

sonous organic gases from a kitchen yard, from a neglected cellar, or from some other source of bad air, which has entered the lungs and planted there the germs of the disease; or (2) either in the food or in the drink of the patient, these germs, originating in the same organic putrescence, have found their way to the stomach. In either case the blood is attacked; the subject may have been sufficiently robust and vigorous, or sufficiently unsusceptible to infection, to have avoided a serious or fatal illness; but in every instance the danger has been incurred, and, when incurred, the risk must be the same as in taking any other form of slow poison. This is not theory, but simply a well established fact, demonstrated by long, careful, and frequently repeated investigation. The precise character of typhoid infection and the exact manner of operation when introduced into the blood, are not known; but that it always originates in the way described, and that it may invariably be prevented by the use of proper sanitary precautions, is absolutely known.

This being the case, it lies perfectly within the province of every farmer (and if the farmer will not attend to such matters of his own accord, his wife has a way of urging him into it) to remove, while it is yet time, any source of infection to which his house may be liable. Vegetables in any considerable amount should not be kept in the house cellar, and at least once a week the floor of the cellar should be swept and every shred of waste vegetables removed. Even when this is done, the cellar should be ventilated by a window or other small opening toward the quarter least exposed to cold winds (and in summer on every side); the privy, if a privy is used, should be well away from the house, and especially far from the well, unless its contents are received in a tight box and entirely absorbed by dry earth or ashes, and even then frequently removed; the chamber slops of the house should never, under any circumstances, be thrown into the privy vault, nor into a porous cesspool, from which they can leach into the ground and through the ground for a long distance into the well, or into and around the foundation of the house. The same disposal of the liquid wastes of the kitchen is desirable, but not so absolutely important. It is, however, important that this should be led by an impermeable drain to a point well away from the house and from the well; swirl and all manner of nondescript refuse material, such as is sloughed off by every household in the ordinary course of its living, should be removed at least daily from the near vicinity of the dwelling, and the vessels in which it accumulates should be frequently cleansed and aired; manure heaps should not be left to ferment and send off their exhalations at a point whence frequent winds waft them toward and into the dwelling, nor should the barnyard be allowed to drain (either over the surface or through a porous so l) toward the house or well. If all these precautions are taken, the well will be tolerably safe, and in most cases absolutely safe; but if there is any doubt on the point, then let no well water be drunk except after boiling; or the drinking water of the house may be taken entirely from a filtering cistern, of which the filtering bed is sufficient to hold back all organic matter.

If all these points are well attended to, and if the ordinary rules of cleanliness be observed in the household, the members of the family may be considered as safe against attacks of typhoid fever.

THE MEIDINGER BATTERY.

The Meidinger element is a modification of the Daniell battery; but it has no porous cell, and possesses greater durability and constancy of current. It consists, as shown in the engraving, of a glass vessel, A A, 8 inches high and 5 inches wide, in the bottom of which is placed a small glass vessel, d d, of half the dimensions of the larger glass, cemented in with rosin. A zinc disk, Z Z, which is supported upon a ledge of the outside vessel, surrounds the smaller glass. The inside wall of the smaller glass, d d, is covered by a sheet of copper, e, on the lower end of which an insulated copper wire, g, is riveted. The mouth of the vessel is closed by a wooden or tin plate having an opening in the center for the reception of a glass cylinder, h, 1 1/2 inches in diameter and 8 inches high, narrowing towards the lower end, which is rounded and in which a hole is made. This tube is sunk to the center of the small glass, d d. The entire vessel is filled up to the zinc disk, about 1 1/2 inches below the upper brim, with a diluted solution of Epsom salts. The glass cylinder, h, in place of which a glass funnel can be used, is filled with crystals of sulphate of copper, forming a concentrated solution, which, being a heavier fluid, sinks down through the small hole in the glass tube, and fills the small glass, d d, to the center.

There is very little diffusion of the copper solution upwards, or out of the little glass vessel, d d, to the zinc disk, Z, even when the battery is not in operation; so that, after the lapse of several weeks, the zinc scarcely shows any signs of being affected by the copper. The battery is therefore much superior to the ordinary Daniell battery, which, when the circuit is open, produces a great diffusion of the sulphate of copper through the porous cup.

