Scientific American

and one pewter bottle. This was considered a very luxurious household outfit. Governor Benedict Arnold, of Rhode Island, and Mr. Pyncheon, of Springfield, Mass., bequeathed their pewter plates and dishes, and the humble pewter was just as elaborately lettered and marked with armorial devices as the silver objects.

Pewter was also used in New England for communion services. In 1729 the First Church of Hanover, Mass., bought, and used for years, a full communion service and christening basin of pewter. Some of the pieces are still preserved by the church as relics, while the tankards have been silver-plated and are still in use. As late as the dawn of the nineteenth century advertisements of "pewter communion flagons" appeared in New England newspapers. Pewter dishes and plates were a source of great pride to every colonial housekeeper, and much time and labor were devoted to polishing them with "horsetails" (Equisetum) or "scouring rush," till they shone like fine silver, and dingy pewter was regarded as a disgrace.

In some old homes the pewter utensils have been preserved, and are even now cherished ornaments of the kitchen and dining room. Thus, in an old homestead in Shrewsbury, Mass., its greatest treasures are cupboards and dressers full of pewter dishes. All the plates and platters are round, for oval platters seem to have been then unknown.

Another pewter piece, still in use in some localities, is the hot-water jug with a wicker-covered handle. This, we read, was filled at night with boiling water and brought to the master of the house, for him to mix the apple toddy or sangaree for his household people. who drank out of pewter cups or heavy greenish glasses. Mrs. Earle, who has written very interestingly on the subject, and from whose writings some of the above statements have been derived, mentions two of these jugs which have been in daily use for certainly forty years, for carrying hot water to bedrooms for shaving purposes, and they still retain the old wicker coverings on the handles, woven perhaps a hundred years ago. "These old pewter dishes, etc.," she continues, "have strange hiding-places. They lurk in tall and narrow cupboards by the side of old chimneys, or in short and deep cupboards over the mantel. They lie in disused fireplaces, or in deep boxes under wide window-seats, and under the dusty eaves of dark attic lofts; or on the highest pantry shelves, under cellar stairs, and in old painted sea-chests they have found a home."

The illustrations used in this article, with the exception of a few to which attention has been called in a foot note, are from photographs of historical pewter ware in the National Museum at Washington. As will be seen from the legends which accompany them, they represent a variety of objects used by persons of eminence in Colonial and later times.

RECENTLY PATENTED INVENTIONS. Electrical Devices,

CIRCUIT-BREAKER FOR STORAGE BAT-TERIES .- H. GARRETT, Dallas, Texas. Mr. Garrett's invention relates to an improved circuit-breaker for storage batteries, and more particularly to an appliance for breaking the main circuit of the battery when the voltage reaches a predetermined minimum limit. When properly adjusted at the proper voltage, there will be absolutely no spark at all.

Engineering Improvements.

ROTARY VALVE.—D. W. RANTINE, New York, N. Y. The object in this invention is to provide a rotary valve which is very effective in operation, and arranged to accurately control the admission and exhaust of the motive agent, and thereby insure an easy running of the engine and utilization of the motive agent to the fullest advantage.

VALVE MECHANISM FOR ENGINES.—H. NIELSEN, New York, N. Y. In this case the purpose is to provide an engine arranged to insure a positive shifting of the engine-valve directly from the piston reciprocating in the cylinder, thus dispensing with complicated valve-gear, the arrangement being such that waste and leakage of the motive agent are reduced to a minimum, and the agent is utilized to the fullest advantage, so as to render the engine particularly well adapted for use as a pumping-engine.

