## RECENT DECISIONS RELATING TO PATENTS, ASSIGN-MENTS, ETC.

THE RIGHTS OF ASSIGNEES IN PATENTS.

It frequently happens that an inventor, in order to supply kimself with the means to apply for a patent or introduce his invention, agrees with another person that, in consideration of the advance of funds, he will grant an assignment of the invention and of the letters patent therefor, in a when the patent is granted the assignee is the owner of the the two being united and designed to be used together as a patent without further transfer, for the district originally conveyed to him.

There have been cases where the inventor has attempted a different invention. to deprive his assignee of the benefits of the original assignthe patent, and it is officially rejected. His assignee is glass base in combination with any form of chimney top mitted, if he can do so, to show that this mixture acts more informed that no patent can be obtained, and the matter is was regarded as greatly enlarging the scope of the invention rapidly and more effectually than the elements of which it is supposed to be closed. But on a subsequent occasion the by dropping one element from the combination and putting composed, and is more conveniently used. I think that, inventor, having made changes in the invention, files an in its place another, not its equivalent entirely new application. At last a patent is granted, but the inventor declines to admit the original assignee to any piece being old, no invention was required to conceive the benefits therefrom on the ground that the patent is not for idea that it could be made in two pieces, nor to form a surthe application on which the advances were based.

The question whether the assignee has any right in such pose of maintaining in position the separate top piece. patent has been very forcibly decided in favor of the assignee by the U.S. Supreme Court in the well known coal-burner stove case.

An assignment of April 5, 1853, recites the granting to Littlefield of a patent on the 15th of April, 1851, "for a lorillard et al. versus ridgeway.—The marking of plug coal burner so constructed as to produce combustion of the inflammable gases of anthracite coal," and the fact that he had applied for a patent "securing to him a certain improvement in the invention so as aforesaid patented by him." and interest which Littlefield "now has, or can or may hereafter have, in or to the aforesaid inventions, improvegranted for said inventions or any improvements thereon, throughout the district and territory embraced within the of an invention. States of New York and Connecticut, for and during the term for which the aforesaid letters patent were granted, and the terms for which any patent for the aforesaid improvement, and any other improvement or improvements thereof, or extensions for or of either thereof, may be granted." The Supreme Court of the United States, in Littlefield versus Perry (21 Wallace, 205), held that this assignment, "taken by itself, contains, in most unmistakable language, an absolute conveyance by the patentee of thereon, within and throughout the States of New York and Connecticut," and that this assignment and a supplemental agreement executed between the same parties at the same time, when construed together, operated to constitute Treadwell and Perry the assignees of Littlefield within the patent laws in respect to the subject matter of the assignment, and application was that the mixture was a mere aggregation the foregoing are always unprofitable, and do them little to give them and those claiming under them the right to having no functions differing from those of its several ingrecredit. sue in this Court to prevent any infringement upon their

On the 22d of July, 1853, Littlefield withdrew the application before mentioned, which had been filed December 30, 1852, and filed a new application, on which a patent was issued to him January 24, 1854. The Supreme Court held. in the case referred to, that the assignees became in equity the owners of this patent of 1854 under the assignment of April, 1853; that all the patents outstanding and the subject of the controversy in that suit, exclusive of the patent of 1851, were either reissues of the patent of 1854 or improvements upon it; and that the use of the said patents issued after January, 1854, by Littlefield and his co-defendant, Jagger, was an infringement of the rights of said assignees. The patents so referred to were these: A patent issued June 25, 1861: reissues, in two parts, 132 and 133, made November 19, 1861, of the patent of January 24, 1854; bility. reissues, in four parts, 1,332, 1,333, 1,334, and 1,335, made August 26, 1862, of the patent of January 24, 1854, on the surrender of reissues 132 and 133; reissues, in two parts, 1,426 and 1,427, made March 3, 1863, of the patent of January 24, 1854, on the surrender of two of the four reissues on the surrender of one of the two reissues of May 19, 1863; reissue 1,823, made November 22, 1864, of the patent of January 24, 1854, on the surrender of the remaining one of the two reissues of May 19, 1863; a patent issued December 19, 1862; a patent issued August 18, 1863; and reissue 1,594, made December 22, 1863, of the patent of August 18, 1863. The outstanding patents, when the bill of revivor and supplement was filed by John S. Perry, trustee, etc., against Littlefield and Jagger, on the 6th of February, 1865, were (exclusive of the patent of 1851), the patent of June 25, 1861, the patent of December 9, 1862, reissues 1,813, 1,814, 1,815, and 1,823 of the patent of January 24, 1854, and reissue 1,594 of the patent of August 18, 1863.

