RECENTLY PATENTED INVENTIONS.

Agricultural Implements

DRAFT-EQUALIZER. - JOHN RUSK, Cheneyville Ill. A U-shaped frame is adapted to be attached to the gang-plow; and on each longitudinal member of the frame an equalizing-lever is fulcrumed. A sheave is mounted on the transverse member of the frame; and a flexible connection between the ends of the levers passes over the sheave. The equalizer, since it is made in sections can be very closely hitched and prevents all undue side draft when in use on gang-plows for three or more horses

HARROW. - WILLIAM M. BAKER, Fortville, Ind. The invention is an improvement on a harrow patented by the same inventor, the improvement enabling the machine to be adapted for work in trashy ground. The inventor employs rollers, the teeth of which are intercurrent with the hooked forward ends of rigid blades. These blades are to be substituted for a plain roller when the harrow is to be used in trashy ground; and their action is such that, as the toothed rollers revolve, the hook-ends of the blades catch the refuse material and deliver it at the rear of the harrow, and also pulverize the earth taken up by the roller-teeth.

COMBINED HARVESTER, THRESHER, AND BAGGER.-THOMAS P. MORAN, Nelson, British Columbia, Canada. The invention provides a combined header, thresher, and bagger which will work as well on hilly as on level ground. The header is placed in front and the thresher behind the header, with its long axis at right angles to the line of draft, so that the thresher moves practically side-wise, Behind the thresher comes the team, while the driver's seat and bagging devices are run out to a point in the rear of the team. Special provision is made for leveling and adjusting the various parts of the machine. The team being placed in the rear is thrown away from the standing grain (instead of into it) insteering the front of the machine at a slight angle nphill in counteracting the drift or natural tendency of the machine to slide downhill.

Bicycle-Appliances.

BRAKE .-- JOHN F. MOEN, Brooklyn. New York city. The brake comprises a plate or shoe from which a shank extends forwardly, adapted to engage with the crown portion of the front fork of the bicycle. A band, elastic in the direction of its length, detachably secures the brake to the fork. The brake can be applied to a bicycle without the use of clamps or screws.

Electrical Apparatus.

CABLE-TERMINAL, -WILLIAM CALLAHAN, Sidney, Ohio. The cable-terminal is to be used in making connections with aerial telephone-wires where it is necessary to place the wires on a pole or at any other place where a cable terminates. A neat and convenient means is furnished for making connections, with provision for receiving and conducting away the accidental heavy charges due to lightning or the crossing of the lines with high-tension electric-light wires. Moisture is prevented from creeping into the strands of the cable at its terminal.

Mechanical Devices.

AUTOMATIC ADJUSTABLE DIE. - FRANK H. STAHL, Charlestown, W. Va. The invention provides several die-blades so supported that they may be adjusted to proper relation to cut the thread upon the end of a pipe-section. When the thread has been cut on a lathe, the blades can be automatically released and spread apart so the die can be quickly moved back for another operation, thereby effecting a very considerable saving in time. The die can be adjusted to different sizes of rods or pipes as well as to take up wear on the cutting surfaces of the blades. Thus the device combines a number of dies in one, whereby its usefulness is in creased. By reason of the automatic release, the die can not run too far and jam against a shoulder, as so frequently happens in the ordinary construction.

Miscellaneous Inventions.

DISTANCE-FINDER. - ROBERT L. MARSHALL, Elizabethtown, Ky. The purpose of the invention is to provide a practical and accurate instrument for finding the distance or range of any remote object by a simple adjustment, without any calculation whatever. The finder has a base-line at right angles to which is a stationary telescope jointed to a movable hypotenusebar provided with a second telescope. The hypotenusebar has a laterally-adjusting device with a variable throw or range of deflection. Mechanism between an index-hand and the hypotenuse-bar also has a variable throw or range of movement, the variable throw of one of these parts being reverse to that of the other in respect to the relation of speed and power, so that the dial of the index-hand can be spaced off with equal graduations, a feature of great importance in securing accurate results.

PLOTTING INSTRUMENT.-LUTHER M. CARMICAL, Jonesville, Va. This plotting instrument comprises an arm and a base-plate, provided with different graduations on each edge. A guide-bar is fixed on the baseplate; and at right angles to the guide bar is the base. bar of a protractor. A sleeve adapted to slide on the guide-bar, is rigidly attached, and has a flange serving as an index for the adjacent graduated edge. The sleeve has a clamping section by means of which the protractor may be held in any adjustment. The instrument is used in drafting in poles or feet the field-notes of a survey as usually obtained by compass and chain. ond ascertaining the area therefrom. ACETYLENE-GAS APPARATUS .- ALPHONSE F. GAIENNIE, Thibodeaux, La. The acetylene apparatus comprises a generating-tank, into which a carbid-hopper has a gravity-discharge. A valve controls the discharge opening, the stem of the valve extending vertically through and above the carbid-holder and being joined with a lever connected with the gasometer-bell. As the gasometer-bell falls, the lever is caused to open the valve in order that carbid may drop into the generatingtank: as the bell rises, the valve is closed.

quickly passed through hams, shoulders, and other meat. The pointed head of a shank terminates in shoulders at its inner ends. A locking-arm is pivoted on the shank and comprises two connected side members respectively lying on the sides of the shank. The locking-arm has its front end arranged to engage the shoulders of the shank-head to limit the movement of the locking-arm. The front end of the locking-arm is formed with a recess to receive a thread, the recess being closed at the head of the shank when the locking-arm is engaged therewith. A spring serves to throw the locking-arm into closed position.

ACETYLENE-GAS GENERATOR. - OLIVER H. HAMPTON, Williamsburg, Ind. The apparatus is arranged to generate gas in proportion to the amount needed and consumed by the burners, to withdraw the carbid-ashes with the carbid-holder upon removing the latter for recharging, and in case of excess pressure of gas to prevent the water from being forced out of the generator-tank. The generator comprises a carbidcasing, a gasometer having a tank and bell, a gas-conducting pipe leading from the carbid-casing to the gasometer, and a valve on the pipe within the gasometer and normally held to its seat by a spring. A weight is loosely carried by the gasometer-bell and is adapted to move the valve into an open position against the tension of its spring upon the descent of the bell.