ROTARY ENGINE.—C. GUYER, Muncy, Pa. This engine is arranged to utilize the motive agent very economically and expansively to the fullest advantage. Steam is cut off during a desired portion of the stroke of the piston, to allow it to work expansively. As the steampressure is equal on the ring and the disk, the piston is completely balanced, and hence the engine runs easily without undue loss of power and without waste of steam.

many. The object here is to provide a propeller arranged to insure an effective forward. Chagrin Falls, O. as well as backward action by causing the propeller-blades to readily cut with the forward edges into the water, to allow the water to readily pass from the blades at their rear edges without danger of forming dead-water spaces, at the same time preventing undue resistance and concentrating the active force at the middle portion of the blade, to increase the propelling effect of the propeller when driven forward or backward, and to reduce slip to a minimum.

Heating and Lighting.

FEED-WATER HEATER AND PURIFIER. T. V. ELLIOTT, Columbia, Pa. This invention is an improvement in feed water heaters for use in connection with steam-boiler furnaces. The water supplied to the feed-water heater is raised to a comparatively high temperature before being discharged into the boiler, and by reason of the upward circulation of the water in the manifolds the water will be purified; within the feed-water heater before being delivered into the boiler.

FURNACE.—T. V. ELLIOTT. Brooklyn, N. Y. In this instance the improvement is in furnaces, particularly smoke and gas consuming furnaces, and especially in that class in which oil, air, and steam are utilized in securing a consumption of the gases and other products of combustion; and the invention relates to means for securing the return of the gases and smoke and a disposition thereof within the furnace.

BOILER-FURNACE.—E. F. COMBER Selkirk, Canada. One object the inventor has in view is the provision of a bridge-wall by which warm air in regulated volumes may be supplied to the combustion-chamber of a furnace at a point back of the fuel-grate, the air being free to commingle with the gaseous products of N.Y., have exceptional facilities for manufacuring any combustion and calculated to promote the combustion of the gases and of carbon in the smoke. Besides with steam boilers, the improvements may be used in hot-water boilers and in connection with any kind of furnaces for power and heating purposes.

Miscellaneous,

SHOE-LACING.—J. McMahon, Bemidji, Inquiry No. 4923.—Forthe presentaderess of the Nashua Till Co. Minn. The purpose in this invention is to pro-

lace secured at the lower portion of the front opening for the upper of the shoe adjacent to the vamp and a series of pulley devices which are secured to the upper quarters at opposite sides of the front opening which devices are guides for the lace and are in alternate arrangement, and to provide the upper quarter of the shoe at opposite sides of the portion of its front opening with guide hooks.

PHOTOGRAPHIC CAMERA.-H. W. HALES, Ridgewood, N. J. The object of the improve ment is the provision of a camera arranged to produce an exceedingly sharp and brilliant image on the focusing medium and subse quently on the sensitive plate or film in such a manner that the operator while focusing can view the image right side up or non-inverted.

NOTE.-Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

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Marine Iron Works. Chicago. Catalogue free. Inquiry No. 4908.—For manufacturers of small brass or gitt chain.

For mining engines. J. S. Mundy, Newark, N. J. Inquiry No. 4909.—For makers of small brass caps such as used ullet n pencils.

"U.S." Metal Polish. Indianapolis. Samples free. Inquiry No. $4910.-{\rm For\ manufacturers\ of\ com\ mon\ wood\ button\ molds}.$

AUTOS.-Duryea Power Co., Reading, Pa.

PROPELLER.—E. Brüncker, Cologne, Germetal in No. 18 steel and about 9 inches diameter. Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St.,

Inquiry No. 4912.—For manufacturers of carpet cleaning machinery.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 4913.—For drawings or blue print of a4 h. p. horizontal gasoline engine.

Manufacturers of patent articles, dies. metal stamping, screw machine work, bardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 4914.—For hard rubber, glass or porcelain jars for batter, use; to be rectangular in shape of special dimensions.

American inventions negotiated in Europe, Felix Hamburger, Equitable Building, Berlin, Germany.

Inquiry No. 4915.—For a thermometer having an adicator at a distance from the tested material. Special and Automatic Machines built to drawings on

contract. The Garvin Machine Co., 149 Varick, cor. Spring Streets., N. Y.

