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### NEW BOOKS AND PUBLICATIONS.

LIFE OF WASHINGTON. By Virginia F. Townsend. Published by Worthington & Co., N. Y. Illustrated. 12mo. Cloth, \$1.25.

As a perusal of this work will show, this is a woman's way of looking at the great national hero; and although the ground traversed has been trodden before, it pos sesses interest from its actual familiarity and tells a story of which one never tires. The work contains a series of pictures which take hold of the fancy and give a pretty vivid picture of the great man and his surround ings. The type is bright and clear and the illustrations well selected, rendering the work an appropriate one to be put in the hands of the young, for whom it was

EASY LESSONS IN THE DIFFERENTIAL CALCULUS. By Richard A. Proetor. London: Longmans & Green. 1887. Pp. vi, 114.

This little work is reprinted from the columns of Knowledge, the well known scientific journal, which is edited by Mr. Proctor, who also contributes a great part of the matter that appears in its columns. The book purports to give a thoroughly practical view of the subject. The work, small as it is, contains, according to the author's statement in the preface, rather more of the differential calculus than he was obliged to take up in studying for a degree at Oxford University. The general idea is to give the more practically useful applications of the science, such as determination of maxima and minima, quadrature of areas, and the like The work is of pocket size, and in giving a more popular cast to the subject should be serviceable in removing some of the dread which people are apt to entertain for calculus.

FIRST STEPS IN GEOMETRY. By Richard A. Proctor. London and New York Longmans, Green & Co. 1887. Pp. viii, 179.

This work attacks the solution of geometrical prob lems, such as questions in maxima and minima, rather than the study of propositions. It is not very extensive, as is evident from the limited number of its pages, but it, like the calculus of the same author, forms a pleasing pocket manual and complement to the ordinary course in geometry. For those who find their mathe tics growing rusty, this work may be recommended as adapted to refresh the mathematical knowledge so often laboriously acquired and quickly forgotten.

A SHORT HISTORY OF ARCHITECTURE By Arthur Lyman Tuckerman. With illustrations by the author. Charles Scribner's Sons.

As its title indicates, this is an elementary work giving in a clear, incisive, interesting way, a brief account of the origin and growth of the various styles of architecture. As it passes over the entire province of with copper and used to make a steam joint, will the architecture, it gives the reader little more than a glance copper protect the lead from the steam? A. Lead does at the various topics touched upon, but the glance is comprehensive and instructive, and although we do not, it is too plastic. The copper cover will protect the lead facts put before us in such a way as to leave an impres- may make a joint that will answer for some purp sion that will render these facts available for reference but not as good as a corrugated pure copper gasket. and future use. The author has endeavored to bring out the distinctive features of the various types and to emphasize their more prominent characteristics. Pages 168, price \$1.50.

A MANUAL OF ANALYTICAL CHEMISTRY, Muter, M.A., Ph.D., etc. Philadel-accepta phia: P. Blakiston, Son & Co. 1887. | birth."

This work is calculated for the English Technical School requirements. It is largely in the form of schemes of analysis, not being a treatise on the subject in the sense of Fresenius' or Rose's works. It is a very useful laboratory companion, though for purposes of instruction, where the student is to be made a chemist and not a mere analyst, it should be supplemented by a more extensive work. In books of this class the danger is that a student may acquire the idea that every precipitate is absolutely insoluble, and that every analvsis must go by the scheme like clockwork. Chemistry in its full scope is better studied by the defects of analytical processes than by their too successful application to simple analyses.



#### 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. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(1) F. H.-Marble is finished by grinding the surface with fine sand under a slab of stone, which may be a piece of marble or sandstone, to a true surface. Then the surface is smothed with ground pumice stone under a rubber of leather or felt, and afterward polished with oxide of tin and water with a rubber of felt. The rubber is fastened to a block of

(2) F. S. A.—No satellites or planets move in circles, to our knowledge. There is a possibility of comets moving in parabolas or hyperbolas; but the probability is that all orbits to which our sun is a common center are elliptic. The influence of the planets upon comets may often be such as to change their orbits apparently to hyperbolas, as also to change the direction of the axis of their future orbits. We have yet to find that any cometic orbits are inter-

(3) J. B. C.—Lead does not run smooth n casting with any kind of mould, nor do we know of any elastic substance that will not be destroyed by the heat of melted lead. If you can alloy the lead with tin or with tin and bismuth, it will run smooth at much lower temperature than the melting point of lead. Old typemake a smooth-running metal, which can be cast n plaster of Paris moulds.

