Furnace blast pipe and bridle, blast, T. E. Bea-

an adjustable stop to limit the movement of the dia-

SASH HOLDER.-Lewis H. Bowman Walla Walla, Wash, To hold a window sash, without rattling, at any height desired, and to prevent the ingress of air or dust when the sash is closed, are the main ob jects of this invention, the device serving also as a lock to prevent raising the window from the outside. The device comprises a frame fitting against the sash within the window casing, the frame being swung away from the sash by links, while the frame may be swung tight against the sash by a pivoted cam lever and link.

WAGON AXLE BEARING.—Henry M. Cromer, Anderson, S. C. This invention is designed to facilitate the utilization of old thimble skeins, making them fit closely upon the axle, as well as provide a new construction, which consists of a conical sleeve attached to each end of the spindle bearing and adjustable in either direction, by which the spindle may be made to simply fit the sleeve at all times, and by which the position of the hub upon the axle may be adjusted to keep the tread of the wagon constant.

CLINICAL THERMOMETER SHIELD -Jennie C. Harrington, Ossian, Ia. This shield is especially designed for use on fever thermometers, to prevent patients from breaking the instrument while it is being held in the mouth. It consists of a casing, preferably of a suitable metal, such as aluminum or silver, madein two longitudinal sections hinged directly together and provided with a fastening device, the sections holding and inclosing the thermometer tube, but being open at one end to permit the mercury bulb to extend beyond, and there being in one of the sections a longitudinal slot through which may be read the scale indicating the degree of temperature.

APPARATUS FOR COOLING JAQUIDS .-William L. Spoon, Jr., Barlington, N.C. For cooling hot water or other liquid used in ice machines, etc., this inventor has devised an apparatus which is designed to be very effective, while permitting the use of the liquid over and over again with a minimum percentage of loss by evaporation. It comprises a perforated casing into the upper end of which a current of air is to be forced, a mozzle connected with the liquid supply spraying liquid into the casing, while the latter has a perforated zigzag supporting leg containing perforated plates. The liquid is thus atomized and sprayed in finely divided state, and at the same time subjected to a current of air of ordinary or low temperature, causing accelerated evaporation and

STERILIZING APPARATUS.—Arthur J Vause, Sydney, New South Wales. For sterilizing milk and other liquids, and the receptacles in which the milk is placed, as well as for automatically bottling and corking the milk, this inventor has devised an apparatus in which the milk is first passed in bottles through a series of inclined ways, kept at varying and adjusted temperature, passing from thence to be received in a steam jacketed container, from which it passes through a deodor izer and thence to a filling apparatus. I'he apparatus is provided at various points with thermometers, according to which the temperature may be regulated as de

WATER COCK. - Maurice Andriveau, Paris. France. This invention relates to cocks in which automatic closing takes place, and provides a cock which will have a double closing action, and which at each ope ration supplies only a predetermined quantity of water The valve casing has two apertured seats, in both o which the cutoff valve, constructed in two lengitudinally adjustable sections, may seat itself, the length of the valve being changeable, there being means for changing the pressure on one side to cause the valve to move from one seat to the other. The valve will operate in any position, with the outlet facing upward, downward or taterally.

WASHING MACHINE. - Alexander E. illo iges, Tecumseh, Oklahoma Ter. In a suitably constructed frame, according to this invention, a semicircular receptacle is mounted to rock, there being within it a rubbing cylinder journaled in a frame with which is loosely connected an arm adapted to receive a swinging motion from the recentacle to move the rubbing cylinder in an opposite direction to the movement of the receptacle. By this means a proper rubbing and wash ing of the clothes is effected without danger of tearing them, the machine being easily operated and of simple and durable construction.

Bosom Pan.-Dora Harrison, Lansing, Mich. This pad is an improvement on a formerly patented invention of the same inventor, providing an improved dress form readily applied to or removed from the pockets of corsets and other garments, and designed to insure a proper fitting of the dress. It is made in two pad sections, each having a back and front section with meeting edges having flanges lying snugly against flanges, while lace arms are secured by adjustable lacing to the welts of the pad sections.

ROLLING PIN. — Anson B. Fowler, Shelton, Wash. This device may be used as an ordinary rolling pin, in the preparation of dough for the oven, or with a flour delivery for sprinkling the dough to be rolled, to prevent it from sticking or adhering to the pin, and with this view is made with two shells, one within the other, and each having perforations, which may be brought in line with each other or not, as decirc i, the inner shell forming a flour recentacle. The arts are readily detachable to facilitate cleaning.

# Designs.

SEPARATOR. - Frank H. Congdon, East Greenwich, R. I. This invention relates to separaters used in spinning machinery, such as the Doyle separator, and embodies an improved form thereof. The blades are so curved as to present fewer chances of collecting lint and dirt, and are also lighter, giving the ring

GLASS PITCHER.-Joseph Wilson, New panels, box panels crossing both the others.

BICYCLE LUGGAGE CARRIER.-A. J. Gilfillan, Smethport, Pa., and W. H. White, Nyack, N. Y. This is a bracket device to be fitted on the steering head and having arms projecting from each side adapted to conveniently carry a variety of packages.

SPOON HANDLE.-Herman J. Klumpp. Portland, Oregon. On the obverse side this handle represents interlaced ribbons, with panels containing floral figures, while on the reverse side are scroll and shell figures and a beaded ribbon following the margin of the bead.

Note.-Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

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Inquiries not answered in reasonable time should 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.

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(7369) J. W. B writes: About what size wire, number of sections, etc., to wind on laminated core of following size. You will help me out of a quandary:

Diameter of core. ..... 23/4 Number of laminations. ........ 30 Sections... 10

the proper strength, wind the armature with 24 sections of 12 turns each of No. 16 wire. You can change the number of sections if you keep the total number of turns the same. See Scientific American Supplement, No. 600, for further directions for winding. You can place sixteen No. 16 wires to the inch.

