# Business and Personal.

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

Abbe Bolt Forging Machines and Palmer Power Hammer a specialty. S. C. Forsaith & Co., Manchester, N. H. Centrifugal Pumps, 100 to 35,000 gallons per minute. See adv. p. 126.

Parties having Patented Specialties they want introduced, may address Agency, P. O. Box 985, Prov., R. I.

Your boiler is predisposed to weakness by thic ening of the water or burning of the iron caused by impurities in feed water. The, should be removed by Hotchkiss' Mechan. Boiler Cleaner. 84 John St., N.Y. Circulars free

A prudent family always has Van Beil's "Rye and Rock" in the house.

Wanted-Light Power Punch, H. H. Perkins, Kewanee, Ill. Excellent business opportunity. Xenia, page 140. 12 x 12 Vertical Eigine. Extra heavy. Photos of B. & W., 261 N. 3d St., Phila., Pa.

Wanted-A competent Card Room Overseer for 120 Lowell cards. Address, with reference and wages expected, Natchez Cotton Milis, Natchez, Miss.

Party owning Sash, Door, and Blind Factory, wishes to add to his manufacture some Specialty (a good patent preferred) which will meet with large and profitable sales. Address X. Y. Z., Crown Point, N. Y.

Tarred Roof'g, Sheath'g Felts. Wiskeman, Paterson, N.J.

Supplement Catalogue.-Persons in pursuit of information on any special engineering. mechanical, or scien tific subject, can have catalogue of contents of the Sci-ENTIFIC AMERICAN SUPPLEMENT sent to them free The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co. Publishers, New York.

List 26.—Description of 2,500 new and second-hand Machines, now ready for distribution. Send stamp for the same. S. C. Forsaith & Co.. Manchester, N. H.

Combination Roll and Rubber Co., 27 Barclay St. N. Y. Wringer Rolls and Moulded Goods Specialties. Punching Presses & Shears for Metal-workers, Power

Drill Presses \$25 upward. Power & Foot Lathes. Prices. Peerless Punch & Shear Co..115 S.Liberty St., N.Y. Improved Skinner Portable Engines. Erie, Pa The Eureka Mower cuts a six foot swath easier than

a side cut mower cuts four feet, and leaves the cut grass standing light and loose, curing in half the time. Set for circular. Eureka Mower Company, Towarda, Pa. Pure Oak Leather Belting. C. W. Arny & Son, Ma-

nufacturers Philadelphia. Correspondence solicited. Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Wood Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O. Experts in Patent Causes and Mechanical Counsel. Park Benjamin & Bro. 50 Astor House. New York.

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

Malleable and Gray Iron Castings, all descriptions, by Erie Maileable Iron Company, limited. Erle, l'a

National Steel Tube Cleaner for boiler tubes. Adjustable.durable. Chalmers-Spence Co., 10 Cortlandt St., N.Y. Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsb'g, Pa. Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros., 531 Jefferson &t., Philadelphia, Pa.

Nickel Plating. -Sole manufacturers cast nickel anodes. Pure nickel salts. importers Vienna lime, crocus, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Presses, Dies. Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Biss. Brooklyn, N. Y. 4 to 40 H P. Steam Engines. See adv. p. 126.

Long & Allstatter Co.'s Power Punch. See adv., p. 77. For Pat. Safety Elevators, Hoisting Engines. Friction Clutch l'ulleys, Cut-off Coupling, see Frisbie's ad. p. 94. Safety Boilers. See Harrison Boiler Works adv., p. \$3.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 93. Rollstone Mac. Co.'s Wood WorkingMach'y ad. p. 94.

For Machinists' Tools, see Whitcomb's adv., p. 94.

Clark Rubber Wheels adv. See page 103.

The Common Sense Dry Kiln prevents check, warp or hardened surface. See St. Albans M'f'g Co.'s adv.p.60 Machine Knives for Wood-working Machinery, Book Bingers, and Paper Mills. Also manufacturers of Solo man's l'arallel Vise, Taylor. Stiles & Co., Riegelsville, N.J

Skinner's Chuck. Universal, and Eccentric. See p. 106

See Bentel, Margedant & Co.'s adv., page 126.

