

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our

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 This is for our information, and not for publication.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.

In quiries 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 ietter or in this department, each must take his turn.

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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

Minerals sent for examination should be distinctly marked or labeled.

- (1) E. F. S. asks: 1. How much iron wire does it take for armature for simple electric motor described in SCIENTIFIC AMERICAN, No. 11, March 179 A. About 2 pounds. 2. How far apart should the zinc and carbon be in batteries? A. One-quarter of an inch 3. What is the distance between the parallel parts of the field magnet? A. One and three eighths of an inch. See Supplement, No. 641.
- (2) B. L. asks: Will you please to tell me what will prevent, counteract, or destroy electricity in wool during the process of drawing and spinning into yarn, and also what will counteract the attraction be tween the roller and wool in the same process? The rollers are of wood and covered with leather. A. If practicable, keep the room damp, either by sprinkling the floor or hanging up wet cloths around the machine If you cannot do this, you will probably be obliged to substitute metallic rollers for your leather covered
- (3) W. H. T. writes: 1. I wish to make a small electric motor, half the size of the one described in the Scientific American of March 17, 1888. Please inform me through your valuable paper, the Scientific AMERICAN, how I should proceed. Should I have 6 or 12 coils in the armature? A. 12. 2. How many layers and convolutions should I have in each coil of the armature? A. Same as given in the article referred to, that is, 4 layers and 8 convolutions in each layer. 3. How many layers in the field? A. 5. 4. The size of wire to be used, 16 or 32? A. Use No. 20 on the field magnet and No. 24 on the armature.
- (4) F. Van D. asks: 1. Would it affect the power of the motor to use common sheet iron instead of the Russia iron? A. No. 2. How many cells of 1 pint each of simple plunge battery, described in the issue of August 20, 1887, page 116, would it take to give power enough to run a sewing machine? A. The simple plunge battery is too small for use in connection with the motor. You could, however, run a sewing ma chine by the employment of a large number of such batteries, but it is advisable to use a larger battery.
- (5) A. L. S. asks: 1. Would the hand power dynamo described in No. 161 be powerful enough to run one or more 16 candle power incande lights? A. It will not run a 16 candle power lamp. It will run a 6 or 8 candle power lamp of low resistance. R. Would the motor described in 641 be sufficient to run the dynamo? A. No. If it were large enough to run it, the current generated by the dynamo would be less than that required to run the motor.
- (6) F. A. T. writes: 1. In regard to batteries of small electric motor, described in your issue of March 17, 1888, would a number of carbons 2 x 6, such as are used in the Leclanche battery, do, if say four were connected for each cell? A. Yes. 2. Does the zinc have to be pure? I have the motoralmost finished, but cannot procure the carbons, 6 x 8, or zinc. here. A. It should be pure to secure the best results but impure zinc will answer if well amalgamated.
- (7) H. Y. Z. writes: In the Scientific AMERICAN SUPPLEMENT, No. 641, you describe an electric motor. I wish to reduce the linear measures one half; in doing so would it be advisable to reduce the aumber of coils on the armature to 6, also what size of insulated copper wire to use? A. The number of coils on the armature should remain the same. Use No. 18 wire on the field magnet and No. 20 on the armature
- (8) W. E. asks: If the dimensions of the simple electric motor be doubled, with what size wire should the armature and magnet be wound to give proportionate results? A. Use wire of the same size all around, and connect the conductor of the halves of the field magnet in parallel.
- (9) L. M. W. asks: Can the "Simple Electric Motor " described in the Scientific American of March 17, 1888, be driven as effectually by a Bunsen's constant battery as with the plunge battery mentioned in the article? If so, how many elements will it need, and should the elements be coupled so as to make a quan tity or intensity battery? A. The motor can be driven by a Bunsen battery by connecting the cells up in parallel so as to produce a quantity current. The best arrangement can readily be determined by experiment.
- (10) A. W. N. asks (1) how to connect the motor described March 17, so as to make it a dynamo. A. The connections are the same for the dy name as for the motor, but you should make the field magnet of cast iron, and wind the armature with fine wire, say No. 20. 2. What would be the power of it as a dynamo? A. No experiments have been made to determine this. 3. How can I make it so that I can run it either way at will? A. By providing two sets of brushes oppositely arranged with respect to each other. and mounted so that you can bring either set into contact with the commutator. 4. Will common stove pipe iron do for the magnet? A. Yes.
- (11) W. C. P. asks: 1. Can the simple

PLEMENT, No. 161? A. Yes; see recent back numbers of Scientific American. 2. You say that the battery used to drive the motor will become exhausted in three or four hours. Do you mean that it will be necessary at the end of that time to put in new zincs as well as new solution? A. It is the solution that becomes soon exhausted. The zincs will last for some time.

