

ENGINEERING INVENTIONS.

A guard for railway cars has been patented by Mr. Robert J. Gillham, of Orlando, Fla. This invention covers a novel form of light metal guard, to be attached to the tops of railway cars at each end, to prevent smoke, dust, and cinders from passing down between the cars when they are in motion, and also to shield and protect the platform from rain and snow.

A balanced slide valve has been patented by Mr. William Jackson, of Allegheny City, Pa. It has a seat with apertures on opposite sides communicating with the live steam passages, and spring valves for closing said apertures, with slide valve in said seat, so balanced as to work easily and fit snugly even when it wears down, without being disturbed by back pressure, the invention being an improvement on a slide valve formerly patented by the same inventor.

AGRICULTURAL INVENTIONS.

A planter and manure distributor has been patented by Mr. David C. Bullard, of Elberton, Ga. It is a device designed to be drawn over the field by teams to sow seeds and to distribute fertilizers, such as guano, at the same time, or to plant the seeds and drop the fertilizer at different times, the single machine being adapted for both purposes.

A potato digger has been patented by Mr. William J. Davis, of Pittston, Pa. Its construction is such that the digging mechanism can be readily adjusted to work at a greater or less depth in the ground, and can be readily thrown into and out of gear, the teeth entering the ground easily and carrying the potatoes over the shaft to drop them upon the ground at the rear of the machine.

A sulky plow has been patented by Mr. Frederick T. Miller, of Fredericksburg, Va. The tongue is readily adjustable at such angle as desired, and there are right and left hand plows, either of which may be lowered into operative position, and at the end of the furrow, when the plow is turned to return across the field, the other plow may be lowered, so that the earth from each furrow is always turned by the mouldboard in one direction.

MISCELLANEOUS INVENTIONS.

A shaft tug has been patented by Mr. John Fischer, of Louisville, Ky. The invention consists of a peculiarly constructed metal frame, and the combination of the same with other parts, to make a simple, strong, and durable shaft tug.

A hand truck has been patented by Mr. Charles Walter, of Brooklyn, N. Y. It has a swinging frame carrying a third wheel, whereby it can be readily transformed from a two wheel to a three wheel truck, and the tongue can be used in a vertical or horizontal position.

A compound for cleaning boilers has been patented by Mr. William S. Baskin, of Corning, N. Y. The compound consists of saltpeter and white vitriol mixed together in certain proportions, for loosening old and hard scale and preventing the formation of new scale in the boiler.

A barrel roller has been patented by Mr. Thomas B. Dittrick, of East Tawas, Mich. It consists of two pairs of rollers mounted on curved arms and connected with a suitable handle, the rollers being adapted to bear against the sides of the barrel, and move it forward, when they are pushed by the handle, by continuous forward pressure.

An animal bit has been patented by Mr. Willard D. Harmon, of Beloit, Wis. It has opposite parallel side bars, connected by cross bars concaved from the power side of the bit, and resting on the animal's tongue, which is held between the side bars, the object being to correct the habit of the animal of holding the tongue out of the mouth.

A sash holder has been patented by Mr. Moses C. Hargrave, of Wilmington, N. C. This invention relates to sash holders in which spring-actuated pulleys are employed to bear against the edge of the sash as a substitute for cords and weights, and combines with the pressure pulleys a lock which presents no obstruction when the sash is unlocked.

An oil can has been patented by Mr. Henry E. Wolcott, of Syracuse, N. Y. Its construction is such that the top and cover may be conveniently removed for cleaning the can, while the top serves as a support for cups and measures, and through it projects the pump, the construction being simple and such as can be furnished at light cost.

A middlings purifier has been patented by Mr. Richard A. Rew, of Pomeroy, Wash. Ter. This invention relates to middlings purifiers having vibrating sieves through which the middlings are passed, and covers various details for improving the efficiency of the machine, and by which it is made to occupy less floor space than the machines at present in use.