(4) W. C. D. asks how solar prints are made. A. Specially prepared silvered paper is placed in a large extension camera, upon which the enlarged image is received. After an exposure of 15 minutes to sunlight, the paper is removed in a holder and to a dark room, where the picture is developed by means of special preparations. This slow method is now largely superseded by the employment of bromide paper, which is much more rapid and can be used with artificial light. In a dark room the paper may be pinned to a wall, and the enlarged image of a negative in an apparatus like a magic lantern be thrown upon it for about two or three minutes. It is then removed and developed in a solution of iron and oxalate of potash called ferrous oxalate, fixed in hyposulphite soda solution, washed, and dried. In all cases it is essential that a glass negative, somewhat thin, be secured from the paper photograph. Better still, use the original negative when possible.

(5) W. O. says: Will you kindly oblige one who, although a helpless invalid for fifteen years, is still much interested in your paper, by giving him the best information at your disposal? 1. What is the composition and process of manufacture of the best artificial stone sidewalk you know of? A. To make a cement walk, level the ground and pack the earth well: then spread upon it a stiff mortar three inches thick, of sharp sand four parts, best cement one part. Cover this while fresh with another coating of mortar made of best Portland cement one part, clean, sharp sand 2 parts. 2. Is there a reliable artificial building stone? If so, what is it composed of? A. Good artificial stone is made of best Portland cement one part, clean, sharp sand two parts, mixed stiff, shaped in boxes to give the desired form of blocks.

(fi) J. J. C. asks the best coating or covering to prevent water pipes from freezing. A. Heavy hair felt and mineral wool covering, boxed, or boxing and filling with sawdust, hay, or straw, are all suitable for preventing freezing. The size of the box should be made suitable to the intensity of exposure; 1/2 inch or 34 inch water pipe should have from 3 to 5 inches of space all around filled with packing where exposed to

(7) J. T. D. writes: When lead is plated not make a good steam joint under any condition; of course, look for anything absolutely new, we have from the action of the steam, and in this combination

(8) T. N. C. asks why the Christian era commences four years after the birth of Christ. A. Our present era was fixed by Dionysius Exiguus in 525 A.D. and the latest edition of the Encyclopædia Britannica is authority for the statement that "we QUALITATIVE AND QUANTITATIVE, cannot demonstrate the exact year of the nativity, but INORGANIC AND ORGANIC. By John critics of all schools are verging more and more to the Muter MA Ph D. etc. Philadels accordance of ARC, as the resoluble wear of Christie acceptance of 4 B.C. as the probable year of Christ's

> (9) W. N. asks how to dress the skins of birds so that they can be pieced together and made into a small robe or mat. A. Thoroughly impregnate the fibrous part with a mixture composed of 4 parts alum and 1 part alum and saltpeter. Arsenic powder is also sometimes used in similar work as a protection from insects and vermin, but the danger of employing such a poison is evident. For directions about skinning and stuffing birds, see Spons' Workshop Receipts, first series, which we mail for \$2.00.

> (10) E. H.—The first French steam railway was the Paris and St. Germain line, 11 miles long, opened in 1837.

#### TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for pa tents at home and abroad enable us to understand the laws and practice on both continents, and to possess un equaled facilities for procuring patents everywhere. 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. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