- (12) E. M. C. writes: In small induction coils, such as used in pocket batteries, what is the size and how much wire is used to produce the best effects for both primary and secondary coils? A. Make the core of the induction coil of a bundle of fine soft iron wires. Its diameter should be three-eighths of an inch. its length 3 inches. Insert it in a thin spool of paper or wood, and wind upon the spool 2 layers of No. 20 in sulated wire. Cover this primary coil with one thickness of writing paper, then wind on 10 layers of No. 36 silk covered wire. You can modify the current by slip ping a brass tube over the exterior of the coil.
- (13) A. L. F. asks: 1. What would be dimensions of steel bar magnet and helix of sufficient power to operate an electro magnetic bell in place of galvanometer as shown in Fig. 2, page 233 current num ber? A. An ordinary relay magnet and a 6 inch horse shoe machine magnet will do it. 2. Why are perma nent magnets generally made of flat steel? A. Simply for convenience. 3. About what proportion of power could betransferred from a permanent magnet by mean of a helix, to an electro magnet connected in same cir cuit? A. Only a small amount of power can be trans mitted in this way.
- (14) J. C. The botanical specimen which you send to be named is a lichen, sometimes pop ularly called "tree moss," or "tree hair." Scientifically it is known as Uenea barbata. It is very widely distributed, growing from Mexico to Canada, and far north ward. It has no commercial or other value.
- (15) W. M.—For latest form of lime kilns, see Supplement, No. 572.
- (16) C. E. K. asks: I am building an electric telephone on which I have to use an induction coil. Can I not use a smaller and a more simple one than described in SCIENTIFIC AMERICAN SUPPLEMENT No. 569? A. Make a core 3 inches long and 36 inch in diameter of No. 20 annealed iron wire. Wrap the core with two thicknesses of writing paper, wind on the core four layers of No. 20 magnet wire for the primary coil, cover the primary coil with one thickness of writing paper, then wind on ten layers of No. 38 silk-covered copper wire for the secondary.
- (17) G. L. writes: I have made a single cell Grenet battery, but it does not keep its power mo than two weeks, therefore, I would like to make a single cell battery that will last longer and have more power. A. We know of no battery giving a strong current that will remain in good condition for more than two weeks. The Grenet battery is more readily renewed than any other capable of yielding the same current
- (18) W. R. asks: 1. In making the electric motor described in Supplement. No. 461, only half size, for instance the field magnet only 5 inches instead of 10 inches, and so on, what size of wire should I use for armature and field magnet? A. Use No. 20 wire. 2. How many coils do I want of such? A. Use 12 coils on
- (19) T. F. W. writes: I am mining a little, and have some copper plates that have been silver plated, and now the plating is partially wore off. The question is, is there any kind of solution that will answer for dressing the old plates, so that the verdigris will not show on plates? A. The plates you refer to are probably the amalgamated plates used for collecting small particles of metal. Such plates are usually coated with quicksilver. You can recoat them by washing them over with a mixture of dilute nitric and sulphuric acid, afterward sprinkling on a little mercury and rubbing it around.
- (20) C. E. H. asks: How will I have to wind the armature and field magnet so that it will run from the power given to a 16 candle power incandescent lamp by a Westinghouse incandescent machine? I have tried to run it with this power. The first time I tried it, it gave about 1/2 horse power, in fact it was as much as I could do to keep it steady, but since then it will not go at all. What is the reason? If it cannot be made to run by this power, how can I make a storage battery that will run it? The current to store to be obtained from the Westinghouse incandescent light. A. It is probable that the insulation of your armature is burned so that the machine is short-circuited. You should use a lighter current. You can arrange this by placing your machine in a shunt. For information on making storage batteries consult Scientific American SUPPLEMENTS. See catalogue, which we send you.
- (21) A. M. asks: 1. Can'the sleeve, A. of the commutator of the 8 light dynamo described in Scientific American of April 30, 1887, page 278, be made of either iron or brass? A. Yes. 2. Can the collar. D. be made of wood or leather? A. The collar might be made of hard wood, but we fear it would not be durable; leather would not answer, as it would readily burn. 3. Can the commutator cylinder, E, be made of A. Yes, but brass would last but a very short time. 4 Can the brackets (which are fastened to the field magnets, and receive the armature shaft) be made of brass? A. Yes, but it is neither so rigid nor so durable as bronze. 5. What properties must a current possess to produce an arc and incandescent light? A. The current to produce an arc light should have an electromotive force of at least 50 volts. Incandescent lights can be adapted to currents of either high or low voltage. 6. Does it require a greater current strength to raise a platinum wire to incandescence in open air than it would were it in a vacuum? A. No. 7. Do you know of a good cement for cementing glass and vulcanite? A. Equal parts of gutta percha and pitch melted together.
- (23) A. M. M. writes: Having read your ecent articles "How to Make a Simple Electric Motor" with a great deal of interest, I would like to have an-(11) W. C. P. asks: 1. Can the simple swered through your column devoted to such Notes electric motor be used as a dynamo? If so, how will and Queries the following questions: 1. What will its power compare with the dynamo described in Sup- it cost per hour to run 8 cells 5 inches by 7 inches

plunging bichromate battery? A. We have at present no data which will enable us to answer this question. It would, however, probably cost from 10 to 15 cents per hour. 2. Is such a battery of sufficient power to rnn a small canoe? A. Yes. 3. What size propeller would be best? A. About 6 inches.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the iaws 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

April 24, 1888,

AND EACH BEARING THAT DATE.