LAMP-BURNER.-HARTWELL A. CROSBY, Calais, Me. The invention comprises a wick-tube and a wickelevating device. The wick-elevating device consists of a toothed wheel outside of the wick-tube and adapted to engage the wick. A frame is pivoted upon the wicktube and has an extinguishing member adapted to swing over and cover the tube. A triangular bar is journaled in the lower end of the frame and is engaged by the toothed wheel, so that the frame is swung and the end of the wick-tube is uncovered when the wheel is turned in one direction; and the wheel is prevented from turning in the opposite direction as soon as the frame is permitted to swing back by the dropping of the wick.

UMBILICAL FORCEPS .- ERNEST V. ACHESON, Salt Lake City, Utah. The forceps are so constructed that the umbilical cord may be cut in two at one operation of the instrument. The ends of the cord will be automatically fastened or sealed by the instant application of insulated aluminium, gold, silver, or wire bands. The instrument is so constructed that the various parts can be readily separated for the purpose of cleaning or sterilizing and as readily assembled and adjusted.

COOKING-UTENSIL.--WILLIAM A. VAN DEUSEN, Brooklyn, New York city. The cooking-utensil consists of a number of vessels capable of use either singly or collectively aud employing but a single cover. The utensil is particularly adapted for steaming cereals, vegetables, custards, and puddings, and is so constructed that the steam will have access to the sides of the vessel in which the food is placed, from top to bottom, insuring a rapid and uniform cooking.

OIL-PRESS MAT .- ROBERT F. WERK, New Orleans, La. This new oil-press cloth consists of a fabric composed of long hair. -The hairs forming the warp threads of the fabric are hard, stiff, or coarse, and have a hard twist. The hairs for the weft threads are soft and pliable aud have a soft twist. The mat is designed for use in cotton-seed and other presses, and is not liable to lose its shape when subjected to heavy pressure, or to adhere to the meal-cake.

BLACKBOARD-SUPPORT.-JAMES S. MCCLUNG Pueblo, Colo. The support is so constructed that a teacher can face his class and at the same time write on the board while it is in a horizontal position, turn the board so that the pupils can see the work right side up and quickly remove the work from the pupils' sight. The arrangement is especially adapted to train children to see quickly and accurately.

CARBURETER. - ELIJAH D. PARROTT, Portland Ore. The object of the invention is to provide a carbureter arranged to prevent frost from forming on the inside of the evaporating-coil or in the gas-mains leading from the apparatus. The apparatus is provided with a water-tank and with an evaporating-pan connected with a gasoline-supply and an air-supply. An evaporatingcoil leads from the pan, the pan and the coil being sub-merged in the tank-water. A heater is connected with the water-tank to heat the water; and a pump is connected with the coil,

ACETYLENE-GAS APPARATUS.-LEWIS J. RUTH, Leamington, Canada. The invention belongs to a class of acetylene apparatus in which the generator and gasometer are separated and the carbid is placed within a perforated or grated cylinder which may be revolved, the water being supplied by a perforated pipe or spray over the cylinder. The lime formed by the decomposition of the calcium carbid will be sifted out of the carbid by the rotary movement given to the cylinder when the gasometer-bell rises. This lime falls upon the inclined bottom of the generator and is then removed. When the gasometer falls, water is admitted to the perforated pipe and sprayed on the carbid. The gas generated will cause the gasometer-bell to rise and the water is cut off.

ARTIFICIAL TOOTH-CROWN.-CHARLES A. FONES, Manhattan, New York city. The device con prises three parts-the crown, a connecting-sleeve, and a locking member or lock-screw. The construction allows the parts to be accurately adjusted and forms an artificial tooth-crown of exceptional strength. No longitudinal strain can separate the crown from the sleeve or from the lock-screw. Since no platinum is required, the device is comparatively cheap. PROCESS OF FORMING CONCRETE WALLS. CHARLES GUY, Box 242, Topeka, Kans. This cheap process of forming a concrete wall consists in erecting a crib having a face corresponding with the desired form of the concrete surface to be produced; next applying a thin layer of plaster upon the face; then laying a coarse or open-grained fabric upon the stratum of plaster; apniving concrete in contact with the fabric and allowing it to set; and finally removing the crib and stripping the fabric with the adhering plaster from the concrete surface. No surfacing or matching of lumber is neces

scroll having reverse curves located between borders of irregular outline made up of conventionalized flowers and leaves. Bouquets of flowers, leaves, and buds are located at the convexed portions of the scroll.

BUSTLE AND HIP-FORM.-FRANCIS B. GRANGER, Manhattan, New York city. The bustle and hip-form comprises a crescent-shaped body portion within which is arranged a pad-like portion of a contour substantially that of the body portion, but having its edges spaced from the edges of the body portion.

TEAPOT. - AUSTIN F. JACKSON, Taunton, Mass. The teapot is decorated with raised ornamental work applied on the cover and neck in the form of a foliated, flowered spray.

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.

NEW BOOKS ETC.

MAGNETISM AND ELECTRICITY. An Elementary Treatise for Junior Students, Descriptive and Experimental. By J. Paley Torke. London: Edwin Arnold. 1899. 16mo. Pp. 264. Price \$1.40.

The author notes clearly the fundamental facts and laws of magnetism and electricity. The explanations are lucid, and the illustrations have a freshness not usually seen in text books. It will probably be largely adopted in schools.

NATURE STUDY FOR GRAMMAR GRADES. A Manual for Teachers and Pupils Below the High School in the Study of Nature. By Wilbur S. Jackman, A.B. New York: The Macmillan Company. 1899. 12mo. Pp. 407. Price \$1.

Naturestudy is one of the most interesting developments of modern education, and the volume before us is admirably adapted to assist teachers in preparing experiments and questions. That pupils need some rational and definite direction in nature studies is now agreed. but to prepare outlines in suggested directions necessary so as to place them within the reach of each pupil is more than the ordinary teacher has time to do, but the volume before us has admirably filled this gap in the literature of the subject. Such subjects as botany, mineralogy, astronomy, natural philosophy, etc., are taken up.

ELECTRIC POWER TRANSMISSION. By Louis Bell, Ph.D. New York : Elec-trical World and Engineer, Inc. 1899. 8vo. Pp. 505. Price \$2.50.

A thoroughly practical treatise for practical men and is adequately illustrated. It is the best book on the subject we have seen and fills a field which has not been adequately covered before. Modern electrical practice moves so quickly that treatises on the subject are rapidly rendered useless, and for this reason an up-todate book has been needed.

INDUCTIVE GEOMETRY. By Col. C. W Fowler. Published by the author at Louisville, Ky. 1899. 18mo. Pp. 55.

