

ENGINEERING INVENTIONS.

A car coupling has been patented by Mr. William H. Wrigley, of New Orleans, La. An ordinary link is employed in connection with a tilting pin which will be automatically lifted at its lower end to fall into the link, and which may be lifted out of the way of the link by suitable means when the cars are to be uncoupled.

MISCELLANEOUS INVENTIONS.

An improvement in spectacles has been patented by Mr. James P. Tryner, of Denver, Col. The longitudinally apertured arms have large balls at their free bent ends to engage the front rims of the wearer's ears, in connection with other novel features of parts and details.

A neck scarf has been patented by Mr. Max Wald, of New York City. In connection with a reversible knot is a neck band, a band tooth, a detachable fly, with a tab and clasp for connecting the detachable fly to the knot, making a scarf which is readily reversible without ripping it apart and stitching it together again.

A vehicle wheel has been patented by Mr. Walter Knight, of San Andreas, Cal. It has a double series of inclined metal spokes, the wheel being made of a novel combination of wood and metal, whereby great simplicity, durability, and strength are secured, and the wheel may be easily repaired when required.

A pocket lumber gauge has been patented by Mr. John P. Peterson, of Phillips, Wis. It is rectangular in shape, with rounded corners, and has recesses and compound recesses in each of its side edges for gauging tongue and groove lumber, wainscoting and ceiling stuff, and all the usual sizes of marketable lumber.

A ceiling brush has been patented by Mr. James W. Boyle, of Negley, Pa. It has a revolving brush and a reservoir which may be charged with water for washing the ceiling, or with sizing or white-wash for coating the ceiling, the invention covering various novel features of construction and combinations of parts.

A tag adapted to form a suit record for a clothing dealer has been patented by Mr. Edward B. Webster, of Clay Center, Kansas. It consists of an apertured plate or cover, with slips secured to its back, and provided with detachable panels, with other novel features, making a device whereby a salesman may determine at a glance how many suits of a particular size there are in stock.

A velocipede has been patented by Mr. James E. Steffa, of Rockvale, Ill. This invention provides a novel form of motor adapted for traction or stationary purposes, for running light machinery, for transporting light material, and for various other purposes, the invention consisting in the construction and arrangement of the various parts, their details and combinations.

A shackle or handcuff has been patented by Mr. Frank McDonald, of Boise City, Idaho. It consists of a lock case with spring bolts and a pair of shackle arms or bows which slide upon each other and upon the lock case, the thumbs, wrists, or other parts of the body inserted being held between the curved parts of the shackle arms and the sides of the lock case.

A road grader has been patented by Mr. John E. Branch, of Sioux City, Iowa. It has a mould board and landside hinged together at their forward ends, and so that the rear end of the mould board can be set farther from or near to the back end of the landside, with various other novel features, the machine being also adapted for cutting or smoothing ditches and other similar work.

An axle setting machine has been patented by Mr. James F. Hennessy, of Winona, Minn. It has a sill or bed to which is fitted a series of grooved blocks to receive the axle, with a screw or equivalent device for pressing the axle near its arm, with other novel features, whereby axles may be set when cold to give them the proper "pitch" and "gather," at one operation, and without gauges.

A tannery hoist has been patented by Mr. Albert F. Jones, of Salem, Mass. It is especially adapted for lifting hides from limes, soaks, handles, and layaways, and depositing them in other vats, without liability to hook marks, and is made with a strong timber frame with two front wheels and a rear pilot wheel, with simple and efficient hoisting machinery whereby the work can be done with economy of time and labor.

A safe lock has been patented by Mr. Harry Stanynought, of Brooklyn, N. Y. The lock is in the body of the safe, away from the door, but the bolts have direct engagement with the door, although the lock is so located that it cannot be reached even though a hole were bored in the door of the safe large enough to admit the entrance of a hand, the bolts being also so located as to render it difficult to insert powder or other explosive into the safe.

NEW BOOKS AND PUBLICATIONS.

THE ART OF PROJECTING. A Manual of Experimentation, etc., with the Porte Lumiere and Magic Lantern. By Professor A. E. Dolbear, M.E., Ph.D. Boston: Lee & Shepard. 1888. Pp. vi, 178.

In its new edition, this well known book is brought up to date by the introduction of new plates and descriptive matter, especially referring to the electric light. Besides this, some additional work is treated of. Thus vortex rings, experiments in spectroscopy, floating magnets, projection of the electric spark, vibration of

films, and other topics are added to the original matter. The introduction of additional full page illustrations is also to be greatly commended, giving instances of the leading heliographs and other apparatus for projection. The book will receive due welcome, we are certain, from the many workers with the heliograph and magic lantern.

PHOTOGRAPHIC MOSAICS: AN ANNUAL RECORD OF PHOTOGRAPHIC PROGRESS. Edited by Edward L. Wilson. Twenty-fourth year. New York: E. L. Wilson. 1888. Pp. 144.

