ing evaporated as above, and again set to crystalize, and soon as long as clear crystals are obtained. To obtain pure citric acid. all the crystals should be redissolved and recrystalized, it may be several times, and the solutiondigested with bone black. A gallon of lemon juice should make about eight ounces of crystals. Limes and lemons constitute the source from which citric acid is generally made, yet it may be extracted from oranges currants, gooseberries, raspberries, tamarinds, etc. The machinery and cost of manufacture will depend upon circumstances which anyone about to go into the business can best judge.

(38) D. B. K.—Your inquiry was answered lastweek. To clean moss from trees, wash them with lye made by leaching wood ashes. To clean marble, wash with quicklime, clean, rub with fine putty powder and olive oil.

(39) Constant Reader is informed that there are many works on steam boilers and their manage ment. He had better select those he considers best adapted to his wants.

(40) W. F. B. asks for a book that describes the locomotive. He had better procure Forney's "Catechism of the Locomotive."

(41) R. S. N. asks how to thin down printers' ink which will answer to print stencils made by a sharp needle, such, for instance, as the stencils made by an electric pen? A. You can thin ordinary printing ink with linseed oil or with kerosene.

(42) G. A. S. asks: How much water is contained in 1 cubic foot of steam at 30 lbs. pressure? A. Weight of a cubic foot of steam, at 30 lbs. pressure by gauge, about 0.1079 lbs.

(43) M. M. McP. asks: Can a dirt road engine be made to run in our Texas land successfully? If you know of any, please give me the address. A. Insert a notice in our " Business and Personal " column, which is especially designed for such inquiries.

(44) I. T. W. says: I am making an engine, the cylinder being 21% inches in diameter, and 5 inches long. I have a smaller one $\frac{1}{16}$ inch diameter and 5 inches long. I have a larger one 4 inches in diameter and 7 inches long. Please let me know what horse power each engine will be, and what sized boilers will be required? A. See pp. 33, 225, vol. 33.

(45) W. B. B. says: Suppose two rifles are so charged that they will send their bullets exactly the same distance, all things being equal, which of the two would send its ball to a given point the quickest, if one man remains stationary and the other man fires from a rail cargoing at the rate of 60 miles an hour, both rifles fired simultaneously and of course at an equal distance from the mark, and fired in the direction the rail car is travelling? A. The one on the car.

(46) I. T. C. says: I am running an 11 x 20 inch stationary engine, with one 40 inch two flue boiler No. 4 is crystalized carbonate of lime-calcite.-G. S. 14 feet long. The boiler is good but not large enough M. It is pyrites. See p. 7, vol. 36.-K. R. F.-It confor the engine. I have a good 14 inch flue. If I connect tains iron, lime, magnesia, and silica-it is called it to my boiler lengthways on top, and use it as a steam angite. -Packagemarked Newburyport contains a piece drum, would it not add considerably to my boiler power? A. As we understand the proposed mode of connection. we do not think it would increase the steaming capacity of the boiler.

(47) A. M. H. asks: Can I use an engine as large as 60 inches in diameter and 12 feet stroke, and condense the steam with an inside condenser of Neither rock nor flux contains silver—the bright specks Lighthall's or some other good make, and whether I can are mica. No. 8.—The rock may contain silver; the make as much vacuum as I could form with a jet, also if sample does not. No. 9. The metal-like particles in the a jet condenser works well with water that is muddy rock are iron pyrites. No. 10 is gray ore of antimony. like our western rivers? A. Generally, surface condensers do not make quite as good a vacuum as jet condensers. If the water is very muddy, there might be some trouble in keeping the plunger of the air pump tight

(48) L. E. N. asks: Would water, if deep enough, be so compressed that an iron ball would cease to sink? A. No. See p. 208, vol. 33.

said to be viewed at an angle of 1/2 degree? A. On ac- poses.-I. W. D.-It is arragonito-a pure lime carbocount of refraction.

Please give me the names of the metals as regards of carbonic acid and lime. their expansibility with heat, heading with the most expansible? A. The principal metals are arranged, in the order of expansibility, as follows: Platinum, palladium, tempered steel, antimony, iron, bismuth, gold, copper, brass, silver, tin, lead, zinc.

Would a peg driven horizontally in an upright post at the equator, throw the same length shadow at noon as at 6 o'clock A.M. and P.M.? A. Yes.

Whatwould be the relative time of the passing of a railroad train a point, say the edge of a building situated 300 feet from the point of observation, the train being a mile away, and that point being any other distance? A. Please send a sketch, to make your meaning plainer.

(50) D. F. H. says: M. says that the proper way to set carriage axles is to set them forward. I claim that an axle to run easy should be set straight, so there will be no friction against nut or washer. Who is right? You have the right idea as we understand your que

(54) W. H. C. says: Can you tell me what will kill weeds, such as plantain, that grow around a well where it is wet and marshy? A. Perhaps the best plan would be to drain the land around the well, and fill in with stones or cement.

(55) I. W. W. asks: What pressure or resistance does mercury offer at 100°, 200°, or 300°, etc., per square inch? A. The pressure of the mercury vapor at the different temperatures is approximately as follows; 100°,0'0015; 200°, 0'0114; 300°, 0'08 lbs. per square inch.

(56) R. H. McN. says: R. B. G. asks what the pressure against the collar of a horse is, travel- \vdots in ing at the rate of 3 miles an hour, to raise 33,000 lbs. a foot high per minute? (I should have said pulling at the end of a lever.) It makes no difference what lever he pulls at, as the rate of travel is given, and the amount of resistance. The rate of speed is 3 miles per hour = 15,840 feet, to raise 33,000 lbs. at the rate of 1 foot per minute = 1,980,000 foot lbs. per hour, which if divided by 15,840 feet (the speed of the horse) gives 125 los. of resistanceor pressure against the collar. A. We accept the correction with thanks.

J. Y. says: "If all the measures, length, surface, and capacity in the world, and all the weights, were lost, by what means could new ones be obtained to correspond exactly with those we now have?" The standard yard of the State of New York is a brass rod, which bears to a pendulum beating seconds in vacuo, in Columbia College, the relation of 1,000,000 to 1,086,141 at a temperature of 32° Fah. One third of a yard square of purewa ter at 60° Fah. weighs 621/2 lbs. We could therefore get our weights and measures perfectly. A. The restoration of the British standard of length, that is, the reproduction of the one that was burnt, was found to be impossible. Scientific men generally agree that, if a standard and all copies of it are lost, it cannot be exactly reproduced. The weight of a definite volume of pure water has never been exactly determined, that is, the weights used as standards by different nations, when referred to water, do not exactly agree .

(57) S. R. H. asks: What can I use for filling for walnut before using shellac? A. Almost any cheap varnish will do. Scrape clean and thoroughly dry. The object is to fill the pores of the wood.

(58) J. W. G. asks for a solder to solder backs to stereotypes. A. Use common plumber's solder. and applymuriate of zinc as a flux.