Court in the Northern District of New York.

Scientific American.

### U. S. Circuit Court-Eastern District of New York .-Benedict, J.

BLACKMAN et al. versus HIBBLER et al.—GLASS BASE FOR COAL OIL LAMPS.

- 1. The invention embraced in patent to E. Blackman, unit, and the reissue No. 7,417, December 5, 1876, describ-
- 2. When the original patent described a certain form of to say that this impression was incorrect. ment by dodges like the following: The inventor applies for mica chimney united to a glass base, a reissue claiming such
  - 3. A lamp chimney constructed with base and top in one rounding rim upon the upper part of the base for the pur-

Bill dismissed for lack of novelty in the invention,

#### U.S. Circuit Court.-Eastern District of Penusylvania -McKennan, J.

TOBACCO BY PRESSURE NOT A PATENTABLE INVENTION.

- face metallic or other hard substances, the imprint of which remain upon the tobacco.
- 2. Letters and other distinguishing marks having been ment, and patent, or the patent or patents that may be produced upon tobacco, to put such marks upon a metallic taken notion that the chief purpose of their official life was tag, if greater prominence was desired, was readily sugand in any extension or extensions thereof, within and gested to the common mind, and did not rise to the dignity

# Before the Commissioner of Patents.-Paine.

VEGETABLE-LIFE DESTROYER.

The motion is submitted in the following words:

denied) in accordance with the decision of the Examiners. In the first instance simply issued the patent,

destruction of vegetable life.

dients. The applicant insisted that the compound operated more rapidly and effectually than either of its elements. The Examiners-in-Chief decided, on appeal, that if the mixture described operated more effectually and rapidly, and was | was denied), in accordance with the decision of the Exam-

or operativeness of the mixture, but denied its patenta-

The applicant appealed to the Commissioner because, as he alleged, the Examiner ignored the decision of the Exam-opened, etc. In about three months Mr. Stout received a iners-in-Chief; and he asked that the Examiner might be instructed to act in accordance with that decision.

in obedience to the decision of the Commissioner, pass the a third larger than two years ago. case to issue without further delay.

The examiner replied that the Commissioner's decision was that he should pass the case to issue if he did not deny effectually than its component parts. And he added that, tional to those named above, has just been decided in favor fulness, but only denied that it would act more effectually measures.

of the assignees by Judge Blatchford, in the U.S. Circuit or rapidly or conveniently than any of its elements, affidavits were expressly prohibited by the last clause of Rule 31, in which it is provided that "affidavits in support of applications will not be received at any stage of the examination unless the office denies that the invention is operative or useful." Upon this action of the Examiner the present motion for the transfer of the case to another division is based.

This motion cannot be granted. The Primary Examiner certain State or States. The making of such assignments February 6, 1872, No. 123,325, is a lamp chimney with the has not disregarded the decision of the Commissioner, nor in advance of the issue of the patent is quite common; and top or upper portion constructed of mica, and a glass base, has he disobeyed the decision of the Board of Examiners-in-Chief; and, while he has declined to comply with their suggestion that applicant should be permitted to submit affidaing and claiming the base separately, is invalid, as being for vits in the case, he has done so in the belief that this course was forbidden by the rules of the office. I am not prepared

> But I see no good why the applicant should not be perunder Section 483 of the Revised Statutes, I have authority by an order made with the approval of the Secretary to au thorize him to introduce such affidavits.

> It is accordingly ordered that the applicant be permitted, within sixty days after the date of this order, to submit affidavits for the purpose of showing that his compound or mixture operates more effectually or rapidly and is more convenient in use than any of the substances of which it is compounded.

The relief demanded by the applicant is denied. [Approved by the Secretary.]

An undue zeal for the observance of forms and ceremonies 1. Tobacco having been marked by pressing into its sur is apt to make the ablest officials lose sight of the main object for which they are individually housed in the Patent was left upon the tobacco, it was no invention to provide Office, and for which the patent laws were enacted, to wit: and then assigns to Treadwell and Perry all the right, title, such plates with prongs or projections, and allow them to the promotion of the useful arts by the grant of patents to authors and inventors. In times past some of the Commissioners and some examiners seemed to labor under the misthe opposing of inventors, the placing of obstacles in their way, and preventing the grant of patents.

