

## RECENTLY PATENTED INVENTIONS.

## Agricultural Implements.

**MACHINE FOR TOPPING BEETS.**—JULIUS H. LUHRS, Fruita, Col. This machine for topping beets is so constructed that the cutters will remove the same amount of crown from the beets, whether the crowns be just above the surface of the ground or extend some distance above the surface. The machine is light and strong and is provided with means whereby the cutting section will automatically adjust itself to the exposed portions of the beets in its path, so that the crowns will be cut at a uniform depth.

## Engineering Improvements.

**STEAM-BOILER.**—CHARLES EDGERTON, Fidelity Building, Philadelphia, Pa. Above the crown-sheet of this upright tubular boiler a receptacle is placed for catching and retaining scale, the receptacle being of less diameter than the shell of the boiler. All the tubes pass through this receptacle so closely that no water-circulating opening is provided. A handhole and cover are arranged within the shell of the boiler at or near the level of the receptacle. Upturned edges of the receptacle prevent the discharge of the scale over the edges into the water-leg. The upward circulation is confined entirely to the annular space surrounding the pan, which insures the precipitation of the sedimentary matter toward the center. By reason of this construction the crown-sheet of the vertical tubular boiler is rendered more durable.

## Mechanical Devices.

**COUNTERBALANCE.**—ROBERT E. FORD, Pasadena, Cal. The invention relates to machines having reciprocating and revolving parts, especially such machines in which reciprocating is to be converted into rotary motion, or *vice versa*. The principal feature of the invention consists in counterbalancing both the horizontal and vertical forces of the machine by the use of a number of counterbalancing bodies, arranged to move in unison, to counterbalance one another in a vertical direction, and to revolve in unison with the revolving parts of the machine. The bodies have an aggregate mass and center-of-gravity radius such that the product shall be equal to the product of the mass of the reciprocating parts and the crank radius.

**PROPELLING VESSELS.**—JOHN G. PINKERT, Hamburg, Germany. A new and improved motor has been devised by the inventor, operated by the explosion of combustible material for the propulsion of all kinds of vessels. In this motor the gaseous products of combustion are made to act directly upon the water or other medium to drive the vessel forward by reaction without any other propelling means. The motor has a working-cylinder open at one end in order to allow the explosion gases to act on the medium through which the vessel is traveling. A piston is moved within the cylinder. Mechanism controlled by the piston admits propelling charges to the cylinder.

**DEVICE FOR OPERATING THEATRICAL SCENERY.**—RICHARD HYDE, Brooklyn, New York city. The main purpose of the invention is to obviate the difficulty experienced in adjusting scenery when operated by ropes and pulleys—a difficulty caused by the expansion and contraction of the separate hanging ropes. In the present invention only the expansion or contraction of a central rope need be considered. By this arrangement scenes can be adjusted by pulling down one corner of the scene itself, the other corner going up correspondingly. The invention further provides a snap-catch for the pulley-block with which all the ropes are connected. The scenery can be lowered without the use of a counterweight.

**MAGAZINE-PISTOL.**—WALTER J. TURNBULL, New Orleans, La. By means of the construction provided by this inventor the cartridges are fed accurately by the same device which operates the hammer. The device also effects a positive lock for the feed mechanism, just before and during the time the hammer acts upon a cartridge. A portion of this hammer-operating mechanism is always in engagement and in controlling contact with the feed mechanism.

## Railway Appliances.

**PNEUMATIC PACKAGE-HOLDER.**—GEORGE H. WALL, Cadillac, Mich. The invention is a drop-platform for railway-cars and other vehicles employed to carry freight parcels, mail matter, and the like. The platform can be raised and locked, but is free to drop when released by the locking device, either by its own weight or by the weight of material placed thereon. The means employed for raising the platform permit the handling of a heavy load. The devices for raising the platform are pneumatic and operate with the least possible friction.

