Graphite Lubricating Co., Jersey City, N. J. Graphite bushings and bearings, requiring no grease or oil.

Quints' patent automatic steam engine governor. Correspondence solicited from manufacturers of throttle governor engines. Leonard & McCoy, 118 Liberty Street, New York.

Catarrh Cured.

A clergyman, after years of suffering from that loathsome disease, catarrh, and vainly trying every known remedy, at last found a prescription which completely cured and saved him from death. Any sufferer from this dreadful disease sending a self-addressed stamped envelope to Prof. J. A. Lawrence, 212 East 9th St., New York, will receive the recipe free of charge.

Lathes for cutting irregular forms a specialty. See ad. p. 349.

Graphite Bushings.—Put them on all loose pulleys.

Band saws, with tipping table. All kinds woodworking machinery. Rollstone Machine Co., Fitchburg, Mass.

Planing and Matching Machines. All kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Leather link belting is the most reliable for dynamos and swift running machinery. For particulars write Chas. A. Schieren & Co., 47 Ferry St., New York.

Talcott's belt hooks. Best made. Providence, R. I.

Send for new and complete catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

NEW BOOKS AND PUBLICATIONS.

A PRACTICAL TREATISE ON ANIMAL AND VEGETABLE FATS AND OILS. By William T. Brannt. Philadelphia: Henry Carey Baird & Co. 244 engravings. 1 vol., 8vo, 739 pages. Price $7.50.

We have here one of the most useful, as well as the most creditable, contributions which have ever been made to the technical literature of this country. Not only is it thorough and complete, but it stands almost entirely alone in English literature. It is the first treatise of the kind in our literature which does anything more than dip here and there into this highly and widely important subject. The want of such a book has been long and severely felt; and this eminent house, which has done so much for the diversified industries of this country, in its publications, has, we venture to say, never done a better service than by the publication of this treatise. The great work of Dr. Karl Schaedler, upon which it is largely based, is well known to technologists and other chemists as the most complete and reliable book on fixed oils, animal, vegetable, and mineral, published in Europe; but Mr. Brannt, the accomplished American editor, has added largely to the work of Dr. Schaedler, especially in the departments of volatile oils and lubricants. The matter of Mr. Brannt has been collected from widely extended sources, and treats very thoroughly those oils which are peculiarly American, whether fixed or volatile, more especially cotton seed, lard, peppermint, sassafras, birch, etc. The title of this volume conveys a fair idea of the contents, but we would advise our readers that the publishers have adopted a system of issuing with each of their new and important publications a circular giving the full table of contents and specimens of the illustrations. Such a circular of this book can be had on application to Messrs. Henry Carey Baird & Co. There is one especial feature in the publications of this house to be highly commended, and it is worthy of imitation by other publishers. We refer to their full tables of contents and to their ample indexes, which render all important subjects in any of their books easy of reference.

Notes & Queries

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) A. L. J. asks: 1. What will take rust from finely polished steel, such as drawing instruments, etc., without scratching them? A. Mix 10 parts of tin putty, 8 of prepared buck's horn, and 25 of alcohol to a paste. Cleanse the article with this, and finally rub with soft blotting paper. 2. What will prevent their rusting? A. You can preserve them by a coat of colorless lacquer. 3. How to clean gun barrels of rust and keep them so? A. The gun can be cleaned by stopping the opening and pouring in mercury, which, on shaking, will clean up the barrel. Then coat with paraffine. 4. A good cement for leather for patching shoes? A. Make a rubber cement. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 158, under "Cements."

(2) W. H. H. asks: 1. Are pumpkins a good milk-producing food for cows, and have pumpkin seed a tendency to dry up milch cows? A. Pumpkins make a rich food for cows, producing good milk, but not so much as with other kinds of food. They have a drying tendency, and should not be made an exclusive diet under any circumstances. Plenty of hay, a little bran or meal, and a little pumpkin is a good receipt for late fall and winter fodder. 2. What is the best plant for stopping the washing of the banks of a stream where the soil is light and sandy? A. Willow, and plenty of it. 3. Is there any good grass for pasture that will thrive on sandy and gravelly bottom land, where native blue grass will burn out in August? A. Try timothy and clover mixed.

