

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

PROCESS OF GENERATING STEAM.—T. W. NEELY, Marshall, Ill. By this process, heat for converting water into steam is supplied internally in relation to the shell of the boiler by an electric arc or two electrodes juxtaposed in the relation of an arc and immersed in the water and introducing at one end of the electrodes hydrocarbon vapor or other gas suitable with the oxygen which may be set free by electrolysis of the water and be burned, and by the heat of the electric arc or hydrocarbon flame to form a supplementary source of heat and pressure within the boiler.

ELECTRIC STEAM AND VAPOR GENERATOR.—T. W. NEELY, Marshall, Ill. The invention is in the nature of a form of steam-generator in which heat for converting water into steam is supplied internally in relation to the shell of the boiler by an electric arc or two electrodes juxtaposed in the relation of an arc and immersed in water. It comprehends means for introducing at one of the electrodes hydrocarbon vapor or other gases adapted to unite with oxygen freed by electrolysis of water and be burned by heat of the arc or hydrocarbon flame to form an auxiliary source of heat and pressure within the boiler.

ELECTRIC RAILWAY-SIGNAL.—W. S. JACKSON, Hoboken, N. J. One object this inventor has in view is the provision of a simple and reliable signaling system which is actuated automatically by a car on entering the siding or turnout constituting a "block" to display signals at "danger," and which is likewise actuated when the car leaves the block of the siding or turnout in order to restore the signals to their normal or safety positions.

SAFETY-TROLLEY.—W. M. GRUNER and W. C. FINK, Springdale, Pa. More definitely stated, the invention relates to a peculiar sub-trolley adapted for catching the conductor-wire upon breakage of the main-trolley sheave or jumping thereof from the conductor-wire, the sub-trolley being also adapted for holding the main trolley lowered or out of contacting position with the conductor-wire supports and at the same time through suitable circuit-closers recomplete the motor-circuit and the sounding of an alarm in a local circuit on the motor-car.

Lighting and Heating.

GAS-BURNER.—C. A. CAMPBELL, New York, N. Y. The prime object of the invention is to so control the circulation of air past the mantle as to produce the best possible results from gas consumed. The improvement lies in a cup which surrounds the burner-tube and is supported thereon, the contracted lower portion of the cup simply engaging the tube and the upper end of the tube flaring out toward the orifices. This cup incloses the lower end of the mantle and protects the burner-tube from the cooling air rising through the perforated support. It also prevents the air from entering the space within the mantle.

COMBUSTION APPARATUS FOR FURNACES.—V. ZANETTI, Genoa, Italy. The practical results of this invention are to increase greatly the percentage of heat from the fuel used for steam-boilers and to diminish or eliminate the soot and smoke, almost completely burned by means of convenient regulation of the ratio introduced through the ash-box and air through the air-tubes, the smoke and soot being already heated up by the incandescing net, and as the velocity of their flight to the smoke-stack is diminished by the net the combustion of the gases and utilization of heat in the boiler are greatly promoted.

Machines and Mechanical Devices.

POWER-TRANSMITTER.—W. H. MERRITT and J. C. WALL, Genesee, New York. The object of this invention is to provide a transmitter which is simple and durable in construction, very effective in operation, and arranged for transmitting the power of a motor or the like to pumps or other machines in such a manner as to equalize the steam and to insure a uniform and easy running of the machine.

TYPE-WRITER.—E. RUNGE, Berlin, Germany. Type-carriers each carrying a number of types are so operated by means of type-disposing devices in this invention that always the required type in correspondence to the key depressed is brought into position for striking and printing. The inventor attains important advantages in respect to simplification of the apparatus for inspection of the parts, whereby the machine is made capable of doing more work, the types are caused to strike better in proportion to the force applied, and the striking force can be adjusted.

AUTOMATIC SHIFTING-WEIGHT SCALE.—C. SCHENCK, 3 Wendelstadtstrasse, Darmstadt, Germany. In this case the invention consists in a pressure which acts upon the beam of the scales, being relieved or taken off when the scales are balanced out, and in a kind of escapement being made to operate upon the further movement of the shifting weight beyond the point of equilibrium, the escapement retarding the movement of the shifting weight and allowing the gentle engagement of the ratchet-pawl.

