ENGINEERING INVENTIONS.

A car coupling designed for freight cars has been recently patented by Messrs. Thomas R. Morgan, Guy Ruf, and David Davis, of Jackson, O., in the use of which the drawhead has a slot in its lower side. to allow the link (in this case a hook) to drop out of position when cars are to be run together without coup ling. The book is pivoted and is attached to a hell crank lever by which it may be raised by a rod at the top of the car or by one at the side of the car.

Mr. Nathan M. George, of Danbury, Conn., has patented a device for preventing dust from entering the axle boxes of railroad car and engine axle bearings, and inducing heating and producing wear. The contrivance is composed of a gland of wood and two of leather embracing a packing of felt. Vulcanized fiber or similar material may be used instead of leather; a spring is used to hold the protector in place. This device may be applied to any car and locomotive axle now in use.

Messrs. Henry W. Robie, of Portsmouth, Va., and William H. Lyons, of Berkeley, Va., have invented an apparatus for utilizing the exhaust steam of a steam pump by discharging the steam into the suction side of the pump, to utilize the atmospheric pressure gained by condensing the exhaust steam, and to condense the steam for returning the heat of it, or most of the heat, to the boiler, the said arrangement consisting of a branched exhaust pipe connecting with both ends of a double acting pump, and each branch having a check valve to prevent reaction on the steam engine when the compression of the pump takes place.

An automatic switch and crossing signal for railroads has been patented by Mr. Daniel H. Applegate, of Red Bank, N. J. It is intended to be worked by an electric battery, and also to use at night an the stands of cotton. By fixed appliances in front of electric light to be lighted and extinguished by a passing train. 'The covering of the light is made by two semicircular plates hinged so as to fall by their own weight and arranged to be raised when electrical contact is made by the wheels of the train. The outside surface of these disks are covered with illuminating paint to make them conspicuous, and to prevent the necessity of an artificial light when the signal itself is not exposed.

MECHANICAL INVENTIONS.

An improved welding, swaging, and forming die for making chain links is the invention of Mr. Henry A. Iddings, of Warren, O. 'The invention is to form a longer lap weld than usual, and to thicken those portions of the link-the ends-which are exposed to the greatest amount of wear. These results are accomplished by means of divided dies, the parts being made movable.

Mr. Leonidas A. Roberts, of Monticello, Ga., has patented an improved method of securing the ends or joints of rubber belts by re-enforcing the ends at the point of jointure by a flap of leather cut so as to cover the face of the belt, and pass under it on each side. The entire joint is made either by lacing or rivets, or metallic books passed through, bent, and clinched. The method demands no skilled laboror engineering calculations.

Messrs, Stephen J. Swayze and John C. Lane, of Sag Harbor, N. Y., have invented an automatic railroad signal intended to provide a signal adapted to be automatically set by the tread or flange of the wheel of the locomotive or car, or any device attached to the engine or car, and to automatically and gradually recede into its inclosure in a given length of time; and this length of time may be governed so that the device may be used as a crossing signal for following trains.

Mr. William P. Badger, of Muscotah, Kas. has patented an improved wind wheel that by means of the reciprocating action of springs and the centrifugal velocity of the wheel, opens and closes automatically the fans or wings of the whcel, to produce a uniform velocity under all circumstances of the force of the wind. A wind chamber is also provided to increase the number of square feet of wind pressure on the wheel.

A machine for forming earthenware vessels has been invented by Mr. Cerbeleon Martinez Ribon, of Mompos, Bolivar, United States of Colombia, by which the clay is placed in a sectional mould which is secured to the plate of a potter's wheel, or a "jigger," and while being revolved a knife, the edge of which conforms to a vertical section of the interior of the vessel to be made, is inserted by foot or hand power, and the clay is rapidly made to the desired internal shape,

Mr. John D. Waldran, of Memphis, Tenn., has invented a handy valve grinder which consists of a contrivance for attachment to the wheel of a globe valve for rotating it backward and forward on its seat by means of a spiral shaft that is operated by means of a reciprocating nut, which is operated by one hand, while the guide for the nut and support is held by the other hand, making a simple contrivance by which Poughkeepsie, N. Y., which is intended to save the such valves may be ground quickly and efficiently with out being disconnected from the pipes.

