### Self-motive Carriages and Electric Accumulators.

kilometers of the course, if not in the 100 hours allowed missions into account. to competitors, at any rate in a time more suited to the future applications reserved for self-motive carriages on public roads.

We need not wonder at the almost entire absence of electricians from this competition, the object of which still remains a mystery to many, and to some a bitter deception.

As regards the bicyclette, the interest attached to the races is, and should only be, ephemeral; practical aprender the greatest service to the development of selfmotive locomotions, the dawn of which is appearing at

riages deriving their electrical energy from accumulators; these carriages must really be placed on the same footing with carriages drawn by horses which start in the morning and return to the coach house at night, so as to recuperate during the night the energy | Paris race, and they justify the almost entire absence expended during the day. And, again, these carriages of the former, for only two carriages of the kind were are only suited to applications for conveying people entered, and only one really took part in the compeeither for purposes of business or pleasure; in a word, tition, arriving at last at Bordeaux after numerous we want to realize the electric cab or carriage. For mishaps on the way. But steam has many objections conveying goods, the place is already filled and well; which it would be puerile to mention; petroleum en filled by the gasoline carriages which are already used gines have to be started by hand after each little stopby a number of firms for their town deliveries.

A few general figures will suffice to show the supepoint of view.

carriages consume about 500 gr. of a density of 0.7 per the vehicle. mechanical horse power hour available on the axle of the motor.

Taking transmissions into account, when considering The foolish race, writes M. Hospitalier in L'Industrie the efficiency, 1 kg. of gasoline represents at least Electrique, that has just taken place between Paris 250,000 kgm. available at the rim of the wheels. With and Bordeaux and back, has brought out incontestably the boilers used on the steam carriages, 1 kg. of good the advantages, henceforward indisputable, of petro- coal produces at most 6 kg. of steam, and the non-conleum, or more correctly, of the essence of petroleum or densing motors consume at least 18 kg. of steam per gasoline; it has relegated steam to the second rank and horse power hour, or 5 kg. of coal per horse power placed electricity much lower still on the list, for a hour. One kg. of coal, therefore, produces at the most partisan of this mode of locomotion, as bold as rash, 90,000 kgm. on the motive axle and 50,000 kgm. availpresented a carriage which would traverse the 1,775 able for traction at the rim of the wheels, taking trans-

An electric accumulator produces now a maximum of 15 ampere hours at 2 volts, or 30 watt hours, or 18,000 electric kgm., which represents 5,000 kgm. available at in cities and villages will not destroy a large proportion the rim of the wheels, taking into account the efficiency of the motor and transmissions. We may assume that the weight of gasoline, steam, and electric motors are to all intents the same, but the petroleum motor necessitates the transport of a certain quantity of water for cooling purposes, and the steam engine that of a still plications only will survive, and the competitions that larger quantity of water to be converted into steam present the most practical character are those that will on the journey, while with the accumulator we must transport a considerable and constant weight. It follows from this that the figures 250,000, 50,000, and 5,000the end of this century. From this point of view, the do not represent the respective valves of the mechanicompetition of carriages without horses, instituted last cal energy utilized in the three kinds of self-motive year by the Petit Journal, was much more useful, and carriages. A closer comparison lowers the compararesponded far better to a real want than the Paris-; tive value of the steam engine, and raises that of the petroleum engine, since the latter has not to carry use-But long races from town to town, and long trials of lessly, like the accumulator carriage, a considerable speed over long distances, are not suited to electric car- | dead weight, the transport of which absorbs the greater part of the available energy.

These figures show that there is no chance of competition between the accumulator carriage and the gasoline carriage in a speed test like the Paris-Bordeaux page, they are noisy and productive of much jolting, they exhale an odor which is far from agreeable, and riority of gasoline from a mechanical and economical often they can only be persuaded to ascend hills of receive damages for his loss is established by the any steepness on the condition that the passengers are courts. A good deal of trouble could be avoided if elec-The motors of 2 to 5 horse power used on the gasoline  $\mid$  obliging enough to dismount, and sometimes even push

> While rendering all due honor to gasoline, and sincerely applauding its success, and notwithstanding the

unfavorable figures that we have just quoted, electrical carriages offer such advantages as regards comfort. convenience, simplicity of manipulation, etc., that we must still persist in believing in their superiority for a metropolitan service in large towns provided with distributions of electrical energy. The electric carriage will best solve the problem of the electric cab, the possibility of realizing which we suggested in 1881, and which, it seems, is on the eve of being realized in Paris itself. Qui vivea verra.

#### Electrocution of Shade Trees.

It is a question whether the stringing of electric wires of the shade trees. Complaint is made in several cities that where the wires pass through the foliage the trees in nearly every instance have died, presumably from the effects of the electric current. It has been noticed also that the death of the trees almost invariably follows a season of rain, when the wet leaves are good conductors of electricity and carry it from the wires to the trees. In some cases the death of trees has been caused by wires supposed to be thoroughly insulated, the covering having been rubbed off the wires by the friction of the branches when moved by the wind.

The evidence that the trees have been killed by electricity is furnished by the fact that in numberless instances the trees through which the wires pass died in an hour during a storm, while those standing a few feet from the wires were uninjured. These results will raise the question as to the liability of electric light companies for the damage caused by the killing of shade trees. The right to string electric wires does not give the further right to destroy the shadetrees, which may constitute the chief value of a piece of real estate. Neither does it give the right to lop off the branches and otherwise disfigure ornamental trees simply because such branches happen to be in the way of the wires. This has been done by an electric light company in one of our suburban villages, and many large and beautiful trees have been practically ruined by such vandalism.

