Scientific American.

NEW BOOKS, ETC.

WIRELESS TELEGRAPHY POPULARLY EXPLAINED. By Richard Kerr. With preface by W. H. Preece, New York: Imported by Charles Scrib-ner's Sens. 1898. Pp. 111. Price 75 conte cents.

In the last two years considerable interest has been manifested in wireless telegraphy, and, so far as we know, this is the first book upon the subject. The experimentation of James B, Lindsay, Mr. Preece, Marconi, and Dr. Lodge are given concisely, but the book is confessedly intended for popular use.

HANDBUCH DER BAUSTOFFLEHRE. Bearbeitet von Richard Krüger. Two volumes with 443 illustrations. Vienna: A. Hartleben. Large octavo. Pp. 887. Price, paper \$8.

Within the last fifteen years artificial building mate rials have become so numerous and have found so wide an application that a book in which they are discussed in detail should be welcomed. In the work now lying efore us, the author, besides describing the natural ma terials used in building, such as stone, wood, and the like, also treats of those important artificial substances now so generally employed. In describing the various building stones and woods, the author has made use of his own experience and of the tests made by the German

government at its various experiment stations. The book is divided into three sections. In the first section. the natural and artificial stones, the earths and metals are discussed. The second section treats of the various mortars, asphaltum, and cement. The third section deals with the making and use of glass, resin, tar, paints, var nishes, caoutchouc, guttapercha, oiled cloths, asbestos fabrics, carpets, ropes, hemp, and moss. In order to fa-cilitate the use of his work, the author has compiled an exhaustive index of the subjects discussed. The book will be a desirable acquisition to the libraries of architects engineers, and manufacturers of building materials.

BUILDING CONSTRUCTION AND SUPERIN-II. Carpenter's Work. New York: William T. Comsteck. 1898. Pp. 544. 524 illustrations. 8vo, cloth. Price \$4.

Mr. Kidder has long been known to the manufacturing profession through his "Architect's and Builder's Pocket book," and in the present volume he deals with the materials employed by the carpenter and joiner, more especially with the details of all forms of wooden construction, from the rough framing of wooden buildings to nicely finished cabinet wood. The work is in every sense what may be called a practical one, while at the same time the reasons for, and advantages of better systems of construction are intelligently pointed out, and also the defects of cheaper and more common forms The book will not only be of value to the carpenter, but will be simply invaluable to the architect. With the aid of clear sections of windows, doors, etc., the architect will not have to spend much time thinking out the proper arrangement of stops, stiles, etc. He will only have to refer to this book to find a large scale section which will give him just the information he wants with the dimensions lettered upon it. Hardware of all kinds is described, and the proper method of applying it is shown. It is one of the most valuable books which ever appeared on the subject in this country and we have no hesitation in recommending it.

THE AMERICAN STREET RAILWAY DI-RECTORY AND BUYERS' MANUAL. New York and Chicage: E. L. Powers, 1898. Published quarterly. Price \$3 per annum.

This directory contains a complete list of electric, cable, horse and elevated railways in the United States, with the capital, bonds, names of the officials, mileage gage of the track, number of cars, power plant, names of the makers of the generators, engines and boilers, etc. It also contains some valuable statistics of the worth, mileage, capitalization, and car equipment of street railways in the United States, from which we find that there are at present 909 electric roads out of the 1,074 roads which exist in the United States. In other words, there are at present over eight times as many electric roads as horse roads, and only twenty-one cable roads are now in operation in the entire country. The capital stock of these 1,074 roads amounts to \$975,625,827, and the bonds amounts to \$1,527,970,220, the total mileage 16,466 78, and there are 48,209 cars in use.