(7370) J. L. B. writes: Will you kindly nswer for me the following ? 1. Why does not the magnetic pole coincide with the geographic pole? A. This is as yet one of the hidden secrets in the physical constltution of the earth. 2. How is artificial stone made A. Articles in Scientific American Supplements Nos. 183, 355 and 868, give very full accounts of the various kinds of artificial stone. 3. What is meant by a "car mile" in speaking of building railroads? A. A "car mile" is a term used in estimating the cost of running cars. It is the cost of running one car one mile. 4. How are billiard balls turned? A. For method of turning billiard balls see Notes and Queries, No. 7353, SCIENTIFIC AMERICAN, February 19, 1898. 5. In what number of Scientific American of Supplement may I find an account of how artificial ice is made, for or in skating rinks? A. Skating rinks with artificial ice are illustrated and described in SCIENTIFIC AMERICAN SUP-PLEMENTS, Nos. 35, 738 and 892. 10 cents each, mailed.

(7371) C. N. S asks for formula for preparation to stick wood veneer on tin or metal of any kind. Have used glue and nitric acid, also glue and garlic, but neither works satisfactorily. The veneer will peel after a time. I want something that will adhere permanently.

A. M. Eliel gives the following formula for a mixture which can be used for metal, glass or wood : Gum tragacanth, 30 grammes; acacia gum, 120 grammes; water, 500 cubic centimeters. Dissolve, filter and add 21/2 York City. This pitcher has panels decorated with grammes of thymol suspended in 120 cubic centimeters o 'punties," and prismatic panels at each side of such glycerine; then add enough water to make up the bulk to 1 liter. This bath will keep a long time.

#### TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one bundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business, Address MUNN & CO., office SCIENTIFIC AMERICAN. 361 Broadway. New York.

## INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

FEBRUARY 22, 1898, AND EACH BEARING THAT DATE.

