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Curtis Pressure Regulator for Steam Heating Appa ratus, Waterworks, etc. Curtis Regulator Works, Boston, Mass.

Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N.Y. See illus, adv., p. 414. English tanned Walrus Leather, Sea Lion, Oak, and Bull Neck Leather for Polishing. Greene, Tweed & Co.,

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Seam and Looping Machines, patent Burr Wheels Brus hing Machines. Tubbs & Humphreys, Cohoes, N. Y. Pattern and Brand Letters, Steel Punch Letters.

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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 This is for our information, and not for publication.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 personal rather than general interest, cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. I rice 10 cents each.

to may be nad at the office. Ifrice 10 cents each.

Minerals sent for examination should be distinctly marked or labeled.

(1) E. D. M. writes: I have two telegraph instruments on same line, one 20 ohms resistance the other 6; why won't they work? Which is the best kind of battery to use on a short indoors line? In but there will still be spots when compared with the electrotyping with plaster of Paris, is any preparation put on the type or on the plaster, and is the common (commercial) plaster used? To what consistency should the plaster be mixed before pouring upon the type? Is crude or vulcanized rubber used in making rubber stamps? A. You can make your telegraphic instru- largely used, and the Burnz system, a sort of phonetic ments work by using sufficient battery power; but you simplifying of one of the other more elaborate systems, would secure better results, with less battery, by mak- is also now much used; but to acquire the facility ing the resistance of your two instruments alike.-The gravity battery is undoubtedly the best for your purose.-For moulds for electrotyping you should use the finest plaster of Paris; it is generally mixed up to about the consistency of cream. The mould requires no preparation other than drying.-The best rubber stamps are made by pressing vulcanizable rubber in moulds, and vulcanizing the rubber while in the mould.

(2) H. G. S.—It is entirely impossible to furnish an estimate of the value of a patent. It often happens that a patent which seemingly has no value whatever brings a large price; and, on the other hand, a patent which appears to have great value proves to be profitless. It is almost entirely a question of man-

(3) O. H. H.—Bath tubs are made of inned copper, and cannot be retinned. Electroplating is not practicable, and would last but a very short time if done. The New York practice is to reline the tub with tinned copper or buy a new tub. We consider the latter the cheaper.

(4) E. F. M. asks what black lead is mixed with to make crucibles. A. Fine clay in quantity as small as will allow the black lead to be worked on a wheel. Clay and black lead should be ground to gether.

He used to render wax (for artificial flowers, etc.) pliable in a cold temperature without altering its whiteness? A. Mix with a small quantity of the oil of sweet almonds.

(6) H. C. P. asks how to make the enamel that is used on brass signs to fill up the letters that are cut in. A. Mix asphaltum, brown japan, and spaces, and finally clean the edges with turpentine.

(7) I. W.-Most of the alum now sold in this country is made artificially. If a good supply of proper quality could be obtained, it would be mar ketable. Alum is worth about 2 cents per pound.

(8) H. S. G. asks: How do seedsmen extract seed from tomatoes, and whether any expensive or complicated machinery is required? A. The tomatoes are mashed or broken in a tub or other recepta cle, and allowed to stand for a day or two until a slight seeds can readily be washed out. They may also be saved, when the flesh of the tomatoes is used for canopen. The seeds are then scoured by being passed between two large circular brushes running in opposite di-

(9) K. C. writes: We have here a mountain of plaster and a good many acres of alkali soil. Can this plaster be ground and applied in its raw state to this soil with any benefit, or must it be first burnt and ground before applying? A. It depends upon the character of the soil and also upon the variety of crops that it is desired to raise. Burn and grind before using. 2. Is the ordinary farm plaster advertised at the East burnt and ground? A. It is.

(10) E. V. B. asks: 1. Can a polyopticon be constructed by which a cabinet photo or other like opaque object can be enlarged (with coal oil light) to life size, and a clear-cut image produced, to trace with crayon? A. We think the light of an oil lamp will be insufficient for enlarging pictures in the manner proposed. Better take a negative of the photograph, and enlarge it by means of an oxyhydrogen lantern. 2. Would the same lenses be suitable for a draughtsman's camera? A. Probably the lenses of a polyopticon will answer for a draughtsman's camera, 3. What would be the proper dimensions, etc., and best method of constructing the polyopticon, and where can the proper lenses be procured at reasonable figures? A. See Supplement catalogue, which we send you, for mention of articles on the subject. Any of the opticians who advertise in our columns could furnish you with lenses, etc.