A process of treating tobacco has been patented by Mr. Goldsborough Robinson, of Louisville, Ky. It consists in first flooding the leaf tobacco with hot and then with cold alcohol, applying pressure to exclude the surplus spirits, and then flooding the leaf momentarily with cold water and drying, to improve the quality and color of the tobacco.

A fence post has been patented by Mr. Jay L. Quackenbush, of Portland, Oregon. It is made of plate metal, rolled, pressed, or cast, with a notched flange on one side to receive fence wires, and its bottom part is formed like a gimlet, to enter the ground easily, the screw being sharpened so as to compress, rather than lift, the earth around the threads.

A clutch coupling has been patented by Mr. Benjamin F. Applegate, of New Albany, Ind. It is made of two half sections which are counterparts of each other, adapted to interlock, each formed at its acting face with two annular series of driving faces, with other novel features, it being intended to drive both ways without backlash, automatically take up the

wear of the driving shoulders, and to couple or uncouple readily.

A method of casting car wheels is the subject of letters patent reissued to Mr. William Wilmington, of Toledo, O. The distinctive feature of the invention consists in imparting finer ferro-manganese or its equivalent to molten chill hardening cast iron at or about the time it is first entering the mould of a car wheel, and at a later period imparting greater quantities of ferro-manganese to the flowing metal, the ferro-manganese being finely powdered or granulated, and melted and disseminated by the inherent heat of the iron pouring from the ladle, and thus vary the quality of the iron in different parts of the wheel.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

For Sale—The Kimball Pearl Barley and Oatmeal Mills. Established in 1847. Located in the city of Watertown, N. Y. Good water power and trade. M. H. Kimball, Watertown, N. Y.

Referring to article on Type Writers, July 10, send to Thos. Hall, 853 B'way, N. Y., for latest improvements.

For Sale—Fancy Brass Goods mfg. business. Lathes, presses, etc. For particulars, address F. W., care of M. C. Weil, Sun Building, New York.

Emery Wheels of unusually superior quality for wet grinding. The Tanite Co., Stroudsburg, Monroe Co., Pa.

A Catechism on the Locomotive. By M. N. Forney. With 19 plates, 227 engravings, and 600 pages. \$2.50. Sent on receipt of the price by Munn & Co., 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Pumps for liquids, air, and gases. New catalogue now ready.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Laquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Grimshaw.—Steam Engine Catechism.—A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

Curtis Pressure Regulator and Steam Trap. See p. 142.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Planing and Matching Machines. All kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Nystrom's Mechanics.—A pocket book of mechanics and engineering, containing a memorandum of facts and connection of practice and theory, by J. W. Nystrom, C.E., 18th edition, revised and greatly enlarged, plates, 12mo, roan tuck. Price, \$3.50. For sale by Munn & Co., 361 Broadway, New York City.

Hercules Lacing and Superior Leather Belting made by Page Belting Co., Concord, N. H. See adv. page 30.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 East 8th Street, New York.

Universal & Independent 2 Jaw Chucks for brass work, both box & round body. Cushman Chuck Co., Hartford, Ct.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

60,000 Emerson's 1886 Book of superior saws, with Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

Safety Elevators, steam and belt power; quick and smooth. D. Frisbie & Co., 112 Liberty St., New York.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 93 John St., N. Y.

Barrel, Keg, Hogshead, Stave Mach'y. See adv. p. 366.

Astronomical Telescopes, from 6" to largest size. Observatory Domes, all sizes. Warner & Swasey, Cleveland, O.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Advice to Consumptives.

On the appearance of the first symptoms—as general debility, loss of appetite, pallor, chilly sensations, followed by night sweats and cough—prompt measures for relief should be taken. Consumption is scrofulous disease of the lungs; therefore use the great anti-scrofula or blood purifier and strength restorer—Dr. Pierce's "Golden Medical Discovery." Superior to cod liver oil as a nutritive, and unsurpassed as a pectoral. For weak lungs, spitting of blood, and kindred affections, it has no equal. Sold by druggists the world over. For Dr. Pierce's "Treatise on Consumption," send ten cents in stamps to World's Dispensary Medical Association, Buffalo, N. Y.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or in this department, each must take his turn. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(1) F. E. S. asks how to make amber varnish to varnish violins. A. Take of amber 3 ounces, benzol 50 ounces; heat the amber in a closed vessel to a temperature of 570° Fah. When it begins to soften and swell, giving off white fumes, then dissolve in benzol; amber is also soluble in chloroform. The gum may be purchased from any dealer in gums in New York or other large cities.

