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AQUA PURA

BY NATURE'S PROCESSES
Turbid Water Made Clean.
Matter in Suspension and ORGANIC and MINERAL Elements removed.
Hard Water Made Soft.
Cities, Towns, Mills, Hotels, and Private Houses Supplied and Results Guaranteed.
Scale in Boilers Avoided.
Two per cent. added to the Annual Water Rates in any city will give the people PERFECT WATER for all time.

Send for Circulars and Estimates.
NEWARK FILTERING CO., NEWARK, N. J.
TRIBUNE BUILDING, NEW YORK.

Send \$1. for sample, by mail. Utility Wrench Co. (Ind.) 231 East Ninth Street, New York City, U. S. A.

DRIVING-BELTS.—A PAPER BY John Tullis, discussing the comparative value of various kinds of belting. Main driving-belts. Patent leather chain belting. Half-twist belts. Cotton belts. Leather ropes. With 5 engravings. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 502. Price 10 cents. To be had at this office and from all newsdealers.

THE AMERICAN BELL TELEPHONE CO.

95 MILK ST., BOSTON, MASS.

This Company owns the Letters Patent granted to Alexander Graham Bell, March 7th, 1876, No. 174,465, and January 30th, 1877, No. 186,787.

The transmission of Speech by all known forms of Electric Speaking Telephones infringes the right secured to this Company by the above patents, and renders each individual user of telephones not furnished by it or its licensees responsible for such unlawful use, and all the consequences thereof, and liable to suit therefor.

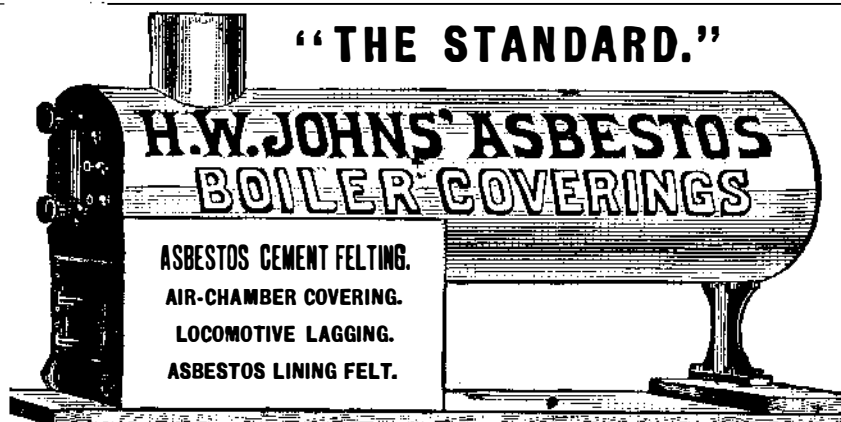
PATENT
JACKET KETTLES,
Plain or Porcelain Lined. Tested to 100 lb. pressure. Send for Lists.
HAND, BURR & CO.
614 and 616 Market St., Philadelphia, Pa.

ELECTRIC
LEATHER BELTING.
BEST and most RELIABLE for swift running.
Chas. A. Schieren & Co.
406 Arch St., Phila.
84 Federal St., Boston.

PHOTOGRAPHS of Microscopic Objects, Diatoms, Insects, Parts of Insects, Polycystina, etc. For sample photograph and list of objects, send 2 cents to Frank A. Butler, 433 Lafayette Avenue, Brooklyn, N. Y.

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SHEET BRASS BRASSWIRE
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"THE STANDARD."



ASBESTOS CEMENT FELTING.
AIR-CHAMBER COVERING.
LOCOMOTIVE LAGGING.
ASBESTOS LINING FELT.

Samples and Illustrated Pamphlet "Steam Saving and Fire-Proof Materials" Free by Mail.

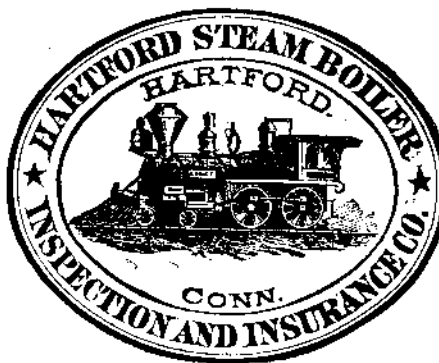
H. W. JOHNS MANUFACTURING CO.,

SOLE MANUFACTURERS OF

H. W. Johns' Fire and Water-Proof Asbestos Roofing, Sheathing, Building Felt, Asbestos Steam Packings, Boiler Coverings, Roof Paints, Fire-Proof Paints, etc.
VULCABESTON. Moulded Piston-Rod Packing, Rings, Gaskets, Sheet Packing, etc.
Established 1858. 87 MAIDEN LANE, NEW YORK. CHICAGO, PHILADELPHIA, LONDON.

JENKINS BROS. VALVES.

