

CATARH AND ITS CURE.

Rev T P Childs publishes to-day a wonderfully accurate description of the causes of catarrh, and the results of an inattention to the first symptoms of this terrible disease.

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line.

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A Cupola works best with forced blast from a Baker Blower. Wilbraham Bros., 2,318 Frankford Ave., Phila. Shaw's Noise Quieting Nozzles and Mercury Pressure Gauges. T. Shaw, 915 Ridge Ave., Philadelphia, Pa.

For Steam Pumps send to Dean Bros., Indianapolis, Ind. For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

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Inventors' Models. John Ruthven, Cincinnati, O.

Sheet Metal Presses, Ferracuta Co., Bridgeton, N. J.

The SCIENTIFIC AMERICAN Export Edition is published monthly, about the 15th of each month. Every number comprises most of the plates of the four preceding weekly numbers of the SCIENTIFIC AMERICAN, with other appropriate contents, business announcements, etc. It forms a large and splendid periodical of nearly one hundred quarto pages, each number illustrated with about one hundred engravings. It is a complete record of American progress in the arts.

NEW BOOKS AND PUBLICATIONS.

GUIDE TO ROSE CULTURE.—The Dinger & Conard Company of West Grove, Penn., have just issued their 1879 Annual, and like their previous ones it is copiously illustrated. It not only contains engravings of the choicest varieties of roses, but also of other flowering and ornamental plants. Messrs. Dinger & Conard have been growers of fine varieties of roses and ornamental plants for a number of years, and are reliable dealers. The guide is sent free to persons inclosing, with their address, a 3 cent stamp.



(1) C. Z. S. asks for the best method of putting water grates in a locomotive fire box. How is the pipe connected with the front and back end of the fire box? A. You can either expand the pipes at the ends, or screw them in, as is most convenient.

(2) A. S. asks how many sizes of pinions will run in an internal gear of 10 inches diameter. I want to run 24, the smallest three quarters of an inch, the largest 3 inches diameter. A. Fix upon some number of teeth in the internal gear that is a common multiple of the number of teeth in all the pinions. You will see then that the number of pinions is only limited by the practical difficulties of construction.

(3) R. B. R. writes: Several journals have stated that the locomotive lately built for the Atchison, Santa Fe, and Topeka Railroad was the heaviest ever built. The weight given is 118,000 lbs. Please inform your readers if this is correct. A. The "Janus," built at the Mason Machine Works, and in use on one of the Pennsylvania coal roads, weighs 84 tons. Possibly there may be an engine heavier still, and if so, we hope some of our readers will inform us.

(4) D. P. asks: What thickness must a cast steel cylinder 8 inches internal diameter have, so as to resist a steam pressure of 350 lbs. per square inch with complete safety? A. Half an inch will answer, unless the length is great.

(5) R. S. H. asks: If I build a boiler 36 inches in diameter, and the flues 30 inches in diameter, the iron in both being the same strength, and apply the

steam between the boiler and the flue, which will bear the greatest amount of pressure? A. The 36 inch shall.

(6) C. R. G. asks (1) if there is any difference in the friction of 2 equal lengths of hose, one to be laid straight and the other crooked. A. Yes, other things being equal, the difference will be considerable. 2. If water is forced into a 6 inch pipe from a 3 inch inlet, and after being forced from 500 to 600 feet and discharged from a 3 inch hose, will the water move faster in the center of the 6 inch pipe, or on the sides of the same, or will the water that is forced in act as a piston and make it all move the same? A. The action will be as described in the latter part of your question.

(7) R. E. W. asks for an explanation of the action of the wheels of a car when going round a turn or curve. One of the wheels (I think the outside) must make more revolutions in the same time than the other. How does the slower one make up with the other? A. In such a case, one of the wheels must slip, unless they are so coned that one is running on a longer circumference than the other, sufficient to allow it to pass over a greater distance with the same number of revolutions.