The foregoing case illustrates our meaning: The Examiner in the first place appears to have wrongfully denied the patent. The applicant was then put to the expense of an appeal to the Board of Examiners, who practically decided that a patent should be granted. But the Examiner then holds back the patent on a technicality; the applicant In the application for patent for vegetable sprout killer by is then put to the further expense of appealing to the Com-Francis B. Rodgers, filed January 2, 1878, the decision of the missioner in person, who supports the little point raised; Examiner denying the patent has been overruled by the which now subjects the inventor to further delays and costs Board of Appeals. Applicant requests the allowance of the in getting up expert testimony. All the trouble to all the his patent and inventions described, and all improvements patent by the Examiner (unless the utility of the patent is parties concerned would have been avoided had the Examiner

> We doubt whether there is any instance where a Patent The application relates to a compound or mixture for the Office mistake made in favor of the inventor ever hurt the Examiner, the Commissioner, the Secretary of the Interior, One of the grounds upon which the Examiner rejected the or any other official. On the other hand such wrangles as

## Yankee Inquisitiveness.

The Price Current, Portland, Me., suggests a legitimate and wise plan to increase the demand for the products and more convenient in use, than its elements, the applicant was manufactures of any and every country. When a man has entitled to a monopoly of his new compound; but in their a really valuable article to offer to the world, he should dedecision they stated that they were not informed on this vise the best ways and means to let the buyer and consumer point, and suggested that the applicant should be permitted know the source from whence it came, and, if possible, the to file affidavits, under Rule 31, in case the examiner should means and expense by which the recipient may obtain more traverse his assertion that the mixture operated as above of the same kind. The result of this justifiable inquisitivestated. Thereupon the applicant requested the allowance of ness will be the doubling of the crop of good apples in the patent by the Examiner (unless the utility of the patent Maine within a few years. L. J. Stout, of Limington, Me., while barreling apples to be shipped to parts entirely unknown to him, conceived the novel idea of ascertaining their The examiner replied that he did not deny the usefulness destination by putting a letter, inclosing money to pay the postage on a letter, in one of the barrels, kindly asking the purchaser to write him the date of opening it; his name and residence, the price paid, the condition of the apples when letter from a merchant in London, England, saying one of his customers found the letter and passed it to him, and by The Commissioner held that, inasmuch as the Examiners- him it was neatly answered, giving all the desired informaof August 26, 1862; reissues, in two parts, 1,478 and 1,479, in-Chief had decided that if the mixture was operative, as tion in regard to the apples, etc. Last winter Mr. Stout remade May 19, 1863, of the patent of January 24, 1854, on claimed, it was patentable in favor of the applicant, although ceived a letter from the same merchant in relation to filling the surrender of the remaining two of the four reissues of they had not decided whether it was or was not so operative, an order for Maine apples, but the quality and scarcity of August 26, 1862; reissues, in two parts, 1,813 and 1,814, their decision was obligatory upon the Primary Examiner, the fruit last year prevented his filling the order satisfacmade November 8, 1864, of the patent of January 24, 1854, and that it was therefore the duty of the Primary Examiner, torily to himself. Last week Mr. Stout received another on the surrender of reissues 1,426 and 1,427; reissue 1,815, if he did not deny that the compound operated as the appli-order by cable for several hundred barrels as samples, from made November 8, 1864, of the patent of January 24, 1854, cant claimed, to pass the case to issue. Thereupon the ap the same person. As Mr. Stout will undoubtedly fill the plicant requested that the Primary Examiner, inasmuch as order, the English gentleman will no doubt be surprised at he did not deny the operativeness of the invention, should, the size and quality of the fruit—which is this year probably