(2) E. W. T. asks if what is known as silkworm gut, used as leader on trout line, is made of the same. A. Yes; and is imported principally from Spain.

(3) J. E. W.—We know of nothing that can be added to shellac to increase its adhesiveness. It does not have any odor by itself. In the manufacture of shellac varnish, the gum should be dissolved in ethyl alcohol, but frequently methyl alcohol is substituted on account of its cheapness, although it has an exceedingly disagreeable odor.

(4) A. C. R. writes: 1. Can you recommend me a good rubber cement? I wish to cement leather together, the cement to be waterproof, to resist oil, and the leather to retain its elasticity after pressing. A. Dissolve gutta percha in bisulphide of carbon; shave off the edges of the leather, and pour on the cement; allow to evaporate to dryness. Then put the two faces together, previously heating thoroughly, and press until cool.

(5) G. F. asks the best kind of a vessel to make liquid gold in, for potter's use. A. Either a glass or a porcelain vessel will answer.

(6) W. J. M. asks how paper mache is made to stand the action of water. A. Coat with a mixture made by fusing together equal parts of pitch and gutta percha, to which is added two parts of linseed oil containing five parts of litharge. Continue the heat until the ingredients are uniformly commingled, and apply warm.

(7) J. D. H. desires a recipe for the manufacture of a white ink that can be used in a ruling pen as India ink is used. A. Mix Chinese white with water containing enough gum arabic to prevent the immediate settling of the substance. Magnesium carbonate may be used in a similar way. They must be reduced to impalpable powder.

(8) R. L. H. asks what will polish nickel plated goods after becoming black and not worn. A. Use rouge on a rag with a little oil; also see the scouring paste given in answer to query No. 20, in SCIENTIFIC AMERICAN of May 2, 1885.

(9) J. W. O. writes: 1. I have some gold coin dissolved in aqua regia; how can I recover it so I can sell it? A. The gold may be precipitated by means of iron sulphate. 2. Will you give a recipe for making phosphorescent paint? A. See "How to Make Luminous Paint," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 249. 3. Also one for making inks that will fade out in four, six, or eight weeks. A. See the article on "Inks," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 157. 4. What is the specific gravity of gold and silver coin? A. The specific gravity of gold is 19.50, that of silver 10.50, and that of copper, which is an alloy of silver coin, 8.788.

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. In addition to our facilities for preparing drawings and specifications quickly, the applicant can rest assured that his case will be filed in the Patent Office without delay. Every application, in which the fees have been paid, is sent usually to the Patent Office the same day the papers are signed at our office, or received by mail, so there is no delay in filing the case—a complaint we often hear from other sources. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., OFFICE SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted, July 6, 1886, AND EACH BEARING THAT DATE.

[Seenoteat end of list about copies of these patents.] Acid, making sulphuric, J. Hughes. 345,140 Alarm. See Burglar alarm. Door alarm. Alarm lock, W. G. Bennett. 344,806 Amalgamator, J. Wilkins. 345,008 Animal bit, W. D. Harmon. 345,051 Animal trap, C. Bruckart. 344,939

