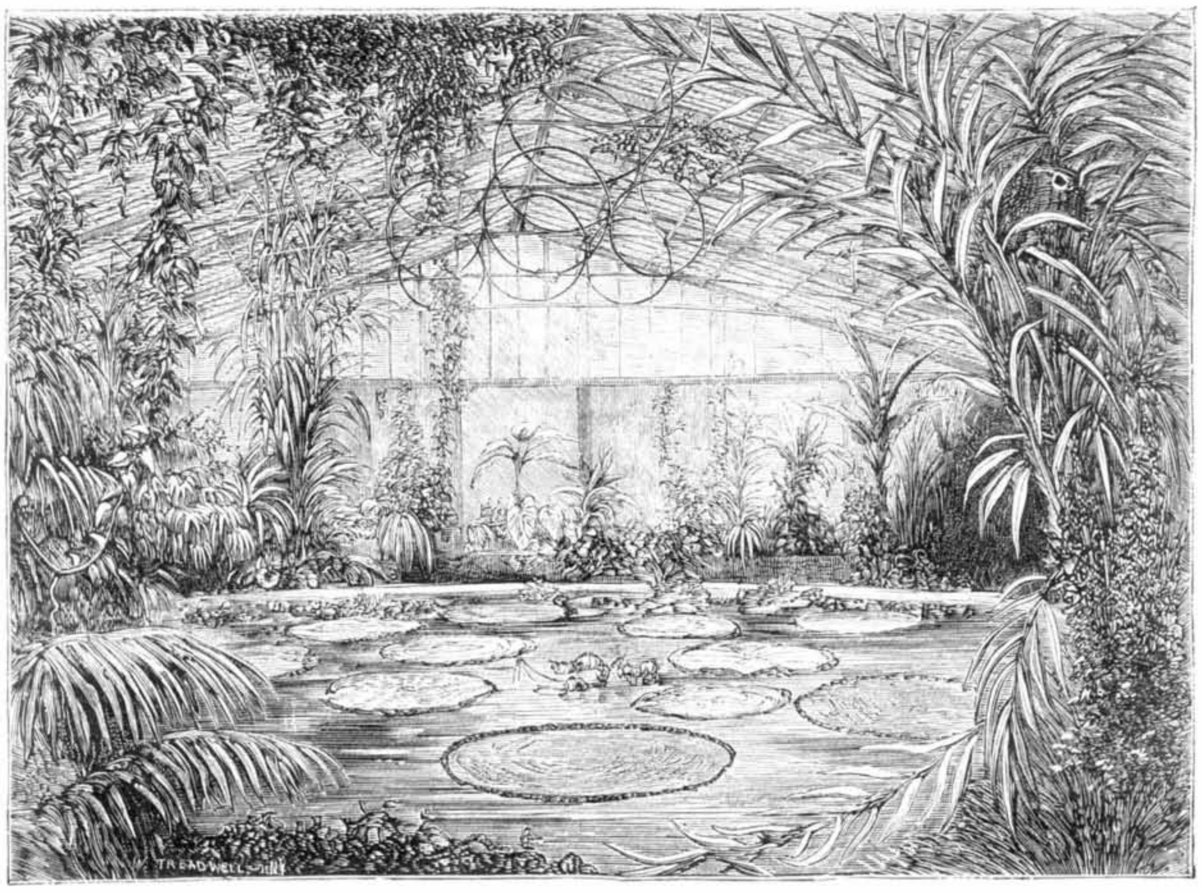
THE VICTORIA REGIA HOUSE AT CHATSWORTH, ENG.

The celebrated residence of the Duke of Devonshire, at Chatsworth, owes its renown to the grand scale on which the science of horticulture is there carried on. The credit of the formation of the gardens, as they at present exist, is due to Mr., afterwards Sir Joseph, Paxton, whose ingenious system of ridge and furrow glasshouse building, first designed by him for the Duke's hot houses, was carried out on a very large scale in the structure for the Great Exhibition of 1851, which is now the Sydenham Crystal Palace. The vineries, pineries, strawberry beds, and vegetable gardens at Chatsworth are such as only the highest taste and skill, supplemented by great wealth, could organize and maintain.