MINERALS, ETC.-Specimens have been received from the following correspondents, and examined, with the results stated:

A. R. McC.-It appears to be calamine-silicate of zinc.-W. A. N.-No. 1 is a limestone. No. 2 is clay No. 3 is bitumen mixed with clay and sand. If slate. distilled in a close retort it will yield rich illuminating gas and various oils. It may be used also as a fuel. No.4 is crystalized carbonate of lime—calcite.—G. S. of cinder and a small fragment of mica schist.-W. W. -No. 1 docs not contain copper. No. 2 is jamesonite-sulphide of antimony and lead. No. 3 is crystalized lime carbonate. No. 4 is quartz crystals. No. 5 contains only a trace of lead and no silver. No. 6 contains bismuth sulphide-bismuthine, also copper. No. 7 .----G. N.-There seems to be no patent on rose-leaf beads -the ones sent were nearly inodorous after a week.-F. A. D.-Please send more of the ore.-I. R. B.-The fragment contains fluorspar.-The contents of paper box marked F. G. seem to be a mixture of chalk and magnesia, with flour and other organic matters.-J. M. F.-It is a variety of bituminous coal, yielding considerable ash. You should have sent a specimen of more recent mining.—D J. M.—It is an impure clay. It migh; (49) H. M. W. asks: 1. Why is the moon be used for brick making, pottery, and similar purnate. If in large quantities it might be used as a source

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and ontributions upon the following subjects: On a Safe Filling. By C. W. On the Telegraph. By T. G. G. On a Mathematical Problem. By R. A. On Solutions of Indeterminate Problems. By H. M. On the Questions of Bacterial Origin. By S. L. N. F. On the Great Strike, etc. By I.S.C. On a Mechanic's Incog. By W. P. T. Also inquiries and answers from the following: W. A. D.-B. J. H.-G. W.-G. W. P.-J. S. A. B. HINTS TO CORRESPONDENTS. We renew our request that correspondents, in referring to former answers or articles, will be kind enough to

[AUGUST 18, 1877.