Mr. Jackson Taylor, of Newberry, S. C., has patented an improved side spring for carriages by terial, and cannot wear the rope or make any noise in which the springs are resistant to side shocks and lateral movements. The springs are also re-enforced by bent U-shaped inner springs that make the central portion of the spring very rigid and yet give elasticity to their ends. The ends of the springs are connected to the carriage by eccentrically pivoted shackle pins, by which the action of the springs under a load is rendered

Mr. John Henry Nute, of New Glasgow, Nova Scotia, Canada, has invented a machine for serving rope which can be operated by hand to serve rope or other materials with yarn or twine, the operation being automatic, and the feed regulated to suit the size of the yarn used, so that by steadying the machine with one hand and turning the driving wheel with the other the spool frame is rotated around the rope to be served, the serving varn unwinding from the spool and windingaround the rope automatically and with accuracy

Mr. Brock Woodruff, of Albert Lea, Minn., has invented an improved process of treating iron in which ordinary wrought iron is first heated to near a welding heat, then rolled in sand, reheated to a somewhat higher temperature than before, again rolled in sand, and again reheated to a welding heat, when it is added common salt in the proportion of one gallou of having their distinctive stubs, and furnishing the basis salt to twelve or fifteen of water, more or less. Iron made by this process may be heated, worked, welded, and otherwise manipulated without destruction of the properties imparted to it in the process named. The have patented a new package fire kindler, which comiron is very hard and tough, and is far superior to ordinary rolled iron for any ordinary purpose.

Mr. Oswald Fachmon, of Lindsey, Ohio, has patented an improved drag saw, the invention consisting of a cam contrivance for working the saw, a lever device for raising and lowering the saw, a power apparatus for rolling the logs to the ways to be sawed, a lever contrivance to feed the logs to the saw, and a guide attachment for the saw, all contrived for the application of power to the driving of the saw, so as to have steadier motion of the saw, and so as to avoid the back thrustthat the drag of the saw causes, which is very injurious, especially when horses are used: and the log rolling and feeding and saw adjusting devices are contrived with especial arrangement for convenience in manipulating them by the attendant.

AGRICULTURAL INVENTIONS.

A cotton harvesting machine has been patented by Messrs. John Myers and John Edward Myers, of Palestine, Texas, the gathering being done by a series of long and short toothed belts arranged side by side alternately, and adapted to pass over and through the machine any bent or broken branches of the cotton plant are raised to connection with the toothed belts. Their load is relieved and deposited in the wagon by a toothed wheel as fast as it is gathered.

Mr. Knight K. Parker, of Circleville, O., has invented a straw stacker for removing the straw from a thrasher and stacking it into a longitudinal rick, making the rick of uniform sides and even height. The stacker is an appendage to the thrashing machine, and is run bythe same power; when not in use it may be folded back on the top of the thrashing machine and be carried from place to place. One-half interest in the invention belongs to Mr. George Ludwig, also of Circleville.

Mr. Walter F. Drew, of Sacramento, Cal., has invented a rake head for rakes with wire feeth, by which a broken tooth may be readily removed and easily replaced by a new tooth. In this invention a single tooth is bent at right angles at its upper end, the bent portion resting in a groove; or, a double tooth is used that has its horizontal upper portion likewise embedded. When put in, the teeth are straight, but once in, they are bent to a curve, the offset thus made helping to keep them seated in place.