## Miscellaneous Inventions.

**JUNCTION-BOX.**—GEORGE L. HOLSHUH, Brooklyn, New York city. The invention is an improvement in junction-boxes for electric wiring in buildings and provides a ceiling junction-box with a simple device for locking it to a gas-pipe, the device being conveniently operated by a tool inserted through an opening in the lower side of the box.

**HARNESS ATTACHMENT.**—ORANGE A. DEAN and CHARLES H. ADREAN, Toulon, Ill. The attachment is designed to hold a check-

rein in engagement with the gig-saddle and to hold the pad in place. The gig-saddle is provided with a check-hook. Under the gig-saddle a flexible strap lies, comprising a shank provided at one end with a loop capable of being bent upward to receive the checkrein and at the other end with an eye capable of being bent upward to engage the back-strap.

**CUSPIDOR.**—JOHN C. BLAIR, 40 Chestnut Street Louisville, Ky. A water-pipe is arranged within the cuspidor and is passed centrally through a disk. A flanged spreader is connected with the pipe and has lateral orifices opening below the flange and above the disk. A central screw-valve is arranged in the spreader, its head being accessible at the top of the spreader. The sanitary merits of this arrangement need no comment.

**STEAM AND HEAT CONSERVATOR.**—BARDEN W. TAYLOR, Manhattan, New York city. One object of the invention is to condense the exhaust-steam and utilize its heat for reheating and superheating the water of condensation and for heating air to be used in the firebox. Still another object of the invention is to purify the water of condensation and form feed-water free from all foreign matter, liable to produce scale in the boiler.

**METHOD OF TREATMENT OF AMALGAM CONTAINING COPPER OR PRECIOUS METALS.**—JOACHIM H. BURFIND, Salt Lake City, Utah. The method of treating amalgams which forms the subject of this invention consists in adding sulfur to the amalgam at a temperature not exceeding the boiling-point of water and separating from the amalgam the copper sulfide formed.

**THEATRICAL DEVICE.**—SAMUEL W. COMBS, Manhattan, New York city. The purpose of the invention is to provide a stage effect in which water apparently rises gradually to a certain level on the stage, but without wetting the stage. A glass tank is employed which is used in connection with a tarpaulin or waterproof cloth to produce the illusion that the stage is being gradually covered with water. These tanks are so placed upon the stage that the sides toward the audience being transparent, cannot be seen, the horizon lines being properly concealed by stage fittings or settings of any kind. Any action that may take place behind the tanks will be quite apparent in front.

**GAGE.**—ARTHUR J. LUCY, Meadowcroft, Penn Road, Croydon, Surrey, England. The gage is a workshop instrument for marking off and setting out centers, the teeth of wheels, and the like, gaging and testing bevels, setting and adjusting tools. The instrument consists of a stock, a sector circularly adjustable in the plane of the stock and designed to act as a carrier for a rule slidably fitted therein, which by the circular adjustment of the sector can be brought into any desired angular relation to the base or other datum edge of the stock. The sector and stock are provided with scales whereon this angular relation may be read off.

**HITCHING DEVICE.**—PARKER M. BRAGUNIER, Denver, Colo. The hitching device for the driving reins of harness is to be attached to the cross-bar of vehicle-shafts. The single or double trees are constructed in pivotally-connected sections, so that when a driving-rein is secured to the hitching device, and the sections of the single or double tree are free to move forward at their outer ends, the traces will be slackened and the draft of the vehicle will be through the reins, thus tending to check the animal should he endeavor to run away.

**METAL CEILING.**—FREDERICK H. S. HAWLEY, Pretoria, South African Republic. The invention so simplifies and cheapens the work of erecting metal ceilings that the plates or panels can be quickly and systematically laid upon a foundation consisting of two series of furring strips, one series being at angles to the other series and the upper series resting upon the upper surfaces of the furring strips of the lower series. Thus, it is no longer necessary to recess and interlock the strips.