We present herewith a view of the hot house in which the Victoria Regia, the superb water lily of the Amazons, is to be seen in its greatest luxuriance. The large tank, seen in the center, says *The Garden*, to which we are indebted for the illustration, contains another tank, 16 feet in diameter, and considerable deeper than the outer portion; this contains the soil in which the Victoria lily is planted. The walls of the tanks are built of brick, and the bottom is paved with stone; the tanks are lined with lead throughout, and the two inch hot water pipes which supply them are also made of lead.

While the plant is growing, a little wheel, in the form of an overshot mill wheel, is fixed near the edge of the tank, and continually kept in motion by a small jet of water from a tap immediately over it; thus the surface of the water is always rippled. The Victoria Regia, being an annual, dies in November, when the water in the tank is drained off, and the soil contained in the inner part removed. The lilies in the angular tanks, being also out of season, are, about the same time, mostly cleared away and stored in troughs filled with water in the cucumber house. The aquarium, thus stripped of its summer occupants, is filled in winter with large chrysanthemums for furnishing cut blooms. As the Victoria lily annually produces and ripens a good stock of seeds, these are preserved in vessels of water until sowing time comes round, which is generally about the middle of December, or between that and January. The plants are potted singly, and re-potted as they advance in growth, until they have attained sufficient strength, when the best plant is planted out in a heap of fresh soil. At Chatsworth this lily luxuriates better and flowers more freely than it does in any other place in England, the largest leaves in summer measuring as much as 7½ feet in diameter.



THE VICTORIA REGIA HOUSE AT CHATSWORTH. ENGLAND.

Nickeling.

BY S. P. SHARPLES, MASSACHUSETTS STATE ASSAYER.

In answer to numerous inquiries, I again give a brief description of the process of nickeling. The patent is still before the courts, and no decision has been reached in regard to it.

The double sulphate of nickel and ammonium, which is the salt that is generally used, may now be had in commerce almost pure. It is manufactured on a large scale by Joseph Wharton, of Camden, N. J., who controls the nickel market in this country. Cast nickel plates for anodes may be obtained from the same source. The anodes should considerably exceed in size the articles to be covered with nickel. Any common form of battery may be used. Three Daniell's or Smee's cells, or two Bunsen's, connected for intensity, will be found to be sufficient. The battery power must not be too strong, or the deposited nickel will be black. A strong solution of the sulphate is made and placed in any suitable vessel: a glazed stoneware pot answers very well if the articles to be covered are small. Across the top of this are placed two heavy copper wires, to one of which the articles to be covered are suspended, to the other the anode. The wire leading from the zinc of the battery must then be connected with the wire from which the articles are suspended, the other battery wire being connected with the anode.

In order to prepare the articles for coating, they must be well cleaned by first scrubbing them with caustic soda or potash, to remove any grease, and then dipping them for an instant in *aqua regia* and afterwards washing thoroughly with water, taking care that the hand does not come in contact with any part of them. This is accomplished by fastening a flexible copper wire around them, and handling them by means of it. The wire serves afterwards to suspend them in the bath.

If the articles are made of iron or steel, they must be first covered with a thin coat of copper. This is best done by the cyanide bath, which is prepared by dissolving precipitated oxide of copper in cyanide of potassium. A copper plate is used as an anode. After they are removed from the copper bath, they must be washed quickly with water and placed in the nickel bath; if allowed to dry or become tarnished, the nickel will not adhere.

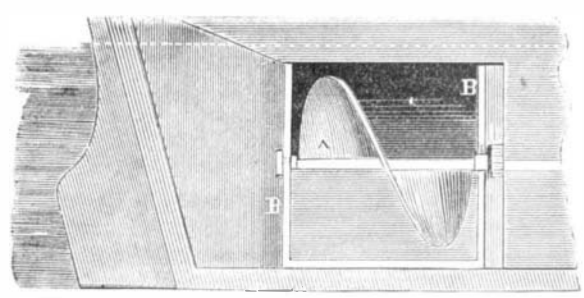
Great care must be used through the whole process to keep all grease, dust, or other dirt from the articles to be covered, or else the result will be unsatisfactory. The whole process is one of the most difficult that is used in the arts, it being far easier to gild, plate, or copper an article than to nickel it; but if due care be taken, the results will amply pay for the trouble.—*Boston Journal of Chemistry.*

SIR FRANCIS PETTIT SMITH.

