Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion.

Notes & Queries

E. L. C. is referred to p. 396, SCIENTIFIC AMERICAN, December 22, 1877.—C. L. P.—As we understand you, it does not appear to necessarily make much difference.—W. C. is referred to SCIENTIFIC AMERICAN January 7, 1866, pp. 22, 23; September 29, 1877, pp. 195, 196; October 6, 1877, pp. 207, 212.—J. S. D.—See SCIENTIFIC AMERICAN, January 30, 1875, pp. 64, 65.—D., F. & Co.—We do not recommend special manufactures in "Notes and Queries."—J. G. P.—See SCIENTIFIC AMERICAN, January 19, 1878, under head of minerals.—W. H. C., P. M. Co., and others.—We do not give addresses in this column.—T. J. S.—See SCIENTIFIC AMERICAN, February 2, 1878, pp. 64, 65, 71.—C. B. M.—Write to the Secretary of the Navy and to the Congressman from your district.—F. I. should consult some standard treatise on the subject. The explanation would require more space than we can give it in these columns. There are tables in print complete enough for most purposes.—J. M. L., and others.—Insert a notice in the "Business and Personal" column.—W. W. M.—It will be perfectly safe, if the old boiler is in good condition.—F. L. can obtain explanations from the publishers.—M. C. F.—Consult any modern arithmetic.—J. S. H.—If you have a chimney high enough to give a good draught, we think you will find the proposed mode of setting satisfactory.—H. V.—From your account it looks as if there were a leak either in the pump packing or in the connections. A check valve, it seems to us, would be of no advantage.—W. P. R. will find the information in any good modern geography.—A. does not furnish sufficient data, but it appears safer to use wrought iron for any pressure.—W. F. B.—You might make the machine in the manner shown in the sketch, so far as we can see.

(1) W. G. W. wishes to know how to get rid of cockroaches. A. A mixture of red lead, Indian meal, and molasses will be eagerly eaten by them and will soon exterminate them. Paris green, phosphorus, or arsenic are sometimes used, but are very dangerous. Borax, to which cockroaches have a great antipathy, will drive them away.

(2) J. R. B. asks: What is the method of skeletonizing the leaves of ferns, etc.? A. These skeletons are usually prepared by soaking the leaves in blood-warm water until the thin membranous parts have become sufficiently softened by putrefaction to be easily washed out. Dip the remaining portion in a dilute aqueous solution of sodium sulphite, and dry slowly on a piece of bibulous paper in the air.

(3) H. B. writes: In a recent article in the SCIENTIFIC AMERICAN concerning the Barclay street fire, it is stated that a considerable quantity of chlorate of potash was stored in the building, and it occurs to me that the secret of the explosion might perhaps be found in the fact that a mixture of this salt with loaf sugar becomes explosive when it is acted upon by a third substance that has the property of liberating the oxygen contained in the chlorate, as, for instance, sulphuric acid. The finer the particles, the more perfect the union and more rapid the explosion. An investigation into the articles commonly in use by confectioners might possibly discover some substance which was capable of producing this effect. As two of these substances were present in the building this theory seems fully as plausible as those that have been presented, if not more so. A. True; but the third substance—a concentrated acid—was wanting. The hypothesis, as well as that involving undue friction in compounding the chlorate lozenges, was, we believe, fully considered and disposed of in the investigation.

(4) B. W. asks: How can human skin be tanned? A. Either by the ordinary tannic acid bath or by the alum process. 1. Roll the clean skin up with a thick layer of ground hemlock bark between each convolution, cover it with water in a suitable vessel, and allow it to remain thus until the gelatinous tissues have become converted throughout. 2. Soak the skin in water, scrape off the epidermis, pass through and then digest for 10 minutes in a boiling bath composed of 1 lb. salt, 5·2 lbs. alum, and 6 gallons of water; then add 6·7 lbs. wheat flour and the yolks of 21 eggs to the warm alum bath, and digest with the skins for a day or more. The proportions are for 40 skins. The skins to be dried on stretching frames in the air, moistened with water, rubbed, and after a few hours ironed.

