

Nevertheless, he commenced work in his master's celebrated shop at ten shillings a week, and worked his way up from the bottom to the top of the ladder in his own walk of art. This ingenious man may be said to have been called forth by Brunel's gigantic design for the Great Eastern steamship. It was originally proposed to propel this vessel by the paddle, but the shaft for this purpose would have been so large that no forging tools then in existence would have been able to turn it out. Brunel accordingly appealed for help to Nasmyth, who responded by sending a drawing, by return post, of his famous steam-hammer. It was, nevertheless, determined to substitute the screw for the paddle, and the drawing was forgotten. Some years afterwards, however, Nasmyth was visiting a celebrated iron foundry in France, and, noticing a piece of forged work that he knew could not have been accomplished by the ordinary means, was curious enough to inquire how it had been produced. The answer was, "Why, with your steam-hammer, to be sure." The Frenchman had been shown the drawing, and rightly estimating its value, he had one made. Large designs call forth large tools, and large tools, in their turn, call forth large designs. Had it not been for Nasmyth's hammer, there would have been no such things as iron-clads, neither would there have been any of the monster cannon built upon the coil system, as they are at present. The steam-hammer enables us to undertake Cyclopean tasks, which we should never have dreamed of otherwise.

The last and best known machinist of the goodly band that issued from the establishment of Messrs. Maudslay & Field is Joseph Whitworth. This celebrated iron worker improved upon Clements planing machine, in his Jim Crow planer. This machine works with a cutter, which reverses itself, cutting backward and forward without losing any time. It was at work, it will be remembered, in the Industrial exhibition of 1862. Whitworth is, perhaps, best known by his rifle gun, the rifling of which is the very perfection of art. Accuracy of work, learned by him from the traditions of the shop in which he was taught, led Whitworth to contrive various machines for the furtherance of that object. He has invented one machine which detects variations of a millionth of an inch. It is very likely that this contrivance will be but rarely used, but the influence of the practice of its inventor must have immense effect upon the trade, and help to keep up a standard of excellence which less known men, if they would succeed, will have to attain. The use of machinery has now become so general, that the perfection of workmanship is almost a necessity. Such contrivances as those we have drawn attention to, would have been beyond the reach of the simple hammer and file of our forefathers; and if the world were reduced once more to the hand of the craftsman for the production of its machinery, all its great operations would gradually be brought to a standstill. Yet it is but little more than half a century since the hand was all we had to depend upon in the world of mechanics. If the reader wishes to measure the difference between the old work and the machine work of the present day, he has only to look down the hold of any small steamer at one of Penn's marine engines, or to behold the splendid specimen on board the *Warrior* iron-clad. This engine was designed, also, by the Messrs. Penn; and the perfection of its workmanship may be estimated by the fact, that, when its five thousand pieces were assembled together for the first time, such was the mathematical accuracy of their fit, that as soon as steam was got up, it began to move with the utmost smoothness. Let the reader, we say, compare this splendid piece of work with the old Newcomen engine in the South Kensington Museum, and he will at once see the ages of mechanical genius we have traversed since Watt took the latter in hand, and by patient thought built up out of it the present steam engine. Yet it is not more than a century ago that the machine represented the most powerful motive engine we possessed, and was as fair a specimen of work as the eighteenth century could turn out. Such are the differences that have been brought about by half a dozen able men carrying out the traditions handed down by Henry Maudslay,—mere workshop traditions, which now are acted upon throughout Europe wherever the machinist's skill is known.—*Cassell's Magazine*.

SCARCITY OF PAPER MATERIAL.

The scarcity of paper stock, felt almost immediately after the inauguration of the late war, is not singular. In Bishop's "History of American Manufactures," we learn that in 1748 a similar scarcity existed in the Massachusetts Colony. Thomas Fleet, who (copying his public notice) was "Printer at the Heart and Crown, in Cornhill, Boston," advertises thus:

CHOICE PENNSYLVANIA TOBACCO PAPER TO be sold by the Publisher of this Paper (the *Boston Evening Post*), at the Heart and Crown; where may also be had the Bulls or Indulgences of the present Pope Urban VIII., either by the single Bull, Quire, or Ream, at a much cheaper rate than they can be purchased of the French or Spanish Priests.