## The Metric System.

It may not be generally known that we have, in the nickel that the mixture operated more effectually and rapidly than i five cent piece of our coinage, a key to the tables of linear any of its elements; and that, while he did not deny the measures and of weights. The diameter of this coin is 2 operativeness of the mixture, he did deny that it acted more centimeters, and its weight is 5 grammes. Five of them placed in a row will, of course, give the length of the deciwhile the suggestion of the Examiners-in-Chief that the apmeter; and two of them will weigh a decagramme. As the plicant should be permitted to submit affidavits would have kiloliter is a cubic meter, the key to the measure of length is been consistent with the rules if the Examiner had denied also the key to measures of capacity. Any person, there-A new suit, brought by Perry against Littlefield, to re- the operativeness or usefulness of the compound, neverthe- fore, who is fortunate enough to own a five cent nickel may cover ownership and damages in some other patents, addi- less, inasmuch as he did not deny its operativeness or use- carry in his pocket the entire metric system of weights and

## Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion : about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue. The publishers of this paper guarantee to adver- Silent Injector, Blower, and Exhauster. See adv. p. 77. tisers a circulation of not less than 50,000 copies every

Horizontal Steam Engines and Boilers of best construction. Atlantic Steam Engine Works, Brooklyn, N.Y. Walrus Leather, Solid Walrus Wheels; Wood Wheels covered with walrus leather for polishing. Greene, Tweed & Co., 18 Park Place, New York.

Campbell's Self-acting Window Shade Rollers are the best in the market. Models and terms to the trade.

5 Centre St., New York.

L. B. Flanders Machine Works, Philadelphia, Pa.

Millstone Dressing Machine. See adv., page 78.

Wanted-A Drill Press, a Bolt Forging and Heading Machine, and a Pulley Lathe, of some new and improved patent. Good second-hand machines might answer. Address Columbus Iron Works Company, Columbus, Ga.

Engines 1/2 to 5 H. P. Geo. F. Shedd, Waltham, Mass. without coupling. Greene, Tweed & Co., New York.

For Sale -Two Windmill Patents, and set of patterns for same. None better. F. C. Maxwell, Columbus, O.

Wanted--A Machinist of experience, competent to Superintend a large manufactory. Address, with references, in full, F. Case, Box 387 Cincinnati, O.

For Sale Low.—Horizontal Engines, 16 x 30, 10 x 36, 8 x 20, 7 x 23; Horizontal Tubular Boilers, two 31/2 x 15 one 3 x 13; 35 Horse Locomotive; 3 Horse Upright Engine with 5 Horse Boiler; all in good condition; new (Schenck) 14 inch Planer and Matcher. Belcher & Bagnall, 40 Cortlandt St., New York.

Small High Speed Steam Yachts complete or in parts. Geo. F. Shedd, Waltham, Mass

Forsaith & Co., Manchester, N. H., & 213 Centre St. N. Y. Bolt Forging Machines, Power Hammers, Comb'd Hand Fire Eng. & Hose Carriages, New & 2dhand Machinery. Send stamp for illus, cat. State just what you want. Wooden Pumps.-Makers please send circulars to Box 125, Moorestown, Bur Co., N J.

Electrical Indicators for giving signal notice of extremes of pressure or temperature. Costs only \$20. Attached to any instrument. T.Shaw, 915 Ridge Ave.Phila.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York. The steam pipes, boilers, etc., in the buildings of the New York Tribune, New York Herald, and Harper & Bro., are protected with H. W. Johns' Asbestos Boiler Coverings. H. W. Johns Manufacturing Company, No. 87 Maiden Lane, sole manufacturers of genuine Asbestos Liquid Paints, Roofing, etc.

Partner Wanted. - See advertisement on inside page. Wanted-Two good Machinists; one Plumber, who can do besides common machine work; two good Iron Moulders. Highest wages paid to good men. Address Mountain Foundry, Hazleton, Pa.

Models made to order. H. B. Morris, Ithaca, N. Y. For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 61.

Wanted .- A Second-hand Turbine Wheel, Give price and dimensions. Address E. L. Pemberton, Fayetteville, N. C.

Instruction in Steam and Mechanical Engineering. A thorough practical education, and a desirable situation as soon as competent, can be obtained at the National Institute of Steam Engineering, Bridgeport, Conn. For particulars, send for pamphlet.

Collection of Ornaments.—A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, corners, borders, etc., etc., sent post free on receipt of \$2. Palm & Fechteler, 403 Broadway, New York city.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros., 531 Jefferson St., Philadelphia, Pa. Launches and Engines. S. E. Harthan, Worcester, Mass. Special Wood-Working Machinery of every variety Levi Houston, Montgomery, Pa. See ad page 45.