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	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header. See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Holstways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden	573,278 573,055 573,225 373,205 373,142 373,682 373,112 373,352 373,353 373,353 373,953 373,963 373,973 373,996 373,173 373,096 373,173 373,096 373,173
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Hell nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier	573,278 573,065 573,225 373,205 373,142 373,682 373,1682 373,352 373,352 373,053 373,053 373,091 373,125 373,259
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hige, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather	373,278 \$73,055 \$73,225 373,205 373,142 373,682 373,409 373,132 373,352 373,953 373,963 373,913 373,913 373,913 373,913 373,913 373,913
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater. Heater, D. F. McHenry Hele nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiller	\$73,278 \$73,065 \$73,225 \$73,225 \$73,142 \$73,162 \$73,162 \$73,352 \$73,053 \$73,063 \$73,063 \$73,063 \$73,073 \$73,173 \$73,259 \$73,259 \$73,259
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Holstways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hoof, C. Robin Hopple, J. A. W. Burris Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide, A. Fullwiler Ironing tablet, C. Zimmerling	\$73,278 \$73,065 \$73,225 \$73,225 \$73,142 \$73,162 \$73,162 \$73,352 \$73,053 \$73,063 \$73,063 \$73,063 \$73,073 \$73,173 \$73,259 \$73,259 \$73,259
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Head rest, M. J. Koenig Heater. See Car heater. Heater, D. F. McHenry Hele nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiller Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar.	573,278 573,065 573,225 373,205 373,142 373,682 373,1682 373,352 373,255 373,053 373,091 373,125 373,259 373,125 373,259
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header. See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed coverholder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint.	\$73,278 \$73,055 \$73,225 \$73,225 \$73,142 \$73,3682 \$73,142 \$73,362 \$73,363 \$73,103 \$73,363 \$73,255 \$73,053 \$73,173 \$73,091 \$73,125 \$73,259 \$73,158 \$73,158
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland	\$73,278 \$73,055 \$73,225 \$73,225 \$73,142 \$73,3682 \$73,142 \$73,362 \$73,363 \$73,103 \$73,363 \$73,255 \$73,053 \$73,173 \$73,091 \$73,125 \$73,259 \$73,158 \$73,158
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Holstways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed	\$73,278 \$73,065 \$73,225 \$73,242 \$73,362 \$73,142 \$73,362 \$73,112 \$73,362 \$73,153 \$73,091 \$73,173 \$73,091 \$73,125 \$73,259 \$73,168 \$73,128 \$73,248 \$73,248 \$73,283
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge	\$73,278 \$73,065 \$73,225 \$73,205 \$73,142 \$73,3682 \$73,112 \$73,362 \$73,153 \$73,091 \$73,125 \$73,259 \$73,189 \$73,189 \$73,189 \$73,189 \$73,189 \$73,189 \$73,189
	Harvester, self-raking attachment for, M. Dew Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Hoof expander, C. H. Shepard Hoof expander, C. H. Shepard Hoofexpander, C. H. Shepard Hopple, J. A. W. Burris Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp burner, E. B. Requa	\$73,278 \$73,055 \$73,225 \$73,242 \$73,362 \$73,142 \$73,362 \$73,112 \$73,362 \$73,153 \$73,063 \$73,173 \$73,091 \$73,173 \$73,091 \$73,173 \$73,291 \$73,259 \$73,188 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,3083 \$73,083 \$73,195
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, hanging, E. Fisher	\$73,278 \$73,065 \$73,225 \$73,225 \$73,142 \$73,3682 \$73,112 \$73,352 \$73,053 \$73,105 \$73,173 \$73,091 \$73,175 \$73,259 \$73,139 \$73,139 \$73,148 \$73,248 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Heid nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe attachment device, J. Ott Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Joint. See Waigon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp burner, H. Gillette Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, miner's, J. L. Morris Lamp, shade, G. E. Brehmer	\$73,278 \$73,055 \$73,225 \$73,142 \$73,3682 \$73,142 \$73,3652 \$73,153 \$73,091 \$73,173 \$73,091 \$73,193 \$73,259 \$73,188 \$73,258 \$73,259 \$73,259 \$73,259 \$73,259 \$73,259