ar brake, H. F. Noves	AND EACH BEARING THAT DATE.
sattery. See Electric battery. Electrical primary pattery. Secondary pattery.  1993.39 1605ted, Tolding, N. P. Bradish. 999.32 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle shandle bar, F. C. Rockwell. 999.320 1607cle stand and lock, I. B. Hewitt. 999.320 1607cle stand lock of the standard pattern of the standard patter	[See note at end of list about copies of these patents.]
sattery. See Electric battery. Electrical primary pattery. Secondary pattery.  1993.39 1605ted, Tolding, N. P. Bradish. 999.32 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle shandle bar, F. C. Rockwell. 999.320 1607cle stand and lock, I. B. Hewitt. 999.320 1607cle stand lock of the standard pattern of the standard patter	Air brake, street car, C. A. Gray
sattery. See Electric battery. Electrical primary pattery. Secondary pattery.  1993.39 1605ted, Tolding, N. P. Bradish. 999.32 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle shandle bar, F. C. Rockwell. 999.320 1607cle stand and lock, I. B. Hewitt. 999.320 1607cle stand lock of the standard pattern of the standard patter	Animal tie. C. M. Wood
sattery. See Electric battery. Electrical primary pattery. Secondary pattery.  1993.39 1605ted, Tolding, N. P. Bradish. 999.32 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle shandle bar, F. C. Rockwell. 999.320 1607cle stand and lock, I. B. Hewitt. 999.320 1607cle stand lock of the standard pattern of the standard patter	Ash remover and sifter, E. W. Campagna 599,384  Axles. apparatus for manufacturing. C. M.
sattery. See Electric battery. Electrical primary pattery. Secondary pattery.  1993.39 1605ted, Tolding, N. P. Bradish. 999.32 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle frame construction, Kenyon & Whewell 1993.40 1607cle shandle bar, F. C. Rockwell. 999.320 1607cle stand and lock, I. B. Hewitt. 999.320 1607cle stand lock of the standard pattern of the standard patter	Schwab
mary battery, Secondary oattery.    Sender   Secondary oattery.   Sept.	Sand slide, E. J. Van Sickle
licycles, etc., pedal for, M. Matthews	mary battery. Secondary battery. Rearing, ball, H. Meltzer
licycles, etc., pedal for, M. Matthews	Bicycle crank shaft, Ferris & Hunt 599,652
licycles, etc., pedal for, M. Matthews	Bicycle guard, D. W. Stevenson
licycles, etc., pedal for, M. Matthews	Bicycle handle, C. J. Killther. 599,359 Bicycle handle bar, F. C. Rockwell. 599,359 Bicycle halder, L. H. Sprader. 500,615
licycles, etc., pedal for, M. Matthews	Bicycle lamp attachment, C. F. Walker
solier sae Steam boller.  Solier gage glas protector, G. J. J. Manvell.  Solier gage glas glas protector, G. J. J. Manvell.  Solier gage glas glas glasses, G. J. J. Manvell.  Solier gage glasses, G. M. Awood.  Solier gage glasses, G. M. H. Thomas.  Solier gage glasses, G. M. H. Thomas.  Solier gage glasses, G. M. H. H. H. M. C. Constable.  For gage glasses, G. M. H. H. H. M. M. W. H. H. H. M.	Bicycle support, C. B. Harkness
solier sae Steam boller.  Solier gage glas protector, G. J. J. Manvell.  Solier gage glas glas protector, G. J. J. Manvell.  Solier gage glas glas glasses, G. J. J. Manvell.  Solier gage glasses, G. M. Awood.  Solier gage glasses, G. M. H. Thomas.  Solier gage glasses, G. M. H. Thomas.  Solier gage glasses, G. M. H. H. H. M. C. Constable.  For gage glasses, G. M. H. H. H. M. M. W. H. H. H. M.	Billiard cushion, W. E. Taft. 599.371 Binding implement C. F. Allshouse 500.486
Suler gaze glass profector, G. J. Manvell.  Suler gaze glass profestor, G. Manvell.  Suler gaze glass	Bit, M. Steudner
ottle and stopper, J. W. Mcilougali, 599,629 tottle packing case, B. W. Atvood. tottle atochment, mucliare, I. H. Thomas. 599,461 tottle backing case, B. W. Atvood. 599,401 tottle stopper and pour out, L. H. Thomas. 599,461 tottle stopper and pour out, L. H. Thomas. 599,461 towning alley, E. Reisky. 599,477 towning alley, E. Reisky. 599,467 trake. See Air brake. Sled brake. Frake. See Air brake. Sled brake. Frake. See Air brake. Sled brake. Frake mechanism for railway carriages, etc., H. L. Constable. 599,467 turde a. N. Stoon. 599,467 turde a. Stoon. 599,468 turde a. Stoo	Boiler. See Steam boiler.
ottle and stopper, J. W. Mcilougali, 599,629 tottle packing case, B. W. Atvood. tottle atochment, mucliare, I. H. Thomas. 599,461 tottle backing case, B. W. Atvood. 599,401 tottle stopper and pour out, L. H. Thomas. 599,461 tottle stopper and pour out, L. H. Thomas. 599,461 towning alley, E. Reisky. 599,477 towning alley, E. Reisky. 599,467 trake. See Air brake. Sled brake. Frake. See Air brake. Sled brake. Frake. See Air brake. Sled brake. Frake mechanism for railway carriages, etc., H. L. Constable. 599,467 turde a. N. Stoon. 599,467 turde a. Stoon. 599,468 turde a. Stoo	Book rest and fan, combined. B. Sherman 599.574 Boot or shoe nailing machine, A. Newton 598.627
ottle stopper and pour out, L. H. Thomas. 599,477 lox folding machine, W. Lederer. 599,615 trake. See Air brake. Sied brake. 590,615 trake. See Air brake. Sied brake. 590,615 trake mechanism for railway carriages, etc., H. L. Constaint. 599,424 turner. See Hydrocarbon burner. 599,524 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,627 turning and heating appliance, H. S. Garr. 599,627 and turning and heating appliance, H. S. Garr. 599,627 and youtting machine, S. F. V. Coniev. 599,527 and youtting machine, C. C. York. 599,527 and youtting machine, C. C. York. 599,527 and youtting machine, C. C. York. 599,527 ard coupling, H. Laake. 599,527 ard coupling, H. Laake. 599,527 ard draw bar, railway, A. M. Phelps. 599,527 ard straw bar, railway, A. M. Phelps. 599,527 ard straw bar, railway, A. M. Phelps. 599,528 ar stopper, automatic, I. J. Neracher. 599,527 ard stopper, automatic, I. J. Neracher. 599,527 ard box, G. W. Weiver. 599,528 ars stopper, automatic, I. J. Neracher. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, S. Berning. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, S. Garren, 599,529 are stopper,	Boring and turning machine, upright, L. H. Col- burn
