### **RECENTLY PATENTED INVENTIONS.** Pertaining to Apparel.

FORM-GAGE.-EDITH R. SEXTONE, Chicago, Ill. In this patent the invention has for its purpose the provision of a gage suitable to obtain the shape and measure of different sized SON, Eureka, Cal. The object here is to proand proportioned women, for the construction of bust forms and stands upon which to drape their clothing.

ATTACHMENT FOR WEARING-APPAREL. -A. GOLDBERG, New York, N. Y. By means of furnace in any manner a this attachment the waist dimensions of garments can be altered to adapt them for use by persons having different waist measurements; HEATER.—J. A. HUNNEWELL, Lowell, Mass. it obviates the use of a draw string; requires The more particular purpose of the inventor no alteration in the garment to permit its use in connection therewith, and is inexpensive to manufacture.

GARMENT-RACK .--- B. HARSKOWITCH, New York, N. Y. This rack supports a plurality of garments. Two members are employed, one of which is normally fixed and the other which is normally movable, and these members are Marshalltown, Iowa. This invention pertains so connected together that the movable mem- to certain improvements in vacuum air valves ber may be pulled out longitudinally together intended for use in connection with vacuo-vapor with the garments supported thereby and may heating systems, or for any class of heating then be rotated to better display the garments.

HAT-GUARD.-C. H. SHAW, New York, N. Y. This invention is an improvement in hat guards, and the inventor has in view such a device in which the guard string will be auto-matically drawn within the hat when released and the effective length of the string altered to suit the convenience of the wearer.

### **Electrical Devices.**

ELECTRIC DETONATOR .-- G. A. ALLEN, Western Springs, Ill. More particularly the invention relates to detonators of the type operated by aid of electricity, the more par- FLUSH-TANK.—B. WALKER, JR., Austin, ticular purpose being to guard the explosive Texas. The improvement refers to flush tanks, materials and exclude the entrance of moisture, and the aim is to produce a tank having a so as to preserve in good condition the priming valve of simple construction which will oper-and other explosive substances contained with- ate to close automatically after the water of in the detonator shell.

### Of Interest to Farmers.

INCUBATOR.-E. A. MAISCH, Anderson, Cal. In this electrically heated incubator the invention relates more particularly to the construction of the heating coils and the eggsupporting trays. Means provide for an even temperature at all parts of both trays; only a small quantity of current is consumed and the contrivance requires only a simple method of regulation.

elevated ridges, and at spaced distances apart. Beets below a certain size are culled or rejected and the remainder must be topped at the crown.

## Of General Interest,

is clasped in the hand with the thumb on one grip and the fingers on the other, and the hand is opened and closed, with the arms pendent, extended, and bent to the shoulder, or with any other movement of the arms, advisable or desirable. At the same time the body may be bent into various positions.

ADVERTISING DEVICE .-- J. E. DOWSING, New York, N. Y. In this instance the invention has reference to advertising devices admitting of general use, and more particularly to a type of advertising device suitable for campaign purposes with a view of attracting the attention of the public to a particular candidate.

DOOR-HANGER.-F. J. S. MIELY, Gunnison, Colo. This invention relates to door hangers R. I. This apparatus is for use in automatic and especially to such as are employed for ally separating coins according to their sevhanging sliding doors such as car doors, barn doors, and the like. The object is to provide a track of improved form which will be reliable in operation, and further, to provide improved means for supporting the track.

#### Hardware.

STRAINER.-T. RICHARDSON, New Orleans, La. This device is for application to faucets homination outlets for straining water and other liquids and through by gravity.

blade.

# Heating and Lighting.

BOILER-TUBE CLEANER .- J. D. THOMPvide a cleaner for tubes, which is adapted for directing a jet of steam through the boiler tubes from their rear, it being possible to use the cleaner without dismantling the boiler or furnace in any manner and without drawing

ELECTRICALLY - OPERATED WATER is to provide a type of heater containing a minimum of parts, the latter being so arranged that water passes through a long tube containing a heating coil, the cold water entering at one end of this tube and the hot water being drawn from the opposite end of the same.

VACUUM AIR-VALVE.-C. A. DUNHAM. work in which it is desired to vent air from the mains, returns, or other portion of the system in which low pressure steam is used.

