## Business and Personal.

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Magic Lanterns and Stereopticons of all prices. View illustrating every subject for public exhibitions. Profitable business for a man with a small capital. Also lan-terns for college and home amusement. 74 page catalogue free. McAllister Mf. Optician, 49 Nassau St., N.Y.

Lansdell's Steam Siphon pumps sandy and gritty wa-ter as easily as clean. Leng & Ogden, 212 Pearl St., N.Y.

Lipsey "Reliable" Wrench; strong, convenient. Best. Roper Caloric Engine Manuf. Co., 91 Washington St., N.Y.

We intend building a Foundry. Parties having Cupolas, Blowers, etc. for sale, address Victor Machine Co., Niverville, N. Y.

Ice Machines. Clayton & Cook, Daretown, N.J. Corliss Engine Builders, with Wetherill's improve ments, Engineers, Machinists, Iron Founders, and Boiler Makers. Hobt. Wetherill & Co., Chester, Pa.

The Niles Tool Works, Hamilton, O., have secondhand Machine Tools in first class order for sale

Auction Sale of 17 Screw Cutting Engine Lathes, 5 Planers, Engine, Boilers, etc., at 301 Cherry St., Phila., Pa., 11 A.M., Dec. 3d. Send for Catalogue to M. Thomas & Sons, Auctioneers, S. 4th St., Phila., Pa.

Electrical Goods of every description. Annunciators, Bells, Magnets, Batteries, Wire, etc. Finger, Risteen & Co., Melrose, Mass.

For Steam Engines with Corlsss Valve, all sizes, apply to Watts, Campbell & Co., Newark, N.J.

Wanted to Manufacture small Articles or light Machinery (Wood or Iron) on royalty or otherwise. Address Box 401, Westerly, R.I.

Don't Infringe. See notice of Patents on Wood Driers of G. W. Read & Co., on page 380.

Bound Volumes of the Scientific American.-I have on hand about 100 bound volumes of the Scientific American, which I will sell at \$1 each to be sent by express. John Edwards, P.O.Box 773, N.Y.

Wanted .- A New or Second-hand Brown & Sharp No. 1 Universal Milling Machine. Address, giving full par-ticulars and price, Lidgerwood Manufacturing Co., P.O. Box 2,132, N. Y.

Wanted.-A Partner with \$4,000, to buy a half inter est and take the management of a Manufacturing busimess in St. Louis, established several years. A young man with a knowledge of Mechanics and Engineering man with a knowledge of Mechanics and Engineering gearing, and Hydraulic Cylinders where great strength preferred. Address James V. Chalmers, Morgan Iron is required. See their advertisement, page 382. Works, N. Y.

The Best Mill in the World, for White Lead, Dry, Paste, or Mixed Paint, Printing Ink, Chocolate, Paris White, Shoe Blacking, etc., Flour, Meal, Feed, Drugs, Cork, etc. Charles Ross, Jr., Williamsburgh, N. J.

Boilers set with the Jarvis Furnace will burn screen ings and little soft coal without blower

If you have a good thing you wish introduced into Canada, address W.H.Sheppard, General Manufacturer's Agent, 183 Queen St., Toronto, Canada.

A good Machinist or Pattern Maker having \$2,000 may secure % interest in an old, valuable, and pleasant business. For particulars, address T. B. Jeffery, Canal St., Chicago, Ill.

The experiments in testing the efficiency of different Coverings for Steam Pipes at Trinity College Buildings, Hartford, Conn., which resulted in favor of the Chalmers Spence "Air-space" Covering, were conducted under the supervision of F. H. Kimball, the architect of the buildings.

For Sale .-- The Patent of a new Water Elevator. Address P.O.Box 470, N.Y.city.

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Root Blowers, No. 1, 2, and 4; also a No. 5 Sturtevant Blower-all suitable for cupola or forges-and a No.6 Hot Blast Heater, in perfect order, at very low prices. Address Hill, Clarke & Co., Boston, Mass.

Bishop Stave-Sawing Machine for light work, Novelty iron Works, Dubuque, Iowa, sole manufacturers. It makes the best stave, uses less timber, cuts with the grain, and makes 6,000 to 9,000 per day. We also build Barrel Machinewy for "Slack Work," Gauge Lathes, etc. Send us your address for circulars.