The Baker Blower ventilates silver mines 2,000 feet deep. Wilbraham Bros., 2318 Frankford Ave., Phila., Pa. To stop leaks in boiler tubes, use Quinn's Patent Ferrules. Address S. M. Co., So. Newmarket, N. H.

Nickel Platmg.-Sole manufacturers cast nickel and odes, pure nickel salts, importers Vienna lime, crocus, etc. Condit. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Wright's Patent Steam Engine, with automatic cutoff. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Presses, Dies, and Tools for working Sheet Metal, etc.

Bradley's cushioned helve hammers. See illus. ad. p. 77. Split Pulleys at low prices, and of same strength and

appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa. Stave, Barrel, Keg, and Hogshead Machinery a spe

cialty, by E. & B. Holmes, Buffalo, N. Y. Sheet Metal Presses. Ferracute Co., Bridgeton, N. J

Emery Wheel - other kinds imitations and inferior. Caution.-Our name is stamped in full on all tandard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Pa. Diamond Drill Co Box 423, Pottsville, Pa. See p. 61. pennyroyal. For Machine Knives and Parallel Vises, see advertisement, p 61. Taylor, Stiles & Co., Riegelsville, N. J. Telephones repaired, parts of same for sale. Send

stamp for circulars. P.O. Box 205, Jersey City, N.J. Inventors' Institute, Cooper Union. A permanent ex-Broadway, N. Y.

Saws, Universal Wood-workers, Universal Hand Jointers, Shaping, Sand-papering Machines, etc., manuf'd by Bentel, Margedant & Co., Hamilton, Ohio. "Illustrated History of Progress made in Wood-working Machinery, sent free.

The Paragon School Desk and Garretson's Extension Table Slide manufactured by Buffalo Hardware Co.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgnet & O'Brien M'f'rs, 23d St., above Race, Phila. Pa.

Diamond Tools. J. Dickinson, 64 Nassau St., N. Y. The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York,

For Superior Steam Heat. Appar., see adv., page 77. For Pat. Quadruple Screw Power Press, see adv., p. 77.

All makes and sizes of Steam Hammers bored out. Millstone Dressing Machine. See adv., page 78.

Cut Gears for Models, etc. Models, working machin-

ery, experimental work, manufacturing, etc., to order. D. Gilbert & Son, 212 Chester St., Phila., Pa. Holly System of Water Supply and Fire Protection

Engines ½ to 5 H. P. Geo. F. Shedd, Waltham, Mass. for Cities and Villages. See advertisement in Scientian Hose and Rubber Hose of all sizes, with or TIFIC AMERICAN of last week.

The E. Horton & Son Co., Windsor Locks, Conn. manufacture the Sweetland Improved Horton Chuck. Forges, for Hand or Power, for all kinds of work.

Address Keystone Portable Forge Co., Phila., Pa

The Lehigh Valley Emery Wheel Co., Weissport, Pa. Steam Engines; Eclipse Safety Sectional Boiler. Lambertville Iron Works, Lambertville, N. J. See ad. p. 406.

Twin Injectors "Clipper" and "Ajax. "Acme," Governors, etc. Improved; new. Catalogue 1880. J. D. Lynde, Phila, Pa.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

Wheels and Pinions, heavy and light, remarkably strong and durable. Especially suited for sugar mills and similar work. Circulars on application. Pittsburg Steel Casting Company, Pittsburg, Pa.

Deoxidized Bronze. Patent for machine and engine journals. Philadelphia Smelting Co., Phila., Pa.

Ore Breaker, Crusher, and Pulverizer. Smaller size run by horse power. See p.77. Totten & Co., Pitts'g.

Wm. Sellers & Co., Phila., have introduced



HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in  $\,{\bf referring}$ to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the Scientific American Supple-MENT referred to in these columns may be had at this office. Price 10 cents each.

