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 At-

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.

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 news papers 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 frisble ores; a relsaue 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.

frisble ores exposed to air, the article thus produced being went anown 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 relssue will not impair its validity; whether an applicant has combiled 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

without it, and to add eartny ingrequents which leads an establishment 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 saits 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.

a natural ore containing oxide or copper and carriny masses, across the solution.

This is a bill in equity for an alleged infringement of letters patent granted to defendants on the third day of November, 1883, and reissued on the seventeenth day of October, 1814, in two divisions, for an improved paint for ships' bottoms, or martne 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.

2. W. Clarke, for defendant.

Supreme Court of the United States.

(Appeal from the Circuit Court of the United States for the Northern Dis. trict of Illinois.-October Term, 1873.]

PATENT WAGON REACH.—PHILIP HIOKS, 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 from 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 wold for want of novelty in the invention.

Mr. Justice Bradley delivered the opinion of the court:

Hicks, the spellant in this case, obtained a patent for an improved wagon praying to a usual relief. The defendant man charging infringement and 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 from attached to each side of the reach. The supposed improvement of the plaintif consisted in leaving out the wood in the curve and boiling the from straps together, whereby the curve became all from any part of the same office as before. Instead of being holled together, the straps might be welded so as to make the curve consist of solid from.

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, to turn the wheel under the body of the wagon—the means of accomplishing it being the same—namely, to turn the wheel under the body of the wagon—the means of accomplishing it being the same—namely, to turn the wheel under the body of the wagon—the means of accomplishing it being the same—namely to turn the wheel under the body of the wagon—the means of accomplishing it being the same—namely to turn the part of

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 author-lty to sellit 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 ex-

If one wan purchases a patented article from those who have no action thy to sellit 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 were granted to them therefor on the 23d day of May, 1854; that the patent was extended for seven years from May 23, 1858; that the complainants are the owners of the letters patent for the State or New Jersey; that the defendants have the letters patent for the State or New Jersey; that the defendants have the intringed the patent by the use of a sawing machine at Jersey City, Hudson county, New Jersey, during the extended time of the patent, which out 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 are as awing 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 1855 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, under the right of the patentees in the original term of the patent for Hudson county, New Jersey, under the right of the same machine during the extended term.

The agreed statement of facts admits that in 1865 the predecessors of the defendants used the machine in that or licence to build or selt the same; that, upon being notified of the infringement, the purchasers bought of one Schureman, who wa

that they had the right to use the machine during the extended term, and dismissed the complaint. Itis from this decree that the complainants take their appeal.

The 18th s-ction 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 etted 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, 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, the defendants held and used the machine by a lawful title, as perfect and complete against the patentees aff the original purchase had been from them. They then became, in the language of the statute, "grantees of the right to use the this grantenteed," 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 t 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 archeological 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. structed 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 elate to countries under Britishrule. The plates, however, are finely exe cuted 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, asits 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 PHO-TOGRAPHER'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 themark 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 interest ing 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, 18 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 STRAW ENGINE .- T. L. Jones, Natchez, Miss.

CUTTING PIPE, ETC .- F. W. Allin, New York city.

ELECTRIC ANNUSCIATOR.—L. Finger, Boston, Mass ELECTRIC MACHINE.—H. J. Smith, Boston, Mass.

ELECTRIC TELEGRAPH.-W. E. Sawyer, Washington, D. C. ELECTRIC TELEGEAPH. -J. B. Stearns (Boston, Mass.), London, Eng., et al Hoist.-W. Hart, Philadeiphia, 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. Shenard, Brooklyn, N. Y., et al.

Mode of Combustion .- D. T. Casement, Painesville, Ohio. Properter. -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.

Becent American and Loreign Latents.

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, andit 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 backeachtime. 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 har 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 baris made of a wide thin strip of iron folded back on the under side from the lower edge to the side of the har, forming the ton 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 theirgeneral form. In the face of the human heads is formed a high and narrow opening with straight and 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 bumperheads to pivot the said hook to said humper 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

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 nade of sheet steel, and are secured to adjusting plates attached to the seat by screws, which pass t brough the slots. These slots allow the plates springs, etc., to be moved outward or inward, as may be required, for adapting the seat to wagon boxes of any ordinary width. The ends of the springs are attached to the bed pieces. Clampingscrew hooks pass through the bed pieces and hook to the inner sides of the side boards, and are ightened thereto by means of the lever nuts on the outside.

