

ENGINEERING INVENTIONS.

A car coupling has been patented by Mr. William Stamp, of Susquehanna Depot, Pa. This invention covers a novel construction and arrangement of parts to facilitate the coupling and uncoupling of cars in making up and breaking trains, and the device can be worked at the side of the train as the cars pass the train men, thus promoting safety and convenience.

A spark arrester has been patented by Mr. James R. Werth, of Richmond, Va. This invention covers several novel features, a greater area of netting surface being obtained, and the plane in which the netting lies being parallel with the line of the blast, while no attempt is made to separate the smoke from the sparks until after the mingling of the same with the exhaust steam.

A method of casting car wheels has been patented by Mr. William Wilmington, of Toledo, O. This invention relates to a former patented improvement of the same inventor, and by it the chill hardening properties of molten cast iron are modified in various degrees by a method of imparting rich ferro-manganese to the molten iron immediately before or at the time the iron is entering the mould, so the iron composing the brackets and flange of the wheel is somewhat modified without materially affecting the iron of the tread.

MECHANICAL INVENTIONS.

A screw cutting machine has been patented by Mr. Edward H. Freter, of Roedelheim, near Frankfurt-on-the-Main, Germany. It has a hollow head stock spindle, pawl, chuck, sliding rests, die spindle, cog wheels, with various novel features of construction and arrangement for operating a chuck gripping mechanism, feeding the wire, and other details of a complete screw cutting machine.

MISCELLANEOUS INVENTIONS.

A fire escape has been patented by Mr. William Craddock, of New York city. It is constructed with a carriage moving up and down on guide ropes attached at their upper ends to bars fixed to the building, and at their lower ends to a bar or plate fixed in a vault beneath the sidewalk.

A check rein clip has been patented by Mr. Frederick J. Smith, of Brooklyn, N. Y. This invention covers a special construction and arrangement of parts whereby the horse may be both checked and unchecked without the necessity of leaving the vehicle and without stopping the motion of the horse.

A peanut roaster has been patented by Mr. Louis Rosenkranz, of Rhinebeck, N. Y. It combines a heater, roasting drum, and warming box in which the peanuts are placed after being roasted, all contrived to secure an efficient distribution of heat and economical working.

A wrench has been patented by Mr. Joseph Lassier, of Minneapolis, Minn. This invention relates to wrenches having rocking or adjustable heads, and is especially designed for use in corners and other hardy accessible places, where it is inconvenient or impossible to use an ordinary wrench.

A scaffold clamp has been patented by Mr. Arthur B. Flach, of New York city. It consists of a U-shaped bar having hooks on its free ends and pegs or studs on the inner surface of its cross piece, making an improved clamp for uniting and holding together the posts and beams used in erecting scaffolding.

A life preserver has been patented by Mr. Zenane N. De Ledochowski, of La Salle, Ill. It is formed of a buoyant ring, with a bag for receiving the body, the ring having also a float with inflatable pockets, while on the top of the float are attached slabs of cork and pockets are formed for receiving different articles.

A seal padlock has been patented by Mr. David B. Reeve, of New York city. It has in its top a slot, through which a ticket or card can be passed into the casing, the card covering an opening in front of the casing, so if the shackle is to be released the card must be cut or destroyed to permit pushing to one side the locking hook in the lock.

A staple setting instrument has been patented by Mr. Henry Rose, of Fayette, Mo. It resembles generally a pair of tongs or pliers, with two crossing links pivoted together, the rear portions of which form handles, and the forward portions making jaws, constituting a setting implement for metallic staples for closing seams in boots and shoes, clothing, etc.

An improved kind of plated ware has been patented by Mr. William A. Warner, of Syracuse, N. Y. The improvement is more especially designed for articles such as spoons, forks, etc., and covers a novel means of plating, whereby the portions most exposed shall receive a heavier plate without making apparent any extra ridge or film of metal at such places.

A saddle girth has been patented by Mr. Peter J. Peffey, of Boise City, Idaho Ter. It combines two bands or strap pieces with a transverse brace bar held at the ends in the centers of the bands by straps, so the bands can be held at a greater or less distance from each other, and the girths can be adjusted to be wider or narrower as desired.