(11) B. D.—The floating specks before the eyes, of which you speak, give in some cases indications of serious trouble; but in by far the greater number they are not of special moment. Nothing but an actual and careful examination by a skilled physician can tell to which class your case belongs. follow directions given by any one else would be, not foolishess, but madness. Never trifle with the eyes, One general remark may be safely made-if the eye sight be unimpaired, the probability is that the specks are produced by nervous derangement only, and may

(12) N. S. McC.—General Winfield Scott died at West Point, N. Y., May 29, 1866.

(13) E. P. A.—To solder cast iron, galvanize the pieces and then flush tin into the joint. Hydrochloric acid, zinc, and sal ammoniac is the proper soldering acid; put water with it to make it less offensive. It will bear diluting for most purposes.

(14) L. L.-Surveys are made by all reputable surveyors in reference to the true meridian. Maps for record have the variation of the compass for the date of the survey marked upon them, and deeds, if properly written, should accord with the map, or the angles should refer to the true meridian. Every resurvey by compass should have the variation of the magnetic needle for its date corrected by the vernier upon the compass. If there is no vernier, then each compass run must be corrected arithmetically from the record of the field book.

(15) P. F. C.—There is no way known to us for removing the spots from a brass chandelier but refinishing. They may be scraped bright and lacquered, regular finish.

graphers think the system they have studied the best. est and most elastic woods that we know of. The Graham, Munson, and Pitman systems are all necessary to report a fast speaker requires close application and constant practice for years.

(17) T. H. De S. asks: Will it injure a tin roof or sheet iron to cost it with tar made from pitch pine?-Please explain what becomes of the quantity of water with which cement (hydraulic) is mixed when it sets rapidly. State the chemical change. A. univeral use for painting ironwork. In Scientific AMERICAN SUPPLEMENT, No. 386, you will find an interesting paper on the manufacture and composition of Portland cement. The setting of the cement is due to the formation of a hydrate of lime, alumina, and silica, a definite chemical compound, which, when formed, resists further action of water.

(18) A. C. D.—There are a great many eipts afloat for tempering baths, but the best result are from a thorough knowledge of the heat required by the steel, and proper method of dipping to get the best effect. Plain water is used in most of the shops. A little salt, acid, and avariety of chemicals have been suggested by experimenters to give the water a bet ter hold on metallic surface in hardening. Such additions may allow of hardening at a trifling lower temperature, or at a given heat make the article a trifle harder. Still, our best workmen confine themselves to pure water, salt water, and good oil, for hardening (6) W. K. asks: What substance could the various kinds of steel articles and tools. Borax heated to evaporate its water and pulverized, with onetenth sal ammoniac, is the best we know of for welding steel. Your pulley should be 50 inches in diameter

(19) C. D. asks a recipe for some material to put in the seams of a boat which are almost too large for oakum. Also a good paint to paint the hull and bottom? A. We know of nothing better than lampblack into a putty-like mass, and then fill in the strips of wood fitted and driven into the seams, with hot pitch. Paint with linseed oil and plumbago or lampblack for priming, and a second coat of any desired color.

> (20) F. M. F. asks the best way to get the gold out of rags used in a bindery? A. Burn the rags, collect the ashes, and treat them for gold by the usual method of assayers, i. e., fusing with lead, and cupeling lead button.

(21) W. S. asks how to make a powerful spark coil, not an induction coil, to be used principally fermentation has taken place. When this occurs, the for lighting by electricity. I should prefer to have one of good strength, as I will probably use it for other purposes also. I do not exactly know the proning, by being shaken out after the tomatoes are cut per proportions for winding, the size of wire for the core, and also the outside wire. A. For full instructions on the construction of an induction coil, consult Sup-PLEMENT, No. 160. If you do not desire it for giving sparks, you might omit the condenser.