THE SUCCESSFUL MAN OF BUSINESS. By Benjamin Wood. New York: Brentano. 1899. 16mo. Pp. 208.

There can never be too many books of the present nature, dealing with success in business life, though in the majority of cases it will be found that those who have actually achieved success do not write books of this kind, but the author's intention is undoubtedly good, and they are worthy of considerable circulation. It is true that business men frequently write books, but they are nearly always upon some subject far removed from their immediate source of livelihood. The author deals with the subject from an eminently practical standpoint.

DIVIDEND TO LABOR. A Study of Employers' Welfare Institutions. By Nicholas Paine Gilman. Boston: Α Houghton, Mifflin & Company. 1899. 12mo. Pp. 400. Price \$1.50.

This volume deals with a subject which in the near future is certainly destined to be one of the most important of economic problems. A thorough understanding of the principles outlined in this book would tend to cause capital and labor to unite on a substantial basis and to prevent those most unfortunate of economic revolutions-strikes. The author discusses the modern employer, welfare institutions in Germany, patronal institutions in France, patronages in Holland and Belgium, profit sharing, etc. It contains abundant food for thought.

AMERICAN SOAPS. A Complete Treatise on the Manufacture of Soaps, with Special Reference to American Con-ditions and Practice. Dr. Henry Gathman, Editor of the American Soap Journal. New York: Pub-

Business and Personal.

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

Marine Iron Works. Chicago. Catalogue free.

"U. S." Metal Polish. Indianapolis. Samples free. Yankee Notions. Waterbury Button Co., Waterb'y, Ct. Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., hagrin Falls, O.

Ferracute Machine Co., Bridgeton.N.J., U.S.A. Full line of Presses, Dies, and other Sheet Metal Machinery. Inventions developed and perfected. Designing and machine work. Garvin Machine Co., 141 Varick St., N. Y. Machinery for R.R. contractors, mines, and quarries, for hoisting, pumping, crushing, excavating, etc., new or 2d-hand. Write for list. Willis Shaw, Chicago. The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foct of East 138th Street. New York.

The best book for electricians and beginners in elec-ricity is "Experimental Science," by Geo. M. Hopkins. tricity i By mail, \$4. Munn & Co., publishers, 361 Broadway, N. V. Send for new and complete catalogue of Scientific nd 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 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.

- bouses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific A merican Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price.
- Minerals sent for examination should be distinctly marked or labeled.

(7801) P. C. W. asks: Is there any known process by which I can send a current of electricity through a paper in a dry form by having subjected it to a process so it will conduct electricity ? A. You cannot send an electric current through a dry paper. There is no substance which will render dry paper a conductor. Only the spark of a high tension discharge will pass through dry paper,

(7802) S H. D. says: Will you tell me the horse power of the ten wheel or mogul railroad engine, also the horse power of the hog and jack, or consolidators? What is meant by the term horse power? Please tell me how to calculate the horse power of any engine. Give the simplest way. A. The horse power of any locomotive can be found by multiplying the area of the piston in square inches by the mean effective steam pressure in the cylinder; multiply the product by 2, which will give the total average pressure on both pistons; multiply this sum by the number of feet the piston travels in 1 revolution of the driving wheel, then multiply this product by the number of revolutions the driving wheel makes per minute, and divide by 33,000. Example: What is the horse power developed by an engine having cylinders 19 inches diameter by 24 inches stroke, having an average cylinder pressure of 537 pounds per square inch? The driving wheels being 78 inches diameter and making 260 revolutions per minute (about 60 miles per hour)?

283.5294 square inches piston area.

53.7 pounds mean effective (average) pressure. 15,225 5 pressure on one piston. 2 pistons.

30,450 pressure transmitted from both cylinders. 4 feet piston travel in each revolution.

121,804 260 revolutions per minute.

31,669,040-33,000=959 horse power

One horse power is a power that will lift 33,000 pounds one foot high in a minute. The horse power of any engine is computed on the same principle as shown above, considering the multiplier 2 as referring to 2 cylinders. and not used with 1 cylinder.

(7803) B. F. S. asks: 1. Would a field of wrought iron 1/2×21/2 inches square do for a field of motor described in SUPPLEMENT. No. 641? I wish to use it as a generator. A. A field of wrought iron, forged of the same size as that of strap iron, may be used in place of the strap iron. The reason for using the strap iron was to enable those to build the motor who had no means of forging a piece of wrought iron. 2. Would the field be equally serviceable if brazed instead of welded? A. Yes, if the biazing is put exactly opposite the middle of the armature. 3. Compare such a field with a laminate one. A. The brazing is no better than an air space for transmitting the lines of force, and should be placed where the lines of force leave the poles and pass through the armsture. 4. In making plunge battery (see SCIENTIFIC AMERICAN SUPPLEMENT, No. 792), the upper ends of the carbon plates are permeated with paraffine. Will this have any effect on the making of electrical connections made by strips of copper, i. e., is paraffine a conductor of electricity ? A. Paraffine is not a conductor, and should be scraped off where the contact is made with the copper strips. 5. If you take a bicycle wheel and place one end of the axle on some support such as your finger, it will fall over, but if you first cause it to rotate rapidly it will maintain its perpendicular and pass around its point of support. Please explain, A. The principle involved in this is that of the gyroscope. All rotating bodies tend to remain in the plane of rotai tion.

TAPE-NEEDLE .- WALTER S. HUTSON, Pocatello,

Designs.

WALL-PAPER.-HARRY WEARNE, Rixheim, Ger-Idaho. By means of this tape-needle, a string can be many. The leading feature of the design is a lattice

lished by the author. Pp. 461. Price \$15. 1899 8vo.

The first edition of "American Soaps" appeared in rint seven years ago and was well received, and since that time the author has continually collected all the available new information that could assist in making a later edition of the book more complete, and the author has had the benefit of the experience of many of the original purchasers of the book. There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and it is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making of all kinds, with special reference to modern practice, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds is large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three-quarters of the volume. It is an admirable book.

Scientific American.