THE ENDORSEMENT OF FIRST-CLASS ENGINEERS AND MECHANICS THROUGHOUT THE COUNTRY has fully demonstrated these valves to possess the following advantages over all other valves now in use:
1. A perfectly tight valve under any and all pressures of steam, oils, or gases.
2. Sand or grit of any kind will not injure the seat.
3. You do not have to take them off to repair them.
4. They can be repaired by any mechanic in a few minutes.
5. The elasticity of the Disc allows it to adapt itself to an imperfect surface.
In Valves having ground or metal seats, should sand or grit get upon the seat, it is impossible to make them tight, except by regrinding, which is expensive if done by hand, and if done by machine soon wears out the valve, and in most cases they have to be disconnected from the pipes, often costing more than a new valve. The Jenkins Discs used in these valves are manufactured under our 1880 patent, and will stand any pressure of steam, oils, or acids.
JENKINS BROS., 71 John St., N. Y.; 105 Milk St., Boston; 13 So. Fourth St., Phila.



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MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine improvements, and to act as Solicitors of Patents for Inventors.

In this line of business they have had forty-one years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs. Munns & Co. also attend to the preparation of Caveats, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business entrusted to them is done with special care and promptness, on very reasonable terms.

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We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing patents in all the principal countries of the world.
MUNN & CO., Solicitors of Patents,
361 Broadway, New York.
BRANC OFFICES.—No. 622 and 624 F Street, Pacific Building, near 7th Street, Washington, D. C.

PRINTING INKS.

THE "Scientific American" is printed with CHAS. TENEJOHNSON & CO.'S INK. Tenth and Lombard Sts., Phila., and 47 Rose St., opp. Duane St., N. Y.

SUPPLIES FROM
HYDRANT PRESSURE
the cheapest power known.
Invaluable for blowing Church Organs, running Printing Presses, Sewing Machines in Households, turning Lathes, Small Saws, Grindstones, Coffee Mills, sausage Machines, Feed Cutters, Electric Lights, Elevators, etc. It needs little room, no firing up, fuel, ashes, repairs, engine, explosion, or danger, no extra insurance, no coal bills. Is noiseless, neat, compact, steady; will work at any pressure of water above 15 lb.; at 40 lb. pressure has 1-horse power and capacity up to 16-horse power. Prices from \$15 to \$300. Send for circular to THE BACKUS WATER MOTOR CO., Newark, N. J.

BEFORE YOU BUY A BICYCLE
OR GUN send stamp to A. W. GUMP, Dayton, Ohio, for new and second-hand price list. REPAIRING AND REBUILDING. SECOND-HAND BICYCLES, GUNS and REVOLVERS taken in EXCHANGE.

LEPAGE'S
THE ONLY GENUINE
LIQUID GLUE
UNEQUALLED for CEMENTING wood, glass, china, paper, leather, etc. Always ready for use. Pronounced strongest glue known.
(IS MADE BY THE) AWARDED TWO
Russia Cement Co., Sample 20c stamp

SCIENTIFIC AMERICAN SUPPLEMENT. Any desired back number of the SCIENTIFIC AMERICAN SUPPLEMENT can be had at this office for 10 cents. Also to be had of newsdealers in all parts of the country.

THE WASHBURN AMERICAN GUITARS AND MANDOLINES

Finest toned, most durable, and possess the only absolutely correct scale. Warranted to stand in any climate. Ask your dealer for them. Illustrated Catalogue mailed free by the Manufacturer, LYON & HEALY, 162 State St., Chicago.

Remarkable Success!!
DR. SCOTT'S GENUINE ELECTRIC BELTS

Probably never since the invention of Belts and Supporters has so large a demand been created as now exists for Dr. Scott's Electric Belt. Over seven thousand people in the city of New York alone are now wearing them daily. They are recommended by the most learned physicians in the treatment of all Male and Female Weaknesses, Nervous and General Debility, Rheumatism, Paralysis, Neuralgia, Sciatica, Asthma, Dyspepsia, Eructations, Catarrhs, Hiccups, Pains in the Head, Hips, Back, or Limbs, Diseases of Spine, Kidneys, Liver and Heart. It quickly restores impaired circulation.

There is no waiting a long time for results. Electromagnetism acts quickly; generally the first week, more frequently the first day, and often even during the first hour they are worn their wonderful curative powers are felt.

The mind becomes active, the nerves and sluggish circulation are stimulated and all the old-time aches and pains are relieved.

The following are representative testimonials of the thousands we are receiving.
221 Henrietta St., Phila.
Dr. Scott: Your belt has cured me of rheumatism of and around the kidneys, which medicine had failed to help. W. H. UPJOHN.

Handsome Sateen Belts at \$5.00.

Dr. Scott's Electric Suspensory, the Genuine Article, \$5.

Baltimore, Md.
Intense nervous debility has been my trouble for years. Physicians and their medicines did not help me. I finally derived great relief from Dr. Scott's Electric Belt.
L. H. MILLER.
East Berlin, Pa.
Your Belt has cured me of insomnia and nervousness, and has also had wonderful effect on Neuritic affection of the chest.