Pertaining to Vehicles.

LUGGAGE-CARRIER.—F. DALES, Binghamton, N. Y. The object in this instance is to

provide details of construction for a device which adapt it for an easy and secure attachment upon the bicycle-frame, afford a reliable bracket-frame for the support of a package or the like, and enable the secure retention of the luggage upon the bracket-frame by application of a single buckled strap or other available flexible connection.

Prime Movers and Their Accessories.

ROTARY ENGINE.—J. S. DAVIS, Montgomery, Ala. That class of rotary engines, that is provided with a piston adapted to travel in a circle around the shaft to which it is secured, is improved by this invention. The invention is more particularly an improvement in that class of rotary engines in which a sliding abutment is arranged radially between the steam inlet and outlet and is operated by a cam fixed on the rotary shaft.

Railway Accessory.

TRAIN-PIPE-TESTING DEVICE FOR AIR-BRAKES.—W. S. DE CAMP, Chillicothe, Ohio. Mr. DeCamp's object is to enable the engineer to test the line of train-pipes and whistle-pipes and to know from his cab if all the intermediate angle-cocks of the train pipes are open and all the intermediate stop-cocks of the whistle-pipes are also open, and to do this means are provided that enable the engineer to ascertain if all the cocks are open and the air-brake train-pipe and whistle-pipe are in proper condition, for if any intermediate angle-cock of the train-pipe is closed or any intermediate stop-cock of the whistle-pipe, the whistle will not be blown.

Of General Interest.

SAFETY-FASTENER FOR ENVELOPES OR OTHER CONTAINERS.—J. NEWORTHY, St. Johns, Newfoundland. In this patent the invention refers to a fastening for envelopes and other packages or containers for the storage or transportation of valuables, although the fastening is especially useful in connection with envelopes for carrying money, valuable papers and communications by mail or express. It is effective in keeping the envelope or package in a securely-closed condition, which cannot be opened by the insertion of a wire or other implement, and is capable of being easily and quickly manipulated when it is desired to close and fasten the container.

OIL-PRESS MAT.—R. F. WERK, New Orleans, La. The subject-matter of the present invention as well as of the three other inventions noticed in this article, forms a division of a prior application for Letters Patent, filed by Mr. Werk. The present invention contemplates an oil-press mat or cloth consisting of warp-threads and weft-threads, the former being composed of hard, stiff, coarse, and long animal hair and the latter consisting of hard, stiff, coarse, and long animal hair mixed with soft, pliable, and long animal hair, the warp-threads being greatly in excess per square inch of the weft-threads and in such close proximity to each other as to cover and protect the weft-threads, the warp-threads forming the selvage of soft pliable hair. The purpose of Mr. Werk's next invention is to produce a hair mat or fabric durable in service owing to a combination of hair in different grades, and not liable to split or tear apart under the pressure of the seeds and the press-plates; nor will its threads or strands unravel, and it is capable of being folded lengthwise upon itself without breaking. Ends are secured by making warp-threads of soft pliable hair, while the weft-threads are made of coarse, stiff hair mixed with soft pliable hair. The next invention consists of an oil-press mat comprising warp and weft threads, both composed of long animal-hair, the warp-threads of hard, stiff, and coarse hair mixed with soft pliable hair and the weft-threads of soft, pliable hair, the warp-threads exceeding in number per square inch the weft-threads and disposed in close proximity to each other to conceal and protect the weft-threads, the warp-threads forming the selvage of soft hair and the weft-threads of soft hair being thicker than the warp-threads. The claim in the next patent defines the press-mat as consisting of warp-threads and weft-threads, each composed exclusively of long hair from animals' tails and manes, which hair is soft and pliable, the warp-hairs exceeding the weft-hairs in number per square inch, and the weft-threads thicker than the warp-threads.