The zinc is usually amalgamated on its inner side, enabling its impurities to be easily removed, which would otherwise form a hard crust. If the copper wire, g f, which is riveted to the copper sheet, e, is connected with a small strip of cop-

per, c k, soldered to the zinc disk, we obtain a galvanic current having an electromotive force equal to that of a Daniell cell, and it remains constant as long as there is sulphate of copper in the glass tube, h; and the zinc, Z, is not dissolved. During the activity of the battery, in fact, the solution of sulphate of copper increases a little in quantity, in consequence of a diffusion which is caused by the overflowing (in the smaller glass, d d) of the heavier sulphate of zinc solution formed by the dissolution of zinc. By the action of the current, the greater part of the copper is deposited on the upper half of the copper plate. A trace of copper, however, appears upon the zinc, but frequently this is after several weeks' operation. The duration of the battery depends on the size of the glass vessel. A battery of the size described (according to Meidinger's statement) ought to be taken to pieces and the solution of Epsom salt and sulphate of zinc drawn off, and pure water put in it as soon as it has consumed 3 lbs. of sulphate of copper, which, however, may take a year.

The resistance of this cell considerably exceeds that of the Daniell battery with porous cells; but for a line battery, where the resistance in the wire is very considerable, this is of no special importance. Meidinger recommends, for main lines, cells 5 inches high and 3 inches wide; while the battery of the size depicted in our engraving is intended for local use and for line batteries of small resistance. As a local battery for the Morse telegraph, it is best to use six cells, two of which are connected with like poles, so that we have, practically, three elements with enlarged surface and conductivity.

Generally, in charging the Meidinger element, a solution of 1 part Epsom salts to 4 or 5 parts of water may be used. In proportion to the activity of the battery and the consumption of the sulphate of copper, fresh crystals of this salt should be added to the contents of the glass funnel. But when the surface of the fluid has sunk by evaporation, soft water only need be added to the glass funnel. An improvement has been obtained in this element by having the funnel-shaped sulphate of copper vessel entirely closed at the top. After the jar, h, has been charged with crystals of sulphate of copper, a solution of Epsom salts (sulphate of magnesia) is added thereto.

The Meidinger battery is valuable wherever long duration and a current of moderate but constant strength is required, and especially for operating the Morse telegraph, electrical clocks, hotel telegraphs, and electric bells. The chief condition for its successful use is that it shall not be shaken, as shaking causes a mixture of the fluids, and in this way destroys its action and the constancy of the current. Its faults consist in the liability that the tube, h, may be filled up with sulphate of copper (either from impurities of the salt or from precipitation of metallic copper) or crystals of sulphate of zinc, so that the action of the element ceases; and partly because the flow of the solution of sulphate of copper from the tube to the lower edge of the zinc cylinder rises, and then, at the least diffusion, the sulphate of copper attacks the zinc. When this happens, the sulphate of copper is decomposed by the zinc, a superfluous quantity of sulphate of zinc is formed in the fluid, and metallic copper is precipitated in the form of a brown, spongy powder upon the zinc cylinder. This battery is extensively used upon the Austrian telegraph lines.

Useful Recipes for the Shop, the Household, and the Farm.

Beef bones, boiled in water for some hours with rock salt and a little alum, yield a size which can be used in the preparation of cotton and silk goods.

The clatter and risk of glass in carriage windows can be prevented by placing, at the bottom of the casing, an arched piece of india rubber.

Unless the mouth is frequently and carefully cleansed, it becomes infested with vegetable and animal parasites. These cause decay of the teeth. Soap is the best material for preventing the development of the fungi and for neutralizing the acid. Precipitated chalk mixed with the soap assists the cleansing action.

The following practical hints on ballooning are published by Donaldson the aeronaut, in a little paper edited by him and named the *Aerial*. The lifting strain of a balloon is principally on the net. If a balloon will stand inflation, it is safe in mid-air. In winter, the atmosphere is warmer one mile above the clouds than it is at the earth's surface. The weight of a balloon to carry one man, including net and basket, should not exceed 80 lbs. A cotton balloon will last for about sixty ascensions. A balloon thirty feet in diameter undergoes a strain of 1 1/2 lbs. to the square foot of surface. Gas, which at the earth fills the bag only half full, will, at an elevation of 3 1/2 miles, expand so as to fill it completely. One thousand feet of coal gas will raise 38 lbs. Gas which gives a poor light is the best for aerostatics. Kites can be used to steer balloons by sending them up or lowering them into currents of air traveling in different directions from that in which the balloon is sailing.

To make green gold, melt together nineteen grains pure gold and five grains pure silver. The metal thus prepared has a beautiful green shade.

The following recipes for metals resembling gold are said to produce a metal which will so nearly approximate the genuine as almost to defy detection without a resort to thorough tests: Fuse, together with saltpeter, sal ammoniac, and powdered charcoal, 4 parts platinum, 2 1/2 parts pure copper, 1 part pure zinc, 2 parts block tin, and 1 1/2 parts pure lead. Another good recipe calls for two parts platinum, 1 part silver, and 3 parts copper.

Cement for sealing fruit cans is made of resin one pound, tallow one ounce.

DECISIONS OF THE COURTS.

United States Circuit Court--District of New Jersey.