### Household Utilities.

WINDOW-SHADE SUPPORT.-C. C. BROWN, Revelstoke, British Columbia, Canada. The object of this invention is to provide a new and improved window shade support, arranged for convenient up and down adjustment on the window, to allow moving the shade roller to any desired height, and to permit convenient manipulation of the window shade.

FLUSH-TANK.-B. WALKER, JR., Austin, trolling the main lever of the tank which operates the flush valve.

FOLDING CRIB OR BED.-E. GUNDELACH, New Rochelle, N. Y. The intention in this case is to provide a crib or bed, which is simple and durable in construction, exceedingly strong and cheap to manufacture, and arranged to permit of conveniently folding it into a comparatively small bundle for transportation or storing purposes.

BEET DIGGER AND TOPPER.—W. C. MAUER, Greeley, Colo. This improvement is in beet diggers and toppers, and the device is especially adapted for digging and topping the best diggers and topping to the device is and other food stuffs, and arranged for con-venient application to pry the closure open, the base of the invention is to provide an opener for jars containing fruit, vegetables and other food stuffs, and arranged for con-venient application to pry the closure open, the base of the invention is to provide an opener for jars containing fruit, vegetables and other food stuffs, and arranged for con-venient application to pry the closure open, JAR-OPENER.-J. H. SMITH, Rochester, N. with a view to break the vacuum in the jar and the adhesiveness of the closure to the jar, thus permitting convenient removal of the closure.

# **Machines and Mechanical Devices**,

EXERCISING APPARATUS.—W. P. STULL, McKeesport, Pa. In using the apparatus, it purpose here is to strengthen the binding edges of loose sheets to such an extent that the sheets may be moved upon the posts or other binding mechanism without mutilation. Another purpose is to provide a binding edge which will be of the same thickness, after reinforcement has been applied, as the main body of the sheet.

> SPEEDOMETER.-E. SCHNEIDER, XV. Staglgasse 8, Vienna, Austria. The speedometer, according to this invention, is connected to an ordinary clock work, which couples a spindle to an indicator device intermittently for a definite period of time, so that the index of the indicator is set in accordance with the speed of the spindle at the time.

> COIN-SORTER.-T. F. GALLIGAN, Providence, eral denominations. It has coin delivery openings successively decreasing in size, from the top to the bottom passage, according to the size of the coins, a coin carrier in each passage, means for sweeping the coins into the pockets of each carrier and means for revolving the carriers to finally carry those coins remaining in the pockets over the several denomination outlets whereby the coins drop

iating the depth or extent of cutting of the internal combustion engines for controlling the passage of the spark at the igniter. The cas-

ing is supported rigidly so that there can be no movement whatsoever, and upon the central shaft the inventor provides a helical contact and rotatable therewith. The pitch of the helix and position of the helical member the shaft determine the time of closing of the ølectric current.

STARTING-CRANK FOR INTERNAL-COM-SUSTION ENGINES.—J. A. LAWSON, New York, N. Y. This invention pertains to improvements in cranks for internal combustion tain to try a common ball with spring bal-engines, and more particularly to an improved ance at sea level, New York, and then over means whereby the crank may be locked to the the deepest ocean abyss? A. The weight of a shaft by the mere act of grasping the handle person at different places on the earth is calof the crank, and whereby the releasing of culated by the application of Newton's law of the handle will release the grip of the crank gravity. The weight is directly proportional to upon the shaft.

COMBINED TURBINE MUFFLER AND FLY-WHEEL.-J. A. LAWSON, New York, N. Y. Mr. Lawson not only utilizes the pressure of the gas, but he prevents the high temperature of the gas from injuring the wheel rotated "General Astronomy," Chapter V.—The Earth thereby. This wheel is so constructed as to operate as a fly wheel, and furthermore he postpaid.) The centrifugal force at the utilizes the wheel in creating a partial vacuum equator is 1/289; hence, a man or other body at the ophanet roles of the set o at the exhaust valve or valves of the engine really weighing 300 pounds would seem to