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For the best Gate Valves of all kinds, apply to D. Kennedy & Co., 88 John St., N. Y.

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Articles in Light Metal Work, Fine Castings in Brass Malleable Iron, &c., Japanning, Tinning, Galvanizing. Welles' Specialty Works, Chicago, Ill.

Gun and Sewing Machine Tools. Pratt & Whitney, Hartford, Conn.

The Varnishes and Japans of Hyatt & Co., established 1872 ("The London Manuf. Co."), made from scientific formula by a practical maker of materials, free of deleterious substances, are, in the success met with, noted for color, purity, and durability, with cheapness, giving them meritorious pre-eminence. Try them. Send for circulars and price list to Company's office, 246 Grand street, N.Y.

C. C. Phillips, 4,048 Girard Ave., West Phila., manu factures Vertical and other Burr Mills adapted to all kinds of grinding: also Portable Flouring Mills

Wind Engines, for general use, where economy and regular power is required. Estimates given and print-ed instructionsfurnished. Territorygranted. Apply to S. W.Kennedy, 516 Fairmount Ave., Philadelphia, Pa.

Silver Solder and small Tubing. John Holland, Cin cinnati, Manufacturer of Gold Pens and Pencil Cases Diamond Saws. J. Dickinson, 64 Nassau St., N. Y.

Patent Scroll and Band Saws. Best and cheapest in Cordesman, Egan & Co., Cincinnati, O. use.

For Boult's Paneling, Moulding, and Dovetailing Ma chine, and other wood-working machinery, address B.C. Machinery Co., Battle Creek, Mich.

Chester Steel Castings Co. make castings for heavy



(1) H. S. asks: What is the cause of a per. son sweating after death? There was a case of that kind in our settlement and it was thought very strange. A. Probably it was caused by the condensation of vapor on the cold surface of the body, similar to the action in the case of a pitcher filled with ice water.

(2) R. C. A. asks why the drive wheels of a  $+[(0.34-0.034)\times0.25 \text{ of } 6.]$ notive grip the rails when the cranks are down, and slip when up? A. It is due to the action of the counterbalance.

(3) W. W. W. asks for a recipe for cleaning kid gloves? A. Wash them in benzine.

house on my hands, although not an old one. The foundation having given out, I determined to take it ly alkaline. down and build a smaller one, using the same bricks. The brick work is now done, but the old mortar shows very much on the brick, more especially on the head-Is there any way of cleaning off the old mortar ers. with acid, and what acid, what proportion, and how done? A. It would be very difficult to clean the old lime off so as to look well. It would be better to clean the house a light cream color. However, if you can touch the red spots with a little red paint of the color of the brick, you could then give the house a coat of linseed oil.

(5) W. G. R. says: In painting on china with oil colors I find that the paint will not stick, or rubs off. Can yougivea recipe to prepare the object so as to make the painting adhere without burning? A. You might scratch the glaze with fine emery paper and bear a strain of from 10,000 to 12,000 lbs., if the ends applying colors to china except by burning them in.

(6) W. R. K. says: I am desirous of becoming a surveyor, can you tell me where I can learn? sion of exhaust steam in the cylinder retard the motion A. It is a very common plan for one who desires to obtain practice in surveying to join a surveying party in the lost motion? I find my engine runs smoother with some humble capacity, and work his way up. There are also technical schools in which The profession, like most others, has some vacant seats in the front row.

salmon trout belong to the genus fario, having one row of teeth on the vomer, true salmons having a smooth j

palate. It is very much larger than the true trout, of a different color, and is found in larger lakes and rivers. Its habits resemble those of the salmon. There are several species of salmon trout in the lakes of Maine. The brook trout is the salmo fontinalis, and inhabits streams. To the genus salmo also belong the char of the British and Swiss lakes, the gray trout or togue, and the siskiwitof our own great lakes.

(11) T. G. B. asks: Is there such an instrument as an oblong square? A. No.

Does not the wheat crop of California exceed that of Michigan? A. Yes.

Which are the most valuable, the copper mines of Michigan or the gold mines of California? A. The gold mines,

(12) H. W. W. asks how to prepare electroplates from engravings on lead? Have obtained an impression with plaster of Paris, but cannot copper plate A. Take your impression in beeswax and dust it lightly over with finely powdered plumbago. There should then be no difficulty in obtaining a copper deposit in a suitable bath.