(3) J. E. desires a receipt for making a good blue black copying ink. Take of Aleppo galls, bruised, 9 ounces, bruised cloves 2 drachms, cold water 80 ounces, sulphate of iron 3 ounces, sulphuric acid 70 minims, sulphate of indigo, thin paste, 4 drachms. Place the gall with the cloves in a gallon bottle, pour upon them the water and digest, shaking often, for a fortnight. Press and filter through paper into another gallon bottle. Next put in the sulphate of iron, dissolve it, add the acid, and shake briskly. Lastly add the indigo, mix well, and filter again through paper. The ink is to be kept in well corked bottles.

(4) J. A. P.—We are not acquainted with the special variety of cough drops mentioned by you, but we would suggest the following as an excellent article: Tincture of squills 2 ounces, camphorated tincture of opium and tincture of tolu, of each ¼ ounce, wine of ipecac ½ ounce, oil of wintergreen 4 drops, sassafras 3 drops, and of anise seed oil, 2 drops. The above mixture is to be put into 5 pounds of candy which is just ready to take from the fire, and continue the boiling a little longer.

(5) S. O. H. asks whether the killing of alligators is an industry, if the hides are tanned and used to any great extent, and what per cent of so-called alligator hides are genuine. A. It is an irregular occupation of quite a number, in many places along our southern coast, and, although the supply of skins varies much, a great many thousand are tanned every year. Imitation skins are, however, much more numerous, being made largely of sheepskins and limitedly of split cow hides. A great deal of tough paper stock is made in imitation of alligator leather.

(6) T. M. S. asks: 1. What can I put on my watch face to make it luminous, so that the time can be read in the dark? A. Coat it with luminous paint. See the articles on the paint in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 249 and 497. 2. What solution will remove ink stains from carpets and blots from paper? A. Use a solution of oxalic or citric acid, followed in the case of the carpet, with copious washings with cold water. 3. How can I make a good, hard walk at small cost, in the country? A. See the article on "Foot Walk Pavements," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 82.

(7) J. H. D. asks for a receipt to remove paint from a wood carving without damaging the wood, as burning or scraping would ruin it. A. Mix 1 part by weight of pearlash with 3 parts quick stone lime by slaking the lime in water and then adding the pearlash, making the mixture about the consistence of paint. Lay the above over the whole of the work required to be cleaned, with an old brush; let it remain 14 or 16 hours, when the paint can easily be scraped off.

(8) E. P. M. asks: What amount of oxygen, hydrogen, and carbon is there in steel? A. Steel contains no oxygen, save in the rust there may be upon the outside, and only a possibility of a minute portion of hydrogen. The elements of steel vary much to meet its special qualities. It contains carbon to the amount of from 0·1 of 1 per cent in soft or Bessemer to 2 per cent in high grade steels. In addition to the variations in carbon, it may have silicon and sulphur to the extent of one-tenth of 1 per cent, also phosphorus five one-hundredths of 1 per cent. A grade called manganese steel may have about 1¼ per cent of manganese. All iron and steel is subject to rust from exposure to snow and rain, unless especially protected.

(9) W. C. P. asks: 1. Does paint or black japan injure the sound of a whistle or gong? A. It would probably change the tone. 2. What can I use to thoroughly remove paint or black japan on a whistle or gong which cannot be taken down, and can only be reached by means of a ladder? A. If you can get at the whistle to clean it, you certainly can take off the bell by unscrewing the nut on top, which will enable you also to unscrew the bell from the stud. Boil the bell in caustic soda or potash, which will disintegrate the varnish and allow it to be rubbed off.

(10) R. R. W. writes: I wish to move a large building over ice which freezes from 2 to 3½ feet. Will it be safe? A. Ice 8 inches thick will support heavy wagons and artillery. The crushing strength of ice varies from 327 to 1,000 pounds per square inch. At the lowest figures this is 23 tons to a square foot. This does not represent the bearing power of the ice covering water, in which case it becomes elastic under pressure, and may give way without crushing. A building of moderate weight may readily be moved over ice 3 feet thick, if properly set on runners of large bearing, and moved along at a fair pace. The only difficulty in such work arises from suspension of the work, when the weight might press the ice down in the vicinity of the building, and cause cracks which would flood the depressed surface, and possibly cause disaster.

(11) H. R. E. writes: I have a fine Arkansas oil stone which refuses to work properly after several years of constant use. My tools slide over it without being sharpened. How can I make it cut? A. Soak the stone in turpentine or naphtha for a few days, when it will cut as new.