Inquiry No. 4916.—For manufacturers of attachments for invalids tables, for holding medicines, books, papers, etc. Edmonds-Metzel Mfg. Co., Chicago. Contract manu-

facturers of hardware specialties, dies, stampings, patented devices, etc.

Juquiry No. 4917.—For machinery for forming and bending steel.

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Inquiry No. 4919.—For manufacturers of large and small paint mills and grin ers

The largest manufacturer in the world of merry-go-

Inquiry No. 4920.—For addresses of seed growers and seedsmen in America.

Empire Brass Works, 106 E. 129th Street, New York article requiring machine shop and plating room.

Inquiry No. 4921.—For straw presses, that will tie, bale, and deliver bales automatically from the The celebrated "Hornshy-Akroyd" Patent Safety Oil

Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York. Inquiry No. 4922.—For makers of money alarm drawers.



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

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cent of power per horse power of heat is lost bibliographical references of considerable value. impossible for us to give you any definite an- encyclopedia are emphasized by the sustained that in a general way it is true that a gas ume. engine utilizes, as a rule, less than 25 per cent of the heat generated, and about half of the loss is usually carried off by the jacket water.

(9257) O. C. S. says: Can a man working but a short time do twice as much work when turning two cranks, such as are used in a boring machine much used by carpenters, as he can when turning but one crank

Minn. The purpose in this invention is to pro-yide an anchorage device for one end of the facturers of the Farmers' Windmill." Without knowing exactly the heat to which your coils are subjected, we cannot tell

you the rate of circulation or the amount of heating surface needed to raise the water to any given temperature.

NEW BOOKS, ETC.

THE NEW INTERNATIONAL ENCYCLOPEDIA. Volume X. Infantry to Larramendi. Edited by Profs. Daniel Coit Gilman, LL.D.; Harry Thurston Peck, Ph.D., L.D.H.; Franklin Moore Colby, M.A. New York: Dodd, Mead & Co. 1903. 8vo. Pp. 986.

In taking up the tenth volume of this truly important work, we are more than ever convinced of the great merit which this encyclopedia possesses. Its treatment of all subjects is most admirable, and the scientific articles and definitions are both concise and reliable. The illustrative features add greatly to the interest of the volume. The inclusion of the lives of living persons is especially to be com-Scientific American Supplements referred to may be had at the office. Price 10 cents each.

mended. The maps are fine examples of the cartographer's art. Technical matters are for cartographer's art. Technical matters are far Books referred to premptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

A very common-sense discussion of black ink, red ink, blue ink, aniline inks, metallic inks, special inks, sympathetic inks, ink powin the water used by a gas engine? A. It is The good points of the general scheme of the swer to the question. We would say, however, work which characterizes each successive vol-

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

December 15, 1903.

and standing in the most favorable position: If not, why not? How much can he do compared with a man turning a single crank? When working all day can a man do any more turning two cranks than he can when turning one crank? Please give figures showing the relative amount of work done. A. In reply to your inquiry regarding the amount of work that a man can do when turning two cranks, such as are used in a boring machine, as compared with the amount that he could do turning but one crank, we would say that there is no definite data on this subject. The amount of work that a man can do in a given length of time is greatest when the motions required of him are the most natural and most favorable to the strength of his muscles. Thus, as work is a product of force times distance, a man is able to do but very little work when the force required is so great that he can overable to the strength only a short distance in a given amount of time. On the other hand, he will accomplish little work if the force is very small, and he is required to work too rapversal of the strength of the strength of time of the other hand, he will accomplish little work if the force is very small, and he is required to work too rapversal of the strength of time is a relative amount of time. On the other hand, he will accomplish little work if the force is very small, and he is required to work too rapversal of the producing producing the patches of the device, L. A. Needham. 746,733 and the producing producing producing. P. Danckwardt. 746,783 and cutter and feeder, A. J. Heine producing the patches of these patches. P. A. See the subject of the set and wardt the relative amount copies of these patches. 747,139 Action and cyanids alt therefrom, making that therefrom, making that therefrom, and cyanids alt therefrom, 746,876 Action and cyanids, and transcript. J. T. Fault. 746,876 Action and cyanids, and cyanids and cyanids. M and standing in the most favorable position? AND EACH BEARING THAT DATE very small, and he is required to work too rapidly. Between these limits there is a relation of force to speed in which he can do the maximum work. A man can accomplish no more turning two cranks than he can accomplish turning one crank, provided the one crank is so arranged that he can work favorably with both arms upon it, and exert a force which will give the most favorable relation between force and speed to produce the maximum work. Practically, it is found that the two cranks set at 130 degrees in a boring machine, similar to the pedals of a bicycle, give a condition which is exceedingly favorable for the average man to do his maximum work.