A stove truck has been patented by Mr. John G. Arnold, of Wellsville, N. Y. Combined with a frame having casters is an additional frame connected with and held above the first by pivoted links, thus adapting the upper frame to swing upward and forward, and making a truck to facilitate the lifting and moving of stoves.

A back band has been patented by Mr. James B. McHugh, of Ambrosia, La. It is for draught animals, and made of a web of woven material with attached end skirts of leather, with buckles and straps, securing greater comfort for the horse, and so the connection of the band with the trace chains may be easily changed, while the band may be readily lengthened or shortened.

A see saw has been patented by Mr. Jesse M. Harr, of Baltimore, Md. It is so constructed that the seats may be kept horizontal, and the device is easily operated by very young children, a slight pressure on the treadles working it when the occupants are of equal weight, while, when the occupants are of unequal weight, they may be readily balanced by adjustable weights.

A brick machine has been patented by Mr. Charles A. Tarragon, of Portland, Oregon. It is made with a vertical shaft placed in a vertical hollow cylinder, and having radial arms carrying teeth to break up the clay, and plates to force the clay through a grate secured in the cylinder, whereby the clay will be crushed as it passes down into the machine, with other novel features.

A compound harness for Jacquard looms has been patented by Messrs. Holden Rigby and David Lindsay, of Paterson, N. J. This invention, with several other novel features, covers the use of rubber washers, whereby the shafts connected to the hooks are kept from wearing the knots, the construction and combination of parts being especially adapted to promote durability.

An adding machine has been patented by Mr. Martin O. Dolson, of Eldorado, Kansas. This invention covers a novel construction and combination of parts for rapidly and accurately adding columns of figures by moving a little crank handle which moves hands over dials, one representing the units up to one hundred, another to a thousand, the third to ten thousand, etc.

A nut lock has been patented by Mr. Erasmus J. Clark, of Urbana, Ill. This invention covers two forms of nut lock, one of which is intended primarily for railway rails, while the other is for general use, in the former one the key being adapted to take a bearing on the flange of the rail instead of throwing a strain upon the washer, while the key is also adapted to act by gravity.

A calcimine composition and method of preparing the same has been patented by Mr. George A. Marsh, Jr., of Sandusky, Ohio. It consists of glue, gum tragacanth, water, and ground plaster, prepared and mixed in a special way, so that when ground and ready for use it will not harden in the pail, may be mixed with cold water, and will spread smoothly and easily and be free from cracking.

An auger handle has been patented by Mr. Henry Sager, of Girardville, Pa. It is a simple and substantial handle, from which the auger will not slip when pulling chips out of the hole, although it may be readily detached for changing the augers, and it is so constructed that one arm may be detached and the other used in the manner of a wrench for turning the auger in a close corner.

A sash balance has been patented by Mr. Jonathan D. Price, of Cherokee, Iowa. It consists of a frame or plate with a small projecting cog wheel working against a loose, block shaped detent which bears on one side against one spring and on the other side against another, which locks the cog wheel strongly enough to hold the sash through a rack or toothed bar attached to the frame.

A lock has been patented by Messrs. Rudolf E. Woodrich, of New York, and Charles Langbein, of Brooklyn, N. Y. This invention covers an improvement on a former patented invention of the same inventors, and provides a lock which can be fixed and held in place without the use of screws, and can be adjusted at different lengths, and in such manner, if desired, that it cannot be unlocked from the outside.

A pea and bean sheller has been patented by Mr. Ellis R. Yonng, of Thomasville, Ga. This invention relates to rotary mills, in which circles of long teeth on one plane are opposed by circles of short teeth on the other plane, the teeth alternating with each other on each plane, and tending to catch hold of the shells with more certainty than if the points were in a single plane, while the opposing teeth are not near enough together to damage the fruit.

A hoisting gear has been patented by Mr. William W. Wythe, of Ocean Grove, N. J. This invention relates to an improvement on a former patented invention of the same inventor, and consists in the combination with a yoke of a gear wheel and a grooved pulley united or made integral and journaled in the yoke, and a gear wheel and friction pulley united and journaled in the lower end of the yoke, the gear wheels engaging and the friction pulley pressing the hoisting rope in the grooved pulley.