I inclose an illustration of a fountain in which (without any apparent pressure) the water rises above its own level. Will you explain the reason? A. The principle concerned is that of Hero's fountain, described in most elementary works on natural philosophy. It depends on the transmission of the pressure sustained by a body of water in one vessel to that in another by means of the elasticity of the air.

(5) C. T. H. writes: I intend building a dry room to dry animal scraps. Would it be better to have plenty of ventilation, and so arranged as to have a good circulation of fresh air passing through the room, or should I have just enough ventilation to carry off the damp vapors? A. Plenty of ventilation is best.

(6) C. H. S. asks: In what part of the drying room of a laundry should the ventilators for carrying off the steam (or rather the evaporation) be placed? A. At the bottom near the floor.

(7) J. W. asks: 1. Which is the stronger and will stand the weather better, a pressed brick or a hand made brick? A. The pressed brick is the stronger, and will stand the weather better than the common brick, when equally well burnt. 2. Can a man lay as many pressed brick a day as he can hand made brick? A. No.

(8) G. P. H. asks: Is it practicable to irrigate a tract of land lying about 100 feet above the level of a river? The land very gradually recedes from an elevated point, 200 feet from the river, where a reservoir could be made. What power and pump must I use to irrigate about 25 or 50 acres of this land? A. It is practicable to do so, but before the kind of pump and size can be determined, it will be necessary to have some further data, as, first, the kind of soil; second, the amount of rainfall; and third, the nature of the crops to be raised.

(9) A. S. writes: My dwelling house is situated on the most elevated point of my farm, the ground sloping gently therefrom on all sides; at a distance of about 900 feet from my house a small creek flows through the farm, which is mostly fed by three never-failing springs close together at this point. I am about excavating for, and having a small fish and ice pond, of about 80 x 200 feet, and from 2½ to 6 feet in depth, constructed in such a manner that all the springs will flow directly into the pond, while the rain water of the creek will flow past. In the attic of the house are two tanks holding about 20 bbls. each, besides another tank holding about 15 bbls., which is used for supplying the house with hot and cold water according to modern improvements; this tank is in turn supplied with water from the cisterns by a force hand pump, and works very satisfactorily, and with but little labor. The top of the two large tanks is about 38 feet above the ground about the house, and this surface is about 40 feet above the level of the water in the pond. I am also about constructing a small fountain in front of my house which I intend to supply with water from these tanks. What is the best, the cheapest, and the most satisfactory mode of filling the tanks with water from the pond, so as to keep the fountain playing at least during the spring, summer, and fall months? I will further add, in case a ram should be suggested, that a fall of 3 feet can be obtained for a distance of the first 10 feet, and about 1 foot for every additional 10 feet in distance; but I doubt very much whether that would be sufficient fall for the work required, and besides in very dry seasons, although the springs never fail, yet they get very low, and will probably not yield more than a barrel an hour each. A. By setting the ram in a pit in the ground, the requisite descent for the supply pipe can be obtained, provided a low point can be secured to which to drain the waste water. The ram will then throw the water to the required distance and elevation, if you provide pipes of a sufficiently large diameter for the purpose. Let the orifice in the ram be enlarged to 2 inches in diameter, and the pipes be of the same size. Sometimes two rams are set connected by proper valves to the same pipes, so that one may be repaired without stopping the supply of water.

(10) S. S. asks: What is the largest gun ever made? A. The 100 ton guns made in England for the Italian navy are the heaviest thus far, but still larger ones are projected.

(11) J. W. M. asks: Can a locomotive, on a straight and level track, pull a train attached to it by a connection 100 yards long as easily as by the ordinary coupling; and can an engine drive a circular saw, distant 100 feet, as easily as if the latter were only 10 feet from it? That is, does distance add resistance? A. As we understand your question, neglecting the weight and rigidity of the lengthened connection, there will be no difference in the two cases.

(12) A. A. G. asks: What is the most successful method of preventing wrought iron from rusting, when laid in the ground? A. Galvanizing, we think.

(13) J. F. asks: What will be the effect on a boiler of water containing 19 grains of sulphate of lime and 2 grains of vegetable matter to the Imperial gallon? A. Scale will be formed, unless you purify the water.

(14) C. A. S. writes: Suppose a cannon ball were fired out of a cannon in a vertical position; when it attained the height reached by the force of gunpowder, would it return to the earth at the same velocity it ascended? A. No.