(9258) H. A. P. says: Will you kindly answer the following questions? I have two coils of 1-inch pipe. One is 11 inches and the other is 5 inches in diameter inside measure; both have seven and a half turns. The small coil fits inside the large coil and is coupled at top and bottom. The flow must heat to 80 deg. beneath a "hover" 72 feet by 24 inches by 6 inches, returning through the "run," 72 feet by 3 feet, heating to about 60 deg. Would a double or triple line of pipe be suggested, and what size (pipe)?

Will I place the expansion tank on the flow, or return, close to heater or otherwise? The pipe will be on a level. A. You have not given us information enough in your inquirry to make it possible for us to answer your questions. Without knowing exactly the heat to which your coils are subjected, we cannot tell which your coils are subjected, we cannot tell subjected the file of the file of the complex of the file of the average in a boring machine, if the file of

490	
Bucket, clam shell, McKechnie & Williams 747,210 Buckle, stirrup strap, C. H. Nix	1
Buildings in course of construction, inclosure for, C. G. Canfield	Wit
Buildings in course of construction, inclosure for, C. G. Canfield. 746,789 Buey, W. H. Allisen. 747,114 Burning apparatus, ceal dust, B. W. May 746,864 Butten shanks, fastening ivery, H. Ehrlich 747,053 Buttens to fabrics, means for securing, J. W. Darley, Jr. 747,047 Cabinet, J. H. Stiggleman. 746,758 Cable conveyer, M. Garland. 747,160 Cables, reller hanger for aerial, H. H. Leth. 746,718	Mac
Cables, relier hanger fer aerial, H. H. 746,718 Leth 746,718 Calculating machine, Cloud & Wood 746,924 Camera, film and plate, R. Mayer. 746,975 Camera support, Howard & Hewett 747,178 Can. See Sheet metal can.	SE 1
Camera support, Howard & Hewett. 747,178 Can. See Sheet metal can. Can heading machine, Black & Smith. 746,662 Cannery heist, J. C. West. 746,767 Cane cutting apparatus, sugar, J. H. N.	Γ
Cana display attachment T Pahartsan 746 990	L
Martin	
Cant heek and binder, combined, W. E. Martin Car and metallic car construction, tank, C. Vanderbilt Car adomatic air coupling, T. M. D. Earheart Car, convertible, J. O'Leary Car coupling, S. Morris. Car door hanger, freight, A. O. & G. E. Banks Car doors, adjustable fastener for grain,	1
Banks	'
Car or locometive coupling or uncoupling mechanism, A. C. Hone	
Carbureter for liquid fuel engines, J. H. Saris 747,235 Carls, playing, A. J. Seymeur, 746,750	NE CHI Bes
Cards, playing, S. A. Moulton. 746,868 Carriage running gear, P. Klett. 746,710 Carriare, Schmidt & Mayland. 747,090 Cash register, G. Browning. 747,128	_
Casks, etc., apparatus for cleaning the interiors of, Broux & Gregoire	to
Casting small steel ingets, arrangement fer, A. B. Chantraine	tio
Cesspeel, H. D. Gardner. 746,949 Chain wrench, G. R. Cheesman 746,674 Check, bank, A. O. Kittredge. 747,187 Check or ticket holder, G. E. Reynolds. 747,222 Chicken or fowl fountain, S. H. Church. 746,790 Chlovination barrel, D. C. Mosher. 746,867	VI