PATENT HARNESS TRIMMING.—WILLIAM M. WELLING & THE RUBBER-COATED HARNESS TRIMMING COMPANY, ANDREW ALBRIGHT, AND LUTHER S. VOORHEIS.

[In equity.—Before Nixon, J.—Decided May, 1874.]

NIXON, J.: This is a suit for an alleged infringement of letters patent, No. 37,941, and bearing date March 17, 1863, granted to the complainant for "a new and useful improvement in rings for martingales;" and the questions in issue are determined by the construction and scope to be given to the specification and claim of said patent.

The schedule annexed is dated April 8, 1862, and the complainant therein states his invention as follows: "In letters patent granted to me August 4, 1857, a composition and mode of making factitious ivory is set forth, and out of said materials I have manufactured billiard balls, rings of various kinds, etc. My present invention does not relate to any particular composition, as that in the aforesaid patent, or any similar compound, may be employed.

The nature of my said invention consists in the employment of a metallic ring with a ring formed of artificial ivory or similar material, for giving strength to the same, thereby producing a new article of manufacture, and one that is stronger than an ivory ring, and possesses all the beauty of appearance, and can be afforded at a very much less cost. Ivory rings—particularly such as used for martingales—require to be made out of very solid ivory in order to be sufficiently strong, and hence are quite costly. "In order to make my improved rings, I take a ring of metal such as shown at A; or said ring may be formed by punching out a washer from a sheet of metal or in any other suitable way. I take the amount of ivory composition and, by dies or by hand, cause the said composition to completely envelope the said ring with as much uniformity as possible, and to give the exterior finish to the same, press and solidify the mass of composition around the ring by means of dies, and in so doing, any plain or more or less ornamental shape may be given to the said ring or the surface thereof. My ring is thus made of the desired ornamental appearance, while great strength is attained at very little cost.

"What I claim, and desire to secure by letters patent, is the ring for martingales, etc., manufactured as set forth, with a metal ring enveloped in composition, as and for the purposes specified. "It is insisted by the defendants that, if the patent is valid at all, it must be limited to a 'martingale ring intended to imitate ivory, and made by covering a metallic ring with artificial ivory, such as is described in complainant's patent of 1857, or some similar compound.' Bearing in mind the established American rule that patents are to be construed liberally, and are not to be subjected to a rigid interpretation, I think that the construction is too narrow, and does not give to the patentee what he is entitled to under the specifications and claims of his patent. It is quite clear, indeed, that factitious ivory was the composition uppermost in his thoughts. Having the partiality of a parent for his offspring, he naturally imagined that no superior compound could be formed or used. It may be conceded that the full extent of his invention had not dawned upon him. Men often build upon what they know; but where the fair interpretation of the words employed to describe an invention or discovery includes matters not in the mind of the patentee at the time, he is as fully authorized to claim the unlooked-for as he is the anticipated results.

I am of the opinion, on the whole case, that the claim of the complainant's patent, fairly construed, is not to be limited to the use of factitious ivory; but that it is broad enough to include the composition of rubber, gutta serena, and that there should be a decree for the complainant according to the prayer of his bill.

[*Frederic H. Betts*, for complainant.
J. C. Clayton, for defendants.]

PATENT HARNESS TRIMMING.—WILLIAM M. WELLING & THE RUBBER-COATED HARNESS TRIMMING COMPANY, ANDREW ALBRIGHT, AND L. O. VOORHEIS.

[In equity.—Before Nixon, J.—Decided February, 1875.]

NIXON, J.: This is an application for an attachment against the defendants for violating an injunction issued by this court, June 12, 1874, restraining them from making, using, or vending to others to be used, any harness or carriage trimmings containing the invention of the plaintiff, and secured to him by letters patent, to wit, "a ring manufactured as set forth substantially 'with a metal ring enveloped in composition, as and for the purpose specified.'"

The injunction followed the decree of the court, sustaining the validity of the complainant's patent, No. 37,941, for "an improvement in rings for martingales;" and the question now suggested is the scope of the said patent.

In the course of the accounting before the master, it was insisted by the defendants that the patent of complainant referred only to the use of certain compositions in the manufacture of rings for martingales, and hence that the decree compelled them to account only for the manufacture of rings; whereas the complainant claimed that all the articles used in harness and carriage trimmings which have been treated by the process described in his letters patent, such as terrets, buckles, and hooks, should be included by the master.

I have examined the bill, answer, proofs, arguments of counsel, and the opinion heretofore given in the case, and this examination has confirmed the strong impression in my mind, when this application was made, that the complainant is asking that a wider scope be allowed to the claims of his patent than has yet been distinctly given to it by the court.

I do not mean to be understood as saying that it will not admit of such scope and meaning; but that the question has not been presented, and that the patent has not been considered in reference to such construction.