### Pertaining to Vehicles.

HANDLE-BAR FOR BICYCLES.—J. R. Lo-at the equator would weigh 301.5 pounds. GAN, Fresno, Cal. The intention in this case is to provide a bar for bicycles which serves as a receptacle, in which the hose employed in connection with a pump for inflating the tires may be stored. By stowing the hose, it is always at hand ready for use, and by utilizing always at hand ready for use, and by utilizing in the way and adds but little cost to the whole numbers. At the relation and use only the in the way and adds but little cost to the whole numbers. At the relation and use only the set that the equator is always at hand ready for use, and by utilizing in the way and adds but little cost to the whole numbers. At the role there is a little in the way and adds but little cost to the whole numbers. At the pole there is a little handle bar.

BODIES .- J. T. HAMILTON, Council Bluffs, Ia. | same time it is brought nearer the center of the ate to close automatically after the water of The invention relates to vehicles used for car-attracting body. It is 3952/3965 as far the tank has run off. A further object is to rying grain and similar material which may from the center, and hence the attraction provide an improved construction for con-leak out at the rear of the vehicle body. The (3965/3952)<sup>2</sup> times as great, and the weight invention strengthens the parts at this point, is increased to the same degree. The weight renders them more durable, and operates posi- on the top of a mountain 5 miles high at the tively as a preventive of the waste of grain by le**ak**age.

NOTE.-Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.



Kindly write queries on separate sheets when writing about other matters, such as patents, subscriptions books, etc. This will facilitate answering your ques-tions. Be sure and give full name and address on every obset

Full hints to correspondents were printed at the head of this column in the issue of March 13th or will be sent by mail on request.

recently been brought out an electrolytic alter- strument? I have made inquiries from a numnating current rectifier, consisting mainly, I ber of the prominent supply houses without understand, of aluminium electrodes immersed success. A. We do not know any instrument in a solution of aluminium chloride. If you especially for determining the sun's shadow. have ever published any account of the con- This can be drawn by a protractor when the struction of this apparatus, or know of any altitude of the sun above the horizon has been such description having been published, I determined. To find the altitude of the sun would be pleased to have you advise where I for any day at noon, when the shadows are may find the same. A. You will find the elec- shortest since the sun is highest, you should trolytic rectifier described with plans for its have the latitude of the place and the declinaconstruction in SUPPLEMENT Nos. 1478, 1644, tion of the sun. Subtract the latitude of the 1679, and in the SCIENTIFIC AMERICAN, Vol. place from 90 deg. To the remainder add the 97, No. 8, and Vol. 101, No. 7. We send declination from March 21st to September 21st. these papers for ten cents each.

Is there any way they could be charged or above the southern horizon. With this angle, worked over to put some life into them?  $\overline{A}$ . the shadow cast by any object can easily be Nothing can be done for dead dry cells to revive them "as good as new." Sometimes holes are punched in them and they are put into jars Can you favor us with receipt of formula for as wet cells, getting some current out of them. the silvering of lens mirrors, such as are used Sometimes the top is cut out and fresh solu- for marine searchlights on projectors? A. tion of sal ammoniac is put in. The strength You will find in our SUPPLEMENT No. 1,671, and life of the renewed cell are not enough to price ten cents, full and accurate directions pay for the labor and cost.

(12132) C. R. says: Allowing that a man weighing 300 pounds and 3 ounces weighed 300 pounds by spring balance-3 ounces being lost in centrifugal force at sea level, equator -what would he weigh at the North Pole, member movable longitudinally of the shaft with 13 miles less of earth under him? I say 295 pounds, as there is less matter to at-tract. What would he weigh at the top of a mountain 5 miles high, equator? Would he weigh less than 300 in or over the deepest (5 miles) ocean, equator? That is, does the water attract as vigorously as earthy matter? Will the SCIENTIFIC AMERICAN get a sea capthe attracting mass, and inversely proportional to the squares of the distances between the centers of gravity. The results obtained show that a body will weigh about 1/190 part more during the cranking or starting of the engine, weight a trifle less than 299 pounds at the equator, because of centrifugal force. The loss given by you as 3 ounces is too small. At the poles a man whose real weight is 300 pounds HANDLE-BAR FOR BICYCLES.-J. R. Lo- at the equator would weigh 301.5 pounds. andle bar. less matter to attract a body, and for this WEAR-STRIP FOR CART AND WAGON reason it would weigh a little less, but at the equator would be equator would be  $(3965/3970)^2$  times the weight at the sea level. We do not know what change of weight there would be over the deepest ocean. Pendulum experiments to determine this are not easy on a ship, nor is accurate weighing very easy on shipboardcertainly not the accurate weighing of a large weight. Balances for weighing heavy articles are not sensitive enough to determine the weight to a small fraction of a unit. We may say that the water attracts less than the rocks of the earth, since it is less dense than the rocks. We must leave you with these explanations to figure out the results, since 'we do not solve problems for correspondents, as you will see by referring to our Hints to Correspondents.