ottle stopper and pour out, L. H. Thomas. 599,477 lox folding machine, W. Lederer. 599,615 trake. See Air brake. Sied brake. 590,615 trake. See Air brake. Sied brake. 590,615 trake mechanism for railway carriages, etc., H. L. Constaint. 599,424 turner. See Hydrocarbon burner. 599,524 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,626 turning and heating appliance, H. S. Garr. 599,627 turning and heating appliance, H. S. Garr. 599,627 and turning and heating appliance, H. S. Garr. 599,627 and youtting machine, S. F. V. Coniev. 599,527 and youtting machine, C. C. York. 599,527 and youtting machine, C. C. York. 599,527 and youtting machine, C. C. York. 599,527 ard coupling, H. Laake. 599,527 ard coupling, H. Laake. 599,527 ard draw bar, railway, A. M. Phelps. 599,527 ard straw bar, railway, A. M. Phelps. 599,527 ard straw bar, railway, A. M. Phelps. 599,528 ar stopper, automatic, I. J. Neracher. 599,527 ard stopper, automatic, I. J. Neracher. 599,527 ard box, G. W. Weiver. 599,528 ars stopper, automatic, I. J. Neracher. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, S. Berning. 599,529 are stopper, automatic, Hugershoff. 599,529 are stopper, S. Garren, 599,529 are stopper,	Bottle and stopper, J. W. McDougall 599,624 Bottle attachment, mucilage, L. H. Thomas 599.461
Solve and the Bachine of a section of the content o	Bottle packing case, B. W. Atwood
Solve and the Bachine of a section of the content o	Bowling alley, E. Reisky
read and bastry board. W. Harris.  unrier. See Hydrocarbon burner.  urrier. See Hydrocarbon burner.  urrier. See Hydrocarbon burner.  urrier. See Hydrocarbon burner.  see	Brake. See Air brake. Sled brake.
San. See Oil can. Sealing wax can. andle holder, F. W. Grundmann. 599,527 andy cutting machine, C. C. York. arb orake shoe slack adjuster, railway, H. F. Shaw. 599,662 ar coupling, L. L. Bigelow. 599,563 ar coupling, H. Laake. 599,567 ard crown of the state of the	L. Constable
San. See Oil can. Sealing wax can. andle holder, F. W. Grundmann. 599,527 andy cutting machine, C. C. York. arb orake shoe slack adjuster, railway, H. F. Shaw. 599,662 ar coupling, L. L. Bigelow. 599,563 ar coupling, H. Laake. 599,567 ard crown of the state of the	Buckle, N. Nelson
San. See Oil can. Sealing wax can. andle holder, F. W. Grundmann. 599,527 andy cutting machine, C. C. York. arb orake shoe slack adjuster, railway, H. F. Shaw. 599,662 ar coupling, L. L. Bigelow. 599,563 ar coupling, H. Laake. 599,567 ard crown of the state of the	Burning and heating appliance, H. S. Garr 599,499 Button or stud for shirt become F. A. Pollon 500,499
San. See Oil can. Sealing wax can. andle holder, F. W. Grundmann. 599,527 andy cutting machine, C. C. York. arb orake shoe slack adjuster, railway, H. F. Shaw. 599,662 ar coupling, L. L. Bigelow. 599,563 ar coupling, H. Laake. 599,567 ard crown of the state of the	Cabinet, C. L. Hendricks
ar dove, J. W. Kennedy.  ar dender, I. J. Neracher.  As refeder, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars developer, and and truck for, A. M.  Phelps.  Ard box, G. W. Weaver.  S99,631  arpet sweeper. A. B. Linn.  S99,632  ash register of forth.  S99,632  ash register and indicator, H. M. Neer.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,522  hair. See Opera chair.  S99,532  hurn. J. R. Halley cleaner.  S99,532  burn. J. R. Halley cleaner.  S99,532  clothes winger. C. Wheeler. Jr.  S99,532  clothe winger. C. Wheeler. Jr.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color sheller. Allen & Bearden.  Son sheller. Allen & Son sheller.  Son sheller. Son sheller.  Son sheller. Son sheller.  S	Camera, photographic magazine, E. E. Flora 599,556 Can. See Oil can. Sealing wax can.
ar dove, J. W. Kennedy.  ar dender, I. J. Neracher.  As refeder, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars developer, and and truck for, A. M.  Phelps.  Ard box, G. W. Weaver.  S99,631  arpet sweeper. A. B. Linn.  S99,632  ash register of forth.  S99,632  ash register and indicator, H. M. Neer.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,522  hair. See Opera chair.  S99,532  hurn. J. R. Halley cleaner.  S99,532  burn. J. R. Halley cleaner.  S99,532  clothes winger. C. Wheeler. Jr.  S99,532  clothe winger. C. Wheeler. Jr.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color sheller. Allen & Bearden.  Son sheller. Allen & Son sheller.  Son sheller. Son sheller.  Son sheller. Son sheller.  S	Candle holder, F. W. Grundmann
ar dove, J. W. Kennedy.  ar dender, I. J. Neracher.  As refeder, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars topper, automatic, I. J. Neracher.  S99,630  ars developer, and and truck for, A. M.  Phelps.  Ard box, G. W. Weaver.  S99,631  arpet sweeper. A. B. Linn.  S99,632  ash register of forth.  S99,632  ash register and indicator, H. M. Neer.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,476  entrifugal machine, F. Hugershoff.  S99,522  hair. See Opera chair.  S99,532  hurn. J. R. Halley cleaner.  S99,532  burn. J. R. Halley cleaner.  S99,532  clothes winger. C. Wheeler. Jr.  S99,532  clothe winger. C. Wheeler. Jr.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  collar fastener, shirt, C. R. Mullen.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color value curtain shutter, F. J. Harrison.  S99,530  color sheller. Allen & Bearden.  Son sheller. Allen & Son sheller.  Son sheller. Son sheller.  Son sheller. Son sheller.  S	uar brake shoe slack adjuster, railway, H. F. Shaw
ar draw bar, railway, C. A. Schroyer	Oar coupling, L. L. Bigelow