(8) C. H. M. H. asks: What constitutes an artesian well? My friend argues that it is necessary that the water should rise above the surface of the ground. I contend that if it reaches the surface it comes under the head of an artesian. A. It is the manner of sinking, not the nature of the flow, that makes a well artesian. The water may or may not reach the surface.

(9) J. E. F. asks: Which is the best for the Wabash, Mississippi, and Yellowstone rivers, a screw wheel, stern wheel, or side wheels? I am building a boat thirty-five feet long to carry eight persons and baggage, and I want to run good speed, for a pleasure trip up the Yellowstone river. What size should the engines be, and what should the boiler be, and would thirty-five feet be long enough, and how wide should it be? A. A screw will be preferable, if there is sufficient water. For dimensions of machinery, see SCIENTIFIC AMERICAN SUPPLEMENT, No. 158.

(10) W. C. asks: 1. Will it take the temper out of a steel casting or weaken it, under necessary heat to "shrink it on"? A. Yes. 2. In case it does, can a casting be "shrunk on" and tempered at the same time, or under one heating? A. Yes, but at the risk of breaking it.

(11) J. A. M. asks how to soften cast iron that is too hard for filing or drilling, so that it may be filed or drilled. A. Heat it to a cherry red, plunge it into powdered quick lime, and allow it to remain until cool.

(12) W. G. C. asks: 1. How can I drill a hole in a glass plate without danger of cracking the glass? A. Use as a drill a copper tube of the size of the required hole, and as it rotates keep it charged with emery and water. 2. Is American glass good enough for the plate of a "Holtz" electric machine? A. Yes. State your other questions more fully.

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

C. S. W.—The ore does not contain silver, but much manganese and iron oxide. Properly powdered and washed it may have some market value on account of the manganese oxide which it contains.—J. E. R.—It is a fragment of quartz, or pebble that has been rounded by attrition.—E. G. O.—Please send larger sample of your ore.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

COMMUNICATIONS RECEIVED.

On Pyrometers. By C. F. R. Simple Electric Pen. By G. L. S. Tide in Lake Superior. By H. J. W. Culture of the Pear. By E. P. P. New Patent Bill. Inventor. On Ice Yachts. By H. B. The Senate Patent Bill No. 306. Patent Legislation. By W. F. S. On the Progress of Chemistry in 1878. By E. G. H. On Protection of Inventors' Rights. By V. B. On Improvements in Cane Mills. By H. M. W.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

