

the motor require? A. It will run if connected with an Edison dynamo. It is not adapted to gravity batteries.

(6) J. C. R. asks: How would a hoop of iron, secured by brass clamps at ends and angles...

(7) H. S. D. writes: I want to make a dynamo after the pattern of the eight light described in the SCIENTIFIC AMERICAN and SUPPLEMENT...

(8) C. T. T. asks (1) for a process for making acid to eat metal, to make rough cuts for printing. A. See articles on Zincography, in SUPPLEMENT...

(9) A. B. O. desires a formula for making a cheap, white soap from tallow. A. Dissolve 2 pounds sal soda in 1 gallon boiling soft water...

(10) J. W. C. asks how to make old fashioned molasses candy not turn soft or sticky in warm or damp weather. A. Take 1 quart molasses, 1 1/2 pounds brown sugar...

(11) A. B. U. desires a receipt for an enamel or glaze for wood, to be impervious to water. A. Coat the article several times with hot linseed oil varnish.

(12) E. B. asks for something to make the teeth white. A. Take of dry hypochlorite of lime 1/2 drachm, red coral 2 drachms, triturate well...

(13) J. P. K. asks for an article for cleaning carpets without lifting them from the floor, one about as thick as muckilage, and in using which a quantity is taken on a brush and rubbed over the carpet...

(14) J. H. S. desires (1) a receipt for tanning buckskin, such as used in making gloves, and one for tanning with hair on. A. The manufacturers' processes are very elaborate...

(15) C. F. B. asks how to wash a chamois skin. If washed in an ordinary way, they are very stiff afterward. A. Use a weak solution of soda and warm water...

(16) W. S. asks: What is "putz" pomade composed of, and how made? A. Take of oxalic acid 1 part, iron peroxide 15 parts, powdered rotten stone 20 parts...

(17) S. C. D. asks: Is there any way to color a meerscham pipe that has been used and colored to bottom of bowl in good shape?

(18) C. E. H. asks the proper way to prevent an ingrowing toe nail, and to prevent it getting worse. A. Begin the cure by simple application to the tender part of a small quantity of perchloride of iron...

When this hardened flesh has remained on two or three weeks, it can be easily removed by soaking in warm water. Further trouble can only be prevented by cutting the nail to proper shape and wearing shoes of reasonable size.

(19) L. D. W. asks: Is there any way to clean a marble bust which has become soiled by dust and finger marks? A. Mix quicklime with strong lye, so as to form a mixture having the consistency of cream...

(20) J. T. M. asks why it is that the secondary coil of an induction coil is always composed of very fine wire, and will not coarser wire do equally well? A. By using fine wire in the secondary of an induction coil, more convolutions are obtained for the same volume...

(21) C. N.—Your greatest trouble probably arises from the burning of the corners of the chisels in forging. The corners should be no hotter at any time than the center. A slow fire or low blast is always necessary to the successful forging of steel-cutting tools.

(22) T. W. M. Co.—If you wish to make a chilled surface against a cold iron mould, use No. 2 American pig, with 1/4 good scrap. If you wish simply to make hard castings in sand moulds, use No. 3 or 4 pig or No. 2 with 1/4 scrap.

(23) V. S. M. asks for the best lubricant for central fire rifle cartridges. I have used tallow and wax, and mutton tallow alone, and in cold weather they scale off badly. A. Try paraffine or vaseline.

(24) J. A. R. writes: I have in my house brass door knobs. When they were purchased, we were told that they would not tarnish, but they do. I now want to turn them black without waiting the slow process of time. How can I do it? A. Thoroughly clean the varnish from the knobs with alcohol, and scrub with a brush and solution of soda.

(25) E. D. D. asks: Does the mariner's compass in the neighborhood of the equator point north and south with the same certainty that it does in other latitudes? A. The magnetic needle does not point with certainty to the north except in a few places. It is better, on general principles, the nearer it is to the equator.

(26) C. M. R. asks if it is possible to take a 15 horse power engine and make it do 30 horse powers of work. The engine in question is high speed, and the boiler of 18 horse power. A. You can generally make a nominal 15 horse power engine do an indicated 30 H. P. of work.

(27) M. R. asks: 1. Why should a wagon with solid iron axle run harder than with wooden axle? A. The coefficient of friction between iron and iron is probably higher than that between the hard wood of an axle and the iron of the box.

(28) G. W. S.—It will not pay you to undertake to make emery strips for your own use. For their manufacture you will require strong iron moulds with followers driven by a powerful press, capable of a pressure of a ton for each square inch.