Chlorination barrel, D. C. Mosher	a
Clock, electric, V. Himmer, Jr 747,305	
Clock, electric receiver, J. W. H. Uyten- bogaart	
M. Barnes	1
Clutch, T. Carrell	
C. Resby 747,226 Clutch, T. Carrell 747,236 Clutch sperating mechanism, C. L. Tayler 746,761 Coin controlled mechanism, L. Pedersen. 747,216 Coke ovens, apparatus for compressing and charging ceal inte, J. Haug. 747,172 Combination lock, W. Almstalden. 747,116 Concrete mixer, W. A. Fritz. 746,947 Canduit for here cables electric wires ex	of ou B
The Table To Demonstrate Wiles, VI	all gre se:
Cooker, steam, F. A. Dixon	15
Cetten, ginning, B. D. Brantley. 747.315 Cever, H. P. Childress. 746.675 Cever support, vessel, C. F. Reichelt. 746.878 Cream separater, Mastersen & Franklin. 746.861 Crucible furnace, J. D. Swindell. 747,019 Cultivator and weed exterminator, C. I. J.	
Barker 747,118 Current regulater, G. A. Cardwell 746,669 Cuchian wheel and hub therefor R. C. Hil-	
ton	
Cycle, meter, J. G. Accles et al	-
Deed, warranty, T. M. Fergusen	2
Hinze & Wagner 749,992 Dilator indicater, C. G. Heynemann 747,698 Dining and other table for playing games, combined, G. Spalt 747,297 Dish cleaner, J. W. & B. C. Read 747,292 Dishinfectant and making same, J. Choulet 747,138 Display light, D. J. O'Brien 747,139 Door, metallic, C. Dahlstrøm 747,149 Door securer, C. W. Gray 746,824 Draft and buffing rigging, R. D. Gallagher, Jr 746,813	
Display light, D. J. O'Brien	₽.
Dredge fleating discharge pipe and means for connecting same to dredges, hydraulic,	
A. W. Rebinsen. 746,995 Dredges, suction pipe for hydraulic, A. W. Robinson. 746,994 Dredging and distributing the dredged material, apparatus for hydraulic, A. W. 746,994	- 1
Robinson 746,996 Dry kiln truck, C. A. Goddard 746,816 Drying apparatus, G. R. Gorham 746,822 Drinking receptacle, Bourke & Wittekind 747,123 Dumping elevator, automatic, W. H. Hult-	İ
Dve and making same, acridin, C. L. Muller 746,981	
Dye and making same, erange to yellow brown sulfur, E. Culmann	
Earthy guildtances annaratus for drying	Ī
Electric heater, Kelley & McElrey 746, 892 Electric meter, L. & Pfeuts. 747, 185 Electric switch, automatic, W. S. Guthrie 746, 695 Electric time switch, J. M. Jey. 746, 706 Electrical distribution system, J. H. Hall-	
Engines step, J. H. Cary	B
G. Wilson	3
Envelops, paper bags, or the like, machine for manufacturing, C. R. Bergmann. 746,913	lh: 7.⊾
ing, G. Lichtenberg	G T
Eyeglasses, J. R. Clayton	
Farm gate, G. R. Clarke	3 1
Fat and making same, celible, N. N. Cronhelm 747,30 Faucet, J. Totham. 746.76 Faucet or cock, A. R. Pritchard. 746.76 Feed water purifier, E. P. Caldwell. 746.92 Fence, T. B. Berry. 746.78 Fence joining device, S. M. Drake. 747,05	1 1
Fence, T. B. Berry. 746,92 Fence, T. B. Berry. 746,78 Fence, idning device S. M. Brake 747,05	í 1 1 _n





