Are these things so? A. If the muck beds be well covered, there is practically little danger of loss, liable to arise from exposure to direct sunlight. The proportion of nitrates of ammonia in rain water is extremely small, so that in a well manured field the gain or loss to the vegetation from this source would be inappreciable.

(43) W. E. E. says: I have a lot of black rubber chains, and they have all turned to a grayish color. How can I get the color back? A. We could not suggest a remedy without examining the material or learning more precisely under what conditions the change had occurred. It is probable that the articles were not originally of good

(44) E. P. B. asks: Is oil made from fresh butter goodfor oiling farm machinery? Can the salt be taken out of salt butter so as to make an oil fit for oiling harness? A. No. Such oil is not suitable for either purpose.

(45) W. J. R. says: By what means can l take iron rust out of marble? A. It is impossible to do this, without injury to the marble, by purely chemical means. The best method that we can recommend is a uniform abrasion over the stained surface with a stiff steel brush, aud, if the work was originally polished, repolishing in the usual manner. Where the stains are too deep for such treatment, it would perhaps be better to cover them with a light coating of a mixture of plaster of Paris in a strong solution of water glass.

(46) C. T. G. says: Please give me a recipe for cleaning baryta crystals and stalactites. If the crystals are really sulphate of baryta, try steeping them for some hours in hot muriatic acid, containing a very little nitric acid. If the deposit you wish to remove consists of ferruginous clay (ocher), this treatment will completely remove the iron, leaving behind the pure white clay, which may best be removed by mechanical means

(47) C. H. W. says: In soldering tinward without a soldering iron, with a candle or lamp, the place to be repaired is first covered with an acid. Can you tell me how that acid is prepared? A. Digest zine in strong muriatic acid until the acid will dissolve no more of the metal. Decant the clear liquid and bottle for use.

(48) H. M. asks: 1. How many strokes should a fret saw give, to one turn of the crank, to give the best results? A. About 25 or 30 2. Would a friction wheel covered with india rubber of about 2 inches diameter, to be driven by a larger wheel, have power enough to drive the above saw? The 2 inch wheel is to be connected to the under part of the saw, by a crank pin run in a slot in the lower arm of the saw. A. I think it would, with a good heavy balance wheel, or a driver with a heavy rim. 3. Would it run hard under the above conditions? A. I do not think that it would run hard at all.—J. E. E., of Pa.

(49) E. A. F. says, in reply to J. W. O. who asks whether a horse can draw a vehicle more easily if hitched close to it: Several friends say that the closer a horse is to his load, the easier it is to pull, and vice versa. You say that you cannot see why the draft increases with the distance except by the additional weight of chain or rope and friction on the ground, if the rope touches the ground. My experience is that, in drawing a log or any other dead weight from the ground, the closer you get to the weight or object the easier it will move, for the reason that your power is above, getting rid of part of the friction. You may hitch to the forward end of a log and draw all you can, and then change to the hind part of the log, and let one animal be on each side with the weight between them, and they will move the load more easily. Take, for instance, a pair of trucks for hauling logs, and place the skids on one side of the trucks and a log to be loaded and team on the other. You may hitch a chain or rope to the trucks and under the log, and back over the trucks and to the team, which is close to the trucks, and then roll the log on. But take chain enough to reach from 30 to 60 feet, and they will load it easier with the 80 feet of chain or rope. In the last position your weight is above the backs of the animals or above the line of draft; in the first your weight is below. A. In our answer to J. W. O., we understood him to refer to an ordinary ve hicle, in which no lifting effect was desired. What you have so well detailed in your letter is, we be lieve, generally correct.

(50) D. M. says: As many of your readers seem to take an interest in the baroscope of Bab inet, of which I sent you a description which has been published in Wrinkles and Recipes, allow me to suggest a change which experience has taught me. The use of water in that instrument is subject to great inconvenience. For, as the water gets foul at the expense of the air confined in the bottle, it is necessary to remove the water pretty often. Now this trouble is almost entirely avoided by using, instead of pure water, a mixture of water and whisky in equal quantities.

MINERALS, ETC.—Specimens have been re ceived from the following correspondents, and examined, with the results stated:

S -The powder consists of oxide of zinc together with finely ground resin. It would be necessary to make a quantitative analysis in order to determine the proportions of each ingredient.

# COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the follow ing subjects:

On the Calcifaction of Tubercles. By C. B. On the Water Grate. By F. G. W. On a Small Engine. By T. B. R. On the Vicksburgh Cut-Off. By C. G. D. On Voracious Fishes. ByR. L. S. On an Indelible Ink. By A. J. F.