**DOG-MUZZLE.**—WILLIAM MC MANUS and CHARLES N. DILATUSH, Hagerman, Idaho. The dog-muzzle has a body, the front part of which is extended forwardly under the mouth of the dog to prevent the dog's taking food. The body is held in position by a strap which passes over the head and is fastened to a neck-strap. The device is particularly intended for use on sheep dogs in the West, in which districts the sheep ranges are poisoned to exterminate coyotes.

## Designs.

**BELT.**—LOUIS SANDERS, Brooklyn, New York city. The leading feature of the design is to be found in diverging points extending above and below the longitudinal edges of the body section of the belt at the back, producing a boice effect at the rear central portion of the belt.

**BUTTON.**—MOSES B. SHANTZ, Rochester, N. Y. The obverse of the button has a spherical center with connected apertures and is surrounded by a circular rim arched in cross section to form at its inner edge a circular joint. The outer portion of the rim is rounded off to the reverse of the button. At its middle portion this reverse is convex and is slightly dishd to the rounded edge of the rim.

**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.

## Business and Personal Wants.

**READ THIS COLUMN CAREFULLY.**—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send your name and address to the party desiring the information. In every case it is necessary to give the number of the inquiry.

MUNN &amp; CO.

Marine Iron Works, Chicago. Catalogue free.

**Inquiry No. 505.**—For small rotary pumps for moving the circulating water in gas engines.

"U. S." Metal Polish, Indianapolis. Samples free.

**Inquiry No. 506.**—For lighting red fixtures. Motor Vehicles, Duryea Power Co., Reading, Penn.

**Inquiry No. 507.**—For parties to make special needles from drawings, etc.

WATER WHEELS, Alcott &amp; Co., Mt. Holly, N. J.

**Inquiry No. 508.**—For information as to photographic paper-coating machinery.

Yankee Notions, Waterbury Button Co., Waterbury, Ct.

**Inquiry No. 509.**—For manufacturers of a machine for printing, developing, fixing and washing bromide paper from a continuous roll of paper.

La Porte Watch School, La Porte Ind. Catalogue free.

**Inquiry No. 510.**—For a device for burning garbage in private houses.

For bridge erecting engines, J. S. Mundy, Newark, N. J.

**Inquiry No. 511.**—For spring motor fans.

Dies & Special Machinery, Amer. Hdw. Mfg. Co., Ottawa, Ill.

**Inquiry No. 512.**—For manufacturers of feather renovating machines.

Machine chain of all kinds, A. H. Bliss & Co., North Attleboro, Mass.

**Inquiry No. 513.**—For manufacturers of soft Swedish iron for making small magnets.

Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

**Inquiry No. 514.**—For second-hand machinery dealers handling a 9-inch acrew cutting, foot power lathe.

Sheet Metal Stamping: difficult forms a specialty. The Crosby Company, Buffalo, N. Y.

**Inquiry No. 515.**—For set of castings 1 h. p. marine gasoline engine.

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

**Inquiry No. 516.**—For manufacturers of seamless tubing having inside diameters from 4-16 to 6-16 inch, nesting and closely fitting the next size larger.

Our number 4 Catalogue of Automobile parts, write us, Standard Welding Co., Cleveland Ohio.

**Inquiry No. 517.**—For machinery for drying fruits and vegetables.

Rigs that Run, Hydrocarbon system. Write St. Louis Motor Carriage Co., St. Louis, Mo.

**Inquiry No. 518.**—For a filter to filter and clarify vegetable oils.

SAWMILLS.—Variable friction feed. Send for Catalogue B. Geo. S. Comstock, Mechanicsburg, Pa.

**Inquiry No. 519.**—For manufacturers of the Serpentine boiler.

Ten days' trial given on Daus' Tip Top Duplicator. Felix Daus Duplicator Co., 5 Hanover St., N. Y. city.

**Inquiry No. 520.**—For a machine for making ice in small quantities adapted for hotel and family use.

Machinery designed and constructed. Gear cutting. The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y.

**Inquiry No. 521.**—For manufacturers of springs similar to clock springs 50 or 60 feet long, 1/4 inch wide by 1/8 inch thick.