Sir Francis Pettit Smith, an inventor whose celebrity in connection with the development of screw propulsion and its introduction into steam navigation is worldwide, recently died in England. We publish herewith a portrait of this eminent man.

Like many others to whom mankind is indebted for great inventions, he began life as a farmer, a calling which gave little promise of leading him to the conceptions which have

terminated in such priceless results. Possessed of a strong taste for mechanics, however, he soon abandoned agricultural pursuits to prosecute his favored study, and to carry on investigations and experiments in the subject which, from an early date, engrossed almost his entire thoughts. In 1834, at twenty-six years of age, we find him trying models of boats propelled by a screw and driven by powerful springs, and a year later exhibiting his plans in London, and seeking to convince others of their feasibility. From this period dates his public—if so we may term it—life, and contemporary journals now come to our aid in preparing this brief account of his labors. An old volume of the English *Mechanics' Magazine* is before us, and in its pages, now yellow with time, we find the reports of the earliest trials of the then novel mode of propulsion. Let us here remark that to the subject of our sketch is not due the credit of inventing the screw propeller; for as early as 1727, one Duquet, a Frenchman, proposed to force a "vessel up a river against the current by means of screws," and there are no less than fifteen mentions of applications of the principle—including two American patents for "screw propelling wheels to boats," and for "a screw or spiral lever for propelling vessels"—of prior date to the patent of Sir Francis; but to him, however, is to be ascribed the honor of first successfully demonstrating the practicability of the plan by devising a means and proving its value by direct experiment. The patent of Sir Francis is dated May 31, 1836, and it claims "a propeller, whether arranged singsingly in an open space in the dead wood, one on each side of the same, or more forward or more aft, higher up or lower down, completely or partially immersed." This was afterwards modified to make the screw of a single thread, a double thread, or of a thread of two turns, located singly in the center of the dead wood. On obtaining his letters, Sir Francis constructed a small steamboat of 10 tuns burden and six horse engine power, which he tried on the Paddington canal and on the Thames river with satisfactory results. During the following year she was put to sea, visiting points along the coast, and proving so completely successful that the Lords of the Admiralty directed further investigation into the invention, with a view of its introduction into the Royal Navy. Mr. Smith, aided by the Messrs. Rennie, engineers, then constructed a larger vessel, the Archimedes, a ship 155 feet long, of 237 tuns burden, and ninety horse power engines. The old periodicals before us contain numerous reports of this boat's performances, but there is a vein of dubiousness running through all the comments, that shows that the editor had little faith in the new fangled idea.



In 1839, however, he published a cut of the new vessel, a portion of which, showing the screw, we reproduce in facsimile. A, the blade of the propeller, forms an angle of about 40° with the shaft, and is made of iron plates. B is the frame in the dead wood of the vessel. The diameters of the screws used were 5 and 7 feet, and their lengths 7½ and 8 feet. It is curious, at this day, to read the remarks made upon the invention, in the article accompanying the engraving: "It has, altogether, great defects, which will prevent it from competing with the common paddle wheel, both in point of economy and of power:" "Useless, on account of the impracticability of keeping the whole screw under water:" "Engines and boilers will require the whole space up to the deck:" are examples in point. In a number of the same journal, of later date, is a most elaborate treatise on the subject, in which the author completely demonstrates the screw to be absolutely worthless; but despite this wholesale condemnation, the inventor calmly continued his experiments, built more vessels, and ended by proving his device so unequivocal a success that the Government began to apply it to naval ships. In 1842 H. M. S. Rattler was constructed, and a series of investigations made by Mr. Smith and Mr. Brunel to determine the best proportions of the screw; while, at the same time, another craft, the Alecto, was built on precisely the same lines as the Rattler, but with paddle wheels, in order to institute a comparative test. The superiority of the Rattler was so evident that the Admiralty at once ordered the Queen's yacht Fairy and twenty other vessels to be built for screw propulsion under Mr. Smith's direction.

The subsequent rise and progress of the system is within the memory of most of our readers. Before 1850, when Sir Francis retired from the business, more than a hundred vessels of all classes were built or in process of construction. At the present day, by far the majority of steamships in the world are propellers, and but a single side-wheel vessel is to be found among the great lines which ply across the Atlantic.

Some three years ago Mr. Smith was knighted, in recognition of his eminent services; and for a considerable period he held the post of Curator of the Patent Office Museum at South Kensington, England. The Admiralty purchased his patent right for $100,000.

