ENGINEERING INVENTION.

A flue cleaner has been patented by Mr. William E. Sidney, of Frankfort, Ind. It has bell-shaped attachments so placed that their inwardly flaring ends will enter the exposed open ends of a flue, a box nut striking against the boiler head and opening a valve which allows steam to enter the flue to an extent which can be regulated as desired.

MECHANICAL INVENTION.

A nail plate feeder has been patented by Mr. George T. Harden, of Middleport, O. It is for attachment to nail making machines, to act as a part thereof, to intermittently seize upon the nail rod or plate and feed it to the machine, providing also means whereby nail rods varying slightly in thickness may be fed with certainty and without danger of breaking the feed works.

MISCELLANEOUS INVENTIONS.

A harness saddle has been patented by Mr. Jabob Hess, of Muscatine, Iowa. The tree is of metal, having openings through which a nut may be placed, and ribs or guides, bulged or arched to direct the nut, and so they may be placed after the pad is built up, the tree being padded only on opposite sides of its center part.

A bedstead has been patented by Mr. Jacob L. Stair, of Altamont, Ill. It is for use with a flexible bottom of webbing or woven wire, and has simple, inexpensive irons or fastenings to support the roller and opposite cross bar of the flexible bed bottom, while being designed for quick and easy connection to the side rails and corner posts of the bedstead.

A method of constructing buildings has been patented by Mr. Samuel C. Burris, of Victoria, British Columbia. It consists in the wall, ceiling, floor, and roofs being built solidly of longitudinally grooved timbers, studs, rafters, etc., with curved grooves or coves formed in their faces to receive and retain mortar or cement, with which the timbers are coated.

A flat-iron heater has been patented by Ellen Dillon, of Sioux City, Iowa. It consists of a horizontal base and a hollow pyramidal portion, both made of perforated sheet metal, to cover both of which and the irons, when placed on a stove, is a conical slotted cover, the slots to accommodate the handles of the irons, so that the heat will be well confined.

A bedstead fastener has been patented by Messrs. John S. Dickey and William P. McKinney, of Payne, Texas. It consists of a system of wires connected together and with the posts and side rails in such way that by turning a nut upon a bolt in the center the tension upon the connecting wires will be controlled and other fastenings dispensed with.

A photographic paper box has been patented by Mr. Washington Boyce, of Danville, Ill. It is designed to hold and protect sensitized paper from the light, and by means of a false bottom, beneath which are springs, all the paper in the box may be constantly pressed toward the top, whereby the paper may be retained in the box when the latter is opened, with other novel features.

A door check has been patented by Mr. Joseph A. Coultaus, of Brooklyn, N. Y. Combined with an arm arranged to be pivotally connected to the casing of a door is a socket connected to the door, a slotted cylinder within the socket, and a slotted block arranged within the cylinder and acted on by a spring, the device being for holding doors opened at any desired angle, or completely closing them.

A galvanic belt has been patented by Mr. James H. Murray, of Hopkins, Mo. It consists of a series of metal plates that will produce a current when acted on by an exciting liquid, the plates being in pairs and separated by a cotton or woolen fabric, the pairs being connected in series, the ends of the chain formed by the connected plates being in electric communication with two body contact points.

A wheeled scraper has been patented by Mr. Patrick Deevy, of Dudley, Iowa. The scraper bowl is pivotally connected with a crank axle by suspending arms, with a mechanism to prevent accidental dumping and a manipulating lever supported by a frame within which the bowl swings, with other novel features, whereby the load may be raised from the ground and transported from place to place.

A pressure regulating valve has been patented by Mr. Parker F. Morey, of Portland, Oregon. It is a kind of differential valve to be placed in water service pipes, the valve presenting different areas on its opposite sides or ends, such areas being proportionate to the difference there is to be made in the pressure from receiving mains and delivery pipes, and the device being intended to work automatically.

A shutter worker has been patented by Mr. Charley Cramer, of Clarington, O. Combined with a hinged shutter is a shaft in the window frame, a spring being connected with the shutter and with mechanism operated by the shaft, to the inner end of which is secured a crank and handle lever, whereby the shutter may be easily locked in any desired position when open.

A grain huller has been patented by Messrs. Alvah Dewey and Job Short, of Cannelton, Ind. It consists of a perforated box or casing in which are made to revolve cylinders having roughened surfaces, with disks secured between the meeting ends of the adjacent cylinders having roughened surfaces and saw-like edges, the machine being especially intended for corn or whole hominy.

A stove pipe collar and clamp has been patented by Messrs. Emmett H. Brower and John J. Travis, of Carson City, Mich. This invention covers novel features of construction intended to prevent forcing the pipe back too far into the flue, and to prevent the pipe slipping forward out of the collar, holding the latter securely to the chimney wall, and so as not to soil the wall finish by soot or dust when the pipe is removed.

NEW BOOKS AND PUBLICATIONS.

ELECTRIC TRANSMISSION OF ENERGY. Gisbert Kapp, C.E. London, 1886. Pp. 331, with cuts.

In this work by the well known electrical engineer, the subject of the title is treated systematically, beginning with the rudimentary principles and going through to the latest economical developments. His statement of the laws regulating the field of force of induced magnetic effects is one of the clearest and most accurately reasoned that we have met with. Mathematical formulæ are used sparingly in this section. Further on, the mathematics of the subject are further developed. In the illustrations, clearness and applicability are aimed at rather than picturesqueness, which is a most commendable feature. The work has an index. It bears the imprint of the famous Chiswick Press, and is characterized by the extreme neatness common to the work of Whittingham & Co.