Cope & Maxwell M'f'g Co.'s Pump adv., page 125.

Diamond Tools. J. Dickinson, 64 Nassau St., N. Y. Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon. 24 Columbia St., New York.

50.000 Sawvers wanted. Your full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten

saws, etc. Emerson, Smith & Co., Beaver Falls, Pa. Telegraph, Telephone, Elec. Light Supplies. See p. 125.

Elevators, Freight and Passenger, Shafting, Pulleys and Hangers. I. S. Graves & Son. Rochester, N. Y.

Gear Wheels for Models (list free): Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa. Gould & Eberhardt's Machinists' Tools. See adv., p. 125. The Medart Pat. Wrought Rim Pulley. See adv., p. 124.

For Heavy Punches, etc., see illustrated advertise ment of Hilles & Jones, on page 125.

Barrel, Key, Hogshead, Stave Mach'y. See adv. p. 125.

Steam Engines; Eclipse Safety Sectional Boiler. Lambertville Iron Works, Lambertville, N. J. See ad. p. 94. Fine Taps and Dies in Cases for Jewelers Dentists. Amateurs. The Pratt & Whitney Co., Hartford, Conn.

Catechism of the Locomotive, 625 pages, 250 engravings. The most accurate complete and easily understood book on the Locomotive. Price \$2.50. Send for a catalogue of railroad books. The Railroad Gazette, 73 Broadway, New York.

For best low price Planer and Matcher, and latest improved Sash, Door, and Blin't Machinery, Send for catalogue to Rowley & Hermance. Williamsport, Pa.

The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Schleicher Schumm & Co., Philadelphia, Pa. Send for circular.

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 430 Washington Av., Phil. Pa

#### NEW BOOKS AND PUBLICATIONS.

HERERDAS TECHNISCHE SCHUL UND VEREINS-WESEN FRANKREICHS. VON WILHELM VON NORDLING. Wien, Pest. Leipzig: A. Hartleben. 1881. 54 pp. (Technical Schools and Societies in France.)

The author gives a brief description of the origin and growth of the several institutions for technical education in France, their average attendance, course of study, and the several societies of the former scholars of these institutions. Among the schools and colleges mentioned are: the Ecole polytechnique, Ecole des Mines, Ecole des Ponts et Chaussees, Ecole des Arts ot Metiers, Ecole des Arts et Manufactures, and several others. From this work it will be seen that there are 13 technical societies, with 17,000 members.

Paris Universal Exposition of 1878. Reports of the United States Commission. Washington: U. S. Government Printing Office. 5 vols. 8vo. Illustrated. 1880.

The several volumes of these reports comprise: (1) Report of Commissioner-General R. C. McCormick, with accompanying papers, including lists of exhibitors and awards. (2) Report of Commissioners William W. Story (Fine Arts); Joshua L. Chamberlain (Education); Andrew D. White (Political Education): Elliot C. Jewett (Manual Training Schools); John T. Norton (Wood Carving); Henry Howard (Textile Fabrics). Daniel J. Morrell (Iron and Steet); William P. Blake (Ceramics and Glass and Glassware); F. P. Baker (Forestry); P. M. B. Young (Cotton Cultivation). (4) Thos. E. Jenkins (Chemical Processes); James D. Hague (Mining Industries); A. J. Sweeney (Steam and Gas Engines); William T. Porter (Machines and Machine Tools); Edward H. Knight (Clocks and Watches); William J. Anderson (Railway Apparatus). (5) Edward H. Knight (Agricultural Implements); John J. Woodman (Agricultural Products); Samuel Dysart (Live Stock); George W. Campbell (Horticulture); Thomas B. Ferguson (Pisciculture). The several reports are illustrated with engravings and charts, some of them profusely, and the several volumes are well indexed. That they contain a vast store of practical information and suggestion goes without telling. To a great extent the information here given was set before the public in our newspapers and technical journals during the holding of the exhibition; but it is well worth preserving in this more compact and acces sible form. For the set of reports on our table our thanks are due to Commissioner E H. Knight.