POOR'S MANUAL OF THE RAILROADS OF THE UNITED STATES FOR 1898. Thirty-first Annual Number. New York: H. V. & H. W. Poor. 1898. 8vo. Pp. 1,600. 70 maps. Price \$7.50. Poor's Manual is always a welcome visitor. It is sim-

ply invaluable to all who are engaged in any part railroad world. All who are in any way interested m securities will find the book indispensable. Each railroad is taken up in turn. The mileage of all main lines. branch, and leased roads are then given, and in the case of leased lines the annual charge is given. Then comes the history of the road, a detailed account of its rolling stock, floating equipment, operations for the year, capital stock, bonds, equipment trusts, etc. Then comes full information regarding leased roads. From this it will be seen that the book contains information of such a wide range that it is simply invaluable to all who are interested in any way in railroads. The total mileage of railroads of the United States at the end of 1897 was 179.692.57 miles. The total length of track was 236,911.52 miles There were also 35,810 locomotive engines, 25,275 passen. ger cars, 8.133 mail cars, etc., and 1.229.335 freight cars, Total liabilities of the various roads amounted to \$11,-631,711,740. The number of passengers carried was 504, 106,525, and 788,385,448 tons of freight were moved. There are a number of pages with just such statistics which are of importance from an economic point of view. In addi. tion to steam roads, street railways, and miscellaneous corporations, there is also a department of State and municipal indebtedness. The book is well printed and contains a perfect mine of information.

Business and Personal.

The charge for insertion under this head is One Dollar line for each insertion; about eight words to a line Advertisements must be received at publication offic as early as Thursday morning to appear in the follow ing week's issue.

Marine Iron Works. Chicago. Catalogue free.

"U. S." Metal Polish. Indianapolis. Samples free. Gasoline Brazing Forge, Turner Brass Works, Chicago Yankee Notions. Waterbury Button Co., Waterb'y, Ct Schwaab Stamp & Seal Co., Milwaukee. Send for cat'g. Machinery designed and constructed. Gear cutting. The Garvin Machine Co., Spring and Varick Sts., N. Y. FERRACUTE Machine Co., Bridgeton, N. J. Full line of Presses, Dies and other Sheet Metal Machinery Easy Experim'ts of Organic Chemistry. Book by Prof. Appleton. 60 cents. Snow & Farnham, Providence, R. I.

For Sale—File of SCI. AM. from June, 1866, to date Cheap. "Machinist," 77 Jefferson Av., Jersey City, N. J Hub, spoke, wheel, bending, and handle machinery Single machines or full equipments, by the Defianc Machine Works, Defiance, Ohio, U. S. A.

The celebrated "Hornsby-Akroyd" Patent Safety Oi Engine is built by the De La Vergne Refrigerating Ma chine Company. Foct of East 138th Street, New York. The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y "Model Engineer and Amateur Electrician." a first-

class paper, published every month. Annual subscrip tion, 75c. Send 8c. for sample number. Agents wanted Spon & Chamberlain, 12 Cortlandt St., New York, U. S. A



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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.
 Buyers wisking to purchase any article not advertised in our columns will be furnished with addresses of house manufacturing or carrying the same.

Special Written Information on matters o personal rather than general interest cannot b 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

Minerals sent for examination should be distinctly marked or labeled.

(7509) X. asks: If a pendulum were hung on a frictionless pivot and placed in a perfect vacuum would it continue to swing forever, if once set in motion A. We do not know the answer to this question. Ther never was a pendulum hung on a frictionless pivot, no was there ever a perfect vacuum produced, and even i both these conditions were met, there has not been forever in which to see if the pendulum might not, some how, after all, stop. All the light which can be throw