> (22) J. McV. asks how to polish common cow's horns, and gives thema fine gloss forfancywork? A. First scrape with glass to take off any roughness, then grind some pumicestone to powder, and with a piece of cloth wetted and dipped in the powder rub them until a smooth finish is obtained. Next polish with rottenstone and linseed oil, and finish with dry flour and a piece of clean linen rag. The more rubbing with the stone and oil, the better the finish.

> (23) W. M. D. asks where the third man should be placed, so that three men will carry an equal weight of a bar 15 feet long, the other two being placed at the ends. A. One man in center and one man 234 feet from each end.

> (24) Fidelis asks: 1. If there is any cheap way to distill water for home use? A. Water that is first filtered and then boiled is comparatively pure. For the distillation of water a retort and worm are necessary. 2. How walnut water, for the hair can be made? A. See "Walnut Hair Dve," Scientific Ame-RICAN for Oct. 24, 1885. 3. Whether hard or soft water is best for cleaning one's teeth and washing one's hair? A. Preference is generally given to soft water for the purposes mentioned.

(25) H. C. H. asks: What will take grease or oil out of a granite door step? A. Make a strong lye of pearlashes and soft water, and add as much unslaked lime as it will take up; stir it together and then let it settle a few minutes; bottle it and stop close; have ready some water to dilute it when used, and scour the part with it.

(26) J. B. F. asks for the best method of reducing rubber gum to a liquid state. I have used naphtha, but the result seems to be rather slow. A. Rubber is also soluble in ether, chloroform, coal tar benzol, and carbon disulphide. See "Solvents for Rubber," Scientific American Supplement, No. 247.

(27) J. T. R. asks for the correct formula for making a particular "Pearline," a washing combound? A. It is considered to be an impure potassium carbonate or pearlash preparation. An exact analysis of it would cost about \$25, depending upon exactly what information is desired, i.e., the percentage of pearlash alone would cost \$10.

(28) T. M. D. writes: Please forward me pamphlets which treat about taking out patents, also your pamphlet giving information of foreign patent laws. Please send me your Supplement Catalogue, also your list of scientific books you have for sale. Will you please answer me the following questions through the correspondent's column of the Scientific American? What will best remove rust from steel? How can you prevent steel from rusting? What is the toughest and most elastic wood obtainable in this country? A. You may remove rust by dipping the articles in a bath of hydrochloric acid 1 part, water 4 parts. A far better process is to polish off the rust with flour emery or emery paper, and then wipe the surface with a solution of paraffine in naphtha or turpentine.-Much depends upon the nature of the articles that are required to be protected from rust. White lead paint thinned with kerosene or lard oil is much used on machinery. (16) G. G. P. asks: What is the best Machinery for transportation is painted with white lead method of stenography in existence? A. Most steno- or tallow.—Heart hickory and lancewood are the tough-

(29) F. A. T. asks: 1. What causes the current in the Straits of Gibraltar, and is there an outward current? A. The revolution of the earth is supposed to cause the flow of currents in the ocean and the Comb. See Curry comb. greatseas. The Mediterranean Sea is under the same influence, and furnishes several currents out and in through the Straits of Gibraltar. There is an inward surface current and an outward undercurrent, causing other local currents or eddies formed by the impinging of the great currents. 2. What materials and how used to polish shirt bosoms? A. Use a polishing iron and boil a small Tar from pine and coal tar from gas works are both in piece of paraffine with the starch. 3. What is the title, and where can I obtain a book giving the manners and customs of the people from Adam to the present? A. You will require many books, among which may be mentioned: The Bible; Andrews, The 18th Century, Manners and Customs; John Lord's Works; Lacroix, Manners, Customs, and Dress during the Middle Ages; the histories of Rome, Greece, etc.

### INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 29, 1885,

## AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]
Air compressor, hydraulic, J. B. Erwin
Alarm. See Low water alarm.
As bestus board, felt, or paper with other flexible
material, combination of, F. Line
Auger, G. F. Stearns
Automatic lubricator, J. E. Fletcher
Awning, R. J. Powell
Baking apparatus, E. Jaeger
Ballot box, registering and canceling, Munroe & Sullivan
Balls, machine for making, W. Hillman
Bar. See Plater's bar.
Bath, J. H. Crocker
Battery. See Voltaic battery.
Bed bottom, spring, A. F. Purefoy
Bed lounge, W. Reddell
Bed, spring, J. F. Durr
Bed, spring, Van Delinder & Nash
Beds tead brace, Durham & Alexander
Beds tead frame, R. R. Pease
Beehive, J. M. Shuck
Bicycle, T. B. Jeffery
Billiard chalk holder, K. S. Jones
Bits, counterboring attachment for, E. F. Lind-
sey
Blind retaining way strip for windows, H. E. Willer
Blind wiring machine. Maher & Greaney 335,241
Boat, W. L. Casaday
Boiler. See Steam boiler.
Boiler furnace, L. Stevens
Boiler furnace, steam, L. Stevens
Bookcase, T. J. Fisher
Book, sales, J. R. Carter
Box. See Ballot box. Button fastener packing
box. Fare box. Horses hoer's box.
Brace. See Bedstead brace.
Brake. See Car brake. Wagon brake.
Breast strap iron, H. Merrymon
Brick machine, V. Doriot
Bronzing and dusting machine, Emmerich & Von-
derlehr
Buckle, Parmerlee & Swift
Burning liquid fuel, apparatus for, F. Lane 333,311
Bustle, J. Schulte
Butter worker, E. Krueger. 333,309
Button, H., Fils, & G. Rouze
Button fastener, C. Erlanger
Button fastener packing box, F. H. Richards 333,159
Button fasteners, instrument for handling, F. H.
Richards
Button or stud, E. R. Procter
Button setting instrument. W. M. Hazel 333,411
Cable grip, L. B. White

Can and ejector, combined, O. P. Pell ....................... 333,250 

 Can opener, C. W. Acker
 333,190

 Canister, sheet metal, J. H. Preater
 333,423

 Car coupling, J. C. Blocher.
 383,489

 Car coupling, E. F. O'Haver.
 333,147

 Car coupling, J. C. Reed.
 333,253

 Car coupling, D. J. Summers.
 333,172

 Car coupling, F. J. Tazgart...... 333,357 

 Car, street, M. A. Cutter.
 333.450

 Car, street, C. J. Reynolds.
 333,158

 Carrier. See Cash carrier. Fence wire carrier. Case. See Book case. Shaving case. Cash carrier, pneumatic, Davis & Hinman...... 333,397

Castings from wrought iron and steel by adding aluminum, manufacturing, C. G. Wittenstrom 333,373 Cement, manufacture of Portland, J. M. Willcox. . 333,370 Centricycle or bicycle, T. Crispin ...... 333,448 Chair. See Convertible chair. Folding chair.
Chair, F. Chichester Chair, F. Chichester... Chenille cutting machine, W. McIlwain........... 333,319 Chopper. See Meat chopper. Churn, E. C. Taylor... 

 Churn, E. C. Taylor
 333,358

 Churn motor, D. C. & H. P. Camp
 333,388

 Clock pendulum protector, L. Erikson...

.. 383.120 Clock setting device, electric, J. F. Kettell.333,132, 333,133 
 Coating handles, etc., E. Kipper
 333,469

 Cock, stop and waste, D. Westervelt
 333,368
 Coffee mill, E. H. & C. Morgan 333,243

Coffee pot, P. A. Covington 333,282 Coffee pot stand, J. Linders...... 333,315

Comb for warping and beaming machines, T.C. Commode, F. Mink...... 333,321 
 Corn shock compressor, J. B. Hughes.
 333,304

 Cotton gin, O. T. Bugg.
 333,887

 Cotton or hay press, L. L. Taylor.
 333,359
 Coupling. See Belt coupling. Car coupling. Pipe coupling. Thill coupling. Whiffletree coup-

ling. 