HYGIENE AND TREATMENT OF CATARRH.
By Thos. F. Rumbold, M.D. Part II. St. Louis: George O. Rumbold & Co.

Our favorable opinion of the first part of Dr. Rumbold's work, treating of the hygiene of catarrh, was expressed some months ago. The second part is devoted to therapentic and operative measures for chronic catarrhal inflammation of the nose, throat, and ears. The work is plainly written, and illustrated by 500 to 1,000 revolutions per minute. forty engravings of anatomical structures, apparatus, operations, etc. Thoughout the author insists on the paramount importance of hygienic measures and the advantage of non-irritating remedies and mild methods of treatment.

HAND-BOOK OF USEFUL TABLES FOR THE LUMBERMAN, FARMER, AND MECHANIC. Ithaca, N. Y.: Finch & Apgar. 25 cents.

A handy little book. especially for the lumberman. The numerous tables are the work of a graduate of Cornell University and presumably accurate.



HINT'S TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the

given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the

Persons desiring special information which is purely of a personal character, and not of general interest remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and lahor to obtain such information without remuneration.

Any numbers of the Scientific American Supplies MENT referred to in these columns may be had at this office. Price 10 cents each.

(1) H. M. G. asks: 1. Where can I obtain lead foil for making a secondary battery? A. Any maker of tin foil can roll it for you. 2. Who first invented the link motion of the locomotive 9 A, Robert Stephenson is generally credited with it, as he introduced it in 1843; but a Mr. Howe, one of his employes, is said to have invented it in 1842.

water being through the filling and overflow pipes. I have raised the lid now so that it can have air. Is there purify itself by contact with what air reaches it through (plaster of Paris). Nos. 2 and 4. Silicious lime carbonan opening at the lid 1 foot by 3 feet? A. Put into the water a few bushels of freshly burned charcoal in granular powder (free from fine dust). Stir up the water and let it settle. If this does not remedy the evil it is better to clean out the cistern. Surface contact with air will be of little use.

(3) M. W. C. asks: 1. Are the black rubber combs so much in use injurious to the hair or beard? I have somewhere read so. A. We think not 2. Does the decomposition of white rubber corks by nitric acid render the latter unfit for use as a caustic ! A. Yes; nitric acid should always be kept in glass stoppered bottles.

(4) C. W. W. asks: Can you furnish me with any information in regard to cleaning stone work (cut) in front of buildings? Is there any process, and where and how can it be obtained? A. Use short, stiff wire scratch brushes, and a dressing hammer, if necessary, with plenty of water. If the stone is granite, traprock, or sandstone, dilute muriatic or sulphuric acid may prove useful; but it is better to do without them if possible.

(5) N. R. B. asks: Are there any nickel mines now worked in the United States? How is it taken from the ore: by smelting or by chemicals? I send you a specimen of mineral, marked as above, found here in large quantities. Please inform me what it is through your columns. A. There are several nickel mines in the United States. The metal is usually obtained from the ore by solution and precipitation, and is finally reduced in a furnace. Consult Percy's Metallurgy. The minerals are noticed under appropriate heading.

(6) W. K. P. asks for a plain and not expensive mode of bleaching wax; but the bees feed nearly exclusively here on vine and fruit, which, a cording to my experience, makes a difference in the process. A. One of the best methods of bleaching beeswax is that of exposure to sunlight under glas The wax is cut in very fine shavings, and spread out s that all parts of it are acted upon alike. Anothergoo method is to melt the wax and stir it about for som time with a mixture of fine granular charcoal (free from dust) and bisulphite of lime-1 of sulphite, 3 of charcoa and 30 of wax. The charcoal and salt are separated t

(7) H. C. asks: What is best for making vaterproof joint on a flagstone sidewalk? Stones are a iron matched. Is lead good? A. Lead does very well Pack the lower part of the joint with oakum.