on this problem comes from Newton's first law regarding	Feeder, steam boiler, J. A. Sumner
inertia, which is to be found in every text book of phys-	Fence, G. P. Smith
ics. We should prefer to devote our time and space to	Fence, G. P. Smith. 611.981 Fence fastening device, wire, H. H. Hemann. 611.783 Fence machine, W. F. Seargeant. 611.984 Fence machine, slat and wire, W. F. Seargeant. 611.944 Fence stay and fastener, N. B. Lesle 611.933 Fencee, stay and lock, wire, H. Kees. 611.913 Fence, stay wire, C. E. Robinson. 611.640 Fence, wire, J. M. Trull. 611.640 Fence, wire, J. Truax. 611.657 Fencier, See Carfender. 611.673 Fule for letters, bills, etc., W. H. Stewart, Jr 611.716
real questions,	Fence machine, slat and wire, W. F. Seargeant. 611,944
Tour questions,	Fence stay and lock, wire, H. Kees,
	Fence, stay wire, C. E. Robinson 611,648
INDEX OF INVENTIONS	Fence stretcher, wire, J. M. Trull
	Fencing, wire, R. H. Bloomer \$11,673
For which Letters Patent of the	File for letters, bills, etc., W. H. Stewart, Jr, 611.716
United States were Granted	File for letters, bills, etc., W. H. Stewart, Jr 611,716 Filtration, system of, Langdon & Brown 611,691 Firearm locks, safety attachment for, O. Rose 611,977
Childe Diales were Granted	Elifearms, evilader stop for revolving. B. K. J.
OCTOBER 4, 1898,	H. Wesson
	H. Wesson
AND EACH BEARING THAT DATE.	Fires in domestic fire grates, appliance for kind- ling or reviving J. M. Hollinshead
[See note at end of list about copies of these patents.]	Flooring of strengthened concrete, system of, F.
[coor note at one copies of (nos- patents)]	Hennebique
Abdominal bandage, A. S. Markle 611.920	
Abdominal bandage, A. S. Markle 611,920 Acid, method of and apparatus for making dura- ble fluids containing carbonic, H. Gron-	man 611,859 Fruit, preparation of, W. Forsyth 611,782
wald	Funnel, S. A. Hess
Aerated waters or beverages, apparatus for mak-	Furnace. See Boiler furnace. Furniture joint, A. Peterson 611,933
Alarm lock, E. N. Case	Gage. See Pressure gage.
Almond huller, J. E. Beach	Gaging implement, J. E. Goddard
wald. 611/32 Acrated waters or beverages, apparatus for mak- ing, Emringer & Marchand. 611.816 Alarm lock, E. N. Case. 611.922 Almond huller, J. E. Beach. 611.765 Animal catcher, W. E. Tidler 611.745 Animal catcher, W. E. Tidler 611.745 Animal trap, J. B. Bavis. 611.749	Game apparatus, H. T. Pycroft
Animal trap, J. B. Davis	Game, combined bowling, G. Brown 611,828 Game ring I Klander
Asphalt from crude petroleum and petroleum tar, obtaining, Forward & Davidson	Garden implement, J. Miller
Assaying apparatus, Adams & Younger 611,986	Garment supporter guard, J. M. Anck
Awnings, etc., fastening device for, W. F. Mau-	Gas burner, multiple incandescent, E. Lindner 611,756
liok 611 727	Furnicue get Done John A. Stinade. \$11,933 Gage. See Fressue gate Gdard. \$11,933 Gaging implement, J. E. Gdard. \$11,933 Game apparatus, G. E. Murphy. \$11,758 Game apparatus, H. Pyerott. \$11,893 Game, combined bowling, G. Brown. \$11,893 Garnent supporter guare, J. M. Anck. \$11,815 Gas generators, regulating cock for acetylene, N. \$11,816 Gas generators, acetylene, W. J. Baulieu. \$11,858 Gas generators, acetylene, W. J. Baulieu. \$11,858 Gate, E. See Elevator gate. Tilting gate. \$11,859 Gate, R. Park, J. France, A., Schlapbach. \$11,859