This destruction of trees is quite likely to lead to expensive litigation before a property owner's right to tric lighting and power companies would take pains to place their poles and string their wires so as not to interfere with the ornamental trees along their lines.-Chicago Record.

### RECENTLY PATENTED INVENTIONS. Railway Appliances.

CAR MOVING BAR.—John McFarland Austin, Canada. For moving and shifting cars in railway yards, this inventer prevides a bar er lever in which fit loosely independent jaws adapted to rest on the rail and grip it on opposite sides, a spring connecting the lever with the shanks of the jaws. When the lever is placed on or over the rail and the handle pressed slightly down, the lever acts in a wedge-like manner on the jaws and causes all the weight to be converted into grip on the rail, the grip being automatically released by the action of the spring when the pressure is removed.

QUICK ACTION BRAKE VALVE.-William Hirst, Trenton, N. J. This invention covers an imprevement in triple valves, whereby the pressure in the brakecylinder is retained at all times up to the required full working pressure. It provides a retaining valve in the form of a spring-pressed piston valve arranged in the triple valve exhaust and normally held in open position by pressure from the train pipe, the valve on reduction of pressure in the train pipe, connecting the triple valve exhaust with a port leading to the main valve to establish communication between the auxiliary reserveir and the brake cylinder.

# Electrical.

ELECTRIC TARGET.—Milton T. Weston, Kenten, Ohie. This invention relates to pleasure ground targets to be struck by a spear or wand, or targets for shooting galleries. A circuit closer is actuated from the bull's eye and is so connected as to actuate an alarm, and also, through an electromagnet, release a hanger, whereeye. The alarm bell and the magnet may be placed ing and the prize dropping by his side on a successful neath the log, but will always be in position to do the shot being made.

# Mechanical.

tised joints in sashes, doors, etc., this inventor has devised a machine in which an inclined spout feed device stop plate at the lower end of the spout having an aperture registering with its greeve, while a feed tube connected with a plate extends substantially in alignment hellew head in which is a mevable plunger, a cellar movable relatively to the head being controlled by the plunger, and the head and collar having a dowel feed passage at an angle to the line of motion of the cellar.

Pa. To facilitate drilling in rock, etc., at any angle, corrugating wire or similar material reinforced at its corwithout danger of the drilling tool getting stuck in the rugations, bending the corrugated material to shape and hole, the drill shaft is mounted in a carriage on a frame, bedding the reinforcing material and corrugated material

wheels, cams on the driving shaft engaging the wheels, and there being a worm on the driving shaft and a worm wheel in which the drill shaft slides, the shaft having a key and groove connection with the worm wheel. drill can be readily set in any desired working position, and is easily moved about from place to place.

# Miscellaneous.

WAR SHIP .-- George W. Van Hoose, Tuscaloosa, Ala. To enable the whole armament of heavy guns of a ship to be fired at once in any direction, this invention provides a form of turret and barbette in which the turn table of the turret always remains below the upper deck and protected by the barbette, the gun carriage and its housing rising above the deck when firing and falling below it at other times, so that one set of guns adjusted to the higher position may fire directly ever another lewer set of guns. A special form of bar bette, and of turn table with gun carriage and housing, are provided, and special hydraulic devices for raising and lowering the guns and their housings

WOVEN CHENILLE FABRIC.—Leedham Binns, Philadelphia, Pa. This is an improvement on former patented inventions of the same inventor, providing a fabric having a fine appearance and adapted to be formed in various ways to produce a large variety of styles. It comprises a continuous web on opposite sides of which at intervals are arranged separate sets of warps, wefts being interweven with the separate sets of warps, while the ends of the wefts project from the outermost warp threads to form tufts.

Log Hauling Device.—Albert Van Duzer and Walter Kirby, Scotia, Cal, This is a simple attachment which may be conveniently applied to a cable by a prize will be presented to the one making the bull's and to a log to be hauled, and adapted to release and nermit, the loop to slide freely down a steen grade, the above and alongside of the marksman, the bell ring- attachment being such that the cable cannot get bemest effective werk.

TYPEWRITER COPYING ATTACHMENT. -Charles H. Keith, New York City. According to this DOWELING MACHINE.—Christian Loet- invention, a frame applicable to the carriage has a brace scher, Dubuque, Iowa. To drive dowel pins into mor- to hold it in the position of use and a roller to receive either a duplicating belt of carbon paper extending around the platen roller, or a belt saturated with copying is grooved to permit the lengthwise sliding of a dowel, a compound, a supply roller to be filled with copying paper, a receiving reller to receive copy paper after the impressions are made on it, and spring-actuated mechanism to turn the receiving reller and cause it to automatically with the lower end of the groove. The machine has a take up the copy paper as it is carried forward by the platen roller in the regular operation of spacing the lines.

ARCHES, PARTITIONS, ETC. — Foster Milliken, New York City. For such constructions this inventor provides a combination of cement, and concrete with wrought iron or steel which will develop the full HAND DRILL.—Robert Binnie, Bolivar, strength of all the materials. The invention consists in and on the drill shaft is a sliding frame provided with with cement or concrete. The construction is also suita-

ble for roofs, domes, sides of buildings, vault light work,

VEHICLE TOP BOX OR RACK ATTACH-MENT.-Lawrence H. Hansen, Viborg, South Dakota. For farm wagons especially this invention provides a means whereby an upper structure may be readily attached to the wagon body, to afford a high body for the carriage of cattle, corn, grain, etc., the sides and ends of the body extension to be dropped down and held at an angle, adapting the vehicle for hauling hay, straw, etc. Locking devices are provided whereby the body extension may be held firmly in whatever position it may be placed, and the upper structure held rigidly in either its expanded or its closed folded position.