(12133) H. L. T. says: Some years ago I heard of an instrument used by architects to determine the extent of the sun's shadow for any given condition, at any par-(12129) F. A. McD. says: There has ticular season of the year. Could you inform me who manufactures or sells this inese papers for ten cents each. (12130) C. C. says: I have quite a from September 21st to March 21st. This lot of dry batteries. They have gone dead, gives the angle of altitude of the sun at noon

(12134) F. Electric Company says: (12131) J. R. says: Will you kindly is the one now in general use by precipitating

thereby removing wigglers, bugs, and other solid particles. The object of the invention is to provide in such a device a detechable object in this case is to provide a simple and sold to compare the there are not dif-tell me how much per house-power is the sell-ing price of electricity when it is generated and sold to compare the there are not dif-ficult to obtain is to provide in such a device a detachable straining element, which is easily applied and displaced for cleansing and other purposes with-out removing the device from the faucet.

NUT-LOCK .- T. HAND. Walla Walla, Wash. This form of nut lock is much stronger, more rapidly applied and removed and may be manufactured at much less cost on account of its simplicity, there are no key holes or cavities become clogged, it automatically adjusts itself to a constantly tightening position and is to provide a mechanism provided with a very may be removed by simply exerting a holding sensitive auxiliary trigger on the usual or strain on a lug by a crow-bar, pick, or other tool, if the wrench should not be available.

MITER-BOX .--- W. E. SHUTTS, Ellenburg Center, N. Y. This inventor provides a box wherein the saw is guided to operate at a variety of angles from the perpendicular, while operating at various angles on horizontal planes.

object in this case is to provide a simple and and sold to consumers. efficient machine which can be driven from any suitable source of power, and which forms sausage links of uniform length. The links may be also formed of different lengths without danger of tearing or injuring the same, and the machine twists the casing so tightly that it cannot subsequently untwist.

TRIGGER MECHANISM .- E. R. WILLIAMS, St. Joseph, Mo. The purpose of the inventor main trigger, to securely lock the main trigger and hammer in firing position, and to permit an easy and quick release of the hammer for firing purposes.

Prime Movers and Their Accessories, COMBINED TIMER AND DISTRIBUTER. quickly adjusted, and means provide for reguis for use in connection with multi-cylinder price to estimate upon.

(12135) J. D. asks: Are you aware for the purpose of framing a lease for a water power which we are trying to have improved. of any plan being discovered how the pyramids A. The price of electricity in this city is 10 of Egypt were built? A. We believe that cents per kilowatt hour, either for power or authorities upon Egyptian antiquities are lighting purposes. The kilowatt is the more agreed as to the probable method of handling usual unit of measurement because it may be the stones of the pyramids and the much more conveniently estimated simply by multi- larger statues and obelisks which were moved plying the voltage of the current by the hundreds of miles and set up in place. Man amperage, e. g., 10 amperes of 250-volt current power alone can have done the work, and it gives 2,500 watts or 21/2 kilowatts; 746 watts, does not seem necessary to suppose any unor ¾ of a kilowatt nearly are equivalent to one known modes were used for doing the work. horse-power, or one kilowatt  $\pm$  1 1/3 horse-With men enough, all can be accounted for. power. The price varies in different parts Frescoes exhibit such work going on. Some of the country, being higher at remote coal- have thought that earth was filled in to form burning plants where fuel is expensive, and an inclined plane as the pyramid was raised lower at hydro-electric generating stations to the higher portions, and the stones were where power costs nothing. The highest price then slid up this 'plane, which was removed we know is 22 cents per kilowatt hour, and the after the building was completed. In modern lowest 5 cents, the New York price above times such stones have been moved long dis-The operative positions may be readily and G. T. BROWN, New York, N. Y. This invention quoted being about the average and a fair tances by man power. The base of the statue of Peter the Great in St. Petersburg was