Alarm. See Fire and burglar alarm.

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

٠	Alloy, metallic, Ostermann & Prip	381,718
·	Alloy, metallic, Ostermann & Lacroix	381,832
ı	Annunciator and signaling apparatus, M. Martin.	381,709
1	Annunciator, electric, J. Geary	
ı	Armature, dynamo, M. A. Muller	5 81,636
۱	Axle lubricator. car, G. F. Godley	
١	Axles, dust guard for car, W. S. Soule	381,591
1	Bag handle, sheet metal, R. C. Jenkinson Band, elastic, R. W. Howard	3 81,790
	Bell and alarm, combined door. C. M. Dilley	
١	Bell, electric, C. F. De Redon Bell or mechanical striker, electric, J. H. Brick-	381,765
1	ford	3 81,823
ŀ	Belt fastener, W. L. Potter Blast furnaces, dust catcher for, F. W. Gordon	381,640
IJ	Blind, slatted, J. A. Sherington	381,649
ı	Block. See Meat block. Boat, G. N. Tibbles	001 700
!	Boiler. See Steam boiler.	
;	Boiler. A. Worthington	
٠	Boiler and furnace, A. Sterling Bolt. See Elevating bolt.	991,980
١	Book cover, O. W. K. J. Nordenfalk	
1	Boor or shoe, Pratt & Johns	
ı	Box. See Bread, cake, or cheese box.	
.	Box, W. H. Scott Boxes, wire fastener for, J. Esselbach	381,889
ŀ	Bracket. See Harness bracket.	~1100
١.	Brake. See Car brake. Wagon brake. Brakes, slack adjuster for, O. C. Crane	981 M20
.	Bread, cake, or cheese box, S. E. Bowersock	381,824
	Bread making machine, A. A. Humble Bridge, R. A. Sawyier	
	Brosh, J. J. Ashburner	
٠Į	Brush, blacking, Beauregard & Bidwell	38 1,6 07
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1	Burner. See Vapor burner.	001 =00
ı	Caisson, portable, H. P. Kirkham	
!	Car brake, F. W. Mills	381,570
	Car brake, M. B. Mills	
,	Car starter, J. Zeliff	
١	Cars by electro-chemical means, heating railway, E. E. Ries.	381.819
1	Cars, electric heating apparatus for railway, E. E.	-
١	Ries	
"		381.754
ı	Cars, heating railway, W. M. Scott	381,647
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	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriages. cribs, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb. Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner. Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good	881,647 381,781 381,834 381,878 381,579 381,561 381,759 381,655 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,858 381,858 381,878 381,683 381,683 381,878
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Seare & Kelley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cook and frier, combined steam. H. C. Hornish	\$81,647 381,781 381,834 381,834 381,520 \$81,561 \$81,759 381,655 381,856 881,897 \$81,563 881,812 381,812 381,668 381,816 381,661 381,888 \$81,633 381,763 381,638 381,8388 \$81,633 381,776
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriages. cribs, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb. Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Kelley Chair, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chura, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coat and pantaloons supporter, combined, S. L. Rice Comp. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead	881,647 381,781 381,834 381,878 381,579 381,561 381,759 381,655 381,856 881,857 881,563 381,812 381,663 381,663 381,661 381,888 881,683 381,888 881,683 381,876 381,683 381,774
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriages. cribs, or cradies, attachment for baby, S. A. Holman. Cash register, W. F. Lamb Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, O. T. Mason, Jr	881,647 381,781 381,834 381,878 381,579 381,561 381,759 381,655 381,856 881,857 881,563 381,812 381,663 381,663 381,661 381,888 881,683 381,888 881,683 381,876 381,683 381,774
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriages. cribs, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb. Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, O. T. Mason, Jr	881,647 381,781 381,834 381,878 381,563 381,655 381,655 381,563 381,563 381,563 381,663 381,663 381,663 381,663 381,663 381,663 381,663 381,663 381,663 381,663 381,764 381,663
	Cars, heating railway, W. M. Scott Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Seare & Kelley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, C. T. Mason, Jr	\$81,647 381,781 381,834 381,836 381,876 381,655 381,655 381,856 881,897 381,563 381,818 381,818 381,818 381,663 381,664 381,661 381,888 381,818 381,868 381,818 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clovis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Cooker and frier, combined steam, H. C. Hornish Corn husking machine, H. H. Armstead Cotopling. See Car coupling. Hose and faucet coupling. Tube coupling. Hose and faucet coupling. Tube coupling. Hose and faucet cutry comb, U. B. Hird	\$81,647 381,781 381,834 381,835 381,520 381,561 381,655 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,856 381,858 381,812 381,663 381,663 381,664 381,661 381,888
	Cars, heating railway, W. M. Scott	\$81,647 381,781 381,834 381,878 381,520 381,565 381,645 381,655 381,656 381,856 381,856 381,857 381,578 381,578 381,668 381,812 381,578 381,668 381,812 381,578 381,668 381,812 381,578 381,6661 381,888 381,868 381,868 381,868 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668 381,668