 Cuff retainer, J. M. Hawley.
 333,297

 Cultivator, J. C. Chamberlin
 333,280

 Cultivator, W. H. Hunter
 233,227

44				
Cultivator. H. H. Sater Curry comb, A. C. Decker. Curtain pole joint, J. Munger.	333,451	Mechanical movement, G. R. Peare	333,361	Sole, detachable, M. Haw Spinning rings, machine to Spring. See Vehicle spri
Curtain and material therefor, flexible, H. S. Hale		ers	333,461	Stack binder, A. J. Laund Stanchion, cattle, D. J. B Stand. See Coffee pot sta
Ditching and tile laying machine, J. T. Dougine Ditching machine, P. Brolin	333,441	Mill. See Coffee mill. Rolling mill. Mining tool, J. J. Lloyd		Staying layers of flexible G. R. Peare
Door check, W. E. Gard	333,281	Mirror, decorated, Utley & Bowen		Steam and air brake syste Steam at a high pressur pressure, production of
Garff	333,295	Mop cloth, E. F. Wilson	333.372	Steam boiler, G. N. Sceets Steam or other hot gas cy
Dust arrester, W. Hagenberg  Dust collector, N. W. Holt  Dye vat attachment, W. H. Rankin	333,463	Motion, device for converting, J. C. Potts	333,333	Steel, apparatus for maki Stereotype plates, mac North
Dynamite, Penniman & Schrader	333,150 333,347	Motion, mechanism for converting, O. B.  Howe	333,226	Still, D. Horan Stone cutting machine, W Store service apparatus, J
Dynamite and making the same, J. C. Schrader  Easel, D. Dick  Egg preserver, rotary, G. W. Baumgartner	333,203	Mowing machine, lawn, F. M. Waters Nail. See Horseshoe nail.	<b>333,</b> 18 <b>1</b>	Store service car. W. S. H Stove door frame, C. Farr
Egg timer, W. H. Silver  Electric machine, dynamo, W. Thomson  Electrical conductor, E. Clark	333,174	Nail machine, L. Bradford, 2d	333,417	Strainer for sinks, C. H. S Surgical chairs and table Hildebrand
Electrical conductor, Clark & Richards Elevating and carrying apparatus, J. S. Ford	333,394	Nut lock, J. Bare	333,380 333,212	Table. See Extension tal Tally sheets, verifying, E.
Elevator. See Hod elevator.  Elevator, M. N. Hutchinson  Embroidery, etc., transferring patterns for, H. E.		Nut lock, E. R. Procter	333,362	Telegraph, printing, C. I Telegraph, railway, W. Ve Telegraph, way station qu
Kramer Engine. See Gas engine. Traction engine.	333,308	Oils, apparatus for chilling paraffine and other, T. D. Fairfield et al	333,209	Telegraphy, T. A. Edison Telegraphy, duplex, T. A.
Engine bed plate, R. Scheidler	333,152	Ore separator and concentrator, I. F. Monell Ores, phosphates, etc., machine for crushing, W. C. Bibb		Telephone exchange signs ner
Explosive compounds, making, J. C. Schrader Explosive, gelatinated, Penniman & Schrader	333,345 383,151	Ornamenting surfaces, F. Rudolph	<b>333,25</b> 9	Thermostatic circuit close Thill coupling, D. T. Willi
Extension table, G. Schmitt	•	Pan. See Clarifying and evaporating pan.  Paper box, B. Osborn  Paper, manufacture of blotting, C. S. Murch		Tie. See Railway tie. Tire and felly wheel, P. W. Tool handle, J. Balz
Fan, J. M. Seymour	333,349 383,233	Paper pulp digester, Bremaker & Zier, Sr Paper, straw, or pasteboard, composition of mat-	<b>3</b> 33,105	Tooth, artificial, C. P. Gro Trace guide and fastener,
Faucet, T. Long	<b>3</b> 33.489	ter for coating boxes made from, D. Pepper  Paper, wrapping and toilet, S. Wheeler  Pen fountain attachment, E. A. Brandenburg	333,183	Traction engine, J. W. Te Trap. See Moth trap. Truck and support, barrel
Fence wire carrier and stretcher, J. E. Black- more		Photographic sheet, multiple, O. L. Hulbert Photography, preparing surfaces for printing by,	333,465	Tube expander, C. Dudley Tunnel, device for removi