GLUE STOCK CUTTER AND FEEDER. Peter Cooper Hewitt, New York City. By this invention an apparatus is provided by which glue stock may be taken from the washer, conveyed to a cutter and held in position to be acted on by the knives. 'The cutting machine as a series of circular cutters, a series of serrated disks for holding the stock while it is being cut, a glue stock conveyor consisting of endless belts extending between the disks, guards between the cutters preventing the stock from being carried around by them. Adjustable gearing connects the shafts of the cutters and disks for regulating the position of the cutters relative to the disks

BOX LID RAISER AND FASTENER. Charles L. Feinberg. Breeklyn, N. Y. According to this invention, a catch is fixed to the body of the lid and keeper to the adjacent portion of the box body there being combined with the keeper a spring capable of raising the lid on the disengagement of the catch and keeper. That pertien of the body which carries the keeper is yielding, so that it may be moved to engage or disengage the catch and keeper, the automatic raising of the lid being simultaneously effected with the release of the fastening device.

CURTAIN FIXTURE. - Delbert B. Mc-Capes and Edward D. Quinn, Vermillion, South Dakota, This is designed to be a handsome attachment to be applied to the outer or inner face of the window frame to hang an ordinary window shade roller in, so that it may be readily adjusted vertically to bring the roller to the desired height. It comprises a slotted barrel in which slides a bracket projecting through the slot, means for fastening the barrel to a support, and an adjusting rod extending upward into the barrel and connected with the bracket.

CAPSULE FILLER.—Albert M. Ingalls, Duluth, Minn. This improvement comprises a funnel having at its outlet end an expansible and contractible tube to receive and hold by contraction a capsule body while being filled, and a double-ended reversible rammer with a longitudinal bore serving as an air vent. It is easily operated and simple in construction, and facilitates the rapid filling of capsules with the desired amount of medicinal and other material.

vention, can be set up by the fingers in like manner as a formation of the atmost value to all interested in the in-

wrench, and placed in position as a napkin holder and cheek distender, or it may be turned down close to the gum, being quickly adjustable on either the upper or lower teeth or the bucal, lingual or palatine surfaces and crosswise of the teeth. The matrix is inexpensive and is made in sections united at one point in their length in a manner to be readily disengaged when withdrawn, obtaining the result of a band matrix, yet possessing the advantages of a two-piece matrix.

GAME COUNTER.—William F. Hochspeier, Jersey City, N. J. This device comprises a board on which are parallel rows of figures, one row having its figures in groups or series and the other having figures to correspond to those in the groups of the opposite row, there being tilting angular finger pieces pivoted between the rows. It is intended for use in games where successive amounts are made to complete a final total,

GAME COUNTER. - Joseph Voelker, Pittsburg, Pa. This device has a shallow cylindrical case whose cap piece has a single erifice, an inverted concave bell being held within the case and a dial retating on the post, while a series of indicators is adapted to successively appear at the orifice in the cap piece, being moved with a step by step movement by actuating mechanism within the boll, as the player presses upon a finger piece projecting from one side of the case.

Note.-Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date

# NEW BOOKS AND PUBLICATIONS.

THE MINERAL INDUSTRY, ITS STATISTICS. TECHNOLOGY AND TRADE IN THE UNITED STATES AND OTHER TRIES TO THE END OF 1894. Vel. III. Edited by Richard P. Rothwell. New York: The Scientific Publishing Company. 1895. Pp. 770. 8vo. Plates, illustrations and tables. Price \$5.

To the engineer, the chemist, the metallurgist, the buyer, the seller of minerals, the investor in mineral property. and to the legislator who should know the resources and conditions of production in every country, this work is absolutely indispensable. This is the third volume of "The Mineral Industry," and brings the subject up to date. The work describes the occurrence and character of deposits in which the useful minerals are found, the characteristics of the mineral, the methods of mining, treatment of ores, characteristics of metals, costs, uses, statistics of production, import and export, consumption, review of mineral, metal and mining stock markets, as sessments by mining companies and dividends from 1884 to 1894. To this are added extremely valuable technical articles by the most competent authorities, giving the most recent progress in each department of mining, metallurgy, and chemical industry, thus bringing the tech-DENTAL MATRIX.—Joseph M. Strout, nical literature up to date. The tables of itemized cost Portland, Me. A matrix retainer, comprised in this in production of many of the minerals and metals afford industry. Vol. III contains the table of contents of the two preceding volumes, so that the literature on such subjects as carbonindum and monazite can readily be traced. A splendid index contains about 12,000 sepa-

AN ELEMENTARY TEXT BOOK ON STEAM ENGINES AND BOILERS FOR THE USE OF STUDENTS IN SCHOOLS AND COL-LEGES. By J. H. Kinealy. New York: Spon & Chamberlain. 1895. Pp. 236, 8vo, 103 illustrations. Price \$2.

The author is Professor of Mechanical Engineering in Washington University, St. Louis, Mo. He states that the book was written more especially for students in the universities and colleges. The student is first given an idea of thermo-dynamics, then of the action of steam in the cylinder of the engine, of the motion of the steam valve, of the differences between the various types of engines and beilers, of the generation of heat by combus tion, and of the conversion of water into steam. In the derivation of some of the formulæ in thermo-dynamics the calculus is used, but the use of all mathematics higher than algebra and geometry has been avoided as much as possible. The subject is presented in a clear

MONOGRAPH ON FLUID EXTRACTS, SOLID EXTRACTS, AND OLEORESINS.