Back pedaling brake, J. W. Hoffman	H. Medberry 611,698
Ballast unloader, H. H. Warner	Gate. See Elevator gate. Tilting gate.
Lundy	Gate, R. Pratt, Jr
Barrel head making machine, J. H. Reed	Gate fastener, wire fence, A. Schlapbach 611,741
Bath and wash tub, combination, S. W. Hend-	Gear cutting machine, N. A. Wheeler
Beams, means for securing furring string to mo-	Gate fastener, wire fence, A. Schlapbach
tallie, L. L. Sagendorph	Glass blowing machine, L. H. Dolan
Bearing, side, P. H. Murphy	E. Hoffman. 611,631
Klahn	E. Hoffman
Bed, tent, beat, etc., combined, H. C. Brown61,859 Beebive, C. Winter	Governing device, A. Fischer
Beenive, C. winter	Grain binder deck, S. K. Dennis
Bicycle, O. Fetzer	Grain binder knotter. S. K. Dennis 611,775 Grain drill Jones & Carr
Bicycle, P. J. Parker	Grain dropper spout, D. A. Smith
Bicycle driving mechanism. H. H. Fefel 611.779	Grinding and pulverizing machine, J. Pottgens. 611,867
Bicycle halder, Brown & Williams	Grinding machine, G. G. Crowley
Bicycle lock, C. H. Melquiond 611.757	Grinding and pulverizing machine, J. Pottgens Grinding machine, A. Clibbe
Berringing meenanism, H. S. Ross. 611740 Bicycle, O. Fetzer. 611750 Bicycle chain and sprocket guard, J. W. Fulford, 611750 Bicycle driving mechanism, H. H. Fefel. 611770 Bicycle driving mechanism, H. H. Fefel. 611770 Bicycle bolder, Brown & Williams. 611.556 Bicycle bolder, Brown & Williams. 611.556 Bicycle lock, C. H. Melquond. 611.515 Bicycle lock, C. H. Melquond. 611.055 Bicycle stand, T. Beecher. 611.005 Bicycle support, I. H. Sapn. 611.705	Grinding machine, ball, Hunt & Haddow 611,842 Grindstone, D. Shannon
Bicycle stand, T. Beecher. \$11,672 Bicycle support, I. H. Sapp. \$611,602 Bicycle tubes, toel for joining, E. Taylor. \$611,602 Bicycle wheel guard cleaner, H. S. Miller \$611,602 Bicycle wheel hub, P. L. Hussey. \$11,609 Boiler fue cleaner, N. B. Hamilton. \$611,904 Boiler furnacc, steam, O. D. Orvis. \$611,661 Boiler furnacc, steam, B. W. Tucker. \$611,661 Boiler tube, ferrnle. G. W. Duvall. \$613,961 Boilt lock, M. B. Rebertson. \$613,941	Handle. See Jar handle.
Bicycle wheel guard cleaner, H. S. Miller 611,802	Handle. See Jar handle. Hanger. See Coat hanger.
Biler flue cleaner, N. P. Hamilton, 611,787	Mannaina
Boiler furnace. steam, O. D. Orvis 611,975	Hat, G. Wildman 611.983
Boller furnace, steam. B. W. Tucker	Hat bag, M. L. Horning 611,633
Bolt lock, M. E. Robertson 611,941	Hats, coats, etc., support for, W. W. Vail 611.721
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Boil Jock, M. E. Robertsen	
Bottle, non-refillable, C. O. Swickard	Hoist, power, J. Des Brisay
Box. See Journal box. Mail box. Stuffing box.	Horse enecking device, runaway, J. McKenzie 611.702 Horse detaching device, H. Michael
Brazing or soldering metals, Midgley & Fink	Horse retainer, H. A. Stevens
Broiling and toasting device, E. M. Alderson 611,595 Brush shaving, L. Legrand	Horseshoe, soft tread, M. C. Gray
Brush, shaving, L. Legrand	Smith & Mortson
Bucket, noisting, T. M. Jenkins 611,911	(Continued on page 254)