Table listing various inventions and their patent numbers, including Animaltrap, Awning, Axle lubricator, Beer cooling apparatus, Bell electric, Boring machine, Bottle stopper, Box fastener, Bracket, Brake, Brass rod and tubing, Bretzels and crackers, Broom attachment, Broom holder, Buckle, Buckles, Burglar alarm, Burner, Bustle, Button, Button fastener, Button fastener, Button fastener, Cabinet lock, Calculator, Can, Canal lock, Canes, Cannon, Car brake, Car brake, Car coupling, Car coupling, Car coupling, Car coupling, Car guard, Car stock, Cars, Card, Carpet stretcher, Carriage foot pad, Carriage shade holder, Cart, Cartridge, Carving fork, Case, Cash drawer, Cash register, Cash register, Caster, Cam link, Chair, Charcoal, Check hook, Chimney top, Churn, Churn, Churn, Cigar holders, Clamp, Clapboard marker, Cleaner, Clock, Closet, Coat rack, Coffee case, Cofferdam, Coffin attachment, Coin, Colors, Comb, Conduit, Confectioner's melting bath, Corset, Cotton, Coupling, Cradle, Crimping machine, Crupper press, Cultivator, Curry comb, Curtain fixture, Cut-off, Cutter, Cutter head, Cyclometer, Desk attachment, Desks, Digger, Distilling wood, Door alarm, Door check, Door hanger, Door sill, Draught equalizer, Drawer check, Drill, Dyeing yarn, Earth closet, Eaves trough, Eggs, Electric chain battery, Electric circuits, Animaltrap, H. J. Seymour. 344,994 Awning, removable and adjustable, H. W. Smith. 345,183 Axle lubricator, C. Crandall. 345,213 Axle lubricator, car, I. Frechette. 345,228 Baking powder mixer, C. Anderson. 345,204 Balance, spring, H. Haerter. 345,049 Ball joint coupler, J. P. & C. L. Miller. 344,918 Bar. See Metal bar. Barrel roller, P. B. Dittrick. 345,084 Basin, catch, J. V. Clarke. 345,115 Battery. See Electric chain battery. Beer cooling apparatus, H. C. Johnson. 345,059 Bell, electric, E. Carhart. 344,940 Bell, gong, E. C. Barton. 345,101 Belts, machine for coating emery, S. J. Smith. 345,083 Bit. See Animal bit. Block. See Fuel block. Board. See Ironing board. Boiler cleaner, automatic, H. Sims. 344,925 Boiler furnace, portable steam, W. J. F. Liddell. 344,970 Boilers, compound for cleaning, W. S. Baskin. 345,206 Boilers, making lead lined, G. R. Noble. 345,168 Boring machine, G. W. Montgomery. 344,976 Bottle, J. Canan. 345,112 Bottle stopper, F. McIlvanna. 345,160 Bottle stopper, T. C. Merz. 345,249 Box. See Stuffing box. Box fastener, J. A. Strong. 344,875 Bracket. See Lamp bracket. Brake. See Car brake. Brass rod and tubing, W. T. Mersereau. 344,847 Bretzels and crackers, apparatus for treating, D. F. Stauffer. 345,198 Bridge gate, H. Dammeyer. 344,817 Bridge gate, M. Kouriau. 345,150 Bridge gate, Petru & Zidek. 344,855 Bridges, windlass for ferry, W. L. Wright. 345,268 Bridge work, etc., porous earthenware gravel for bedding ties in, C. C. Gilman. 345,047 Broom attachment, W. E. Nash. 345,069 Broom holder, C. Sandford. 344,869 Buckle, A. U. Smith. 345,082 Buckles, machine for tonguing, H. C. Bilton. 344,894 Burglar alarm, G. Schmidt. 344,871 Burner. See Gas burner. Lamp burner. Bustle, B. S. Reed. 344,980 Button and holder, cuff, H. C. Croup. 345,216 Button fastener, G. W. Prentice. 344,858 Button fastener, R. Sanford. 344,870 Button fastening for corsets or other garments, flexible, S. B. Ferris. 345,037 Cabinet lock, W. A. Mack. 344,844 Calculator, E. P. Beach. 345,022 Can. See Miner's can. Oil can. Shipping can. Canal lock, J. B. Tainter. 