- (1) J. writes: I have a boiler that is good with the exception of about 4 inches at bottom of leg that is eaten badly by salt deposit. I have an idea of raising grate bars and filling with a cement of some kind. Can you inform me how to make it? A. Hydraulic cement, properly mixed, may answer your purpose.
- (2) C. F. L. asks how tracing or vellum cloth is made. A. Wagner's tracing cloth is said to be prepared as follows: Boiled bleached linseed oil, 20 lb.; lead shavings, 1 lb.; zinc oxide, 5 lb.; Venetian turpentine, 1/6 lb.; boil for several hours, then strain, and dissolve in the strained composition 5 lb. white gum copal. lighter, say 60 lb. less, and yet will give a much greater Remove from the fire, and when partly cooled add purified oil of turpine sufficient to bring to the proper change has taken place? What was the 60 lb. (missing consistence. Moisten the cloth thoroughly in benzole, and then give it a flowing coat of the varnish.
- Fruit & other can tools. Bliss & Williams, B'klyn, N. T. from the center masthead of a steamer running 16knots ous. In comparing equal weights of the combustibles, Hydraulic Presses and Jacks, new and second hand, per hour, what position would the steamer bear to the the available thermal value of charcoal is greater, as Lathes and Machinery for Polishing and Butting Metals. E. Lyon & Co., 470 Grand St., N. Y. weight on its reaching the water? A claims that the time occupied by the falling of the weight will cause the genous compounds, and volatile combustible matters steamer to be in advance of the weight's original position at the mast head in the steamer's center, said advance to be computed by the length of steamer and rate of her progress, due allowance being made for force of wind. B claims the weight will fall directly perpendicular, and when touching the water will be in its original position. due allowance being made for the force of wind. A. Neither is exactly right; the weight will strike the deck Solid Emery Vulcanite Wheels-The Solid Original a very little aft of the perpendicular, as the vessel maintains a constant speed, whereas the weight has the speed of the vessel before dropping, but loses a very small fraction of that speed during the time of falling.
- (4) C. M. K. asks: What will destroy or Mineral Lands Prospected, Artesian Wells Bored, by drive away fleas? A. Try pennyroyal or essence of
  - (5) D. S. K. asks for directions for silver plating iron and steel. A. Dissolve 12 ounces cyanide of potassium and 1 ounce (troy) of chloride of silver in Connect the work with the negative or zinc pole of a steam pressure also. Am I right? A. You are right. 2. small fragment sent us it is undoubtedly of meteoric

Planing and Matching Machines, Band and Scroll small Daniell or Smee battery of two or three cells by means of a stout copper wire, and join the silver plate in a similar manner with the positive pole of the battery. The work may be prepared for the bath by boiling it in a strong aqueous solution of caustic potassa or soda to remove traces of oil, rinsing in running water and scouring with a brush and pumice powder moistened with strong cyanide of potassium solution; then quickly rinsing again, and, without fingering, placing in the bath, and in circuit. A somewhat weaker (in silver) bath, called the "whitening" bath, and a stronger battery, is generally used to whiten or throw on the first film of silver. The proportions for this are: cyanide of potassium, 1 lb.; chloride of silver, 1/4 ounce(troy). If the silver runs on dark, use a weaker battery, or break the current so as to give alternate in tervals of rest. 30 minutes ordinarily suffices when a battery of 3 or4 Smee cells, plates 10x4inches, are used. In the whitening process an additional cell or more is employed. Iron takes silver better after having received a light deposit of copper. The metal must be freed from oxide by pickling in dilute acid and scouring with sand. For coppering a slightly acid bath of the sulphate and a strong battery may be used.