Improved Egg Carrier.

Wendelin Weis, St. Paul, Minn.—The object of this invention is to con struct egg carriers in such a manner that not only the eggs are securely packed in the cells, but also the cover connected to the case, in such a manner that it may be easily placed on or taken off without breaking or splitting the same. In the case of the egg carrier are arranged, in tiere placed one above the other, the cells for the eggs, which are formed of purallel strips of one series, and interlacing strips of the other series vertically to them. The first strips are provided with slits cut from each edge toward the center under right angles to it, lcaving the central part undivided. The second strips are provided with a central slit, of the same width as the uncut part of the first strips, together with a narrow V shaped aper ture, stamped out, through which the first strips are, by bending them, intro duced and adjusted, so as to interlock and form a tier of cells, which may be easily lifted from the case without detaching from each other. The tor of the case is provided with two side strips, which slip along the side of the case and rest on the side strips of the same. The topis connected to the case by merely slipping springs down, till they interlock with metallic bands, forming a firm and safe attachment of top and case, and obtaining permanent egg carrier without injury to the top by nails, screws, etc

Improved One Wheeled Three Horse Riding Piow. Robert C. Airey, Highland, Ill.—The short axle may be adjusted to set th wheel, and at an angle to the beam; and by suitable means the line of draft, and consequently the pitch of the plow, may be conveniently regu lated. The plow beam is hinged to the cross beam, so that the plow may be swung out and in, as desired. The forward end of the beam may be raised and lowered to cause the plow to run out of and into the ground, as desired, and the seat can be conveniently adjusted, as the weight of the

Improved Buckle.

George H. Lefevre, Winneconne, Wis., assignor of one half his right to Joshua S. Judson, Austin, Minn. - This buckle is constructed with a metallic oop, made to admit two thicknesses of leather strap. The end of the strap is provided with one or more holes to receive pins. The other end of the strac is passed through the buckle and then through the loop, thus crowd ing the end of the strap upon the pins, and holding it there. The buckle is readily detached by reversing this operation. With this loop a broken strap can be attached to a buckle with ease.

Improved Fruit Jar

Thomas Hale and Henry Hale, Wales, N. Y .- The upper part of the can s made in the form of a wrench section, so that such an instrument can be fitted over it. On the cap, which screws to the neck of the can in the usual manner, is formed a bail through which two holes are made on opposite sides. A rod is placed through these apertures, and by it, as a lever, the icap is easilyunscrewed or secured, a wrench fitting over the section hold ng the vessel from turning.

Improved Needle Sharpener for Sewing Machines. John L. Woodruf, Easton, Pa. -- This invention consists of a curved arm

which is attached by a set screw to the sewing machine table, and which carries at its upper end a rubber wheel, connected to the fiv wheel of the machine, through which the needle is passed to be sharpened by a small whetstone

Improved Register | Valve for Water Heaters.

George H. Tucker, Milwaukee, Wis., assignor to himself and James C Ricketson, of same place.—This invention relates to valve mechanism for regulating the admission of water to a hotler feeder. The water is supplied to the heater through a pipe connecting with a shell. Said shell is essen tially globular in form, and has a diaphragm joining its diagonally opposite sides, and forming, intermediately, a flat seat for a disk valve. The valve seat has openings, corresponding in shape, size, and number, with those in the valve. Aspiral spring encircles the stem, bears on the valve, and is arranged or fitted in a circular recess in the plug, at its opposite end. A screw passes through the side of the shell, and bears against the short guide stem of the valve, to prevent the pressure of water in the pipe above from holding the valve. The means of operating the valve is a float working in a tank which communicates with the heater. To relieve the float of undue friction, rollers are employed. The connection between float and valve is by extension rod and arm, the latter being fixed to the valve stem. When the water rises or falls in the heater, it rises or falls correspondingly in the The float will have a like and simultaneous movement, and hence the valve will be turned one way or the other, as required, to admit or shu off the water.

Improved Lever Motor.

John Stone, Millgrove, Mo.—This invention relates to imparting mechanical power to a drive shaft through the pendulum movement, and consists in the mode of combining the pendulum with the crank pitman and at actuating lever.

Improved Fountain Pen.