(29) E. J. T. asks: What would be the superior quality of copper pipe over iron pipe of same dimensions for hot water heating? A. Copper pipe is but slightly better than iron for radiating heat, although it is a much better conductor of heat.

(30) F. L. G.—A composition of 75 parts lead, 16 7-10 parts antimony, and 8 3-10 parts bismuth expands in becoming solid from a fluid state.

(31) W. K. asks the best solution for pickling iron and steel. A. Hydrochloric acid 1 part, water 3 to 4 parts, for quick or slow pickle.

(32) C. W. asks what the best journal and journal box are made from. And how would a cast iron journal running in a cast iron box compare with the best? A. Cast iron journals and boxes run well together with heavy lubricating oil mixed with graphite.

(33) R. W. asks if there is any acid in which brass may be dipped, to clean it, which will clean it without hurting the article in any way? A. Oxalic acid solution in water is excellent for cleaning brass that can be brushed or rubbed.

(34) E. K. H. asks: 1. What metal, mineral, or other material can I use to keep heat in an iron vessel that is heated by hot air? I want it to radiate the heat if possible, several hours after the supply of heat is cut off, and iron alone will not answer the purpose.

also a solution of acetate of soda so strong that it will crystallize on cooling, thus giving off its "latent heat." 2. Would a double iron vessel with a dead air space between to store hot air be a good device? A. The storage of hot air for use is of no value. Its specific heat is very low, a great deal less than that of water.

(35) J. A. P.—You can melt 8 or 10 lb. of old brass boxes readily in a blacksmith's forge by building a brick cylinder or square box around the tuyere large enough to have a clearance of 3 or 4 inches all around the crucible.

(36) R. H.—Moulding for and casting of iron is a difficult matter for a novice. We recommend you to study the subject by visiting an iron foundry and observing their methods.

(37) A. M. Co. asks: How can we keep jelly from moulding? A. First cover the jelly with a piece of paper that has been dipped in brandy, and fits quite close to the jar at the edges, then cover tight with another piece of paper, so as to prevent as far as possible any entrance of air.

(38) C. P. M. asks the best method of driving boiler rivets. A. Hand and machine riveting are equally good, if both be honestly and faithfully done. Canted rivets, from their being too small or from the drifting of ill-matched holes, make most of the trouble, and lead to fault finding with the system, instead of the dishonest practices in the boiler shop.

(39) J. M. A. writes: 1. In the SCIENTIFIC AMERICAN of two weeks ago you gave instructions for making small electric motor. What battery is best to use, where can it be had, about what cost, or could it be made cheaper by procuring materials? A. A plunging bichromate battery is probably the best for the motor.

(40) H. H. writes: I found some difficulty in making the iron wire core of the armature for the simple electric motor recently described in the SCIENTIFIC AMERICAN. For the benefit of others who may undertake to make the motor, I describe my method: Take two pieces of wood about 1 1/2 inches thick, with a piece of cigar box wood between them, and secure them together where the flanges will come, then turn the spool as described and cut in two at the center at right angles to its axis.

(41) J. W. L. asks (1) if a solid cast iron field magnet will answer as well as Russia sheet iron, for the simple electric motor described by George M. Hopkins, in No. 11, current volume of SCIENTIFIC AMERICAN. A. Cast iron will answer nearly as well as Russia iron. 2. If not, will solid wrought iron do? A. Wrought iron will answer for the purpose.

(42) Mrs. H. asks (1) how to make koumiss out of buttermilk. A. See the article on "The Preparation of Koumiss," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 130. 2. If I have a stream running on my farm, and my neighbor has none, does the law compel me to allow the stream to run to accommodate him? A. If the stream on your land runs to or borders on your neighbor's land, you cannot alter the course of the stream to deprive him of it.

(43) W. S. P. writes: Suppose a bar of iron surrounded by an armature excited by current from some electric source be withdrawn from said armature nearly its full length, will it return entirely within said armature, and with what force? What per cent of the power excited in the armature? A. Send a sketch of the experiment you propose, together with more explicit description.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

