first produces the design or mark in wax, and reproduces the impression on a stamp, with which he marks the various articles, their genuine character being thus insured by having the real mark on each. He also, as a substitute for the leaden seals used in the Customs, interposes a soft materi al between sheets of tin produced in the manner already described, and stamps them together. In this manner is produced a mark covered with tin. Instead of interposing a soft material beneath the tin, tin alone may be used, but somewhat thicker, and doubled together, afterward stamping it as before.

This improved product may also be applied for electrochemically coating or plating lead and other metals or alloys in any thickness for making cartridge cases, percussion caps, capsules for bottles and other vessels, covers used for preserves and other purposes, wrappers for éatables, and generally in all cases where pure tin and its alloys are employed. Further, for lining pipes, sheets, or ornaments or utensils of lead where tin is employed for preserving it from oxidation. Lastly, the inventor applies the electro-chemical tin, above mentioned for plating glass in imitation of silvering, and for ornamenting articles required to present a silvered effect.

## Alphabet for the Blind.

REV. C. H. Carpenter American Missionary at Harpoot, Eastern Turkey, has invented a novel alphabet to be used in the instruction of blind Armenians, of which many are found in his field of labor.

"A very small round-topped tack, thrust upright into a piece of pine board, represents the first letter. The same tack inclined to the top, represents the second, and leaning to the bottom.the right hand and the left by turns, the next three. For the next four letters, one side of the tack is then cut off, and the cut portion made to face by turns the top the bottom, the right and the left hand. The halt-headed tack inclined to the top, the bottom, the right and left hand, again by turns representing the next four letters. Essentially the same course is then pursued with the next two styles of tacks. and our alphabet is ready. Other sorts of tacks and variations of them then furnish points for punctuation and the numerals, and with a good supply of tacks and a piece of soft pine board for a page, we are ready to write a chapter of the Bible or a hymn for one blind reader whose sensitive fingers will so learn to run along the line of iron and copper with such speed and assurance as are ours in reading the printed page. The page once committed to memory will be passed along to a second reader, or the tacks withdrawn and like your printer's type, used for printing another page." In this way two or three dollars' worth of tacks may be made available for printing, if he choose, all the chapters of the Bible and the hymns of the hymn book, or anything else which is needed.

## NEW PUBLICATIONS.

A SYSTEM OF MINERALOGY. By James Dwight Dana, Silliman Professor of Geology and Mineralogy in Yale College, aided by George Jarvis Brush, Professor of Mineralogy and Metallurgy in the Sheffield Scientific School of Yale College. Fifth edition. Rewritten and enlarged, and illustrated with upward of six hundred wood cuts. New York: John Wiley & Son, No. 2 Clinton place.

This work might have been aptly entitled a cyclopedia of mineralogy, as i seems to comprise all the tacts relating to it both in mineralogy proper and colluteral sciences, and lacks nothing except the usual atrangement which is generally expected in a work bearing that title. The new features which we find in this edition, asi'c from additions necessary to bring the work up to the present standpoint of mineralorical science, are "the recog nition, and the description of the different variaties of species," the adoption of the new chemical symbols in the formulas given throughout the work and its valuable historical synonomy. The latter contains the first author and the first publication of each species, and follows with all the names it has borre in their chronological order, with much other matter of interest Prof. Dana, in the preface to this edition, thus speaks of the recognition and description of varietles: "The first edition of this treatise, that of 1837, was written in the spirit of the school of Mohs. The rultitudes of subdivisions into subspecies, variaties, and subvariaties, based largely on unimportant characters, which had encumbered the science through the earlier years of this century, and were nearly smothering the species, were thrown almost out of sight by Mohs, in hisphilosophic purpose to giveprominence and pre-clsion to the idea of the species. Much rubbish was cleared away and the science clevated thereby; but much that was necessary to a full comprehen-sion of minerals in their diversified states was lost sight of. In the present edition an endeavor is made to give varieties their true place; and to insure greater exactness with regard to them, the original locality of each is stated with the description." A full exposition of the new nomenclature is given in the introduction, and in the adoption of it in this edition, the foothold which t bas attained in the most scientific institutions of our country is brought forcibly to vicw. The hydrocarbon compounds are most comprehensively treated, and the book will prove a most valuable work of reference upon thissubject. The work is printed in clear bold type, an i will prove one of the most valuable recent additions to scientific literature.

