#### Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue

Prof. Vose, in the preface to his "Manual for Railread;Engineers," says that Trautwine's "Civil Engineer's Pecketbeek" is "beyond all question the best practical manual for the engineer that has ever appeared." alse Trautwine's "Railread Curves" and "Earthwerk."

#### An Irishman's Bull,

We are surrounded by difficulties and dangers, said Pat. from the cradle to the grave, and the only wonder is that we ever live long enough after leaving the one to reach the other. The greatest danger lies in allowing the seeds of disease to be sown in our system. If you feel dull and drowsy, have frequent headaches, bad taste in mouth, coated tongue, poor appetite, you are suffer ing from a torpid liver. Take Dr. Pierce's Medical Discovery" if you would destroy those seeds and avoid reaping a harvest of suffering and death.

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Referring to the patent decisions in our favor in the English courts, mentioned in the issue of this paper of Dec. 4, and with a view of removing further inducements for infringements of our patents, we have so farperfected our "Little Wonder," or \$100 machine, that we can guarantee greater results than nave ever been obtained at anything like the price. Please send for catalogue Hanson, Van Winkle & Co., Newark, N. J.

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Boilers for sale .- Excellent, Rebuilt, Second-hand.

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One 100 H. P., 5' x 18', 3'' tubes, \$\$50.

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Three 50 H. P., 4' x 16', 3' tubes, each, \$300, \$325, and

Four 45 H. P., 4' x 15', 3" tubes, \$275, \$300, \$325, and \$350 •ne 40 H. P., 4' x 13', \$275. •ne 30 H. P., \$250.

Vertical Boilers. Three 150 H. P., Corliss, 2" tubes, each \$500. Three 125 H. P., 2" submerged tubes, each, \$575. One 100 H. P., 2" tubes, \$550. One 60 H. P., 2½" tubes, \$400. One 25 H. P., 2½" tubes, \$300.

Locomotive. Fire Box Pattern. Three 100 H. P., 4' tubes, \$500, \$550, and \$600. Three 90 H. P., 3' tubes, \$650, \$700, and \$700. Five 80 H. P., 2' tubes, \$600 each.

●ne 50 H. P., 3" tubes, \$575. Engines and beilers, pertable and stationary; weedwerking and general machinery. Send for estimates, stating exactly what you want. W. E. Drew, agent S. C. Fersaith Mach. Co., Manchester, N. H.

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# Protection for Watches.

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The Knowles Steam Pump Works, 44 Washington St., Besten, and 93 Liberty St., New Yerk, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

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Curtis Pressure Regulator and Steam Trap. See p. 142. Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenten Iren Cempany, Trenten, N. J.

Best Automatic Planer Knife Grinders. Pat. Face Plate Chuck Jaws. Am. Twist Drift Co., Laconia, N. H.

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If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Breadway, New York.

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Safety Elevators, steam and belt power : quick and mooth. D. Frisbie & Co., 112 Liberty St., New York.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 93 John St., N. Y. Supplement Catalogue .- Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the Sci-ENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

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Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

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#### HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Written Information on matters of

or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be held at the affice. Price 10 cents each.

to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of Minerals sent for examination should be distinctly

(1) E. E. C. asks if a person weighs any

more after eating a hearty meal than before, and is it the same with drinking as with eating? A. Immediately after eating or drinking, a person weighs more than before it.

(2) H. M. W. asks under what pressure gas for illuminating purposes is usually kept in the mixture of salt 1 part, alum 1 part, saltpeter 2 parts, city mains. Also whether such gas is wastefully soluble in water if the two are in juxtaposition. A. The pressure of illuminating gas in street mains varies from 1 to 4 inches of water. It is not wastefully soluble in

(3) J. H. B. says: In a life of the Empress Josephine I have recently read, it is stated that on the 9th of November, 1799, the President of the Directory and guests were surprised by receiving "a telegraphic announcement that Bonaparte had that day vatch. Experimental exhibition and explanation at landed at Frejus." Was not that date prior to the use Anti-Magnetic Shield & Watch Case Co.," 18 John St., of the telegraph? A. The telegraph then used was the of the telegraph? A. The telegraph then used was the New York. F. S. Giles. Agt., or Giles Bro. & Co., Chicago, semaphore, or visual telegraph. Posts or spires on where full assortment of Anti-Magnetic Watches can which were movable arms were employed to convey which were movable arms were employed to convey intelligence.