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Funigator, L. Feval. 746,942

Fumigator, formaldehyde, S. M. Morris. 746,731

Fumigator, formaldehyde, R. W. Johnson. 747,184

Furnace, O. A. Stranahan et al. 746,759

Furnace, Yawger & Churchill. 746,958

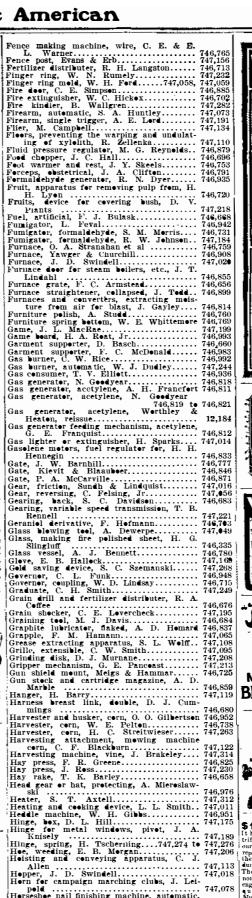
Furnace, J. D. Swindell. 747,020

Furnace door for steam boilers, etc., J. T.

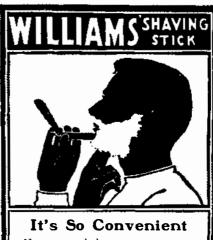
Lindahl. 746,855 Furnace, J. D. Swinsell. 144,028
Furnace door for steam boilers, etc., J. T. Lindahl 746,855
Furnace grate, F. C. Armstead 746,855
Furnace straightener, cellapsed, J. Todd. 746,899
Furnaces and converters, extracting meisture from air for blast, J. Gayley 746,814
Furniture polish, A. Studd. 746,760
Furniture spring bottom, W. E. Whittemore 744,769
Game, J. L. MacRae. 747,199
Garment supporter, D. Basch. 746,983
Garment supporter, D. Basch. 746,983
Gas burner, C. W. Rice 746,982
Gas burner, autematic, W. J. Dudley 747,244
Gas consumer, T. V. Ellistt. 746,381
Gas generator, N. Goodyear 746,811
Gas generator, acctylene, A. H. Francfort 746,811
Gas generator, acctylene, N. Goodyear 746,811
Gas generator, acctylene, N. Goodyear 746,811 Gas censumer, T. V. Elliett. 746,336
Gas generator, N. Goodyear 746,818
Gas generator, acctylene, A. H. Francfort 746,818
Gas generator, acctylene, N. Goodyear 746,818
Gas generator, acctylene, Worthley & 746,821
Gas generator, acctylene, Worthley & Heaton, reissue 12,184
Gas generator feeding mechanism, acctylene, G. E. Franquist. 746,812
Gas lighter or extinguisher, H. Sparks. 747,014
Gasslene motors, fuel regulator for, H. H. Hennegin 746,833
Gate, J. W. Barnhill. 746,777
Gate, Klevit & Blaaubeer. 746,846
Gate, P. A. McCarville. 746,877
Gear, friction, Sunch & Lindquist. 747,016
Gear, reversing, C. Felsing, Jr. 747,016
Gearing, back, S. C. Davidson 746,683
Gearing, variable speed transmission, T. B. Rennell 747,221
Geraniel derivative, F. Hofmann 746,763
Glass blewing toel, A. Dewerpe 747,049
Glass, making fire polished sheet, H. G. Slingluff 746,335
Glass vessel, A. Dennett. 746,780
Glove, E. B. Hallock. 747,165
Godel saving device, S. C. Szemanski. 747,268
Governor, C. L. Funk. 746,783
Granuate, C. H. Smith. 747,249
Grain drill and fertilizer distributer, R. A. Goffee 746,765
Grain shecker, C. E. Lovercheck. 747,195
Graining toel, M. J. Davis. 746,684
Grapple, F. M. Hamann 747,065
Gripper mechanism, G. E. Panceast. 747,213
Gun shield mount, Meigs & Hammar. 746,680
Harvester, cern, W. E. Pelton. 746,680
Harvester, S. T. Axtell. 198,79
Hunge, bax, D. L. Hill. 198,74
Hunge, spring, Hinge, bex, D. L. Hill. 747,178
Hinge for metal windows, pivet, J. A.
Knisely 747,189
Hinge, spring, H. Tscherning. 747,274 to 747,276
Hee, weeding, E. B. Mergan. 747,206
Heisting and conveying apparatus, C. J.
Allen 747,018
Hepper, J. D. Swindell. 747,018
Hen for campaign marching clubs, J. Leipeld 747,078
Herseshee nail finishing machine, automatic,
L. Weaver 746,766
Herseshee nails, combination nippers and clencher for, P. J. Flagstad 747,159
Hersesheeing steck, M. M. May 746,974
Hese coupling, H. E. Smith. 747,008
Hese coupling, H. E. Smith. 747,088
Hese coupling, H. Schuette et al. 747,242
Hese supperter, A. H. Cehn. 746,677
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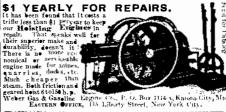