All that the complainant is permitted to claim, under the decisions of the court as it stands, is a specific article of manufacture, to wit, "a metal ring, coated with any plastic composition capable of being compressed and solidified by the use and action of dies, whereby a ring is produced with an exterior surface more durable and more highly polished than has before been obtained by different processes of manufacture and at greater cost.

Such a construction obviously relates to the product. The complainant's patent is held to be good for the product resulting from a new combination of old instrumentalities. His claim on this application is understood to be for the process, and that the invention includes that as well as the product. Doubtless both may be covered by one patent, as was held by Judge Prior, in this court, in the case of *Goodyear vs. The Railroads*, (2 Wall, p. 356) but in such a case the description of the invention in the specification and claims should disclose that the inventor had both results in his mind.

But the grave doubt here is whether the specification and claim of the complainant's patent are broad and full enough to cover a new process as well as a new product.

It is a well settled principle that a patentee may so limit his claim as to deprive himself of the full benefit of his invention or discovery. It was to remedy such a difficulty or omission that the privilege of surrender and reissue was granted in the patent laws. Patentees often fail to realize any substantial advantage from some of the most useful inventions, owing to their too narrow claims, until such surrender, amendments, and reissue have been made.

The complainant is entitled to be protected only in the rights which the letters patent cover and secure to him. I incline to the opinion that the specification and claim of the patent under consideration will be found too limited in their scope to admit of the construction now claimed for them by the able counsel for the complainant; but without expressing any decided conviction on the subject, I shall, at this stage of the case, deny the application for an attachment, and direct the master to proceed with the accounting.

Under the reference already ordered he may take an account—
1. Of the rings coated and finished by the defendants, according to their methods as described in the proofs.
2. Of the terrets, buckles, and hooks, as claimed by the complainant.

He will make up the two accounts separately, so that the aggregate of each may be readily distinguished; and when his report is made, the master will have the opportunity of obtaining the judgment of the court in this new, and as yet unconsidered, construction of the specification and claim of the patent, after their views are more fully presented, as they may be, on exception to the report.

[*F. H. Betts*, for complainant.
J. C. Clayton and *A. Q. Knudsen*, for defendants.]

NEW BOOKS AND PUBLICATIONS.

THE PHILADELPHIA LEDGER ALMANAC. G. W. Childs, Philadelphia, Pa.

At the commencement of the year 1870, Mr. Childs, publisher of the daily *Philadelphia Ledger*, issued an almanac which contained not only the calendar and a great deal of statistical information of a local interest, but also several pages of practical household recipes, and other information of general value. One hundred thousand copies were printed and presented to the subscribers of the *Ledger* in that year. The first issue proving so acceptable as a book of reference, Mr. Childs was induced to continue the publication and gratuitous distribution among the *Ledger's* patrons, and each successive year has the work improved. By the favor of the publisher, we have before us, neatly bound, six years' numbers of his almanac, which make a handsome volume of 350 pages of very valuable information, on both local and general subjects, not attainable in so complete a form in any other work.

LEFFEL'S MILLING AND MECHANICAL NEWS. Fifty cents per annum. James Leffel & Co., Springfield, Ohio.

To persons interested in milling machinery or water power, this paper issued each month, possesses especial interest. The editor is an admirer of the *SCIENTIFIC AMERICAN*, and in his April number promulgates the fact as follows: "It is a matter of just congratulation to Americans that, whatever may be the assumed superiority of European standards in art and literature, this country has at least one scientific journal which so signally eclipses any foreign publication of the kind that a comparison can scarcely be made. We refer, of course, to the *SCIENTIFIC AMERICAN*, published by Messrs. Munn & Co. 37 Park Row, New York city. Besides being a recognized authority and inexhaustible medium of information in the whole domain of practical science, it is faultless in its appearance, and its illustrations are works of art. Its subscription price is \$3.20 per annum, postage prepaid, and the immense circulation it has reached is a proof of the advancing intelligence of the American people."

ORNAMENTAL DESIGNS FOR FRET WORK, FANCY CARVING, AND HOME DECORATIONS. Price 60 cents. New York city: Henry T. Williams, 46 Beekman street.

This book contains a very varied and extensive assortment of original designs, and will be found useful by the numerous workers with the band or jig saw. Our correspondence shows that many of our readers devote their spare hours to this occupation, which is a pleasing manner of passing the time, and occasionally a source of profit, as well as a means of adding to the interior decoration of a home. To their attention, we commend the numerous patterns given in this volume.

THE FIRESIDE ASTRONOMER, a Plain and Familiar Description of All the Most Important Facts relating to the Heavenly Bodies. By S. N. Manning, A.M. Kankakee, Ill.: Times Office.