(13) E. T. H. asks for a recipe for polishing show cases of German silver? A. A good polishing powder consists of rock alum, burned and finely powdered, 5 parts; levigated chalk, 1 part. Mix. Apply with a dry brush.

(14) H. F. B. asks: How to mix paints? A. Buy your paints ready mixed insealed cans in colors to suit your taste.

What is the best and shortest way of building a coninued stairway? A. To learn how to build a stairway with continuous rail, you require a treatise on stairbuilding. If, however, you send the dimensions set apart for your stairs to a stairbuilder in this city, he can furnish the stairs for you, and send a man to put them up. Consult a New York business directory if you do not find what you want in our advertising columns.

(15) R. W. asks for a method of rendering canvas or cotton goods impervious to water, yet pliable? A. Plunge the fabric in a solution containing 20 per cent soap, and afterward into another solution containing the same percentage of sulphate of copper. Wash afterwards.

swer to the following example? 714-714+('34-034× ; The vapor must be passed through a glass worm sur-25 of 6.) The above said example was given at an examination at the Oshkosh State Normal School, and a dispute arose as to how it should be solved. The fol-

lowing are the solutions of the disputants; First, 714-714-713-286 34-034=306 25 of 6=15 306×1\*6=459 713-286+459=1554; answer. Second. 25 of 6=1.5 . 054 × 1.5=0.51 .34-051=.289 .714+289=2.47058+ .714-2.47058+=711.52942+ answer.

Should the signs of multiplication and division have preference to those of addition and subtraction? A. The second solution is the correct one. For the first solution the example should be given thus: (714-0714)

(17) H. S. asks how to make a powder or solution whereby he can silverplate without a battery? A, Mix 1 part of chloride of silver with 3 parts of pearlash, 11/2 parts common salt, and 1 part whiting. Rub the mixture on the metal, previously well cleaned (4) B. T. M. says: I had a large brick by means of a piece of soft leather. When properly silvered the metal should be washed in hot water slight

> (18) C. S. F. says: The indicator on my team gauge before using was down to the pin (zero). After a few days' use it rests at 10 with the boiler empty. Can I safely consider it as indicating 10 lbs. too much under all pressures? It is in working order. A. You cannot, in the absence of a test.

(19) A. A. W. asks whether any better results would be obtained in setting the valves of a locomotive for fast passenger trains, by giving the backing eccentric more lead than the go-ahead one? A. Other things being equal, we think not.

(20) A. A. asks: What is the strength of a band of wronght iron 2 inches in width and  $\frac{1}{26}$  about (or No. 10, I think) in thickness? A. It should be able to The mineral is extensively used in the manufacture of use thick colors; but there is no way of permanently are properly welded; a little more than 1/2 as much if It is the chief constituent of many anti-friction powthey are secured by rivets.

(21) J. W. P. asks: Does not the compres of the engine, and is it a disadvantage only in taking up compression, but I do not know about its economy of with much pleasure, the receipt of original papers and fuel. A. It is economical to cushion to a certain ex- contributions upon the following subjects: tent. Compression beyond the economic point is frequently required, in order to make the engine work well.

welding if the parts are cleaned on leaving the fire with a steel wire brush; try borax as a flux,

(25) G. C. says: 1. Please inform me if I will get more pressure of water by having my tank bottom made like a funnel, and have a pipe from bottom to my feed pump, than to have it flat? A. No. 2. Also do I want more space for exhaust to escape from heater with two engines than from one, using same steam on both, as one? A. No. 3. Also if one engine has more strokethan the other, will it work all right, both on same shaft, crank on each end, one 8 x 17 and one 10 x 15? A. It can be made to do so. 4. Can 1 run two engines with as much economy, providing one would do the work? A. Generally, no. 5. I have two rigged up, one 8 x 17 and one 10 x 15; which should I run if only one? I use two boilers, locomotive built. A. It makes very little difference, if they are equally well designed and built. 6. Please say how fast I should run both, and how fast one if used alone? A. You can run them at a piston speed of between 400 and 500 feet per minute, if they are properly constructed.