	Bulkhead doors, apparatus for automatically elosing, W. & A. R. Crawford	Advertisements .
	Burner. See Gas burner. Prairie burner. Burner. C. G. Smith fill,849	ORDINARY RATES.
,	Burner, See Gas burner, Prairie burner, Burner, C. G. Smith	Inside Page, each insertion 75 cents a line Back Page, each insertion, \$1.00 a line
	Button punching machine, W. E. Bennett 611,989 Cap forming mechanism, Hoffman & Frist 611,632	To some classes of Advertisements, Special and Higherrates are required.
	Car coupling, J. Swihart	The above are charges per agate line-about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may head adver-
•	Cartrip mechanism, J. R. White	tisements at the same rate per agate inc, by measure- ment, as the letter press. Advertisements must be received at Publication Office as early as Thursday
•	Cartridge holding attachment for belts, R. C.	morning to appear in the following week's issue.
•	Langdon	Stone Footpower
1	Chains, locking device for connecting bolts of drive, W. C. Soule	Star + Screw
	Chair See Collansible chair	Lathes Automatic Cross feed
	Chair, M. I. Wisler	9 and 11-inch Swing. Autor meters
•	Rail groove cleaner. Clevis, plow, F. W. Kruse. Clock, alarm, F. Gundorph Sill risi Cloth cutting machine, K. Komow Sill risi Cloth cutting machine, K. Komow	Send for Catalogue B. Seneca Falls Mfg. Company,
e	Cloth cutting machines, feeding mechanism for, G. A. Schulze	695 Water St., Seneca Falls.N.Y.
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	holz	SEBASTIAN LATHE CO. 120 CULVERT ST. CINCINNATI.O.
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-	Collapsible chair, Ruckdeschel & Mockel	Your kit is not complete un- less it includes the famous
	Coop for poultry, etc., folding, C. Hoskins 611,753 Corn shellers, oat clipping attachment for. J.	STILLSON WRENCH
	Donovan	which is particularly adapted for turning out the bess work without crushing the pipe in the least. All parts are drop-forged. Once tried, it is always used. It has
	Crate, collapsible, J. Cunningham	many imitations but no equals. See explanatory cuts. Price list on application to WALWORTH MFG. CO., 20 Oliver Street, Boston, Mass.
	Updike. 611,720 Culinary vessel, A. W. Obermann. 611,705 Cultivator, G. W. Noble. 611,644	
22	Cultivator, G. W. Noble	
5	Cutter. See Metal cutter. Dish cleaner, M. D. Colbath. 611,607 Door spring, J. M. Gillhan. 611,997	CUNSMITHS, TOOL
1	Drawing board, R. W. Lundy	MAKERS, EXPERI- MENTAL AND REPAIR WORK, ETC.
i	 Drill. See Grain drill. Drilling tool, W. H. Skinner	Send for Illus. Catalog. W. F. & Jno. Barnes Co.
t :	Dyle and making same, blue, M. Ulrich	1999 Ruby Street, ReckFerd, ILL.
1	Dye, prown Bouton, R. Demutanan	The Coburn Patent Trolley Track
f f	Egg beater, E. Wishart	Store Ladders.
e	Electrical connector, J. Pedriali	A PAIR OF STAIRS ALL ALONG
d f	lator, H. Lutz	THE LINE OF SHELVES.
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_	End gate fastening device. C. M. Davis	
3,	engine. Thermal expansion engine. Trac- tion engine.	THE FORBES
? e	Engine, F. W. Ofeldt	PATENT DIE STOCKS.
r	Excavator, N. C. Wright 611,985	Two and three inch pipe can be threaded by a boy using only one band on a crank.
a e-	Fastenings, machine for inserting metallic, L. A. Casgran	CURTIS & CURTIS,
n	Watson	No. 30 Hand Machine. Range 34 to 2" R.&L. 6 Garden St., Bridgeport, Conn.
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	Fence stay and lock, wire, H. Kees	Illustrated 312-page Catalogue free
>	Fence stay and lock, wire, H. Kees. 611,913 Fence, stay wire, C. E. Robinson. 611,613 Fence, stay wire, C. E. Robinson. 611,613 Fence, stay wire, J. Truax. 611,659 Fence, wire, J. Truax. 611,659 Fencer, wire, R. H. Bloomer. 611,659 Fender. See Car Fender. 611,615 Filtefor letters, bills, etc., W. H. Stewart, Jr. 611,716 Filteration system of Langdon & Brown 611,813	to manufacturers and foremen. THE ECAN CO.
	Firearm locks, safety attachment for, O. Rose 611,977	327 to 347 West Front Street, CINCINNATI, OHIO.
	H Wesson Lill 826	
2.	Fire escape Britt & Enns	THE THERMOPHONE
]	Flooring of strengthened concrete, system of, F. Hennebique	A new instrument for Measuring Temperatures
20	Fruit, preparation of, W. Forsyth	Will take temperature of any- thing at any range or distance.
32 16	Funnel, S. A. Hess	E. S. RITCHIE & SONS,
12	Furniture joint, A. Peterson. \$11,933 Gage. See Pressure gage. \$11,933 Gaging implement, J. E. Goddard. \$11,825 Game apparatus, G. E. Murphy. \$11,863 Game apparatus, H. T. Pyeroft. \$11,863 Game, combined bowling, G. Brown \$11,865 Game, combined bowling, G. Brown \$11,915	BROOKLINE, MASS.
06	Game apparatus, H. T. Pycroft	SAVE ½YOUR FUEL
20 36 72	Game, rolling Joving, V. Brown 11, 51, 51 Garden implement, J. Miller. 11, 51 Garden is supporter guard, J. M. Anck. 11, 56 Gas burner, incandescent. O. Kern. 11, 56 Gas burner, multiple incandescent, E. Lindner. 11, 56 Gas generator, acetylene, W. J. Baulieu. 11, 611, 85 Gas generators, regulating cock for acetylene, N. H. Medherry. 511, 598	By using our (stove pipe) RADIATOR With its 120 Cross Tubes,
37	Gas burner, multiple incandescent, E. Lindner. 611,756 Gas generator, acetylene, W. J. Baulieu	ONE stoveor furnace does the work of TWO. Drop postal for proofs from
55 16. 17	H. Medberry. 611,698 Gas meter, J. Greenall. 611,628	