Joseph Harrop, Ph.G. Colum Columbus, hio: Harrop & Company. 1895.
 Pp. 230. 16mo. interleaved. Price \$2.

By the author of the well known "Monograph on Flavering Extracts." The druggist of te-day is fitted by reason of the good education which is now required by registered pharmacists, and handy appliances, to manu facture many of the preparations which once were the sele preduct of large establishments. The work treats of the articles used in the manufacture of medicinal extracts, the processes of manufacture and preservation. There are formulas for fluid extracts, solid extracts and eleeresins. The work should find a place in the working library of all pharmacists who make their own

EMATICA DELLA BIELLA PIANO. Studio differenziale di cinematica del CINEMATICA piano con applicazioni alla costruzione razionale delle guide del movimento circolare e rettilineo. Per L'Ing. Lorenzo Allievi. Naples: Francesco Giannini & Figli. 1895. 8vo. 2 vols. Pp. 151. 29 plates.

Any of the above books may be purchased through this office. Send for new book catalogue just published. Munn & Co., 361 Breadway, New York.

# SCIENTIFIC AMERICAN BUILDING EDITION

**SEPTEMBER**, 1895.-(No. 119.)

TABLE OF CONTENTS.

1. An elegant plate in colors of a residence at Edgewater, Chicage, Ill. Three perspective elevations floor plans. Mr. J. L. Silbee, architect. A pleasing design, with many good features.

2. A residence in the Colonial style, recently erected in Tennis Court, Flatbush, L. I., at a cost of \$7,500 complete. Perspective elevation and fior plans, alse an interior view. Messrs. Stevensen & Greene, architects, New York City. An attractive design.

3. A dwelling at Bronxwood Park, N. Y., recently erected at a cost of \$6,000 complete. Two perspective elevations and floor plans. Mr. J. M. Lawrence, architect, Mt. Vernen, N. Y.

4. A residence at Mt. Vernen, N. Y., recently erected at a cost of \$8,000 complete. Perspective elevation and fleer plans. Mr. Walter F. Stickles, architect, Mt. Vernen, N. Y. An attractive design in the Celenial style.

5. A cettage at Bergen Point, N. J., recently erected at a cost of \$4,200. Mr. Wesley J. Havell, architect, New York City. Perspective elevation and floor plaus. A neat design, showing some original and pleasing features

6. A dwelling at Bedford Park, New York City. Two perspective elevations and floor plans. Mr. Edgar K. Beurne, architect, New York City. An attractive design in the English Gethic style

plans. Cost complete, \$5,080. Architects, Messrs. Stillsen & Brown, New Haven, Cenn.

Perspective view and ground plans, also an interior view, Mr. H. P. Clark, architect, Besten.

Perspective elevation and floor plans. An attractive design.

10. A Colonial house at Far Rockaway, N. Y. Architects, Messrs. Child & De Goll. Perspective elevation and thoor plans. A model design.

11. Miscellaneous contents: The Hayes metallic lathing, illustrated.-Neolith as a paint and decorative medium for relief work, illustrated.—Gas radiators, fire grates, etc., illustrated.—Improved heaters, illustrated.-Improved sash lock, illustrated.-American homes and the cabinet or parlor organ. illustrated.-The Laurie steel lath, illustrated -The Austin & Eddy sash hanging attachment illustrated.

The Scientific American Building Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Thirtytwo large quarte pages, forming a large and splendie MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates and fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural Publication in the world. Sold by all newsdealers. MUNN & CO., PUBLISHERS,

361 Broadway, New York.

### Business and Personal.

The charge for Insertion under this head is One Dollar a lin for each insertion: about eight words to a line. Adver tisements must be received at publication office as early a Thursday morning to appear in the following week's issue

For Sale-Patent No. 525,951, Sept. 11, 1894. Unloading device. Address W. T. Flanken, Tebuacana,

For pumping engines. J. S. Mundy, Newark, N. J. "U.S," metal polish, Indianapelis, Samples free, Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Heading machinery. Trever Mfg. Co., Lockport, N. Y. Screw machines, milling machines, and drill presse The Garvin Mach. Co., Laight and Canal Sts., New York.

Emerson, Smith & . Ltd., Beaver Falls, Pa., will send Sawver's Hand Book on Circulars and Band Saws free to any address.

'The best beek for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail. \$4; Munn & Co., publishers, 361 Broadway, N. Y.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26te 36 Redney St., Breeklyn, N. Y.

Expert machinist wanted by a manufacturer of cut-lery and bardware specialties. Must be capable of mak-ing necessary repairs and inventing labor-saving imprevements. None without highest references as to character and ability need apply. Address Manufacturer, box 773, New York.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co.. 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeaver to reply to all either by letter or in this department, each must take his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Frice 10 cents each.

Books referred to promptly supplied on receipt of price.

Linerals sent for examination should be distinctly

price.

Ninerals sent for examination should be distinctly marked or labeled.

(6613) S. D. writes: On perusing your paper of March 9, 1895, page 150, I read a paragraph headed: "Wire Fence Telephones in Australia," and thought you would be interested to learn that about seven menths age I utilized the top wire of the existing fences for telephonic use and it works to satisfaction. The line is about two miles in length, the wire being with staples as usual, no insulation is needed. At the splices we scrape off the rust and make a continuous connection.

(6614) J. L. says: What is meant by the arematic group in chemistry? A. A class of hydrecarbons, chiefly characterized by containing a group of six carbon atoms in which, out of the twenty-four units of atomicity, eighteen are supposed to be saturated by union of carbon with carbon, leaving only six open to external saturation.