(26) 'I'. E. M. says: A friend has a horsechestnut tree in front of his house, a limb of which points toward the west. In the winter, when the weather gets down to zero, the limb turns about 7 inches toward the south: when it becomes warm againit resumes its former position. Will you please give me some explanation? A. The phenomenon may be due to unequal contraction in the trunk of the tree or ground.

(27) E. F. says: I have a small seed microscope with 2 lenses,  $1_{\overline{16}}^{5}$  inch in diameter and 214 inch focus. Can I make a camera Obscura with them? A. No

How thick is a bound volume of the SCIENTIFIC AMERICAN? A. 11/2 inches including covers.

(28) D. F. asks: How is gaseous ammonia made? A. Place a quantity of ammonia water in a re-tort and apply heat. Thegas will immediately begin to come over; it is nearly all expelled from the water by boiling for a few minutes. Ammonia is also obtained by heating ammonium carbonate or chloride (sal ammoniac) with a solution of caustic potash. 2. How can I make gaseous chloride? A. If you mean chlorine, heat an ounce of peroxide of manganese with an equal weight of hydrochloric acid. Chlorine is very poisonous when inhaled. 3. How can I distil chloroform? A. (16), H. R. H. asks: What is the correct an- Place the chloroform in a glass retort gently heated. rounded by water, which condenses it,

> (29) E.S. asks how to tin cast iron pipe? A. File brightthepiece of iron required to be tinned, and mix up the following solution: In a small quantity of spirits of salt, put a piece of zinc the size of a quarter dollar: the spirits of salt will eat it away: wet the places required to be tinned with the solution, then while wet use a copper bit with fine solder, and it will immediately tin.

> (30) N. B. asks for a good freezing mixture? A. Pounded ice, salt, and a little sal ammoniac, or ice and hydrochloric acid.

(31) A. J. wishes to polish mother of pearl? A. Go over it with pumicestone finely powdered, and make it very smooth; then apply putty powder and water by a rubber, which will produce a fine gloss and good color.

(32) B. F. asks for a cheap invisible black ink? A. Dissolve 1 fluid oz. of common oil of vitriol in a pint of soft water. Stir well and allow to cool. Write with a clean pen. When dry it will be invisible; held to the fire it turns an indelible black.

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

L.H.-Itisquartz-of little value.-J.H.M.-A is a sandstone containing scales of mica. B is a limestone with small particles of marcasite. An analysis would be necessary to determine the exact composition of the samples.-C. M. H.-It is an alloy of tin and lead; the amounts of each can only be determined by a chemical analysis .- E. B.- No. 1 is homblende. No. 2 is hausmanite-an ore of manganese.-J.S. H.-The rock contains much graphite, and can probably be economically worked .- E. J. F.-It is a ferruginous sand. It does not contain precious metals.-H. F. L.-It is partially altered fibrous talc-a hydrous silicate of magnesia. writing paper and fireproof roofing paper and paints. ders. See p. 309, current volume of the SCIENTIFIC AMERICAN.

### COMMUNICATIONS RECEIVED.

The Editor of the Scientific American acknowledges

Scientific American.

For Town & Village use, Comb'd Hand Fire Engine & Hose Carriage, \$350. Forsaith & Co., Manchester, N. H.

Best and Cheapest Wagon Tire Upsetter, only \$12. Circular free. H. W. Seaman & Co., Millport, N. Y.

John T. Nove & Son, Buffalo, N. Y., are Manufactur ers of Burr Mill Stones and Flour Mill Machinery of all kinds, and dealers in Dufour & Co.'s Bolting Cloth. Send for large illustrated catalogue.

Power & Foot Presses, Ferracute Co., Bridgeton, N. J.

Solid Emery Vulcanite Wheels-The Solid Original Emery Wheel - other kinds imitations and inferior. Caution.-Our name is stamped infullon all our best Standard Belting, Packing, and Hose. Buy that only, 'The best is the cheapest. New York Belting and Pack-ing Company, 37 and 38 Park Row, N. Y.

valuable for strength and durability. Circulars free, atmosphere grows colder. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

Williams, cor. of Plymouth and Jay Sts., Brooklyn, N.Y.

Lathes and Machinery for Polishing and Buffing metals. E. Lyon & Co., 470 Grand St., N. Y.

Reliable information given on all subjects relating to Mechanics, Hydraulics, Pneumatics, Steam Engines, and Boilers, by A. F. Nagle, M.E., Providence, R. I.