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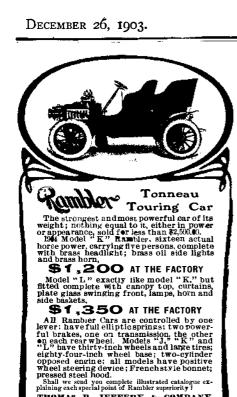




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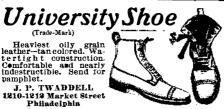
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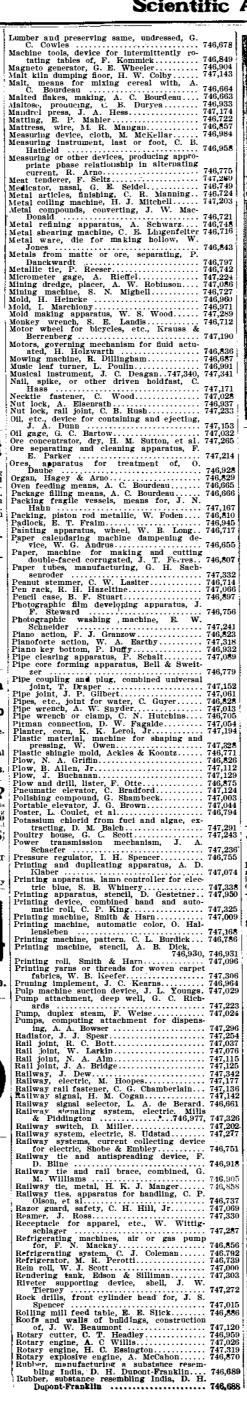


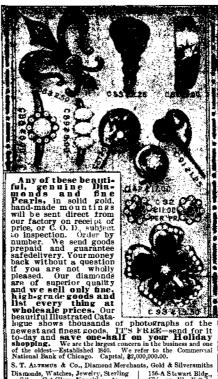
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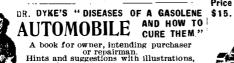
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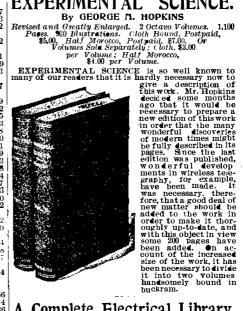
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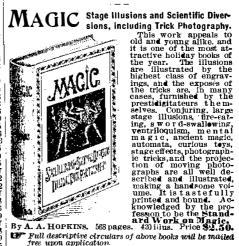
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