William E. Thomas, Queenstown, Md.-This invention relates to that class of pens which are provided with a tubular handle or barrel designed to serve as an ink reservoir; and it has for its object to improve the con struction of said pens, so as to render the same more convenient in use an effective in operation than others heretofore constructed

Improved Water Meter.

John Waterhouse, Chicago, Ill.-This invention relates to apparatus de signed for measuring water from service pipes as it is delivered to the con sumer. The waterfrom the induction pipe runs into and fills one compartment, forcing the air contained therein through an air pipe into the other compartment, and this compressed air forces the water up through the eduction as it is being used. When the water in one compartment descende to a certain depth, a float will follow and pull the long arm of a lever outward, which releases a short arm, and allow a weight to fall. A the same time, a weight in the other compartment, which is submerged in water ascends and catches on the short end of the lever, which operation change the flow of the water. A small rod is fastened in the center of the pivot tube, whence it passes through the front of the meter in a watertigh packing, and terminates in a suitable device for connecting with any approved registering apparatus.

Improved Suspender.

Franklin O. Painter, Middletown, Ct.-The button straps and the shoul der straps are pivoted to a pivot piece of sheet metal, their ends being provided with a metallic plate, so that they readily turn on the pivot. and enable the shoulder straps to adjust themselves to the back of the wearer The back button straps are also tipped with metallic plates attached by rivets, and these plates are pivoted to a back plate, so that they freely turn nd adjust themselves to the position of the button on the pant button straps are also provided with metallic plates, attached as heretofore described, and connected with the should erstrans by a pivot. These straps render freely on the pivot, and are allowed to adjust themselves to the position of the front buttons of the pants. By connecting the pants with pivots, self-adjusting and easy suspenders are formed, less likely to

Improved Gas Burner.

Cornelius Bogert and Henry Mediin, New York city.—This invention consists in arranging a plug centrally in the discharge aperture of a burner to cause the gasto pass out in thin vertical sheets, thereby exposing more surface to the air, becoming thus more completely oxydized, and therefore giving its maximum of illumination.

Improved Oil Tank.

Hazen Titus, St. Petersburgh, Pa., assignor to himself and Thomas Cush ing, same place. - This invention has for its object to furnish oil tanks of reservoirs, so constructed that, should the oil take fire and an explosion take place, the exploded gases may escape freely, and the tank may be again tightly closed automatically, so as to smother the fire and thus save the oil. The invention consists in oil tanks provided with a number of openings, closed with hinged covers, to allow the exploded gases to escape freely without injury to the tanks. The covers are so arranged that they will fall back by their own weight as soon as the pressure is removed, and lightly close the tank, smothering the fire and preventing the oil from being burned up.

Improved Dental Impression Cup-

George Shindler Fouke, Westminster, Md.—This invention is an improve cup for taking impressions for dental plates, so constructed as to allow lirect manipulative pressure to be applied to the soft parts of the roof of the mouth after the ordinary pressure has been applied. By this means the dental plates, when cast or otherwise made, press upon the soft parts of the arch of the mouth, rather than upon the hard parts, thus distributing the pressure, and securing a better fit and a more effective atmospheric plate. The invention consists in an impression cup that is pro-vided with a flexible lining on the inside, and with "cut-outs" or apertures that expose the ascending sides of the alveolar arch.

Improved Heating Range.

Isaac J. Baxter. Peekskill. N. Y .- This invention relates to cooking anges, and consists in several improvements whereby it is contemplated to economize the fuel used in the warm seasons of the year and utilize the surplus heat necessarily generated at other seasons. This heatis employed in raising the temperature and comfortably warming other apartments of

Improved Wash Boiler

Hugh Ross, Plattsburg, N. Y.-This invention is an improved detachable steam washer, which may be placed and adjusted into any wash boiler, and combines the advantages of a steam cleaning and bleaching apparatus. It consists in a novel arrangement of hot water passages and side air chambers, together with valve connections for the circulation of the boiling water. By means of hinge connections of the sides and the bottom, the washer may easily be inserted into any form of boiler of sufficient size, the bottom being also provided with a central partition for producing the separate action of each half of the washer. The invention further consists in applying to the bottom of the washer a chamber or receptacle to hold the acids or other chemicals for removing stains or bleaching the clothes.