Inducts Units Part Nume Part Num Part Nume Part	Suntilian.	[August 18, 1877.
INDEX OF INVENTIONS Instant Instant <th>OFFICIAL.</th> <th>Hoisting machine, N. P. Otis</th>	OFFICIAL.	Hoisting machine, N. P. Otis
c-terr Durant or Due United States Worker Biores / Sol, going Holder, Die T. P. Drivell, 10 Auge Construction July 10, 1877, Sol States 10 A complete mark of the New Ke Markel 10 10 10 A complete mark of the New Ke Markel 10 10 10 A complete mark of the New Ke Markel 10 10 10 A complete mark of the New Ke Markel 10 10 10 10 A complete mark of the New Ke Markel 10 </th <th></th> <th>Hoop poles, J. A. Peoples</th>		Hoop poles, J. A. Peoples
July 10, 1977. Total Actional Status of Lance 1 A complete only of any tasks in the nancesci line only of the nanecesci line only of the nand the nancesci line only of the nanc	Letters Patent of the United States were	Horses' feet, sponge holder for, T. T. Furlong 192,821 Hose nozzle and sprinkler, P. H. Ryon 192,880
AXD EACH INFLATENCE THAT DATES Internant, W. J. There. [1] Toose marker () are calculated seture). Internant, W. J. There. [1] Accurate () are calculated seture). [1] [1] And mult to found the offer for and calculated seture). [1] [1] And mult to found the offer for and calculated seture). [1] [1] And mult to found the offer for and calculated seture). [1] [1] Arman, W. Classeners. [1] [1] [1] [1] Arman, W. Classeners. [1] [1] [1] [1] [1] [1] Arman, W. Classeners. [1] [1] [1] [1] [1] [1] [1] Arman, W. Classeners. [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1]		Hot air furnace, C. Marchand
A complete only of any patient in the number of the section (. Y. Hofery 192 A complete only of any patient in the number of the section (. Y. Hofery 192 Land, W. McChriston (. S. Y. Hofery 192 Land, W. M. Charlow (. S. Y. Hofery 192 Land, W. M. Charlow (. S. Y. Hofery 192 Arrant to Num A Co., W. Pat. Row, Nor York GY. 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, C. J. Paters (. S. Y. Hofery 192 Lato, Intel, Y. J. Derration 192 <td< td=""><td>AND EACH BEARING THAT DATE.</td><td>Inkstand, W. J. Thorn 192,849 Iron and steel, refining, Smyth & Simpson 192,948</td></td<>	AND EACH BEARING THAT DATE.	Inkstand, W. J. Thorn 192,849 Iron and steel, refining, Smyth & Simpson 192,948
cholmb orbithe specification and drawings, will be charge by children or specific program of the progra		Knife scourer, C. V. Hadley 192,865
James State An under and Lare (It to pettern Loss), James Channers, A. L. Seven, J. S.	ncluding both the specifications and drawings, will be	Lamp, W. McCarthy
acceleration balles, E. Hamis,	lease state the number and date of the patent desired,	Lamptrimmer, E. Stone 193,052, 193,053
malgements, A. B. Puel 1000 parkine-strype machine, C. P. Postarel. 100 male structure 1000 parkine-strype machine, C. P. Postarel. 100 male structure 1000 parkine-strype machine, C. P. Postarel. 100 male structure 1000 parkine-strype machine, C. P. Postarel. 100 male structure 1000 parkine-strype machine, C. P. Postarel. 100 male structure 1000 parkine-strype machine, C. P. Schurzken. 100 male structure 1000 parkine-strype machine, C. P. Schurzken. 100 male structure 1000 parkine-strype machine, C. P. Schurzken. 100 male structure 1000 parkine-strype machine-structure 100 male structure 1000 parkine-strype machine-structure 100 male structure 1000 parkine-structure 1000 <td< td=""><td>Agricultural boiler, H. Henley 192,993</td><td>Latch for gates and doors, A. L. Beardsley 192,966 Latch, gate, C. E. & M. S. Austin 192,889</td></td<>	Agricultural boiler, H. Henley 192,993	Latch for gates and doors, A. L. Beardsley 192,966 Latch, gate, C. E. & M. S. Austin 192,889
Albox, W. G. Dartte, [1,28] Inting past, P. J. Jernel, [1,28] Latting past, P. Machine, J. J. Carnani, M. J. P. Bartholm, W. R. Jackan, J. C. B. Marker, J. B. Schuller, J. J. Carnani, M. J. P. Bartholm, W. R. Jackan, J. C. B. Marker, J. B. Schuller, J. J. Carnani, M. J. Bartholm, J. B. Manner, J. Marker, J.	Amalgamator, A. B. Paul	Leather-skiving machine, C. F. Packard 193,028
abe to, D. D. Gary 1997 Jacomatry wheel, J. Larmanik. 1993 bett, D. L. Varadia, J. Statu, J. Statu, J. Statu, J. Jacomatik, W. R. Jacomatik, W. S. Jacomatik, W. J. Jacomatik, W. S. Jacomatik, W. J. Jacomatik, W. Jacomatik,	Axle box, W. G. Beattie	Lifting jack, T. J. Jenne
abset, J. R. Ven Arman [263] Loon tomple, W. H. Barth. [154] severage, A. Mohar [263] Loon tomple, W. H. Barth. [154] severage, A. Mohar [263] Marthe, Articlail, C. Schweiter [154] severage, A. Mohar [263] Marthe, Articlail, C. Schweiter [154] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [154] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [154] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [154] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [263] Marthe, Articlail, C. Schweiter [152] severage, S. Mohar [264] Marthe, Artinger, Schw	Bale tie, R. De Gray 192,978 Bale tie, C. H. Victory 193,852	Loading vessels, etc., S. Marsden
everage, Abble, J. Bogers	Beer, device for tapping, J. Felbel 192,903	Loom temple, W. H. Burns
inder. emporary. I. Reynolds	Beverage, table, J. J. Rogers 193,038 Billiard cushion, J. S. Mansur 193,011	Marble, A. Holorook
oliters, G. Steele. 19624 incisize logics, inc. (S.R. Nerton (S.W.), 12624, 122 ook block, Int Enderster for, L. Dore, I. Robards 19535 Nert, F. A. Tradier, S.W. 19535 ook block, Int Enderster for, L. Dore, I. Robards 19535 Padde wheel, D. Linday, W. 19535 ook block, Int Enderster for, L. Dore, I. Robards 19535 Padde wheel, D. Linday, W. 19535 ook and owner, J. C. Milaer, M. 19535 Padde wheel, D. Linday, W. 19535 ora fastener, J. C. Milaer, M. 19549 Panner, W. M. & A. E. E. KIMMAN, M. 19535 ora fastener, J. C. Milaer, M. 19549 Panner, M. & M. & M. 19535 ora fastener, J. C. Milaer, M. 19549 Panner, M. & M. & M. 19535 ora fastener, J. C. Milaer, M. 19535 Panner, M. & M. & M. 19535 ora fastener, J. C. Milaer, M. 19532 Patint machine, J. H. B. New, M. 19535 ora fastener, J. C. Milaer, M. 19532 Patint machine, J. H. B. New, M. 19535 ora fastener, J. Marcell, M. & M.	Binder, temporary, I. Reynolds 193,037	Milk cooler, L. T. Reed. 192,985 Mill pick, W. B. Morris 193,092 Morr H. S. Fillion 190,000
onde binding I. Reynolds 19552 off and T. W. KcNally 195 ooks, Hune Indicator for, I. Dores 19533 Paddle wheel, D. Lindawy 195 ooks, Hune Indicator for, I. Dores 19533 Paddle wheel, D. Lindawy 195 ooks, Hune Indicator for, I. Dores 19533 Part or, W. H. Switt,	Boilers, G. Steele	Mucilage holders, etc., S.S. Newton 192,023, 192,024, 192,025