> (4) W. B. writes: I have some bone black from which I wish to make a porous receptacle for the absorption of gases. I wish to make it as porous as is consistent with durability. What substance shall I use to make it adhesive, and in what proportion? Can this substance be baked out in a common oven, or will it require greater heat? A. Mix the bone black to a thick stiff paste with molasses and water, or with coal tar. Then, after shaping, it must be baked at a red heat. This can be done in a good fire by inclosing it in a vessel and covering it with aqua ammonia, or an ammoniacal solution of basic charcoal or sand. An ordinary flower pot might answer as containing vessel for baking at home

(5) X. Y. Z. asks: 1. Where can I find a good account of the isolation of fluorine, recently hinted at in Nature? A. See the Chemical News, current volume, pp. 36 and 51. The original papers appeared in the Comptes Rendus of the French Academy furniture on which is what appears to be a very fine of Science. 2. Have or have not diamonds been made in the laboratory? A. See the information on this sub- that the inlaid work is first sawed out and then put Wrinkles and Recipes. Compiled from the Scienti- ject in Scientific American Supplement, Nos. 216 into some kind of black wax, and all polished, which FICIAMERICAN. A collection of practical suggestions, and 218. 3. What is the present accepted number of presents a very fine appearance. How is the work hemistry eight, but there are several elements since claimed to then attached to the work by means of glue; the wax be isolated, whose existence is not altogether accepted. used is ordinary sealing wax carefully applied to the 4. The highest temperature obtained by the electric interstices with a hot tool. The secret of the work lies arc? Also by combustion? A. By combustion practic in the skillful application of the wax and in the subcally between 2,000° and 2,500° Centigrade. By the electric arc, undetermined, but far higher. 5. How many products have been obtained from the distillation of coal, in making illuminating gas? A. Their name is legion. See article on gas, by Professor C. F. Chandler, in Johnson's Cyclopedia.

(6) C. E. McC. asks what size of cottoncovered copper wire he must use on magnet in short circuit to get greatest drawing power, with one or two cells gravity battery. A. The size of wire to be See Supplement, No. 569, for information about chain used on electro-magnets depends upon the size of the casting. magnet covers. We should recommend No. 16 or 18 wire as probably adapted to your wants.

tion for copper electro-plating, also if one "crowfoot" battery has power enough for experimental work. A. according to the position of the link slide, which gov-For copper plating, a solution of sulphate of copper is erns the throw of the valve, and also the cut-off. This required, obtained by dissolving blue vitriol in water. is entirely under the control of the engineer through the One crowfoot battery will answer for experimenting.

(8) T. N. C. desires (1) a receipt for a varnish for brass. A. An excellent brass lacquer consists of 8 ounces shellac, 2 ounces sandarac, 2 ounces annotto, 1/4 ounce dragon's blood resin, 1 gallon spirits of wine. The article to be lacquered should be heated slightly, and the lacquer applied by means of a soft generating hydrogen gases for inflating toy balloons? A. Fill a bottle about one-quarter full with zinc turn ings, then pour water half way up the bottle and add a few drops of sulphuric acid. Fill the opening of this bottle with a cork through which a glass tube is | A. On a good land telegraph line of length equal to made to pass. The generated hydrogen will escape up the tube, and then can be collected in the balloon.

(9) B. A. H. asks (1) directions for making wax moulds for moulding plaster centers for ceilings. A. Plaster centers are monlded in plaster moulds, oiled with linseed oil. In making an hibitions, Sunday schools, colleges, and home entertain- original design, you may use beeswax and whiting melted with a few drops of oil to soften, so that it may be worked. Clay is also used for designing patterns; oil the clay pattern before pouring on the plaster of Paris. 2. What thickness would a cast iron box 6 inches by 6 inches inside have to be made to hold 330° of steam heat? A. 330° heat in steam is equivalent to 90 pounds pressure; your box, if a cube, should have ference will there be in the current, if the space between the inside corners rounded, and be about 34 inch thick for safety.

> (10) A. S.—We know of no iron cement made as you describe. A strong, apparently welding cement may be made as follows: Take equal parts of flour sulphurand dry white lead with one-sixth part atmosphere? A. There is no difference in the compoof borax; incorporate thoroughly in a mortar. When used, add to as much as you require for immediate use, sulphuric acid just enough to make a paste, which spread thinly on the surface and press them together with clamps. In 4 or 5 days the joint will be strong, and appear as if welded.