ard box, G. W. Weaver.  aspet sweeper. A. B. Linn.  ase, See Bottle packing case.  ash register and indicator, H. M. Neer.  599,418  ash register and indicator, H. M. Neer.  599,426  ash pregister and indicator, H. M. Neer.  599,427  ask pitching apparatus, H. Rauch.  599,422  hair. See Opera chair.  hair iron, tilting, Hanson & Wolff.  599,422  hurn. J. R. Halley.  hurn. Gopock & Miller.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599,332  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599	Car door, J. W. Kennedy
ard box, G. W. Weaver.  aspet sweeper. A. B. Linn.  ase, See Bottle packing case.  ash register and indicator, H. M. Neer.  599,418  ash register and indicator, H. M. Neer.  599,426  ash pregister and indicator, H. M. Neer.  599,427  ask pitching apparatus, H. Rauch.  599,422  hair. See Opera chair.  hair iron, tilting, Hanson & Wolff.  599,422  hurn. J. R. Halley.  hurn. Gopock & Miller.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599,332  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599	Car fender, I. J. Neracher
ard box, G. W. Weaver.  aspet sweeper. A. B. Linn.  ase, See Bottle packing case.  ash register and indicator, H. M. Neer.  599,418  ash register and indicator, H. M. Neer.  599,426  ash pregister and indicator, H. M. Neer.  599,427  ask pitching apparatus, H. Rauch.  599,422  hair. See Opera chair.  hair iron, tilting, Hanson & Wolff.  599,422  hurn. J. R. Halley.  hurn. Gopock & Miller.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,532  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599,332  hurn. J. R. Halley.  599,332  hurn. J. Hall.  599	Car stopper, automatic, I. J. Neracher
hurn, Coppock & Miller    See Fruit cleaner   See See See See See See See See See S	Phelps
hurn, Coppock & Miller    See Fruit cleaner   See See See See See See See See See S	Carpet sweeper. A. B. Linn
hurn, Coppock & Miller    See Fruit cleaner   See See See See See See See See See S	Cash register, C. Forth
hurn, Coppock & Miller    See Fruit cleaner   See See See See See See See See See S	Cask pitching apparatus, H. Rauch
hurn, Coppock & Miller    See Fruit cleaner   See See See See See See See See See S	Chair. See Opera chair. Chair iron, tilting. Hanson & Wolf
Soliar faste ner, shirt, C. R. Mullen	Unuck, R. H. Hurlbut
Soliar faste ner, shirt, C. R. Mullen	Cleaner. See Fruit cleaner. 599,332
Soliar faste ner, shirt, C. R. Mullen	Coffee pot, W. G. Melvin
jooler. See Milk cooler.  Oors sheller, Allen & Bearden  Oors sheller conveyer, J. H. Gilman  599,500  Orner stay jug machine, H. A. Inman  599,503  Orner strip anchor plate, F. A. Mitchell  599,435  Outer siking machine, dovetail, G. A. Huben  599,435  Outer siking machine, dovetail, G. A. Huben  599,435  Outer siking machine, dovetail, G. A. Huben  590,353  Millaks, detachable fastener for, J. M. Parkin  301  301  301  302  303  304  305  307  307  308  308  309,401  301  309,401  301  309,401  301  301  301  301  301  301  302  303  303	Collar fastener, shirt, C. R. Mullen
Orn sheller, Allen & Bearden Orn sheller conveyer, J. H. Gilman Orn sheller conveyer, J. H. Gilman Orn sheller conveyer, J. H. Gilman Orner staying machine, H. A. Inman Orner strip anchor plate, F. A. Mitchell Orner strip anchor plate, F. A. Mitchell Orton cleaning mechanism, seed, M. Swenson Sey, 575 Ouches, spring leg for, E. M. Hulse Outton cleaning mechanism, seed, M. Swenson Sey, 575 Ouches, spring leg for, E. M. Hulse Outton cleaning mechanism, seed, M. Swenson Sey, 575 Ouches, spring leg for, E. M. Hulse Outton cleaning mechanism, seed, M. Swenson Sey, 575 Ouches, Spring leg for, E. M. Hulse Sey, 575 Ouches, Spring leg for, E. M. Hulse Sey, 575 Ouches, Spring leg for, E. M. Hulse Sey, 599, 572 Outter See Band cutter. Sey, 353 Unit vator, C. F. Pogue Sey, 401 Unit See Band cutter. Sey, 320 Shah, crushed fruit, G. Bohner Soor checks and closers, lever connection for, C. O. Case Soor checks and closers, lever connection for, C. O. Case Soor see, Sey, 599, 599, 599, 599 Oors, double sliding, A. G. Bier bach Sey, 480 Oors, double sliding, A. G. Bier bach Sey, 480 Oors, double sliding, A. G. Bier bach Sey, 480 Oors, double sliding, A. G. Bier bach Sey, 480 Oors, double sliding, A. G. Bier bach Sey, 480 Oors, double sliding, A. G. Bier bach Sey, 599, 482 Orress shield extender, H. L. Rutter Sey, 359 Orrer See Fruit drier See Fruit drier See Fruit drier See Raid drill. See Sey, 599, 599 Sey, 599, 5	
corner strip anchor plate, F. A. Mitchell	Corn sheller, Allen & Bearden
corner strip anchor plate, F. A. Mitchell	Corner plate, H. Liebreich
ultivator, C. F. Pogue	Corner strip anchor plate, F. A. Mitchell
ultivator, C. F. Pogue	Countersinking machine, dovetail, G. A. Huben, 599,333
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Steptindt.  Steptindt.  Steptindt.  Steam dr.  Steptindt.  Steptind	Cun links, detachable fastener for, J. M. Parkin- son
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Cuttor See Soap cup. 599,401
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Cyclometer, E. G. Dorchester. 599,320
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Derailer, automatic, G. C. Sharpe. 599,335
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Door checks and closers, lever connection for, C.
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Door hanger, G. C. Gardner
prier. See Fruit drier. Steam drier.  prier. A. S. Livengood.  prill. See Rail drill.  propper. See Medicine dropper.  prum. heating. G. M. Ridenour.  prye, black trisazo. C. M. Steam drier.  prum. heating. G. M. Ridenour.  proper. See Medicine dropper.  Step. See Steam dr.  Step. Steam dr.  Steam dr.  Step. Steam dr.  Steem dr	Draining machine, J. Edmonds. 599,442 Drawing apparatus, R. Richter. 599,449
Dee black trisazio C. Ris. 1999, 199	Dress shield extender, H. L. Rutter
Dee black trisazio C. Ris. 1999, 199	Drier, A. S. Livengood. 599,509 Drill. See Rail drill.
keg beater. E. J. Scopes	propper. See medicine dropper. Drum, heating, G. M. Ridenour
keg beater. E. J. Scopes	Dye, Diack trisazo, U. Ris. 599,532 Dye, blue black alizarin, R. E. Schmidt. 599,425