FLUSHING-TANK.—B. WALKER, JR., Austin, Texas. The purpose of the invention is to construct a tank for flushing water-closets provided with means whereby the water-supply to the tank is automatically controlled without the use of a float, thus obviating corrosions and other well-known causes that tend to leakage whatever float-valves are used.

TOWEL-RACK.—S. A. A. STENBERG, San Francisco, Cal. The principal object in this instance is to provide means whereby a towel may be supported in position for use without utilizing any greater amount of space than ordinarily required for the accommodation of given lengths thereof, and also to provide means whereby soiled portions may be displaced and permanently taken up proportionately as clean portions thereof are caused to be drawn out by the user.

CLIP.—D. E. MAPOTHER, Louisville, Ky. The object in this improvement is to provide a clip or sealing device for envelopes, bags, and like articles which is easily applied, and ar-

ranged to close the mouth to prevent the contents from falling out and becoming lost in transit and on removal of the device from the bag to allow postal authorities or others to inspect the contents, the device being also capable of fastening covers to deeds and of being used for other purposes.

GRAPPLE.—T. ALEXANDER, Brookhaven, Miss. The invention consists in pivoting the hooks of the grapple in recesses in the short levers to which the grapple-suspending ring is attached in the usual way and in providing a spring-detent for engaging the bent shanks of the hooks to hold the latter in normal position facing inward or toward each other; also in providing hooks with lateral projections that constitute handles for use in manipulating the hooks to engage them with or disengage them from a log.

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.

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Inquiry No. 5518.—For makers of barrel stock also for a hand barrel machine.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co. Box 13, Montpelier, Vt.

Inquiry No. 5519.—For makers of glass novelties, such as ink wells, etc.

American inventions negotiated in Europe. Wenzel & Hamburger, Equitable Building, Berlin, Germany.

Inquiry No. 5520.—For manufacturers of family ice machines, also dealers in granite and marble wainscoting.

In buying or selling patents money may be saved and time gained by writing Chas. A. Scott, 340 Cutler Building, Rochester, New York.

Inquiry No. 5521.—For manufacturers of household tinware.

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Inquiry No. 5522.—For manufacturers of alcohol motors, also for makers of suction gas generator motors.

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Inquiry No. 5523.—For devices for using crude oil for fuel purposes.

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Inquiry No. 5524.—For makers of gold wire and shells for making wire and shell jewelry.

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Inquiry No. 5525.—For the manufacturers of Graber's pocket check protector.

The celebrated "Hornsey-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

Inquiry No. 5526.—For manufacturers of toys made from stamped sheet metal.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 5527.—For makers of wooden blades for ceiling fans.

Manufacturers: We can satisfactorily represent and handle your account. Correspondence invited. Welhener-Patrick Company, Manufacturers' Agents, 172 Washington Street, Chicago.

Inquiry No. 5528.—For makers of tattooing machines, also supplies for tattooing.

Inquiry No. 5529.—For manufacturers of air pumps.

Inquiry No. 5530.—For makers of steam or auto-boats, with steam or other power, not having clock-work.

Inquiry No. 5531.—For manufacturers of small ice machines.

Inquiry No. 5532.—For manufacturers of road graders, also of hand power drills for quarries.

Inquiry No. 5533.—For makers of gasoline or hot air engines of about 1/2 horse power.

Inquiry No. 5534.—For makers of elastic webbing, such as used in suspenders.

Inquiry No. 5535.—For parties desirous of putting a new article on the English market.

Inquiry No. 5536.—For addresses of manufacturers of hardware specialties.

Inquiry No. 5537.—For a cheap device for cutting paper 6 and 8 foot down to 2 foot pieces.

Inquiry No. 5538.—For manufacturers of paper box machines.

Inquiry No. 5539.—For manufacturers of peat machinery.

Inquiry No. 5540.—For makers of thermostats for dry kilns.

Inquiry No. 5541.—For manufacturers of sporting gun and ammunition.

Inquiry No. 5542.—For manufacturers of electric runabouts.