Dr. Scott's Electric Corsets cure and prevent sickness, \$1.50, \$2, and \$3.
DR. SCOTT'S ELECTRIC CHEST PROTECTOR, \$3.
DR. SCOTT'S ELECTRIC HAIR BRUSHES, \$1.50, \$2 and \$3.
DR. SCOTT'S ELECTRIC INSOLES, 50 cts.
10,000 agents wanted, quick sales, liberal pay, satisfaction guaranteed.

PRICE \$3.00 ON TRIAL



These Belts are for sale at drug stores, but if not in your immediate vicinity, send direct to Dr. SCOTT, 842 Broadway, New York.
Each is stamped with the name Fall Mail Electric Ass'n of London.

Handsome Sateen Belts at \$5.00.

health and good feeling come back. They are constructed on scientific principles, imparting an exhilarating, health-giving current to the whole system.

The celebrated Dr. W. A. Hammond, of New York, formerly Surgeon-General of the U. S. Army, lately lectured upon this subject, and advised all medical men to make trial of these agencies, describing at the same time most remarkable cures he had made even in cases which would seem hopeless.

Price \$3.00 on Trial.

We will send either Gent. or Lady's Belt on trial, post-paid, on receipt of \$3, guaranteeing safe delivery. State size waist when ordering Lady's Belt. Remit money order or draft at our risk, or currency in registered letter. Address GEO. A. SCOTT, 842 Broadway, cor. 13th St., New York. For sale at all drug stores. Take none but Dr. Scott's Genuine. See name on the box and belt. Always mention this paper.

Call and examine our goods, cor. Broadway and 13th St., over Star Theatre.

Robinson Bk., Robinson, Ill.
The sixth Belt received, and is satisfactory. Their quick cures of rheumatism, liver and kidney troubles, and debility are wonderful. It gives me pleasure to recommend them to suffering friends. A. P. WOODWORTH, Cashier.

THE BRIDGEPORT WOOD FINISHING CO.
G. M. BREINIG, AGENT, PRINCIPAL OFFICE AT MANUFACTORY NEW MILFORD, CONN.
NEW YORK BUSINESS OFFICE, 96-98 MAIDEN LANE, MANUFACTURERS OF
WHEELER'S PATENT WOOD FILLER.
BREINIG'S LITHOGEN SILICATE PAINT.
LITHOGEN PRIMER, WOOD STAINS
SILEX FLINT AND FELDSPAR.
PAMPHLET GIVING DIRECTIONS FOR FINISHING HARD WOOD FREE TO ANY ADDRESS.

ELECTRICAL APPLIANCES.

HOW MADE AND HOW USED.
This valuable book sent FREE to any address.
HOBACE VAN SANDT, 73 Broadway, New York.

Fruit Evaporator Wanted for tropical use. Slow process. Fruit for eating, not cooking. Different makers please address EXPORTER, Box 3483, N. Y. city.

SAFES Fire and Burglar Proof

Safes for all purposes. Bank and Safe Deposit Vaults, Vault Doors, &c. Estimates and drawings furnished.

DIEBOLD SAFE AND LOCK COMPANY,
W. H. BUTLER, Gen'l Agent, 79 Duane St., N. Y.



WE would call especial attention to the following articles now for the first time offered to the public, manufactured from this new material.

Vulcabeston, is composed of asbestos combined with water and acid proof materials vulcanized and compressed. It is manufactured exclusively by the JOHNS-PRATT CO., of Hartford, Conn., of which we are the sole agents.

VULCABESTON is superior to any other known material on account of its permanent resistance to heat and immunity from injury by acids, gases, etc., and is therefore invaluable for a variety of purposes. It can be made in any desired form. At present we are prepared to supply Soft, Medium, and Hard SHEET PACKING, all thicknesses, in sheets 40x40 inches, MOULDED PISTON-ROD PACKING, MOULDED PISTON PACKING, GASKETS, RING FLANGE PACKINGS, WASHERS, etc.

Vulcanized Asbestos Piston-Rod Packing.

This is a flexible rope packing composed of strong twisted strands of pure Asbestos combined with India Rubber and vulcanized. It is an improvement upon our Pure Asbestos Packings, and is superior to all others for piston-rods, valve-stems, pump valves, etc., where high pressure steam, hot water, oils, acids, ammonia, etc., are used, and for locomotives, stationary, and marine engines. The advantages possessed by this Packing are that, in consequence of its wonderful strength and durability, it can be used wherever metallic packings have been heretofore necessary. It is self-lubricating to a greater extent than any other material, and it will not shrink or blow out. Round and square, all sizes, from 1-8 inch to 2 inches in diameter.

Samples and Descriptive Price Lists free by mail.

H. W. JOHNS MANUFACTURING CO.,

SOLE MANUFACTURERS OF

H. W. Johns' Fire and Water-Proof Asbestos Sheathing and Building Felt, Asbestos Roofing and Roof Paints, Asbestos Steam Packings, Boiler Coverings, Liquid Paints, Fire-Proof Paints, etc.

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