This unpretending little pamphlet deserves to be widely circulated, for it contains a very clear and succinct explanation of the general plan of the sidereal universe and of the science of astronomy by which its laws have been defined. Free from algebraic and trigonometrical formulae, it is written throughout in a simple and clear style, which lacks nothing in precision or accuracy. We cannot expect that our tyros in the sublime science will find a book better suited to their needs.

PAPERS ON THE TAILS OF COMETS, AND ON THE LOSS OF LIGHT IN ITS TRANSMISSION THROUGH SPACE. By Henry M. Parkhurst, New York city.

This is a reprint of a very interesting paper read by the author at the Hartford meeting of the American Association for the Advancement of Science, in August last.

NOTES ON EXPLOSIVES. By Walter N. Hill, S.B., Chemist, U. S. Torpedo Station, Newport, R. I.

This pamphlet is a useful and compendious account of the constitution, action, and effects of the various explosives now in use in engineering operations and in warfare. The information in it has never, we believe, been collated before, and it is likely to be valuable to several important interests.

LECTURE ON THE WHITEHEAD TORPEDO. By Lieut. F. M. Barber, U. S. N., Torpedo Station, Newport, R. I.

A readable account, historical and descriptive, of an engine of destruction which now occupies the attention of naval men, as likely to play a most important part in future warfare.

A PRACTICAL TREATISE ON FRICTION OF AIR IN MINES. By the late J. J. Atkinson, Government Inspector of Mines for the County of Durham, England. Price 50 cents. New York city: D. Van Nostrand, 23 Murray and 27 Warren streets.

This little book throws much light on a subject little noticed in popular treatises on mining engineering; and it deserves to be attentively read, for it shows how readily the whole system of ventilation of a mine may be disturbed, and its efficiency destroyed, by the very currents intended to ensure a supply of pure air and free exit for foul gases.

INTEROCEANIC CANAL (Route of Pava). By L. Laoharne.

The author of this work desires to call public attention to the Pava of Pava as a route for the much discussed ship canal between the Atlantic and Pacific Oceans. He states that the Pava has always been followed by the Indians crossing the Isthmus, and claims, with apparent reason, that, by following it, a canal can be quickly and cheaply executed.

THE DENTAL SCIENCE AND QUARTERLY ART JOURNAL. Conducted by Dr. A. P. Merrill. Volume I, No. 1. One Dollar a year. New York city: E. Richards & Co.

This new-comer appears to be well and carefully edited, and is altogether a promising magazine for the use of the dental profession.

JOURNEY IN HONDURAS AND JOTTINGS BY THE WAY. By R. G. Huston, C.E., Honduras and Interoceanic Railway. Price 50 cents. Cincinnati, Ohio: Robert Clarke & Co.

A pleasant account of a country which attracts a great deal of attention just now, but the physical features of which are little known.

THE GRAHAMITE ASPHALT PAVEMENT ON FIFTH AVENUE, NEW YORK CITY. New York city: Francis and Lourel, 45 Maiden Lane.

Mr. J. L. Graham invites public attention to this pamphlet, in which the facts as to the durability and excellence of his system and material for paving are duly set forth and verified by testimonials.

ANNUAL REPORT OF THE CHIEF ENGINEER OF THE WATER DEPARTMENT OF PHILADELPHIA, PA., FOR 1874.

CATALOGUE OF THE OFFICERS AND STUDENTS OF THE SCHOOL OF MINES, COLUMBIA COLLEGE, NEW YORK CITY, FOR 1874-1875.

SCRIBNER'S MONTHLY for May contains the first illustrated and complete description of the new opera house in Paris which we have seen published on this side of the Atlantic. There is, besides, an electro-mechanical romance, which tells how two lovers, one a railroad engineer and the other a telegraph operator, utilized an abandoned wire to make a circuit which the passing locomotive closed, and so rang a bell in the operator's office, thus warning her of the approach of her John's engine. This neat little contrivance, while a special train full of railway magnets is standing at the depot gives unexpected warning of the coming of a lightning express. The young lady rushes frantically up the line just in time to stop the approaching train and arrest a horrible accident—and of course, in the sequel, she and her intended are bountifully rewarded. It is a pretty little story, charmingly told, and, besides, conveys a possible hint for an invention. The rest of the papers are of the usual standard of excellence, and the illustrations plentiful and good. Jules Verne's "Mysterious Island" is continued, and there is a valuable illustrated article on "Drainage in Holland." Scribner & Co., Publishers, 73 Broadway, New York. \$4 a year.