(12) C. H. S. asks (1) how to make a strong joint with glue. A. Use new glue, and in applying first fill the pores of the wood with thin glue and let it dry; then clean off, and glue it at the joint with strong glue. 2. How to make a good hard oil finish. A. Take of linseed oil 1 pint, rectified spirits 4 ounces, oil of turpentine ½ pint, powdered resin 1½ ounces, rose pink ½ ounce; mix. 3. A good cheap wood filler? A. Boiled linseed oil 1 quart, turpentine 3 quarts, corn starch 5 pounds, japan 1 quart, calcined magnesia 2 ounces; mix thoroughly. You can buy better prepared fillers than you can make.

(13) C. A. D., Virginius, Col., writes: I would like to know the relative speed of an air compressor in high and low altitudes. Take, for example, a Rand drill compressor, running at the rate of 30 revolutions per minute at sea level. Would it have to run faster at this altitude, it being 12,600 feet above sea level? A. At above elevation the atmosphere is but two-thirds the density of the air at the sea level. Pumps should run at a speed of 45 revolutions per m. for the volume of compressed air as computed for the sea level.

(14) G. H. W. asks in what way he can make a battery to run a single bell 2½ inches diameter, by using a cast iron box 5½ inches wide, 8¾ inches deep, and 17¼ inches long. A. Place a layer of black oxide of copper at the bottom of the iron vessel, fill with strong caustic potash solution, and suspend in it horizontally a good sized zinc, preferably a thick plate 4 inches by 14 inches or thereabouts in size. Connect one wire to the zinc, the other to the iron.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A 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.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 13, 1887,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Adjustable chair, E. Pynchon ... 374,628
Ammonia from manure, etc., obtaining, W. F. Nast ... 374,618
Armature, H. B. Slater ... 374,711
Armature, dynamo, E. N. Bliss ... 374,728
Auger, hollow, W. Bradford ... 374,773
Axle brake, R. Luders ... 374,607
Axles, machine for forming wagon, A. Paterson ... 374,694
Bag. See Mail bag.
Baling press, H. Weddle ... 374,857
Barber's chair, T. A. Kochs ... 374,340
Battery. See Electric battery. Galvanic battery.
Bed spring, M. H. Collom ... 374,658
Bed fastener, machine, H. Bramm ... 374,582
Belt shifter and brake, J. Stewart ... 374,638
Binder, tablet, W. B. Pearson ... 374,751
Bit. See Bridle bit.
Blotter, ink, L. S. Smith ... 374,713
Boat. See Steamboat.
Boiler. See Steam boiler. Steam or hot water boiler.
Boilers, purifying water for, C. Elliot ... 374,828
Bolt. See Elevating bolt.
Book clasp, A. C. Hafely ... 374,674
Boot or shoe, G. F. Cushman ... 374,890
Boot or shoe stretcher, L. Nottingham ... 374,805
Boots and shoes, seam rubber for, C. H. Carr ... 374,655
Box. See Fare box. Miter box. Paper box.
Box, W. H. Butler ... 374,825
Box strapping, metallic, C. H. Dana ... 374,587
Boxes, device for closing the lids of, J. Cook ... 374,584
Brake. See Axle brake.
Brake, P. Everitt *et al.* ... 374,786
Bridge, T. Buckley ... 374,887
Bridge guard, C. C. Tozier ... 374,882
Bridle bit, C. H. Smith ... 374,852
Broom rack, D. M. Kilmer ... 374,794
Brooms, manufacture of whisk, E. I. Miller ... 374,902
Brush and blacking box, combined blacking, G. W. Peck ... 374,696
Buckle, breeching, T. S. Very ... 374,764
Buckle, suspender, D. L. Smith ... 374,853
Burnishing machine, E. B. Allen ... 374,885
Bustle, A. C. & O. J. Decker ... 374,660
Bustle, C. C. Shelby ... 374,632
Bustle, T. P. Taylor ... 374,642
Button making, collet or shell die for, W. Hornich ... 374,741
Button or stud, G. W. Prentice ... 374,626