boot and hos heel protector, L. Buchards. 192,33 Pandleck, W. H. Taylor. 193 box E. G. Gullard. 192,33 Panter back, W. E. Serif. 193 box E. G. Gullard. 192,33 Panter back, W. E. Serif. 193 box E. G. Gullard. 192,33 Pencil. lead, H. T. Cultuman. 192 box and pencil. 194,33 Pencil. lead, H. T. Cultuman. 192 box and pencil. 194,33 Pencil. lead, H. T. Cultuman. 192 breach.inding freedram. 194,34 Pencil. lead, H. T. Cultuman. 192 breach.inding freedram. 194,34 Pencil. lead, H. N. Palater. 192 breach.inding freedram. 194,34 Pencil. Struct. 194,34 breach.inding freedram. 192,35 Pencil. Struct. 192,34 breach.inding freedram. 192,35 Pencil. Struct. 192,34 breach.inding.indinding.indinding.inding.inding.indinding.inding.inding.	Book and cover, L. D. & I. Reynolds	Nut, F. A. Bradley 192,859 Oil can, T. W. McNally 193,017
Dor, R. G. Collier, 192,85 parenell, wool, H. M. Stor, 192 Day, woold, W. P. Collinst, Store, 192,15 Pench, Lead, H. T. Cushman, 192 Day, woold, W. P. Collinst, Store, 192,15 Pench, Lead, H. T. Cushman, 192 Tatle, weicher, W. P. Flywer, M. Supperson, 192,25 Pench, Lead, W. Patter, 192 Terreto, F. Markan, 192,35 Patter, machine, J. H. Brywn, 192 Terreto, Status, W. P. Flywer, M. Schwoler 192,35 Point and, C. S. Marshall, 192 Terreto, Status, W. Status, W. Schwoler 192,35 Point and, C. S. Marshall, 192 Terreto, Status, W. Status, W. Schwoler 192,35 Point and, C. S. Marshall, 192 Tarla bord, W. Marseell 192,66 Pann, J. Boleck, E. U. & W. L. Scorella, 192 Tarla bord, W. Marseell 192,67 Pann, J. Boleck, E. U. & W. L. Scorella, 192 Tarla bord, W. Marseell 192,67 Pann, J. J. Boleck, E. W. Schwoler, 192 Tarla bord, W. Marseell 192,67 Pann, J. L. Borden, 192 Tarla bord, W. Marseell 192,67 Pann, J. Boleck, W. Schwoler, 192 </td <td>Boot and shoe heel protector, L. Richards 192,839 Boot cleaner, D. F. Bell 192,967</td> <td>Paddle wheel, D. Lindsay</td>	Boot and shoe heel protector, L. Richards 192,839 Boot cleaner, D. F. Bell 192,967	Paddle wheel, D. Lindsay
Data worden, W. P. Oblum. 22-31 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 22 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 22 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 22 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 22 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 23 Prenciprible appartus. G. W. Baler. 22 Prenciprible appartus. G. W. Baler. 22 23 Prenciprible appartus. G. W. Baler. 23 Prenciprible appartus. G. W. Baler. 22 23 Prenciprible appartus. G. W. Baler. 23 Prenciprible appartus. G. W. Baler. 23 24 Prenciprible appartus. G. W. Baler. 23 Prenciprible appartus. G. W. Laber. 23 24 Prenciprible appartus. G. M. Baler. 23 Prenciprible appartus. G. M. M. Baler. 23 24 Prenciprible appartus. G. M. Baler. 23 Prenciprible appartus. G. M. M. Baler. 23 24 Prenciprible appartus.	Box, E. G. Goliner	Paper box, W. H. Swift
rake, velo, W. P. Pickard. 19282 relating machine, J. H. Brown. 192 recel. Jouding rearm, Wason & Cutter 192,00 Picking machine, J. H. Brown. 192 recel. Jouding rearm, Wason & Cutter 192,00 Picking machine, J. H. Brown. 192 recel. Jouding rearm, Wason & Cutter 192,00 Picking machine, J. J. Brown. 192 ruth, Lawrence & Holmes. 192,03 Printing machine, S. D. Trucker 192,04, 192 rurlar large, J. Brochkins. 192,03 Printing machine, S. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,03 Printing machine, S. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,04 Printing machine, S. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,04 Printing machine, S. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,04 Printing machine, S. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,04 Printing Machines, J. D. Trucker 194,04, 192 rurlar large, J. Brochkins. 192,04 Printing Machines, J. B. Villians. 192 ar compiling, J. Brobits. 192,05 Printing Machine, J. M. Nilson. 192 ara leveng, G. T. Lacas. 192,04 Printing Machine, J. M. Wilson. 193 ara propuling, J. D. Tobits. 192,62 Raincod erosing, J. S. Willians. 193 ara propuling, J. D. Tobits. 192,62 Raincod erosing, J. S. Willians. 193 ara starter, B. Craham. 192,94 Printing Machine, J. M. Tarker. 193 ara starter, B. Craham. 192,94 Printing Machine, J. M. Tarker. 193 ara propuling, J. D. Tobits. 192,62 Raincod erosing, J. S. Willians. 193 start, eroing machine, G. K. Proter. 192,63 Balayset and R. J. Alteres 193 bala hink, die for welding, J. H. Hargelere 192,63 Balayset and R. J. Alteres 193 bala hink, die for welding, J. H. Hargelere 192,63 Balayset and R. J. Alteres 193 balayset and R. P. Hangelere 192,64 Balayset and R. J. Horem. 193 balayset and R. J. Hargelere 192,64 Balayset and R. J. Horem. 193 balayset and R. J. Hargelere 192,64 Balayset and R. J. Alteres 193 balayset and R. J. Hargelere 192,64 Balayset and R. J. Alteres 193 balayset and M. D. Bernon. 193,64 Balayset and J. J. Mathemathy 193 batter theore, J. Lacas. 193,95 Balayset and Mathemathy	Brake, wagon, Seivert, Dietzen & Stoetzel 193,044	Pencil, lead, H. T. Cushman
 Peech-loading freera, Weson & Cutter Biologo Pierra, Hung, W. Painter. Biota and C. K. Marshall Biota and C. Marshall Biota and C. M. Lawellin Biota and Schemann Biota and Schemann	Brake, vehicle, W. P. Pickard	Plaiting machine, J. H. Brown. 192,860 Plaiting machine, W. Painter. 192,029
192.83 jower mak, J. Grouda 192.83 jower mak, J. Grouda 192 192.84 printing machines, S. D. Tucker 192,430 192 192.84 192 Pully, A. M. Scallas 192 192.84 192 192 192 192 192.95 192 192 192 192 192.95 192 192 192 192 192 192.95 192 192 192 192 192 192 192.95 192	Breech-loading ordnance, A. Schroeder 193.342	2 obtair card, C. R. Marshall
uring casket, J. Maxwell 19,044 Pump, J. M. Senish 19 uring casket, J. Maxwell 19,064 Pump, J. Luster 19 an for fluids, W. McClave. 19,065 Pump, J. Bewan 19 ar compling, J. Johnston 19,240 Pump, J. W. Jougias 19 ar compling, J. Johnston 19,240 Pump, J. W. Wilson 19 ar compling, J. Johnston 19,240 Pump, J. W. Wilson 19 ar compling, J. Johnston 19,240 Pump, J. W. Wilson 19 ar sporeding, C. L. Lucas 19,260 Pump, J. W. Wilson 19 ars propelling, J. D. Hitts 19,260 Pump, J. W. Wilson 19 arbureting machine, G. L. Pierson 18,664 Pump, J. W. Wilson 19 arbureting machine, G. L. Pierson 19,265 Baah fustener, J. Andrews 19 barb, harbork, J. Cloudh 19,268 Baah fustener, J. Andrews 19 bar, L. D. Holle 19,268 Baah fustener, J. H. Weith 19 bar, L. Pendleton 19,268 Baah fustener, J. H. D. Holle 19,269 bar, J. G	Brush, Lawrence & Holmes 192,833 Bullet, rifle, B. B. Hotchkiss 192,829	Powder flask, J. Covode
an for fulds, W. McClave	Jurial casket, J. Maxwell	Pulley block, E. U. & W. L. Scoville
arr coupling, J. Johnston 12,870 pump, J. W. Pisco. 112 str sterner, S. Craham	San for fluids, W. McClave	Pump, J. Luster 192,92 Pump, T. B. Swan 192,95
ar starter, S. Graham	Zar coupling, J. Johnston 192,870 Car mover, Heshuysen & Burn 192,866	Pump, J. W. Douglas 192,973 Pump, J. VV. Pearce 192,873 Pump, J. N. Wilson 193,066
arbureting air, R. P. Hangliter. 19225 Bailrond switch, E. Hugron	Car starter, S. Graham 192,984	Punching and shearing machine, H. O'Neill 193,026 Quilting frame, R. W. Burk