dragged from Finland to its present location best ones have appeared first in the SCIENTIFIC stands as one of the books of permanent imby men. Its weight is estimated at 2,000 tons. Iron rails were laid upon which cannon balls rolled, and thus the huge block was drawn by MACHINE DRAWING AND DESIGN FOR BEGINmen.

### NEW BOOKS, ETC.

KRIECHTIERE UND LURCHE DEUTSCHLANDS. By Dr. Kurt Floericke. Kosmos Gesellschaft der Naturfreunde. Ge-schäftsstelle Franckh'sche Verlagshandlung in Stuttgart. Price, 50 cents.

In this book Dr. Floericke has presented a popular account of the principal reptiles and English practice is slightly different from amphibians of Middle Europe. To those who are familiar with the German language and desire to obtain a general knowledge of an book. The questions suitable for examination interesting class of animals. without delving into technical details, the book can be recommended.

THE FIXED LAW OF PATENTS. By William Macomber. Boston: Little, Brown & Co., 1909. Large 8vo.; pp. 1,060. Price, \$7.50 net.

In this work Mr. Macomber has presented in digested form the patent statutes, the decisions of the Supreme Court of the United States, and the decisions of the nine Circuit Courts of Appeals, the three constituting what Mr. Macomber calls "The Fixed Law of Patents." As a piece of compilation and arrangement the book is indeed admirable: as a reference work for the patent lawyer it will be extremely help-The principles of patent law, although fairly few in number and simple in essence, have in later years become more or less be-fogged in the effort of non-technical judges to administer the patent law fairly. In view of that fact, any attempt to bring something like order out of a chaos of decisions is certainly commendable. Because the book gathers up the appellate law, in the language of decisions, it should be of interest to the specialist. Unless he has digested the law for himself, the specialist will hardly have such a compilation. Considered as a whole, the work may be regarded as an orderly statement of the courts' language in important cases and therefore absolutely authoritative.

INNS AND TAVERNS OF OLD LONDON. By Henry C. Shelley. Boston: L. C. Page & Co., 1909. 364 pp. Price, \$3.

The subject of inns and taverns in London has always been a fascinating one, and the literature concerning them is quite voluminous. The present volume sets forth the historical and literary associations of those haunts, together with an account of the most notable coffee houses, clubs, and pleasure gardens of the British metropolis. The English have al-ways had a reputation of being essentially a home-loving people; still in the seventeenth and eighteenth centuries they seem to have exbrcised considerable zeal in creating substi- These notes have been explained and pubtutes for that home which they ought to have loved above all else. When the Londoner had procured his taverns and inns, he set to work evolving a new species of public resort in the coffee house. That type of establishment appears to have been responsible for the development of the club as the substitute for the home, and then came the age of the pleasure garden. Both of the latter survive, the one in the form of a more rigid exclusiveness than the eighteenth century Londoner would have dreamed possible; the other is so changed that frequenters of the latter would scarcely recognize the relationship. The engravings are taken from old prints, and are of great in-The book is beautifully printed and terest. most attractively bound.

IMAGINATION IN BUSINESS. By Lorin F. Deland. New York: Harper Brothers, net.

This little book contains a number of shrewd essays which deal with a curious phase of business. It shows the remarkable part which imagination plays in business, especially to-day. LIGHT AND HEAVY TIMBER FRAMING MADE

EASY. By Fred T. Hodgson. Chi-cago: Fred J. Drake & Co., 1909.

12mo.; 395 pp. Price, \$1.

The present work is a copious treatise on the modern practical methods of executing all kinds of timber framing, from the simple scantling shed or lean-to to the heavy and complicated timber bridges, centers, needling, and Egypt planned and financed by Mr. Eckley B.

AMERICAN, and that they are reprinted prop- portance in this field. Of all the interesting erly credited.

illustrations. Price, \$1.25.