(7) I. G. R. says: I have a mill and well which stand 160 yards from the bed of the creek; from the bed of the creek to the top of the well is 30 feet. The well is 38 feet deep, 8 feet below the bed of the creek. Can I draw the water from the creek into the well by a siphon? A, Yes.

(8) S. A. H. can free his pot plants from lice by enclosing them in a tight chamber and fumigat ing them with tobacco smoke.

(9) E. R., in answerto R. P. N., says that the Indian summer is caused by the heat which is absorbed Steel Castings from one lb. to five thousand lbs. In- by the Lakes, which is given off during the fall as the

ittsburgh Steel Casting Co., Pittsburgh, Pa. In answer to W. A. P., who inquires what angle the For Best Presses, Dies, and Fruit Can Tools, Bliss & under side of the teeth of an upright saw should make with a horizontal line, E. R. suggests to make the angle Hydraulic Presses and Jacks, new and second hand. 2°, and to hang the saw forward for cutting softwood. (10) I. J. I. asks: What are the different kinds of trout and do they belong to the same species?

What is the difference between the salmon and the salmon trout? A. All trout are but a species of the sal mon family, inhabiting principally fresh water. The

(22) I. T. S. asks whether a reciprocating engine can be so balanced at a given speed as to stand steady? A. A horizontal engine can be so balanced that there is no tendency to move in a horizontal direction, and if it is sufficiently heavy, it will also be steady in a vertical direction.

(23) S. B. asks: 1. Has an artificial rain- address of the writer should always be given. bow ever been produced? A. Yes; by projecting a eam of whitelight through water in the form of very fine spray. 2. Can it be produced, and how? A. See the SCIENTIFIC AMERICAN SUPPLEMENT No. 52, and Sci. are thrown into the waste basket, as it would fill half of ENCE RECORD for 1874 and 1875.

by water power) to produce the electric light? A. Six- is given.

ty to one hundred carbon or Grove cells are connected in series-the zinc of the first and the carbon of the next, and so on. A wire from either end of the series to the lamp completes the circuit.

(24) W. M. says: I have got Bessemer steel shoes ready made for my horse, but the blacksmith the charge mentioned at its head. cannot weld on caulks of common steel of the Bessemershoes. A. There should be no difficulty in the

On a Method of Ventilating Rooms. By H. E. V.

#### 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

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, our paper to print them all; but we generally take pleas-1. How can I construct the simplest machine (to work , ure in answering briefly by mail, if the writer's address

#### WANTS AND BUSINESS INQUIRIES.

Almost any desired information, and that of a business nature especially, can be expeditiously obtained by advertising in the column of "Business and Personal," which is set apart for that purpose subject to

We have received this week the following inquiries, particulars, etc., regarding which can probably be elici-

# Scientific American.

ted from the writers by the insertion of a small adver- Packing case, J. 1. Berry ...... tisement in the column specified, by parties able to sup- Paddle wheel, H. Marcotte.... Paddle wheel, H. Marcotte.... 196.81 ply the wants: Pail, scrubbing, F. N. Burk ..... 196,78 Who makes "Colard Slides " for magic lan erns? Paper dish, Crume & Aulabaugh ..... 196,880 Where can Stephen's writing fluid be bought at wholesale? Whomakes small steam propellers? What is the address of D. S. H., who inquires about gas purifiers in our issue of December 1? OFFICIAL. INDEX OF INVENTIONS Planter and grain drill, sulky corn, T. Terry... ... 196,954 FOR WHICH Planter, corn, H. Jones..... 196,908 
 Planter, corn, S. Rydbeck
 196,338