astance, wir, W. Hutchings. 192,09 hain inix, die for welding, J. H. Heim 192,87 saker, sowing machine, G. K. Protoz 192,83 hain inix, die for welding, J. H. Heim 192,85 hair, T. Tostevin. 192,85 hair, Darber's, J. ClouE 192,86 hair, Darber's, J. ClouE 192,86 hair, Darber's, J. ClouE 192,86 hurn, H. E. Pendleton. 192,86 hurn, L. E. Pendleton. 192,86 hurn, L. E. Pendleton. 192,86 will Ok. J. A. Cunningham 192 omposition articles, W. H. Dibble 192,86 omposition articles, W. H. Dibble 192,86 score stay, M. P. Bray 192,86 often cleaner, Thomas & A Doertson. 192,96 score stay, M. P. Bray 192,96 uilivator, H. P. Kynett. 192,92 uilivator, W. C. Ward 192,96 uilivator, W. C. Ward 192,96 score stay, J. Lexander	Carbureting air, R. P. Hangliter	Railroad switch, E. Hugron
hair, T. Tostevin 122,58 Sah fastener, Y. H. Brown 123 heese, manufacture of, Daitz & Frinle 122,58 Sah fastener, J. H. Hort. 123 hurn, J. A. Cubitt 122,58 Sah fastener, J. H. W. Heysinger. 123 hurn, J. A. Cubitt 122,59 Saw mill, O. L. Jenks. 123 hurn, J. A. Cubitt 122,59 Saw well, C. Heinen. 123 ödhe pot, W. H. Shervool 122,49 Saw wet, C. Heinen. 123 önde pot, W. H. Shervool 124,345 Saw toth Adjuster, J. F. Damon 123 onfectioner, Shelv et al. 123,455 Scool desk, Walgrain & Daucall. 123 orest atay, M. P. Bray. 122,544 Becon, W. J. Griffiths 123 ultivator, W. C. Ward. 123,525 Scow driver, A. J. Curtis. 123 utrata cord tightener, E. Hrynn 123,545 Scow driver, A. L. France. 124 shab armer, J. H. Wright. 123,545 Scow driver, J. L. Bernace. 126 shab armer, J. H. Wright. 123,545 Scow driver, J. L. Bernace. 126 shab armer, J. H. Wright. 123,545 Scow ast	Castanet, W. Hutchings	Railway, E. Frere
hesse, manufacture of, Daitz & Frinle 192,68 gausage stuffer, I. W. Horysinger. 192 hurn, J. A. Cubit 192,690 gaw mill, O. J. Jenks. 192 hurn, J. A. Cubit 192,490 gaw mill, O. J. Jenks. 193 for measuring machine, G. P. Baker 192,490 gaw set, C. Heinen. 192 omposition articles, W. I. Dibble 192,491 gaw toth Adjuster, J. F. Damon 192 omposition articles, W. I. Dibble 192,491 gaw toth Adjuster, J. F. Damon 192 order stay, M. F. Bray, A. Domba, E. Bobertson. 192,991 gene cuting data, J. Grafiths 192 order stay, M. F. Bray, A. Domba, E. Bobertson. 192,991 gene cuting data, J. Grafiths 192 uitvato, ord. Uiptener, E. B. Fyam 192,991 gene cuting data, J. Grafiths 192 uitvato, ord. Uiptener, E. B. Fyam 192,991 gene and haring how case, Bartlett & Bickford 192 stay for plight, C. Hearner 192,993 gene and haring how case, Bartlett & Bickford 193 ore other, J. H. Wright 192,993 gene and haring how case, Bartlett & Bickford 193 prop press, W. C. Hoine (fr. T. T. 192,994	Chair, T. Tostevin	Sash fastener, J. Andrews 192,953 Sash fastener, W. H. Brown 192,894 Sash fastener, E. Hort 192,919
hurn, C. Isbell 192,269 saw mill dog, A. Conningham 192 offne pot, W. H. Sherwood 192,265 saw set, C. Heinen 192 omposition articles, W. I. Dible 192,265 saw mign achine scroll, W. H. Tufts. 193 orset stay, M. P. Bray. 122,264 saw ign achine scroll, W. H. Tufts. 193 orset stay, M. Hench 192,205 gerew driver, A. J. Curtis. 192 otton cleaner, Thomas & Robertson. 192,205 gerew driver, A. J. Curtis. 192 ulivator, H. V. Mard. 192,025 gerew driver, A. J. Curtis. 192 ulivator, W. C. Ward. 192,025 Borvel, C.H. Victory 192 uratan cord tighthener, E. B. Byam 192,405 Sion artner, J. H. Wright 192,405 jasor hegt, J. Alexander. 192,304 Sold aring machine, Brooks & Goraall 192 araw mift, A. E. Brockett 192,304 Sold aring machine, J. W. Graydon 192 araw mift, A. E. Brokett 192,305 Starma postage, W. Hierce 192 araw mift, A. E. Bonkett 192,305 Starma postage, G. C. Hotton 192 araw mift, A. E. Bo	Churn, H. E. Pendleton 192,838	Sausage stuffer, I. W. Heysinger
omposition articles, W. H. Dibble	Churn, C. Isbell 192,869 Cloth measuring machine, G. P. Baker 192,962	Saw mill dog, A. Cunningham 192,817 Saw set, C. Heinen 192,991
oraset stay, M. P. Bray. 122,894 gcorp, W. J. Griffitha. 112 otton cleaner, Thomas & Robertson. 122,932 Gerew curing dies, J. J. Grant. 132 ultivator, N. P. Kynett. 122,932 Sewing machines, C. H. Warner 132 ultivator, W. C. Ward. 122,939 Sewing machines, C. H. Warner 132 sibn warmer, J. H. Wright. 122,345 Bhoor case Bartlett & Blokford 132 sibn warmer, J. H. Wright. 122,345 Soldering machines, F. H. Smith. 133 soor check, J. Alexander. 122,345 Soldering machine, Brock & Gornall. 132 spat arrester, W. Hushton. 132 Spat arrester, W. Hushton. 132 spat arrester, W. Hushton. 132 Spat arrester, W. Hushton. 132 spat arrester, W. Hushton. 132 Star arrester, W. Hushton. 132 spat arrester, W. Hushton. 132 Star arrester, W. Hushton. 132 spat arrester, R. L. Protes. 132,345 Store reacher, Rutherford & Mitchell. 132 stere controp, contable, S. R. Beam. 122,345 Store reacher, Rutherford & Mitchell. 132	Composition articles, W. H. Dibble 192,863 Confectionery, Sibley <i>et al</i> 103,045	Sawing machine scroll, W. H. Tufts
ultivator, M. C. Ward 192,922 isomig machines, C. H. Warrer 192 urry comb, C. A. Hotchkiss 192,945 isovie (I. I. Victory 192 wirtain cord tightener, E. B. Byam 192,455 isovie (I. I. Victory 192 sich wärmer, J. H. Wright 192,455 isovie (I. H. Smith. 193 oro rbeck, J. Alexander 192,455 isodering machine, Iox, C. M. Morther 193 oro rbeck, J. Alexander 192,455 isodering machine, Iox, C. M. Morther 193 orop light, C. Horry 192,455 isodering machine, Iox, C. M. Morther 193 irop press, W. C. Hioks (r) 17,38 ispoil case, D. Smith 192,405 ireraving machine, A. E. Ellinwood, 192,405 Starp, postage, D. G. Beaumoni, 142 ireraving machine, A. E. Ellinwood, 192,405 Store, C. Lyman 192 irece, post, portable, S. R. Beam 192,435 Store reacher, Rutherford & Mitchell 192 ire exinguisher, W. W. S. Kime. 193,05 Store, E. A. C. Fox. 191 ire exinguisher, W. W. S. Kime. 192,365 Store reacher, R. M. Brather 192 ire exinguisher, W. W. Croker. 192,365 Store reacher, R. M. Brather	Cotton cleaner, Thomas & Robertson 192,951	Screw-cutting dies, J. J. Grant
urtain cord tightener, E. B. Bram 192,974 Shutter worker, H. Smith. 193 she warmer, J. H. Wright 192,955 Sopa and shaving box, combined, A. Hopfen 192 sraw knife, A. E. Brockett 192,955 Sopa and shaving box, combined, A. Hopfen 192 straw knife, A. E. Brockett 192,955 Soldering machine, Brooks & Gornall. 192 graving machine, J. Forbes 192,905 Start postage, D. G. Beaumont. 192 elevator, B. Schmidt 192,905 Store reacher, R. W. Hierce 192 strensing machine, I. W. McGaffey 192,905 Store reacher, A. W. Fraher. 192 strensing machine, I. W. McGaffey 192,905 Store reacher, Rutherford & Mitchell. 192 store reacher, S. Drible, S. R. Beam 192,905 Store reacher, Rutherford & Mitchell. 192 store rescher, N. T. Dre 192,045 Store reacher, S. Mutherford & Mitchell. 192 ire exinguisher. W. W. Crooker 192,045 Store reacher, S. Mutherford & Mitchell. 192 ire exinguisher. W. W. Crooker 192,045 Store reacher, S. Mutherford & Mitchell. 192 ire exinguisher. W. W. Crooker 192,045 Store reacher, S. J. M. Bear 192	Cultivator, H. P. Kynett	Sewing machines, C. H. Warner