The author is director and professor of mechanical and civil engineering in the Polytechnic School of Engineering in London, and is the author of valuable works on drawing and machine design. The work is an excellent one, and the drawings which are reproduced are thoroughly common sense. Of course, American, but the differences are not so great as to militate against the value of this and home work are valuable, but the Board of Education examination papers are worthless for American students.

AN EXPERIMENTAL STUDY OF BAGASSE AND BAGASSE FURNACES. By E. W. Kerr, M.E., assisted by E. M. Percy, B.S. Baton Rouge, 1909. 8vo.; 106 pp.

During the last few years the writer, who has charge of the instruction of students in the engineering branches of the Audubon Sugar School, has visited a large number of sugar factories in Louisiana for the purpose of gathering data and information for classroom use. In these visits he has been particularly struck with the lack of uniformity in the methods employed for utilizing bagasse as a fuel, both as to the form and proportions as well as to the manipulation of the far as possible the methods employed, it was decided to conduct a series of investigations. the object of which should be to gain a thorough insight, by general observation and by tests, into the methods used in Louisiana for utilizing the heat from bagasse. The result of the labors of the author is included in the present pamphlet, which gives his views on the subject most exhaustively and refiects great credit upon the author.

LABORATORY NOTES ON IRON AND STEEL ANALYSES. By Walter Macfarlane. London and New York: Longmans, Green & Co., 1909. 12mo. 462 pp. Price, \$2.50 net.

These notes were in the first instance written for the guidance of the staff in an iron and steel works laboratory, which was for some years under the supervision of the author, and where the results of over 40,000 estimations were annually placed on record. The methods required to be reliable and rapid, so as to control and keep pace with the manufacturing operations. It was necessary that all the analysts should work on identical lines, and the accuracy of the methods were tested in daily practice and confirmed by other analysts. lished, and are for the benefit of all students. The general aim of the book has been to set out a full course of assaying or analysis in full detail. The work is an excellent one, and is certain of a considerable sale.

MODERN PRACTICE IN MINING. Volume II. The Sinking of Shafts. By R. A. S. Radmayne. New York and London: Longmans, Green & Co., 1909. 8vo.; 275 pp. Price, \$2.25 net.

The sinking of shafts for the purpose of opening out and developing mineral wealth constitutes one of the most important branches of mining; and although a vast amount of information respecting such operations is disseminated throughout the proceedings of the various mining institutions, and excellent chapters are devoted to the subject in many textbooks on mining, so far as the present writer 1909. 18mo.; 108 pp. Price, 50 cents knows, shaft sinking has not hitherto been treated from the British standpoint of the While the practice described is British work. practice, it cannot help but be of interest to the mining engineers in this country. The illustrations are numerous and are well executed on a good scale.

AREIKA. By D. Randall Maciver and C. Leonard Woolley. With a chapter on Meroitic Inscriptions by F. Ll. Grif-fith. Oxford: The University Press, 1909. 4to.; 56 pp.; 42 plates.

This volume is the first of a series which will record the results of explorations in

and important autobiographies that have seen the light in the last decade none perhaps has NERS. By Henry J. Spooner, C.E. a wider appeal to all classes of readers than New York and London: Longmans, Green & Co., 1908. 8vo.; 266 pp.; 743 The grim workhouse, the squalid life in Liverpool, the terrible experiences at sea, his adoption by a New Orleans merchant, his life as a planter, the enlistment in the Confederate army, the wonderful picture of Shiloh, his life in prison and escape, his finding of Livingstone, the exploration of the Dark Continent, the founding of the Congo State, and his closing years are described with a vigor of style which has rarely been surpassed. The book is beautifully printed and illustrated, and is certain to have a large sale, as it appeals to almost everyone. MECHANICAL DRAWING FOR TRADE SCHOOLS.

By Charles C. Leeds. New York: D. Van Nostrand Company, 1909. Ob-4to.; 58 plates and text. long Price, \$2.