New Imitation of Silver.

In the SCIENTIFIC AMERICAN of January 24, is described a patented process for obtaining a metallic alloy which resembles silver better than any substance yet known, with respect to color, specific gravity, malleability, ductility, sound and other characteristics. The new alloy is a compound of copper, nickel, tin, zinc, cobalt and iron. If this new metal is as perfect as represented, there may be a good chance for coin counterfeiters, etc., to start a flourishing business in making trade dollars, halves, quarters, etc. We had a call this week from a distinguished personage in this city, whose authority and influence is well known to members of our community. He thinks the metal referred to should not be made, and has therefore issued the following

PROCLAMATION:

Fearing that the granting of a patent for the imitation of silver, such as mentioned in the SCIENTIFIC AMERICAN of the 24th day of January, 1874, may lead to endless frauds in the silver currency of the country, *now, therefore*, we, Norton I, *Dei Gratia* Emperor of the United States and Protector of Mexico, do hereby command the Commissioner of Patents to cancel the said patent, and declare the manufacture of such a metal a penal offence.

NORTON I.

Given in San Francisco, Cal., this 3d day of February, 1874.—*Mining and Scientific Press.*

Dr. Hall and the Scientific American.

It is not often that we copy what others say of us, but the following comes from one whose opinions are so generally respected that we select it from a multitude of other testimonials, and give it place:

"SCIENTIFIC AMERICAN. Weekly. $3 a year. Now in its 30th year. It is one of the best conducted newspapers in the country, and in its line it has not an equal in ability in the world. It is not only adapted to the wants of mechanics, inventors, and scholars, but, as a family paper, giving most valuable information of a domestic character and about home life, it merits very general patronage. Moral, reliable, and self-respecting."—*Hall's Journal of Health.*

REPORTS OF THE FRANKLIN INSTITUTE COMMITTEE ON THE MODE OF DETERMINING THE HORSE POWER STEAM BOILERS.—As may be learned from our advertising columns, the reports of this committee, which contain the results of much research, of value to engineers, are now printed in pamphlet form and for sale at the Institute.

IMPORTANCE OF ADVERTISING.

The value of advertising is so well understood by old established business firms that a hint to them is unnecessary; but to persons establishing a new business, or having for sale a new article, or wishing to sell a patent, or find a manufacturer to work it: upon such a class, we would impress the importance of advertising. The next thing to be considered is the medium through which to do it.

In this matter, discretion is to be used at first; but experience will soon determine that papers or magazines having the largest circulation, among the class of persons most likely to be interested in the article for sale, will be the cheapest, and bring the quickest returns. To the manufacturer of all kinds of machinery, and to the vendors of any new article in the mechanical line, we believe there is no other source from which the advertiser can get as speedy returns as through the advertising columns of the SCIENTIFIC AMERICAN.

We do not make these suggestions merely to increase our advertising patronage, but to direct persons how to increase their own business.

The SCIENTIFIC AMERICAN has a circulation of more than 42,000 copies per week, which is probably greater than the combined circulation of all the other papers of its kind published in the world.

PATENT OFFICE DECISIONS.

United States Circuit Court---District of Massachusetts.

PATENT MARINE PAINT.—JAMES G. TARR *et al.* *vs.* CHARLES E. FOLSOM.

[In Equity.—Before Shepley, Judge.—Decided January 1, 1874.]

In an original patent for a paint for ships' bottoms, "copper ore in the form of an oxide" was specified as one of the ingredients, and a preference was expressed for "the oxide of copper made from pyritous friable ores;" a reissue of the patent was sustained, although it mentioned that such ores contained other substances which retarded the solution of the oxide of copper, and described that ingredient as made by roasting the pyritous friable ores exposed to air, the article thus produced being well known in the arts.

Proof that the samples deposited in the Patent Office with the original application do not correspond with the ingredients specified in the reissue will not impair its validity; whether an applicant has complied with the the requisites for obtaining a patent is for the Commissioner to determine, and the court will not revise his action.

If a paint has been before known including as essential ingredients oxide of copper and antimony mixed with copper to harden the whole, it is a patentable novelty to dispense with the antimony and use the oxide of copper without it, and to add earthy ingredients which retard the solution of the copper.