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clovis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, O. T. Mason, Jr	\$81,647 381,781 381,834 381,835 381,520 381,561 381,655 381,655 381,856 881,897 381,663 381,818 381,818 381,818 381,663 381,663 381,664 381,661 381,888 881,838 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,876 381,638 381,788 381,838
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriage. cribs, or cradles, attachment for baby, S. A. Holman Cash register, W. F. Lamb Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Chuck, drill, J. N. Skinner Chucn, W. Bechtold Cleyis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Compasses, electric alarm for ships', A. Gross Compasses, electric alarm for ships', A. Gross Compasses gor blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Cort husking machine, H. H. Armstead. Cotton gin, O. T. Mason, Jr	\$81,647 381,781 381,878 381,878 381,561 \$81,759 381,665 381,856 \$81,857 381,563 381,812 381,578 381,626 \$81,603 \$81,614 381,661 381,888 \$81,898 381,6164 381,661 381,888 \$81,661 381,888 \$81,633 381,794 381,765 381,656 381,653 381,794 381,763 381,784 381,784 381,784 381,784 381,784 381,785
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coot and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, O. T. Mason, Jr	\$81,647 381,781 381,878 381,878 381,561 \$81,759 381,665 381,856 \$81,857 381,563 381,812 381,578 381,626 \$81,603 \$81,614 381,661 381,888 \$81,898 381,6164 381,661 381,888 \$81,661 381,888 \$81,633 381,794 381,765 381,656 381,653 381,794 381,763 381,784 381,784 381,784 381,784 381,784 381,785
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriage. cribs, or cradles, attachment for baby, S. A. Holman Cash register, W. F. Lamb Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Chuck, drill, J. N. Skinner Chucn, W. Bechtold Cleyis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Compasses, electric alarm for ships', A. Gross Compasses, electric alarm for ships', A. Gross Compasses gor blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Cort husking machine, H. H. Armstead. Cotton gin, O. T. Mason, Jr	\$81,647 381,781 381,878 381,878 381,561 \$81,759 381,665 381,856 \$81,857 381,563 381,812 381,578 381,626 \$81,603 \$81,614 381,661 381,888 \$81,898 381,6164 381,661 381,888 \$81,661 381,888 \$81,633 381,794 381,765 381,656 381,653 381,794 381,763 381,784 381,784 381,784 381,784 381,784 381,785
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Kelley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Coupling. See Car coupling. Hose and faucet coupling. Tube coupling. Hose and faucet coupling. Tube coupling. Hose and faucet coupling. See Car coupling. Hose and faucet coupling. See Car coupling. Hose and faucet coupling. See Car coupling. Hose and faucet coupling. See Pature fair cushion. Cutter head, W. H. Lamson Dental plugger, P. C. Morse Deptlating and bating, J. Townsend Deeks and type writer cabinet, combined, W. H. Porter (r) Digger. See Potato digger.	\$81,647 381,781 381,834 381,834 381,856 381,563 381,665 381,663 381,856 381,857 381,668 381,812 381,663 381,663 381,663 381,663 381,664 381,663
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage. baby. J. H. Gibson Carriage. cribs, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb. Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Sears & Keiley Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Churn, W. Bechtold Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coat and pantaloons supporter, combined, S. L. Rice Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Conduit, J. Steel Conduit, J. Steel Conduit, J. Steel Cotton gin, O. T. Mason, Jr	881,647 381,781 381,834 381,878 381,580 381,561 381,655 381,856 381,856 381,856 381,856 381,856 381,856 381,863 381,663 381,863 381,876 381,663 381,876 381,663 381,876 381,673 381,784 381,565 381,784 381,565 381,784 381,785 381,783 381,784 381,785 381,783 381,784 381,785 381,783 381,784 381,785
	Cars, heating railway, W. M. Scott. Carding engine, J. M. Hetherington Carriage, baby. J. H. Gibson Carriages. cribe, or cradles, attachment for baby, S. A. Holman Cash register, H. A. Alm Cash register, W. F. Lamb. Caster, trunk or furniture, J. P. Carmichael Casting curved pipe, core arbor for, P. Rieth Casting metal, D. C. Stover Chain fastener, Seare & Keiley. Chairs, automatic fan attachment for rocking, M. Marcoux. Chart, adjustable pattern, S. Mandelbaum Chock or leader, anti-frictional, L. Dyer Chuck, drill, J. N. Skinner. Churn, W. Bechtold Cigar machine, F. E. Pellant Clevis, adjustable, J. Peters Clock, A. & H. E. Junghans Clocks, winding and setting attachment for, J. Zelly Closet. See Water closet. Cloth cutting machine, G. A. Ries Coaster, wheeled, O. A. Wheeler Comb. See Curry comb. Compasses, electric alarm for ships', A. Gross Compressing or blowing engine, W. E. Good Conduit, J. Steel Cooker and frier, combined steam. H. C. Hornish Corn husking machine, H. H. Armstead Cotton gin, O. T. Mason, Jr	881,647 381,781 381,834 381,878 381,563 381,655 381,655 381,655 381,563 381,563 381,812 381,563 381,812 381,563 381,614 381,663 381,613 381,633 381,644 381,663 381,633 381,764 381,565 381,876 381,633 381,764 381,565 381,764 381,565