February 4, 1879,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

- Accordion, O. Stark..... 212,065 Alloy for metric gold coin, W. W. Hubbell..... 211,909 Alloys, etc., manufacture of, N. W. Williams..... 212,077 Amalgamator and settler, W. S. Shotwell..... 211,939 Anglometer, J. V. Capek..... 211,968 Automatic gate, Carter & Coppock..... 211,969 Axle box lid, car, J. Kinzer..... 211,851 Bag lock, W. Heller..... 212,001 Baggage fastener and shawl carrier, G. M. Young..... 212,082 Bait hook, spoon, L. S. Hill..... 211,906 Bale tie, T. M. McNeely..... 212,033 Bale tie, G. T. Pittman..... 211,925 Bale tie, G. A. Porter..... 211,927 Bale tie, T. R. Porter..... 211,926 Barrel crozing machine, W. L. Field..... 211,898 Barrel trussing machine, H. W. King..... 211,914 Basket, W. H. Gage..... 211,984 Bath tub, C. F. Wolters..... 212,081 Bathing apparatus, W. Wasson..... 211,874 Bed bottom, spring, A. Iske..... 212,009 Bedstead, wardrobe, D. A. & W. P. Green et al..... 211,844 Bee hive, D. W. Smith..... 211,869 Binder, temporary, J. G. Smith..... 212,061 Bolt holder, M. Ketchum..... 212,013 Book cover protector, Way & Rankin..... 212,073 Boot and shoe heel attachment, W. L. Fink..... 211,982 Boot and shoe stretcher, C. D. Lakey..... 211,857 Boots, manufacture of, W. R. Miller..... 211,920 Bottle stopper fastener, W. Geist..... 211,987 Bottles, removable nozzle for, E. B. Requa..... 212,055 Box fastener, W. I. Winne..... 212,079 Bran, treating, R. L. Downton..... 211,977 Bridle winker, Cahoon & Teas..... 211,886 Bronzing wood, porcelain, etc., R. Boettger..... 211,961 Broom stock holder, D. A. Scott..... 211,935 Buggy seat, L. J. Annes..... 211,878 Burglar alarm, J. S. Ranney..... 212,053 Button, C. E. Bates..... 211,882 Button attacher, shoe, Wisner & House..... 211,950 Car door locker, freight, F. Cooper..... 211,972 Car heater, street, G. C. Bovey..... 211,963 Car lock, freight, B. Crawford..... 211,838 Car spring, J. A. Lowe..... 212,021 Carriage top, adjustable, North & Hubbard..... 211,861 Carriage window fastener, C. West..... 212,074 Cart, hand, M. Daley..... 211,889 Cartridge carrier, J. N. Reece..... 212,064 Caster for metals, H. W. Barnum..... 211,933 Chimney holder and air distributor, G. W. Thomas..... 211,945 Chuck, lathe, W. L. Sweetland..... 211,943 Churn lid, G. L. Farmer..... 211,980 Clay and cement pipes for drains, etc., N. U. Walker..... 212,072 Clock pendulum adjustment, G. B. Owen..... 212,045 Clock winding attachment, S. Serizhelli..... 211,936 Cloth presser, J. Butterworth..... 211,966 Clothes drier, H. M. Jacobs..... 211,851 Coal assorter and washer, R. Hartley..... 211,846 Copies of writing, etc., producing, E. De Zuccato..... 211,877 Corn dropper and check rower, J. O. Hall..... 211,994 Corpse cooler or casket, E. Holmes..... 241,907 Croquet scorer, W. B. Lewis..... 212,020 Cultivator and corn planter, Swartout & Hartley..... 211,871 Curtain fixture, J. K. Davison..... 211,890 Cut-off and valve, waste pipe, Levake & Grubb..... 211,917 Cutters, shaper for, J. A. Houlihan..... 241,908 Cylinder lubricator, steam, J. Barry..... 211,881 Dog power, A. Hamlin..... 211,904 Draught bar for sleighs, J. C. Campbell..... 211,967 Draw bar, W. Wimer..... 212,078 Drawing frame, H. C. Grayson..... 211,903 Drying machine, centrifugal, Chrystal & Walsh..... 211,971 Egg boiler, H. A. Manley..... 211,859 Egg preserver, W. & J. Inglis..... 212,007 Electric light regulator, Molera & Cebrian..... 212,040 Electro-magnetic engine, C. J. B. Gaume..... 211,985 Feeding sheep, rack for, A. C. Martindale..... 212,027 Fence barb, wire, C. P. Parker..... 211,863 Fence, barbed, J. Winterbotham..... 212,080 Fence, iron, T. Rogers..... 