(15) E. P. C. writes: The water in a boiler of a high pressure tugboat was blown off the other day, washed and filled up the next day, and just as the fireman started the wood in one furnace and was going to start the other, he heard a report as if something had given away inside the boiler, and when he investigated the matter he found a crack in one of the side sheets about 14 inches long, taking in three socket bolts. The boiler is only two years old. Can you throw any light on the subject? A. We judge, from your account, that the mischief was done when the boiler was blown down, by allowing it to cool too rapidly, and was developed as soon as the iron was reheated.

(16) M. M. C. writes: 1. Is there not something wrong about the following formula for flywheels, taken from Rankine's "Machinery and Millwork:"

$$w = \frac{m g \Delta E}{v'^2}$$

? If v'^2 is taken to mean the square of the velocity of the rim in feet per minute, it gives an answer absurdly small; and if a second be substituted for a minute, the reverse is the case. A. The velocity in the formula referred to is in feet per second, and the formula, we think, gives correct results when rightly applied. 2. Does Rankine's "Manual of Applied Mechanics" give examples of the practical application of his formulas to the construction and designing of machinery? A. Rankine's "Applied Mechanics" simply shows the manner of determining the various formulas. The applications are given to some extent in his "Machinery and Millwork" and "Treatise on the Steam Engine."

(17) F. S. M. asks: Has common gun or blasting powder more of a tendency to throw up than in any other direction? A. We imagine the tendency is to throw in any direction in which the resistance to motion is least.

(18) I. H. P. writes: I am desirous of constructing a counter fountain, to play beside my soda fountain, and not having aqueduct water I will have to appeal to you for instruction. I see an automatic counter fountain advertised, but it does not throw a stream with sufficient force. I want a jet to play under a bell glass with such force that it will cause that peculiar ringing noise which makes such fountains so attractive. A. By using a reservoir of compressed air, you can obtain as powerful a jet as you desire.

(19) W. E. writes: Please inform me of a practical method of mixing plumbago with molten copper, tin, or lead. I am sure that it can be done, but I do not know what is put in with it to fasten it. I have tried, but it will not mix, nor does the plumbago affect the metal at all. A. Heavy pressure may possibly be more efficacious than high temperature.

(20) W. H. W. asks: How can I remove a thick deposit of scale and mud from the tubes of my boiler (locomotive type)? A. Some forms of scale can be softened and washed out by allowing the water to remain in the boiler, after the fire is hauled, until it is quite cool, and then running it out. Other kinds of scale are so hard that the only practical means of removal is by taking out the tubes.

(21) E. J. M. asks: How can I construct a barometer? Must I use alcohol, and what other substance must I use in conjunction with it that will rise and fall in the glass as the changes in the atmosphere occur? A. Mercury is the liquid ordinarily used in barometer tubes, since the column of liquid is sustained by atmospheric pressure, and would be inconveniently high if alcohol was employed. You can purchase accurate mercurial or aneroid barometers of a dealer in scientific instruments, or may try the plan described in the SCIENTIFIC AMERICAN of March 2, 1878, p. 135.

(22) H. L. writes: Two tanks stand side by side and connect through a short pipe. A pipe descends from each 12 feet, and each pipe enters an iron box in the stove. The tanks are filled with cold water, and by means of pipes and box a complete circuit of water is established. When a fire is put in the stove the water in the box is heated, and hot water passes up one of the pipes to the tank. What gives the hot water a tendency to one pipe rather than the other? One philosopher answers the question by saying that one pipe enters the box at a higher level than the other. That does not quite satisfy me. A. We think it probable that the philosopher's view of the case is correct, if the facts are as he states.

(23) H. C. M. recommends that B. P. L. (p. 140, current volume) try the following, to stop the leaks in his skylight: 20 parts white sand, 2 parts litharge, 1 part lime; mixed dry and then with boiled linseed oil. Our correspondent states that this mixture will set very quickly and make a hard cement.