	
Draw bars, die for making, J. T. Wilson Draw bars, making, J. T. Wilson	
Drill. See Rock drill. Dust collector, G. Behrns Dust collector, H. N. Pomeroy	
Ear muff. Kleinert & Manville Egg rack, Beatty & Hoffner	3 81,559 381,523
Electric energy, transformation and distribution of, R. Kennedy	381,794
Electric light carbon, T. L. Clingman	381,614
misch Electric machine, steam dynamo, R. H. Mather	381,56 8
Electric motors, regulation of, S. D. Field Electrical apparatus, C. C. Sibley Elevating bolt, F. Prinz	381,856
Elliptic spring, J. R. Fietcher Engine. See Carding engine. Compressing or	381,688
blowing engine. Dental engine. Envelope holder. Culver & Smith Extractor. See Seed extractor. Stump extractor.	
Fence, J. Z. Stanley	381,858
Hill & Rider Fence post. J. W. Davy Fender. See Cultivator fender.	381,548
Fire alarm system, automatic. J. Young Fire and burglar alarm, electric. A. Schuchman	381,852
Fire escape, portable, W. Brown	381,672
Fire extinguisher, chemical, T. G. Turner Fire hydrant, pneumatic, H. L. McAvoy Furnace. See Hot air furnace. Ore roasting fur-	381,805
nace. Furnace for heating soldering coppers, E. Holm	381,782
Fuse, shell, T. Nordenfelt	
for, C. H. Milier	381,672 381,803
Gate, J. N. Hatcher	381,69 4 382,6 3 4
Gate, H. A. Spencer	381,859
Glove, baseball, F. G. Fischer	381,687
Grain garners, automatic latch for, P. E. Can-	381,597
field	381,686
H. Murray	381,715
Cuttering to the eaves of houses, hanging sheet	381,628
metal, C. C. Frederick	381,538
Hammock or swing, M. Broderick	381,863
Travers	3 81,8 64
Handle, T. I. Rivers	3 81,776
Harrow, G. W. Gorsuch. Harrow, J. Hildesheim. Harvester, J. R. Beard.	381,623
Hat for firemen, T. Anderson	381, 666 381, 53 0
Hay loader, E. L. Hay	381,699
Stafford	381,593 381,840
Header and thrasher, combined, Reynolds & Paterson	581,723
Heater for cars and buildings, T. McCrossan Heater for muffs, etc., F. Hiller Jr Heating by compressed according to superheated air T.	381,549
Heating by electricity. E. E. Ries.	381,815
Heating, electro-chemical. E. E. Ries Electric system, electric, E. E. Ries Heel plate attaching machine. W. J. Atwell,	
381,604, Holder. See Cuff holder. Envelope holder. Pen-	381,606
cil holder. Rein holder. Sash holder. Hook. See Snap hook.	
Horse detacher, J. McMorries	1211.112
Horses, device for assisting in training, H. C.	381,807
Woodnutt Horses, devices for checking Quinn & McLellan.	381,745 381,580
Woodnutt	381,745 381,745 381,580 381,735 381,968
Woodnutt	381,745 381,745 381,580 381,735 381,968 381,562 381,540 381,750
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping, A. Wedekind Horses, split hoof ciamp for, J. H. Wiestner Hose and faucet coupling, T. Mackel. Hose carriage, garden, J. J. Divekey Hot air furnace, C. N. Bacon	381,745 381,580 381,735 381,735 381,968 381,562 381,540 381,750 381,574
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind Horses, split hoof ciamp for, J. H. Wiestner Hose and faucet coupling. T. Mackel Hose carriage, garden. J. J. Divekey Hot air furnace, C. N. Bacon Hot air furnace, J. B. Oidershaw Hub. vehicle, M. E. True Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon Interlocking switch and signal, G. Gibbs	381,907 381,745 381,580 381,735 381,968 381,562 381,540 381,750 381,574 381,891 381,527
Woodnutt	381,907 381,745 381,580 381,735 381,968 381,562 381,540 381,574 381,891 381,527 381,773
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping, A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling, T. Mackel. Hose carriage, garden J. J. Divekey Hot air furnace, C. N. Bacon. Hot air furnace, J. B. Oidershaw. Hub. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe toint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fre escape, and hose carriage, combined	381,907 381,745 381,580 381,582 381,582 381,562 381,562 381,574 381,574 381,577 381,527 381,773 381,666
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind Horses, split hoof ciamp for, J. H. Wiestner Hose and faucet coupling. T. Mackel Hose carriage, garden. J. J. Divekey Hot air furnace, C. N. Bacon Hot air furnace, J. B. Oidershaw Hub. vehicle, M. E. True Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe toint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson Ladder, G. B. Schumann Ladder, flexible, C. B. Schumann	381,907 381,745 381,580 381,735 381,562 381,540 381,750 381,575 381,891 381,527 381,773 381,626 381,626 381,626