(6615) J. M. B. asks: How can the globes on incandescent lamps be colored red, blue, green, and opal? I want a coloring that will not wash off, and that will not flake off by the heat. A. 1. Prepare the glass by theroughly washing in seap and water and drying. Then dip in bath, made by beating up the whites of two eggs in 1/2 pounds or pint of water and filtering, and hang up to dry. Dissolve the aniline color in photegrapher's common collection. 2. Red or blue aniline will form clear solutions, while the green solution will require filtering. 3. Yellow aniline forms a handsome color, but the surface of the glass presents a frosted appearance after the application. 4. Violet and purple colors may be obtained by combining red and blue in 7. A twe-family dwelling recently erected at New Haven, Conn. Two perspective elevations and floor prepared glass bulbs therein, hang up to dry, and finally pass a current through the bulb for half an hour, that the heat thus generated may harden the coating of the col-8. St. Ann's Episcopal Church, Kennebunkport, Me. lodion, or place in a current of air. 5. The preparation can easily be removed with alcohol or sulphuric ether, but is not affected by water. Experience has shown 9. A residence at Williamsport, Pa., recently erected that the best results are obtained by not using too much for J. F. Fredericks. Architect, David K. Dean. aniline. Make the color light rather than deep, and apply two or three coats.

> (6616) W. S. says: A cannon ball is fired from a cannon in a horizontal position, another cannon ball is dropped from the mouth of same cannon at the moment of firing. Which will strike the earth first? A The effect of gravity on a falling body is the same whether moving with high velocity horizontally or drop ping vertically, but as a cannon ball fired herizentally at the cannon points in a tangent to the earth's surface the dropping ball will reach the earth first by a very small fraction of time.

# TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one nundred thousand applications for pa tents at home and abroad, enable us to understand the laws and practice on both continents, and to possess un equaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and al foreign countries may be had enapplication, and person contemplating the securing of patents, either at home of abread, are invited to write to this office for prices which are low, in accordance with the times and our ex tensive facilities for conducting the business. MUNN & Co., office Scientific American, 361 Broad way, New York.