ANILINE AND ITS DERIVATIONS. A Treatise upon the Manufacture of Aniline and Aniline Colors, by M. Reimann,

## MANUFACTURING, MINING, AND BAILBOAD ITEMS.

The Erie railroad company have contracted for 8,000 tuns of steel rails. The total value of live stock and agricultural productions in the United States in 1867 was \$2,507,257,065.

Recent dispatches announce another terrible colliery explosion at Jem mapes, in the province of Hainault, Belgium. Fifty-one persons were killed and a great number injured.

GEORGIA AIR LINE RAILROAD.—A bill has been introduced into the Legislature of the State of Georgia to aid in the building of the Georgia Air Line Railroad.

The number of miles of railroad in operation in this country is 30,000, and they cost \$75,000,000.

POLYTECHNIO SCHOOL IN CHICAGO — An ordinance appropriating \$25,000 to any in the establishment of a polytechnic schoolin Chicago was recently passed by the common council of thateity.

EIGHT-HOUR LABOR.—Fifty-one buildings are being erected on the west side of the city, on which one hundred and fifty workmen are employed on the eight-hour system.

GOLD DISCOVERIES ON THE CIMAERON RIVER.—The New York Daily Trl. bune says: "The discoveries of gold on the Cimarron River, near the corners of Colorado, Kansss, New Mexico, and Texas are creating great excite ment, and miners are rushing into the new diggings. The mineral belt is the same that has already been opened and worked from Montana to Mexico. There can be no doubt of the existence of valuable mines on the head waters of the Cimarron, as well as of the Canadian and other forks of the Arkansas heading in the Rocky Mountains. The new diggings are on the line of the proposed extension of the Eastern Division of the Union Pacific Railroad to Santa Fé."

THE ELEVATED RAILWAY.—The experiments on the elevated railway in In Greenwich street have proved satisfactory to the engineers appointed to test it. It is expected that by the 1st of January next, the road will be finisheft to Hortcenth street.

RAPIDITY IN BRIDGE CONSTRUCTION.—Time is money, and railroad men know it. On Monday evening, July 27, the bridge on the Toledo, Wabash, and Western Railroad, over the Vermillion railroad at Danville, Ill., was entirely burned up. On August 8, a new bridge was completed, and trains crossed on it. The bridge is 1,100 feet long and abont ninety-eightfeet high above the bottom of the river.

SUGAR IN RUSSIA.—The American Consul at Moscow, states in a letter to the Commissioner of Agriculture, that beets are there very largely cultivated for sugar. Almost all the sugar used in Russia is produced in the country.

REMOVAL OF OBSTRUCTIONS AT HELL GATE.—The estimated cubic contents of the rocks known as "Frying Pan" and "Pot Rock" at Hell Gate to be removed are, respectively, thirteen hundred cubic yards over an area of twelve hundred squareyards, and five h: nired and seventy cubic yards over an area of thirteen hundred square yards. These rocks are to be removed to a depth of twenty-five f. et mean low water. General Newton, of the United States Engineer Corps, intends vigorously to prosecute the work very shortly.

In the last year, the Marquette district of Lake Superior produced 500,000 tans of ore, or an amount equal to one quarter of the entire product of the iron mines of the United States.

Missouri is literally on her metal. Lead has been discovered in over two hundred different localities, zinc and copper frequently, while the iron under the soil is estimated capable of yielding a supply of one million of tuns for over 200 years at years.

The Pittsburg Fort Hill Workshaverecently made a trlp hammer of twentyone tnns, for a new iron shop in the same city. One of the Pittsburg machine shopshave made a locomotive weighing only onetun, for use in a coal mine. By the side of one of the great freight engines of the Pennsylvania rallroad, this little worker must have given the pair the appearance of a locomotive with her kitten.