Also inquiries and answers from the following S. & S.-J. J. R.-J. G. S.-I. W. H.-E. L. R.-C. S -G. S.-J. D. T.-P. K.-R. E. M.-W. H. E.-C. M.

### HINTS TO CORRESPONDENTS

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.

Enquiries 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 pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are fent: "Who sells electric bells? Whose is the best parlor organ? Who makes diving ap-Whose is the best engine-turning paratus? lathe?" All such personal inquiries are printcd, 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 expeditiously obtained.

[OFFICIAL]

# INDEX OF INVENTIONS

Letters Patent of the United States were Granted in the Week Ending

June 20, 1876, AND EACH BEARING THAT DATE.

[Those marked (r) are refeated patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired. and remit to Munn &Co., 37 Park Row, New York city

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Pen, writing, H. D. J. Pratt.  Piano action, upright, F. Koth.  Pipe cutter, Jacob & Jamer  Pipe, waste and overflow, G. E. Waring, Jr  Plow, F. R. Bell.  Plow, S. W. Pope.  Plow, J. Shickel.  Plow and cultivator, sulky, E. W. & J. N. Russell  Plow, shovel, M. Schlessman  Plow, sulky, J. W. Grimes.  Plow, sulky, J. W. Grimes.  Plow, tilc-laying mole, S. H. Reynolds,  Plows, land skimmer for, G. & J. Thomson.  Pneumatic switch lock, etc., W. E. Prail  Press, hay and cotton, F. M. Nash  Printing oil cloths, Randall et al.  Projectile, J. M. Pollard  Propellers, etc., raising screw, E. Raiph.  Pump, air, R. H. Holbrook.  Pump, oil and liquor, W. L. Carlson.  Puzzle, picture, Hyatt & Pruyn.  Raddator, steam, J. T. Kelly.	179, 029 179,024 179,083 178,898 178,896 178,970 178,960 179,065 179,014 178,975 178,978 178,924 179,059 179,059 179,059 179,579 178,851 178,855 178,835 178,903 179,027
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Pen, writing, H. D. J. Pratt.  Piano action, upright, F. Koth.  Pipe cutter, Jacob & Jamer  Pipe, waste and overflow, G. E. Waring, Jr.  Plow, F. R. Bell.  Plow, S. W. Pope.  Plow, J. Shickel.  Plow and cultivator, sulky, E. W. & J. N. Russell  Plow, shovel, M. Schlessman  Plow, sulky, J. W. Grimes.  Plow, sulky, J. W. Grimes.  Plow, tilc-laying mole, S. H. Reynolds,  Plows, land skimmer for, G. & J. Thomson.  Pneumatic switch lock, etc., W. E. Prall  Press, hay and cotton, F. M. Nash  Printing oil cloths, Randall et al.  Projectile, J. M. Pollard  Projectile, J. M. Pollard  Propellers, etc., raising screw, E. Ralph.  Pump, air, R. H. Holbrook.  Pump, oil and liquor, W. L. Carlson.  Puzzle, picture, Hyatt & Pruyn.  Radiator, steam, J. T. Kelly.  Railway electric signaling, Rousseau & Smith.  Raske, horse hay, W. S. Archer (r)  Rake, horse hay, W. E. Leach	179, 029 179,024 179,028 178,898 178,877 178,970 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,965 179,97 179,97 179,97 179,97 179,97 179,97 178,856
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tile-laying mole, S. H. Reynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prail. Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cioths, Randail et al. Projectile, J. M. Poliard. Propeliers, etc., raising screw, E. Ralph. Pump. air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn. Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Railway, endless traction, A. S. Hallidle. Railway, endless traction, A. S. Hallidle. Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Raketan veneer, S. H. Penley.	179, 029 179, 024 179, 028 178, 898 178, 877 1719, 088 178, 877 1718, 960 179, 055 179, 014 179, 055 178, 971 178, 972 178, 973 178, 973 178, 974 179, 055 178, 924 179, 057 178, 811 179, 057 178, 811 179, 058 179, 072 179, 088 7, 179, 018 179, 088 7, 179, 088 7, 179, 188 178, 828 178, 838
Pen, writing, H. D. J. Pratt.  Piano action, upright, F. Koth.  Pipe cutter, Jacob & Jamer  Pipe, waste and overflow, G. E. Waring, Jr.  Plow, F. R. Bell.  Plow, F. S. W. Pope.  Plow, J. Shickel.  Plow and cultivator, sulky, E. W. & J. N. Russell  Plow, shovel, M. Schlessman  Plow, sulky, J. W. Grimes.  Plow, sulky, J. W. Grimes.  Plow, tilc-laying mole, S. H. Reynolds,  Plows, land skimmer for, G. & J. Thomson.  Pneumatic switch lock, etc., W. E. Prail  Press, hay and cotton, F. M. Nash  Printing oil cloths, Randall et al.  Projectile, J. M. Pollard  Propellers, etc., raising screw, E. Raiph.  Pump, air, R. H. Holbrook.  Pump, oil and liquor, W. L. Carlson.  Puzzle, picture, Hyatt & Pruyn  Radiator, steam, J. T. Kelly.  Railway, endless traction, A. S. Hallidle  Raliway electric signaling, Rousseau & Smith.  Rake, horse hay, W. S. Archer (r)  Rake, horse hay, E. E. Leach  Rattan veneer, S. H. Penley.  Reflector, C. Cothren  Revolver cartridge ejector, R. White.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 018 178, 960 179, 065 179, 065 179, 076 179, 077 178, 970 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 179, 087 178, 852 178, 970 179, 987