(8) D. W. O. asks: What materials are used in the preparation of cement or asphaltum fo walks? What should be their condition, their propo tion, and the best manner of laying? A. See Foo walk Pavements, Supplement, No. 83, and Stree Pavements and Sidewalks, SUPPLEMENT, No. 33.

(9) E. S. writes: I wish to separate th pulp of cooked apples from the rinds and cores. It ca be thrown out by putting them in a perforated cylinder Please let me know which you think would be best: perpendicular or horizontal motion. Would not there be less danger of it clogging if the motion was irregu lar? How many revolutions ought it have per minute A. You might use with advantage for this purpose centrifugal machine. The horizontal is preferable to th perpendicular motion. The motion should be as regu

(10) H. P. H. asks: 1. Is the dirt or any foreign substance in water taken up in the steam t any appreciable extent? A. Yes, if dirty water be used, containing much vegetable matter. 3. Can yo give me the ratio of speed to power required? instance, if I run an emery wheel, 18x3, 500 revolution per minute, how much more power will it take to ru it 1,000 revolutions? A. It depends upon the kind of work you wish to do on the wheel. It could not be determined except by direct experiment.

(11) W. L. D. and W. T. T., who ask about a process for producing a large number of copies of manuscripts, etc., by the gelatin process, are re ferred to article on Stencil Copying Process, page 65 curren t volume

(12) I. M. asks how to render wood waterproof. A composition not containing alum would be preferable. A Dry and saturate the wood as far a possible with hot paraffine oil or melted paraffine.

MINERALS, ETC.—Specimens have been reeived from the following correspondents an examined, with the results stated:

S. A -The clay contains too much iron and sand for porcelain or white ware. It might make good bricks .-J. McF.—The rock is trap. The brassy crystals are pyrite-sulphide of iron; the white crystals calcite-lime carbonate -F. E. C. Jr -The red stone is jasper: the white is quartz. The ore marked B would require an assay to determine its value .- E. W. W. -The lime stone contains a small quantity of galena-lead sulphide -hardly rich enough to work profitably. The lead pro bably carries a trace of silver .- B. B. P .- The supposed sulphur is pine pollen .- T. R -1. Sindstone with a small quantity of lignite-not black lead. It is of little practical value 2. Fossiliferous timestone. 3. Argillaceous limestone. 4. Missing.-G. M. M.-1. Arsenical sulphide of 1ron. 2. Mica schist. 3. A micaceous sand containing a little sulphide of iron. 4. The rock contains a small quantity of chalcopyrite. - E. P. - The pebble is a fragment of clear quartz, with a little free gold adhering to it-rich ore.-H. J. C.-A piece of coal shale .- J. S. R .- 1. Sulphide of iron with a little galena-lead sulphide. Probably argentiferous. Copper and iron sulphides. 3. Quartz and pyrrhotinemagnetic iron pyrites-probably contains traces of nickel. 5. Altered ferruginous feldspathic quartz-pos-

(2) H. E. K. writes: My cistern water sibly slightly auriperty . 4. Chalcopyrite-copper from does not smell pure, owing undoubtedly, to the top being tightly closed and the only air reaching the and sulphide of iron.—J. W. M.—Quartz and feldspar containing much graphite. If the sample correctly represents a large body of rock the property is valuable.anything I can put into the water to purify it, or will it A. B. B.-No. 1. Gypsum-used for making plasterate. 3. A ferruginous clay-could be used for making bricks and cheap pottery .-- J. C .-- 1. Silicious and ferruginous limestone. 2. Limestone containing traces of copper and iron sulphides.- N. G. & Co.-Galena-sulphide of lead-a valuable lead ore. It probably contains a trace of silver.

### COMMUNICATIONS RECEIVED.

On a Celestial Phenomenon. By H. P. B. On Brilliant Parhelia. By S. G. I. On the Ring-Necked Snake. By C. F. S.

[OFFICIAL.]

# INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending July 26, 1881.

### AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of th patent desired and remit to Munn & Co., 37 Park Row. New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Animal shears, N. L. King..... 244.810

Apple and grane crusher ate G I. Wanzal

ed	Apple and grape crusher, etc G. L. Wenzel 244,961
ic-	Axle lubricator, J. R. Anderson 244,782
he	Bag holder and welgher, grain, J. J. Dunan 244,868
ng	Bag machine, W. C. Cross 244,861
38.	Bating press, A. S. Robinson 244,522
80	Ball trap, C. B. Holden
od	Bar. See Locomotive side bar. Barrel platform. swinging, W. F. Veber 244,836
ne	Battery. See Galvanic battery.
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al,	Berth, sleeping car, S. Shaw 244,772
bу	Berth, sleeping car, S. Shaw. 244,772 Bicycle, W. Rennyson 244,931
J	Bolt clipper. A. Breth
_	Boring machine, Hammond & Holman 244,749
a	Bottle cap, open, T. W. Brown
ıll	Bottle stopper, W. F. Wade
11.	Box. See Core box. Fare box. Lunch box.   Box machine, G. Munro
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กะ	Burner. See Petroleum burner. Butter worker, G. W. Cunningham
ır-	Butter worker, G. W. Cunningham 244.862
t-	Button, W. P. Dolloff 244,867
et	Button, separable, C. A. Gilchrist 244,885
	Can. See Paint can.
	Caoutchouc with hydrocarbon oils, treating, L.
ıe	Beckers
n	Car brake. J. Augspurger       244,889         Car brake, C. C. Cook       244,858
r.	Car brake, c. C. Cook
a	Car coupling, F. Frear. 244,880
re	Car coupling. E. W. Grant 244,888
1-	Car coupling, P. Hien 24,895
2?	Car coupling, R. Holbon 244,896
a	Car coupling, R. Hosford
ie	Car coupling, H. A. Laws 244,812
1-	Car coupling, D. B. Smith 244.827
m	Car door, grain, J. R. Sprague
•••	Car, dumping, J. T. Crowther 244,795
	Car, dumping, M. Van Wormer 244.954 Cars, apparatus for delivering articles from rail-
y	way, J. A. Burnap 244,966
o	Card, game, C. P. Goldey
е	Carding engine, Emerson & Hobbs
u	Carpets, etc., converting wood fiber into flexible,
or	N. W. Nutting 244,820
18	Carriage spring, A. B. Webster, 244,960
n	Case. See Lock case. Surgical instrument case.
f	Chair. See Folding chair. Window cleaning
9-	chair. Tilting chair.
	Chair seat, J. Rowe, Jr
. 1	Churn J. G. Munroe
k	Cigar mould, Miller & Peters 244,914, 244,915
8	Clip. See Whiffletree clip.
3-	Cloth shearing machines, attachment for, D. Mc-
5,	Coll 244,817
	Clothes drier, R. W. Trude       244,835         Clothes, washer, S. Rea       244,930
	Clothes, washer, S. Rea 244,980
e	Coloring matter from tetranitro-naphthol, E. Lab-
ıs	hardt
	Corset, D. H. Fanning 244,744
	Corset, T. P. Taylor
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d J	Cotton packer, R. C. Moore 244,917
	Coupling. See Car coupling. Hose coupling.
r	Thill coupling.
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e	Crusher. See Apple and grape crusher.
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e	Cutter. See Rotary cutter. Stalk cutter.
n	Cutting and punching press, Stevenson & Solter 244,945
-	Ditching machine, S. C. Robinson 244,934
e	Door hanger, W. D. Smith 244,775
	Door securer, J. W. Trussell 244,951
d	Drier. See Clothes drier.
a	Drill. See Grain drill.
e	Dropper. See Seed dropper.
	Earth digging and rock drilling apparatus, H. K.
1	Needham
3	Electric circuits witch board, F. Blake 244.781
5	Electric wire and cable, D. Brooks, Jr 244,790
	Electric wires, laying underground, Hunter & Du
1	Bois 244.752
f	Electrical signal transmitter, G. S. Mott 244,918
е	Embroidery frame, M. A. Maxwell 244.816
	End gate fastener, W. Hahn 244.889
	End gate fastener, W. Hahn
-	End gate fastener, W. Hahn
-	End gate fastener, W. Hahn