Cable gripping mechanism, A. D. Whitton ... 374,767
Cable track road and tightener for same, C. Carr ... 374,866
Calk sharpening machine, G. W. Savage ... 374,811
Calks, machine for making toe, J. C. Kelly ... 374,681
Cane stripper, T. C. Collins ... 374,777
Canned food, apparatus for preparing, H. L. Hopper ... 374,909
Cannon, E. J. Blood ... 374,577
Cant hook, C. Nygaard ... 374,877, 374,878
Car bolster, H. James ... 374,836
Car brake, A. H. Marden ... 374,798
Car brake and starter, H. H. Olcott ... 374,619
Car coupling, Diller & White ... 374,783
Car coupling, T. W. Harrison ... 374,870
Car coupling, F. Tiedt, Sr ... 374,717
Car coupling, J. Tocin ... 374,763
Car coupling attachment, S. D. Smith ... 374,714
Car, dumping, J. W. Davis ... 374,588
Car heater, M. Wanner ... 374,766
Car heating apparatus, W. H. Penfield ... 374,624
Car, railway, C. C. Holt ... 374,897
Car, stock, G. D. Burton ... 374,824
Car, stock, N. Z. Seitz ... 374,881
Cars, apparatus for heating railway, L. K. Curlett ... 374,659
Cardboard manufacturing machine, L. W. Noyes ... 374,848
Carrier. See Cash carrier.
Cart, road, B. S. & C. W. Porter ... 374,625
Case. See Show case.
Cash carrier, W. H. Koehler ... 374,683
Cash register and indicator, D. Davis ... 374,780
Chain lock, I. A. Sherman ... 374,710
Chair. See Adjustable chair. Barber's chair. Convertible chair.
Chopper. See Cotton chopper.
Chuck, B. F. Chappell ... 374,732
Chuck, L. D. Jones ... 374,743
Chuck, drill, A. D. Goodell ... 374,593, 374,594
Churn, R. H. Browning ... 374,774
Churn, W. W. Perkins ... 374,753
Circuit breaker, C. B. Bosworth ... 374,652
Clasp. See Book clasp.
Clasp, F. W. Tobey ... 374,762
Cleaner. See Cloth cleaner.
Cloth cleaner, W. C. Meyer ... 374,689
Clutch, friction, H. W. Hill ... 374,894
Coal elevator, T. G. Goodfellow ... 374,395
Coffee pot, W. A. Krag ... 374,603
Coin operated lock, P. Everitt ... 374,785
Compass, beam, J. Strachan ... 374,639
Convertible chair, C. H. Meddins ... 374,802
Copying press, S. Netter *et al.* ... 374,748
Core catcher and breaker, A. Ball ... 374,819
Cork blocking and finishing machine, automatic, Dodge & Weaver ... 374,891
Corn dropping attachment, automatic, W. W. Walters ... 374,815
Cotton chopper, B. C. Marshall ... 374,610
Cotton, machine for opening and preparing, R. Kitson ... 374,899
Coupling. See Car coupling. Thill coupling.
Crane, W. H. Ridgway ... 374,756
Crate, Mason & Shafer ... 374,612
Crate, fruit, J. H. Marvil ... 374,799
Cuff holder, J. M. Bolton ... 374,579
Cyclometer, C. E. W. Woodward ... 374,919
Dental flask, W. S. Curtis ... 374,585
Dial, timepiece, E. A. Lewis ... 374,605
Digger. See Potato digger.
Display frame, W. A. Aiken ... 374,724
Distilling apparatus, E. Kells ... 374,838
Distilling wood, A. Smith ... 374,636
Ditching machine, C. Michelsen ... 374,690
Door hanger, J. Christmann ... 374,656
Door hanger, sliding, R. M. Wilson ... 374,859
Draught equalizer, J. J. H. Parrott ... 374,620
Drier. See Fruit drier.
Drill channeling machine, A. Ball ... 374,818
Egg beater and mixer, combined, L. Rosenkranz ... 374,706
Egg crates, material for, O. L. Parmenter ... 374,849
Electric battery, J. A. Barrett ... 374,862
Electric circuits, safety strip for, Lange & Shallenberger ... 374,842
Electric conductors, conduit for, E. E. Greene ... 374,738
Electric coupling device, P. Lange ... 374,843
Electric currents, apparatus for measuring, H. Aron ... 374,860, 374,861
Electric generator and motor, A. F. Congdon ... 374,778
Electric machine, dynamo, G. Westinghouse, Jr., *et al.* ... 374,858
Electric motor, W. Hochhausen ... 374,871
Electric motor or dynamo electric machine, F. J. Patten ... 374,621