Mr. Charles T. Mason, Jr., of Sumter, S. C., has invented a cotton harvester which is intended to reduce the expense of the present method of picking cotton by hand. The picking is done by serrated disks of brass or other non-corrodible metal, protected by shields of wood from unnecessary wear and abrasion. The disks are suspended on vertical stems and are rotated by bevel gears on a frame carried by chains and pulleys, so that the pickers rise and lower without disturbing the plants or breaking off the hard wooded portions.

MISCELLANEOUS INVENTIONS,

A handy folding table has been patented by Mr. Frederick Gesking, of Grand Rapids, Mich., that can be taken down and put up with little trouble and in little time. When folded it occupies scarcely anymore space than the board top alone, and when erected for use it is not only firm, but may be made ele-

An improved form of truss pad has recently been patented by Mr. Elias Thompson, of Commercial Point, O., the construction or rather the form of which is intended to give better protection to a rupture in the lower part of the abdomen than the pads now in use. For this form of pad the inventor claims that no annoyance is felt by different posturings and that the sac cannot possibly escape from its confinement.

Mr. William Klahr, of Myerstown, Pa., has patented an improved bicycle to be driven by pe-dals operating pawls on ratchet wheels in place of crank and lever. The small wheel is in front on this bicycle, and the rider sits in front of the top of the large wheel. a position that gives him unusual power over the driving mechanism, the pedals being considerably in advance of the hubs of the large wheel.

A clamp for dumb waiters and similar contrivances has been patented by Mr. Edward Lange, of soon as the pressure of the hand is removed. The jaws or clamps that embrace the rope are lined with rubber or leather or some other gradually resisting maoperation.

A handy book rest for supporting the hand while writing, when a convenient table or desk is not at hand, has been patented by Mr. Charles H. Metz, of Utica, N. Y. It may be attached to any book, whatever its size, and may be instantly detached. The rest, tained. For instance, the topic of boiler incrustations proper, is a thin sheet of metal, a thin wood board, or a pasteboard hinged to a U-shaped clasp of wire that may embrace any portion of a book without injury to the

Mr. John Owen Kilroy, of Albany, N. Y., has invented an improved tobacco pipe which is so con structed that the nicotine cannot pass into the mouth and the smoke canuot burn or bite the mouth and tongue of the smoker, and thus renders smoking very agreeable. The several parts can easily be detached and removed for the purpose of cleaning them, so that the smoke will always taste fresh and sweet. The bowl can be made of any desired shape.

A combination railroad ticket, useful for routes by different roads, and containing in itself the particulars usually sought in railway guides, has been recently patented by Mr. James W. Womeldorf, of Middleport, O. The ticket may be used for more than one person simultaneously, and may be used, also for difimmediately immersed in water to which has been | ferent roads and different stations, the conductors each for a final settlement between the different roads.

Messrs. Lorenzo D. C. Wood, of Newark, N. J., and Thomas B. Dorrell, of Brooklyn, N. Y. prises in one package a paper bag, box, or wrapper, which forms a component part of the kindler, kindling wood in detached pieces, and a highly combustible lighter. The paper wrapper and its contents constitute a cheap, convenient, and efficient fire kindler in compact package form, and makes a new article of manufacture, trade, or commerce, each package consisting of sufficient material to light a single fire.

Mr. John Walter, of Nashville, Tenu., has nvented a convenient clasp, or coupling, for stove and heat pines made of thin metal, that obviates the necessity of forming the ends, or joints so that they slip one within the other, or of permamently riveting sections together. The ends of the sections are beaded or corrugated and an open corrugated band fits around them, the ends being locked by a key of sheet metal, the edges of which are recurved to embrace the end corrugations on the band. By this device sections of pipe may readily be united and taken apart.