211,933 Fence, metal, J. B. Wickersham..... 212,075 Filter, C. Mæurer..... 212,023 Firearm magazine, R. S. Chaffee..... 211,875 Fire escape, W. Winkles..... 211,875 Fire extinguisher, A. Stoner..... 212,067 Flue cutter, J. H. McGraw..... 212,032 Fluid motor or motor engine, Molera & Cebrian..... 212,039 Fork and spoon, etc., A. B. Nott..... 212,044 Gas engine, J. H. Connelly..... 211,886 Gaslight extinguisher, A. Fulton..... 211,983 Gas, illuminating, A. P. Southwick (r)..... 8,567 Gearing, differential, R. Dutton..... 211,894 Glove show case, Smith & Traver..... 211,940 Grain separator, H. H. May..... 212,031 Grate, G. Jackson..... 212,010 Grinding mill, T. Bowman..... 211,964 Grinding mill, W. Peck..... 212,049 Grinding mill, A. H. Wagner..... 211,948 Gun, machine, B. B. Hotchkiss..... 211,849 Hame loop, P. & W. B. Hayden..... 211,998 Harrow, E. Murray..... 212,043 Harrow, adjustable, W. D. Fink..... 211,981 Harvester rake, L. Miller (r)..... 8,565 Harvester rake attachment, L. Miller (r)..... 8,564 Harvesting machine, W. F. Olin..... 211,882 Hat presser, A. Solmans..... 212,063 Heater, steam, A. Annan..... 211,879 Hinges, gravity catch for, B. G. Fitzbugh..... 211,900 Hoisting register, H. C. Behr..... 211,888 Honey box for bee hives, J. M. & H. B. Parker..... 212,047 Horse boot and weight, J. H. Fenton..... 211,897 Horse toe weight, J. H. Fenton..... 211,840 Horseshoe, R. Pruessing..... 211,930 Horseshoe pad, W. A. Taylor..... 212,069 Horseshoer's rasp, C. H. Perkins..... 211,864 Hose, electric signal fire, J. Buchtel..... 211,833 Hot air bath apparatus, T. Keech..... 212,011 Hot air register, J. W. Collins (r)..... 8,570 Hub attaching device, M. L. Green..... 211,990 Hub, vehicle wheel, J. A. Mackinnon..... 211,858 Hulling machine, Hutchinson & Hubbell..... 212,005 Kettle, stewing, C. & F. Halstead..... 211,845 Key box, safety, F. Imbæuser..... 212,006 Knitting machine loop wheel, J. Bradley..... 211,831 Ladder, combination, W. C. Phillips..... 212,050 Lamp, W. M. Jackson..... 211,850 Lamp, F. Rhind..... 211,931 Lamp extinguisher, R. H. Frazee et al..... 211,902 Lamp, paraffine or mineral oil, W. C. Hughes..... 212,003 Lantern, carriage, C. J. Koefoed..... 211,915 Latch, J. Kinzer..... 211,853 Lawn sprinkler, Wolff & Stein..... 211,876 Leather cutter, E. Fisher..... 211,841 Lifting jack, A. S. Dinsmore..... 211,891 Lightning rod, J. Hewitt..... 211,847 Liniment, R. Banes..... 211,830 Lock, Brooks & Munger..... 211,832 Lock, Smith & Egge..... 212,059 Lock and latch, A. Proseus..... 212,062 Loom, circular, C. P. Marshall..... 212,025 Loom for weaving pile fabrics, W. Webster..... 211,949 Mainspring safety device, S. W. Morgan..... 212,042 Marble veneering, artificial, T. Swartwout..... 212,068 Metallic and non-metallic box, J. C. Blissard..... 211,884 Micrometer screw gauge, G. W. Dickinson..... 211,975 Mill staff gauge, J. Miltenberger..... 211,922 Moulding tubular articles, S. J. Adams..... 211,951 Motor, Molera & Cebrian..... 212,038 Motor engine, Molera & Cebrian..... 212,037 Mower, W. D. Paxton..... 212,048 Mowing machine, A. Tornquist..... 211,946 Oil, rubber, Scott & McCumber..... 212,068 Ore separator, P. Plant..... 212,051 Ore washer and amalgamator, C. Duhem..... 211,893 Ordnance lining tube, S. Crispin..... 211,839 Organ, pipe, J. Gratian..... 211,989 Oven, shelf, J. A. Lawson..... 211,916 Packing, piston, J. H. Van Riper..... 211,873 Packing, piston rod, T. Tripp..... 211,947 Paddlewheel, feathering, E. E. Kilmer..... 212,014 Padlock, permutation, M. B. Mills..... 2,206 Paint and oil drier, A. W. Pratt..... 211,928 Paper bag machine, E. W. Goodale (r)..... 8,568 Paper folder, R. M. Hoe..... 211,848 Paper, manufacture of, J. O. Gregg..... 211,991