(7804) J. L. B. writes : I saw in your INDEX OF INVENTIONS paper some weeks ago the statement that you did not know where the energy went to if a watch spring was wound up tight and then burnt. Is it not true that if a piece of wood is bent and ignited it will take less energy to ignite it than if the same piece or at least the same amount of wood was ignited when it was straight? If this is so, is it not possible that it will take less energy to ignite the steel spring, and these might equal each other? I cannot do experiments to prove if this is so and thought I would write and ask you if this is so. A. We do not know whether it is true or not that straight wood burns easier than crooked wood. If it does, it will explain why the crooked stuff we had to work up in boyhood was such poor wood to burn. Till however some one can present careful experimental data showing that a spring under strain evolves more beat in combustion than a loose one, we shall continue of the opinion that the matter has not been proved. It is simply a begging of the question to say that the doctrine. of the conservation of energy requires a certain result, and therefore that is the result to be required.

(7805) H. C. M. asks the ton burden of the "Kaiser Wilhelm der Grosse" and the number of passengers it will carry. A. The displacement (that is total weight) is 17,500 tons; it accommodates 350 firstclass passengers; 370 second-class; 800 steerage, and the crew, etc., number 450. If you will refer to the SCIEN-TIFIC AMERICAN for October 9, 1899, you will find your query fully answered. This article gives valuable particulars regarding this vessel.

(7806) G. F. M. asks: Will you kindly answer for the benefit of settling a controversy whether this new year (1900) is the beginning of the 19th or 20th century ? A. The new century begins January 1, 1901.

(7807) F. K. H. writes: I am making a horseshoe magnet; the iron is 34 inch thick and about 7 inches long. Will you please tell me what size wire I shall use, and how much, to make it strong enough to draw small pieces of iron through 1 or 2 inches of wood ? Also please state how many cells of battery I should use on same? A. The easiest way to wind the legs of your horseshoe magnet is to make spools which will just slip over each leg. Wind these with No. 12 cotton covered vire, attending very carefully to the insulation and filling the snaces with shellar: after each layer is wound. Allow each coat to dry before putting on the next layer of wire. The wire may be wound about an inch deep. The bichromate plunge battery described in SUPPLEMENT, 792. price 10 cents, will fully energize the magnet. If you mean to make a magnet which will draw a piece of iron directly through two inches of wood, so that it will enter on one side and come out of the wood on the other side, making a hole through the wood, you will be disappointed in your work. No magnet can do this. A magnet of good strength will cause small pieces of iron to move at a distance of two inches from its poles. It does not matter whether the space is filled with wood or air.

(7808) H. W. T. asks: 1. I have the castings and parts for the little motor of which I inclose a cut taken from your advertising columns. What size of wire shall I use on fields and armature? A. Almost any size from 18 to 24 will answer to wind the little motor. 2. Will 9 cells of Samson or carbon cylinder battery run a 10-candle, 12-volt lamp not more than 20 minutes a night? A. Yes. 3. Is there any way of recharging dry batteries? A. Dry cells are not recharged. They are not worth the trouble.

(7809) W. P. asks : 1. What causes "cross talk " in a telephone ? Can you tell me the remedy for it? A. Crosstalk in a telephone is caused by the wire of another grounded circuit, near the wire of the telephone line in which the cross talk is heard. The remedy is found in a metallic return wire twisted around the other wire of its own circuit. See Poole's Practical Telephone Handbook for instructions. Price \$1.50 by mail. 2. I have some small machine steel screws in some brass material which I cannot take out with a screw driver (it is a screw which holds the fork of a desk phone). Please tell me how I can take this out. A. Put a few drops of kerosene oil on the screw head and let it stand a few hours, 3. How can I charge the telephone standard Fuller battery? A. A solution for the Fuller cell may be prepared by dissolving 7 ounces of sodium bichromate in 1 quart of water and pouring into the solution very slowly when cold, 1/3 pint of strong sulphuric acid.

(7810) H. C. H. writes: I wish to make a small storage battery capable of running a 3 candle power lamp a given number of hours on one charge. A. We advise you to purchase Salomon's storage bat-tery, price \$1.50. This book will give you the instruction needed for making what you need.

(7811) W. J. M. asks : How to tan fur hides and skins so they will remain soft after tanning ? A. We refer you to SUPPLEMENT, numbers 959, 1077, 1090 and 1140. Price 10 cents each by mail.

(7812) C. J. asks : Will you please give directions how to wind ringer coils for a telephone? There are many varieties of ringers. The resistance of the coils is usually from 75 to 100 ohms, though it is sometimes as high as 5000 ohms, varying according to their use. Wind each of the spools with about 49 ohms of fine silk covered wire, No. 36 or 38, and mount them so that the opposite poles shall be toward the armature.

For which Letters Patent of the United States were Issued

> for the Week Ending JANUARY 9, 1900,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

 [See note at end of list about copies of these patents.]

 Acetylene generator, W. F. Cooper.
 641.194

 Adding machine, B. & G. Work.
 640.850

 Advertising device, E. Cherry.
 640.850

 Advertising device, E. Cherry.
 640.850

 Air compressing engine, J. W. Eisenhuth.
 640.850

 Air compressing engine, E. A. Rix.
 640.890

 Animal trap, C. M. Williams.
 640.890

 Automobile, P. J. A. Schnoor,
 641.064

 Automobile, P. J. A. Schnoor,
 641.055

 Bag bilder, J. Thompson.
 641.255

 Band cutter, Rundle & Mason.
 640.890

 Basket, B. Abba, etc., waste apparatus for wash.
 641.245

 Basket, G. P. Sugg.
 641.245

 Basket, G. P. Sugg.
 641.245

 Basket, B. device for indicating condition of storage, H. F. Maxim
 640.757

 Batteries, device for indicating condition of storage, H. P. Maxim
 640.678

 Bed bottom, spring, O. R. Hunt.
 640.980

 Bed totom, Surger, Grag, M. Heineke, 641,187
 640.985

 Betteried, foldaing, J. P. Lein
 640.676

 Bedteried, C. Onsinger
 640.686

 Bedtouch, W. E. Buser
 640.616.976

 land. Books, manifold sales, E. Carney. Books, binding, J. Lewthwaite. Boot or shoe, W. Gordon. Boot or shoe tops, apparatus for folding, W. J. Dix. Bottle, T. Thompson. Bottle and glass, combination beer, W. Baum, 641.075 641.211 640,90 640,885 640,976 Gates & Woodland. Bottle stoppering machines, automatic feeder mechanism for, F. O. Woodland...... Box. See Asb box. Cigar box. Folding box. Fruitbox. Luuch box. Packing box. Paper 640,983 Cleaner. See Grain cleaner. Track cleaner. Tube cleaner. Clips, apparatus for manufacturing fastening, F. Canfield. Clutch, friction and atop, H. E. Sharp... Coat or bat hook, A. W. Parmelee. Cock, cylinder drain, F. M. Denzig... Coofee or malt drier, F. E. R. Okrassa. Coin controlled apparatus, J. Mason. Collar, horse, G. A. Miller Color spbere and mount, A. H. Munsell. Conduit, flexible metallic, E. T. Greenfield. Conduit, underground, C. H. Sewall. Coorle tub, N. F. Hurdet. Coorling or prize the chansm., W. H. Conrad. Coorbing or refrigerating apparatus, W. Helm... Coord bilder, J. Altmann. Cord holder, J. Altmann. 641,046 641,089 640,935 640,758 640,820 641.112