 Planter, cotton, J. W. Elliott.
 196,868

 Planter, cotton, D. W. Reed.
 196,963
 Letters Patent of the United States were Granted in the Week Ending Planter, cotton.seed.and corn, J. R. Palmero..... 196,823 November 6, 1877. Planters, check row, E. M. Wilcox..... 196,849 AND EACH BEARING THAT DATE. Plastic composition, mixing, A. Dietz ..... 196,882 Plate lifter, W. Beattie..... [Those marked (r) are reissued patents.] Plow, R. Coreth ...... 196,744 A complete copy of any patent in the annexed list including both the specifications and draw ngs, will be .. 196.934 furnished from this office for one dollar. In ordering, please state the number and date of the patent desi (d, and remit to Munn & Co., 37 Park Row, New York city. Adze eye tools, die for forging, D. Maydole ..... 196,917 Potato bug gatherer, H. Charles, Jr..... 196,876 Potato digger, H. More..... 196,760 Pulley, counter shaft, G. Soger..... 196,772 Pulpengine, S. L. Gould. 196,752 Pump, force, J. Tallent. 196,953 Barrel machine, J. Naylor, Jr.... 196,927 Rein holder, G. Jennings...... 196,806 Rock drill, U. Cummings..... Roofing tile, H. Stripe..... 196,773 Sad iron, L. Passmore...... 196.763 

 butter worker, K. W. Barnard
 196,859
 Canopener, J. P. O Lownsdale
 196,915
 Saw teeth, insertable, W. Hawkins.
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 Canopener, J. P. O Lownsdale
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 Can or vessel, metallic, C. P. Maxfield
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 196,895

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 Saws, scroll, J. R. Vellacott
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1878. Scales, weighing, C. L. Bellamy ..... 196 Car. railway box, S. W. Murray...... 196,926 Curs. steam plowing attachment, S. T. Shankland 196,836 Scoops, making wooden, R. Richardi (r)..... 196,940 Corkscrew and extractor, combined, N. Oak..... 196,761 Cartain fixture, J. Reichert.... ..... 196,768 Curtain roller and bracket, R. E. Abbott..... 196,737 Ditching machine, G. W. Nevill ..... 196,922 

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 196.764

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 Stirrup, H. M. Hollingsworth.
 196.900

Elastic fabrics, manufacture of, M. E. Bowra.... 196,871 Electric engineering, W. E. Sawyer ..... 196,834 Feed water regulator, Gorriti & Unanue ..... 196,797 Fire places, fender for, H. Adler .... 196,738 Fire pot and water heater, E. P. Doyen ...... 196,884 Fireman's helmet and dress, J. Bechtold ...... 196,862 Tobacco, drying, R. Dunlop..... 196,746 Tombstones, etc. pictures in, J. D. McClain..... 196,919 Torpedofor oil wells, C. A. McCoy...... 196,815 Floor, fireproof, E. Gleason ..... 196,750 Toy money box, J. H. Bowen..... Toy scroll sawing machine, S. N. Trump (r)..... Flower pot, W. F. Russell ..... 196,937 ..... 196,870 Furnaces, L. C. Taber... Furnaces, fuel feeder for. R. Morgan. . 196.924 Transom lifter, J. F. Wohensak..... 196,851 Furnaces, feeding air to boiler, H. F. Hayden.... 196,897 196.770 ..... 196,931 Gas burner, W. G. Pugh ..... Gas burners, reflector for, W. E. Prall..... 196.765 Tube machine, McC. Young..... 196,853 Tucker, E. A. Vance..... Bos Grain, scouring, M. D. Beardslee ..... 196-860 Grain band, W. A. Sutphin ..... 196,949 Grain separator, J. L. Booth ..... 196.779 Gun, double barreled, Fox & Wheeler..... 196,749 1.0COMOUTES ON Survey Linear ways. The undersigned, being largely interested as engineer to tramway companies in Europe, would be glad to cor-respond with makers of engines suitable for Passenger tramways. JOSEPH KINCALB, Civil Engineer, 11 Great George St., Westminster, London. Harnessbreast strap, A. G. Ritz..... 196,93 Velocipede, Smith & Thurston..... 196,943 Hat-pressing machine, H. A. Jamieson..... 196,755 Hay elevator aud carrier, C. Kistner...... 196,910 PHOTOGRAPHIC APPARATUS, latest inven-PHOTOGRAPHIC APFAKATUN, latest inven-tion. Anybody can operate it with perfect suc-cess. Complete outfits from \$5 to \$30. Chromo Photography outfits \$3; Hellograph \$2.50. Send tamp for full information to E. SACKMANN & CO., Manufacturers, 2'8 Pearl St., N. Y. Hinge, Fahnestock & Peckham ..... 196,791 Horse power, J. H. Elward ... Horse condition powder, J. H. Marshall..... 196,916 Horseshoe nails, finishing, S. S. Putnam...... 196,932

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