A suggestion contained in a prior patent for purifying oil of turpentine and naphtha, and dissolving in them india rubber and the like, that such solutions may be combined with the oxides or salts of copper, and applied to ships' bottoms, which is impracticable, will not affect the validity of a patent for a paint composed of tar, naphtha, and oxide of copper.

A paint containing oxide of copper and oxide of iron, to retard the solution of the copper, is an infringement of a patent for a paint prepared from a natural ore containing oxide of copper and earthy matters, which retard its solution.

This is a bill in equity for an alleged infringement of letters patent granted to defendants on the third day of November, 1868, and reissued on the seventeenth day of October, 1871, in two divisions, for an improved paint for ships' bottoms, or marine paint.

Decree for injunction as against division B of complainants' patent, and for an account, as prayed for in the bill.

Brown & Holmes, for complainants.

J. W. Clarke, for defendant.

Supreme Court of the United States.

PATENT WAGON REACH.—PHILIP HICKS, APPELLANT, *vs.* GEORGE KELSEY.

[Appeal from the Circuit Court of the United States for the Northern District of Illinois.—October Term, 1873.]

A wagon reach of wood strengthened by straps of iron on each side, and curved to allow the fore wheels to pass under, being well known, it required no invention to dispense with the wood and bolt the straps together, or to forge them in one piece; and a patent for a reach thus made was declared void for want of novelty in the invention.

Mr. Justice Bradley delivered the opinion of the court:

Hicks, the appellant in this case, obtained a patent for an improved wagon reach, and filed a bill against the defendant charging infringement and praying the usual relief. The defendant answered, denying the novelty of the alleged invention, and also denying infringement.

The reach claimed as new had an upward bend or curve to allow the forward wheels to turn under it in turning the wagon. It was admitted that reaches of this sort had long been used, made of wood strengthened by straps of iron attached to each side of the reach. The supposed improvement of the plaintiff consisted in leaving out the wood in the curve and bolting the iron straps together, whereby the curve became all iron and less bulky, but in all other respects having the same shape and performing the same office as before. Instead of being bolted together, the straps might be welded so as to make the curve consist of solid iron.

The question is whether this mere change of material, making the curve of iron instead of wood and iron, was a sufficient change to constitute invention, the purpose being the same—namely, to turn the wheel under the body of the wagon—the means of accomplishing it being the same—namely, by a curved reach—and the form of the reach and mode of operation being the same? It is certainly difficult to bring the case within any recognized rule of novelty by which the patent can be sustained. The use of one material instead of another in constructing a known machine is, in most cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention, unless some new and useful result, an increase of efficiency, or a decided saving in the operation, is clearly attained. Some evidence was given to show that the wagon reach of the plaintiff is a better reach, requiring less repair, and having greater solidity than the wooden reach. But this is not sufficient to bing the case out of the category of more or less excellence of construction. The machine is the same. Ax helves made of hickory may be more durable and more cheap in the end than those made of beech or pine; but the first application of hickory to the purpose would not be, therefore, patentable.

Cases have frequently arisen in which substantially the question now presented has been discussed. Perhaps, however, none can be cited more directly in point than that of Hotchkiss *vs.* Greenwood, (11 Howard, 248,) in which it was held that the substitution of porcelain for metal in making door knobs was not patentable, though the new material was better adapted to the purpose and made a better and cheaper knob. So, in a case at the circuit, referred to by Justice Nelson in the last named case, the substitution of wood for bone as the basis of a button covered with tin was held not patentable. (11 How., 266.)

In Crane *vs.* Price (Webster's Pat. Ca., 409,) it is true, the use of anthracite instead of bituminous coal with the hot blast in smelting iron ore was held to be a good invention, inasmuch as it produced a better article of iron at a less expense. But that was a process of manufacture, and in such processes a different article replacing another article in the combination often produces different results. The latter case is more analogous to the cases of compositions of matter than it is to those of machinery; and in compositions of matter a different ingredient changes the identity of the compound, whereas an iron bar in place of a wooden one, and subserving the same purpose, does not change the identity of a machine. (See Curtis on Patents, 3d ed., secs. 70–73.)