### INDEX OF INVENTIONS

### For which Letters Patent of the United States were Granted

September 3, 1895,

### AND EACH BEARING THAT DATE

(See note at end of list about comes of these natents

Advertising device, G. M. Underwood
Advertising machine, coin-controlled, H. A. Man- ley
sen. 545,749 Air meistener, W. H. Armstrong. 545,440 Alarm. See Burglar alarm. Electricalarm.
Air mostener, W. H. Armstrong 340,440 Airam. See Burglar alarm. Electric alarm. Asynchronous moter, Hutin & Leblanc. 545,693 Auger, well or post, J. M. Fishback. 545,685 Axle bex, car, J. Petithomme. 545,226 Bag, L. D. Benner. 545,433 Bag holder, L. J. Tanquary. 545,551 Ball bearing sbears, L. A. Williamson. 545,551 Ball bearing sbears, L. A. Williamson. 545,682 Beveling veneer strips, machine for C. F. Scamman.
Bag, L. D. Benner. 545,443 Bag helder, L. J. Tanquary 545,551
Ball bearing sbears, L. A. Williams n
Bicycle attachment, T. A. Fowler 545,474
Bicycle stand, I. Knowlton
Beek belders, swing bracket for, W. K. Cresby 545,683 Book, manifold sales, J. R. Carter
Box. See Cigarette box. Box iron, M. Elb
Box staying machine, J. Mohs
Brake. See Car brake. Electric brake. Vehicle brake. Wagen brake. Electric brake. Erake, E. S. Hail. 545,492 Brick machine, W. J. Soper. 545,543 Bridge, suspension, A. Sherry. 545,823 Breem cern separate g machine, A. Walrath. 545,619 Brush, C. E. Holland. 545,619 Brush, at. J. S. Øverman. 545,526 Buckle and skrt retainer, combined slide, D. Basch. 545,841
Briege, suspension, A. Sherry
Brush, air. J. S. Overman
Basch Sitt Fetaner, Combined Sites, 545,841 Bucgie chafe, F. J. Bringham. 545,847 Buggies, størin cirtain før, B. Martin. 545,747 Buggies, størin cirtain før, W. M. Mørrisøn. 545,713 Burglar alarm, electrical, J. R. Alexander. 545,835 Burner. See Cas burner. Hydrocarbøn burner. Buttøn, F. Jønish. 545,729 Cable support, traction, Røss & Bachman. 545,729 Canning fruits ør vegetables, apparatus før, Bøwen & Flack. 545,770
Burglar alarm, electrical, J. R. Alexander
Butten, F. Jenish. 545,799 Cable suppert, traction, Ress & Bachman 545,729
Bowen & Flack 545,770 Car brake, J. H. Core 545,849
Car brake, F. S. Johnson       545.507         Car brake, F. P. Musser       545.813         Car brake apparatus       1. S. Trott       545.823
Car coupling, G. W. Barfield 545.838 Car coupling, R. M. Ford 545,645
Car coupling, T. Grimth
Car coupling, Scurr & Cotton   545.862   Car coupling, J. F. Tiner   545.751   Car fonder R. Rustin   545.751
Car fender, W. H. H. Diffenbauch. 545,781 Car, railway plew, W. B. Deddridge. 545,782
Car safety tender, street, J. B. Lyford. 545,704 Car signaling apparatus, C. Harold. 545,885 Cars, end support for S. A. Crone 545,779
Canbing fruits or vegetables, apparatus for, Bewen & Flack. 545,770 Car brake, J. H. Cere. 545,489 Car brake, F. S. Jebnson 545,549 Car brake, F. P. Musser 545,540 Car brake, F. P. Musser 545,540 Car brake apparatus, J. S. Trott 545,540 Car caupling, G. W. Barfield 545,533 Car caupling, R. M. Ford 545,604 Car caupling, T. Griffith 545,705 Car caupling, Henderson & Harris 545,604 Car caupling, S. J. Meeker 545,604 Car caupling, Surr & Oetton 545,604 Car caupling, Surr & Cotton 545,604 Car caupling, Surr & Cotton 545,604 Car fender, W. H. H. Diffenbauch 545,710 Car fender, W. H. H. Diffenbauch 545,710 Car safety fender, street, J. B. Lyford 545,710 Car safety fender, street, J. B. Lyford 545,710 Cars, safety attachment for fenders for cable, electric, or other, R. Bustin 545,711 Carburetus apparatus, C. H. F. J. Gustine 545,878 Cartridge loading implement, McNeill & Denise. 545,878 Caster ball C. H. Gaffney 545,858 Caster ball C. H. Gaffney
Carbureting apparatus, air, F. J. Gustine
P. Torier Section diexide, apparatus for burning, w.
Chair. See Invalid chair. Chair fan attachment, recking, Pickel & Schmale 545,721 Channei cleawing device, M. M. Looney. 545,802 Chan cutter and lighter, W. F. Folmer. 545,473 Cigarette box. A. L. Ellett, dr. 545,805 Cigarette machine, W. Maxfield. 545,805 Ciamp. See Crank clamp. Line clamp.