- (6) "Reader" asks: Has chromic acid much application in the arts, where manufactured, and what its probable price? A. Yes, several of our large Philadelphia houses now produce the acid. It is quoted at 20 cents per ounce. 2. Can muriatic acid gas be made to combine with turpentine by the aid of heat, or at ordinary temperature without aid of a freezing mixture? A. Turpentine oil forms several compounds with For Reliable Emery Wheels and Machines, address hydrochloric acid. The gaseous acid converts it into the monohydrochloride, C10H16.HC]; when the oil is subjected for several weeks to the action of the strong aqueous acid, crystals of the dihydrochloride C10H16 2HCl are obtained. The latter compound is also formed; end or the cylinder end. A. The cylinder end is usually it is called citrene dihydrochloride.
  - (7) H. H. K. asks how to clean and crysdip jars. A. Dissolve in small quantity of hot water, cool slowly, and evaporate by exposure to the air.
  - (8) F. W. D. writes: 1. Will you please inform an amateur photographer of the easiest way to recover the silver from waste solutions. 2. If it narms or benefits the silver bath to leave it in the sunlight? A. 1 Precipitate the warm solution by addition to it of common salt; allow it to settle, decant the clear hquid, and throw the precipitate, together with several scraps of The Grenet is cheap and strong, but n zinc, into warm dilute sulphuric acid. When the chlordon to use it. ide is all reduced, pick out the remainder of the zinc, decant and press out the liquid from the precipitate, dry, mix it with a little borax, glass, and powdered resin in a small clay crucible, and heat to complete fusion. Cool and break the crucible; the silver will be found as a button in the bottom. With a small crucible, a good fire in an ordinary cooking stove will answer for the fusion. 2. If covered, it is beneficial.
  - (9) A. R. F. asks: Can I get any more power from an undershot water wheel fitted with appliances to keep the paddles vertical than I can with common stayed undershot of the same dimensions? If so, how much? A. You can, if the arrangements are suitable to the course of the current. The amount of gain will depend very much upon such arrangements.
  - A. Small articles of cast iron may be tinned by wrapping them loosely with zinc wire and immersing in a solution of perchloride of tin in 10 parts of soft water for 15 minutes. The castings must of course be well cleansed, by pickling them in dilute sulphuric acid and scouring with sand and water or scratch brushing. Use the bath at ordinary temperatures and polish the tinned goods with whiting and the brush. 2. Can you give me any information on soluble glass? A. Consult Feuchtwanger's treatise on Water Glass and its uses
  - (11) W. A. C. asks if there is a cheap process by which pine poles can be prepared for service as telegraph poles, something that would preserve them the ends slightly and coat them thickly with wood tar.
  - (12) W. J. R. asks: Please answer the following in your paper. Can I build a cemented wall in water; if so, how? Machinery to pump the water out would be too costly. A. Yes, by using a diving bell.
- (13) F. X. M. asks: 1. How can I preserve cider? A. See p. 81, Vol. 41, SCIENTIFIC AMERICAN. "How to Preserve Cider." 2. A stick of wood weighing 100 lb., when converted into charcoal will be very much amount of heat. What is the chemical process and what from the original) composed of which would seem lost? A. Your assumption that the combustion of 40 lb. char-(3) G. writes: If a 10 lb. weight is dropped coal develop more heat than 100 lb. dry wood is erronewhich escape complete combustion in ordinary furnaces.
  - possible, an ink that will flow free from the brush and not become gummy. A. Try nigrosine dissolved in boiling water.
  - (15) P. E. writes: I wish to protect young pear and apple trees against gnawing by rabbits, by the use of lime whitewash; but it washes off the smooth bark so rapidly by rain that it becomes impracticable. Can you tell me any addition to make to the wash that will make it adhere in wet weather? A. Try mixing a small quantity of water glass solution (20 per cent) with your lime. Wash and moisten the wood with alum water before coating
  - (16) W. T. S. asks: 1. Is there as much

Can you explain why an injector throws water into a boiler against the pressure? Because the momentum of the water driven by the steam at a high velocity is superior to the pressure on the valve. 3. Is aninchand one fourth steam pipe large enough to supply a seven and a half by ten engme, running from four to five hundred revolutions per minute? A. No; it should be 2 inches diameter, if the engine runs at usual speed.