But the plaintiff's counsel alleges that his invention does not consist of the mere substitution of a particular material which had been previously used for the same purpose in the same way, but consists in the production of a certain described article by a certain described mechanical process, which process, viewed as a whole, is new and useful; and then he describes what he supposes to be such new mechanical process. This is his argument; but the facts do not bear out such a view of the case. They are precisely and only as we have before stated them.

In our judgment the patent in this case is void for want of novelty in the alleged invention. The decree, therefore, must be affirmed; and it is affirmed accordingly.

Supreme Court of the United States.

PATENT SAWING MACHINE.—EUGENE S. EUNSON AND JACOB LAGOWITZ, PLAINTIFFS IN ERROR, *vs.* NORMAN W. DODGE, T. BENJAMIN MEIGS, AND WILLIAM E. DODGE.

[In error to the Circuit Court of the United States for the Southern District of New York.—October Term, 1873.]

If one who purchases a patented article from those who have no authority to sell it obtains an assignment for his territory of the patent for the original term, he is not liable for using the article after the patent is extended.

Mr. Justice Hunt delivered the opinion of the court.

This is an appeal from the Circuit Court of the United States for the Southern District of New York.

The bill alleges that Myers & Eunson were the original and first inventors of a sawing machine; that letters patent were granted to them therefor on the 23d day of May, 1854; that the patent was extended for seven years from May 23, 1868; that the complainants are the owners of the letters patent for the State of New Jersey; that the defendants have infringed the patent by the use of a sawing machine at Jersey City, Hudson county, New Jersey, during the extended time of the patent, without right or licence; that the complainants have thereby suffered great damage, and the defendants have made large profits.

The answer of the defendants admits the grant and extension of the patent; admits that the defendants use a sawing machine containing the patented devices and combinations; alleges that the defendants are the successors in business of the firm of Dodge & Co.; that Dodge & Co. bought the machine in question in 1865 from the Huntington Machine Works; that Dodge & Co. subsequently purchased all the right of the patentees in the *original* term of the patent for Hudson county, New Jersey, and used said machine in said county till January, 1869, when the business passed into the hands of the defendants, who have continued to use said machine ever since; and insists that, having owned the right for Hudson county, New Jersey, under the original term, they are protected, by virtue of the acts of Congress, in the use of the same machine during the extended term.

The agreed statement of facts admits that in 1865 the predecessors of the defendants bought of the Huntington Machine Works a machine which infringed the complainants' patent, and that the company selling to them had no right or licence to build or sell the same; that, upon being notified of the infringement, the purchasers bought of one Schureman, who was an assignee of the patentees, the right under the patent for Hudson county for the original term of the patent; that the defendants used the machine in that county during the original term, and have continued there to use it during the extended term. The judge at the circuit held that they had the right to use the machine during the extended term, and dismissed the complaint. It is from this decree that the complainants take their appeal.

The 18th section of the patent act of 1836 ends with these words, namely: And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interests therein. (5 Stat., 125.)

This court has decided many times that this section gives to an assignee of the patent during the original term the right to continue, during the extended term, the use of a machine used by him during the original term. (Wilson *vs.* Rousseau, 4 How., 646; Bloomer *vs.* McQuean, 14 How., 539; Chaffee *vs.* Boston B. Co., 22 How., 217; Bloomer *vs.* Millinger, 1 Wall., 340.)

The complainants seek to distinguish the present from the cases cited in this manner: In those instances, they say, the machines were lawfully constructed by the patentees, or purchased from the patentees or their assignees; whereas the machine purchased by the defendants in this case was not a lawfully made machine, and was never purchased from the owner of the patent. We are of the opinion that this distinction is not well taken. That the purchase of the machine was made from an infringer, and a wrong done, is true. When informed of the offence, the purchaser at once corrected the evil by purchasing the entire right of the patentees for the county where his machine was then used, and where it has since been used. This was equivalent to an original lawful purchase or manufacture of the machine. By the purchase of the right for Hudson county, and from the moment of that purchase, the defendants held and used the machine by a lawful title, as perfect and complete against the patentees as if the original purchase had been from them. They then became, in the language of the statute, "grantees of the right to use the thing patented," so continued to the time of the expiration of the original patent, and the right so to use was, in the further language of the statute, "the extent of their interest therein."

We are of the opinion that the decree of the Circuit Court was correct, and that it should be affirmed.

NEW BOOKS AND PUBLICATIONS.