344,879 Canes and the like, liquid receptacle for, H. & L. Iwan. 344,966 Cannon, pneumatic, W. A. Bartlett. 344,936 Car brake, S. H. Terry. 345,063 Car brake, G. Westinghouse, Jr. 345,093 Car brake, automatic, J. B. Gathright (r). 10,744 Car coupling, C. J. Brinton, Jr. 345,108 Car coupling, F. A. Casey. 344,815 Car coupling, G. F. Ellis. 344,955 Car coupling, C. W. Ferguson. 345,086 Car coupling, G. Larmay. 345,152 Car coupling, B. W. Sweet. 345,262 Car guard, railway, R. J. Gillham. 345,045 Car stock, B. C. Hiche. 344,833 Cars, ventilating freight, A. Miller. 344,248 Card, visiting or fancy, F. C. Lounsbury. 345,158 Carpet stretcher, D. C. Burchfield. 345,211 Carriage foot pad, Barrows & Knowles. 344,935 Carriage shade holder, C. W. Trow. 344,883 Cart, dumping, B. G. Fitzhugh. 345,225 Cartridge, reloading, G. W. Morse. 345,165 Carving fork, Gerard & Smith. 345,044 Case. See Coffee case. Cash drawer and register, G. Weitzel. 345,092 Cash register, W. C. McGill. 345,247 Cash register and indicator, Patterson & Davis. 344,982 Caster, D. Richmond. 344,988 Cam link, metal, F. Egge. 344,958 Chair. See Railway rail chair. Charcoal, manufacturing, L. S. Goodrich. 345,131 Check hook, harness, O. C. Wightman. 345,013 Chimney top, A. Herendeen. 344,823 Churn, Andrews & Burnap. 345,097 Churn, C. Jones. 345,060 Churn, G. B. Simonds. 344,999 Churn, J. H. Taylor. 345,087 Cigar holders and other articles from soluble and non-soluble gums, manufacturing, A. C. Lutz. 345,243 Clamp. See Jar clamp. Clapboard marker, J. F. Beebe. 344,937 Cleaner. See Boiler cleaner. Lamp chimney cleaner. Clock, mechanical, O. Rebentisch. 344,922 Closet. See Earth closet. Water closet. Coat rack, Wiegand & Erhard. 345,012 Coffee case, C. T. Luthy. 345,242 Cofferdam, mill dam, and similar works, J. E. Tainter. 344,877 Coffin attachment, S. O. Grover. 344,901 Coin, mechanism for changing, W. H. Fruen. 344,824 Colors, producing mixed azo, C. A. Martius. 344,971 Comb. See Curry comb. Conduit, underground, R. Macdonald. 344,848 Confectioner's melting bath, A. Musser. 345,251 Corset, F. Kirk. 344,969 Cotton, etc., machinery for opening and cleaning, J. C. Potter. 345,255 Coupling. See Car coupling. Pipe coupling. Coupling links, manufacture of hooked, J. H. Simpson. 345,080 Cradle, folding, O. L. Bandy. 345,068 Crimping machine, G. M. Ludlow. 345,241 Crupper press and former, E. W. Jackson. 345,143 Cultivator, wheel, W. P. Brown. 345,111 Curry comb, W. E. Lawrence. 345,156 Curtain fixture, J. C. Mayer. 344,846 Cut-off for water pipes, automatic, W. J. Wood. 345,017 Cutter. See Feed cutter. Stalk cutter. Cutter head, H. S. Boynton. 344,810 Cyclometer, G. A. Stiles. 345,188 Desk attachment, W. F. Fitz Gerald. 345,040 Desks, lock for rotating, F. A. Coffin. 344,943 Digger. See Potato digger. Distilling wood, apparatus for, J. A. Mathieu. 344,917 Door alarm, E. M. Hotchkiss. 345,138 Door check, W. W. English. 344,821 Door hanger, J. C. Kupferle. 344,914 Door sill, S. E. Hayes. 344,963 Draught equalizer, J. E. Mustard. 345,252 Drawer check and support, S. J. Fraser. 345,227 Drill. See Rock drill. Dyeing yarn, machine for, E. Zillessen. 345,269 Earth closet, W. Heap. 345,053 Eaves trough hanger, W. H. Berger. 345,102 Eggs, preserving, J. W. McKee. 345,065 Electric chain battery, R. N. Rockwell. 345,178 Electric circuits, automatic means for opening and closing, G. F. de Solome. 344,948