For sale and introduction in Scandinavia, of American goods, any and all. Apply to O. P. Jespersen and Sonner, Copenhagen, Denmark.

**Inquiry No. 522.**—For dealers in ornamental baskets made by Indians in Canada.

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

**Inquiry No. 523.**—For machine for carding hair for mattresses.

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

**Inquiry No. 524.**—For parties to make a combination watch charm and match lighter.

Sheet Metal Novelities, Articles and Stampings of all sizes. Tools and dies manufactured on contract. Address Standard Stamping Co., Cor. 7th & Hudson Sts., Buffalo, N. Y. U. S. A.

**Inquiry No. 525.**—For manufacturers of type-writer ribbons before they are inked.

FOR SALE.—Patent of Saw-Mitering Device, a combination folding tool. Bisection all angles automatically. Meters plain, circular, segmental and radial work. James Lumsden, P. O. Box 72, North Tarrytown, N. Y.

**Inquiry No. 526.**—For manufacturers of the oscillating steam engines or castings of them.

Moistener and Sealer. For moistening and sealing stamps, Envelopes and Labels. Patents for sale or on royalty. Excellent chance for manufacturer with facilities for introducing a useful device. Address, CHAS. L. VOSE, Westerly, R. I.

**Inquiry No. 527.**—For manufacturers of Monarch wire cutters.

WANTED.—An experienced specification writer and patent expert having a thorough knowledge of the patent practice and preferably one competent to handle electrical cases. Munn & Co., Solicitors, Office of SCIENTIFIC AMERICAN, 361 Broadway, New York.

**Inquiry No. 528.**—For the makers of the "Becker routing machine."

HELP WANTED.—By a manufacturer in Central New York, a thoroughly competent man to take charge of woodworking department, running on hard and soft wood parts for agricultural machinery. Must have had practical experience with modern machinery and in the handling of a large number of men. State experience, age and give reference. Address Foreman, P. O. Box 773, N. Y.

**Inquiry No. 529.**—For manufacturers of small nails or hooks such as are driven into kegs to keep the hoops on, and are short enough to not reach through the wood.

HELP WANTED.—By a manufacturer in Central New York, a competent man to take charge of pattern Department, making both wood and metal patterns. A man who has had charge of metal pattern work for malleable iron foundries and who understands the economical finishing and gaging of patterns preferred. Give age, experience and references. Address Pattern Maker, P. O. Box 773, N. Y.

Patent for Sale.—American rights to patented pocket warmer. A pronounced success in England. Strongly recommended by the medical profession. Easy to manufacture. Sell on sight. Profit large. W. H. Thomassen, 417 W. 22d St., New York.

**Inquiry No. 530.**—For information as to the process of lead burning.

**Inquiry No. 531.**—For manufacturers and dealers in foot power machinery, such as used by lapidarists.

**Inquiry No. 532.**—For manufacturers of cork-making machinery to be operated by power.

**Inquiry No. 533.**—For manufacturers to make small stampings.

**Inquiry No. 534.**—For the manufacturers of "Hawk Brand tool steel."

**Inquiry No. 535.**—For dealers in Crookes bulbs.

**Inquiry No. 536.**—For a mechanical digger or plow in combination with a traction engine to be used in wheat sowing.

**Inquiry No. 537.**—For good and cheap wind engines.

**Inquiry No. 538.**—For manufacturers of paper fiber suitable for trunks.

**Inquiry No. 539.**—For manufacturers of stills for the distillation of water on a commercial basis.

**Inquiry No. 540.**—For manufacturers of trunks and bags and tools for the making of the same.

**Inquiry No. 541.**—For manufacturers of trunk and bag trimmings, hinges, locks, covering, etc.

**Inquiry No. 542.**—For dealers in or parties to make a seamless bag such as is used by salt and sugar works.

**Inquiry No. 543.**—For manufacturers of lime burners to burn a substance in a powdered form.

**Inquiry No. 544.**—For manufacturers of milk pails.

**Inquiry No. 545.**—For manufacturers of novelties.

**Inquiry No. 546.**—For summer resort attraction such as "Shoot the Chute," "Steepchase," "Dante's Inferno," "Merry-go-rounds," etc.