Channel cleaning device, M. M. Looney
Clearette machine, W. Maxfield. 545,805 Clamp. See Crank clamp. Line clamp.
Camp. See Crank camp. Line clamp.  Clarinet, G. F. Pruefer. 545.\$10  Cleat fer electric wires, M. M. Wood. 545.\$20  Clevis, J. L. Cobert, Jr. 545.\$80  Clothes drier, E. Prescott. 545.\$50  Coal or rock drill, B. A. Legg. 545.560  Coal or rock drill, electric, H. H. Bliss. 545.570  Cock, angle, W. R. Howdon. 545.870  Cock, angle, W. R. Howdon. 545.870
Clethes drier, E. Prescett
Cock, angle, W. R. Hewsen 555,885 Cock, plur, J. D. Bewman 545,789 Cock, right and left bandstep and waste, F. H. Frank 545,886
Cock, right and left hand step and waste, F. H. Frank  Coffin handle, F. Ratcliff  545,856  545,722
Frank. 545,858 Grin bandle, F. Rateliff. 545,722 Coin-centrolled mechanism, H. A. Manley. 545,834 Collar points, machine for rolling. A. E. Grant. 545,838 Composing machines, machine for making controllers for, F. A. Johnson. 545,612 Confectioners, unface, J. Rensbaw. 545,612 Confectionery, manufacturing fancy, S. A. Johnson. 545,612
Condenser, surface, J. Rensbaw
Confectionery, manufacturing fancy, S. A. Johnsen. 545,698
Sell 543,898 Conveying apparatus, T. S. Miller 545,807 Cooker, steam, J. B. Brown 545,450 Cooking apparatus, steam, A. Stewart 545,745
Counter-seat, J. L. Levil
Crank clamp, adjustable, F. E. Bresler. 545,843 Curling iron bolder, G. A Turner. 545,557
Cut-off'separator and grader, adjustable, D. J.
Davidsen
Cutterhead for woodworking machines, J. L.
Cycles, pewder duster fer, S. Franken, Jr. 545,475 Derrick, pertable, J. Sarver 545.731 Designing, method of, W. S. Eaten 545,624
Desk, ltd, E. F. & F. D. Pooley
Cycles, pewder duster for, S. Franken, Jr. 535,475 Derrick, portable, J. Sarver. 545,475 Dersick, portable, J. Sarver. 545,731 Designing, method of, W. S. Eaton. 545,624 Desk, Ind, E. F. & F. D. Pooley. 545,833 Dibbling machine, G. K. Spitzenberg. 545,535 Door fastener, M. P. Pirtle. 545,535 Doors dividing machine, J. W. McKay. 545,636 Draught rigging, J. G. Tomlinson. 545,555 Dredger, L. W. Bates. 545,762 Drier. See Clothes drier. Drying apparatus, F. E. Otto. 545,715 Drill, See Coal or rock drill. Drilling apparatus, H. E. Reeve. 545,671 Duster and curtain pole lifter, C. L. Nelson. 546,567 Electric alarm, W. S. Hull. 545,658 Electric conductor safety appliance, A. E. 545,632 Electric conductor safety appliance, A. E.
Dredger, L. W. Bates. 515,762 Drier. See Clothes drier. Drying apparatus, F. E. Otto 545,715
Drill. SeeCoal or rock drill. Drilling apparatus, H. E. Reeve
Duster and curtain pole lifter, C. L. Nelson. 545,567 Egg holder, A. J. Baker. 545,567 Electric alarm, V. S. Hull. 545,663
Electric conductors, support, for everhead, M
Electric meters, J. O'Neil
controlling currents for, T. Von Zweige ergk. 545,689 Electric tool and machine, H. H. Bliss
Elevator step. Bell & Williams 545,561 Embalming table, G. B. Passmere 545,608 Enameling bricks, etc., composition for M. Abern 545,757
Embalming table, G. B. Passmere 545,608 Enameling bricks, etc., composition for M. Abern 545,757
Engine. See Gas engine. Steam engine. Engine reverse motion. steam, J. I. Alexander 545,437
Than
Hughes 545,628 Eyelet, E. Kempshall 545,880 Eyeletting machine, foot power, S. Field 545,468
Eyeletting machine, toot power, S. Field. 335465 Fan attachment. treadle, N. N. Chase. 545,433 Far er egister, H. F. Hughes. 545,822 Far er egister, J. J. Kennelly. 545,802
Feed trough S. E. Burke 545.673
Feedwater heater. J. E. Schlieper. 545,660 Fence machine, wire, S. Z. Clark 545,454 Fence machine wire, J. W. Dwiggins 545,854
Fence post ancher, L. & P. Vanbriggle. 545,548 Fence stay, W. D. Diller. 545,480 Fence stay, W. D. Diller. 545,480
Fence stay, W. D. Diller. 545.48 Fence wire tension device, J. J. Caram. 545.682 Fender. See Car fender. Car safety fender. File, account, L. W. Gilson. 545.482
Files, belding clip for box, F. Tramblay. 545,550 Firearm, magazine, J. M. Brewning. 545,671
Fence wire tension device, J. J. Ceram
I Fireplace lining and andiron support, combined,
● B. Perkins