THE ECLECTIC MAGAZINE for May offers a well varied and excellent table of contents, selected from the foremost of contemporary periodicals. Professor Huxley's "Results of the Challenger Expedition" is given in full. The Professor arrives at the conclusion that "all the chief known constituents of the crust of the earth may have formed living bodies; that they may be the ash of protoplasm, and consequently that the time during which life has been active on the globe may be indefinitely greater than the period, the commencement of which is marked by the oldest known rocks, whether fossiliferous or unfossiliferous." This paper will repay careful perusal, as will indeed the other scientific essays, notably the "Limits of Science," and the "Reproduction of Organisms," with which the present number is rich. Thomas Carlyle's "Early Kings of Norway," and Julian Hawthorne's "Stone and Plaster" are continued; and there are the usual serial and other stories and editorial summaries. E. R. Pelton, Publisher, 108 Fulton street, New York city. \$5 per year.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From March 30 to April 13, 1875, inclusive.

BOOTS AND SHOES.—L. Heath, Boston, Mass.
BRICK KILN, ETC.—E. W. Bingham, Portland, Oregon.
CAR DRAW AND BUFFER.—A. B. Pullman (of Chicago, Ill.), London, Eng.
CUTLERY, ETC.—O. W. Taft, New York city.
DERAILMENT INDICATOR.—J. Turner (of Chicago, Ill.), London, England.
FRICTION MATCH MACHINERY.—McC. Young, Frederick, Md.
GRADUATED RULE, ETC.—Hastings & Co., Granby, Conn.
LOOM.—J. F. Wicks, Providence, R. I.
LOOM PATTERN CHAIN.—J. F. Wicks, do.
MAKING SUGAR.—F. O. Matthiessen, New York city.
NET MACHINERY.—W. Charles, Chartiers, Pa., do.
PAPER BOX.—L. A. Kettle, Philadelphia, Pa.
RAILWAY WHEEL.—R. N. Allen (of Hudson, N. Y.), London, England, et al.
RECORDING STEAM GAGE.—M. B. Edson, New York city.
SUSPENDERS.—S. W. Fisk, New York city.
TRAMWAY, ETC.—A. S. Hallide (of San Francisco, Cal.), London, England

Recent American and Foreign Patents.

Improved Ore Separator.

Thomas B. McConaughy, Newark, Del.—In using the machine, water is admitted at the upper forward end of a wash trough, and the ore is fed in at its lower rear end. The ore is moved through the channels of the trough against the stream of water by shovels, and is pushed by said shovels from the forward end of the said trough. The ore falls upon the screen, and the fine ore passes through the holes. The coarser ore and the rubbish are carried across the screen by its motion, and fall upon the apron of the carrier. The coarser stones and rubbish are removed by hand from the carrier apron as the stream of ore is being carried forward, and the remainder falls from the carrier into a receiver.

Improved Loom Shuttle.

James M. Peckham, Fall River, Mass.—This improvement consists in a metallic holder for the tension cloth and grooves cut in the shuttle from the shuttle opening to the eye recess. These grooves allow the holder containing the tension cloth to be shoved in to hold the tension cloth in the proper position. The holder is made of a single piece of sheet metal having two tongues doubled over on the plate. The cloth is slipped in between the plate and the tongues. The holder is slipped into the grooves, and the thread is passed over the cloth, which affords the necessary tension.

Improved Laboratory Gas Burner.

Charles D. Cheney, Canandaigua, N. Y.—The base is of concavo-convex form, having a hollow center extending down below its lower side. A small tapering tube receives the gas from the gas pipe, and delivers it in a small jet into the center of the burner tube, entering through an aperture in the hanging center. It is provided with a dovetailed lug, which fits a corresponding notch, the form of the notch being such as not to prevent sliding the tube endwise sufficiently to release the lug. A valve is made to close over the end of the center by means of the rod to which the valve is attached, which rod extends up through the base, with the lever on its upper end. This lever is moved back and forth between stops, and the extent or size of the flame is regulated thereby.

Improved Oiler.

Isaac Levy, Ellaville, Fla.—This oiler is so constructed that it may be first used for blowing off the dust, shavings, etc., from the places where the oil is to be applied, and afterward may be used for applying the oil. It is made in two parts—one made of sheet metal, for the oil, and the other made of india rubber, for the air—said parts being separated by a division plate, and each part being provided with its own nozzle.

Improved Bench Plane.

John E. Norwood, Boston, Mass.—The stocks is provided with side openings, through which the cutting iron, which is made with side extensions, is permitted to pass out flush with the outside. The cutting iron is rigidly fastened and adjusted, and allows of the use of the plane for cutting rabbets, or as a block plane, for trueing up miter joints or cutting across the ends of the wood.

Improved Comb.

Elias Brown, Wappinger's Falls, N. Y.—This is a neat and convenient comb for holding the ringlets or curls at the back of the head and preventing their falling forward; and it consists of two symmetrically arranged combs with curved connecting arms, which are pivoted together, to be introduced sidewise into the hair.