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose carriage. garden J. J. Divekey. Hot air furnace, C. N. Bacon. Hot air furnace, J. B. Oidershaw. Hub. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe joint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fre escape, and hose carriage, combined extension, C. B. Schumann. Ladder, flexible, C. B. Schumann. Lantern, Drew & Grant. Lantern, H. L. Iewell.	381,907 381,745 381,580 381,580 381,562 381,560 381,574 381,891 381,527 381,773 381,673 381,666 381,587 381,583 381,583
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping, A. Wedekind Horses, split hoof ciamp for, J. H. Wiestner Hose and faucet coupling, T. Mackel Hose carriage garden J. J. Divekey Hot air furnace, J. B. Oidershaw Hut stirunace, J. B. Oidershaw Hub. vehicle, M. E. True Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron Joint. See Pipe Joint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson Ladder, G. H. Thompson Ladder, fre escape, and hose carriage, combined extension, C. B. Schumann Lantern, Drew & Grant. Lantern, Drew & Grant Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld.	381,907 381,745 381,580 381,580 381,562 381,540 381,574 381,891 381,527 381,773 381,626 381,666 381,666 381,656 381,557 381,755 381,555 381,555
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose carriage. garden. J. J. Divekey. Hot air furnace, J. B. Oidershaw. Hot air furnace, J. B. Oidershaw. Hot. wehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Ladder, firekible, C. B. Schumann. Lantern, Drew & Grant. Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones.	381,907 381,745 381,580 381,735 381,735 381,562 381,540 381,750 381,573 381,573 381,773 381,627 381,631 381,637 381,533 381,636 381,556 381,556 381,556 381,557 381,745 381,743
Woodnutt Horses. devices for checking Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose arriage garden. J. J. Divekey Hot air furnace, C. N. Bacon. Hot air furnace, J. B. Oidershaw Hub. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Lantern, H. Jewell. Lantern, trubular. L. F. Betts. Last, J. B. Mullen. Laste, J. B. Mullen. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones. Leather, composition for softening and renovating, L. C. De Willers. Letter sheet and envelope, combined, W. H. Kis-	381,907 381,745 381,580 381,580 381,575 381,562 381,562 381,574 381,891 381,573 381,673 381,666 381,587 381,853 381,853 381,853 381,853 381,853 381,853 381,574 381,773 381,773
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose carriage. garden J. J. Divekey. Hot air furnace, J. B. Oidershaw. Huto. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe joint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fre escape, and hose carriage, combined extension, C. B. Schumann. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Lantern, Drew & Grant. Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Letter, composition for softening and renovating, L. C. De Willers. Letter sheet and envelope, combined, W. H. Kister.	381,907 381,745 381,580 381,580 381,575 381,562 381,562 381,574 381,891 381,573 381,673 381,666 381,587 381,853 381,853 381,853 381,853 381,853 381,853 381,574 381,773 381,773
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose carriage. garden. J. J. Divekey. Hot air furnace, J. B. Oidershaw. Hot air furnace, J. B. Oidershaw. Hub. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Lantern, Drew & Grant. Lantern, Drew & Grant. Lantern, H. L. Jewell. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones. Letter sheet and envelope, combined, W. H. Kister. Lifter. See Transom lifter. Liquid reservoirs, float and fevel indicator for, W. E. Eastman.	381,907 381,745 381,580 381,580 381,562 381,540 381,574 381,891 381,527 381,773 381,626 381,626 381,531 381,626 381,533 381,636 381,533 381,535 381,535 381,740 381,792 381,630 381,553
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping, A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling, T. Mackel. Hose arriage, garden, J. J. Divekey. Hot air furnace, J. B. Oidershaw. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Ladder, fire skible, C. B. Schumann. Lantern, Drew & Grant. Lantern, Drew & Grant. Lantern, H. L. Jewell. Last, J. B. Mullen. Last, J. B. Mullen. Last, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones. Leather, composition for softening and renovating, L. C. De Willers. Letter sheet and envelope, combined, W. H. Kister. Litter. See Transom lifter. Liquid reservoirs, float and tevel indicator for, W. E. Eastman. Lithographic presses, inking apparatus for, F. Macdonald.	381,907 381,745 381,580 381,580 381,562 381,560 381,574 381,891 381,527 381,773 381,626 381,626 381,566 381,566 381,566 381,567 381,553 381,566 381,567 381,756
