

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending March 14, 1876,

AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specification 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

Table listing various inventions and their corresponding page numbers, including items like Advertisements, Air compressing, Alarm, burglar, Axle grease, and many others.

Try the following: Copper 86 4 parts, zinc 12 2 parts, tin 1 4 parts. Fuse the copper first, and then add the other metals. 2. Is there a brass solder that will fuse as easily as 12 carat gold solder? A. Try 1 part silver and 2 parts brass.

(33) L. L. L. asks: Has the author of articles, which have been published in and paid for by literary periodicals, a right to publish the same in book form? Or does the property in said articles vest in the publishers of the periodicals, making it necessary for the author to obtain permission from them to publish such book? A. The right to republish articles in book form depends on the agreement between the author and the publisher.

(34) C. F. asks: Can common red earthenware be, by any process, glazed white either before or after the lead glazing? A. Fabrics of potter's clay are too fusible to admit of being enameled with porcelain. Try the following: Mastic 10 parts, red lead 60 parts, calcined tin (putty powder) 26 parts, and common salt 10 parts. Mix them, and calcine and powder the composition three or four times. Apply to the ware (after baking) in the manner of a paint, and place again in the oven.

(35) J. M. says: I am using a cast iron pot in galvanizing, and have been told that the zinc in connection with the cast iron pot forms more slag by galvanic action than a wrought iron pot would. Is this so? A. No.

(36) F. P. asks: 1. Can the color of coal tar be changed conveniently to a red or brown, or any other color that would be suitable to paint farm buildings, without changing its nature? A. No. Use red ochre or red lead. 2. How can coal tar be thinned? A. Use naphtha.

(37) E. D. says: I have a pack of playing cards that stick together when affected by the heat of the hand, and seem to get dirty very quickly. Can you inform me of any preparation to prevent their sticking and to give them a gloss? A. The trouble is due to the inferiority of the glazing with which the cards are enameled. We do not think you can overcome the objection without the expenditure of too much time and labor.

(38) J. G. M. & Co. say: In cooking fish for canning, we need a greater heat than 212° Fah. gives us. We have used salt, and then chloride of calcium, heating the water by steam. But the oil from salmon, mixing with the calcium, is hard to clean off the cans after cooking. Can you tell us of some cheap preparation which we can heat (with steam coils) to 240° Fah.? A. It would be better to heat the water to the requisite temperature by means of a very moderate steam pressure. The temperature of the boiling point might thus be arranged to suit your convenience, and by suitable valves caused to remain constant. Saturated saline solutions are objectionable.

(39) J. M. A. and others.—It is a popular idea that the sunflower will prevent disease, but we have no reliable authority for the statement. It is not used in medicine.

(40) H. W. H. asks: Is it possible to blow glass in the shape of a cylinder, with a very small opening along one side? A. Yes; it is readily done. The molten glass, as it is drawn from the pot, adhering to the end of the punta tube, is blown into a pear shape, elongated by swinging, rolled on a steel slab into the cylindrical form, and slit through lengthwise, and the cone-shaped bases at both ends removed. It is then placed in the annealing furnace.

(41) M. F., of Gaggenau, Germany, asks: Is there a good gas tight membrane, not affected by heat or water, or by the impurities (acids, etc.) contained in the gas? A. This desirable invention has as yet been very imperfectly realized.

(42) M. W. asks: How are rain gages generally constructed? If a vessel 12 inches in diameter above, and 10 inches at the bottom, and 8 inches deep, should be filled with rain water to depth of 3 inches, would 3 inches really have fallen, or more? A. Less. If the vessel employed as the receiver is not a uniform tube, it should be carefully graduated before using.

What will remove the marks of so-called indelible ink from linen? A. Use a strong solution of cyanide of potassium in water. As the cyanide is very poisonous, it is necessary to avoid contact with sores or cuts in the flesh.

Do the crossheads of a locomotive make a retrograde movement when the engine is going either forward or backward, unless the driving wheels slip? A. No.

(43) H. J. asks: Will oil evaporate into the air and dry away, whether on the surface of water or not? Can water evaporate into the air when its surface is covered with oil? A. The application of a film of any of the fatty non-drying oils to the surface of water will prevent its evaporation. The oil itself is not volatile.

(44) F. N. B. says: I have been trying to make a friction match composition by a formula in which there is a large proportion of niter. The niter spoils the composition; the matches are good when first dried, but an exposure to damp causes them to become sticky, so that, when placed in a cellar they will in 24 hours stick to my fingers like tacks to a magnet. When kept in a dry place, the phosphorus slowly burns off, filling the room with a strong garlic odor, and the matches are worthless. What is the matter? A. After preparing the matches, and while dry, dip the tips into a moderately strong collodion for a moment, and allow to dry. This will form a thin protecting film over the friction composition. This film is not affected by moisture or other atmospheric influences, and does not interfere with the ready ignition of the match when required, as the slight abrading influence of the friction is sufficient to remove the film, while in itself it is a very inflammable substance, and aids, by the heat of its combustion, the ignition of even a common wooden plint.