- (17) M. J. asks: What will remove fruit and wine stains (especially peach and claret) from table tinen? A. If uncolored, moisten with dilute sulphuric acid and then rub with a strong aqueous solution of sulphite or hyposulphite of soda; or soak for a short time in a strong aqueous solution of bleaching powder (calcium hypochlorite), press out excess of the liquid, and immerse in dilute sulphuric acid (1 to 10 of water): rinse in cold water, dip in hyposulphite of soda solution, and afterwards wash out thoroughly in hot water. If colored, use plenty of soapsuds and ammonia water. See p. 2511 Scientific American Supplement, No. 158.
- (18) J. E. E. writes: 1. I am intending to build a steam saw mill, 45 horse power. I wish to set the engine 60 feet from the river and 10 feet above the water line. Will I be likely to have any trouble in supplying the engine with water through the pump at that distance? A. Not if your pipes are carefully laid and tight. 2. There is an idea prevalent among engineers here that an engine whose cylinder diameter is 2-3 the stroke is better for saw mills than one whose diameter is 1/2 the stroke, or that a 12x16 is a better proportion than 9x18. Are they correct? A. Ordinarily cylinder 1/2 the stroke is best. The losses from waste spaces and clearances is less.
- (19) J. A. W. asks which is properly the front end of an ordinary stationary engine, the crank by the action of hydrochloric acid on lemon oil; hence considered the front, whether it be a beam or horizontal
- (20) J. H. D. writes: I am building a light tallize the blue vitriol which is found in the bottom of draught side wheel boat, 65 feet long, 15 feet beam, making over all 22 feet, to be propelled by 10 foot paddle wheels making  $50 \, \mathrm{revolutions}$  per minute, paddles to be 26 inches long and 10 inches dip. How many paddles would it be advisable to put on each wheel? A. Not less than  $10\,\mathrm{nor}\,$  more than 12. The latter will work the smoothest.
  - (21) E. B. D. asks: What is the cheapest and strongest battery or electric pile you know of? The Grenet is cheap and strong, but not constant. You
  - (22) C. B. C. asks whether an induction coil could be made without commutator or condenser, that would give perceptible shocks, using three or four of the large sized cells of battery described in Supple-MENT 149. A. A condenser is not required for a coil used for giving shocks, but some kind of an interrupter must be used in the primary circuit.
- (23) S. S. D. writes: I am going to try to make an emery wheel for grinding skates, etc. What grade of emery should I get, and what should I mix with it, and how mix? A. You will hardly succeed in making a regular solid emery wheel without expensive moulds and many trials and failures. You may, however, make a serviceable emery wheel in the following way: Turn a wheel of the desired shape from a well seasoned (10) C. R. B. asks how to tin iron castings. | piece of pine board. Heat some emery on an iron plate to 200° Fah., and coat your wheel with good glue of about the consistency used for wood work; roll it in the emery and allow it to dry, then give it another coating of glue and emery. When it becomes thoroughly dry it is ready for use. You should make several wheels of different grades.
- (24) C. S. asks (1) how the article in No. 161 of the Scientific American Supplement, about a dynamo-electric machine, is to be understood. I mean that portion describing the electro-magnet. It says there: It is not necessary to use permanent magnets. Electro-magnets may be employed, the slight residual magnetism of the soft iron cores serving to excite the in the ground a reasonable length of time? A. Char armature. Now how can I make this soft iron core to be magnetic, or must the armature be a magnet? A. Temporarily connect the wires that surround it with a battery; or place it in the magnetic meridian, that is, with one pole toward the north and the other toward the south. It is hardly necessary to resort to either of these expedients, as it is almost impossible to find a piece of castiron that is not in some degree magnetic. 2. Also please give me the title of some book on such machines; one giving experiments that may be tried with it. A. An elementary work on physics would meet your wants. Ganot's Physics is a good work for you.
- (25) S. M. E. asks: 1. What effect will ozonized air have on gelatinous animal substances in course of their manufacture? Will it bleach, purify, and deodorize them? A. It would probably bleach and deodorize them to some extent. 2. Is process practicable? A. We have no record of any experiments in this line. Without a better generator of ozones (ozonifier) nahahlu na ny at necent used utilized in the preparation of isinglass; if not, by what Consult some elementary work on chemistry and heat. process can they be practically converted into gelatine in quantities? A. No; it remains to be devised. 4. (14) F. G. asks for a receipt for making what books give reliable information as to the various black marking ink for boxes, bales, etc. I am familiar manufactures of gelatin, glue, isinglass, and preparation with the japan and turpentine preparation, but desire, if of hair (from cattle) for mattresses, etc.? A. Consult Dawidowsty's Leim und Gelatin Fabrication.
- (26) S. L. H. writes: I was in an assayer's office this morning and saw brought in by a miner something that he thought was very valuable, but it proved to be a mass of iron. Its greatest dimensions over all were: length 13 inches, width 10 inches, thickness 8 inches, weight 130 lb. It seems to be about the quality of best Norway iron, shows regular lamination across the mass, and has the appearance of having been thrown while at a welding heatinto a bed of coarse gravel, and is not magnetic. I inclose a fragment chipped from it. It is very tough and would make good horse nails. Is this meteoric iron, or what is it, 1 gallon soft water; filter, and suspend in this bath the or any more pressure at the top of a steam boiler than and are such things common? It was picked up about 8 chemically clean work and a plate of pure silver, expos. at the bottom? I would suppose that the most would be miles from the Ivanpole gold and silver mines in the hibition of inventions. Prospectus on application. 733 ing a surface somewhat larger than that of the work. at the bottom on account of the weight of water and inorthern part of this county. [Judging from the