**Inquiry No. 547.**—For a water fountain and figure for a New York village.

**Inquiry No. 548.**—For machine for engraving monograms and initials on glass or chinaware, not by grinding.

**Inquiry No. 549.**—For a process for treating iron castings to prevent rusting; not galvanizing or plating.

**Inquiry No. 550.**—For machinery for alluvial placer work; also for underground gold-extracting machinery.

## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

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

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

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

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

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

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

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(8172) L. W. says: 1. If heat under pressure enveloped a boiler, the temperature being maintained, would its steaming power be increased, and if so what is the proportion of the pressure to the heating power? A. Yes. The heat would be imparted to the boiler if its temperature should be greater than the temperature of the boiler. The pressure depends upon the kind of material used to convey the heat. 2. What is the proportion of the increase in volume of air under increased temperature? A. Air expands by heat in the ratio of the absolute temperature. The absolute temperature below zero Fahr. is 460°, to which add the higher temperature and divide by the initial temperature, plus 460°. Thus the absolute temperature of 50° is 510°, and if the air is heated to 200° the absolute temperature will be 660°, and 660/510 = 1.294 the new volume. 3. Could hot, or expanded, air be practically employed as a motive power? A. Air expanded by heat is used as a motive power in hot-air engines. 4. What is the temperature about of a briskly burning hard coal fire? A. Temperature of a strong coal fire is from 2,000° to 2,500° Fahr. 5. What is the greatest temperature obtainable from the flame of a kerosene lamp? A. Temperature of a kerosene lamp is from 1,600° to 1,800° Fahr.

(8173) C. C. S. asks: How is it possible for the different phonograph companies to make such loud records? I have experimented with all kinds of machines, but cannot make one anywhere near as loud as I can buy. I think electricity is used to record the sound waves. A. It is not at all strange that a man whose trade it is to make records can make louder ones than an amateur can. We are not informed as to the secret process employed by different companies to make better records than their competitors.

(8174) J. H. White writes: I have seen an account of a supposed suck-hole in a certain creek in Kentucky, which upon investigation proved to be a huge lodestone, about fifty yards long and six inches wide, from which men were rescued with difficulty while swimming, and which held dogs with such power that they never came up. If this is true, is it not a manifestation of a force radically different from electro-magnetism? Can you explain the phenomenon? Will you please inform me where I can purchase a lodestone? A. If this is true, it is indeed unlike anything hitherto known on earth. No lodestone ever had any power to attract the human or canine

body. We cannot offer any suggestion in explanation till the report is found to be true. Limestone is an ore of iron which exists in great quantities in our country, and can be bought of any dealer in specimens of minerals. You can find plenty of specimens at the university in your city.

(8175) J. H. Tripp asks: What is meant by "weight per mile ohm"? We find this expression repeatedly used in wire catalogues, as: Weight per mile per ohm, 5,500 to 5,800 pounds. A. That a wire one mile long and having a resistance of one ohm would have the weight given.

(8176) W. M. M. writes: I claim that the direction of armature of a multiple-connected motor cannot be changed by simply reversing the direction of current through the armature; but direction of armature can be changed only by reversing direction of current through the field. A. The direction of rotation of an armature is reversed by reversing the current through either the field or armature, but not through both.

(8177) C. T. P. asks: 1. What are "electric gases" in connection with boiler explosions? A. If gases from the decomposition of water accumulated in a steam boiler, they might be called "electrical gases." We have no personal knowledge of the formation of any such gases. 2. Is it dangerous to ground a telephone wire on a pipe running to a steam boiler? A. We can see no reason why it should be. 3. Would it be dangerous to put copper rivets or copper pipe connections on a boiler or on a digester for boiling fats with lime under 120 pounds pressure? A. There are in some fats acids which will act upon copper and form compounds at the expense of the copper. Thus the tube would be eaten away and in time become weak. It might then burst from the excess of pressure above what it could stand. 4. Would the copper against iron form electricity and dangerous "electric gases"? We have academic information that they will, but have been unable to find any practical engineer who will concede that there is anything in it. A. We do not apprehend anything of the kind is likely to happen.