Improved Elevator,

Charles F. Stewart and Milton Stewart. Muncie. Ind.—This invention re ates to apparatus for hoisting bricks to different parts of a building in process of erection, which may be adjusted to various hights and easily applied to the sides of the building. The supporting frame of the appara tus is made of timber, and the lower ends of its side pieces are pivoted to shoes of a strong lateral piece, which again turns by a central bolt in a stable base part of strong timber. The base part rests on the ground, and re mains firmly in position thereon, while the main frame may be swung into any direction and inclination required. For the purpose of transporting the elevator from one place to another the base part and piece are brought under the frame, so that the whole takes up less space. The main frame is extended to different hights by the sliding frames, which are suitably guided and are of different widths, one being narrower than the other, the wider one forming the support and guide for the narrower. By a suitable arrangement of rollers and ropes connected with a crank, the extension frames are holated to the hight required by the state of the building. The buckets are of a size large enough to take up one brick at a time, and are attached to an endless belt which passes over drums which are rotated. The bricks are deposited by the buckets in a chute which is inclined, down which they slide to the point where they are needed.

Improved Automatic Gate.

Jacob Grobb, Clinton, Can.—This gate is opened and closed by means of a cord, the ends of which are attached to a frame, the legs of which frame are confined to the ground, so that it may freely vibrate back and forth from an upright position. The top of the frame is connected with a sliding bar, which communicates with the fastening spring of the gate. When the gate is closed, the frame is inclined and stands at an angle with the surface of the ground of about thirty degrees. One end of the cord is attached to one leg of the frame, and then extends to an upright standard. where it passes through tackle blocks, and is extended to the standard where it passes through three more tackle blocks, the same as before, from rhich blocks it is returned, and its other end is fastened to the other leg of the frame. When the cord is drawn, the frame will commence to rise and in doing so will draw on the sliding bar, and thereby draw back the fastening spring and unfasten the gate. The frame will be drawn to an upright position when the gate is about half open, or at an angle with the road of about forty-five degrees. A continued pull opens the gate entirely. and inclines the frame in the opposite direction, and to about the same angle at which it stood when the gate was closed. The gate is closed by pulling the cord in an opposite direction, and the same effect is produced on the frame.

Improved Stock Feeder.

Ulyses Borel, Sue City, Mo.—A rectangular inclosure is designed to contain the hay or feedfor the stock. Racks are applied to its outer side, below openings therein, which latter are closed by doors secured;to the sides of the inclosure by staples and long links. The arrangement is such that when the doors are opened or lowered, they are supported on the racks by means of the links. The inner sides of the doors are thus turned outward, and form upward continuations of the racks, enlarging their capacity, and aid ing in preventing the hay from falling over them on the ground.

Improved Burglar Alarm.

James J. Kane, Brooklyn, N. Y.—The bell is sounded by two hammers one operated by an escapement and scape wheel, and the other by a con necting rod and crank, the crank and the scape wheel being turned by wheel on a drum, containing a clock spring, which revolves said drum, when it is tripped and let free to turn by disengaging the lug on it from a stop lever. In order to cause this stop lever to trip the drum, a cam lever is connected with the window or door by a wire, to be moved one way by the pulling of the wire by the raising of the window or opening of the door. The cam lever is also connected with a spring pulling in the oppo site way to trip the drum, by pulling the cam lever in that direction in case the wire is cut or detached from the door or window, and thus is prorided an alarm which, it is claimed, cannot be evaded by cutting or detaching the wires, which has been done to other alarms of this character before opening the window or door, by means of instruments inserted in the cracks or by cutting away the casing. Suitable mechanism is arranged or tripping a hammer which, striking a cap, lights a fuse and a candle.

Improved Eaves Trough Support.

Thornton F. Morrison, Findley, O.-The roof bracket is a simple strap of metal, slotted at one end to receive the hanger, and perforated at the other to receive nails for fastening to the roof. The cross tie is made triangular in cross section. The hangers are made in two pieces, which are passed directly through the ties and then hooked under the bottom. The tie is made of two pieces, soldered together, and soldered to the eaves trough at each end. The upper end of the hanger passes through a slot, and is clasped around the edges of the bracket. When the hangers are attached to the ties and to the bracket in this manner they do not form a sure and permanent support for the eaves trough.

Improved Car Coupling.