Inquiry No. 5543.—For manufacturers of self-registering turnstiles.

Inquiry No. 5544.—For makers of steam excavators or navvies, for trenching for sanitary work, about 4 feet wide by 16 feet deep.



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 endeavor 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.

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(9393) W. F. asks: Can you inform me what kind of colored glass or films, or what it is that is used to throw beams of different-colored light on actors and scenery on the stage of a theater? A. To throw colored lights upon an actor on the stage, it is usual to employ either a calcium or electric arc light with a reflector, and place in front of the light a gelatine film colored with an aniline dye of the desired color.

(9394) J. D. L. says: We have a 6-inch condensing lens with a 20-inch focus, and want to use a microscope objective with it in making a sun microscope. In order to get the necessary light, we have to place the objective nearly in the focus which, I understand, is too hot for the objective. Can we make a bath through which to pass the rays of light, thereby taking out the heat and still have the sun microscope work effectively? What should be used as a bath, and how often must it be changed? Could one get along without the bath, by using a single short lens for an objective? In that case, would there be danger of spoiling the microscope slides from the heat? If such a lens can be used, what length focus would it be advisable to get? A. In using the sunlight for projecting microscopic objects, it is necessary to protect the slide by a tank of water placed in the path of the beam, so that the light passes through the water before it reaches the object to be protected. This cuts off the heat to a sufficient degree. The construction of a tank with glass sides is not difficult. The details of the work can be found in Wright's "Optical Projection," which we can send you for \$2.25. Two pieces of plate glass are fastened by clamps with a thick piece of rubber between them, so as to be water-tight. The water should be at least half an inch thick. Tanks are sold with metal sides, so that there is an inch or more water through which the light must pass. The lens for projecting the microscopic objects should not be of longer focus than 1 1/2 inches, and a lens of as short a focus as 1/4 inch may be used.

(9395) J. C. B. asks: 1. If vegetable oil, such as olive oil, etc., will harden in any degree in cold temperature. A. All oils harden more or less by cold; olive oil at 36 deg. Fahr., castor oil at about 34 deg. 2. Will ice sink if it is what is generally called rotten? A. Ice is said to be rotten when it separates into needle crystals and becomes saturated with water. It does not sink, but breaks up into floating needle crystals and is not seen as ice. 3. On what side of a curve does the most weight want to be, or which way will a wagon tip—to the outside or inside of the curve? A. A wagon should have most weight on the inside of the curve. 4. How do tinsmiths retin their soldering irons? A. Tinsmiths tin their copers with pure tin and sal-ammoniac.

(9396) D. S. D. B. asks: Kindly tell me through the columns of the SCIENTIFIC AMERICAN how to lacquer polished brass. A. Brass articles to be lacquered should be first given the required finish and made perfectly clean. Then heat to about 160 deg. and quickly varnish with a thin lacquer of light-colored shellac, dissolved in methylic alcohol made thin like wine by settling and pouring off the clear lacquer. Use a broad camel's-hair brush.

(9397) O. D. S. asks: If a tree fell out on a field where there was no one that could hear it, would there be a noise? How can one prove that there would be a noise, if such the case may be? A. There are two senses to the word "sound" or "noise." The first is the definition given by the physiologist or psychologist: "Sound is a sensation produced in the brain by a disturbance or vibratory motion of matter, which can be perceived through the agency of the auditory nerve." The second definition of sound is that of the physicist: "Sound is a vibratory motion in some material substance, which if it strikes upon the ear of some living being would produce a sensation in the brain." The first definition is directed toward the sensation produced in the living being; the second is directed to the physical cause or action. Your question with reference to the falling of a tree

where no living being is present, or within reach of the physical disturbance, is answered in one way by the physicist, and in the opposite way by the physicist. Physicists say there is no sound where there is no auditory apparatus. Physicists say sound is independent of any auditory apparatus for its existence. You will then answer the question in either way according to your point of view.

NEW BOOKS, ETC.

