

Advertisements.

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Fluted Tire Bolt

Patented Nov. 11, 1890; Oct. 20, 1891.



Is stiffer and stronger than a common bolt. The fluted
shank prevents the bolt from turning
in the rim and tire.

COLD FORGED

MACHINE SCREWS
STOVE BOLTS
LOCK CAP SCREWS
SIDE KNOB SCREWS
THREADED WIRES

AMERICAN SCREW COMPANY,
PROVIDENCE, R. I.

BARNES' WATER EMERY
TOOL GRINDER



Has no pumps,
no valves. No
piping required
to supply it with
water. Always
ready for use.
Simplest in con-
struction, most
efficient in oper-
ation. Send for
Catalogue and
Prices.

W. F. & JOHN BARNES CO.
1999 Ruby Street. Rockford, Ill.

SCIENTIFIC AMERICAN SUPPLE-
MENT. 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.

Advertisement for machinery including 'Handle Machinery for Turning Handles for Brooms, Axes, etc.' and 'Wood Pulp Machinery'.

Galloupe's
General Engineering
Index

is indispensable to every Progressive Engineer. New
volume. Postage paid, \$3.00.
FRANCIS E. GALLOUPE, 30 Kilby Street, Boston.

Advertisement for 'The McCONNELL Germ Proof Filters' with an illustration of a filter and text 'REMOVE MICROBES -AND- All Kinds of Disease Germs.'

Advertisement for 'OIL WELL SUPPLY CO.' with an illustration of an oil well and text '91 & 92 WATER STREET, PITTSBURG, PA.'

Advertisement for 'LIGHTNING WELL-SINKING MACHINERY MANUFACTURERS' with an illustration of a well-sinking machine and text 'Aurora, Ill.'

SIR RICHARD OWEN.—A SKETCH
of the life and labors of this great English naturalist,
accompanied with his portrait. Contained in SCIENTIFIC
AMERICAN SUPPLEMENT, No. 909. Price 10
cents. To be had at this office and from all newsdealers.

Advertisement for 'IMPROVED CHARTER GAS ENGINES' with an illustration of a gas engine and text 'USING LIME GAS, NATURAL OR LIQUOR GAS.'

THE BRIDGEPORT WOOD FINISHING CO.
MANUFACTURERS OF
WHEELER'S PATENT WOOD FILLER
BREINIG'S LITHOGEN SILICATE PAINT.
ADAPTED TO ALL CLIMATES ESPECIALLY MARINE EXPOSURES.

KODAKS \$6.00 TO \$100.00
Eastman Kodak Company,
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WATER MOTOR, \$5.
BOLCIANO'S LITTLE GIANT
WILL RUN YOUR SEWING MACHINE
and other Light Machinery.

AGENTS WANTED FOR FINE TOOLS IN EVERY SHOP.
C.H. BESLY & CO.
CHICAGO, ILL. U.S.A.

THE MODERN MARINE BOILER.—
By A. B. Willits, U.S.N. Description of the principal
features of the boilers of the United States man-of-war.

The Smith Premier Typewriter
Embodies the most Progressive Mechanical Principles.
All the Essential Features Greatly Perfected.

PATENTS
taken through Munn & Co. receive special notice in the Scientific American.

Motor of 19th Century
Can be used any place, to do any work, and by any one.

McALLISTER MFG. CO.
OPTICIAN
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ELECTRIC MOTORS
Our exhibit in Electricity Building is the only complete exhibit of the application of Electricity to Power
Work at the WORLD'S FAIR.

ELECTRO MOTOR. SIMPLE. HOW TO
make. By G. M. Hopkins.—Description of a small electro
motor devised and constructed with a view to assisting
amateurs to make a motor which might be driven with
advantage by a current derived from a battery, and
which would have sufficient power to operate a foot
lodge of any capacity requiring not over one-half power.

IRON FENCES
SNEAD & BIBB
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ASTRONOMY
Poole Bros. Celestial Planisphere and
Celestial Handbook just published.
For descriptive circular address
POOLE BROS., CHICAGO, ILL.

HARTFORD STEAM BOILER
HARTFORD, CONN.
INSPECTION AND INSURANCE CO.

H. W. JOHNS M'FG CO.,
ASBESTOS
ROOFING, LIQUID PAINTS, ASBESTOS MANUFACTURES,
NON-CONDUCTING AND INSULATING MATERIALS,

FASTEST FINE GRINDER KNOWN
VERTICAL ROCK EMERY MILL.
3 Turns per Hour.

Patent Electric VISE.
What is claimed, is time saving; no turning of handle to bring jaws to the work, simply one sliding movement.

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Experimental Work, Castings, Fine and Intricate
Machinery or Parts made in quantity. Secrecy and satis-
faction guaranteed. White metal work a specialty.

FOR MAGIC LANTERNS, STEREOPTICONS,
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ILLUSTRATING

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General Electric Company
DISTRICT OFFICES:
44 Broad Street, New York

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Complete outfits furnished. Send for prices and
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The American Bell Telephone Company
125 MILK ST., BOSTON, MASS

This Company owns the Letters Patent
No. 186,787, granted to Alexander Graham
Bell, January 30, 1877, the scope of which
has been defined by the Supreme Court of
the United States in the following terms:

"The patent itself is for the mechan-
ical structure of an electric telephone to
be used to produce the electrical action
on which the first patent rests. The third
claim is for the use in such instruments
of a diaphragm, made of a plate of iron
or steel, or other material capable of in-
ductive action; the fifth, of a permanent
magnet constructed as described, with a
coil upon the end or ends nearest the
plate; the sixth, of a sounding box as de-
scribed; the seventh, of a speaking or
hearing tube as described for conveying
the sounds; and the eighth, of a perman-
ent magnet and plate combined. The
claim is not for these several things in
and of themselves, but for an electric tel-
ephone in the construction of which these
things or any of them are used."

This Company also owns Letters Pa-
tent No. 463,569, granted to Emile Ber-
liner, November 17, 1891, for a Combined
Telegraph and Telephone; and controls
Letters Patent No. 474,231, granted to
Thomas A. Edison, May 3, 1892, for a
Speaking Telegraph, which cover funda-
mental inventions and embrace all forms
of microphone transmitters and of car-
bon telephones.

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