Steam plows have not been eminently successful, but there seems to be a revival of enterprise in this direction. In a short time past, a company has been formed at Chicago, with \$500,000 capital, to manufacture Willard's steamplows which will cost the purchaser about \$2500 each. Quite recently a citizen of Ohio announced a successful plow, and a Meadville, Pa. inventor has brought out one which on trial is said to have worked perfectly. Last spring it was announced that an English steam plow was coming over to gratuitonsly overturn 2,000 acres of Illinois prairie, but these things indicate that this trouble need not be taken.

Two monster furnaces have been constructed at Ferry Hill, England, and have operated to a charm. They are both 105 feet high, and 28 feet in diameter and give the works of the company to whom they belong, a capacity of 180,000 tuns of pig iron a year.

A gas and water pipe factory at Newport, Ky., obtains theorndeore from Iron Mountain, Mo., and transmits theore of one morning into castings on the way to market by the next dayat noon. Some of the pipes made by this compary have an interior diameter of 40 inches.

Harry Meigs left San Francisco a few years since in bad repute, as a million dollar bankrupt. He went to Chlli, made friends with the Government, aroused an interest in railroads, and built nearly all the roads in that country. He then went to Peru, repeating his Chllian experience, and oas just taken accontract to build 100 miles of railroad for \$120,000 a mile, on which experts figure to Mr. Meigs several millions profit.

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SUBMARINE LANTERN.-Michael Vander Welde, St. Pelersburg, Russia.-This fryention relates to a new a-paratus for submarine lighting for the use of divers, and for other purposes, whereby the difficulties of submarine exploration are greatly diminished.

CONVERTIBLE AGRIOULTURAL IMPLEMENT.—J. H. Heald, Columbus, Miss. —This invention relates to a new and improved device whereby various implements are formed by different combinations of the parts.

VARIABLE NOZZLE... James A. (Ushman, Seneca Falls, N. Y.-This invention relates to the discharging end of a fire engine hose pipe, and especially CUTTER ATTAOHMENT TO PLOWS.—T. E. Marable, Petersburg, Va.—This device is a neat, simple, and cheap cutter, which can be readily attached to the beam of any plow, in front of the colter moldboard, or shovel, and which will graze along the surface of the ground in advance of the plow, cutting up all weeds, grass, etc., and throwing them out of the way on the sile opposite to that on which the plow throws its dirt.

SHOVEL PLOW.—B. F. McCollester, California, Mo.—The object of this invention is so to construct and attach shovel plows to their standards or beams that they can be adjusted at any inclination, and, when worn out or injured in one end, can be reversed without difficulty.

MEDIOAL COMPOUND.—A. V. Lee, Clayton, Ala.—This invention relates to a combination of ingredients for forming a medium for the cure of diseases which prevall in almos: all clinuates to agreater or less extent, and which diseases have generally baffled the skill of the medical faculty—more particularly billious diseases, and especially what is known as fever and ague.

ELEVATOR.-Erwin T. Hope, Philadelphia, Pa.-This invention consists of an arrangement of a series of vertical telescopic tubes and a plunger, on the top of which the carriage is supported, and moved between suitable vertical guides, when the said telescopic tubes are extended by the action of water forced in at the bottom to the lower tube, which is stationary.

WINDOW VENTILATOR.-R. H. Long, Milwaukee, Wis.-This ventilator for windows consists of a frame carrying a pane of glass, so as to be transparent, which frame has an elliptical or other spring applied to one of its sides, and is arranged to move up and down within a frame made of matal or other sultable material, attached to the inside of that section of a sash frame where it is to be located, the glass of which has been cut out to a degree corresponding to that of the supplementary frame having the glass thereon arranged to move or silde.

MAGHINE FOR SAWING SHINGLES OR HEADINGS.-L. C. Robinson, Shep ardsville, Mich.—The nature of tius invention relates to improvements in machines for sawing shingles or headings, or other similar articles, whereby it is designed to provide a more simple and effective machine than any now in use, and that will either saw them in a straight or tapered form, cut off the ends and plane the edges, and it consists in the combinations and ararrangements of the parts whereby the same is effected.