This little work contains a number of eminently practical contributions from workers in photography. A reproduction of the table of contents would be the only practicable way of giving a good idea of its scope. Suffice it to say that it is emphatically one of the books that every photographer should have, as there will be no one, who practices the art intelligently, that will not derive both entertainment and instruction from the monographs here collected by the well known photographic editor. The Moss-type frontispieces and portrait of the author add to the appearance of the book materially.

SCIENTIFIC AMERICAN
BUILDING EDITION.

JANUARY NUMBER.

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3. Illustrations of the Alcazar, and the magnificent Hotel Ponce de Leon, St. Augustine, Fla., also engravings showing the Main Entrance, Ladies' Entrance, and Dining Room. Beautiful examples of the Spanish Renaissance type of Architecture.
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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) G. A. D. asks where the greatest pressure is in a steam boiler with working amount of water. A. The greatest pressure is at the bottom of the boiler, where the pressure is greater than that of the steam by the pressure of the water due to its depth.

(2) J. G. asks if there is a way to deaden the noise of steam while blowing off through a wrought iron stand pipe. A. The sound may be much modified by enlarging the end of the pipe like a trumpet or cone; which should be long, 20 or 30 times the diameter of the pipe, opening to 4 or 5 times its initial size.

(3) W. R.—Fusible plugs are put in the crown sheet of locomotive boilers to save the crown sheet from burning in case of low water, when the plug melts and lets the steam and water into the fire chamber to dampen and put out the fire as well as to make an alarm. They may also be employed on other forms of boilers, and are much used in connection with whistles for low water alarms only. Boilers should not be blown out for cleaning with fire under them or while the walls (if set in brick) are hot enough to do damage to the iron shell. Locomotive boilers may be blown out very soon after the fire is entirely removed. All brick-set boilers should be left several hours after the fire is drawn before blowing off for cleaning. Roper's works are all good. If you have not the book on "Instructions and Suggestions to Engineers and Firemen," \$2, or "Questions and Answers for Engineers," we recommend you to obtain them, \$3.

(4) C. K. S. writes: I have been trying for some time to do some brazing with a blowpipe, but can't succeed in melting the spelter. I use an alcohol lamp and a plain blowpipe curved at one end. A. Probably the work is too large for your blowpipe. A mouth blowpipe is suitable only for small work like jewelry. Do you use a good flux?

(5) C. V. B. asks how to dye sheepskins black, so as to make a sleigh robe. A. Use first a bath of 10 pounds carbonate of soda. For the second bath use pure extract of logwood, 17 pounds; catechu, 10 pounds; blue vitriol, 2 pounds. Place the skins first in the carbonate of soda solution, rinse them, and then place them for two hours in the second bath before the blue vitriol is added. During this operation the temperature of the bath should be kept at 85° F. The skin is then removed, cooled, and replaced in the bath, now heated to 95°, and this operation, after the blue vitriol is added, is repeated, increasing the temperature every time 10° F. up to 120° F. The skin is then thoroughly rinsed.

(6) T. H. D. asks: 1. Has any process been discovered for tempering copper suitable for edge tools? A. Not to our knowledge. 2. Are there any tools containing copper and made by the ancient in existence? A. There are a few specimens in the museums of Europe. They are a hard bronze of copper and tin. 3. Is there any reward offered to the person that succeeds in tempering copper? A. Not that we know of. 4. Would copper tools have any advantage over steel? A. No very obvious advantage.

(7) L. P. M.—Thin shellac varnish that has been allowed to settle for a few days, and the thin upper layer then taken off, makes a clear lacquer for brass work. The great trouble with amateurs is that they try to use lacquer that is too thick. It should be so thin as to be partially transparent, and as clear as good wine. Heat the articles a little hotter than boiling water, and lacquer quickly. If the work looks foggy or streaky, the lacquer is too thick or there was not enough heat. Sometimes it can be made clear by placing the work in a hot stove oven for one or two minutes. For steel color on brass, dip in a solution of chloride of platinum. See Spens' "Workshop Receipts," first series, for dipping, bronzing, and lacquering brass goods, which we can furnish for \$2.

(8) C. M. W. asks the latest and best process employed by cutters and others in etching names and designs on steel. A. Take copper sulphate, sulphate of alum, and sodium chloride, of each 2 drachms, and strong acetic acid 1½ ounces, mixed together. Smear the metal with yellow soap and write with a quill pen without a split.

(9) J. M. G. asks: 1. Can tin plate be plated with copper? A. With a strong battery copper can be deposited upon tin. 2. By what process, and can I get a book that will give me information how to do it? A. We can supply either of the following, which will give full information on the subject you desire: "Electrolysis," by Hospitalier, price \$3.50; "Electro Deposition," by Watt, \$3.50; "Galvanoplastic Manipulation," by Wahl, \$7.50.

(10) M. J. S. asks the cause of albinism in animals. A. It is owing to some normal difference in the organization of the individual or animal, that the substances that give color to the skin, eyes and hair are absent, and cannot be explained any more than the fact that some persons have black eyes while in others they are blue. See the articles on "Albinos" in any of the cyclopedias.