(45) W. S. H. asks: Is it possible to become sufficiently advanced in architecture without a tutor, to enable one to complete the study in a short time under instruction? A. It is necessary to take an extended course of study in the office of an architect of experience, where you will have access to his library.

(46) S. M. O. and others.—The diamond occurs in the form of rounded pebbles covered with a brownish crust. Its crystals are in the form of the regular octohedron, but their faces are often a little convex. It has the most remarkable refractive and dispersive action upon light, is a non-conductor of electricity, and is not acted upon by acids or alkalis. If the stone is a diamond, it will easily scratch corundum and quartz, and will have a specific gravity of from 3.52 to 3.55. The specific gravity of quartz crystals is from 2.50 to 2.66, while that of corundum, true sapphire, etc., is from 3.9 to 4.16. A diamond dealer alone could give a valuation, based on personal examination.

(47) F. S. & S. ask: What is the best mode of cleansing the feathers of an eagle, which are discolored by fly dirt and dust? A. Use freshly prepared lime water. It may require several applications and an exposure of several days to perfectly cleanse the feathers.

(48) A. H. S. asks: Does nitro-glycerin lose any of its explosive force when combined with earth to form dynamite? A. The nitro-glycerin itself remains unaltered in the mixture, but, as might be expected, the dynamite is a much weaker explosive, volume for volume, than good nitro-glycerin.

(49) A. H. asks: Will it injure the burning properties of kerosene, or make it any more or less explosive, to filter it through cloth or bibulous paper to remove sediment? A. It will alter neither its illuminating nor its explosive qualities.

(50) C. B. F. W. asks: How can I test laundry soaps for adulterations, such as silex, silicate of soda, soapstone, etc.? A. Dissolve a small quantity of the soap completely in a large excess of boiling water, and filter through clean white filtering paper. Observe whether or not any insoluble inorganic residue remains behind on the filter; if so, examine it with a strong magnifying glass, and, if the particles appear to be homogeneous in character and transparent or translucent, the adulterant may safely be presumed to consist of quartz sand. If opaque, and of a pearly or dark color, it is probable that the material consists of tale, chalk, soapstone, barytes, or some of the other numerous and common adulterants. In order to be sure that part, at least, of the residue does not consist of resinous or other organic materials, the residue should be heated to bright redness for some time before examination with the glass. To test for the presence of water glass, add (to the filtrate from the above experiment) a small quantity of muriatic acid, heat to boiling, and allow to stand for some time. If a precipitate forms, wash it several times with clean water, heat it, and examine it as before.

(51) G. J. B. says: What effect on the acoustic qualities of a room would a cove in a ceiling have, the room being 90 x 47 feet, and 27 feet high? The cove is 4 feet out from the side walls. A. It is not likely that so small a cove would affect the acoustic qualities of the room.

(52) F. P. says: I read that Governor Bagley, of Michigan, suggests that all land owners should plant a tree, during this our centennial year. What kind of tree would be most suitable as a shade and ornament tree, an evergreen being preferred? A. The Norway spruce fir is a good evergreen for this purpose; the scarlet maple or the sugar maple is a good ornamental shade tree among the class not evergreen. The elm is also one of the noblest trees of the latter class.

(53) F. R. asks: How many Bunsen cells are necessary to effect the decomposition of water, with moderate rapidity? A. Two or three cells will evolve has readily from acidulated water.

(54) C. K. M. asks: 1. Will 1/2 lb. No. 16 cotton-covered copper wire, for a primary coil, and 1 lb. No. 23 cotton-covered wire for the secondary coil, and 1 cup of Callaud battery, do for giving electric shocks? A. Yes. Stronger shocks would be obtained if smaller wire were used for the secondary. 2. How thick ought the bundle of iron wires to be for such a coil? A. About 1/2 inch.

(55) J. L. W. asks: In taking a gun barrel and holding it perpendicularly, and taking a compass, holding it on the side of the same and lowering it to the breech, the needle will suddenly reverse when lowered about half way; and on raising it, will again reverse at about the same place. What is the cause of this change? A. In such a position the gun barrel is almost in the line of the dip, consequently it will become magnetic from the inductive action of the earth. The lower end will be a south pole, the upper a north pole.