ye. rhodamin, H. Boedeker	641,184
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boner	640.760
boner	640,747 641,125
lectric motor and circuit therefor () k (onk-	
in lectrical circut earthing device, L. J. Steele lectrical circut earthing device, L. J. Steele lectricity meter, C. B. O'Keenan levator, See Preumatic elevator. levator, Stoddard & Richards. levator batch door mechanisu, H. C. Richards. nameling process, C. H. Waterman ing gate, J. F. Overcash. nameling process, C. H. Waterman ing gate, J. F. Overcash. nameling engene. Carding engine. Air compress- ing engine. Carding engine. Gas engine. Rotary engine. Steam engine. Traction en- gine.	640,748 641,157 641 161
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nginereversing mechanism W W Leach	641 023
vaporator, W. D. Baker	641,117 640,733
ngine stopping device, J. J. Kaye vaporator, W. D. Baker xtractor. See Cork extractor. Cotton extractor. Tree extractor.	
Sycialsses, etc., holder for, E. P. Tirrell abric. See Woven fabric. are register operating mechanism, J. F. Ohmer. arm gate. W. H. Kemper. eeding and weighing mechanism, automatic, P.	641,053
are register operating mechanism, J. F. Ohmer.	640.800
eeding and weighing mechanism, automatic, P.	641 179
 C. Waring. ence joint, J. T. Ward. ence machine, A. J. Kauffman. ence, wire, J. E. Head. "ber drawing machines, weight lifting device for railway heads or other, A. W. Mathew- son 	$641,172 \\ 640,843$
ence machine, A. J. Kauffman ence, wire, J. E. Head	640,772 640,907
'iber drawing machines, weight lifting device for railway beads or other, A. W. Mathew-	
for railway heads or other, A. W. Mathew- 800	640,786
Szymanski.	641,167 641,079
'illing machine, J. & D. Baxter	640.987
The alarm signaling apparatus, L. Campbell	640,872
'ire alarm system and apparatus, L. Campbell 'ire escape, O. Knight	640,873 641,121
Treescape. O. W. Leach	640.780 640.811
Treproof partition, A. W. Blazo	641,067 641,206
Plusbing apparatus, intermittent automatic si-	641 160
ly killer, R. R. Montgomery.	640,790
for, L. S. Bedford.	640,861
olding machine, Downing & Wendt	640,818 641,000
Colding seat, C. H. Woodruff	641.061 640.869
ruit box, ventilated, W. L. Hawiey	641,205 640,936
urnace grate, J. W. Rumpf.	641,236
lage. See Axle setting gage. Roofing gage.	C40 777
as burner, acetylene, E. J. Dolan	640,888
Fas burner, incandescent. W. R. Clay	641.078 640,752
 Jonding Densinge Cutters, phennatic Conveyent for, L. S. Bedford. Jolding machine, Downing & Wendt. Jolding seat, C. H. Woodruff. Jollower, H. F. Browne. Truit drier, T. F. Parsons. Jurnace smoke preventing device, W. Neubs. Jage. See Axle setting gage. Roofing gage. Jame table, R. J. Koch. Jas burner, incandescent, M. K. Clay. Jas burner, incandescent, A. A. Cowles. Jas generator, acetylene, P. J. Dolan. Jas generator, acetylene, M. C. Sterne. Jas generator, acetylene, P. D. Wescott. Jas generator, acetylene, P. D. Wescott. Jas generator, acetylene, P. J. Wescott. Jas metter, J. C. Sutherland. Jas tip, acetylene, K. J. Molan. Jas creyeing, K. B. Brott. Yas therade, M. K. Clay. Jas metter, J. C. Sutherland. Jas tip, acetylene, K. J. Molan. Jas ter Sterne, J. C. Sutherland. Jas tip, acetylene, K. J. Molan. Jas tip acetylene, K. J. Molan. 	641.156 641.243
Fas generator, acetylene, P. D. Wescott	641.056 641.059
Gas meter, J. C. Sutherland	640,974
as tip, acetylede, E. S. Dolan	040,000
ear, variable speed, E. J. McClellan	$641,073 \\ 641,219$
Jearing, F. O. Bullis	641,073 641,219 640,742 640,770 641,097
rate. See End Rate. Farm gate. Jear, reversing, A. Brott. Jear, variable speed, E. J. McClellan. Jearing, F. O. Bullis. Jearing, Aritable speed, L. L. M. Gerard. Jearing, variable speed, L. L. H. Gerard. Jenerator. See Acetylene generator. Gas gen- erator.	641,097
in com filos P. I. Bornolda	641,039
All saw lifer, R. J. Reynolds. Flass articles, apparatus for manufacturing bol- low. P. T. Sievert. Flobe, T. W. Synnott.	
lobe, T. W. Synnott	641,048 641,166
Globe, T. W. Synnott Governor, explosive engine, A. C. Stewart Grain binder sbeaf sbocking mechanism, M.	640,971
Light et al Frain cleaner, G. L. Beadell.	641,127 640,734
Light et al. Frain cleaner, G. L. Beadell. Grate, W. McClave. Frate bar, G. S. Lee Finding machine. W. C. Baker.	641.133
Grate, W. McClave Grate bar, G. S. Lee Frinding machine, W. C. Baker Prinding machine drill W. C. Heister	641,124 641,178 641,107
Frinding machine, drill, W. C. Heister Frinding mill, duplex, E. H. Webster Gun barrels or tubes, device for rolling, C. P.	640,845
Carlson	640,992
Guns, wheel brake for field, A. Resow	640,992 641,228 641,137
Guns, wheel brake for field, A. Resow	640,992 641,228 641,137 641,033
Guns, wheel brake for field, A. Resow	640,992 641,226 641,137 641,033 641,118
Carlson. Juns, wheel brake for field, A. Resow Hair pin. H. Nathan. Jammock support, I. E. Palmer Iandle. See Sheet metal handle. Jandle bar, W. E. Kelly larbor or coast defense, A. Van Bibber (reis-	641,137 641,033 641,118 11,801
Carlson. Juns, wheel brake for field, A. Resow	641,137 641,033 641,118 11,801 640,816
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue) Harvester attachment, potato, G. M. Ross. Iarvesting and shocking cornstalks, machune for, T. Shiels.	641,137 641,033 641,118 11,801 640,816 641,047 640,878
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. farvesting and shocking cornstalks, machine for, T. Shiels. Iarvesting cotton, means for, M. S. Curley. Harvester dotton, means for, M. S. Curley. Harbart of the state of the state of the state of the fort of the state of the state of the state of the state for the state of the state of the state of the state of the state for the state of the state	641,137 641,033 641,118 11,801 640,816 641,047 640,878 640,775 641,150
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. farvesting and shocking cornstalks, machine for, T. Shiels. Iarvesting cotton, means for, M. S. Curley. Harvester dotton, means for, M. S. Curley. Harbart of the state of the state of the state of the fort of the state of the state of the state of the state for the state of the state of the state of the state of the state for the state of the state	641,137 641,033 641,118 11,801 640,816 641,047 640,878 640,775 641,150 641,1026 641,1026
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue) Harvester attachment, potato, G. M. Ross. farvesting and sbocking constalks, machune for, T. Shiels. Harvester attachment, potato, G. M. Ross. Iarbor, D. Kerekes Hat fastener, G. Scbmitt. Hat packing ring, J. Marshall. Hay racks, J. F. Hallorah, Jr. Hay racks, J. F. Hallorah, Jr. Hay racks, G. H. Milleville. Heating device, steam or hot water. W. F.	641,137 641,033 641,118 11,801 640,816 641,047 640,878 640,775 641,150 641,026