CONSTRUCTION OF SOOWS.-E. J. Allen, Rondout, N. Y.-This invention relates to a new manner of constructing scows, with an object of strengthening the same, and consists first in strengthening the fore and aft partitions by means of trestle work; second, in arranging cross keelsons above and at right angles to the fore and aft keelsons, and in the use of cross beams on head of fore and aft keelsons, and parallel to the cross keelsons; the fore and aft partitions are not only made substantial by means of the trest le work, but still more so by the cross keelsons and beams.

GATE.-William E Nichols. Baldwin, Mo.-This invention consists in an arrangement of cords and pulleys for effecting the above-described object and the necessary posts for supporting the same.

RAT TRAP.--M. D. Fowler. Vincennes, Ind.--This invention has for its ob ject to furnish a simple, convertient, and reliable rat trap, which shall be so constructed and arranged as to catch, without fail, any animal that may enter the trap and try to eat the hait.

IMPROVED FASTENEE FOR VEHICLE SEATS.—Charles Dixon, Weedsport, N. Y.—This invention has for its object to furnish an improved fastener. by means of which the seats of wagons, sleights, and other vehicles may be conveniently, securely, and detachably secured in place.

MACHINES FOR UNHAIRING HIDES.—Elias Brock and Judson Schultz, Ellenville, N. Y.—This invention has for its object to improve the construction of the nubairing machines, patented by Elias Brock June 25, 1867, and numbered 66,124, and by Judson: Schultz, June 25, 1867, and numbered 66,176, so as to make said machines more convenient is use and more satisfactory in operation.

WAGONS.—Samuel Seitz and L. D. Arnold, Melmore, Obio.—This invention hasforlis object to furnish an improvement in the construction of wagon boxes, by means of which the end boards of the box may be securely held in place, and which shall at the same time be durable and allow the end boards to be conveniently and quickly put in and takan out.

POTATO DIGGER.—B. D. Vanderveer and Daniel Riddle, Freehold, N. J.— This invention consists in the arrangement of a plowshare to raise the potatoes from the ground and shakers for separating them from the soil, and in a device for cleaning the machine of vines.

SKATE — Uharles Gooch, Cincinnati. Ohio.— The present invention relates to that class of skates which are provided with a fastener, that acts upon the boot or shoe hole in the direction of its length and from end to end, and it consists in a novel construction and arrangement of the toe and heel clamps of such fasteners, whereby the skates can be adjusted to more fully and pertectly accommodate the various lengths of boots, and thus the fastener renderedmore general in its application or adaptation to the varying sizes on the length of the boots.

CAR bRAKE.-J.L. Miller, De Witt, N.Y.-This invention relates to a new and improved car brake, which is applicable to eitherhorse or steam cars, and it consists in a novel construction and arrangement of the brake, where by it is rendered capable of being operated through the medium of a friction wheel, and the brake operated on a single car, or all the brakes of a series of cars comprising a train operated simultaneously.

CURTAIN FIXTURES.—J. D. Legg. Long Eddy, N. Y.—This invention re lates to a new and useful improvement, or a curtain fixturefor which Letters Patent were granted to J. D. and I. W. Legg, May 5th, 1868. The object o the present invention is to obviate the difficulty attending the lowering or drawing down of the shade, and the winding up of the coil springs, the inner ends of the latter being attached to the cylindrical boxes out of or at a short distance from their enters, a necessity in the old arrangement, and which causes the springs to bind after a few convolutions have been drawn together by a few revolutions of the cylindrical boxes, so that the springs cannot be fully wound up.

APPARATUSFOR ROASTING NUTS.-D. A. T. Gale, Poughkeepsie, N. Y.-This invention consists of a rotary cylloder suitably confined in a hot-air case and provided with gas burners, and of a warming spparatus to which the tabe which supplies gas to the roasting apparatus is connected for supplying heat to it and so arranged that after the nuts have been roasted and placed in the said warming apparatus the flow to the roasting burner may be stopped while that to the warming apparatus continues.