PHYSICAL GEOGRAPHY. By John Young, M.D., F.G.S., F.R.C.S.E., etc. $1.50. New York: G. P. Putnam's Sons, corner of Fourth avenue & 23d street.

This book will prove a welcome addition to educational literature, from the fact that it collates, in compact form, the most recent knowledge regarding the physical condition of our planet. In discussing formation, the writer draws largely upon the teachings of geology, and in some degree upon those of astronomy, in every instance in which these sciences border upon his subject. Ethnological and archæological information of value is also incorporated, so that the work, as a whole, is a comprehensive and excellent treatise upon a study which may almost be considered a distinct science. A few illustrations are interspersed, and a copious index is added. As its title indicates, the book is a reprint, and is designed by the publishers as a portion of their Advanced Science Series.

THE AMERICAN HISTORICAL RECORD, AND REPERTORY OF Notes and Queries concerning the History and Antiquities of America, etc. Edited by Benson J. Lossing, LL.D. $4 per annum. Philadelphia: John E. Potter & Co., 617 Sansom street.

This valuable publication is still chiefly occupied in searching out and preserving information concerning the early history of our country, a work which is vitally necessary to our future historians, and which could scarcely be in abler hands than those of the eminent scholar and archæologist who edits it. Among the many publications which reach us, there is none that is more worthy of close and attentive reading.

THE PORTABLE ATLAS, consisting of Sixteen Maps. Constructed and Engraved by John Bartholomew, F.R.G.S. Price $1. New York: G. P. Putnam's Sons, corner of Fourth avenue & 23d street.

This is a reprint of an English work, and hence the majority of the maps relate to countries under British rule. The plates, however, are finely executed and printed, and are valuable in that they show the results of recent explorations. This is especially the case in the map of Africa, in which the localities now inseparable from the name of Livingstone are accurately laid down. The book, as its title indicates, is in portable quarto form.

SURCHARGED AND RETAINING WALLS. By James S. Tate, C. E. Also, TREATISE ON THE COMPOUND STEAM ENGINE. By John Turnbull, Jr. Nos. 7 and 8 of Science Series. Each 50 cents. New York: D. Van Nostrand, 23 Murray and 27 Warren streets.

These useful little publications deserve the attention of practical men. The book on the compound steam engine contains much valuable information on a subject which now attracts universal attention.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC, AND PHOTOGRAPHER'S DAILY COMPANION FOR 1874. Edited by J. T. Taylor. London: H. Greenwood. New York: E. & H. T. Anthony & Co., 591 Broadway.

A handy book of reference, excellently gotten up, and issued by the conductors of the *British Journal of Photography*, a publication deservedly well known to our readers.

THE BIRTH OF CHEMISTRY. By G. F. Rodwell, F.R.A.S., F.C.S. Price $1.25. New York: Macmillan & Co., 38 Bleecker Street.

This little work is a valuable *resume* of all that is known of the origin and history of the chief of the sciences. Mr. Rodwell's contributions to contemporary knowledge all bear the mark of much thought and originality, and deserve to be produced in a form more permanent than the pages of a weekly periodical. The publishers, therefore, have added this interesting book to the list of their *Nature Series.*

EVERY SATURDAY contains the cream of the English literary periodicals, and should be in the hands of every lover of light and entertaining literature. Two excellent serials, taken from advance sheets, are now in progress—one by Thomas Hardy, a rising English novelist to whom critics have accorded a position little inferior to that of George Eliot. A new editorial department, occupying the last two pages of each number, has been added; a change which cannot fail to render the journal even more acceptable, from the fact of its thus assuming an individuality which could not attain while remaining merely a collection of reprints. The publishers, Messrs. Hurd & Houghton, 13 Astor Place, New York, offer *Every Saturday* and the *Atlantic Monthly* together for $8 per annum, or *Every Saturday*, singly, for $5.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From January 2 to January 29, 1874, inclusive.