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Hele nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, hanging, E. Fisher Lamp, signal, R. J. Armour	\$73,278 \$73,065 \$73,225 \$73,225 \$73,142 \$73,3682 \$73,142 \$73,352 \$73,153 \$73,093 \$73,112 \$73,350 \$73,173 \$73,091 \$73,125 \$73,125 \$73,139 \$73,148 \$73,248 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Heidel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, miner's, J. L. Morris Lamp, miner's, J. L. Morris Lamp, standard, W. A. Penfield  373,308, Lamp, standard, W. A. Penfield	\$73,278 \$73,055 \$73,225 \$73,242 \$73,3682 \$73,312 \$73,363 \$73,103 \$73,363 \$73,096 \$73,173 \$73,091 \$73,125 \$73,259 \$73,188 \$73,248 \$73,248 \$73,283 \$73,085 \$73,085 \$73,085 \$73,196 \$73,196 \$73,196 \$73,196 \$73,196 \$73,196 \$73,196 \$73,196 \$73,196 \$73,197 \$73,280 \$73,196 \$73,197 \$73,280 \$73,196 \$73,197 \$73,280 \$73,197 \$73,280 \$73,197 \$73,280 \$73,197 \$73,280 \$73,197 \$73,280 \$73,3169 \$73,373,373
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe attachment device, J. Ott Horneshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp, burner, E. B. Requa Lamp, hanging, E. Fisher Lamp, signal, R. J. Armour Lamp, standard, W. Patzer	\$73,278 \$73,055 \$73,225 \$73,225 \$73,142 \$73,362 \$73,142 \$73,352 \$73,352 \$73,053 \$73,053 \$73,063 \$73,173 \$73,091 \$73,125 \$73,259 \$73,188 \$73,189
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header. See Car heater. Heater, D. F. McHenry Hele nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistsways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hoose xpander, C. H. Shepard Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp, purner, H. Gillette Lamp burner, E. B. Requa Lamp, pas, R. M. Dixon Lamp, signal, R. J. Armour Lamp, standard, W. A. Penfield Lamp, standard, W. A. Penfield Lamp, standard, W. A. Penfield Latch, gate, G. W. Charleville Leather, machine for splitting scraps of. C. E.	\$73,278 \$73,055 \$73,2205 \$73,3142 \$73,3142 \$73,3682 \$73,112 \$73,362 \$73,255 \$73,053 \$73,1091 \$73,125 \$73,259 \$73,128 \$73,248 \$73,248 \$73,283 \$73,083
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater. D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, signal, R. J. Armour Lamp, standard, W. Patzer	\$73,278 \$73,065 \$73,225 \$73,205 \$73,142 \$73,3682 \$73,142 \$73,3632 \$73,155 \$73,053 \$73,163 \$73,173 \$73,091 \$73,175 \$73,259 \$73,183 \$73,183 \$73,248 \$73,283 \$73,183 \$73,283 \$73,185 \$73,185 \$73,185 \$73,185 \$73,186 \$73,186 \$73,187 \$73,280 \$73,281 \$73,304 \$73,304 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder. Hoof expander, C. H. Shepard Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp, hanging, E. Fisher Lamp, hanging, E. Fisher Lamp, hiner's, J. L. Morris Lamp, signal, R. J. Armour Lamp, standard, W. Patzer	\$73,278 \$73,055 \$73,225 \$73,142 \$73,362 \$73,142 \$73,362 \$73,112 \$73,362 \$73,153 \$73,091 \$73,173 \$73,091 \$73,196 \$73,189 \$73,248 \$73,283 \$73,283 \$73,283 \$73,283 \$73,283 \$73,183 \$73,283 \$73,183 \$73,283 \$73,183
•	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater. D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hoose, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, gas, R. M. Dixon Lamp, tandard, W. A. Penfield Lamp, signal, R. J. Armour Lamp	\$73,278 \$73,065 \$73,225 \$73,225 \$73,142 \$73,3682 \$73,112 \$73,352 \$73,153 \$73,091 \$73,173 \$73,259 \$73,183 \$73,183 \$73,248 \$73,248 \$73,283 \$73,283 \$73,183 \$73,283 \$73,183 \$73,283 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,185 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376