March 27, 1888,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing various inventions and their patent numbers, including items like Air compressor, Alarm lock, Aluminum and alloying it with other metals, Annunciator, electric, Young & Painter, Anvil and vice, combined, W. E. Canedy, Atomizer, G. Kneuper, Awning ventilator, J. P. Knobloch, Bag, See Mail bag. Paper bag, Bag, J. S. Boyd, Bar, See Cutter supporting bar, Bath, See Vapor bath, Bath tub, sink, or wash basin, C. H. Moore, Battery, See Ear battery. Galvanic battery, Bed, folding, E. E. Herrinton, Bed, folding, Smith & Herrinton, Bed, turn up, A. H. Merrill, Belt clamp, W. D. Vandecar, Belt fastener, T. Gingras, Belt, shifter, U. E. W. Schenck, Belt tightener, D. Bowman, Belting, machine, C. A. Schieren, Bevel splitter, saw, and boring machine, reversible, H. D. T. Branton, Bicycles, umbrella attachment for, C. Snowden, Board, See Ironing board, Boat, See Velocipede boat, Boiler, See Steam boiler, Boiler setting, steam, W. U. Fairhairn, Bolt, F. Celce, Boot heel, P. Linden, Boot or shoe, J. A. Kelly, Boot or shoe supporter, C. Prouty, Boots, making combined knit and cloth, D. Beatty, Boots or shoes, flush nailing the heels of, F. F. Raymond, Box, See Letter box. Provision box. Signal box. Stop box, Brace, See Shoulder brace, Brake, See Car brake, Brake and belt shifter, J. F. W. Dorman, Brake lever, J. W. McPherson, Broom holder, C. F. Lansing, Brick kiln, J. C. Anderson, Brick, etc., kiln for burning, J. C. Anderson, Bridge bars, manufacture of, S. W. Lerch, Brush bridle, paint, A. B. Kistler, Brush, pocket tooth, Bouton & Stearns, Brushes, drip cup for whitewash or paint, A. Williams, Buckle, T. A. Lee, Burner, See Gas burner, Bustle, F. E. Bennett, Butter can, J. E. Levasseur, Butter package, W. H. Roberts, Button, W. Bourke, Button fastener, W. M. Hazel, Button, metallic, C. Radcliffe, Can, See Butter can, Candle moulds, apparatus for cooling, G. Janassen, Candy dropping machine, Z. T. Hartman, Car brake, A. F. Nell, Car brake, A. C. Rogers, Carbon, manufacture of refractory, C. H. Land, Car coupling, G. W. Edwards, Car coupling, B. F. Laird, Car coupling, L. A. Neff, Car coupling, F. B. Windland, Car floor frame, J. Plattenburg, Car heater, P. F. McGee, Car heater, J. Wardle, Car heater and lamp extinguishing apparatus, A. C. Smith et al., Car heating apparatus, F. J. Crouch, Car, hopper bottom freight, F. L. Joy, Car starter, H. H. Holmes, Cars, gripper actuated by hydraulic pressure for cable railway, C. L. Snyder, Cars, street and station indicator for railway, J. B. Clot, Carpet sweeper, H. A. Gore, Case, See Spectacle case, Centering device, S. B. Minnich, Chair, J. L. Kneuper, Chop gear, J. R. Davis, Jr., Chop separator, J. R. Davis, Jr., Chopper, See Cotton chopper, Churn dasher, J. E. Gibbs, Churn dasher, T. S. & A. M. E. Stewart, Clamp, See Belt clamp, Clasp, See Corset clasp. Hoof clasp. Shoe clasp. Spring clasp, Clasp, A. Lewis, Clasp, I. V. Pilcher, Clay pulverizer, J. & H. M. Creager, Cloth finishing machines, feeding mechanism for, J. J. Schofield, Clothes pin, wire, E. M. Ball, Clothes sprinkler, F. G. Johnson, Clutch, friction, S. C. Shepard, Coal screening mechanism, Coxe & Salmon, Coal scuttle, D. F. Tobin, Coal separator, C. W. Ziegler, Coffin fastener, Buddington & Bedient, Coloring matter from the sulpho acids of ethyl or diphenylamine combined with tetrazodiphenyl or tetrazoditoly, T. Diehl, Comb, See Curry comb, Combination lock, B. Fry, Corn and fodder compressor, J. F. Mains, Corrugating machine, Rowland & Hill, Corset clasp, J. Day, Corset fastener, B. R. Davenport, Corset fastening, J. A. Brennan, Corset fastening, removable, S. A. Schoefer, Cotton chopper and cultivator, T. F. Lawson, Coupling, See Car coupling, Cover for vessels, J. P. Riefel, Crank and lever mechanism, R. H. Williams, Crusher, See Ore crusher, Cultivator, E. A. Hoyt, Current meter, P. Kotlarewsky, Curry comb, G. F. Dietz, Cutter supporting bar and cutter, C. D. Wells, Damper, stovepipe, J. C. Ingalls, Dental plates and bridges, making, C. C. Carroll, Derrick, hay, A. L. Kane, Desk, I. Melton, Diamido compounds of base colors produced from, production of new, A. Welber, Die, See Embossing die.