Mr. John C. Jessup, of New York city, has nvented an improvement in color cans, the object of which is to facilitate the discharge of prepared color or paint from cans. The invention consists in a color can constructed with a central discharge opening and provided with a swiveled right and left screw and two pressure disks moving from the ends of the can toward its center, so that all the color can be discharged from the can, the disks gradually approaching each other, as the right and left hand screw is turned and a meeting at the center of the can, where the discharge opening

Mr. Moses Humber, of Calliope, Iowa, has invented a combined horse collar and hames with a view to prevent galling, chafing, pressure on the wind pipe of the horse, and to put the load of the draught on that portion of the animal most able to bear it. 'The collar proper is of wood worked to fit the horse's neck, and cushioned inside. On the outside it is covered by a steel plate connected at top and bottom by adjustable plates. The loops for the tugs are turned a right angles to the collar, by which a portion of the load is borne by the flat of the neck, permitting the shoulders of the animal to move freely.

Mr. George N. Buck, of Mattoon, Ill., has invented a tag fastener which consists of a single piece of wire or other suitable material, which is doubled upon itself like a scaple and inserted through the tag, and then has its extreme ends, which are pointed, bent up in the same direction with each other, and in a direction at right angles with the plane of its body or prongs, to form catches for holding the fastener in place. prongs, which incline outwardly at the ends, are thus adapted to be inserted between the folds of cloth in the roll until the back of the tag is in contact with the end of the roll; and as the ends are inclined toward the tag, any outward movement of the fastener will cause the said ends to sink into the adjacent fold or folds of the cloth and prevent its accidental withdrawal.

NEW BOOKS AND PUBLICATIONS.

Games of Patience, or Solitaire with Cards. By W. B. Dick. Illustrated. Dick & Fitzgerald, New York.

The book contains rules for playing forty-four games and thirty-three full page illustrations.

Design in Textile Fabrics. By Thomas R. Ashenhurst, Head Master, Textile Department, Bradford Technical College, England. Published by Cassell & Co., London, Paris, and New York.

This admirable work contains, in a convenient form a mass of useful facts about weaving, illustrated by several colored plates, and over one hundred diagrams. The author says: " The practice of paying little or no attention to the proper structure of the fabric, and its suitability for the purposes to which it is to be applied, is the cause of considerable waste in manufacture." The object of this manual is to suggest patterns and show means of producing new ones by modification, in the loom mechanism, and preparation of the warp or woof. The book will be of value to all who are interested in the progress and perfection of textile indus-

WORKSHOP RECEIPTS (SECOND SERIES). By Robert Haldane. E. & F. N. Spon, London: 35 Murray Street, New York. Price \$2.00.

The success of the original "Workshop Receipts" induced the author to produce this second series after the same pattern. There are many subjects in all branches of applied science which are not treated of in the great industrial encyclonedias, and yet are of considerable interest to scientific amateurs and mauufacturers on a moderate scale. In the present work each subject is treated exhaustively and in such a manner that the information sought can be readily obis opened by numerous analyses of feed water from rivers, lakes, wells, town supply, rain, canals, pits, springs, and the sea, with analyses of the incrustations produced by them, and a critical examination of the various chemical, chemico-mechanical, and physical processes for preventing boiler corrosion. In this way are treated, among many others, albumen, bleaching cements and lutes, cleansing, confectionery, copying, dyeing staining and coloring, essences, extracts, gelatine, glue and size, glycerine, leather, paper, pigments. paint, and painting. The subdivisions of each head are arranged alphabetically. The language of the book is simple, accurate, and concise.

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Bradley's Road Card, Syracuse, N. Y. See p. 236. Wilde's Car Brake, which is illustrated on page 243,

this issue, is offered for sale. For full particulars address W. A. Wilde, 126 State St., Chicago, Ill.

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Curtis' Expansion Trap. See illustration on p. 118.

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For Mill Mach'y & Mill Furnishing, see illus. adv. p.204 Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 206. Drop Forgings. Billings & Spencer Co. See adv., p. 189 Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 222.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 221

& O'Brien. M'f'rs, 23d St., above Race, Phila.. Pa.