Pen, writing, H. D. J. Pratt. Plano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr Plow, F. R. Bell. Plow, S. W. Pope Plow, J. Shickel. Plow and cultivator, sulky, E.W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes Plow, tile-laying mole, S. H. Rcynolds. Plow, tile-laying mole, S. H. Rcynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall. Preas, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Propeliers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle Railway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren.	179, 029 179, 024 179, 028 178, 938 178, 938 178, 938 178, 970 178, 970 178, 970 178, 970 178, 970 178, 971 178, 971 178, 971 178, 971 178, 971 178, 971 178, 971 178, 971 178, 971 178, 971 178, 972 178, 973 179, 073 179, 073 179, 073 179, 073 179, 073 178, 850 179, 073 179, 073 178, 850
Pen, writing, H. D. J. Pratt. Plano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E.W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tile-laying mole, S. H. Rcynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall. Preas, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Propeliers, etc., raising screw, E. Raiph. Pump. air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Railway, endless traction, A. S. Hallidle. Railway, electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren. Revolver cartridge ejector, R. White. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 985 178, 976 179, 917 178, 976 178, 976 178, 976 178, 976 178, 951 178, 951 178, 952 179, 953
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tile-laying mole, S. H. Reynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prail Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cioths, Randall et al. Projectile, J. M. Pollard. Propeliers, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle Railway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren. Revolver cartridge elector, R. White. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, S. Brown. Sash fastener, W. H. Taylor.	179, 029 179, 024 179, 028 178, 938 178, 938 178, 937 178, 970 178, 965 179, 014 179, 055 178, 937 178, 937 178, 937 178, 937 178, 937 178, 937 178, 937 178, 937 178, 937 179, 045 179, 045 179, 045 179, 045 179, 047 179, 048 179, 047 179, 048 179, 047 179, 048 179, 047 179, 048 179, 047 179, 048 179, 047 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 048 179, 058 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958 179, 958
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell Plow, F. R. Bell Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tile-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prail Pres, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propeliers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, oit and liquor, W. L. Carlson Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Raliway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Refector, C. Cothren. Revolver cartridge ejector, R. White. Revolver cartridge ejector, R. White. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad Iron, F. Perrier. Sash fastener, S. Brown Sash fastener, S. Brown Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 985 178, 976 179, 917 178, 976 178, 976 178, 976 178, 976 178, 951 178, 951 178, 952 179, 953 179
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prail Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propeliers, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Raliway, endless traction, A. S. Hallidde Railway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley Refector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axies, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, S. Brown Sash fastener, W. H. Taylor. Saw fling machine, W. S. Newton. Saw flame, E. C. Atkins.	179, 029 179, 024 179, 028 178, 938 178, 938 178, 970 179, 985 178, 970 179, 965 178, 970 179, 965 178, 971 178, 972 178, 973 178, 973 178, 974 179, 975 178, 974 179, 975 178, 974 179, 975 178, 974 179, 975 178, 851 179, 975 178, 852 178, 936 179, 977 178, 852 178, 937 179, 977 178, 852 178, 852 178, 853 179, 978 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853 178, 853