(11) W. P. J. asks why a loose pulley of certain size, or a wheel such as is used on a band saw machine, shakes when running a certain speed, whereas if the speed is decreased oringreased the vibration ceases. A. The cause is the synchronism between the time of revolution of the wheel and the vibration of the band saw. At the speed in which they correspond. the vibration of the band is increased. This phenomenon often takes place with belting, sometimes extending to the floors and the building. We know of a case where at a certain speed of the engine the walls of a building shake.

(12) J. C. V. asks: 1. How can I restore the polish on opals blurred and scratched by wear? A. By rubbing with oxide of tin or putty powder on a piece of chamois skin, wet; finish with refined chalk, also on chamois skin, wet, then wash the opal with a soft brush and water. With a little care this may be done without taking it from the setting. 2. How can the original white color of silver filigree jewelry be restored when tarnished by wear or shop worn? A. Firs wash the articles in a solution of 1 fluid ounce of liquid potassa in 20 of water, rinse, and then immerse in a dissolved in 4 parts water. Let them remain for five minutes. Wash in cold water, and dry with chamois leather. 3. Is there any metalthat is oppositely affected from steel by heat? In other words, is there any metal that contracts from the same cause that steel expands. or are there any two metals that are oppositely affected by heat and cold? A. No. 4. Does glass expand and contract enough in hot and cold weather to materially affect a glass pendulum? A. Glass expands less than any metals by heat, but is not as good as dry lanceood, varnished with shellac, for pendulums.

(13) H. E. T. asks if there is anything that can be practically used as a substitute for eggs in plum puddings, etc., and where it can be obtained, or how made. A. There are various so-called egg powders in the market, but they are of no great value, and we know of no satisfactory substitute for eggs. An old fashioned receipt for plum pudding without eggs  $\,$ is a cupful each of suet, flour, sugar, raisins, currants, one-half cupful of citron, with spices, and then add just enough milk to make it of the consistency of cake. Finally add two teaspoonfuls of baking powder and boil for three hours.

(14) H. B. B.—Either a solution of cupric oxide, i. e., black oxide of copper, dissolved in cupric sulphate, possesses the property of dissolving cellulose. This solvent power increases with the amount of copper in the solution. We would advise you to have the solution made up by some competent druggist.

(15) C. M. K. writes: I have a piece of piece of inlaid work, but on close examination I find The inlaid iccome sequent finishing.

(16) W. D. G. asks if there is any practical way of making chain with the links solid, or without welds or soldered joints. A. Solid link chain is now made by malleable iron works for special purposes by It is not as strong as welded test chain, but answers for special purposes. We know of no way of completing a wrought iron chain without welding. Every other link may be made solid in a drop press.

(17) C. G. writes: Where a locomotive engine is running at the rate of say 50 miles an hour, is (7) G. F. E. asks how to prepare a solu- not the valve cut off by link motion, so it does not travel whole length of its stroke? A. The valve travels i link lever, and has nothing to do with the speed of the

engine, but to control it by shortening or lengthening the cut-off by the stroke of the valve. You are right.

(18) W. M. S. desires a recipe for a quick drying varnish. A. Use the following: Pulverize 1 ounce sandarac, \* ounce mastic, 14 ounce elemi, dissolving them in 1/2 ounce Venice turpentine, and addcamel's hair brush. 2. A cheap, simple method for ing to it a solution of 4 ounces shellac and 3 ounces oil of lavender in 12 ounces alcohol.

> (19) B. G. asks: How long will it take for a tap on the telegraph wire to go around the world? the circumference of the earth, about one second would be needed. Ocean cables would considerably increase this, even to several seconds.

> (20) J. H. M. asks: Will you please inform me what combination of metals, spirits, or chemicals is the most and quickest, or most sensitive to heat and cold as to expansion or contraction, that would act on the principal of the thermometer? A. The question is too indefinite for answer. The expansion of a gas is, in general terms, the most sensitive indicator of heat.

> (21) W. L. asks: In reference to the dynamo described in Supplement, No. 161, what difthe armature and field magnets is  $\bullet$ ne-sixteenth inch or a little over? A. A clearance of one-sixteenth inch is not too much for efficient working.

> (22) W. H. N. asks: What is the difference between the composition of the wind and the sition; wind is atmosphere in motion.

#### TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for paents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. MUNN & Co., office Scientific American, 361 Broadway, New York.