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,	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Header. See Car heater Heater. D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hoorseshoe attachment device, J. Ott Horseshoe attachment device, J. Ott Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, gas, R. M. Dixon Lamp, aga, R. M. Dixon Lamp, signal, R. J. Armour Lamp, signal, R.	\$73,278 \$73,065 \$73,225 \$73,205 \$73,142 \$73,3682 \$73,142 \$73,3632 \$73,153 \$73,169 \$73,173 \$73,259 \$73,183 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,253 \$73,165 \$73,165 \$73,165 \$73,165 \$73,169 \$73,169 \$73,169 \$73,304 \$73,244 \$73,73 \$73,280 \$73,244 \$73,73 \$73,280 \$73,244 \$73,73 \$73,280 \$73,244 \$73,73 \$73,280 \$73,244 \$73,73 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,280 \$73,244 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376 \$73,376
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Heidel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Joint. See Waigon jack. Jar. See Battery jar Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge Lamp burner, H. Gillette Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, shade, G. E. Brehmer Lamp, signal, R. J. Armour Lamp'standard, W. A. Penfield. Lantern, tubular, F. Dietz Latch, gate, G. W. Charleville Leather, machine for splitting scraps of. C. E. Roberts Lighting rods, interlocking coupling for, G. R. Kress Lith See Signal light. Lighting rods, interlocking coupling for, G. R. Kress Lith Cock. See Alarm lock. Door lock. Fence lock. Trunk lock. Lock, W. H. Taylor	373,278 \$73,055 \$73,125 373,142 373,682 373,1682 373,355 373,053 373,091 373,193 273,396 373,128 373,248 373,248 373,248 373,248 373,248 373,248 373,248 373,195 373,195 373,196 373,196 373,197 373,280 373,198 373,196 373,196 373,196 373,197 373,280 373,065 373,196 373,196 373,196 373,196 373,196 373,196 373,196 373,391 373,196 373,391 373,196 373,391 373,196
	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater. Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hoople, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, B. J. M. Menge. Lamp burner, E. B. Requa Lamp, gas, R. M. Dixon Lamp, hanging, E. Fisher Lamp, hanging, E. Fisher Lamp, spand, R. J. Armour Lamp, spand, R. J. Armour Lamp, standard, W. Patzer	\$73,278 \$73,065 \$73,225 \$73,205 \$73,142 \$73,362 \$73,142 \$73,362 \$73,155 \$73,053 \$73,163 \$73,175 \$73,244 \$73,253 \$73,244 \$73,253 \$73,185 \$73,185 \$73,185 \$73,185 \$73,186 \$73,186 \$73,186 \$73,187 \$73,244 \$73,219 \$73,244 \$73,219 \$73,304 \$73,219 \$73,304 \$73,186 \$73,186 \$73,186 \$73,186 \$73,186 \$73,186 \$73,186 \$73,186 \$73,186
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	Harvesters, twine holder alarm for, J. Davaine Hat bodies, machine for manufacturing, T. Shirley Head rest, M. J. Koenig Heater. See Car heater Heater, D. F. McHenry Heel nailing machine, J. F. McMullett Hides, machine for unhairing, J. W. Vaughn Hinge, P. Forg Hoisting and conveying machine, W. Thornburgh Hoistways, door for, W. K. Crofford Holder. See Bag holder. Bed cover holder. Paper holder. Photographer's plate holder. Surgical instrument holder. Shade holder Hoof expander, C. H. Shepard Hook, C. Robin Hopple, J. A. W. Burris Horseshoe attachment device, J. Ott Horseshoe machine, J. A. Burden Hydraulic engine, C. R. Whittier Indicator. See Mail box indicator. Weather warning indicator. Injector for furnaces, air, W. S. Hutchinson Insecticide. A. Fullwiler Ironing tablet, C. Zimmerling Jack. See Wagon jack. Jar. See Battery jar. Jar cover fastening, F. H. Palmer Joint. See Railway rail joint. Journal box, self-oiling, M. Garland Key. See Telegraph key. Lacing hooks, machine for setting, J. H. Reed Lamp, gas, R. M. Dixon Lamp, kanging, E. Fisher Lamp, hanging, E. Fisher Lamp, signal, R. J. Armour Lamp, s	\$73,278 \$73,065 \$73,225 \$73,205 \$73,142 \$73,362 \$73,142 \$73,363 \$73,112 \$73,363 \$73,163 \$73,173 \$73,191 \$73,253 \$73,183 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,248 \$73,253 \$73,165 \$73,175 \$73,266 \$73,175 \$73,266 \$73,175 \$73,275
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