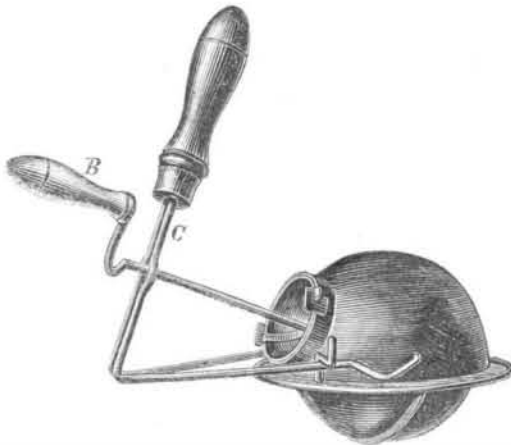
This selling of Papal indulgences and bulls, in Puritan New England, seems odd, but the facts of history account for it. Several bales of the indulgences, printed on one face or page of a small sheet of very good paper, had been taken in a Spanish ship captured by an English cruiser during the war with France and Spain in 1748, of which Mr. Fleet purchased a large quantity. He made use of them for printing ballads, the back of each copy of the bull being large enough for two songs, as "Black-Eyed Susan," etc. "To what base uses do we come at last."

IN cutting some timber in Omaha, a few days since, a bullet was found imbedded in the trunk of a rock elm. The grains which had overgrown it show that it must have been deposited there sixty-two years ago, a time when the country had not yet been visited by any white men, except the explorers Lewis and Clarke.

SIMPLE DEVICE FOR ROASTING COFFEE.

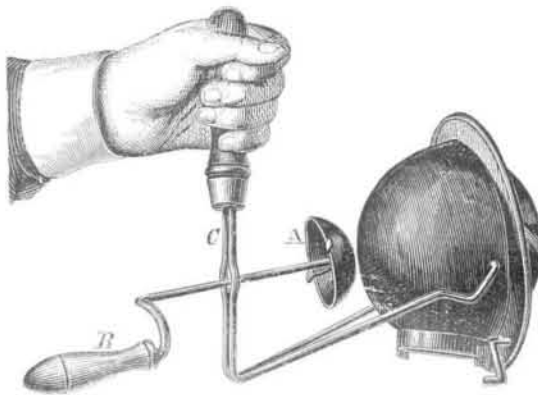
The adulterations perpetrated in the preparation of coffee ready ground for the use of the family have greatly stimulated the sale and use of household devices for the preparation of the berry. One of the best coffee roasters we have seen is that illustrated in the accompanying engravings. It is a hol-

Fig. 1



low globe of cast iron with a circular opening for the reception of the berries, closed by a convex or cup-shaped cover, A, attached to the handle, B, and furnished with lugs engaging with ears on the globe, by which the globe is revolved over the fire. This globe or receptacle turns in a hemispherical cap that is furnished with a flange fitting over the opening in the stove or range. A forked lever, C, the arms of which project on each side of the globe and act as springs, engages with catches fixed on the circular flange to hold the globe in place while being used. A simple movement of the levers, B and C, disengages the cover and reverses the globe, thus discharg-

Fig. 2

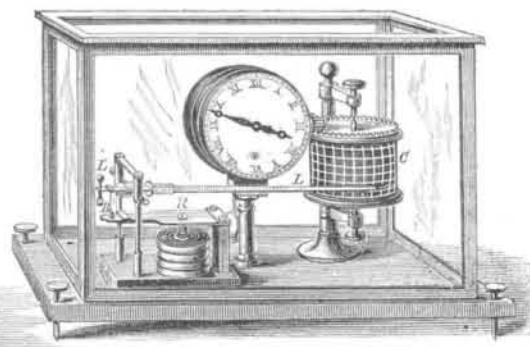


ing its contents. The action of the hand on the lever, C, removes the cover, disengages the catches, and reverses the position of the globe. While in operation, the catches of the lever, C, hold the globe in position for operation.