keg beater. E. J. Scopes	Schmidt
Betric resistance conductor, H. G. O'Neill. 599,332 Beetric resistance conductor, O'Neill & Gale. 599,332 Beetric wire holding appliance, H. A. McCoy. 589,332 Beetric wire holding appliance, H. A. McCoy. 589,334 Beetrical primary battery, J. B. Whittemore. 599,411 Berator. See Mail and parcel elevator. 599,411 Berator. See Mail and parcel elevator. 599,618 Bevator hoist. T. Mason. 599,618 Bevator safety appliance, J. D. Conner. 599,523 Ingine, See Gas engine. Rotary engine. Vapor 500,100,100,100,100,100,100,100,100,100,	Schmidt
Betric resistance conductor, H. G. O'Neill. 599,352 Bectric resistance conductor, O'Neill & Gale. 599,352 Bectric wire holding appliance, H. A. McCoy. 599,352 Bectric wire holding appliance, H. A. McCoy. 599,353 Betricor primary battery, J. B. Whittemore. 599,451 Berator. See Mail and parcel elevator. 599,451 Berator. See Mail and parcel elevator. 599,652 Berator hoist. T. Mason. 599,652 Berator safety appliance, J. D. Conner. 599,552 Braine, See Gas engine. Rotary engine. Vapor 552,162 Braine, See Gas engine. Rotary engine. Vapor 552,162 Braines, electric igniter for explosive, H. F. Probett. 599,354 Explosives, making, J. E. Blomen. 599,354 Explosives, making, J. E. Blomen. 599,357 Explosives, making, J. E. Blomen. 599,572 Fermenting squares and vats, construction of, 791,561,565 Fermenting squares and vats, construction of, 791,561,561,565 Frearm, box magazine. J. M. Browning. 596,569 Frearm, magazine. Bennett & Mason. 599,873 Frearm, box magazine, J. M. Browning. 598,873 Frearm, magazine. Bennett & Mason. 599,873 Frearm, magazine. Bennett & Mason. 599,873 Frearm, magazine. J. M. Browning. 598,873 Frearm magazine. 599,873 Frearm magazine. 599,87	Elastic tired wheel, D. A. McKnight
devator safety appliance, J. D. Conner. 599,523 Sngine, See Gas engine. Rotary engine. Vapor Sngine, See Gas engine. Property of the Congress of the Co	Electric light support, incandescent, J. Whitaker 599,543 Electric meter driving gear, G. A. Le Foure 509,543
devator safety appliance, J. D. Conner. 599,523 Sngine, See Gas engine. Rotary engine. Vapor Sngine, See Gas engine. Property of the Congress of the Co	Retric resistance conductor, H. G. O'Neill. 599,351 Electric resistance conductor. O'Neill & Gale. 599,253
devator safety appliance, J. D. Conner. 599,523 Sngine, See Gas engine. Rotary engine. Vapor Sngine, See Gas engine. Property of the Congress of the Co	Electric wire holding appliance, H. A. McCoy 559,346 Electrical primary battery, J. B. Whittemore 599,411
System of the second of the se	Elevator. See Mail and parcel elevator. Elevator hoist, T. Mason
System of the second of the se	Engine. See Gas engine. Rotary engine. Vapor
Special Specia	Engine, r. J. r. Brugulere 599,381
Permenting squares and vats, construction of, W. Cutler. W. Cutler. W. Cutler. S99,599 Inishing roll, J. Hall. S98,449 Irlearm, box, Hayes & Fisher. S98,449 Irlearm, box magazine, J. M. Browning. S98,587 Irlearm, magazine. Sennett & Mason. S98,587 Irlearm, magazine. S99,587 Irlearm, magazine. S99,453 Irlearm, magazine. S99,472 Irlearm, magazin	Engines, electric igniter for explosive, H. F. Probert
Permenting squares and vats, construction of, W. Cutler. W. Cutler. W. Cutler. S99,599 Inishing roll, J. Hall. S98,449 Irlearm, box, Hayes & Fisher. S98,449 Irlearm, box magazine, J. M. Browning. S98,587 Irlearm, magazine. Sennett & Mason. S98,587 Irlearm, magazine. S99,587 Irlearm, magazine. S99,453 Irlearm, magazine. S99,472 Irlearm, magazin	Explosives, making, J. E. Blomen. 599,316
Permenting squares and vats, construction of, W. Cutler. W. Cutler. W. Cutler. S99,599 Inishing roll, J. Hall. S98,449 Irlearm, box, Hayes & Fisher. S98,449 Irlearm, box magazine, J. M. Browning. S98,587 Irlearm, magazine. Sennett & Mason. S98,587 Irlearm, magazine. S99,587 Irlearm, magazine. S99,453 Irlearm, magazine. S99,472 Irlearm, magazin	Fabric. See Knitted fabric.
Inishing roll, J. Hall  fire alarm box, Hayes & Fisher  fire alarm box, Hayes & Fisher  fire alarm box magazine, J. M. Browning  fire arm, magazine, Bennett & Mason  fire extinguisher, G. C. Hale  fire extinguisher, G. C. Hale  fishing tackle holder. H. D. Streator  fishing tackle holder. H	Formonting gauges and wate construction of
Sishing tackle holder. H. D. Streator. 599,370  Alask J. C. Korn. 599,371  Tysereen, C. T. Slebert. 599,641  Ty trap, automatic. C. C. Grenzebach. 599,641  Pot covering, J. H. Meeteer. 599,341  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., 599,453  Forum and sharpening rock of the sharpen for 599,472  Frame. See Photographic greating frame. 507,  Trame. See Photographic greating frame.	Finishing roll, J. Hall. 599,588 Fine slarm box. Haves & Fisher 599,699
Sishing tackle holder. H. D. Streator. 599,370  Alask J. C. Korn. 599,371  Tysereen, C. T. Slebert. 599,641  Ty trap, automatic. C. C. Grenzebach. 599,641  Pot covering, J. H. Meeteer. 599,341  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., appara-  Forum and sharpening rock drills, etc., 599,453  Forum and sharpening rock of the sharpen for 599,472  Frame. See Photographic greating frame. 507,  Trame. See Photographic greating frame.	Firearm, box magazine, J. M. Browning
Trame. See Photographic printing frame. See	Fire extinguisher, G. C. Hale
Trame. See Photographic printing frame. See	Flask J. C. Korn
Trame. See Photographic printing frame. See	Fly trap, automatic, C. C. Grenzebach 599.501 Foot covering, J. H. Meeteer 599.241
Trame. See Photographic printing frame. See	Forging and sharpening rock drills, etc., apparatus for, H. C. McDonald
TRM 6. See Photographic Drinting frame Sow.	Forging hollow shafts, guns, etc., mechanism for, A. Nobel
ruit cleaner, W. J. McKay 599.515	READ 6. See Photographic brinting frame Sow.
ruit drier, G. A. & B. G. Steevens 599,647	Fruit cleaner, W. J. McKay