Lightning Screw Plates, Labor-saving Tools, p. 220. Fire Brick, Tile, and Clay Retorts, all shapes. Borgner

Drop Forgings of Iron or Steel. See adv., page 238. Diamond Drills, J. Dickinson, 64 Nassau St., N. Y.

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Correspondents sending samples of minerals, etc. for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identi-

- (1) H. H. writes: I see in your reference book that 403° of heat give 240 pounds pressure. Will be pleased to know the degrees of heat with the pressure (steam) at 300, 400, 500, and 600 pounds. A. At 300 pounds total pressure or 285 pounds by gauge, temperature 4175°; at 400 pounds total pressure, 445° Fali.; at 500 pounds total pressure, 467 5° Fah.; at 600 pounds total pressure, 487° Fah.
- (2) H. B. S. writes: Will you please let me know about what power will be required to force a steel shaft 2 inches diameter into block of cast iron 4 inches square, bored the proper size to make a very tight flt. These blocks of iron are 24 inches long, and the shaft goesthrough, having a bearing at each end of about 6 inches; if the shaft is turned 2 inches diameter, what should the bore be? Or, in other words, what should the difference be between the shaft and the bore? A. We know of no experiments or tests approximating the case you present; it can only be determined by experiment. The following case of actual practice may be a guide: Iron shaft or pin 3 inches diameter and 4 inches length of bearing; allowance for difference of inside and outside diameters one-sixty-fourth inch: pressure required to force together, 600 to 800 pounds per square inch; the former if the hole be rough bored, and the latter when the surfaces are very true and smooth. Another case from actual practice is upon a 7 inch diameter shaft, an allowance of one one-hundredth inch between inside and outside diameters.
- (3) A. S. writes: Please give me a receipt for type metal and black printer's ink. A. Lead 3 pounds, antimony 1 pound; or lead 9 pounds, antimony 2 pounds, bismuth 1 pound. 2. Boil 11/6 gallons linseed oil to a thick varnish; while hot stir into it 6 pounds powdered rosin, 134 pounds dry brown soap in shavings, then 21% ounces indigo,21% ounces Paris blue, and 5 pounds best lamp black. Let it stand a week. There is considerable danger of fire in boiling the linseed oil. will not do, try dilute nitric acid on it. Oxalic acid Every ink factory has its own secrets.
- (4) E. S. M. asks: What sized engine would be required to run a boat 15 feet long and 4 feet wide, and how many miles per hour would it run? A. For a propeller vacht, engine 3 inches cylinder by 31/2 inches or 4 inches stroke. Boiler with about 40 feet fire surface. Propeller about 18 inches diameter; probably get a speed of about 6 miles per hour.
- (5) J.M. E. asks: 1. How can I ebonize pine or poplar for cheap furniture? A. Dissolve copperas in cold water by shaking; paint the wood with it two or three times. After it has dried apply two or three coats of a strong decoction of logwood. When this too has dried wash off the wood, and when dry oil and polish it. 2. Give directions for making walnut stain. A. (a) 1 quart water, 11/2 ounces washing soda, 21/2 ounces Vandyke brown, one-quarter ounce oichromate of potash. Boil for ten minutes and apply with a brush either hot or cold. (b) Permanganate of potash dissolved in water gives a good brown stain.
- (8) D. S. writes: Will you please advise me whether "storm glasses" (camphor and nitrate of potash) should be hermetically closed or not? Some authorities close hermetically with plaster of Paris, others with cork, perforated. A. They should have a very fine aperture in their tops for admission of air. Plaster of Paris alone will not close hermetically, as it
- (7) P. D. writes: Will you please tell me