Woodnutt Horses, devices for checking, Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel Hose carriage. garden J. J. Divekey Hot air furnace, J. B. Oidershaw. Hut. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe joint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fre escape, and hose carriage, combined extension, C. B. Schumann. Landern, Drew & Grant. Lantern, H. L. Jewell. Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Letter sheet and envelope, combined, W. H. Kister. Litter. See Transom lifter. Liquid reservoirs, float and tevel indicator for, W. E. Eastman. Lithographic presses, inking apparatus for, F. Macdonald. Lock. See Nut lock. Safe lock. Seal lock. Locomotives. apparatus for applying sand to the driving wheels of, J. Gresham.	381,907 381,745 381,580 381,580 381,562 381,540 381,574 381,891 381,527 381,773 381,676 381,666 381,587 381,853 381,556 381,540 381,755 381,755 381,755 381,756 381,758
Woodnutt Horses, devices for checking Quinn & McLellan. Horses, device for stopping A. Wedekind Horses, split hoof ciamp for, J. H. Wiestner Hose and faucet coupling. T. Mackel Hose carriage garden J. J. Divekey Hot air furnace, J. B. Oidershaw Hot air furnace, J. B. Oidershaw Hub. vehicle, M. E. True Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, Gr. H. Thompson Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann Lantern, Drew & Grant. Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones Letter sheet and envelope, combined, W. H. Kis- ter. Lifter. See Transom lifter. Liquid reservoirs, float and tevel indicator for, W. E. Eastman Lithographic presses, inking apparatus for, F. Macdonald. Lock. See Nutlock. Safe lock. Seal lock, Locomotives. apparatus for applying sand to the	381,907 381,745 381,580 381,580 381,562 381,540 381,574 381,891 381,527 381,773 381,666 381,666 381,666 381,657 381,755 381,755 381,755 381,755 381,756 381,792 381,690 381,593 381,792 381,690 381,793
Woodnutt Horses, devices for checking Quinn & McLellan. Horses, device for stopping. A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose carriage. garden. J. J. Divekey. Hot air furnace, J. B. Oidershaw. Hot air furnace, J. B. Oidershaw. Hub. vehicle, M. E. True. Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Ladder, fixible, C. B. Schumann. Lantern, Drew & Grant. Lantern, H. L. Jewell. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Latch, double-acting, A. H. Jones. Leather, composition for softening and renovating, L. C. De Willers. Letter sheet and envelope, combined, W. H. Kister. Litter. See Transom lifter. Liquid reservoirs, float and tevel indicator for, W. E. Eastman. Lithographic presses, inking apparatus for, F. Macdonald. Loom let-off mechanism G. F Hutchins Looms whip roll for. D. Durkin Looms, whip roll for. A. F. Parker. Lubricator, R. Marshall.	381,907 381,745 381,580 381,580 381,562 381,540 381,574 381,891 381,527 381,773 381,626 381,626 381,627 381,773 381,626 381,627 381,626 381,537 381,740 381,792 381,630 381,558 381,558 381,641 381,708
Woodnutt Horses, devices for checking Quinn & McLellan. Horses, device for stopping A. Wedekind. Horses, split hoof ciamp for, J. H. Wiestner. Hose and faucet coupling. T. Mackel. Hose and faucet coupling. T. Mackel. Hose arriage garden J. J. Divekey Hot air furnace, C. N. Bacon. Hot air furnace, J. B. Oidershaw Hub. vehicle, M. E. True Indicator. See Electric indicator. Ingots, making compound. L. L. Burdon. Interlocking switch and signal, G. Gibbs. Iron. See Sad iron. Soldering iron. Joint. See Pipe ioint. Kneading machine, dough, B. H. Melendy. Ladder, G. H. Thompson. Ladder, fire escape, and hose carriage, combined extension, C. B. Schumann. Ladder, faxible, C. B. Schumann. Lantern, H. L. Iswell. Lantern, H. L. Iswell. Lantern, tubular. L. F. Betts. Last, J. B. Mullen. Lasts, making shoemakers', F. G. Hitzfeld. Latch and handle, lever, J. F. Wollensak. Leather, composition for softening and renovating, L. C. De Willers. Letter sheet and envelope, combined, W. H. Kister. Liquid reservoirs, float and level indicator for, W. E. Eastman Lithographic presses, inking apparatus for, F. Macdonald. Lock. See Nut lock. Safe lock. Seal lock, Locomotives. apparatus for applying sand to the driving wheels of, J. Gresham. Looms whip roll for. D. Durkin Looms, whip roll for. D. Durkin Looms, whip roll for. A. F. Parker. Lubricator. See Axle lubricator.	381,807 381,745 381,580 381,580 381,562 381,562 381,564 381,891 381,574 381,891 381,627 381,773 381,673 381,666 381,866 381,867 381,853 381,856 381,856 381,856 381,766 381,766 381,766 381,766 381,766 381,766 381,768 381,768 381,768 381,630 381,630 381,637 381,708