Improved Clothes Wringer.

Israel F. Brown, New London, Conn.—This invention consists of a shaft with anti-friction rollers interposed between the journals of the squeezing rollers and their bearings, so that the journals turn upon the faces of the rollers, while their shafts turn on the bearings, so as to diminish in large measure the resistance due to the great pressure of the journals on the boxes, and thus enable the machine to be turned much easier than the wringers usually are.

Improved Vulcanizing Apparatus.

William J. Birdsall, Naugatuck, Conn.—The rubber goods are vulcanized in a steam-heated chamber, and are thus rendered soft and silky to the touch, and superior to those vulcanized in dry heated air.

Improved Platen for Lever Presses.

John F. Taylor, Charleston, S. C.—This invention rests in the construction of a compound platen for a progressive lever or toggle joint cotton press, and it consists of a stationary part and a movable part, one part having cylinders and water ways, and the other part having rams or pistons and a suitable packing. It also consists in the method of regulating the space between the two parts of the platen by forcing water in, and letting the same out from between the stationary and movable portions of the said platen.

Improved Steam-Encased Engine Cylinder.

James E. Taylor, Westminster, Md.—This invention relates to certain improvements in steam-encased engine cylinders, and it consists in the peculiar construction of the steam dome in combination with the steam-encased cylinder, whereby the latter is relieved from the direct pressure of the entire subjacent body of steam, the tendency to become strained and loosened from the dome obliterated, and the consequent leakage of steam prevented.

Improved Self-Raising Seat for Water Closets.

James E. Walter, Baltimore, Md.—This invention relates to certain improvements in seats for water closets, whereby the same are rendered self-raising. It consists in two hinges having a common pintle, upon which, between the hinges, two parts of a spiral spring are wound in opposite directions from the middle, the central portions of the spring being secured to the frame work of the basin or closet, and the two extreme ends of the spring being inserted in holes in the edges of the seat to elevate the same. It consists also in the combination with the said spring and hinge of a cylindrical protective casing of sheet metal.

Improved Railway Safety Switch.

Edward A. Trapp, Davenport, Iowa.—This invention relates to certain improvements in railway safety switches, and it consists in a main rail having its bottom flange cut, flared inwardly, and bent up to form a horizontal guide, in combination with leading tongues, a volute spring, and a spring rail having its bottom flange extended so as to move under the guide formed by the out portion of the main rail. By means of the peculiar construction of the switch, guard rails are dispensed with, the switch made self-adjusting in one direction, and a continuous line of rails always insured to and from the switch.

Improved Cooler for Lard, etc.

Frank C. Pray, New York city.—The essential features of this invention consist in devices whereby the lard is bleached, after having been cooled, by being separated through the perforations of bottom sieve and caused to drop in small globules through the air. The invention is also intended for cooling milk and any oleaginous matter, and may be seen in operation at the store of the inventor, 333 West 12th street, as above.

Improved Piston Packing.

James L. Sherman, Cassville, Wis.—This invention consists in the construction and arrangement of divided and grooved rings to form the packing of a steam piston rod, and a cup-like device for containing said rings and receiving the steam, which acts on and compresses them upon the rod.

Improved Pen Holder.

John Boyd, New York city.—This is a flexible connection of the pen to the holder, made by connecting the tube of the penholder to the handle by a rubber band at the upper end, and a spring below, so that the point of oscillation is at the upper end of the tube. This is said to give better results than when the pen is connected to the lower end of the tube by a spring, so that the axis of motion is at the lower end. A further improvement on the penholder in common use is effected by placing an eccentric spring tip on the spring, which fills the hollow tube of the penholder. The pen is placed between the tip and the tube, at the smaller diameter of the latter, and bound in its place by turning the tip.

Improved Twine Holder.

Jonathan Hill, Stanhope, N. J.—The twine box contains the ball, from which the twine is passed along a hollow axle, out through the side, around a drum, thence to the guide eye in the ceiling, from which it is to be suspended over the counter. It passes also through the guide eye of a trip lever, so that when it is pulled off the ball the tension will lift the lever, and, by swinging the axle support, shift the drum out of gear with the regulating device, which is intended to act when the recoil takes place to slow the action of the spring. When the twine is pulled off from the drum, it will wind up the spring, to turn the drum back to wind on the slack again.

Improved Machine for Crushing Oleaginous Seeds.