- follows: Simple sirup, 1 gallon; extract of lemon, half an ounce; fruit acid, 1 ounce. For sarsaparilla sirup the following is the formula: Oil of anise, 15 drops; oil of wintergreen, 15 drops; oil of sassafras, 15 drops; fluid extract sarsaparilla, 2 ounces; simple sirup, 5 pints; powdered extract licorice, half an ounce. sufficiency of the sirup is mixed with the water and the whole is then charged with gas.
- (8) J. A. K. writes: I have a telephone line, 250 rods. Instruments are intended to work without battery; wire No. 18 annealed iron, tight as could draw with hands, put up as directed. Don't work. Can you please tell me through your valuable paper if the distance is too great, or what is wrong? A If you are using a magneto telephone similar to Bell's, we are unable to say-without further particulars-where the trouble is: but if your instrument is an acoustic or mechanical telephone, your wire is too large and its tension is too great. Use a fine twisted wire cable cord and suspend it with strings, so that it will be free to vibrate
- (9) S. T. N. writes: Would you please state in your paper what will prevent white cast iron from blowing when poured around wrought iron? A. T. prevent cast iron from blowing when poured around wrought iron: Clean the wrought iron free from scale with muriatic acid, wash free from acid and heat to 300° put in the mould hot and pour at once.
- (10) V. E. St. C. writes: Will you please answer the following in the Scientific American? When there is 100 pounds steam pressure in a boiler, is not the pressure equal at top and bottom of the boiler shell? A. The pressure is not quite even at the top and bottom of a boiler at any pressure; the difference is due to the weight of the water, which amounts to one pound in 27 inches from the water line down.
- (11) S. C. writes: 1. Please inform me if possible about what height the common 1 pound and 2 pound rockets attain. A. Rockets are very variable in the height of their flight; a 1 pound rocket will carry to a height of from 300 to 500 feet, a 2 pound rocket from 400 to 800; much depends upon the clean finish and shape of head and stick. 2. What plan would you suggest for increasing the warmth of a country house, built of wood? I have been advised to take off the ontside boards, and cover the house with tar paper, and then replace the boards. Would there be a strong odor of tar through the house in summer? A. For making your house impervious to winds, cold, heat, and moisture, take off the clapboards, fill in between the studding with brick, flat or edge as convenient, tight laid with mortar, then cover the studding with felt paper well lapped, and clapboard. If the paper is lightly tarred, it will give off a little odor the first year and will be waterproof, but not warmer than the felt paper. The tar odor is healthy.
- (12) E. L. P. asks how to make a solution of oxide of copper for depositing iridescent colors on metals; also what kind of a corrent it is best to use. Is it practical to solder aluminum? If so, what is the best solder to use and what kind of flux is best? A. 1. Sulphide of arsenic is said to be used for the purpose, probably in solution in sulphide of ammonium. It may be applied by heat. 2. Many alloys are given for aluminum solder. They range as follows: Zinc, 80-94 parts; copper, 2-8 parts; aluminum, 4-12 parts. The more zinc the less of the other metals is required. For flux use 3 parts copaiba balsam, and 1 part Venice turpentine. The operation is the same as that of brazing.
- (13) D. D. S. asks what is the best kind of wire to use for an acoustic telephone, with a rawhide diaphragm, containing sixteen square inches, on a line of about 200 feet. Have tried copper, but it stretches in a few days, so that it does not work well? A. Twisted iron or steel cable cord is the best for this purpose. It does not continue to stretch like copper wire, and is free from the "ring" of a single wire.
- plating. A. Use the double cyanide of nickel and potassium; plate the article in a bath of the double salt, using a battery; for positive electrode a plate of nickel must be employed. The metal is extremely hard to melt. There are many practical points in all electro-
- black off and clean a copper pan, such as is used in boiling sorghum molasses? A. If scrubbing it with sand
- from sumae, and what is the cheapest way, and at the same time will give greatest percentage of tannin. A. Soak it out with successive additions of Very hot water. pouring off after each addition and finally filtering the united decantations.
- (18) C. A. R. asks how to determine the amount of soda ash in a gallon of (soda ash) liquor of any given degree; or some work on the subject. A. You will find the process given in detail in the chem istries and cyclopedias. Your best plan is to have a chemist give you practical instruction in the process. We cannot undertake to explain it at length here. In