192.88 Soap and shaving box, combined, A. Hopfen 192.88 900 perkew, A. E. Brockett 192.994 Soldering machine, Brooks & Gornall. 192 900 perkew, W. C. Hicks (r). 192.945 Soldering machine, Brooks & Gornall. 192 192 perkew, W. C. Hicks (r). 192.946 Statum indicator, J. W. Graydon 192 192 perkew, W. C. Hicks (r). 192.946 Statum indicator, J. W. Graydon 192 192 perkew, M. McClaffey 192.945 Statum indicator, J. W. Graydon 192 192 perkew, M. McClaffey 192.945 Store reacher, Rutherford & Mitchell 192 192 perkew, M. McClaffey 192.945 Store register, B. K. C. Fox 192 192 perkew, M. K. S. Kime 192.945 Store register, B. K. C. Fox 192 192 perkew, M. R. White 192.945 Store register, B. F. Clement 192 192 perkew, M. R. White 192.945 Trade, G. T. Smith 192 192 192 perkew, M. R. Ruberts 192.945 Trade, G. S. Rakin (r) 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 19	Curtain cord tightener, E. B. Byam	Shutter worker, H. Smith 193.047
prop press, W. C. Lifchs (r).7.788 (rs boller, O. Smith.5pool case, B. R. Hamilton.132 (rs boller, O. Smith.Jacvator, R. Schmidt.192,909Stamp, postage, W. W. Bierce132 (rs boller, O. Smith.132 (rs boller, O. Smith.Jarvator, R. Schmidt.192,909Station indicator, J. W. Graydon.132 (rs boller, O. Smith.Jarvator, R. Schmidt.192,909Store reacher, Rutherford & Mitchell.132 (rs boller, O. Smith.Jarce JostN. T. Dye.192,905Store reacher, Rutherford & Mitchell.132 (rs boller, C. Lyman.Jarce JostN. T. Dye.192,905Store reacher, Rutherford & Mitchell.132 (rs case, C. Lyman.Jith wheel, S. P. Stillman.192,905Store register, B. F. Clement.192 (rs case, C. Lyman.192 (rs case, C. C. For.Jire escape, C. Henry.192,905Treigraphic circuit, S. J. M. Bear.192 (rs place, C. S. Rankin (r).192 (rs place, C. S. Rankin (r).192 (rs place, C. S. Rankin (r).193 (rs place, C. M. Roberts.193,057 (ro place, St case, C. C. M. Roberts.193,057 (ro place, St case, C. C. M. Roberts.193,057 (rs and spoons, H. E. Fowler.192,915 (rs place, C. M. Roberts.193,057 (ro place, St case, C. C. M. Roberts.193,057 (rs and spoons, H. E. Fowler.192,916 (rain separatos, J. E. Shiras.192,916 (rain separatos, J. E. Shiras.192,917 (rain separatos, J. E. Shiras.192,916 (rain separatos, J. E. Shiras.192,916 (rain separatos, J. E. Shiras.192,916 (rain separatos, J. E. Shiras.192,916 (rain separatos, J. E. Shiras.192,916 (rai	Draw knife, A. E. Brockett 192,895	Soap and shaving box, combined, A. Hopfen 192,997 Soldering machine, Brooks & Gornall 192,813
Bevator, R. Schmidt. 192,940 Station indicator, J. W. Graydon. 192 Ingraving machine, I. W. McGaffey. 192,935 Stock feeder, A. W. Prather. 192 Excressing machine, I. W. McGaffey. 192,935 Store reacher, Rutherford & Mitchell. 192 Excressing machine, I. W. McGaffey. 192,935 Store reacher, Rutherford & Mitchell. 192 Ence post, Dortable, S. R. Beam 192,945 Store grates, E. A. C. Fox. 192 irearnas, sight for. M. B. White. 193,945 Store register, B. F. Clement. 192 iree scape, C. Henry. 192,935 Tag, O. T. Smith. 192 ire extinguisher. W. W. Crooker 192,935 Toilet articles, J. Vernon. 193 ire extanguisher. W. Crooker 192,935 Toy Nach's ark, G. H. Heland. 193 foor covering and wainscoting, S. P. Groocock. 192,937 Toy pistol, J. Barry. 192 lour, process, etc., C. M. Roberts 192,937 Tagwars, T. H. Day 192 orge, Canedy & Larson 192,947 Umbrella, R. & Galbraith. 192 usa retorts, D. R. Shiras 192,941 Vehicle boyr, T. Jostevin 192 iee, J. B. Moty. 192,944 Wac	Drop press, W. С. Піскь (r)	Spool case, B. R. Hamilton
Exercising machine, I. W. McGaffey. 192,905 Stock feeder, A. W. Prather. 192 192,905 Varence, post, portable, S. R. Beam 192,905 Store reacher, Rutherford & Mitchell. 192 vence, post, portable, S. R. Beam 192,905 Store grates, E. A. C. Fox. 191 ence wire stretcher, W. W. S. Kime 193,05 Store, E. A. C. Fox. 192 ire arcany, sight for, M. B. White. 193,05 Store register, B. F. Clement. 192 ire eace, C. Henry. 192,935 Tag, O. T. Smith. 192 ire eace, C. S. Rankin (r) 7.737 Toilet articles, J. Vernon. 192 isherman's apron, A. J. Tower. 192,937 Toilet articles, J. Vernon. 192 loor, process, etc., C. M. Roberts 192,937 Toilet articles, J. Vernon. 192 orge, Canedy & Larson 192,937 Toramways, T. H. Day 192 orge, Canedy & Larson 192,937 Umbrella H: pcup, H. S. Frost. 192 orge, Canedy & Larson 192,937 Umbrella H: pcup, H. S. Frost. 192 as retorts, D. R. Shiras 192,947 Vehicle body, T. Tostervin. 192 vehicle body, T. Tostervin. 192 192	Slectrical apparatus, J. Forbes	Station indicator, J. W. Graydon 192,985
ence, post, portable, S. R. Beam. 112,345 Stove grates, E. A. C. Fox. 191, ence wire stretcher, W. W. S. Kime 193,005 Stover egrates, E. A. C. Fox. 192, ifth wheel, S. P. Stillman 192,349 Stover egrater, B. F. Clement. 192 ire escape, C. Henry. 192,945 Stover egrater, B. R. Ochow. 192 ire escape, C. Henry. 192,945 Tag, O. T. Smith. 192 ire escape, C. Henry. 192,945 Telegraphic circuit, S. J. M. Bear 192 ire escape, C. Henry. 192,945 Telegraphic circuit, S. J. M. Bear 192 ire escape, C. Henry. 192,945 Tolet articles, J. Vernon. 192 ire place, C. S. Rankin (r) 7,737 Tolet articles, J. Vernon. 193 Our, process, etc., C. M. Roberts. 193,045 Tramways, T. H. Day. 192 orge, Canedy & Larson 192,947 Umbrella tip cup, H. S. Frost. 192 orks and spoons, H. E. Fowler. 192,947 Umbrella tip cup, H. S. Frost. 192 as retorts, D. R. Shiras 192,947 Vehicle spring, A. B. Bishop. 192 iate, J. Bundy. 192,947 Wehole wheel, M. J. Racer. 192 <td>Exercising machine, I. W. McGaffey 192,836 Exterminator, ground squirrel. H. Dryer 192,905</td> <td>Stock feeder, A. W. Prather. 192,870 Store reacher, Rutherford & Mitchell. 192,873</td>	Exercising machine, I. W. McGaffey 192,836 Exterminator, ground squirrel. H. Dryer 192,905	Stock feeder, A. W. Prather. 192,870 Store reacher, Rutherford & Mitchell. 192,873
ifth wheel, S. P. Stillman 192,949 Store register, B. F. Clement. 192 irearms, sight for, M. B. White. 193,061 Straw cutter, S. Mepham. 192 ire escape, C. Henry. 192,936 Tag, O. T. Smith. 192 ire escape, T. K. Ricketts 192,936 Telegraphic circuit, S. J. M. Bear 192 ire escape, T. K. Ricketts 192,936 Tile-laying machine, W. J. & J. I. Mettler. 193 ire place, C. S. Rankin (r) 7,877 Toilet articles, J. Vernon. 192 loor, overing and wainscoting, S. P. Grococck. 193,054 Toy Noah's ark, G. H. Ireland. 193 lour, process, etc., C. M. Roberts 193,064 Tramways, T. H. Day. 192 orks and spoons, H. E. Fowler. 192,975 Umbrella tip cup, H. S. Frost. 192 as process, A. W. Wilkinson 193,062 Vehicle body, T. Tostevin. 192 as retorts, T. Ubil. 122,840 Vehicle wheel, M. J. Racer. 192 late, J. Bundy. 192,971 Wagon, C. S. Bateman. 192 uate, J. F. Lucas. 193,060 Wagon, C. S. Bateman. 192 uate, G. B. Mershon 192,041 Water meter, H. B. Hayes. 192	Fence, post, portable, S, R. Beam	Stove grates, E. A. C. Fox