ROTARY STRAM ENGINES.-John Woody, Mount Vernon, Ind.-This invention relates to that class of stearu enrines. known as rotary engines, where the stearm acts continuously and the pressure is applied without intermission and with uniform effect

P. D. L A. M., to which is added in an Appendix, the Report on the Coloring Matters derived from Coal Tar, by Dr. A. W. Hofmann, F. R S. Published by John Wiley & Son, No. 2 Clinton Hall, Astor place, New York.

We published an extract from this work, entitled "The Anline Blue," on page 102, No. 7, current v olnme, with some remarks commending the work. We will add to what we have already said, that further examination and reference to its pages only adds to the good opinion we at first conceived. Not only are a host of facts given relating to the manufacture of this important class of substances, but they are given in a plain and intelligible form. Without ceasing to be scientific be has made his work eminently practical. This is a rare feat of authorship and from its accomplishment we predict a brilliant successfor the book.

## THE LATHE AND ITS USES.

This is the title of an octavo volume of 284 pages published by John Wilev & Son, No. 2 Chnton place, New York city, which is profusely illustrated, and is one of the best compendums of information relative to the lathe and to lathe work we have yet seen. The lathe has been elevated from a mere machine as an ald to the production of works of simple use, to the Position of companion and means for employing leisure hours. Its use is one of the pleasantest occupations for a rainy day or otherwise idle hour, and may be made productive and profitable pecuniarily. The growing practice on the foot lathe in this country makes the appearance of this work timely and yalu ible.

to the nozzle which is attached thereto, and the invention consists in so constructing the nozzle that the stream of water discharged therefrom may be raised at will by a simple movement of the hand of the operator.

TOOL HOLDER FOR PLANING MACHINES.-W.J. Linton, Detroit, Mich.-This invention consists in a bracket which may be secured to the tool slide, and having a right angled arm projecting forward aron the cross plate a sufficient length and provided with a pivoted holder for the tool.

BELT TIGHTENER —Samuel Patton, Chatsworth, Ill.—The object of this invention is to provide a simple and effective attachment to belt pulleys, by which the beltcan be tightened to any required degree without difficulty.

COMBINED CORN PLANTER AND CULTIVATOR.—Geo. W. Kinzer, Linden Station, Ohio.—The object of this invention is to provide a combined corn pianter and cultivator which shall be economical in construction and corvectent in operation.

FRUIT CRATE.-W. G. Goodale, Centralia, Ill.-In this invention the fruit is packed in a crate in well ven liated boxes, supported upon springs to preventtheir bruising it The whole crate is very simple, cheap, and durable, and will effectually protect the fruit from injury.

SOREWDRIVERAND COUNTERSINK.—Peter N. Jacobus, Flatbrookville, N. J. —The object of this invention is to construct a screwdriver in such a manner that it shall grasp the screw by the head and hold it firmly while inscribing it into the wood or removing it therefrom; and while inserting the screw, shall eam away the wood around it, so as to form a countersink for its head.

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EXTENSION CLOTHES-LINE SUPPORTER.—Francis W. Tilton, and Moses U. Swift, New Bedford, Mass.—The object of this invention is to provide means for supporting clothes lines and elevating the same.

BUOKLE.-H. C. Wessel, Iadiana, Pa.-This invention relates to a new and improved buckle designed for bridles and other parts of harnesses, and also for other purposes. The object of this invention is to construct a buckle in such a manner that it may be applied without any stitching or sewing and also without the sid of rivets and other peruanent fastening and still be readily applied to and detached form the straps which it joins or connects.

EASY CHAIR.—Dumont Mareau, Hubbardstown, Mass —This invention con sists in attaching the seat to two or more springs and in connecting it with the legs or seats of the chair by links which form joints whereby great elas their and flexibility are obtained.

TOOL HOLDER.-William J. Linton, Detroit, Mich.-This inventiou con sists in a holder having a idectangular slot through a flattened central portion in which are arranged two clamping jaws, one stationary and one mov able, and provided with two handles one of which acrews into the said flat tened central portion for adjusting the movable jaw in a manner similar to the construction of die plates for cutting screws.

WAGON COUPLING.—James M. Wyna, Scipio, Ind.—The object of this in-Vention is to provide a simple and effective means of coupling the rear axle of a wagon to the reach pole or perch of the same. It consists of a plate at