ı	Come apporatus baseball E D Mitchell	599,668
ı	Game apparatus, baseball, E. D. Mitchell	599,452 599,487
I	Gas engine, W. E. White	599,496 599,375
	Gas generator, acetylene, H. W. & E. E. Laun	599,376 599,394
l	Gas engine, W. E. White. Gas engine attachment, W. E. White. Gas generator, acetylene, H. W. & E. E. Laun Gas generator, acetylene, P. McMurray. Gas machines, hydraulic blower and pressure ap-	599,347
I	Gate, S. E. Auker	599,538 599,583
I		599,503 599,321
I	Generator. See Gas generator. Glass cutter, window, Meissner & Koenig Grease trap for sinks, baths. etc., H. Sieben Gun, pneumatic, W. L. Breath Gun turrets, apparatus for conception of W.	599,620 599,663
I	Grease trap for sinks, baths, etc., H. Sieben	599,549
I	Diebie	599,600
I	Hanger. See Door hanger. Pipe hanger.	599,365 599,526
I	Heater. See Water heater.	599,526
I	Hides, skins or leather, machine for treating, J. Hall.	599,331
I	Hall. Hoisting and lowering gear, Bell & Maguire Hoisting apparatus, W. Sauer.	500 427
I	Hydrocarbon burner J. H. White	599,360 599,350 599,577
	Hydrocarbon burner, J. H. White	599,473 599,423
١	Ink well, Killion & Perdue	599,404 599,493
I	Jack. See Lifting jack. Wagon jack.	
I	Insect exterminator, E. F. Robertson. Insulator, strain, J. Clegg. Jack. See Lifting jack. Wagon jack. Jar cover fastening, fruit, O. Selg. Joint. See Metallic frame joint. Steam joint. Knitted fabric, W. M. Bell. Knitting machine, straight bar, Barfoot & John-	599,458 599,438
I	Knitting machine, straight bar, Barfoot & John-	
ı	Knob attachment, J. H. Shaw	599,435 599,363
	Lacings, machine for securing metal points to, L. P. Bosworth	599,548 599,528
ı	Lam D C M Lungren	599,529 599,520
	Lamp, M. P. Stevens. Lamp burner shield, bicycle, Elton & Smith Lamp, electric arc, 1, J. Sage. Lamp, electric arc, Skinner & Bacon. Lamp radiator attachment, arc, Stenz & Wester-	599,525 599,635
	Lamp. electric arc, Skinner & Bacon Lamp radiator attachment, arc, Stenz & Wester-	599,480
	mann	599,519
	Lantern, bicycle, Beardsley & North	599,467 599,510
	Lawn rake, scraper and cutter, combined, E. Starkwether	599,368
	Starkwether. Lead from its ores, extraction of, H. R. Angel Lead from its ores, extraction of, H. R. Angel Lead from its ores, extraction of, H. R. Angel Lifting jack, Starrett & Weish. Liquids in form of a stream, implement for discharging, Bunnell & Kintner. Liquids, means for controlling flow of, W. C. L. Van Schaik.	599,368 599,310 599,605
	Liquids in form of a stream, implement for dis-	599,536
	Liquids, means for controlling flow of, W. C. L.	599,383
	Liquids, means for controlling flow of, W. C. L. Van Schaik. Loading dirt, gravel, etc., onto wagons, device	599,462
	for, Lawrence & Cooper	599,340 599,675
	Mail marking machine, H. E. Waite. 599,463, 599,464, Mail or parcel elevator. J. A. Cabot.	599,483
	Manhole frame E S Dorr	599,550 599,441
	Matthole Italie, II. W. Sanooin	599,441 599,457 599,398
	Match safe, S. Maxfield Measurer, dose, G. H. Woodward	599,674
	bodies, machine for, C. Barus	599,522
	Match sare, S. Maxheid.  Measurer, dose, G. H. Woodward  Measuring variable angles between rotating bodies, machine for, C. Barus.  Meat sawing machine, D. Lippy	599,571 599,642
	Metal drilling machine, J. Reece	599,356 599,541
	Meter, J. L. Dodge Milk, apparatus for testing amount of fat in, A. W. Stokes	599,494
	W. Stokes Milk cooler, S. Snider	599,369 599,644
	Mine draining siphon, J. C. Souleyret	599,644 599,366
	Musical instrument, S. Hoadley. Necktie retainer, J. A. Flomerfelt. Nut lock, W. E. Caylor. Nut lock, G. H. Dye. Nut lock, S. O. Haskins. Office indicator, J. A. Lelghton. Oll can, J. W. Jackson.	59'3,608 599,326 599,38
	Nut lock, G. H. Dye.	599,554
	Office indicator, J. A. Leighton	599,448 599,657
	Opera chair, T. S. Wells	599,430 599,482
	Opera chair, T. S. Wells Ordnance, breech loading, V. C. Tasker Organ, reed, R. J. Bennett	599,482
	Oxone producing apparatus. M. Otto. Paper holder roll, J. Spillinger Paper perforating machine, F. W. Hedgeland Paper shifting gripper, I. C. Dexter Patten for bushes for waxing floors, Durel &	599,455 599,646
	Paper perforating machine, F. W. Hedgeland Paper shifting gripper, T. C. Dexter	599,560 599,319
	Pavements, road ways, etc., composition of mat- ter for. J. Johnson.	599,506
	Pavements, roadways, etc., composition of mat- ter for, J. Johnson.  Pen, fountain, C. W. Boman	599,592 599,616
	Permutation lock, H. Bruck. Permutation lock, C. J. Kintner. Photographic films, apparatus for manufactur-	599,616 599,596 599,565
	Photographic films, apparatus for manufactur- ing, H. M. Reichenbach	