ire escape, T. K. Ricketts 192,983 Telegraphic circuit, S. J. M. Bear 192 ire extinguisher. W. W. Crooker 192,983 Telegraphic circuit, S. J. M. Bear 192 ire place, C. S. Rankin (r) 7,773 Toile tarticles, J. Vernon 192 isherman's apron, A. J. Tower. 192,913 Toile tarticles, J. Vernon 192 loor covering and wainscoting, S. P. Groocock. 192,913 Toy bistol, J. Barry. 192 orge, Canedy & Larson 192,910 Towarys, T. H. Day. 192 orge, Canedy & Larson 192,910 Umbrella, R. S. Galbraith. 192 orge, Canedy & Larson 192,910 Umbrella tip cup, H. S. Frost. 192 as process, A. W. Wilkinson 193,062 Vehicle body, T. Tostevin. 192 as rectors, D. R. Shiras 192,944 Vehicle wheel, M. J. Racer. 192 ate, H. A. Stearns 193,050 Vehicle, G. M. Peters (r). 7 ate, J. Bundy. 192,944 Wagon, C. S. Bateman 192,944 Vence of kettle, J. F. Lucas 193,050 Water and wine cooler, D. K. Enright. 192,944 Vater, G. B. Mershon 192,944 Water and wine cooler, D. K. Enright. 192,		······································
isherman's apron, A. J. Tower.193,054Toy Noah's ark, G. H. Ireland.93loor covering and wainscoting, S. P. Groccek.192,913Toy pistol, J. Barry.192lour, process, etc., C. M. Roberts.193,064Tramways, T. H. Day.192lorge, Canedy & Larson.192,975Umbrella, R. S. Galbraith.192lork process, A. W. Wilkinson.193,062Umbrella, R. S. Galbraith.192las process, A. W. Wilkinson.193,062Vehicle body, T. Tostevin.192las retorts, D. R. Shiras.192,944Vehicle spring, A. B. Bishop.192las retorts, T. Ubil.122,844Vehicle wheel, M. J. Racer.192late, H. A. Stearns191,852Wagon, C. S. Bateman.192lue, apparatus for drying, S. T. Swasey192,844Wagon, C. W. Saladee.193,040, 192lrate, G. B. Mershon.192,071Wagon, C. W. Saladee.193,040, 192lrate cleaner, C. E. Murray.192,012Water meter, H. B. Hayes192lrater, street, C. Bigeon192,814Window light, P E. Sloan.192larrow, W. G. P. Sharp192,824Window light, P E. Sloan.192larvesters, H. L. Hopkins192,931Window screen, F. A. Glibert.192larvester, C. W. Levalley192,824Wood molding machine, M. Bostwick.192larvester, C. W. Levalley192,824Wood molding machine, M. Bostwick.192larvester, R. H. L. Hopkins192,93110,931.—CASIMERES.—O. F. Chase, Thompson, Conn.larvester, R. M. L. Hopkins192,93810	Fireescape, T. K. Ricketts	Telegraphic circuit, S. J. M. Bear
lour, process, etc., C. M. Roberts193,089Tramways, T. H. Day.192lorge, Canedy & Larson192,971Umbrella, R. S. Galbraith.192las process, A. W. Wilkinson193,062Vehicle body, T. Tostevin192las retorts, D. R. Shiras192,974Vehicle body, T. Tostevin192as retorts, D. R. Shiras192,971Vehicle body, T. Tostevin192as retorts, D. R. Shiras192,971Vehicle, G. M. Peters (r).7ate, J. A. Stearns192,871Wagon, C. S. Bateman192Hue, ot kettle, J. F. Lucas193,060Water and wine cooler, D. K. Enright192trate cleaner, C. E. Murray192,022Water meter, H. B. Hayes192trate for harvest knives, W. Comey192,816Window ight, P. E. Sloan192tarret, B. B. Hotchkiss192,821Window iscreen, F. A. Gilbert192Larrester, A. B. Woodard193,007Window iscreen, F. P. Pomeroy192Larvester, C. W. Levalley192,871DESIGNS PATENTED,Larvester, C. W. Levalley192,871Uindow iscreen, E. P. Pomeroy192Larvester, C. W. Levalley192,871Uindow iscreen, E. P. Suborth, Buffalo,N.193,000Larvester, R. H. Bart193,00010,092.—PARLOR TABLES.—P. P. Kuehborth, Buffalo,N.10,093.—CUFF.—E.	Fisherman's apron, A. J. Tower	Toy Noah's ark, G. H. Ireland
as process, A. W. Wilkinson193,062Vehicle body, T. Tostevin192as retorts, D. R. Shiras192,944Vehicle body, T. Tostevin192as retorts, D. R. Shiras192,944Vehicle body, T. Tostevin192as retorts, T. Ubil122,944Vehicle wheel, M. J. Racer.192ate, J. Bundy192,971Vehicle, G. M. Peters (r).7ate, J. Sundy192,971Vehicle, G. M. Peters (r).7ate, J. Sundy192,971Vehicle wheel, M. J. Racer.192hue, apparatus for drying, S. T. Swasey192,847Wagon, C. S. Bateman192hue pot kettle, J. F. Lucas193,060Wagon, C. W. Saladee193,040, 192tovernor, G. Steele193,060Water and wine cooler, D. K. Enright192trate cleaner, C. E. Murray192,022Water meter, H. B. Hayes192trate cleaner, C. E. Murray192,022Window kgreen, F. A. Gilbert192turter, street, C. Bigeon192,811Window kgreen, F. A. Gilbert192Larroek, R. A. B. Woodard192,848Window kscreen, F. A. Gilbert192Larrow, W. G. P. Sharp192,99810,091.—CAssIMERES.—O. F. Chase, Thompson, Conn.193,000Lat and bonnet stand, E. H. Hart193,00010,092.—PARLOR TABLES.—P. P. Kuehborth, Buffalo, N.Lating apparatus, H. B. Smith193,004190,094.—CLORC CASES.—H. J. Muller, New York city.Log hanger and carrier, J. Meyer192,93810,094.—CLORC CASES.—H. J. Muller, New York city.Log hanger and carrier, J. Meyer192,93810,094.—C	Flour, process, etc., C. M. Roberts	Tramways, T. H. Day
tate, J. Bundy.192,971Vehicle, G. M. Peters (r).7tate, H. A. Stearns191,882Wagon, C. S. Bateman.192,971Wagon, C. S. Bateman.192,971Wagon, C. W. Saladee.192,971Ihe pot kettle, J. F. Lucas193,000Wagon, C. W. Saladee.193,000tovernor, G. Steele192,971Water and wine cooler, D. K. Enright.192,971trate, G. B. Mershon192,914Water and wine cooler, D. K. Enright.192,921trate cleaner, C. E. Murray.192,022Water meter, H. B. Hayes192trate for harvest knives, W. Comey192,816Window light, P. E. Sloan.192turter, street, C. Bigeon192,811Window screen, F. A. Gilbert.192Hame fastener, A. B. Woodard.192,813Window screen, E. P. Pomeroy192Iarroster, G. W. Levalley192,814Window screen, E. P. Pomeroy192Iarvester, C. W. Levalley192,814Wood molding machine, M. Bostwick193Iarvester, S. H. L. Hopkins192,998IDSIGNSPATENTED,Iat and bonnet stand, E. H. Hart.193,00010,092,-PARLOR TABLES,-O. F. Chase, Thompson, Conn.Iay rake and loader, W. Ingledue193,00110,092,-PARLOR CASESH. J. Muller, New York city.Iog banger and carrier, J. Meyer192,93810,094,-CLOCK CASESH. J. Muller, New York city.Iog banger and carrier, J. Meyer192,93810,094,-CLOCK CASESH. J. Muller, New York city.Iog banger and carrier, J. Meyer192,93810,094,-CLOCK CASESH. J. Muller, New York city.Iog banger and	Has process, A. W. Wilkinson 193,062 Has retorts, D. R. Shiras 192,944	Vehicle body, T. Tostevin