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tile-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prail Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propeliers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, oit and liquor, W. L. Carlson Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Raliway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Refector, C. Cothren. Revolver cartridge ejector, R. White. Revolver cartridge ejector, R. White. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad from, F. Perrier. Sash fastener, S. Brown Sash fastener, S. Brown Sash fastener, S. Howton. Saw filmg machine, W. S. Newton. Saw filmg machine, W. S. Newton.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 985 178, 965 179, 917 178, 970 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 965 179, 967 178, 896 179, 967 178, 896 179, 967 178, 896 179, 968 179, 968 179, 968 179, 968 179, 868 179, 968 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 179, 868 178, 888 178, 878 178, 888
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Pres, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard. Propellers, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Raliway, endless traction, A. S. Hallidde. Raliway electric signaling, Rousseau & Smith. Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley Reflector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad iron, F. Perrier. Sash fastener, W. H. Taylor. Saw filing machine, W. S. Newton. Saw filing machine, W. S. Newton. Saw filing machine, W. S. Newton. Saw fame, E. C. Atkins. Scraper, earth, E. Alkinson. Scraper, crad, W. Patterson. Scparator, grain, L. C. Royer.	179, 029 179, 024 179, 028 178, 898 178, 898 178, 897 178, 970 178, 965 179, 014 179, 085 178, 971 178, 972 178, 973 178, 973 178, 974 179, 045 178, 924 179, 045 178, 924 179, 047 179
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propellers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, oil and liquor, W. L. Carlson. Puzzie, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Rallway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton. Saw filing machine, W. S. Newton. Saw filing machine, W. S. Newton. Scraper, road, W. Patterson. Scraper, earth, E. A. kinson. Scraper, grain, L. C. Royer. Sewing machine hemmer, E. T. Thomas.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 985 178, 965 179, 917 178, 970 179, 965 179, 917 178, 951 178, 951 178, 951 178, 951 178, 952 179, 953 178, 853 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 874 179, 965 178, 875 178
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propellers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, oil and liquor, W. L. Carlson. Puzzie, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Rallway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton. Saw filing machine, W. S. Newton. Saw filing machine, W. S. Newton. Scraper, road, W. Patterson. Scraper, earth, E. A. kinson. Scraper, grain, L. C. Royer. Sewing machine hemmer, E. T. Thomas.	179, 029 179, 024 179, 028 178, 898 178, 897 178, 970 178, 970 179, 985 178, 965 179, 917 178, 970 179, 965 179, 917 178, 951 178, 951 178, 951 178, 951 178, 952 179, 953 178, 853 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 873 178, 874 179, 965 178, 875 178
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propellers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, oil and liquor, W. L. Carlson Puzzie, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Rallway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton. Saw filen and set, combined, E. M. Boynton. Saw filing machine, W. S. Newton. Scaper, road, W. Patterson. Scraper, earth, E. A. kinson. Scraper, grain, L. C. Royer. Sewing machine hemmer, E. T. Thomas. Sewing machine treadle, W. H. Stewart (r). Sewing machine feed, T. S. Huntington	179, 029 179, 024 179, 028 178, 898 178, 877 178, 970 179, 985 178, 965 179, 917 178, 970 179, 965 179, 917 178, 976 179, 965 179, 967 178, 967 178, 967 178, 967 178, 967 178, 967 178, 967 178, 967 178, 967 178, 967 178, 968 179, 967 178, 968 179, 967 178, 968 179, 968 179, 968 179, 968 179, 968 179, 968 178, 886 178, 897 178, 886 178, 897 178, 886 178, 897 178, 886 178, 897 178, 886 178, 897 178, 886 178, 897 178, 886 178, 897 178, 886 178, 878 178, 878 178, 878 178, 878 178, 878 178, 878 178, 878 178, 878 178, 978 178, 988 179, 966 171, 968 179