INDEX OF INVENTIONS For Which Letters Patent of the United States were Granted

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| | bottle wrapper and casmon, is, or bermighaus. | , |
|---|---|------|
| e | Box. See Butter box. Miter box. | |
| | Brake. See Car brake. | |
| | Broiler, O. Whyte | 285. |
| e | Butter box, A. Sweatt | 286, |
| n | Butter, making artificial, S. H. Cochran | 285, |
| 0 | Butter mould, D. C. Spitzer | 285, |
| d | Butter package, H. P. Barber | 285, |
| e | Butter package fastening, W. H. Roberts | 286, |
| , | Button press, G. O. Schneller | 286, |
| , | Button press, G. O. Schneller | 285, |
| | Buttons, etc., attaching, J. F. Atwood | |
| e | Can. See Color can. | |
| ? | Car brake. automatic, Fuller & Salvadge | 286, |

dall & Kruse

Clamp. See Stonework clamp.

 Coffee pot. J. Cochran
 285,972

 Coffee roaster, Rees & Smith
 285,929

(14) F. H. W. asks for a receipt for nickel plating which can only be learned by experience.

(15) M. J. B. asks: What will take the

(16) C. T. J. writes for a receipt for an alloy that is fusible by steam. A. 3 parts by weight of cadmium, 4 parts tin, 8 parts lead, 15 parts bismuth melts far below the temperature of boiling water.

(17) C. K. asks how to obtain the extract

all chemical operations practice is most essential.

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

Axle nut. carriage, D. S. Hall...... 286,131 Bag. See Feed bag. Bag fastener, F. H. Ludington 285,908
Bake pan and steamer, A. C. Kasson 285,905 Bale tie, wire, J. R. Ashley...... 285,947 Bar. See Grate bar. Battery. See Secondary battery. Bell for bicycles, alarm, H. Serrell.....

 Belt fastener, L. A. Roberts
 286,072

 Bicycle, W. Klahr
 285,821

 Bicycle saddle. H. B. Hart
 285,891

 Block. See Pulley Block. Boat. See Folding boat. Boiler. See Steam boiler. Bolt cutter, E. Amelotte Bolt forging machine, O. C. Burdict.............. 285,876
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 285,794

 Book album, etc., Hoppin & Brown
 285,897
 Book, blank or composition, F. Bowman.... 286,111 Book, hymn and music, R. D. Robertson....... 286.152 Bottle wrapper and cushion, E. O. Berninghaus... 285,872 ,073 .187 Car coupling, W. B. Bessey...... 285,787

 Car coupling, K. S. Blanchard.
 285,789

 Car coupling, L. G. Hedlund.
 286,001

 Car coupling, L. Herrman.
 285,813

 Car coupling, I. J. Merrick...... 285,913 Car coupling, Morgan et al. 286,054
 Car coupling, R. T. Payne
 296.061

 Car coupling, C. P. Searles
 286.080

 Car coupling, automatic, M. Kennedy
 285,906

 Car guard, J. Craig.
 295,975

 Car, sleeping, H. S. Hale
 285,890

 Car spring, T. J. Mayall
 286,042

 Car wheel and axle, J. Findlay
 285,984

 Carding machine, J. Potter
 286,065

 Carriage, child's, C. S. Strowbridge
 285,935

 Cartridge shells, machine for making metallic, Ring & Bradshaw..... 286,151 Cartridges, holder for packing, J. Gardner 285,992 Cartridges, machine for greasing, E. Parker 286,059 Cash carrier systems, stop or brake mechanism blocks and tablets, rubber, W. E. Doud 285,980 .. 285,963

ture of artificial butter, etc.; S. H. Cochran.... 285,973 Churn or mixer for use in the manufacture of Hook. See Snap hook. Clamp for hand power dumb-waiters and other