Hue, apparatus for drying, S. T. Swasey.192,346Wagon end gate catch, F. A. Havens.192,Hue pot kettle, J. F. Lucas.193,050Wagon, C. W. Saladee.193,040, 192,Jovernor, G. Steele193,050Water and wine cooler, D. K. Enright.192,Jrate cleaner, C. E. Murray.192,022Water meter, H. B. Hayes.192,Jrate cleaner, C. E. Murray.192,022Window light, P. E. Stonn.192,Junter, street, C. Bigeon.192,816Window screen, F. A. Gilbert.192,Jame fastener, A. B. Woodard.192,821Window screen, F. P. Pomeroy.192,Jarrow, W. G. P. Sharp.192,821Wood molding machine, M. Bostwick.192,Jarvesters, H. L. Hopkins.192,998100,991.—CASSIMERES.—O. F. Chase, Thompson, Conn.193,044Jargaparatus, H. B. Smith.193,044100,992.—PARLOR TABLES.—P. F. Kuebloth, Buffalo, N.100,994.—CLOSK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer.192,93810,094.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer.192,93810,094.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer.192,93810,094.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer192,93810,94.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer192,93810,94.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer192,93810,94.—CLOK CASES.—H. J. Muller, New York city.Jog banger and carrier, J. Meyer192,93810,94.—C	Hate, J. Bundy 192,971 Bate, H. A. Stearns 191,882	Vehicle, G. M. Peters (r)
irain separator, J. E. Smith192,941Water meter, H. B. Hayes192irate, G. B. Mershon192,018Waster meter, H. B. Hayes192irate, G. B. Mershon192,018Waster meter, H. B. Hayes192irate, G. B. Murray192,018Waster meter, H. B. Hayes192irinder for harvest knives, W. Comey192,816Wind wheel, J. P. Preston192un carriage, B. B. Hotchkiss192,810Window ight, P E. Sloan192un tarriage, B. B. Motchkiss192,830Window ight, P E. Sloan192uutter, street, C. Bigeon192,811Window screen, F. A. Gilbert192iame fastener, A. B. Woodard193,007Window screen, F. P. Pomeroy192Iarrow, W. G. P. Sharp192,821Wood molding machine, M. Bostwick192Iarvesters, H. L. Hopkins192,998DESIGNS PATENTED,Iat and bonnet stand, E. H. Hart192,99810,091.—CASIMERES.—O. F. Chase, Thompson, Conn.Iat and loader, W. Ingledue193,00410,092.—PARLOR TABLES.—P. Ruebhorth, Buffalo, N.Ieating apparatus, H. B. Smith193,04410,093.—CUFF.—E. A. Litchfield, Somerville, Mass.Iog hanger and carrier, J. Meyer192,93810,094.—CLOSK CASES.—H. J. Muller, New York city.Iog hanger and carrier, J. Meyer192,93810,094.—CLOK CASES.—H. J. Muller, New York city.Iog hanger, C. R. & J. W. Rutledge192,938remitting one of the above patents may be hadIog hanger, C. R. & J. W. Rutledge192,938remitting one of lar to MUNN & Co., 37 Park Row, N	Hue, apparatus for drying, S. T. Swasey	Wagon end gate catch, F. A. Havens
irinder for harvest knives, W. Comey 192,816 Windowill, I. H. Palmer. 192 iun carriage, B. B. Hotchkiss 192,830 Windowigtt, P. E. Stoan 192 utter, street, C. Bigeon 192,811 Windowigt, P. E. Stoan 192 Hame fastener, A. B. Woodard 193,067 Windowiscreen, F. A. Gilbert 192 Iarrester, C. W. Levalley 192,811 Wood molding machine, M. Bostwick 192 Iarrester, C. W. Levalley 192,998 Wood molding machine, M. Bostwick 192 Iat rad bonnet stand, E. H. Hart 192,998 DESIGNS PATENTED, Itat and loader, W. Ingledue 193,044 10,092PARLOR TABLESP. F. Kuebhorth, Buffalo, N. Icating purposes, T. F. Rowland 192,938 10,094CLORC CASESH. J. Muller, New York city. Iog banger and carrier, J. Meyer 192,938 10,094CLOR CASESH. J. Muller, New York city. Iog banger, C. R. & J. W. Rutledge 192,938 remitting one dollar to MUNN & Co., 37 Park Row, N	Arain separator, J. E. Smith	Water meter, H. B. Hayes
utter, street, C. Bigeon 192,811 Window.screen, F. A. Gilbert. 192 Iame fastener, A. B. Woodard 193,067 Window.screen, E. P. Pomeroy 192 Iame tug, W. S. Thayer. 192,942 Wood molding machine, M. Bostwick 192 Iarrow, W. G. P. Sharp 192,942 Wood molding machine, M. Bostwick 192 Iarvester, C. W. Levalley 192,871 DESIGNS PATENTED, Iat and bonnet stand, E. H. Bart. 192,822 10,091.—CASSIMERS.—O. F. Chase, Thompson, Conn. Iay rake and loader, W. Ingledue 193,004 10,003.—CUFF.—E. A. Litchfield, Somerville, Mass. Ieating purposes, T. F. Rowland. 192,983 10,094.—CLOCK CASES.—H. J. Muller, New York city. Iog banger and carrier, J. Meyer 192,983 10,094.—CLOCK CASES.—H. J. Muller, New York city. Iog targer, C. R. & J. W. Rutledge 192,983 remitting one dollar to MUNN & Co., 37 Park Row, N	Frinder for harvest knives, W. Comey	Wind wheel, J. P. Preston
Iarrow, W. G. P. Sharp 192,942 Iarroster, C. W. Levalley 192,971 Iarvesters, H. L. Hopkins 192,971 Iarvesters, H. L. Hopkins 192,972 Iara and bonnet stand, E. H. Hart 192,282 Iaring apparatus, H. B. Smith 193,000 Iog hanger and carrier, J. Meyer 192,983 Iog hanger and carrier, J. Meyer 192,983 Iog tarp, C. R. & J. W. Rutledge 192,983 Iog tarp, C. R. & J. W. Rutledge 192,983 Iog tarp, C. R. & J. W. Rutledge 192,983 Iog tarp, C. R. & J. W. Rutledge 192,983 Iog tarp, C. R. & J. W. Rutledge 192,983 Iog tarper and carrier, J. Meyer 192,983 Iog tarper, C. R. & J. W. Rutledge 192,983 Iog tarper and carrier, J. Meyer 192,983 <	Hutter, street, C. Bigeon 192,811 Hame fastener, A. B. Woodard 193,067 Hame tug, W. S. Thayer 192,848	Window screen, F. A. Gilbert
Iat and bonnet stand, E. H. Hart	Harrow, W. G. P. Sharp 192,942 Harvester, C. W. Levalley	Wrench, B. F. Joslyn 191,920
Ieating apparatus, H. B. Smith	Harvesters, H. L. Hopkins	10,091,-CASSIMERESO. F. Chase, Thompson, Conn. 10,092,-PARLOR TABLESP. P. Kuehborth, Buffalo, N. Y.
log trap, C. R. & J. W. Rutledge 192,939 remitting one dollar to MUNN & Co., 37 Park Row, N	Heating apparatus, H. B. Smith	10,093CUFFE. A. Litchfield, Somerville, Mass. 10,094CLOCK CASESH. J. Muller, New York city.
· · · · · · · · · · · · · · · · · · ·	Hog hanger and carrier, J. Meyer 192,926 Jog trap, C. R. & J. W. Rutledge 192,939 Hoisting machine, H. Batt 192,891	remitting one dollar to MUNN & Co., 37 Park Row, New

tion.

(51) B. says: In an argument with a friend on the subject of " Revolutions of a Wheel," he claims that the hub goes faster than the rim or outward part of the wheel, on the ground that the hub receives the first of the power of motion. On the other hand, I claim that there is no distinction, that when one part moves or receives motion, the whole does. A. It is a question of terms. As the outer portion of the wheel makes as many revolutions as the hub, it necessarily goes through a greater distance in a given time.

(52) A. Y. asks: What is meant by a circular inch? Is it 1 inch in diameter? Why divide by the decimal 0'7854 to get the area? How is this decimal got? What is the area of a valve that is 2 inches square? A. Youshould consult some elementary work on geometry.

(53) Southern Subscriber asks: What must tobacco leaf be sprinkled with before being cut, and what process is necessary, after cut, toobtain a good acceptable flavor? A The flavoring ingredients are a matter of taste. Molasses, glycerin, cascarilla bark, and anise seed are some of the materials employed.

name the date of the paper and the page, or the numbe of the question.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleas ure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Who publishes books on bricklayers, etc.? Who publishes books suitable for amateur mechanics? Who makes a small, good, portable steam engine? Where can springlevels be obtained? Who makes and sells egg incubators?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditionaly obtained.