This improvement was patented by Fred Max Bode, through the Scientific American Patent Agency, July 28, 1868, and assigned to C. G. Mueller, No. 12 Theater Platz, Hanover, Prussia, to whom all communications should be addressed.

A NEW REGISTERING BAROMETER.

The following is a description with an engraving of the Barometrograph, recently invented in France. We do not believe it to be as delicate as the Self-registering and Printing Barometer invented by Prof. Hough Astronomer in Charge at



the Albany Observatory, but it seems to be less complicated and expensive.

It is usual in taking barometrical and thermometrical observations for the purpose of registration, as regards changes of weather and for foretelling weather, to take them at stated and regular intervals, so that the variations at those periods may be noted and, if required, plotted out on a chart. Indeed for obtaining quick and useful comparisons, there is nothing compared to the plan of projecting the curves of atmospheric variation on the charts specially prepared for that purpose; it enables one at a glance to see the variations of the barometer during the past day—saving the bother and calculation necessary where the observations are simply noted down as so many figures. But there is one great objection attendant upon observations of this nature; however carefully they may be recorded or described on charts, they are but observations of the time only, and show nothing more. For instance, the height of the barometer at the two

usual times of observing, in the morning and evening, are recorded, and a line drawn on the chart from the one point to the other is assumed to show the variation between those times. True, it does to some extent, but only to the extent of the difference of the two. In stormy or unsettled weather the rise and fall of the barometer may be considerable between the two periods of observation, and yet it is possible that at the two periods the observed indication will be precisely the same. The chart would consequently show an even state of pressure, whereas the opposite would be really the case. Accurate results can, therefore, only be obtained when the observations are made hourly, or, at least, at very frequent intervals. This is, as far as regards personal observation, quite impracticable for the generality of observers; and to give a true and faithful record of the variations of the barometer from minute to minute and from hour to hour we can only look to mechanical means for bringing about this much-desired result.

Among the plans suggested but very few have been ever practically carried out, and of those we have seen their great expense proves an almost insurmountable barrier to their adoption. The "barometrograph" depicted in the accompanying illustration, seems to combine simplicity with cheapness, and accuracy with ease of observation. The records are continuous and comparable, and are produced by the variations of the barometer known as the aneroid. The pressure of the atmosphere affects four metallic boxes, as in the ordinary aneroid, having their upper and under faces unglazed; and a vacuum is made in each of them separately, and they are attached together in one series, so that for an equivalent variation of pressure the movement is four times greater than it is for one box only. A very strong flat steel spring, R, acts upon the barometric boxes in an opposite direction to the atmospheric pressure. This spring controls the indicating lever, L L, by means of a connecting piece at the point B; this connector receives the action from the extremity of the spring and communicates it to the lever, L L, at a point very close to its axis, from whence it follows that a considerable multiplication of movements is the result.

The indications of the movements of the lever are registered in the following simple manner: A cylinder, C, is revolved by the regular movement of an ordinary pendulum time piece; it makes a complete revolution in one week, and carries a glazed paper, which has been smoked black by means of a candle. At the extremity of the lever is a very fine spring pointed at the end, which rests upon the cylinder and traces a white line upon the black ground. At the end of each week the paper is changed for a fresh one, the old one being prevented from having its record destroyed by having a coat of varnish. The whole operation takes but a little time, including the attachment in a book, or, when required, the record of one week to that of the preceding, so that the indications might be continuous. The barometrical arrangement of this instrument is far less liable to error than the ordinary aneroid, where so many movements and accessories are required to translate the changes of the barometric box to the indicating needle on the face of the instrument. In order to render the indication recorded useful for comparison, the paper can be divided into equal parts, representing the days of the week, and again subdivided to represent the principal divisions of the day; this has been done in practice, and instruments similar to what we have just described have been in use some time, earning great approbation for the fidelity and utility of the observations recorded by them.

Reducing Tin for Coating Metals.