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue) Harvester attachment, potato, G. M. Ross. farvesting and sbocking constalks, machune for, T. Shiels. Harvester attachment, potato, G. M. Ross. Iarbor, D. Kerekes Hat fastener, G. Scbmitt. Hat packing ring, J. Marshall. Hay racks, J. F. Hallorah, Jr. Hay racks, J. F. Hallorah, Jr. Hay racks, G. H. Milleville. Heating device, steam or hot water. W. F.	641,137 641,033 641,118 11,801 640,816 641,047 640,878 640,775 641,102 641,026 641,029 641,029 641,102 641,029
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. farvesting and sbocking cornstalks, machune for, T. Shiels. for, T. Shiels. Iarbor, D. Kerekes. Hat fastener, G. Schmit. Hat packing ring, J. Marshall. Hay rack, J. F. Halloran, Jr. Hay rake, G. H. Milleville. Heating device, steam or hot water, W. F. Heel bolt. B. W. Powell. Heel nailing machine, F. F. Raymond, 2d.	641,137 641,033 641,013 640,816 640,816 641,50 641,50 641,50 641,50 641,50 641,50 641,52 641,026 641,186 641,025
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. farvesting and sbocking cornstalks, machune for, T. Shiels. for, T. Shiels. Iarbor, D. Kerekes. Hat fastener, G. Schmit. Hat packing ring, J. Marshall. Hay rack, J. F. Halloran, Jr. Hay rake, G. H. Milleville. Heating device, steam or hot water, W. F. Heel bolt. B. W. Powell. Heel nailing machine, F. F. Raymond, 2d.	641,137 641,033 641,118 11,801 640,816 641,047 640,873 640,775 641,150 641,026 641,102 641,026 641,026 641,026 641,026 641,026 641,026 641,026
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. farvesting and sbocking cornstalks, machune for, T. Shiels. for, T. Shiels. Iarbor, D. Kerekes. Hat fastener, G. Schmit. Hat packing ring, J. Marshall. Hay rack, J. F. Halloran, Jr. Hay rake, G. H. Milleville. Heating device, steam or hot water, W. F. Heel bolt. B. W. Powell. Heel nailing machine, F. F. Raymond, 2d.	641,137 641,033 641,118 11,801 640,816 640,816 640,878 640,878 641,026 641,150 641,102 641,102 641,226 641,226 641,226 641,226 641,040
Carison. Juns, wheel brake for field, A. Resow. Hair pin. H. Nathan Ian mock support, I. E. Palmer Iandle See Sheet metal handle. Iandle bar. W. E. Kelly Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. Arvesting and sbocking cornstalks, machine for, T. Shiels Iarvesting cotton, means for, M. S. Curley Har packing ring, J. Marshall Hay racks, J. F. Hallorah, Jr Hay racks, J. F. Hallorah, Jr Hay racks, J. F. Hallorah, Jr Hay rake, G. H. Milleville Heating device, steam or hot water, W. F. Burns Heel hailing machine, F. F. Raymond, 2d Hemmer, J. Gillis Hemp brake, J. Heaney Hides, bating, C. W. Koch Hitch book, M. W. Reeves.	641,033 641,033 641,118 11,801 640,816 640,816 640,878 640,878 640,878 641,102 641,102 641,026 641,102 641,026 641,036
Carison. Curs, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. Arvesting and sbocking cornstalks, machine for, T. Shiels. Iarvesting cotton, means for, M. S. Curley. Has plock, D. Kerekes. Hat fastener, G. Scbmitt. Hat pasteng ring, J. Marshall. Hay rack, J. F. Hallorah, Jr. Hay rake, G. H. Milleville. Heating device, steam or hot water, W. F. Burns. Heel hailing machine, F. F. Raymond, 2d. Hemmer, J. Gillis Hemp brake, J. Heaney. Hides, hating, C. W. Koch. Hinge, gate, J. J. Ober. Hitch hook, M. W. Reeves. Hog catching implement, S. Rufi. Hog tran T. Kibber.	641,033 641,033 641,013 640,816 640,816 640,816 641,047 640,878 640,775 641,029 641,02
Carlion. Uns, wheel brake for field, A. Resow. Hair pin. H. Nathan fam mock support, I. E. Palmer Iandle See Sheet metal handle. Iandle bar, W. E. Kelly larbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross. Harvester attachment, potato, G. M. Ross. Harvester attachment, potato, G. M. Ross. Harvester attachment, potato, G. M. Ross. Harvester, and sbocking cornstalks, machine for, T. Shiels. Harvester, G. Schmitt Hat fastener, G. Schmitt Hat packing ring. J. Marshall. Hay racks. J. F. Halloran, Jr. Hay racks. J. F. Halloran, Jr. Hay racks. J. F. Halloran, Jr. Heating device, steam or hot water, W. F. Burns Heel bolt. B. W. Powell Heel mailing machine, F. F. Raymond, 2d. Hemmer, J. Gillis Hemp brake, J. Heaney Hides, bating, C. W. Koch Hitch hook, M. W. Reeves Hig catching implement, S. Rufi Hog trap. T. Fisher. Hoigting aparatus, C. W. Nason Hoigting machiners yafety attachment, T. H.	641,033 641,033 641,118 11,801 640,816 640,816 640,878 640,878 640,878 641,102 641,102 641,026 641,102 641,026 641,036
Carison. Curs, wheel brake for field, A. Resow	641,033 641,033 641,047 640,816 641,047 640,878 641,047 640,878 641,026 641,026 641,026 641,026 641,026 641,026 641,026 641,037 641,03
Carison. Curs, wheel brake for field, A. Resow	641,033 641,033 641,047 640,816 641,047 640,878 641,047 640,878 641,026 641,026 641,026 641,026 641,026 641,026 641,026 641,037 641,03
Carison. Curs, wheel brake for field, A. Resow	641,033 641,033 641,047 640,816 641,047 640,878 641,047 640,878 641,026 641,026 641,026 641,026 641,026 641,026 641,026 641,037 641,03
Carison. Uns, wheel brake for field, A. Resow. Hair pin. H. Nathan. Iam mock support, I. E. Palmer. Iandle. See Sheet metal handle. Iandle bar, W. E. Kelly. Iarbor or coast defense, A. Van Bibber (reis- sue) Harvester attachment, potato, G. M. Ross. for, T. Shiels. Harvesting and sbocking cornstalks, machine for, T. Shiels. Harvester, G. Schmit. Hat pasten, G. Schmit. Hat pasten, G. Schmit. Hat pasten, F. Halloran, Jr. Hay rack, J. F. Halloran, Jr. Hay rack, J. F. Halloran, Jr. Hay rake, G. H. Milleville. Heel nailing machine, F. F. Raymond, 2d. Hemmer, J. J. Gillis. Hende, Sating, C. W. Koch. Hinke, Sate, J. J. Ober Hinke, Sate, J. J. Ober Holsting machinery safety attachment, T. H. Oxnam. Hoisting machinery safety attachment, T. H. Oxnam. Hook and eye carding machines, delivery table for, T. J. Carmody. Horse sail protector, H. H. Jones. Herseshoe, soft tread. Mears & Collet.	641,033 641,033 641,033 641,031 640,816 640,816 640,818 640,818 640,818 641,150 641,150 641,150 641,150 641,029 641,1029 641,0
Carison. Carison. Version of the construction	641,133 641,033 641,031 640,816 641,047 640,816 641,150 641,150 641,150 641,150 641,150 641,150 641,162 641,1029 641,1029 641,1029 641,020 641,020 641
Carison. Canson wheel brake for field, A. Resow	641,033 641,033 641,033 641,037 640,816 640,816 640,816 640,816 640,816 641,102 641,102 641,102 641,102 641,102 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,125 641,235 641,25
Carison. Curs, wheel brake for field, A. Resow	641,133 641,033 641,031 640,816 641,047 640,816 641,150 641,150 641,150 641,150 641,150 641,150 641,162 641,1029 641,1029 641,1029 641,020 641,020 641