HOISTING MACHINERY. By Joseph Horner, A.M.I.M.E. New York: J. B. Lippincott Co., 1903. 8vo.; pp. 252; 215 engravings. Price \$3.

This book was written with the idea of showing the underlying principles, as well as the details, of crane construction, and illustrating the various types of hoisting apparatus in common use. As most of the manufacturers of such apparatus rely largely on experience for the correct proportioning of the parts, the author has omitted all formulas and theories pertaining thereto, and has made his book a handy technical reference work for all engineers and others desirous of knowledge on this subject.

DIZIONARIO TECNICO IN QUATTRO LINGUE. Tedesco. Italiano-Francese-Inglese. By Ing. Edoardo Webber. Milano: Ulrico Hoepli, 1904. 16mo.; pp. 611.

The only way in which to test the efficiency of a technical dictionary is to use it. That we have done. Although we have not always been able to find in this lexicon of Mr. Webber's the definition of every term that we have sought, still we have found his book, on the whole, an exceedingly helpful guide in translating. Most technical dictionaries are so far antiquated that the publication of the present volume is in many respects a welcome contribution from the Hoepli house.

OUTSTANDING ERRORS OF THE NAUTICAL ALMANAC. By Dodge P. Blackstone, A.M., C.E. Berlin, Wis.: George C. Hicks, 1903. 8vo.; pp. 55. Price, \$1.50.

A correct nautical almanac is of equally great value to the astronomer and to the mariner. To the former it is essential for the correct determination of stellar parallax, while to the latter it is quite necessary for making correct observations. Mr. Blackstone's pamphlet gives a mathematical demonstration, and corrects the errors found to one ten-thousandth of a second. It treats of the moment of inertia, the precession of the equinoxes, the mass of the moon, the ellipticity of the earth, and the outstanding corrections due to elliptical orbit.

SIMPLE EXPERIMENTS IN STATIC ELECTRICITY. By Percival G. Bull, M.A. Oxon. London: Percival Marshall & Co., 1904. 12mo.; pp. 71. Price, 20 cents.

This small volume is intended for the use of many young students who know more or less about practical electrical instruments and machines, but who have had little or no experience in the fascinating field of static electricity. The book describes fully most all the interesting experiments that can be made with simple apparatus, and it can be used alone or in connection with a more elaborate text book.

ARCHITECTS' AND ENGINEERS' HAND BOOK OF REINFORCED CONCRETE CONSTRUCTIONS. By L. J. Mensch. Chicago: Cement and Engineering News, 1904. 12mo.; pp. 217. Price, \$2.

Reinforced concrete, while considered to be the ideal building material of the future, is comparatively little used at present, owing to its not being well understood by even our most competent engineers and architects. This handbook was designed to convey to modern architects and engineers full information regarding the use of reinforced concrete constructions. It is copiously illustrated with photographs and drawings, and should prove of great value to the engineering fraternity.

X-RAYS SIMPLY EXPLAINED. A handbook on the theory and practice of radiography. By R. P. Howgrave-Graham. London: Percival Marshall & Co., 1904. 12mo.; pp. 93. Price, 20 cents.

This booklet for amateurs gives a clear and concise account, both historical and practical, of the experiments, discoveries, and improvements which have led up to the present knowledge of Roentgen rays and their application to pathology. Being intended for amateurs and students, it does not treat of the complicated and expensive apparatus, or of the latest developments in hospital methods. It gives, on the contrary, a thorough understanding of the elementary principles involved in X-ray work, and of the use and management of the essential pieces of apparatus employed, including the taking of radiographs and the construction of fluorescent screens. It is well illustrated.

HIE EUROPA!—HIE AMERIKA! Aus dem Lande der krassen Utilität. Von Jul. H. West, Ingenieur. Verlag von Franz Siemenroth in Berlin. Price, 50 cents.

Despite its sensational title Mr. West has in this book presented a rather shrewd analysis of American industrial conditions. His work,

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like many another book of the same kind, is intended to bring home to the mass of German manufacturers the magnitude of the "American peril," of which the German press has had occasion more than once to speak within recent years. Americans have little to learn from the book. Germans, on the other hand, will find in it a bold, clear statement of the causes for American commercial success.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending May 10, 1904.