(24) W. H. C. writes: I have a Selden steam pump; diameter of cylinder 8 inches, stroke 8 inches, bore of water cylinder 3 inches, ¾ inch live steam pipe, 1 inch exhaust, 1½ inch suction pipe, 15 feet long; it discharges through 1½ inch pipe about 70 feet, with about 40 feet rise above the level of the pump. The friction in the discharge pipe consists of 10 ells, 4 unions, 1 T, and 2 1½ inch Globe valves. The pump does not work very satisfactorily. I think that the pump will do its work better if fed through a 1 inch steam pipe, with 1¼ exhaust. The person who put it up says it would be of no advantage to connect it differently. I am now using 20 lbs. steam. A. An increase in the size of the discharge pipe would probably be more beneficial.

(25) W. E. L. writes: We force water from a well 70 feet up to a tank by means of a Hooker pump. It discharges into the tank from the top. If the pipe had entered from the bottom about 50 feet of pipe could have been saved, but it was thought by a friend that the pressure from the water in the tank would be too great for the pump. I claimed it would be no greater from its entering the bottom, in fact not so great, unless the tank was kept full. In putting in the pump, the original suction was 2½ inches, and the discharge 2 inches, but he changed it and made the suction pipe the same as the discharge, and said it would be better if the suction was ½ inch smaller than the discharge. This I claim was wrong, and that the suction should be larger than the discharge. A. As you state the cases, we are inclined to agree with you.

(26) M. J. C. writes: Please explain the interior construction of the American steam gauge, or how the steam acts on the interior so as to indicate the pressure on the dial? A. The pressure acts in a coiled elliptical tube, tending to make it round, and the end of the tube is connected to the hand by lever sor rack work.

(27) P. R. writes: 1. I have an old electric battery. I wish to use it for giving shocks, sparks, and for heating small wires. Please tell me how to connect and charge it. The battery consists of a rectangular box (of vulcanized rubber) 12 inches long and 7 inches wide by 9 inches deep; divided into four compartments, two zinc and one carbon plate (6 x 8 inches) for each division, hanging on an insulated brass rod, with knobs of the same metal on each end, resting in bearings at each end of the box. A. You can charge your battery with a solution of bichromate of potash in water acidulated with about one thirtieth of its weight of sulphuric acid. Connect the two zincs of one compartment with the carbon plate of the next compartment, so that one terminal of the battery will consist of two zinc plates and the other terminal will be a carbon plate. A wire connected with the two zinc plates is called a negative pole, and a similar wire connected with the carbon plate is called the positive pole or terminal of the battery. Now if your zincs are thoroughly clean and the connections well made, a very fine shred of platinum placed between the poles so as to be in circuit will become white hot. To give shocks you will need an induction coil (see p. 251, SCIENTIFIC AMERICAN of October 20, 1877), having its primary coil in connection with the poles of your battery. 2. What kind of cement shall I use to repair the box? There are some cracks in the bottom of it. A. Have the box thoroughly dry and clean, and fill the cracks with a mixture of rubber cement and pulverized sulphur.

(28) H. D. I. asks: What is the diameter of the disks in M. Trouvé's moist battery, described in the SCIENTIFIC AMERICAN of October 3, 1877? A. They may be made about 6 inches in diameter.

(29) C. H. B. asks for instructions in preparing paper for taking leaf photographs. A. Pass the paper first through a solution of gelatin, 1 part in 20 parts of hot water, and use a strong solution of potassium bichromate; or the gelatin and bichromate may be used

together. Wash with hot water. A strong blue background may be produced as follows: Dissolve in 2 ozs. of pure water 120 grains of red prussiate of potash (potassium ferrocyanide), and separately 140 grains double citrate of iron and ammonium in 2 ozs. of water; mix the solutions, filter, float the paper for a few minutes on the filtrate; print from the dried paper as before, and wash thoroughly in water. By adding a little phosphoric acid to the bichromate solution and exposing the print before washing to the vapor of a hot solution of aniline in alcohol, a blackish-green or red positive is obtained. Or, prepare the paper with solution of iron sesqui-chloride, and develop after exposure with a very dilute solution of silver nitrate. Use plain photographic paper.