	
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Nail plate feeder, A. H. Tyrrell 381,699	Stereotype plates which are cast separately from
Nut lock, E. H. A. Oakley 381,573 Nut making machine, F. Bruser 381,873	their beds, means for securing, E. D. Rogers. 381,820 Stilt, L. Hoffman
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Ores and materials containing sulphur for the ex- traction of metals and other constituents,	Stove, cooking, W. J. Keep
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Pencil holder, lead, O. Bussler	Telegraph, dynamo, F. W. Jones
Pencil rack and eyeglass hook, combined, J. Gra- ham	Thill coupling pin, J. E. & J. B. Vail
Pencils, machine for the manufacture of crayon, J. W. Peck	Tool, combination, G. W. Ribble
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F. Hutchins	Truss, H. C. Stickey
Planter, corn, F. P. Murphey 381,883 Planter, corn, J. Selby 381,588	Tube coupling, F. A. Williams 381,865 Tube expander, C. H. Robinson 381,588
Plow, D. H. Carpenter	Tubes, straightening, L. L. Burdon
Post. See Fence post. Potato digger, J. Lee	Type writing machine, C. Spiro
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Pump, E. Neff	Vehicle, convertible, W. H. Yates
Punching cards, machine for, S. J. Murray 381,716	Vehicle, two-wheeled, J. P. Callan. 381,758 Vehicle, two-wheeled, W. Lawless 381,705
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E. R. Stiles	Water conductor, J. W. Abrahams 381, 381,
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preventing accidents on street, C. Mahon 381,88. Railways, electric motor for, S. H. Short 381,65. Railways. motor for street, B. C. Pole 381,84	controlling the supply of, L. Weil
preventing accidents on street, C. Mahon	controlling the supply of, I. Weil
preventing accidents on street, C. Mahon	controlling the supply of, I. Weil.
preventing accidents on street, C. Mahon	controlling the supply of, I. Weil
preventing accidents on street, C. Mahon	controlling the supply of, I. Weil
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
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preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil. 381,866 Well trap, W. W. Peay. 381,577 Wheel. See Paddle wheel. Vehicle wheel. Windmill, J. Devereux. 381,679 Windmills, auxiliary motor for, G. C. Hunter. 381,688 Window. Edgerton & Metcalf. 381,683 Wire rod mill guide, H. Roberts. 381,589 Wire stretcher, McMahon & Mangum. 381,589 Wood, apparatus for impregnating, P. H. Dudley. 381,682 DESIGNS. Advertising picture frame, F. H. Durell. 18,265 Burner, nursery, C. T. Martin. 18,274 Button fastener, W. G. Slater. 18,231 Caster, furniture, E. Garet. 18,266 Coffin plate, O. McCarthy. 18,273 Clock dial, A. Bannatyne. 18,264 Clock dial, W. Lawson. 18,272 Glassware, etc., ornamentation of, T. G. Hawkes, 18,267, 18,268 Match, L. Kittinger. 18,270 Oil cloth, C. T. & V. E. Meyer. 18,275 to 18,290 Stove, cooking, W. J. Andrews. 18,263 Type, E. Lauschke. 18,271
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preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil. 381,866 Well trap, W. W. Peay. 381,577 Wheel. See Paddle wheel. Vehicle wheel. Windmill, J. Devereux. 381,679 Windmills, auxiliary motor for, G. C. Hunter. 381,688 Window. Edgerton & Metcalf. 381,683 Wire rod mill guide, H. Roberts. 381,589 Wire stretcher, McMahon & Mangum. 381,599 Wood, apparatus for impregnating, P. H. Dudley. 381,682 DESIGNS. Advertising picture frame, F. H. Durell. 18,265 Burner, nursery, C. T. Martin. 18,274 Button fastener, W. G. Slater. 18,231 Caster, furniture, E. Garet. 18,266 Coffin plate, O. McCarthy. 18,273 Clock dial, A. Bannatyne. 18,264 Clock dial, W. Lawson. 18,272 Glassware, etc., ornamentation of, T. G. Hawkes. 18,267, 18,269 Match, L. Kittinger. 18,270 Oil cloth, C. T. & V. E. Meyer. 18,275 to 18,269 Stove, cooking, W. J. Andrews. 18,273 Type, E. Lauschke. 18,271 Type, font of printing, W. W. Jackson. 18,273 TRADE MARKS. Aperient water, natural, A. Saxlehner. 15,368 Boots and shoes, men's, Chase, Merritt & Co. 15,381 Canned green corn, B. Reiff. 15,388 Canned vegetables, corn, tomatoes, and fruits, J. H. Preston & Sons. 15,382 Dress shields, I. B. Kleinert. 15,386 to 15,388
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
preventing accidents on street, C. Mahon	controlling the supply of, L. Weil
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