AND EACH BEARING THAT DATE
[See note at end of list about copies of these patents.]

Adding machine, R. Sears.....	759,478
Addressing machine, J. S. Duncan.....	759,249
Adjusting spring, J. M. Ericson, et al.....	759,507
Air brake, H. Baluss, Jr.....	759,226
Air brakes, automatic train pipe coupling for, R. J. Weken.....	759,784
Air compressor, tide actuated hydraulic, W. O. Webber.....	759,334
Alarm system, F. McGloin.....	759,464
Alloy, S. Kneppel.....	759,617
Anchor, mooring, Shepard & Wimpenny.....	759,759
Anesthetic administering apparatus, A. G. V. Harcourt.....	759,369
Automatic brake, S. C. Burson.....	759,666
Axle setter, G. H. Stant.....	759,766
Axle, vehicle, S. C. Drake.....	759,353
Bag machine, Westervelt & Holmes.....	759,785
Bag machine, H. E. Westervelt.....	759,786
Bale compress, J. L. Sheppard.....	759,399
Bale tie, E. Vuncannon.....	759,773
Ball clamp, W. C. Ladd.....	759,533
Band fastener for cylindrical tanks, Ferguson & Eason.....	759,255
Band fastener, E. C. Tecklenus.....	759,328
Basin, wash hand, F. W. Gordon.....	759,696
Battery, Noble & Anderson.....	759,740
Bed, combination folding, J. B. Wheatley.....	759,788
Bed, metallic folding, G. A. Mellen.....	759,538
Beds, etc., spring bottom for, W. C. Grese.....	759,515
Bedstead attachment clamp, G. P. Sharp.....	759,560
Bedstead spring holder, J. M. Graham.....	759,698
Bevel and square, combination, J. H. Schumacher.....	759,319
Bicycle seat post, H. Clemons.....	759,672
Binder, temporary, W. C. Vanden Berg.....	759,410
Boat launching apparatus, J. Brauchli.....	759,340
Bookin, A. V. J. Ireland.....	759,283
Boiler cleaner, locomotive, J. G. Talmage.....	759,487
Boiler tube cleaner, J. P. Prentice.....	759,468
Boiling bams, holder for, H. A. Kurl.....	759,451
Book mark, H. C. Fairchild.....	759,427
Bookbinding, P. W. Ziegler.....	759,795
Bottle capping machine, R. A. Wittemann.....	759,583
Bottle closure, Baker & Gallagher.....	759,496
Bottle, non-refillable, F. D. Christensen.....	759,347
Bottle, non-refillable, J. B. Fitzgerald.....	759,509
Bottle, non-refillable, J. A. Edes.....	759,597
Bottle rinsing machine, J. J. Clifford.....	759,349
Bottle, water, R. W. Sampson.....	759,555
Bottle wrapper, A. Forbes.....	759,402
Box, H. B. Williams.....	759,578
Box fastener, F. L. Waldron.....	759,419
Brake beam, W. McMillan.....	759,302
Brake device, E. G. Shortt.....	759,563
Brake shoe, A. L. Streeter.....	759,567
Briquet binder, E. J. Hoffman.....	759,443
Bröller, P. Dedue.....	759,504
Brushing machine, W. P. Bliss.....	759,339
Brushmaker's tool, H. Nielsen.....	759,465
Brush, tooth, J. A. Yates.....	759,490
Bucket, Aspin & Erickson.....	759,224
Burglar alarm, A. J. Kercher.....	759,615
Burglar alarm, G. A. Sachs.....	759,437
Burner attachment and shade support, extensible, C. T. Fuller.....	759,689
Burner casing, C. H. Montgomerie.....	759,541
Butter cutter, J. B. Bloom.....	759,458
Button shank former, thread, M. V. Quinn.....	759,307
Cabinet, J. L. Tandy.....	759,770
Cabinet, dispensing, J. Lines.....	759,724
Cable hanger, F. E. Wey.....	759,787
Caisson, D. E. Moran.....	759,388
Calendar, F. M. Rand.....	759,549