THE RILEY ELEVATED RAILWAY SYSTEM. New York.

This is, to a great extent, an atlas of plates showing the different constructions of this railway, and its applicability to mountainous countries. It is to be run by electricity. The way has three rails, the center one much higher than the lateral ones. Certificates and opinions of eminent engineers as to the practicability and merits of the device are given.

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.

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) S. S. asks how many days during the summer of 1885 the thermometer reached 98° or over in this city. A. On no day during the summer of 1885 did the temperature reach 98° Fah. at the U. S. Signal Service station, where the official records are made for New York city. This station is on the top of the Equitable building, about 100 feet above the street, and the temperature there has been generally three or four degrees lower than that on the street during all the hottest days. The record of a standard thermometer five feet above the sidewalk showed one day 98° and another 99° Fah. during 1885.

(2) E. L. K.—The articles you refer to are known as Rupert's drops. They are made by dropping melted glass into cold water, leaving the glass balls in a high state of tension, so they go to fine pieces, with a report, from a slight blow. A description of their manufacture will be found in chemistry under "Glass."

(3) C. H. P. says: A discussion has arisen here between a number of baseball players over the following question, which it has been agreed to leave to you to decide, through the Notes and Queries column of the SCIENTIFIC AMERICAN: At a game, recently, a "fly" was struck, and the first baseman attempted to catch it, but the ball bounded from his hand and a fielder near by caught it, before the ball reached the ground. Was it out, or not? We fail to find it in the book of rules, for 1886. A. It was out.

(4) W. H. K. asks how coniferin is prepared. A. Coniferin is found in the cambium of coniferous woods, and separates on concentration to one fifth of its volume. It forms glittering efflorescent needles fusing at 185°, difficultly soluble in cold water, more easily in hot water and alcohol.

(5) Edw. asks the process of silvering glass with a liquid, so as to produce a reflecting surface. A. Take of lead and tin, of each 2 oz., bismuth 2 oz., mercury 4 oz. Add the mercury to the rest in a melted state, and remove from the fire; mix well with an iron rod. This amalgam melts at a low heat, and is employed for silvering the insides of hollow glass vessels, globes, convex mirrors, etc. The glass being well cleaned, is carefully warmed, and the amalgam rendered fluid by heat is then poured in, and the vessel turned round and round, so that the metal may be brought in contact with every part of the glass which it is desired to cover. At a certain temperature this amalgam readily adheres to glass.

(6) W. G. A. desires some cheap chemical solution that would render a small piece of wood non-inflammable. A. The timber is inclosed in a close iron vessel in which a vacuum is formed. A solution of sulphate of iron is then admitted into the vessel, which instantly insinuates itself into all the pores of the wood, previously freed from air by the vacuum, and, after about a minute's exposure, impregnates its entire substance. The sulphate of iron is then withdrawn, and another solution of muriate of lime thrown in. The two salts then react upon each other, and form two combinations within the substance of the wood—muriate of iron and sulphate of lime. Timber thus treated is preserved both from rot and from the attack of worms, and is incombustible.

(7) H. M. P. asks: 1. Have any particulars of the experiments of Meyer on the decomposition of chlorine, in 1879, been announced? A. See a "Contribution to the Knowledge of Chlorine," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 229. The chemical journals during 1879 and 1880 contain numerous papers on the subject. 2. Has the decomposition of chlorine been proved? A. It has not. Chlorine is still an element. 3. Has any other supposed element been decomposed? A. Many of the recently announced elements have been shown by spectroscopic examination to be of a compound nature. 4. Are Mr. Lockyer's views of the non-elementary character of so-called elements generally believed? A. Mr. Lockyer's views in a general way are generally believed in.

(8) C. R. H. asks the cause of the phosphorescence of white sugar. A. Ganot describes the phenomenon referred to as "phosphorescence by mechanical effects," such as friction, percussion, cleavage, etc.

(9) E. C. T., of Mo., sends an insect which is attracting attention at Stockton, and asks what it is, if poisonous, etc. Professor Howard, of the Entomological Division, U. S. Department of Agriculture, to whom we referred the specimen, says: The insect is the common Northern mole cricket (*Gryllotalpa borealis, Burm*). This insect is quite common all through the Northern States, and in the extreme South its place is taken by an allied species. In some parts of the country, it is so abundant as to be reckoned as an injurious insect, but ordinarily it is rare, and is seldom noticed. It works at night, and burrows under the surface of the ground, and avoids the light of day as much as possible. Its fore legs are curiously modified, and admirably adapted for digging. They are exceedingly strong, and many times the size of the middle and hind legs. It feeds upon the tender roots of plants, and in Europe it frequently does great damage by undermining whole beds of cabbages and beans. In the West Indies an allied species feeds upon sugar cane. The common remedy is use in Europe consists in placing grated carrot or potato mixed with poison in their haunts. Swine eat them greedily, and easily root them out from their burrows.

(10) R. R. S.—Absolute zero, according to C. A. Young, is —459° Fah. It has been only mathematically computed, the lowest artificial temperature yet produced being about —220° Fah.

MINERALS, ETC.—Specimens have been received from the following correspondents and examined with the results stated.

O. & B.—The specimen is ordinary clay, containing a certain amount of iron oxide. It has no value as a pigment in New York. If burnt, it can be used locally as a cheap paint when mixed with oil.

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August 3, 1886

AND EACH BEARING THAT DATE.

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Grease and stains, preparation for removing, F. C. Lord 13,537
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Soap, A. Angell 13,544
Soap, N. K. Fairbank & Company 13,545
Soap, fulling and scouring, toilet, and laundry, J. C. Johnson & Co 13,535

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