Franklin Thorpe, Sioux City, Iowa. — The cavity of the bumper is madein the form of a rectangular chamber, to the rear end of which are attached vertical plates, the upper sides of which are inclined or curved. In the forward part of this chamber is placed a block having two inclined rlates projecting from its rear side. Upon the upper part of the forward, side of the block is formed a lip which, when pushed forward, supports the coupling pin. The lip projects over the inner end of the link, and holds said link in a horizontal rosition, so that it will enter the bumper of the adja cent car. A triangular bar, which crosses the chamber of the bumper rests upon the inclined edges of the plates. To the bar is attached a rod which passes down through a hole in the lower side of the bumper, so that a weight may be attached to it to draw the bar down with sufficient force to push the block forward when the coupling pin is withdrawn. By this construction, when the coupling pin is withdrawn, the bar pushes the block forward, so that the coupling pin may rest upon the lip. As the cars are run together, the entering link pushes the block back, allowing the coup ling pin to drop through the link, coupling the cars.

Improved Stone Tool.
Thomas Joyce, Scranton, Pa.—The object of this invention is to construct miners' picks, drills and stonecutters' tools in general, with changeable points, so that a number of different bits may be alternately inserted, as re quired by the work, and thereby the number of tools lessened.

Improved Seed Planter

William C. Pierce, Pushmataha, Ala., assignor to Knighton & Willis, same lace.-This invention consists in a frame hinged to the beam of the planter, supported by a wheel at its lower end, and having a hopper pivoted to lugs attached to the frame, so that its forward end may move up and down. This motion is given to the hopper by a bar, which is struck by pins attached to a small wheel whichengages with the supporting wheel first mentioned. The hopper slides upon an adjustable plate at its forward end, which has a hole formed through it, through which, when the hopper rises, the seed escapes and drops to the ground. The side of the hole through the plate is regulated by a slide, placed upon its rear side, which passes up through the slit in the cross bar. To the rear side of the slide, a little above the discharge hole, is attached a bar, which projects forward and downward, to prevent the seeds from scattering, and to guide hem downward into the furrow. A gate slides up and down in groo the sides of the hopper, and in its lower edge is formed a notch, so that, by raising or lowering the gate, more or less seed may pass back and escape through the plate and slide. The forward end of the hottom of the hopper s cut away, and in the opening thus formed are placed two or more rods. Upon the bottom of the hopper is placed a false bottom, which is secured in place by a screw, which passes through a slot in the false bottom, and screws into the hopper bottom. With this construction for planting corn and other seeds in hills, the gate and plate are adjusted so that, by each revolution of the large wheel, the desired number of kernels may be dropped to the ground. For planting small seeds in drills, the space through which the seedspass is partially closed by adjusting the plate, and a sufficient number of pins are placed in the larger wheel to keep the hop per in constant motion.

Improved Stock Feeder.

James M. Collins and William A. Miles, Atlanta, Mo.—To posts are at tached slats to form the crib. The inner sides of the middle posts are grooved longituilinally to receive the edges of the board, to divide the crib into compartments, so that it may contain corn in the ear in one part and shelled corn or oats in another part. The floor of the crib, which rests upon strips, has an upwardly projecting flange attached to its outer edge to form a trough for the stock to eat from, into which the corn or other grain is admitted, through sliding doors which work up and down in guides attached to the posts. To the latter also are attached strips which support a floor made inclined, so that it may be self-cleaning, in the proecting parts of which that form the bottom of the feed troughs, are formed trap doors, which may be opened and the refuse from said troughs pushed through conveniently to fall into the hog house beneath. Wheels and axles, are placed beneath the floor. Racks restupon ledges attached to the erib, just above the sliding doors, and flare outward. To the middle parts of their upper edges are hooked braces, the inner ends of which are secured to the upper part of the crib.

Improved Mortising Tool.

Harbert K. Forbis, Danville, Ky., assignor to himself and John W. Proctor, same place.—The object of this invention is to provide an efficient tool formakingmortises by boring into the wood, and at the same time cut ting it out laterally. It consists of a cylindrical piece of steel having cutting edges along the sides formed by, say, two grooves extending from the cutting end along each side to the shank, and vanishing in the surface thereat. There are also cutting bits formed on the end by a deep notch made between said bits, which project on each side of the notch. The bits bore into the wood, while the cutting edges form the mortise laterally.