Carison. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,037 640,816 640,816 640,878 640,878 640,878 640,878 641,150 641,029 641,150 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,219 640,877 641,219 641,135 641,135
Carison. Uns, wheel brake for field, A. Resow	$\begin{array}{c} 641,033\\ 641,033\\ 641,033\\ 641,033\\ 641,118\\ 11,801\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 641,120\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,135\\ 641,135\\ 641,135\\ 641,145\\ 640,743\\ 640,917\\ 641,210\\ 640,819\\ 640,819\\ 640,859\\ 641,198\\ 640,959\\ 641,198\\ 640,959\\ 640,95$
Carlion. Uns, wheel brake for field, A. Resow. Hair pin. H. Nathan Ham mock support, I. E. Palmer Handle See Sheet metal handle. Handle bar, W. E. Kelly Harbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross Harvester attachment, potato, G. M. Ross Harvester, and sbocking cornstalks, machine for, T. Shiels Harvesting ring, J. Marshall Hay racks, J. F. Halloran, Jr. Hay rack, J. F. Halloran, Jr. Heating device, steam or hot water, W. F. Burns Heel bolt. B. W. Powell Heel mailing machine, F. F. Raymond, 2d Hemmer, J. Gillis Hides, bating, C. W. Koch Hicke hook, M. W. Reeves Hides hoating implement, S. Rufi Hoje trap, T. Fisher Hoisting aparatus, C. W. Nason Hook. See Coat or bat hook. Hitch hook. Hook and eye carding machines, delivery table for, T. J. Carmody. H. Jones Horsesboe, soft tread, Mears & Collet Hub, R. R. Boggs toandescent mathe. C. P. Schultz Indicator. G. B. Freeth Indicator. G. B. Freeth Insect destroyer, A. F. Severance Insect destroyer, A. F. Severance Insulator. section, Schumaker & Glodell rom. See Sad inor. Soldering iron ar closure, J. H. Fowler	641,033 641,033 641,033 641,037 640,816 640,816 640,878 640,878 640,878 640,878 641,150 641,029 641,150 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,135 641,219 640,877 641,219 641,135 641,135
Carlion. Uns, wheel brake for field, A. Resow. Hair pin. H. Nathan Ham mock support, I. E. Palmer Handle See Sheet metal handle. Handle bar, W. E. Kelly Harbor or coast defense, A. Van Bibber (reis- sue). Harvester attachment, potato, G. M. Ross Harvester attachment, potato, G. M. Ross Harvester, and sbocking cornstalks, machine for, T. Shiels Harvesting ring, J. Marshall Hay racks, J. F. Halloran, Jr. Hay rack, J. F. Halloran, Jr. Heating device, steam or hot water, W. F. Burns Heel bolt. B. W. Powell Heel mailing machine, F. F. Raymond, 2d Hemmer, J. Gillis Hides, bating, C. W. Koch Hicke hook, M. W. Reeves Hides hoating implement, S. Rufi Hoje trap, T. Fisher Hoisting aparatus, C. W. Nason Hook. See Coat or bat hook. Hitch hook. Hook and eye carding machines, delivery table for, T. J. Carmody. H. Jones Horsesboe, soft tread, Mears & Collet Hub, R. R. Boggs toandescent mathe. C. P. Schultz Indicator. G. B. Freeth Indicator. G. B. Freeth Insect destroyer, A. F. Severance Insect destroyer, A. F. Severance Insulator. section, Schumaker & Glodell rom. See Sad inor. Soldering iron ar closure, J. H. Fowler	$\begin{array}{c} 641,033\\ 641,033\\ 641,033\\ 641,033\\ 641,118\\ 11,801\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 640,816\\ 641,120\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,029\\ 641,135\\ 641,135\\ 641,145\\ 640,743\\ 640,917\\ 641,135\\ 641,145\\ 640,743\\ 640,819\\ 640,819\\ 640,859\\ 641,198\\ 640,959\\ 641,198\\ 640,959\\ 640,95$
Carison. Uns, wheel brake for field, A. Resow	$\begin{array}{c} 641, 033\\ 641, 033\\ 641, 033\\ 641, 031\\ 640, 816\\ 641, 047\\ 640, 816\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 152\\ 641, 122\\ 641, 026\\ 641, 122\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 640, 276\\ 640, 332\\ 641, 135\\ 641, 135\\ 641, 135\\ 641, 135\\ 641, 135\\ 641, 135\\ 641, 135\\ 641, 135\\ 640, 829\\ 640, 857\\ 641, 155\\ 641, 198\\ 640, 857\\ 640, 897\\$
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carlion. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 640,878 640,878 641,150 641,162 641,180 641,180 641,180 641,180 641,180 641,180 641,182 641,184 641,184 641,184 641,185 641,184 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,185 641,280 640,877 641,185 641,185 641,185 641,280 640,877 641,280 640,877 640,877 640,877 640,877
Carison. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 641,047 640,816 641,150 641,102 641,102 641,102 641,102 641,102 641,102 641,102 641,029 641,102 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,912 640,925 641,218 640,927 640,927 641,218 640,927 640,92
Carison. Uns, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 641,047 640,816 641,150 641,102 641,102 641,102 641,102 641,102 641,102 641,102 641,029 641,102 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 641,029 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,897 640,912 640,925 641,218 640,927 640,927 641,218 640,927 640,92
Carlson. Canson, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 641,047 640,816 641,150 641,150 641,1026 641,150 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1126 640,237 641,2136 640,217 641,2136 640,217 641,215 640,217 641,215 640,217
Carlson. Canson, wheel brake for field, A. Resow	641,033 641,033 641,033 641,033 641,047 640,816 641,047 640,816 641,150 641,150 641,1026 641,150 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1026 641,1126 640,237 641,2136 640,217 641,2136 640,217 641,215 640,217 641,215 640,217
Carlion. Uns, wheel brake for field, A. Resow	$\begin{array}{c} 641, 033\\ 641, 033\\ 641, 033\\ 641, 031\\ 640, 816\\ 641, 047\\ 640, 816\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 152\\ 641, 122\\ 641, 026\\ 641, 152\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 640, 926\\$
Carlion. Uns, wheel brake for field, A. Resow	$\begin{array}{c} 641, 033\\ 641, 033\\ 641, 033\\ 641, 031\\ 640, 816\\ 641, 047\\ 640, 816\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 150\\ 641, 152\\ 641, 122\\ 641, 026\\ 641, 152\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 641, 026\\ 640, 926\\$
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlson. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,895 641,218 640,956 640,956 640,956 640,956 640,956 641,956 640,956 640,956 640,956 641,956 641,956 641,956 640,956 640,956 641,957 641,95
Carlion. Uns, wheel brake for field, A. Resow	641,133 641,033 641,033 641,031 640,816 641,047 640,816 641,187 640,876 641,187 641,185 640,877 641,297 640,897 640,897 640,897 640,897 640,897 640,897 640,895 640,990 640,895 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,895 640,990 640,897 640,990 640,895 640,990 640,897 640,990 640,897 640,990 640,895 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,895 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 640,990 640,897 641,128 641,12