Can and opener therefor, E. G. Moersch.....	759,460
Can capping machine, C. B. McDonald.....	759,300
Canned fruits, vegetables, etc., process kettle for, J. Baker.....	759,411
Car, Lindstrom & Streib.....	759,290
Car coupling, A. E. Waggoner.....	759,331
Car coupling machine, G. W. Bowling.....	759,234
Car feeder, F. R. Keith.....	759,446
Car, freight, H. S. Hart.....	759,275
Car, freight, O. M. Jones.....	759,285
Car panel, convertible, J. A. Brill.....	759,661
Car replacer, L. B. Gump.....	759,702
Car sander, B. B. Jenkins.....	759,377
Car side bearing, J. E. Newcomer.....	759,304
Car wheel, H. H. Hayward.....	759,812
Cars, cheek piece or plate for holding the draft rigging to the under sides of, T. H. Simpson.....	759,321
Carburetor, F. C. Merrege.....	759,539
Carburetor, hydrocarbon engine, M. A. Rutenber.....	759,396
Carding machine, J. J. Henderson.....	759,439
Carding machine attachment, J. T. Griffith.....	759,271
Carpet renovator, pneumatic, A. Lotz.....	759,452
Cart, hand, J. A. Baines.....	759,495
Casing swage, F. W. Jones.....	759,379
Caseln, treatment of, L. A. Dreyfus.....	759,808
Cash register, A. Pfaff.....	759,467
Cash register, S. Rhoades.....	759,749
Casket fastener, sheet metal, J. Maxwell.....	759,727
Casket, sheet metal, J. Maxwell.....	759,728
Caster, W. A. Tonini.....	759,408
Caster wheel, C. E. Myers.....	759,299
Casting apparatus, G. Stroh.....	759,569
Cement clinker, etc., apparatus for burning, Portland, T. A. Edison.....	759,357
Cement clinker, etc., burning Portland, T. A. Edison.....	759,356
Chain, H. E. Cook.....	759,476
Chimney cowl, B. S. Whitt.....	759,789
Chromium, making metallic, A. K. Eaton.....	759,424
Cigarette roller, C. Schopke.....	759,476
Circuit changer, C. C. Cadden.....	759,237
Clock, R. Kerbage.....	759,619
Cloth winding machine, N. Jarvis.....	759,376
Clothes line, S. A. Owens.....	759,394
Clutch, friction, W. C. Davis.....	759,841
Coat collar, H. Hoffman.....	759,371
Coating metal objects, A. Johnson.....	759,528
Cock or valve, safety, D. T. Brown.....	759,341
Coffee mill, S. T. Wallace.....	759,781
Coherer, A. H. Stewart.....	759,835
Cellar supporter, lady's, K. D. Stevenson.....	759,403
Corns from celluloid, manufacture of, C. Bensinger.....	759,413
Compressing material into form, attachment for machines for, H. J. Flood.....	759,259
Concrete construction, mold for metal, C. Weber.....	759,573
Converters, etc., apparatus for the introduction of pulverulent substances into, G. Rosenthal.....	759,750
Conveying apparatus, T. S. Miller.....	759,295
Copper ores, reduction of, E. P. Clark.....	759,670
Corn husking and shredding machine, W. B. Martindale.....	759,725
Corn picker and husker, M. D. Hatch.....	759,370
Corn shelling mechanism, J. E. Simmons.....	759,401
Corn sorter, seed, L. P. Graham.....	759,811
Corset, K. Golais.....	759,266
Corset attachment, K. H. McFarland.....	759,542
Cotton gin, A. McGonagle.....	759,390
Cotton gin, R. Starrett.....	759,484
Cotton press, C. J. Luce.....	759,386
Coupling, T. J. Grier.....	759,270
Crate, H. N. Backus.....	759,653

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