Improved Safety Attachment for Pockets

Wiley Henry Cairns, Petrolia City, Pa.—This invention has for its object to furnish an improved guard for attachment to pocket books to prevent the possibility of their being drawn from the pocket without the owner's knowledge. Two short arms are pivoted to each other at one end, and also to the side of the pocket book. The other ends of the arms are pivoted to two bars at a little distance from their outer ends, which said outer ends project at the side edges of the pocket book, and have rubber blocks attached to them to prevent themfromcutting or tearing the pocket. The other or inner ends of the gars at a pivoted to each other and to the end of s short sliding bar which passes through a keeper attached to the side of the pocket book, and has a thumb piece formed upon or attached to its other orfreeend. By this construction, by drawing the sliding bar upward, the projecting ends of the bars will be drawn inward, allowing the pocket book to be readily removed from or inserted in the pocket. By suitable construction, when the sliding bar is released, a spring causes the rubber-tipped ends of the bars to project and rest against the pocket, and thus prevent the pocket book from being withdrawn from said pocket without the owner's knowledge.

Improved Truss Brideg.

John A. Patterson and Andrew J. Sprague, Toledo, O.—This invention consists of modifications and improvements in the construction of the Howe truss bridge. It is proposed to omit the end posts and pier panels commonly employed at the ends, mainly for making a finish thereat, and for a finish to apply metal façades of any ornamental construction, attaching them to the upper ends of the first diagonal braces, and the beam connecting the top chords. The angle blocks for the foot rests of the braces are made in the form of strong angle plates, united together at the proper angle for being at right angles to the braces which rest on them, with end plates and middle plates for strengthening them, projecting downward from the lower sides to rest on the floor timbers. These plates are slotted to straddle the coupling pin, which is suspended on vertical suspending rods, which pass through slots in the plates of the angle block. These plates terminate at the lower edges sufficiently higher than the plane of the connecting pin to allow the links of the lower chord to pass under them to the pin, whereon they are suspended. The floor timbers are suspended from these coupling pins by short rods and the foot plates, the rods having an eye in the upper end, through which the pins pass, and pass through the foot plates at the lower end, and receive a nut, by which to hold the plate. To connect the horizontal brace rods of the lower chord to the floor beams, the flat wrought iron plates with oblique holes are employed, and holes are made through the corners of the beams for the rods. In making the angle blocks, it is proposed to cast the under sides and the plates on metal chills, to make them sufficiently smooth and complete to e put in place without having to be finished.

Improved Permutation Lock.

Wilhelm Koch, Cincinnati, O.—For opening the lock, a dial knob is turned in one direction till the pin of a driving wheel engages the tongue of a first tumbler, the pin of the first tumbler the tongue of the second, and so until all the tumblers are in motion. The dial plate is then set with the first letter selected to the index mark, carried thence in opposite direction o the second letter, and so on alternately in opposite directions till the tumblers are in position for admitting the fence of the fence lever. The driving wheel is then set so that a pendulum rests upon cross pins; then afting, by a return motion of the knob, the pendulum lever and releasing the fence lever, which engages the driving wheel and rotates the bolt lever and bolt, bringing the recess of the face disk into position to receive the bolt of the safe door. The lock may be set to any combination of letters on the dial plate by placing the tumblers into their position, as described, by using, instead of the index mark, which is vertically above the dial plate, the side mark, which brings the recesses of the tumblers under the spring rings in position for the action of the wedge lever, and allows the entering of the wedge teeth and the changing of the tumblers to any dcsired combination of letters. The wedge lever is then withdrawn and the lock opened on the index mark.

Improved Selc-Oiling Bolster.

John D. Wells, Jr., Putnam, Conn.-This invention consists of an oil chamber in the hub of the gear, which runs on the bolster and revolves the pobbin; there is a small passage from the bottom of the chamber to the hale through the wheel for the halater, and a slot is made in the latter to the spindle, by which the oil supply is carried from said chamber and delivered to the bolster only while running. From the bolster the oil finds its way through the slot to the spindle, in a manner calculated to lubricate the parts efficiently, and at the same time economize the oil. The oil passage from the oil chamber to the bolster hole of the gear prevents thewaste of oil while the machine is not running, in consequence of being nly flow when the parts are in motion. so small that the oi