Fencing, register for measuring wire, S. D. Lind- say		Kunkler & Brunner  Pile steaming apparatus, J. Dolbeer  Piles, hood or cap for, W. T. Casgrain	333,204	from the face of a, G. I Twister head for machine ing eyes, R. Faries
Fertilizer distributer and stalk breaker, combined, J. Y. & A. Savage	338,164	Pipe. See Gas distributing pipe. Pipe coupling, W. A. Hoeveler	<b>333,41</b> 3	Type writers, cabinet or called Valve gear, reversing, P. 1
File cutting machine, J. F. French	333,481	Pipe coupling, gas, J. Busha	333,446 333,412	Valve, reversing, P. Malth Vehicle, side bar, A. A. A. Vehicle spring, J. G. Roth
Firearm, magazine, P. Kerrin	333,307 333,416	purposes, F. Ephraim		Vehicle wheel, J. Fishwic Vehicle wheel, J. L. Ritte
Fire extinguisher, chemical, T. G. Turner  Fire extinguishing apparatus, automatic, D. C.		E. Hawkins	333,140	Vehicles or cars, propuls  et al
Stillson	333,232	Planter dropper, corn, R. D. Powel	333,334 333,460	Vise jaw, adjustable, E. Sl Voltaic battery, Fitz Gera
Flouring mill feeder, Smith & Heck	333,099	Plater's bar, E. D. Tuttle	333,141	Wagon brake, O. O. Hone, Wagon, road, J. Vaughan. Walls and ceilings, decora
Fly book for anglers, M. Bray	353,384 333,273	Post hole digging implement, T. S. Disston		Wardrobe and trunk, com Warping machines, expa
Forging machine, H. St. Lawrence Fruit drier, J. J. Wolfe Furnace. See Boiler furnace. Hot air furnace.		Power. See Churn power.  Power, storing, M. Honigmann  Preserver, portable meat and fruit, J. Goldsmith.		C. Entwistle
Retort furnace. 🚁		Press. See Cotton and hay press. Pressure regulator, fluid, B. Fitts	333,403	Weigher, automatic grain, Wells, slide valve for oil, J
Gas burner safety attachment, Grimm & Fancher Gas distributing pipe, W. F. Smith Gas engine, D. S. Regan	333,358	Printing machine, chromatic, F. L. & S. G. Goss Printing machine, chromatic, J. B. Underwood Printing machine, chromatic, W. Wheeler, Jr	333,49ū	Wheel. See Vehicle whee Whiffletree coupling, D. A Windmill gearing, G. H. P
Gas, system for the distribution of, W. A. Hoeveler		Printing surfaces, producing, M. Joyce		Window hanging, C. Delle Window stop fastener, A. Wire corrugating machine
gate.  Gear wheelteeth, cutting, A. Swasey	333,488	protector.  Pulp grinder, W. Wilkeson	33 <b>8,</b> 369	Wire, machine for bendi Curtiss
Glass, decorating or ornamenting, B. E. Foster Glass from the flattening wheel through the an- nealing arch or tunnel, device for conveying	333,457	Pulp machine, G. M. Stevens	333,356	Wood and other opaque Hyland Woven fabric, G. Berteau
sheets of, P. Pfeifer	333,235	Rails, roll for rolling girder, A. J. Moxham	333,475 333,236	Wrench. See Ratchet wre Wrench, R. S. Carr
Governor, steam engine, J. Kaiser	333,188	Railway crossing gate, M. B. Mills	333,314	Zylonite, etc., apparatus f
Grate, fireplace, W. R. Belding	333,117	Railway switch, B. C. Rowell		DES Charm, jewelry, G. L. Ruff
Grinding machine, E. H. Parks		Railways, chair used for fixing lines of, J. E. B. Armytage		Hub flanges, ornamentation Moulding, F. Mankey Oil cloth, C. T. & V. E. Me
Hammock, A. L. Adams	·	Rake, C. J. Higgins		Panel, open work, F. Manistove, cooking, W. H. Wil
Harrow, W. W. Beard	333,193	Rake, G. H. Van Winkle		Type, C. H. Beeler, Jr Type, E. C. Ruthven
Hay rake and tedder, combined horse, Wallis & Smith		Reel seat and band, J. M. King	333,407	TRADE
Heater. See Feed water heater. Hektograph gauge, F. M. Dunbar	333,115	Regulator. See Lamp regulator. Pressure regulator.		Bitters, A. M. Muth Bitters, C. F. Stadiger
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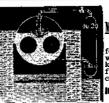
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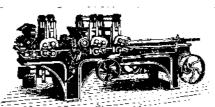


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