	ing, H. M. Reichenbach. Photographic printing frame, J. E. Crooks. Photographic shutter operating lever, H. White Pianoforte action, upright. F. L. Becker. Picture supporter, E. J. Fitzgerald.	599,440 599,576
	Pianoforte action, upright, F. L. Becker	599,585 599,32
	Pine See Sheet metal nine Tohacca nine	599,367
	Pipe banger, C. MacTaggart.  Pipe or nut wrench, W. T. Williams  Pipe or tube coupling, E. T. Greenfield.	599,424 599,578
	Pipe wrench, B. Ross	599,578 599,558 599,672 599,672 599,531
	Pipe wrench, B. Ross. Plack et fast ener, J. H. McCauley Planing machine, floor, S. A. Petersson. Plow row gage, C. N. Rountree	599,672 599,531
	Plow row gage, C. N. Rountree	599,478
	Kordyce.	. 599.557
	Pocket, garment, Bartell & Shields Power transmitter, G. J. Altham. Power transmitting mechanism, G. J. Altham	599,547 599,546 599,548
	Power transmitting mechanism, G. J. Altham Preserving alimentary substances, apparatus for, A. Schorke	599,534
	Propeller, chain, J. M. Mays	599,451 599,32
	A. Schorke Propeller, chain, J. M. Mays. Puffing machine, fabric, J. A. Groebli Puller. See Stump puller. Pump, oll well, W. J. Wright.	599.544
	Padiaton I Voith	599,593
	Radiator, J. Keith. Rail drill, M. M. Moore Railway rail fastener Mins & Dunkle	599,399 599,399
	Rail drill, M. M. Moore. Railway rail fastener, Mims & Dunkle Railway signal, A. J. Armstrong. Railway signal, mechanical, B. A. Karr et al Railway signal operating system, B. C. Rowell Hailway system, electric, J. D. Gibbs.	599,622 599,521 599,656
	Railway signal operating system, B. C. Rowell	599,456 599,456
	Railway system, electric, J. M. Murphy	599,604 599,344
	Registering device, Smith & Freir.	599,639 599,364 599,597
	Railway signal, mechanical, B. A. Karr et al Railway signal operating system, B. C. Rowell. Railway system, electric, J. D. Gibbs. Railway system, electric, J. M. Murphy. Railway tie, metal, W. H. Scott. Registering device, Smith & Freir. Reverberatory furnace, H. L. Charles. Riveter, P. H. Smith. Riveter, P. H. Smith. Riveter, Developer of the foliation of	599,597 599,643 599,505
	Teoming band, machine for cold. E. terreco	. 000,003
	Rolling rods or wire, machine for, A. Kenworthy.	
	Rotary engine, L. Stoner.  Rotary engine, Wampler & Bloom Rotary engine, reversible, W. Taylor.  Sampling mill, J. H. Stratton.  Sand distributing device, J. J. Murray.  Sash balance, E. A. E. Braunlich.  Sash fastener, C. P. Flora.  Sash fastener, J. J. Wade.  Saw J. Guedol.	599,648 599,410
	Rotary engine, reversible, W. Taylor Sampling mill, J. H. Stratton	599,665 599,649
	Sand distributing device, J. J. Murray Sash balance, E. A. E. Braunlich	599,345 599,313 599,555
	Sash fastener, C. P. Flora Sash fastener, J. J. Wade	599,555 599,667
	Cam Alina dorina D. R. Rosa	599,329 599,327
	Scale, C. H. Mattice	599,529 599,378
		599,468
	Screen, G. W. Cross. Sealing wax can, F. H. Wightman. Secondary battery, W. A. Crowdus. Separator, Reeves & Kailor	599,412 599,313 599,357
	Separator, Reeves & Kailor	599,35
	Sewing machine needle holder, F. B. Hopewell	599,444 599,561 599,38
	Separator, Reeves & Kailor. Sewing machine guide, A. D. Fenwick. Sewing machine needle bolder, F. B. Hopewell. Sewing machine quilting frame, Huff & McKinley Shaft coupling and cycle hanger, I. J. Wilson. Shears gage, L. V. Moulton. Sheat metal pipe, R. J. Northam. Sheller. See Corn sheller. Shirt, bathing, I. M. Uppercu. Shoe, bicycle, A. J. Camneyer. Shoe upper lacing device, S. A. West. Shovel handle, C. S. McIntire. Stornal See Mailway signal.	599,38 599.434 599.65
	Sheet metal pipe, R. J. Northam	599,62
	Sheller. See Corn sheller. Shirt, bathing, I. M. Upper cu	599,408
	Shoe upper lacing device, S. A. West	599,491 599,485 599,514
	Signal. See Railway signal.	. 599,514
	Sled brake, J. M. Kruzan	599,573 599,56
	Signal. See Kallway signal. Skirt guide, M. A. Petgen. Sled brake, J. M. Kružan. Slicer, vegetable, S. S. Dreisbach. Soap cup or holder, J. Schwechler	599,323 599,361 599,539
	Spinning machine, ring, M. E. Sullivan	599,539 599,443
	Batey	599,633 599,612
	Stamp tappet, C. A. McClair	599,400 599,609
	Steam boiler, E. Hook.  Steam drier, rotary, Healy & Kraft  Steam joint for rotary cylin ders. M. J. Roach	599,609 599,386 599,400
	Steel and cast metal making composite articles of manganese, E. Samuel.	599.63
	Steam Joner, rotary, Healy & Kraft. Steam joint for rotary cylinders, M. J. Roach. Steel and cast metal, making composite articles of mangarese, E. Samuel. Stopper. See Bottle stopper. Stove, J. A. Hampton	599.550
	Stove or furnace, heating, F. A. Wilkinson	. 599,377
	(Continued on page 157)	