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December 21, 1886,

## AND EACH BEARING THAT DATE.

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P. Bullock	. 354,825	Sewing machine, Willcox & Glbbs	. 3 <b>54</b> ,589 :
fireplace heater. Parlor heater.  Heel nailing machine, F. F. Raymond, 2d  Helmet, safety, Runge & Stude		Gibbs  Sewing machine ruffling attachment, W. R. Parsons	-
Holder. See Pen holder. Sash holder. Holder for rings, bracelets, etc., J. McConahy	354,799	Sewing on buttons, method of, A. A. Brown Sextant, H. Hutchins	354,532 354,632
Hot air fireplace heater, W. A. French  Ice machine, T. L. Rankin	354,632	Shoe or boot, C. H Fretz	. 354,874 . 354,832
Indicator. See Station indicator. Ingot mould, J. Sabold	o <b>354,74</b> 3	Show case, W. S. Grove	. 354,635 . 354.653
Ironing board, J. H. Cable Ironing board, J. C. Near	354,566	Signal, Trude & Cooley	. 354-816 . 354,591
Ironing table, D. C. Woodward	354,790		. 354,707
Apoll.  Knife. See Mowing machine knife.			. 354,675

mes, J.	004 544	A D Smith	251 042
• • • • • • • • •		A. P. Smith	
· • · · · · • · · · · · · · · · · · · ·		Spoke socket, C. S. Kershaw	
		Spring. See Vehicle spring. Wagon spring.	002,104
		Starch, machine for packing, P. H. Grimm	354,634
		Station indicator, G. T. Clark	
ter		Steam beiler, W. J. Chapman	3 <b>54,6</b> 86
	354,629	Steam, water, and dirt separator, combined, R.	
· · · • • · · · · ·		Newton	
		Stone or marble, artificial, T. Hurtz	
· · · · · · · · · · · ·		Store service apparatus, stop for, E. P. Osgood	
D. W.	994,194	Stove, heating, E. W. Anthony	
D. W.	354.651	Stove or range oven, A. Sloan	
		Stoves, ventilating attachment for, W. M. Brink-	,
paratus	001,	erhoff354,765,	354,766
· · · · · · · · · · ·	354,853	Stretcher, O. J. Pfeiffer	
		Suspender end, W. Bloomberg	
		Suspenders, B. O. Foster	
		Syringe tube coupling, B. F. Sutton	354,875
eyes		Table. See Ironing table.	054.000
• • • • • • • • • • • • • • • • • • • •		Tamping bar, T. Gleason	<b>354,</b> 698
		Tank. See Flushing tank.	354 700
e		Tanks, stop and waste connection for, P. Harvey.  Tanning process, F. Latulip (r)	
	002,010	Tedder, C. R. Furey	354.857
	354,630 i	Telegraph instrument, J. Steiner354,814,	
		Telegraph systems, non-interfering street box for	,
g, W. J.		fire alarm, A. Anderson	354,761
		Telephone transmitter, D. Drawbaugh354,541,	
· · · · · · · · · · · · · · · · · · ·		Telephone transmitter, W. L. Voelker	
• • • • • • • • • • • • • • • • • • • •		Thill coupling, W. P. Tracy	
• • • • • • • • • • • • • • • • • • • •			
	354,615	Thrashing machine, G. W. Morris	
ard for,	954 792	Tire for traction engines, E. Huber  Toaster, bread. C. Matthews	
		Tooth, artificial, C. P. Grout	
chon		Trap. See Animal trap.	002,000
		Truck brass, locomotive engine, H. A. Barnes	354.527
orton		Truck, car, E. L. Cleveland	
<b>.</b>	354,696	Trunk lid stay, G. Crouch	
	354,868	Trunks, etc., spring catch for, G. Crouch	354,597
• • • • • • • •		Tube welding device, J. N. Buchanan	
· · · · · · · · · · · · · · · · · · ·		Umbrella, C. P. Coggeshall	
· · · · · · · • •		Vapor fuel generator, J. N. Maher	
•		Vehicle spring, A. Barling	
		Vehicle spring, W. T. Beaty	
for ex-	002.020	Vehicle spring, C. H. Twist	
	354.673	Vehicle wheel, I. H. Reiner	
fied, F.	,	Vehicles, adjustable seat for, M. Guiet	
	354,755	Velocipede, Linley & Biggs	
E. A. C.		Velocipede, L. F. Mohr	
	354,807	Velecipede, G. W. Rodecap	
ding, F.		Velocipede, H. M. Pope	
•••••	354,708	Vibrating cylinder engine, E. Andrews	
<b>.</b>	254 004	Wagon brake, T. R. Wheeler	
		Wagon spring, W. S. Haggard Washing machine, D. Blakeslee	
		Watches, combined dust ring and case spring for,	
		R. L. Stufft	
able, W.	,	Water closet, J. E. Boyle	
	354,817	Water closets, service tank for, R. Clarke	