	Folding table, W. Macomber	645,603 545,758 545,536
	Furnace. See Blast furnace. Heating furnace. Furnace, D. D. Read. Furnace D. D. Read. Furnace regulator, W. R. Smith. Gage. See Water gage. Game counter, J. F. Loistroh Garment banging device, B. Lipschitz. Gas burner, C. E. Dressler. Gas, device for separating liquid from, G. Symens.	545,723 545,542 545,601
	Garment hanging device, B. Lipschitz. Gas burner, C. E. Dressler Gas, device for separating liquid from, G. Symons.	545, <b>600</b> 545,783 545.550
	Gas engine, H. H. Hennegin	545,502 545,709 545,851
	Gate. See Turnstile gater.	545 816 545,725 545,521
	Generator. See Current generator. Glass, ladle for dipping, F. Shuman.	545,681 545,826
	Glass melting tank, T. P. Kenney. Glass melting tank, T. P. Kenney. Glove fastener, F. B. Hall Gold, extracting, P. De Wilde Grading machine, road, O. T. Dutro. Gun, box magazine bolt, J. M. Browning Gun, box magazine bolt, J. M. Mason. Gun carriage, bydraulic recoil. M. F. Smith. Gun, magazine, T. G. Bennett. Hammer power, A. Beaudry. Hammer, power, A. Beaudry. Hannele. See Coffin handle. Harness, skirt far double, F. J. Bringbam. Harvester and shocker, corn, Artmann & Proebl. Harvester and shocker, corn, H. E. Poage.	545,630 545,493 545,852 545,623
	Gun, box magazine bolt, J. M. Browning Gun, box magazine bolt, W. Mason Gun carriage, by draulic recoil, M. F. Smith	545,708 545,540 545,766
	Hammer, power, A. Beaudry. Hammer, power, A. Beaudry. Handle. See Comin handle. Harness, skirt for double, F. J. Bringbam.	545,7 <b>6</b> 3 545,445
ļ	Heater. See Feed water heater. Hot air beater.	•
	Heating furnace, air, W. S. Stevenson et al	545,442 545,829 545,560
	Hoisting apparatus, T. Marnell Hoisting machine, O. E. Hegstad Horse detacher, W. H. Smoot Harses gaiting device for H. G. Canla	545,514 545,500 545,828 545,626
	Horseshoe, nailess, W. H. Wakfer.  Hose nozzle, garden, F. Lewis.  Hot air heater, W. F. & B. G. Camp.  Hydrocarbon burner, B. F. Lawton.	545,626 545,559 545,656 545,772 545,595
	Hydrocarbon burner, Stewart & Carnes	545,595 545,744 545,690 545,726
	Insect trap, k'. L. Bleck. Insulater, electric, D. M. Retbenberger. Invalid chair, fel ding, B. E. Jamme. Invalids, device for lifting, D. H. Shutters.	545,726 545,842 545,819 545,695 545,741
1	Jacquard machine, G. W. Stafford	545,661 545,684 545,463
	Kmfe attachment for revolvers, E. Paul. Kmitted garment and making same, J. Holmes. Kmitting machine, Musgrove & Smith. Knoblock, deer, G. L. Barney &	545,528 545,479 545,809 545,667
	Knob lock, door, barney & Clough. Ladder and truck, extension fire, A. B. Cairnes Lamp, central draught, Edsall & Lathrop Lamp chimney holder G. A. Welch	545,668 545,643 545,462 545,562
	Lamp, electric arc, R. H. Jahr Lamp, electric arc., R. Segerdahl Lamp beater, G. C. Howard Lamp beisting er lowering device, F. W. Smith	545,694 545,736 545,651 545,539
	Lamps, carbon bolder for electric arc. T. E.	
	Adams. Last and tree, combined, A. R. Wellman. Lathe, deadcenter, G. E. Hunter. Leather article, F. J. Bringham. Leather article, seamless, F. J. Bringham. 545, 444,	545,755 545,563 545,692 545,573 545,577
	Leather dressing composition, F. A. Hutt. Leather, manufacture of marbleized, J. Scholl Leggin, L. E. Levy Line clamp, G. K. Asbley	545,702 545,760
	Lathe, deadcenter, G. E. Hunter. Leather article, F. J. Bringham. 545, 444, Leather article, seamless, F. J. Bringham. 545, 444, Leather dressing composition, F. A. Hurd. Leather, manufacture of marbleized, J. Scholl. Leggin, L. E. Levy. Line clamp, G. K. Ashley. Linetype machine, A. D. Pentz. Lock. See Knob lock Sash lock Leconetive, W. P. Henszey. Leconetive, W. P. Henszey. Leconetive tender, Sattelkau & Winkelmann. Leom for weav ing valances, I. E. Palmer. Loom pile, wire, G. Segschreider. Leom temple, W. I. Stimpsen. Leom warp step metion, C. F. Roper. Leom wanp step metion, C. F. Roper. Leop making machine, H. G. Peters. Lubricater, T. G. Lewis.	545,797 545,866 545,607
	Loom pile wire, G. Segschreider.  Loom temple, W. I. Stimpson.  Loom warp stop motion, C. F. Roper.  Loon making machine, H. G. Peters.	545,737 545,638 545,728 545,657
	Mattress frame, metallic, A. E. Kenney Measure, automatic liquid. J. Cowan	
-	Motor See Gas meter	210,481
	Mica fer beiler coverings, etc., manufacture of flake, H. C. Micbell	545,605 545,678
	Music leaf turner, W. B. Purdy	545.659 545.487
	Nut lock, F. W. Coleman.	545,523 545,436 545,776
	Nut lock, J. W. Spriegel. Nut lock, J. D. Tynes. Oil cake trimmer, J. S. Ovens. Ordanace, breech-leading, J. B. G. A. Canet. Organ reed millug machine, H. B. Tibbitts. Oven demestic A. Lindenson.	545,742 545,617 545,617 545,776
	organ reed milling machine, H. B. Tibbitts.  Oven, domestic, A. Lindemann.  Package, sealed, O. S. Fellows.  Standard and wranning machines feeding attach-	545,831 545,511 545,467
	Organ reed milling machine, H. B. Tibbitts. Oven, domestic, A. Lindemann. Package, sealed, O. S. Fellows. Packing and wrapping machines, feeding attachment for. H. D. Wbipple. Packing, metallic, T. Crabtree. Packing, metallic red., J. L. Barker. Padelle, P. K. Mannes. Paper bag and envelope cabinet, J. P. King. Paper coating and drying apparatus, G. J. Burns. Paper feeding machine, T. A. Briggs.	545,564 545,580 545,761 545,706
	Paper bag and envelope cabinet, J. P. King Paper coating and drying apparatus, G. J. Burns. Paper feeding machine, T. A. Briggs. Paper feeding machine, L. C. Hookins	545,803 545,674 545,622 545,863
	Paper reeding machine, 1. L. Hopkins	240,664
	Paper making machines, suction cevice for, rairbanks & Parker.  Paper winding machine, N. H. Brokaw. Pen receptacle J. H. Hayden.  Perforator, W. O. Gottwals. Perforator, H. G. Miller. Phonogram reproducing apparatus, E. H. Amet. Pianoframe Present & Nowell	545,497 545,641 545,793 545,711
	Phonogram reproducing apparatus, E. H. Amet. Piano frame, Prescott & Newell. Pipe banger, R. W. Clark. Pipe hanger, H. C. Weeden. Pipe banger and attachment, R. W. Clark.	545.439 545.814 545.774 545,561
	Pipes, means for connecting soil, W.J. & E. Free-	515,580
	man Pitman red, G. G. Hasbreuck. Plane, E. A. Schade. Planter, C. N. Baker Planter, J. H. Elward. Planter, J. D. Schefield. Planter, J. D. Schefield. Planter, cern er seed. S. C. Lannen. Planter, petate L. C. Evans. Planting machine, petate S. H. Fish. Plow carriage, sulky, N. B. Susley. Plew sulky, J. W. Belles. Poel balls, censtructing, G. H. Burt. Pepcern compressing and moulding machine, W.	545,648 545,732 545,837 545,584 515,824
	Planter, J. D. Schoffeld.  Planter, corn or seed, 3. C. Lannen.  Planter, potato, L. C. Evans.  Planting machine, potato, S. H. Fish.	545,7 <b>0</b> 0 545,787 545,471
	Plow carriage, silky, N. B. Ousley. Plow sulky, J. W. Belles. Pool balls, constructing, G. H. Burt. Popcorn compressing and moulding machine, W. W. Murphull	545,525 545,765 545,578
	Press. See Frinting press Pressure regulator, T. C. McGratb.  Printing press, H. L. Fisher.  Puller. See Staple puller.	545,714 545,472
	Petate hand drepping attachment, C. H. Frest Peultice, R. Kusserew	545.613 545.777 545.700
-	Railway oleck signal system. A. W. Hall. Railway bond, electric, E. S. Wheeler. Railway semaphore signal, J. W. Lat tig. Railway switch. R. G. Burton	545,494 545,833 545,701 545,845
3	Rack. See Twine rack.  Rail structure, F. P. Howe. Railway olock signal system. A. W. Hall. Railway bond, electric, E. S. Wheeler. Railway semaphore signal, J. W. Lattig. Railway switch, R. G. Burton. Railway switch, S. S. Jackson. Railway switch, Samuel & Angerer. Railway switches, pneumatic apparatus for handling, J. W. Thomas, Jr. Railway tie, iron, W. Garner. Rasp. W. Sbaw. Reapers, mowers, etc., osciliating seat for, Pence	545.587 545,820 545,820
-	Railway tie, iren, W. Garner Rasp, W. Sbaw Reapers, mowers, etc., osciliating seat for, Pence	545,687 545,739 545,529
1	Regulater. See Fare register. Regulater. See Gas regulater. Pressure regu-	
	Rings, manufacture of finger, H. Lebr Riveting machine, J. Adt Roling seamless metallic tubes, apparatus for. M. Mannesmann. Rotary cutter, A. S. Vose. Rotary field moter, A. E. Du Bois-Reymond	545,513 545,618
•		220,000