(30) J. B. N. asks: What is the method of proportioning pulleys of different sizes, so that the same belt can run on all without change of length? A. Draw vertical lines parallel to each other and an equal distance apart; these will represent the center lines of the width of the steps upon the cone. Draw at a right angle to these lines and passing through about the center of their lengths a horizontal line, representing the axis of the cone pulley. Set the compasses to the radius of the largest step of the cone, and from the intersection of the end vertical line and the horizontal line used as a center, place on that vertical line a mark above and below the horizontal one. These two lines will represent the diameter of the largest step. Set the compasses to the radius of the smallest step required on the cone, and mark off in a similar manner the diameter of the smallest step required on the cone. Take a straight edge and place one edge even with the intersections of the vertical lines at each end with the lines marked by the compasses, and then draw a line intersecting the intermediate vertical lines, and the intersections of the lines drawn from the straight edge with the vertical lines will show the required diameter for each step of the cone.

(31) C. W. writes: A lubricant which I have been using, when it comes in contact with brass, turns it green. What is the cause? A. Probably the presence of a certain amount of moisture in the lubricating oil, causing the brass to oxidize.

How can I make a conductor to draw off frictional electricity? A. Brush some gum water over the outside of a base ball. When this is almost dry, roll the ball on gold leaf so that the ball will be covered with a smooth layer of gold; then mount the ball on a stick of sealing wax, setin a little wooden disk or base. Then on one side of the equator of the ball insert five or six cambric sewing needles, so that they will be about ⅛ inch apart; these needles act as a comb to conduct the electricity to the gold leaf on the ball, from which the electric sparks may be drawn. In some establishments where leather belts are run at a very high speed, electricity is produced on the belts. If the conductor that we have just described be placed with its row of needles near to, but not touching, one of these belts, the electricity of the belt will be accumulated, and will manifest itself in the form of the bright blue sparks, several inches in length, that pass from the conductor to the knuckle of the hand that is presented to it.

(32) D. J. K. asks: With what shall I oil a black walnut case? A. Raw linseed oil. Sometimes a little turpentine is added, in the proportion of 1 gill to 1 quart of the oil.

(33) L. H. wishes to know what to line wooden battery tubs with, to make them water-tight and protect them from acid. A. Use paraffin wax, applied hot.

(34) F. C. S. asks: What is the rule for calculating the change wheels for a compound screw cutting lathe? A. Divide the pitch of the thread to be cut by the pitch of the lathe feed screw, and the product will be a proportional number. Then multiply the number of teeth in the lathe mandrel gear by the number of teeth on the smallest gear of the compounded pair, and the product by the proportional number; then divide the last product by the number of teeth in the largest wheel of the compounded pair, and the product is the number of teeth for the wheel to be placed on the feed screw. Or, if the sizes of two wheels are to be found, divide the number of threads you wish to cut by the pitch of the feed screw, and multiply the quotient by the number of teeth on one of the driving wheels, and the product by the number of teeth on the other of the driving wheels; then any divisor that will leave no remainder to the last product is the number of teeth for one of the wheels driven, and the product is the number of teeth for the other wheel driven.

(35) M. D. V. asks: What is the best method of calculating the speed of pulleys, from large to small, and from small to large? A. The speeds of two given wheels are in the proportions or ratios of their diameters. To find the sizes of wheels for a required speed, multiply the speed of the driving wheel by its diameter and divide by the speed required by the driven wheel. The answer is the diameter of the driven wheel. If two pairs of wheels are concerned, divide the speed you require the wheel to run by the speed (in revolutions) of the driving shaft, and the quotient will be the proportion between the revolutions of the driving shaft and the revolutions required. Then take any two numbers that will when multiplied together form a sum equal to that proportion, and one of such numbers will form the relative sizes of one pair of pulleys, and the other of such numbers will form the relative sizes for the other pair of pulleys.

(36) F. K. R. asks: What is the composition used for melting brass to make it retain the size of mould when cooling? I wish to cast the brass in an iron mould, and if it should shrink I could not get it out. A. We know of no composition in use for such a purpose.

(37) C. E. C. asks: What metal or combination of metals should be used for making joints in a sheet lead tank to be used for storing oil of vitriol (66°)? A. Use a solder of 1 part lead and 2 parts tin.