Alfred B. Lawther, Chicago, Ill.—This machine has crushing rollers of great power, to which the seed is fed, under certain pressure, by an upright supply pipe, of suitable height, having a fluted feeding roller and hopper at the top end. The oil seeds are forced through the feed pipe, and compelled to pass through the rollers, which, by the uniformity and power of their motion, crush the seeds and break the oil cells completely, without reducing any portion to pasty condition, leaving also the husks or bran comparatively coarse, so that it may be seen in the cake after pressing. The crushed seeds are then passed to the mixing and moistening machine, doing entirely away with the muller stones, and producing a greater yield of oil with less power, less labor, and less pressure on the oil-extracting presses.

Improved Chuck for Making Swelled Tenons.

Alexander D. Ruff, Owingsville, Ky.—This invention consists of a pin and a lever, combined with a sliding tool in a revolving chuck, in such manner that the end of the piece on which the tenon is to be formed forces the tool, having an irregular edge for making swelled tenons, down against the side to dress off the tenon, by pushing the pin backward as the piece enters the cavity of the chuck. The invention also consists of a spring, combined with the sliding tool, the lever, and the pin, so as to push the tool back out of the way of the swelled portion of the tenon when it begins to withdraw from the cavity of the chuck, and allow it to pass out without the swell being cut off.

Improved Ventilating Attachment to Hearths.

William S. Winfield, Cross Plains, Tenn.—This invention consists of a box-shaped attachment, with hinged and concaved lid and cinder basket, set into the floor below the grate, to communicate either with the story below, or by a pipe with the outside air, for supplying the required ventilation on the opening of the lid for the ready kindling of the fire, etc.

Improved Tongue Support for Vehicles.

James McCarter, Frankfort, Ind.—This is an improved spring support for wagon tongues, by which the jerky action of the tongue and the strain on the horses arising therefrom on the passage of the vehicle over rough and uneven ground may be to considerable extent avoided. The invention consists of a U-shaped piece of spring wire, which carries, at the front part, a tongue-supporting pulley, being bent spirally around side pulleys of the pivot bolt, connecting tongue, and bounds, and applied with the rear ends equidistant from the king bolt to the front axle.

Compound Switch for Fire Alarm Telegraphs.

Samuel Weeks, New Orleans, La.—This is a compound switch for fire alarm telegraphs, for throwing by one movement a series of switches into circuit. It is composed of a series of upper switch fingers, establishing and breaking circuit of main alarm battery, and of a set of lower spring fingers for closing and opening the local batteries, in combination with an intermediate insulated crank shaft, and with opposite non-conducting cam extensions. The whole is so arranged that a turn of the crank shaft causes simultaneously the contact of the upper fingers and the disconnecting of the lower, or the breaking of contact of the upper and the closing of the lower.

Improved Screw-Cutting Die Plate.

Horace Griffing, New Haven, Conn.—This consists of two separate dies fitted in a recess in the side of the plate by being boxed there to and bolted fast, so that they can be readily taken off, by removing the bolts, for changing and sharpening. The dies are provided with slotted holes for the passage of the bolts by which they are fastened to the plate, to allow them to be adjusted to suit the size of the pipe to be cut. The screws for adjusting the dies are fitted in hollow handles, which are also jointed near the plate, and the detachable portions have a socket in the end to receive the projecting shank of the screw when screwing into the portion formed on the plate.

Improved Miter Box.

Theodore C. Lawrence, Ladoga, Ind.—This invention consists of a metallic recessed guide casing, in which the saw runs by means of detachable clamped extension strips, a central wooden strip preventing the getting dull of the teeth. Wing-shaped side plates of the casing bear pivoted clamp plates, which may be set to any angle on the supporting wing plates. The clamp plates are provided with sliding and guided strips for fastening the molding securely by strong clamping screws, to expose it to the saw or connect the corners. The solid metallic construction of the miter box produces the permanent and accurate working of the same without the inaccuracies of the variable wooden boxes.

Improved Steam Brake.

Thomas F. Fouts and Elijah Planck, Burlington, Iowa.—This is a steam cylinder and piston, arranged transversely of the locomotive, and geared by a toothed rack attached to the piston rod with a revolving line shaft, which extends along the train from car to car, and winds up the chains which work the brakes. The steam is supplied from the locomotive boiler, with which the engine is connected by a pipe, to admit steam at one end for applying the brake. Springs are used to force the piston back. The line shaft is in sections, one for each car, which are coupled by socket couplings, which slide forward and backward as the train slack and extends.

Improved Machine for Coiling Metal Rods.

Phlander H. Standish, Jefferson City, Mo.—The mandrel consists of a plain flat bar of steel, wide and thick as the largest coil to be bent, with an oval tapered point, graduated from the size of the largest to that of the smallest coil to be made. The bar is fitted in the hollow shaft of the driving wheel, so as to be shifted along it, to cause the tapered point to project under the bending wheel more or less, according to the size of the coils to be made. A collar at each end of the hollow shaft holds it wherever it may be set, to utilize the same machine for coils of all sizes.