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	Gear cutting machine, N. A. Wheeler 611,851	
	Gelatin thread or filament, insoluble, A. Millar 611,814 Generator. See Gas generator.	1
	Glass blowing machine, L. H. Dolan 611.612	1.0
	Glass vessels, apparatus for finishing necks of,	
	E. Hoffman	-
	Gold from ores, process of and apparatus for ex- tracting, B. C. Hinman	l F
	Governing device, A. Fischer	
	Governor, steam engine, G. H. Firth 611,729	1
	Grain binder deck, S. K. Dennis 611,776	
	Grain binder knotter. S. K. Dennis	
	Grain dropper spout, D. A. Smith 611,980	
	Grinding and pulverizing machine, J. Pottgens., 611.867	
	Grinding machine, A. R. Clizbe 611,893	一個
	Grinding machine, G. G. Crowley	澤
	ster 611,968	1
	Grinding machine, ball, Hunt & Haddow 611,842	١.
	Grindstone, D. Shannon 611,946	5
	Handle. See Jar handle. Hanger. See Coat hanger.	-
	Harvesting and husking machine, corn, D. Mc-	n
	Mannajna	Q
	Hat, G. Wildman 611.983	Ť
	Hat and coat hanger, O. Wigtil	
	Hat bag, M. L. Horning	1
	Hats, fur triuming for ladies', J. F. Vorck 611.875	
	Hinge. E. Schmidt 611,742	
	Hinges, machine for manufacturing sheet metal, Smith & Mortson	
	Hoist, power, J. Des Brisay	
	HUISE CHECKING GEVICE, FUNAWAY, J. MCK enzie 611.702	1
	Horse detaching device. H Michael 611 738	
	Horse retainer, H. A. Stevens	1.3
	Horseshee, M. C. Gray	100
	Horseshoe with removable calks, N. Svenson 611,717	11
	(Continued on page 254)	1
	to contract on bull when	•