(56) W. H. G. says: I have made an induction coil, 6 inches long by 1 1/4 inches diameter, with a half inch core of iron wires, using 2 turns of No. 22 cotton insulated cooper wire for the primary, and about 25 turns of No. 32 cotton insulated copper wire for the secondary coil, making the latter about 20 times as long as the primary. The vibrator is attracted by the core, and works well. I have insulated the two coils from each other with 3 sheets of paper varnished with shellac, and put 1 sheet of varnished paper between each two turns of the secondary. With the above I only get feeble shocks on holding the two ends of the secondary wire on my tongue, using 7 cells of the gravity battery in connection with the primary. A. It is quite likely that different convolutions of the secondary touch somewhere, and by this means the greater part of the action is cut off.

(57) J. B. J. says, in answer to several correspondents who ask as to how the variation of the magnetic meridian is reckoned: There is a secular change, increasing or diminishing the declination from 1' to 7', annually, according to locality. There is an annual change, affecting the needle about twice as much in summer as in winter. There is a diurnal change, during which the declination attains its maximum or minimum about 2 P. M., according as it is W. or E.; and there are also irregular changes, depending upon the condition of the atmosphere, magnetic storms, etc., as well as local attraction, proximity of iron, ore, steel, etc. It must be evident to any one conversant with the subject that it is practically impossible definitely to locate a line with a given bearing from the meridian, with a surveyor's instrument, unaided by some external object. The only reliable method of determining the angle, if any, between the line in question and a true meridian, would be to set up a surveyor's instrument over, say, the south end of the line, sight to the pole star at its extreme elongation, and drive a stake in the range thus found as far off as can be observed conveniently, and repeat the process for the extreme western elongation: midway between the two stakes is the true meridian from the instrument. The distance from the midway point to the line in dispute, divided by the distance from that point to the instrument, will be the line of the angle between the line and true meridian. As the operation will doubtless be performed after sunset, the sights or crosshairs of the instrument will need to be illuminated by light of lamp reflected upon them from a white object. A lamp or candle may be used to determine points at which to drive stakes.

(58) W. M. R. says, in reply to P. A. K., who asks who invented the first railroad sleeping car: In 1838, when I was chief engineer of the Cumberland Valley Railroad, between Harrisburgh and Chambersburgh, Pa., we had sleeping cars built, which ran for some years. One end of the car was arranged in the ordinary way, with day seats; the other end was fitted up with eighteen sleeping berths, for the night, which were changed, for the day's running, so as to make omnibus seats on each side of the car. There were three lengths of berths and three tiers on each side. The top tier of berths hoisted on a hinge, and was secured by rope supports to the ceiling of the car. The middle tier consisted of the back of the omnibus seat, hinged and supported in the same manner. The lower tier was the day seat along the side of the car. At that period, there were two coach loads of passengers arriving by turnpike road nightly from Pittsburgh; and they were very glad to have the benefit of the sleeper during the four hours then occupied between Chambersburgh and Harrisburgh, on the old plate rail. There was no charge for sleeping accommodations.

(59) A. H. says, in answer to C. E. A.'s query as to a difficulty with his alarm bell: I think it arises principally on account of the brevity of the contact between the hammer and bell. If so, he can ascertain the fact by pressing the hammer against the bell by hand; to this the armature ought to respond. In such case, the remedy would be to place the wire now attached to the bell in contact with a piece of metal, so arranged that the hammer will be in contact with it, at each vibration, a length of time sufficient for the magnet to act.

J. S. J. says: Water is forced into all parts of our building by its own pressure, through iron pipes. Frequently is heard a loud singing noise like air escaping slowly; but after the spigot is opened and the water runs freely, the noise continues about a minute. What is the noise?—E. M. H. asks: I have an open buggy of 5 feet track, front wheels 3 feet 11 inches high, and hind wheels 4 feet 1 inch. What is the necessary under axle?

COMMUNICATIONS RECEIVED.

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

- On the Aeroscope. By W. S. H.
On French Apartment Houses. By N. L. D.
On Life and Blood. By J. F. G. M.
On a Telescopic Eye. By —
On a Book on Geology. By E. K.
On the Hidden Forces of Nature. By H. F. G.
On Public Works. By J. C. W.
On the Financial Question. By W. H.

Also inquiries and answers from the following: J. H. H.—S. F. S.—L. S. W.—M.—W. H. H.—J. M. M.—J. S. T.—B. B.—F.—F. W.—R. B. G.—Q.—N. W.—I. J.—E. R. G.—R. McM.—W. L. 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.

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: "Whose is the best brick-making machine, and what is its price? Who makes coiled springs to order? Who buys sulphate of lead? Who sells wire-straightening machines? Who makes vegetable parchment? Who are the principal lumber dealers in New York city? Who makes bung machines?" 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.