(38) R. H. writes: I wish to make a small boiler for a little engine (cylinder 1 x 1½ inches) which I have constructed. I propose to make it 10 inches high and 6½ inches diameter, and containing 5 one inch flues; it is to be made of cast iron, flues and all. Metal is to be ¼ inch thick. Do you think such a boiler would answer my purpose? I wish to generate steam with a lamp, and I have been thinking that the metal is too thick to do so. Can you tell me of a better way to build a boiler? A. We are not favorably impressed with your plan, and think it would be better for you to build the boiler of wrought iron or copper. You could not conveniently use a lamp for generating steam in the proposed boiler.

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

A. E. A.—It is a zinc blende; silver is present in small quantities.—Package marked Santa Fé contains dogtooth spar and agate pebbles.—F. J. R.—No. 1.—The quartz looks well and may be metalliferous; the sample is not notably so. No. 2.—The powder consists principally of magnesium, calcium, and alkaline chlorides, sulphates, carbonates and silica. It contains also organic matter, ammonia salts, phosphates, iron, and a trace of fluorides. It is not of much value. It is probably the residue from the evaporation of spring water—mineral water.—F. C. B.—The marked sample is an amorphous sand—principally silicic acid. The other is an impure clay—silicate of alumina.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure the receipt of original papers and contributions on the following subjects:

Cuca or Coca. By C. H. E.
A New Source of Power.
The Use of Petroleum as Fuel. By H. B.
Centering for Arches. By P. I. O.
A New Vehicle. By R. B. F.
The Use of Fuel for Steam Boilers. By W. S. C.
The Electric Light. By W. E. S.

HINTS TO CORRESPONDENTS.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number 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 pleasure in answering briefly by mail, if the writer's address is given.

OFFICIAL.

INDEX OF INVENTIONS

FOR WHICH

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

February 5, 1878,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued 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.

Advertiser, clock, J. F. Werner	200,009
Album, J. C. Koch, Jr	199,982
Animal trap, D. McGuire	199,987
Apple paring machine, Goodchild & Hay	199,903
Bale tying machine, F. S. Heath	200,059
Bed clothes clamp, C. M. Bryson	200,025
Bee hive, J. Palmer	200,084
Bee hive, J. P. Stroope	200,004
Binder, Shoemaker & Dodsworth	199,998
Binder, E. H. Thompson (r)	8,072
Blind slats, J. G. Wilson	199,948
Blind stop, W. B. Surdam	200,005
Book binding, J. S. Lever	200,068
Boot jack, M. Ross	199,996
Boring or broaching apparatus, J. J. Love	200,071
Bottle stopper, W. H. Kelley	199,980
Brake coupling, F. W. Eames	200,031
Brake, wagon, S. Gorr	200,051
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Buildings, steam apparatus for, J. W. Faxon	200,037
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Button or stud fastening, R. Boussard	200,023
Caddy, measuring, J. C. Reed	199,933
Can, metallic, C. P. Maxfield	199,918
Car registering apparatus, R. McCully	200,073, 200,074
Car registering apparatus, R. McCully	200,075, 200,076
Cars, safety guard for, Harding & Towell	199,974
Carbureter, Shea & Hamilton	200,000
Carbureting apparatus, M. D. Nelon	199,928
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Celluloid, etc., J. W. Hyatt	199,908
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Cigar support, F. L. Oviatt	200,083
Cigar wrapper cutter, F. Haehnel	200,055
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Cultivator, D. R. Raymond	200,089
Curtain fixture, E. G. Stanley	200,099
Cut-off for flexible pipes, C. Weed	200,113
Door, sliding, S. Smith	200,001
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Engine, steam, J. G. Cooper	199,961
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Glove fastening, G. Havell	200,058
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Hair crimper, I. Kann	199,979
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Harrow, D. Rhodes	199,995
Harrow, G. M. Titus	200,109
Harrow and clod crusher, J. W. Haggard	199,905
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Hatchet, J. C. Chapman	199,959
Heater and steamer, meal, Curtis & Andrews	199,962
Hides, etc., machine for scouring, J. W. McDonald	200,078
Holstways, J. B. Waring	200,112
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Hub, M. D. Golder	200,049
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Ironing machine, W. & J. Coutie	199,898
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Last, T. Dann	199,963
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Lathe chuck for turning stone, E. Rogers	199,935
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Lifting jack, F. S. Yinger	200,117
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