Electric motors and other translating devices, apparatus for reversing and controlling, W. Hochhausen ... 374,872
Electric motors, regulation of, W. Stanley, Jr. ... 374,910
Electrical conductors, conduit for, G. D. Holt ... 374,792
Electro mechanical movement, H. Van Hoevenbergh ... 374,883
Electro medical apparatus, J. S. Muir ... 374,747
Elevating bolt, F. Prinz ... 374,754
Elevator. See Coal elevator. Hay elevator. Hod elevator. Hydraulic elevator. Straw elevator.
Elevator gate, E. F. Hardin ... 374,739
Elevator trap doors device for operating, A. G. Page ... 374,693
Embroidery frame, C. Pease ... 374,623
Engine. See Road engine.
Engines, compensating gear for road, J. G. Downie ... 374,663
Envelope, safety, L. P. Taylor ... 374,913
Explosive compound, L. G. Heusschen ... 374,740
Extractor. See Nail extractor.
Eyeglass holder or hook, W. J. Rand ... 374,702
Fabric. See Knitted fabric.
Fans, machine for recording the revolutions of ventilating, Bartl & Nichter ... 374,820
Faucet, G. W. Aldrich ... 374,725
Faucet, H. Ogden ... 374,806
Faucet, beer, J. Deasey ... 374,781
Fare box, change making, Safely & Williams ... 374,851
Feed water, means for separating oil and sediment from, W. E. Pearson ... 374,879
Fence post, H. E. Lambert ... 374,684
Fence, wire, D. Woodford ... 374,884
Fire escape, W. H. Gray *et al.* ... 374,596
Fire escape, Shires & Kennedy ... 374,633
Fire extinguisher, automatic, Swallow & Keeny ... 374,912
Fire extinguisher for car heaters, E. Maguire ... 374,745
Fishing reel, A. Geils ... 374,737
Frame. See Display frame. Embroidery frame. Picture frame.
Fruit drier, C. A. Pitkin, Sr ... 374,697, 374,698
Fuel, artificial, J. I. Irving ... 374,679
Funnel, F. A. Lyman ... 374,875
Fuse, electric, K. J. Sundstrom ... 374,640
Gauge. See Water gauge.
Galvanic battery, J. A. Barrett ... 374,863
Galvanic battery, J. Freeman ... 374,669
Galvanic battery, J. Serson ... 374,631
Game counter, E. Meise ... 374,803
Garment supporter, C. F. Sullivan ... 374,715
Gas alarm burner, J. McDermott ... 374,614
Gas fireplace, T. T. McNish ... 374,801
Gas regulator and cut-off, Dally & Richardson ... 374,779
Gate. See Elevator gate. Sliding gate. Swinging gate.
Gate, G. H. Ingersoll ... 374,742
Generator. See Electric generator.
Globe, folding school, J. H. French ... 374,789
Glove fastener, G. W. Mandrill ... 374,609
Glove or miten, S. Helfaer ... 374,676
Grading machine, road, J. Moore ... 374,691
Grain binder, A. Goodyear ... 374,595
Grater, fruit or vegetable, W. Marx ... 374,611
Guard. See Bridge guard. Keyhole guard. Railway crossing guard. Rein guard.
Gun, magazine, M. E. Gregg ... 374,597
Gutters and pavements, fastening device for, I. L. Landis ... 374,685
Halter trimming, D. B. Harvey ... 374,832
Hame, F. Church ... 374,657
Hame and hame tug attachment, F. Lagerlef ... 374,841
Hame hitch and collar fender, combined, D. Patterson ... 374,622
Hammer tool, revolving electric, W. G. A. Bonwill ... 374,580
Hammock stretcher, M. Campbell ... 374,776
Hanger. See Door hanger.
Harrow disks, device for sharpening, H. Dick ... 374,782
Harvesters, folding platform for grain, S. F. Voorhees ... 374,814
Harvesting machine, J. Knoop ... 374,601
Hat rack, R. E. Gleason ... 374,830
Hat sweats, finishing the attaching edges of, F. L. Butler ... 374,654
Hay elevator and stacker, P. F. Fleming ... 374,737
Hay rake and tedder, combined, Landis & Iske ... 374,795
Head rest, E. W. Robinson ... 374,704
Heater. See Car heater.
Heel trimming machine, A. D. Elliott ... 374,892
Heeling machine, C. W. Glidden ... 374,894
Hinge, P. Forg ... 374,788
Hod elevator, H. A. Hall ... 374,791
Holder. See Cuff holder. Eyeglass holder. Sash holder.
Hook. See Cant hook.

© 1887 SCIENTIFIC AMERICAN, INC.