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propeliers, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Raliway, endless traction, A. S. Hallidde Railway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley Refictor, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, S. Brown. Sash fastener, W. H. Taylor. Saw filing machine, W. S. Newton. Saw fa me, E. C. Atkins. Scraper, earth, E. Atkinson. Scraper, earth, E. Atkinson. Scraper, earth, E. Atkinson. Scraper, grain, L. C. Royer. Sewing machine treadle, W. H. Stewart (r) Sewing machine treadle, W. H. Stewart (r)	179, 029 179,024 179,028 178,898 178,898 178,897 178,970 178,965 179,045 179,055 178,971 178,976 178,976 178,976 178,976 178,976 178,957 178,957 178,957 178,957 178,957 178,855 178,959 179,023 179,027 178,855 178,959 179,026 178,858 178,959 179,027 178,856 178,949 179,026 178,858 178,838 179,027 178,858 178,838
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Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds. Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propeliers, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Raliway, endless traction, A. S. Hallidde Railway electric signaling, Rousseau & Smith. Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Refector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton. Saw fame, E. C. Atkins. Scraper, earth, E. A'kinson Scraper, earth, E. A'kinson Scraper, earth, E. A'kinson Scraper, grain, L. C. Royer. Sewing machine treadle, W. H. Stewart (r). Sewing machine uffler, A. M. Leslie. Sewing machine treadle, W. H. Stewart (r). Sewing machine treadle, W. H. Stewart (r). Sewing machine, P. T. Burgher. Shingle sawing machine, F. A. Huntington. Shoes, making, C. H. Krippendorf. Shrimps, etc., preserving, G. W. Dunbar et al. Sign, tilluminated, F. McLewee.	179, 029 179, 024 179, 028 178, 898 178, 877 179, 085 178, 976 179, 095 179, 014 179, 055 178, 965 178, 977 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 178, 976 179, 027 179
Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna. Printing oil cloths, Randall et al. Projectile, J. M. Pollard. Propetile, etc., raising screw, E. Ralph. Pump, air, R. H. Holbrook. Pump, oil and liquor, W. L. Carlson. Puzzle, picture, Hyatt & Pruyn. Radiator, steam, J. T. Kelly. Railway, endless traction, A. S. Hallidle. Raliway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. Leach Rattan veneer, S. H. Penley. Reflector, C. Cothren. Revolver cartridge extractor, O. Jones. Rolling axles, machine for, G. K. Dearborn. Sad fron, F. Perrier. Sash fastener, W. H. Taylor. Saw file and set, combined, E. M. Boynton. Saw film machine, W. S. Newton. Saw film machine, W. S. Newton. Saw film machine, W. S. Newton. Scraper, road, W. Patterson. Scraper, road, W. Patterson. Scraper, grain, L. C. Royer. Sewing machine hemmer, E. T. Thomas. Sewing machine hemmer, E. T. Thomas. Sewing machine hemmer, R. W. Hitzell. Shingle machine, P. T. Burgher. Shingle machine, P. T. Hompson. Sooap holder, J. L. Stackhouse.	179, 029 179, 024 179, 028 178, 898 178, 877 178, 970 179, 988 178, 877 178, 970 179, 965 179, 917 178, 970 179, 965 179, 967 178, 976 179, 976 178, 976 179, 977 178, 977 178, 978 178, 931 179, 967 178, 927 178, 927 178, 928 179, 927 178, 938 179
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Pen, writing, H. D. J. Pratt. Piano action, upright, F. Koth. Pipe cutter, Jacob & Jamer Pipe, waste and overflow, G. E. Waring, Jr. Plow, F. R. Bell. Plow, F. R. Bell. Plow, S. W. Pope. Plow, J. Shickel. Plow and cultivator, sulky, E. W. & J. N. Russell Plow, shovel, M. Schlessman Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, sulky, J. W. Grimes. Plow, tilc-laying mole, S. H. Reynolds, Plows, land skimmer for, G. & J. Thomson. Pneumatic switch lock, etc., W. E. Prall Press, hay and cotton, F. M. Nash Printer's galley, H. E. Hanna Printing oil cloths, Randall et al. Projectile, J. M. Pollard Propellers, etc., raising screw, E. Raiph. Pump, air, R. H. Holbrook. Pump, double-acting, J. D. Carr Pump, oil and liquor, W. L. Carlson Puzzle, picture, Hyatt & Pruyn Radiator, steam, J. T. Kelly. Railway electric signaling, Rousseau & Smith. Rake, horse hay, W. S. Archer (r) Rake, horse hay, E. E. Leach Rattan veneer, S. H. Penley. Refector, C. Cothren Revolver cartridge extractor, O. Jones. Roiling axles, machine for, G. K. Dearborn. Sad iron, F. Perrier. Sad fastener, W. H. Taylor. Sam file and set, combined, E. M. Boynton. Saw file and set, combined, E. M. Boynton. Sceparator, grain, L. C. Royer. Sewing machine hemmer, E. T. Thomas. Seewing machine hemmer, E. T. Thomas. Seewing machine feed, T. S. Huntington. Shode ord retainer,	179, 029 179, 024 179, 028 178, 928 178, 938 178, 938 178, 938 178, 938 178, 938 178, 938 178, 938 178, 938 178, 938 178, 938 179, 027 178, 938 179, 027 178, 938 179, 027 178, 938 179, 027 178, 856 178, 938 179, 027 178, 856 178, 938 179, 027 178, 856 178, 938 179, 027 178, 856 178, 938 179, 027 178, 856 178, 938 179, 027 178, 856 178, 938 178, 838
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