(7813) E. B. W. asks: Is there such a thing as an electric belt that is good for anything? A. We have never seen an electric belt in which we could put any confidence. If any one is in need of electrical treatment, he should consult his physician, who knows his constitution, and not a stranger at a distance He will then have the proper form of application for his condition. At the most the electricity from a belt is too feeble to expect any benefit from its use.

(7814) E. B. H. asks : What effect would it have on the length of the spark in 'an induction coil if No. 30 cotton covered magnet wire were substituted for No. 36? A. To use No. 30 in place of No. 36 wire in the secondary of an induction coil will reduce its powe approximately to one-fourth of its value. since there will be but about one-fourth as many turns in the same space.

	040.901
	640,839
Corset fastener, E. J. Fink	640.893
Corset fastener, M. O. Ross Cotton elevator, G. W. Williams	641.234
Cotton elevator, G. W. Williams	641,176
	641.0tie
	640,862
	641.094
Cultivator, H. C. Bothwell	641.069
	640,858
Cupel machine, F. M. Iler	641.208
	641.115
Curtain rod fixture, J. O. Clark	640,993
Cutter. See Band cutter. Bread or cake cutter.	
Cigar tip cutter.	
Cutter bar. J. F. Kukacka	641,123
Cutter bar, H. C. Loudermilch	640.783
Cycle frame, motor, T. French	641.096
	641,169
Cylinder'lubricator. B. F. Kelsey	640.773
Dental appliance. Thurmond & Clark	641.170
Dental dam attachment. M. O. Nelson	640.930
Detergent, C. E. Postlethwaite	641,225
Digger. See Peanut digger. Potato digger.	an and
Display cabinet, W. A. Baer	640.854
Displaying case, shirt, J. B. Horton	641.015
	640.970
Ditching machine. M. A. Richardson	
Douche or bed pan protector. C. Trabaud	640.835
Dough molding machine, C. E. & J. E. Pointon	
Drain trap air pipe, P. W. Meeban	
Dredging machine, bucket, J. H. Gray	640,762
Drier. See Coffee or malt drier. Fruit drier.	1.0
Drying kiln, F. R. Morris	640,791
Drills for rock boring or other Purposes, appliance	
for lifting and turning, C. Simmons	640,964

641.111



(Continued on page 46)