BOTTLE STOPPER.—N. Thompson (of Brooklyn, N. Y.), London, England.
COMPOUND STEAM ENGINE.—T. L. Jones, Natchez, Miss.
CUTTING PIPE, ETC.—F. W. Allin, New York city.
ELECTRIC ANNUNCIATOR.—L. Finger, Boston, Mass.
ELECTRIC MACHINE.—H. J. Smith, Boston, Mass.
ELECTRIC TELEGRAPH.—W. E. Sawyer, Washington, D. C.
ELECTRIC TELEGRAPH.—J. B. Stearns (Boston, Mass.), London, Eng., *et al.*
HOIST.—W. Hart, Philadelphia, Pa.
INDICATOR.—S. D. Tillmann, Jersey city, N. J.
KALEIDOSCOPE.—J. Collicott, Boston, Mass.
LAMP.—C. H. Leighton, Lowell, Mass.
LAMP.—T. S. Williams *et al.*, Boston, Mass.
METAL PAIL, ETC.—H. W. Shepard, Brooklyn, N. Y., *et al.*
MODE OF COMBUSTION.—D. T. Casement, Painesville, Ohio.
PROPELLER.—J. S. Morton, Philadelphia, Pa.
REDUCING FURNACE.—J. Wilson, Dover, N. J.
REGENERATIVE FURNACE.—T. S. Blair, Pittsburgh, Pa.
RIBBON LOOM, ETC.—E. P. Chapin, Providence, R. I.
ROTARY ENGINE AND PUMP.—W. R. Manley, New York city.
SEWING MACHINE CABINET.—H. R. Tracy *et al.*, New York city.
TOY.—W. A. P. La Grove, New York city.

Recent American and Foreign Patents.

Improved Pneumatic Station Indicator.

James P. Kealey and Joseph Rigney, Bridgeport, Conn.—A case contains a roller and a chain of name plates. The roller is turned the width of one face at each station to present the plates having names of the stations in front of the sight opening, and the name plate chain cannot be carried beyond the point of showing the name of the last station on the route, in case the car should be run beyond its route on another section or division, and it is held ready for running back on its own route. Springs are employed to allow the roller to turn in case the mechanism for turning it is kept in operation after passing beyond the terminal station, and to pull the roller back each time. This will be found desirable in case the car should get coupled in a train for a road or station to which it does not belong, with cars having annunciators for that road, so that its annunciators would of necessity be coupled with the others, and so have to be worked that the others may be.

Improved Finger Bar for Harvesters.

Victor N. Collins, Dixon, Cal.—The bar is formed with a top sloping backward; also, with a flange on the front upper edge, and with flanges on the rear side. The fingers are formed with a wide base to bear against the side of the bar, and are firmly secured so that they cannot turn out of place. The top plate for the bar is made of a wide thin strip of iron folded back on the under side from the lower edge to the side of the bar, forming the top guide for the carrier; and said plate is bolted to the finger bar. There is an upward inclination of the top plate at one end to cover the end of the endless carrier as it rises up over the pulley at that end on which the carrier works. A spring is attached to said plate at the other end to guide said grain carrier down under the upper guide.

Improved Car Coupling.

William B. Morgan, Shelby City, Ky., and Henry D. Wallen, Jr., Grand Rapids, Mich.—The forward ends or faces of the bumper heads are rounded off; they are made oblong or elliptical in their general form. In the face of the bumper heads is formed a high and narrow opening, with straight ends and curved or concaved sides. The coupling hook has in one end an eye to receive a bolt, which passes through vertical slots in the sides of the bumper heads to pivot the said hook to said bumper heads. The parts of the bolts that pass through the slots of the said bumper heads are flattened, so that the said bolts cannot turn to work the nuts screwed upon them loose. The bolts may be raised and lowered, to adjust the position of the hook to the hight of the adjacent car. In the forward lower part of the mouth of the bumper heads are formed or secured inclined plates for the beveled forward end of the hook to strike against and slide up as the cars are run together.

Improved Carriage Seat.

John A. Althouse, New Harmony, Ind.—This invention consists in making a seat adjustable so as to fit wagons of different widths, and also in the manner of fastening the seat to the sides of the box, and in the arrangement of the seat springs. The seat consists of a piece of board provided with bed pieces, which are rabbeted, so that, when they rest upon the top edges of the wagon box, the joints are covered by flanges. The springs are made of sheet steel, and are secured to adjusting plates attached to the seat by screws, which pass through the slots. These slots allow the plates springs, etc., to be moved outward or inward, as maybe required, for adapting the seat to wagon boxes of any ordinary width. The ends of the springs are attached to the bed pieces. Clamping screw hooks pass through the bed pieces and hook to the inner sides of the side boards, and are tightened thereto by means of the lever nuts on the outside.