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(1) F. N.—Plante's secondary battery is put through a long course of preparation before it is ready for use. The preparation consists in submitting the plates to an electric current, at first changing the poles at stated times, and finally finishing up for a longer period with the current passing in one direction. The more recent secondary batteries are constructed with lead plates to which is applied minium-red oxide of lead. These plates need no special preparation.

(2) L. A. asks: The strength of alcoholic liquids is quoted differently in various countries of consumption, viz: In degrees of Sykes, Dycas, Baume's, and Cartier's hydrometer; in bubbles, whatever that may mean; in centigrades of Gay-Lussac; in per cents absolute alcohol, etc. Can you give me the exact equivalent of 40 over proof in either of the above determinations or denominations, or else name a book containing complete tables of comparison? A. Proof spirit, according to the United States national tax law of 1862, is that proof of a liquor which corresponds to 50 degrees of Tralles hydrometer at the temperature of 60° F. Proof spirit therefore is of the alcoholic strength of 50 per cent by volume, having a specific gravity of 0.8335, or a mixture of equal quantities of absolute alcohol at the specific gravity of 0.793 and distilled water at 60° Fah. In other words, proof spirit is one-half pure water and half absolute alcohol. Proof on the Genlar scale is equal to 50 on the Tralles scale, so that 40 over proof on the Genlar scale would be equal to 70 on the Tralles scale, and equal to 0.8892 specific gravity, equal to between 28° and 27° Baume—liquids lighter than water. In Dick's Cyclopaedia of Practical Receipts you will find as much information as anywhere. The other book you ask for can be furnished by New York dealers.

(3) W. H. A. writes: Will you please inform me what kind of glue is used for making guitars, and why pine is always used for the sounding board? Is there a better wood for the purpose? If so, what is it? What is used for filling hard wood for instruments, also the best varnish for finishing? Is there a treatise published on the manufacture of the guitar? A. For glue use a good quality of the ordinary article. It has been found that pine has the greatest vibratory power and has the straightest grain. No better wood is known. There are various filling compositions, consisting of equal parts by weight of whiting, plaster of Paris, pumice stone, and litharge, to which may be added in suitable proportions to match color a little French yellow asphaltum, Vandyke brown. Mix with 1 part japan, 2 ounces boiled oil, and 4 ounces turpentine. Grind fine in a mill. There is no special book on the subject as far as we know, but Moore's Universal Assistant and Complete Mechanic contains a great number of receipts that would be useful.

(4) E. W. M. writes: Within the past month, and at least three weeks constant, when disrobing at night preparatory to retiring, in taking off the pantaloons at least a dozen sparks or flashes of light, like a phosphorescent gleam, make their appearance on each leg. During the time these flashes make their appearance, there is a sort of hissing or cracking noise. A. The phenomenon described by you is common in houses in which the atmosphere is very dry, and in articles of clothing not liable to absorb moisture. You have probably discovered that it occurs only on what might be called good electrical days, that is, in dry, cool weather.

(5) J. A. D. writes: About a year ago I built a fence, using three 8 by 8 inch posts, which were supposed to have been seasoned. I primed them with ready mixed white paint, and afterward gave them two coats of white lead (Atlantic) and linseed oil; in a few weeks the paint blistered and cracked off. I sandpapered them and gave them another coat, but the same thing happened again. It has fallen off four times. Can you tell me the cause, and what will stop it? A. Probably the ground is wet, and the posts absorb water. The sun heating the paint may vaporize the water under it sufficiently for blistering. Try covering the parts of the posts underground with tar.

(6) C. M. G. asks how glass may be successfully coated with mercury or quicksilver so as to make a mirror. A. The usual method of coating glass with the amalgam of tin and mercury is to spread a sheet of tin foil evenly upon a flat stone table, and cover it uniformly to the depth of an eighth of an inch with clean mercury. A plate of glass perfectly clean is floated on the mercury carefully, so as to exclude all air bubbles. It is then pressed down by loading it with weights sufficient to press out all of the mercury which remains fluid. The glass is allowed to remain in this condition for about twenty-four hours, when it is