 Clevis, R. A. Rouse
 286,075

 Clevis, plow, E. L. Bracken
 285,962

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ment of spoil heaps of, L. H. Armour...... . 285,945 Concentrator, G. A. Metcalf...... 286,050 .. 285,846 Condensing steam and heating fluids, apparatus for, E. Theisen Cooking utensil, Simpson & Wilson Coupling. See Car coupling. Thill coupling. Cultivator, wheel, L. C. Chapin...... 285.797 Curtain roller, H. Lobdell. 286,027
Curtain roller attachment, H. Lobdell 286,026 Curtains, window pole for, W. J. Flickinger ... 285;886 Cut-off valve, T. W. Heermans ... 286,002 Cutter. See Bolt cutter. Vegetable cutter.

Dreaging machines, etc., friction compressor for Drier. See Fruit drier. Drying sugar and other substances, machine for, Electric alarms, portable circuit closer for, A. Wiswall....

Draw plate, J. Holland.....

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Farm gate. W. P. See

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Fence barb, J. Ł. Oliver. 286,147

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 Fence. portable, S. W. Fish
 285.882

 Fence post, J. Johnson
 286.0:7

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 285,979
 File and other tools having tapering tangs, J. F.

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Fire escape, T. H. Foster. 285,806
Fire escape, Galivan & Manning. 285,803

 Fire escape, W. L. Murphy.
 285,832

 Fire kindler, Wood & Dorrell
 286,103

 Fireplace and cooking stove, combined, J. Over 280,103
 Flooring jack J. Himelberger. 285,894
Folding boat. C. M. Douglas. 285,981
Folding table, F. Gesking 285,995
Foot power machine, A. B. Kittson 285,820

Furnaces, cutter for revolving puddling, S. T.
 Wellman
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Hanger. See Door hanger. Harness attachment, S. Hemphill...... 286,004

 Harrow, F. C. Romkey
 286,154

 Harvester, cotton, C. T. Mason, Jr
 286,032

 Harvester, cotton, J. & J. E. Myers
 286,055

 Harvester, cotton, G. N. Todd. 285,856 Hatchway, self-closing, D. Humphreys. 286,136 Heater. See Sad iron gas heater. Heating the air in heat flues of buildings, appara-

. 285.903

> Horseshoe nails, machine for rolling, E. Croft.... 285,800 heimer.....dicator. See Steam boiler indicator. Stock 285.791 indicator.

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Lamp and gas fixture, convertible, C. A. Hol-.. 286,066

Lamp, electric arc. C. J. Van Denoeie..... 286 094 Lamps, globe for incandescent electric, G. P.
 Lantern, F. Dietz
 285,880

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 286,087
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 Lifter.
 See Transom lifter.

 Lime kiln, P. McLoon.
 285,911

 Links, die for formiag, H. A. Iddings.
 286,013

Liquors, apparatus for purifying alcoholic, G. Flenry 285,896 Loom picker staff check, Whitney & Jackson.... 285,941 Mattress, electric galvanic, R. Stilwell 285,852 A. Mattress spread electric R. Stilwell...... 285.854
...... 286,100 Meal or flour and process of making the same,

Electric switch. W. Adams. 286.778 Metallurgic furnace, E. D. Wassell. 285.860 Electrical conductor for oil tanks, H. W. Spang. 286.086 Metallurgical furnace, S. Bissell. 286.110 Metallurgical furnace, S. Bissell.... 286.110 Milk skimming apparatus, J. Besley 285,958 Miter box, W. Wassung...... 286,097 Mould. See Butter mould. 285.788 Monkey wrenches, blank for, M. E. Campfield... 285.796

Motion, transmitting reciprocal to rotary, D. J. Mower and tedder, combined, J. M. Burdick... Music sheet for mechanical musical instruments,

(7) P. D. writes: Will you please tell me what flavor is used in flavoring the ordinary bottled soda water or "pop." the proportions, and the pro-