. <b></b>	354,551	Water closets, tank operating device for, P.	
		Harvey	
<del></del>			
on, Jr		Water gauge boiler, upright double, K. A. Klose.	
354.618,	294,019	Water meter, piston, C. T. Toense	
	554 778	Water meter, rotary, 3. 3. 1 year. Waterproof composition for roofing, etc., B. Over-	
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			004.011
S	354,879		
s	354,879 354, 718		354,650
	354. 718	Water, purifying, Morrison & Wharton	354,650 354,625
· · · · · · · · · · · · · · · · · · ·	354,718 354,773	Water, purifying, Morrison & Wharton	354,650 354,625
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••••••	354,718 354,647 354,647 354,752 354,739	Water, purifying, Morrison & Wharton	354,650 354,625 354,695 354,776
	354,773 354,647 354,752 354,739 354,609	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851
	354,778 354,647 354,752 354,739 354,609 354,676	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,801
	354,718 354,773 354,647 354,752 354,739 354,609 354,676 354,608	Water, purifying, Morrison & Wharton	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,801 \$54,767
	354,718 354,773 354,647 354,752 354,739 354,609 354,676 354,608	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,801 \$54,767
	354, 718 354,773 354,647 354,752 354,752 354,739 354,609 354,676 354,608 354,605	Water, purifying, Morrison & Wharton	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,801 \$54,767
nelly	354, 718 354,647 354,752 354,739 354,676 354,676 354,608 354,605 354,605	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,801 \$54,767
nelly	354,718 354,773 354,647 354,752 354,739 354,609 354,606 354,605 354,604	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,625 \$54,625 \$54,776 \$54,851 \$54,801 \$54,767 \$54,770
nelly	354,718 354,773 354,647 354,752 354,739 354,609 354,608 354,605 354,605 354,602 354,604 354,719	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,625 \$54,625 \$54,776 \$54,851 \$54,801 \$54,767 \$54,770
nellyr, Ć. S.	354,718 354,773 354,647 354,752 354,752 354,609 354,676 354,605 354,602 354,604 354,719	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,695 \$54,776 \$54,851 \$54,770 \$54,770 . 17,025 . 17,035
nelly	354,718 354,773 354,647 354,752 354,752 354,676 354,676 354,605 354,692 354,604 354,719 354,872	Water, purifying, Morrison & Wharton Weeder, Z. Breed Weighing and registering apparatus, grain, W. H. Ernst Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,625 \$54,776 \$54,851 \$54,801 \$54,770 \$54,770 \$17,025 \$17,035
nellyr, C. S.	354,718 354,773 354,647 354,752 354,752 354,609 354,606 354,605 354,605 354,604 354,719 354,872	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,625 \$54,776 \$54,851 \$54,767 \$54,770 . 17,025 . 17,035 . 17,036
nellyr, C. S.	354,718 354,773 354,647 354,752 354,769 354,609 354,605 354,605 354,604 354,719 354,872 354,872	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	\$54,650 \$54,625 \$54,625 \$54,776 \$54,851 \$54,801 \$54,770 \$17,025 \$17,035 \$17,036 \$17,034 \$17,031
nellyr, C. S.	354,718 354,773 354,762 354,762 354,769 354,609 354,605 354,605 354,604 354,719 354,719 354,872	Water, purifying, Morrison & Wharton. Weeder, Z. Breed. Weighing and registering apparatus, grain, W. H. Ernst. Wheel. See Fifth wheel. Vehicle wheel. Wheelbarrow, F. E. Fay	354,650 354,625 354,776 354,851 354,767 354,770 . 17,025 . 17,035 . 17,036 . 17,031 . 17,033

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ĺ	Canned goods, Platt & Co	
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	Cannedtomatoes, S. R. & S. L. Hewlett	13,899
į	Corsets, J. R. Freud	13,894
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	Malt liquors, Bergner & Engel Brewing Company	13.890
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