

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 lower 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 richer 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.

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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.

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July 6, 1886,

AND EACH BEARING THAT DATE.

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