This work on mechanical drawing has been prepared with a purpose in view of thoroughly grounding draftsmen and others of the various machinery trades in the principles of mechanical drawing. It is also intended to familiarize them with modern drafting-room practice. The author does not believe in using models, as he thinks this tends to develop copyists, and in this he is undoubtedly correct. The author, who is connected with the Carnegie Technical Schools, finds that the results obtained by this system are excellent. The furnaces. With a view to standardizing as cuted. There is a bill of material with nearly



NOVEMBER 13, 1909. Advertising hat rack, B. Klum ..... Air compressor, compound, N. A. Christën-sen .... Alloys, etc., manufacturing calcium silicon, Goldschmidt & Weil Ambulance, C. Mestrovich ..... Anthracene compound, P. Thomaschewski, 938,616, 938,591 938.742 938,758 938,496 negie Technical Schools, finds that the results obtained by this system are excellent. The plates are on an enlarged scale, and the draw. fings from which they are made are well exected. There is a bill of material with nearly every plate.
IRRIGATION ENGINEEBING. By Herbert M. Wilson, C.E. New York: John Wiley & Sons, 1909. Svo.; 625 pp. Price, \$4 net.
The Reclamation Service of the United States now has 21 projects which have reached such a state of completion that water is being furnished settlers for irrigation of their lands. At this date 675,514 acres are under irrigation of works completed or in progress. The revenues collected to date from projects and \$42,932, 787 have been expended upon the construction of works completed or in progress. The revenues collected to date from projects in poparation and available under the law for reachilding structure, V. Font suitable is the present or sixth edition has been almost entirely rewritten, bringing up to date the tremendous progress made in construction by the Reclamation Service. Since the last edition important changes have been 939,151 938,910 938,612 939,141 938,825 938,825 938,971 938,703 938,706 938,706 939,066 938,590 938,590 938,81 939,166 938,535 939,094 939,0**7**6 939,018 938,699 938,542 939,052 938,735 939,181 939,122 938,536 939,127 939,000 938,902 938,802 action of the present or sixth addition have a line of the continuous more sent of the last effective rewritten, bringing up to date the tremendous progress made in construction by the Reclamation Service. Since the last efficient of the very general adoption of rein forced concrete for such works.
 AccHTECTURAL PERSPECTIVE. By I. P. Hicks. New York: Industrial Publication Company, 1990. Square soc.; 73 pp. Price, 50 cents.
 BUILDING PLANS AND HOW TO DRAW THEM. BY I. P. Hicks. New York: Industrial Publication Company, 1990. Square Soc.; 73 pp. Price, 50 cents.
 BUILDING PLANS AND HOW TO DRAW THEM. BY I. P. Hicks. New York: Industrial Publication Company, 1990. Square Soc.; 73 pp. Price, 50 cents.
 BUILDING PLANS AND HOW TO DRAW THEM. BY I. P. Hicks. New York: Industrial Publication Company, 1990. Square Soc.; 73 pp. Price, 50 cents.
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 BUILDING PLANS AND HOW TO DRAW THEM. BY I. P. Hicks. New York: Industrial Publication Company, 1990. Square Soc.; 73 pp. Crice, Company, 1990. Square Soc.; 73 pp. Crice, Company, 1990. Square Soc.; 74 pp. Crice, Company, 1990. Square Soc.; 73 pp. Crice, Soc. School, Soc.; 74 pp. Crice, Soc.; 75 pp. Crice, Soc.; 76 pp. Crice, Company, 1990. Square Soc.; 76 pp. Crice, Company, 1990. Square Soc.; 78 pp. Crice, Company, 1990. Square Soc.; 78 pp. Crice, Soc.; 78 pp. Crice, Company, 1990. Square Soc.; 78 pp 938,970 938,815

shoring, roughing and railway work, tank	Coxe, Jr., of Philadelphia, and this is the first	Ours is the <b>Oldest</b> agency for securing patents:	Olutch actuating mechanism, B. M. W.
frames and taper structures, and is illustrated	volume of the series to be known as the Eck-	it was established over sixty years ago	Hanson
by 450 engravings and diagrams.	lev B. Coxe. Jr., Expedition to Nubia. The		A. Lambert
by 100 chgravnigs and diagrams.	Lappodition is to be conducted for five years on	MUNN & CU., 361 Broadway, New York	Coal loading apparatus, W. Larsen 938,879
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