The *Mechanics Magazine* contains a description of a new method for coating metals with tin which has been recently patented in England. This invention relates to the application of the electro-plastic process for the reduction of pure tin in a metallic state of all thicknesses, so as to render it cohesive, ductile, and of such density that it may be stamped up, drawn, and rolled, and may also be deposited in molds in the same manner as copper by the galvano-plastic process, or on metals, especially lead and its alloys, for coating or plating the same. This reduction is effected whatever may be the nature of the hot or cold alkaline or acid baths used, provided that the salts, oxides, or acids of the tin employed are chemically well prepared, which is an essential condition. The tin reduced by the electro-plastic process, according to this invention, is rendered sufficiently ductile, malleable and cohesive to assume any form by chasing, embossing or engineering without cracking, which is the case when tin used as a plating on lead in thin sheets in ordinary use is stamped up in a similar way.

The tin produced in the manner herein described, may also be applied, first, for forming a relief surface on a plain ground for capsules, covers, and other articles for the purpose of obtaining greater firmness and a more elegant appearance. The relief surface is obtained by stamping or embossing, in the ordinary way, with a male and female die, or when the metal is sufficiently ductile only one die is needed, which would produce an impression or embossed surface in a similar manner to that made by a seal on wax; second, for reproducing figures and ornamentation, such as objects of art, or others, by embossing or stamping in imitation of metal castings by the aid of a die or dies, in the manner above described. Many attempts have been made to produce in metal trade and other distinguishing marks on the corks or stoppers of bottles and other vessels, or on other articles, either by embossing, coloring, or printing, in imitation of those produced in wax or metal capable of receiving an impression. The result has been, however, to produce an inferior impression, the design being obtained on a plain surface, and bearing but an imperfect resemblance to a wax seal.

In order to obtain a mark of a perfect nature, the inventor

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 material 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 electro-chemically 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 étatables, 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 half-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 dollar's 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, Siliman 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 cyclopaedia of mineralogy, as it seems to comprise all the facts relating to it both in mineralogy proper and in the collateral sciences, and lacks nothing except the usual arrangement which is generally expected in a work bearing that title. The new features which we find in this edition, aside from additions necessary to bring the work up to the present standpoint of mineralogical science, are "the recognition, and the description of the different varieties of species," the adoption of the new chemical symbols in the formulas given throughout the work, and its valuable historical synonymy. The latter contains the first author and the first publication of each species, and follows with all the names it has borne 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 varieties: "The first edition of this treatise, that of 1837, was written in the spirit of the school of Mohs. The multitudinous subdivisions into subspecies, varieties, and subvarieties, 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 his philosophic purpose to give prominence and precision to the idea of the species. Much rubbish was cleared away and the science elevated thereby; but much that was necessary to a full comprehension 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 has been attained in the most scientific institutions of our country is brought forcibly to view. The hydrocarbon compounds are most comprehensively treated, and the book will prove a most valuable work of reference upon this subject. The work is printed in clear bold type, and 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, 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 Aniline Blue," on page 102, No. 7, current volume, 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 he has made his work eminently practical. This is a rare feat of authorship and from its accomplishment we predict a brilliant success for the book.

THE LATHE AND ITS USES.

This is the title of an octavo volume of 284 pages published by John Wiley & Son, No. 2 Clinton place, New York city, which is profusely illustrated, and is one of the best compendiums 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 aid to the production of work 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 valuable.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The Erie railroad company have contracted for 8,000 tons of steel rails.

The total value of livestock and agricultural productions in the United States in 1867 was \$2,507,257,065.

Recent dispatches announce another terrible colliery explosion at Jemmapes, 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 20,000, and they cost \$75,000,000.

POLYTECHNIC SCHOOL IN CHICAGO.—An ordinance appropriating \$25,000 to aid in the establishment of a polytechnic school in Chicago was recently passed by the common council of that city.

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 CIMARRON RIVER.—The New York Daily Tribune says: "The discoveries of gold on the Cimarron River, near the corners of Colorado, Kansas, New Mexico, and Texas are creating great excitement, 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 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 finished to the thirteenth 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 about ninety-eight feet 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 square yards, and five hundred and seventy cubic yards over an area of thirteen hundred square yards. These rocks are to be removed to a depth of twenty feet below 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 tons 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 tons for over 200 years at least.

