Water closet, A. B. Seymour	192,021
Window blind, J. F. W. Fawcett	191,951
Wood drying, P. Pfeffer	192,001
Wrench, E. K. Holley	191,761

DESIGNS PATENTED.

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10,048.—EMBROIDERY PATTERN.—Alice Donlevy, New York city.

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10,051.—POCKETBOOK CLASPS.—J. Messer, New York city.

10,052.—GROUP OF STATUARY.—J. Rogers, New York city.

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