(8178) O. P. McK. asks: Is there such a thing as electro-plating copper plates with a steel plating, or is there any plating for copper that it harder than copper itself? A. The operation called "steeling" is really coating a softer metal with iron. There are several metals harder than copper which can be deposited upon a surface of copper. The processes are given in Langbein's "Electro-Deposition of Metals," price \$4 by mail, a full and reliable treatise on the subject.

(8179) W. M. D. asks: 1. What is the cost of magnetizing steel blocks 1 x 1/2 inch, and how long will they keep their strength? A. Steel magnets are best made by sending a current of electricity around them. Make a coil of wire large enough to pass the bars through and connect to a battery. Pass the bar to and fro several times through the coil. If properly taken care of, the magnetism will be retained. See SCIENTIFIC AMERICAN, Vol. LX., No. 16, price ten cents by mail. 2. Is there any way to register daylight? A. There are several forms of sunshine recorder in use. Any of these will give the time during which the sun has shone while it has been exposed. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 277, 336, 369, 554, 662, 1156, price ten cents each, for illustrated descriptions of these instruments.

(8180) J. G. Von H. asks: 1. How large a spark from a spark coil is it necessary to have to excite a wire, say 1,000 feet away, with the Hertzian wave as used in wireless telegraphy? A. A Ruhmkorff coil is required for wireless telegraphy. While exact data are not at hand, it is probably near the truth that a spark coil giving a spark of one-half inch in length will transmit 1,000 feet. 2. Will a disruptive spark from a static machine excite a distant wire like the spark from a spark coil? A. A static machine may be used as a transmitter.

(8181) F. H. P. asks: Will you please state in the inquiry column directions for making an electrical heater? The system is the Edison three-wire, direct current, 110 volts at half ampere. A. If you wish but one-half an ampere to flow through your heater, it will not have much heating power. However, to make it, take about 625 feet of No. 26 iron wire and arrange it so that the turns do not touch each other. They must not touch anything which can be set on fire nor rest on any metal at any point. Asbestos is used to prevent the wire from coming in contact with the metal frame which must be used to support the wire.

## INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

APRIL 23, 1901,

AND EACH BEARING THAT DATE.

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

Abrading machine, J. M. Nash..... 672,511

Accumulator battery, P. Marino..... 672,563

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**BICYCLE TIRE REPAIRING.—THE**  
Mending of Single Tube Tires.—A practical illustration of the method of inserting patches and plugs with pliers and pluggers, together with rubber band plugging and the use of puncture bands. 9 illustrations. Contained in SUPPLEMENT 1102. Price 10 cents. For sale by Munn & Co. and all newsdealers.

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Amalgamator, L. Mayhew.....	672,739	672,740
Amalgamator, Gbigheri & Schofield.....	672,524	
Antirattler and thill coupling, combined, E. Jarrell.....	672,775	
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Bicycle pedal, L. A. Braddock.....	672,698	
Bicycle saddle, P. W. Thillingast.....	672,656	
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Billets, manufacture of, W. B. Hughes.....	672,773	
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Blind, window, S. Smith.....	672,574	
Blower or pump, E. A. Osborne.....	672,803	
Boiler flue cleaner, A. Gronwald.....	672,733	
Boiler furnace, steam, W. Kent.....	672,781	
Bolt cutter, S. S. Bolsinger.....	672,869	
Boots or shoes, machine for assembling inner soles, uppers, linings, and counters of, C. W. King.....	672,624	
Bottle stopper, measuring, T. N. Jayne.....	672,850	
Bottling establishments, device for hoisting and transferring bottled beer in, Lieber & Meimberg.....	612,788	
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