The Pittsburg Fort Hill Works have recently made a trip hammer of twenty-one tons, for a new iron shop in the same city. One of the Pittsburg machine shops have made a locomotive weighing only one ton, for use in a coal mine. By the side of one of the great freight engines of the Pennsylvania railroad, 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 \$2,500 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 gratuitously overture 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 tons of pig iron a year.

A gas and water pipe factory at Newport, Ky., obtains the crude ore from Iron Mountain, Mo., and transmits the ore of one morning into castings on the way to market by the next day at noon. Some of the pipes made by this company 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 Chili, 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 Chilean experience, and was just taken a contract to build 100 miles of railroad for \$120,000 a mile, on which experts figure to Mr. Meigs several millions profit.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notices of some of the more important new American and foreign patents.

SUBMARINE LANTERN.—Michael Vander Weide, St. Petersburg, Russia.—This invention relates to a new apparatus for submarine lighting for the use of divers, and for other purposes, whereby the difficulties of submarine exploration are greatly diminished.

CONVERTIBLE AGRICULTURAL 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. Cushman, Seneca Falls, N. Y.—This invention relates to the discharging end of a fire engine hose pipe, and especially 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 from 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 belt can 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 planter and cultivator which shall be economical in construction and convenient in operation.

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

SCREWDRIVER AND 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 inserting 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.

CUTTER ATTACHMENT 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 side opposite to that on which the plow throws its dirt.

SHOVEL PLOW.—B. F. McColister, 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.

MEDICAL COMPOUND.—A. V. Lee, Clayton, Ala.—This invention relates to a combination of ingredients for forming a medium for the cure of diseases which prevail in almost all climates to a greater or less extent, and which diseases have generally baffled the skill of the medical faculty—more particularly bilious 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. E. 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 metal or other suitable 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 slide.

MACHINE FOR SAWING SHINGLES OR HEADINGS.—L. C. Robinson, Shepardsville, Mich.—The nature of this 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 arrangements of the parts whereby the same is effected.

CONSTRUCTION OF SCOWS.—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 trestle 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 object to furnish a simple, convenient, 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 bait.

IMPROVED FASTENER 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, sleighs, 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 unhairing 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 in use and more satisfactory in operation.

WAGONS.—Samuel Seitz and L. D. Arnold, Melmore, Ohio.—This invention has for its 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 taken 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.—Charles 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 perfectly accommodate the various lengths of boots, and thus the fastener rendered more 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 either horse or steam cars, and it consists in a novel construction and arrangement of the brake, whereby 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 relates to a new and useful improvement, or a curtain fixture for which Letters Patent were granted to J. D. and I. W. Legg, May 5th, 1868. The object of 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 centers, 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.

APPARATUS FOR ROASTING NUTS.—D. A. T. Gale, Poughkeepsie, N. Y.—This invention consists of a rotary cylinder suitably confined in a hot-air case and provided with gas burners, and of a warming apparatus to which the tube 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 STEAM ENGINES.—John Woody, Mount Vernon, Ind.—This invention relates to that class of steam engines, known as rotary engines, where the steam acts continuously and the pressure is applied without intermission and with uniform effect.

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

BUCKLE.—H. C. Wessel, Indiana, 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 aid of rivets and other permanent fastening and still be readily applied to and detached from the straps which it joins or connects.

EASY CHAIR.—Dumont Mareau, Hubbardstown, Mass.—This invention consists 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 elasticity and flexibility are obtained.

TOOL HOLDER.—William J. Linton, Detroit, Mich.—This invention consists in a holder having a rectangular slot through a flattened central portion in which are arranged two clamping jaws, one stationary and one movable, and provided with two handles one of which screws into the said flattened central portion for adjusting the movable jaw in a manner similar to the construction of die plates for cutting screws.

WAGON COUPLING.—James M. Wynn, Scipio, Ind.—The object of this invention 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