

# Scientific American.

ESTABLISHED 1845

MUNN &amp; CO., - - - EDITORS AND PROPRIETORS.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, - - - NEW YORK.

## TERMS FOR THE SCIENTIFIC AMERICAN.

(Established 1845.)

One copy, one year, for the U. S., Canada or Mexico.....\$3.00  
 One copy, six months, for the U. S., Canada or Mexico..... 1.50  
 One copy, one year, to any foreign country, postage prepaid, \$0 15s. 5d. 4.00  
 Remit by postal or express money order, or by bank draft or check.  
 MUNN & CO., 361 Broadway, corner Franklin Street, New York.

## The Scientific American Supplement

(Established 1876)

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size with SCIENTIFIC AMERICAN. Terms of subscription for SUPPLEMENT, \$5.00 a year, for the U. S., Canada or Mexico, \$6.00 a year, or \$1 15s. 5d. to foreign countries belonging to the Postal Union. Single copies 10 cents. Sold by all newsdealers throughout the country. See prospectus, last page. Combined Rates.—The SCIENTIFIC AMERICAN and SUPPLEMENT will be sent for one year, to one address in U. S., Canada or Mexico, on receipt of seven dollars. To foreign countries, eight dollars and fifty cents a year, or \$1 15s. 11d., postage prepaid.

## Building Edition of Scientific American.

(Established 1885.)

THE BUILDING EDITION OF THE SCIENTIFIC AMERICAN is a large and splendidly illustrated periodical, issued monthly, containing floor plans and perspective views pertaining to modern architecture. Each number is illustrated with beautiful plates, showing desirable dwellings, public buildings and architectural work in great variety. To architects, builders, and all who contemplate building this work is invaluable. Single copies 25 cents. By mail, to any part of the United States, Canada or Mexico, \$2.50 a year. To foreign countries, \$3.00 a year, or \$0 12s. 4d. Combined rate for BUILDING EDITION with SCIENTIFIC AMERICAN, to one address, \$5.00 a year. To foreign countries, \$6.50 a year, or \$1 15s. 9d. Combined rate for BUILDING EDITION, SCIENTIFIC AMERICAN, and SUPPLEMENT, \$9.00 a year. To foreign countries, \$11.00 a year, or \$2 5s. 2d., postage prepaid.

## Export Edition of the Scientific American

(Established 1878)

with which is incorporated "LA AMERICA CIENTIFICA E INDUSTRIAL," or Spanish edition of the SCIENTIFIC AMERICAN published monthly, uniform in size and typography with the SCIENTIFIC AMERICAN. Every number contains about 100 pages, profusely illustrated. It is the finest scientific industrial export paper published. It circulates throughout Cuba, the West Indies, Mexico, Central and South America, Spain and Spanish possessions—wherever the Spanish language is spoken. THE SCIENTIFIC AMERICAN EXPORT EDITION has a large guaranteed circulation in all commercial places throughout the world. \$3.00 a year, or \$0 12s. 4d., postpaid to any part of the world. Single copies, 25 cents.

MUNN &amp; CO., Publishers, 361 Broadway, New York.

The safest way to remit is by postal order, express money order, draft or bank check. Make all remittances payable to order of MUNN & CO. Readers are specially requested to notify the publishers in case of any failure, delay, or irregularity in receipt of papers.

NEW YORK, SATURDAY, OCTOBER 2, 1897.

## Contents.

(Illustrated articles are marked with an asterisk.)

Asphalt paving, portable plant for.....	116	Humming birds of California*.....	217
Bicycle riding—the highest record.....	214	Insects, labor saving.....	214
Books, new.....	221	Inventions recently patented.....	220
Books, rare, English, sales of.....	218	Kite flying, extraordinary.....	212
Clutches, improved*.....	212	Massachusetts, battleship, engines of*.....	209
Dietz, R. E.....	219	Mechanical power transmissions*.....	212
Disbarment of a patent attorney firm.....	210	Mesa, recent survey of the.....	210
Economy, a lesson in.....	219	Patent laws, amendments of.....	214
Electrical contract, large.....	214	Peary party, return of the.....	219
Elevator accident, the, Tract Building*.....	215	Perth, house of Vettat*.....	219
Engines of a battleship*.....	209	Rails and rail fastenings, Johnston's*.....	212
Geological congress, international.....	215	Sash holder, Bohrisch's*.....	212
Heavens, the, for October.....	215	Science notes.....	214
Hoover, D. W. C.....	218	Ship canal, Florida.....	219
Hub attaching device, Harry's*.....	212	Slides, lantern, development and coming.....	217
		Victoria Regia in bloom*.....	218
		Wood, to blacken.....	213

## TABLE OF CONTENTS OF

# Scientific American Supplement

No. 1135.

For the Week Ending October 2, 1897.

Price 10 cents. For sale by all newsdealers.

	PAGE
I. ANTHROPOLOGY.—The British Association.—Address in anthropology.—Some distinctive characters of Human Structure.—An address by Prof. Sir W. TURNER, who selected as the subject: Some distinctive characters of human structure.—The first installment of this interesting paper.....	18148
II. ARCHEOLOGY.—The Punic Necropolis of Douimes, Carthage.—5 illustrations.—This paper gives illustrations of scarabei, earrings, bone and lead weights, etc.....	18146
III. ARCHITECTURE.—The New Cathedral in Berlin, Germany.—A description of the splendid new cathedral designed by Prof. Raschdorff.—2 illustrations.....	18142
IV. BOTANY AND HORTICULTURE.—Grammatophyllum Speciosum.—1 illustration.....	18147
V. CHEMISTRY.—Automatic Gas Tap.—By H. MICHAELIS.—1 illustration.....	18140
VI. ECONOMICS.—Improvident Civilization.—A plea for the application of scientific methods to the amelioration of socio-economic defects and disorders.—By RICHARD T. COLBURN.—IV. Spendthrift Luxury.—This installment of Prof. Colburn's paper deals with spendthrift luxury, the blight of parasitism and the role of superstition.....	18143
VII. ELECTRICITY.—On a Slow Combustion Arc Lamp, Suitable for Factories and Street Lighting.—By W. S. SEURE.—A detail description of the modern inclosed arc light, showing the interior methods of construction.—6 illustrations.....	18138
High Speed Electric Multiple Pump.—1 illustration.....	18139
An Electric Band Saw.—1 illustration.....	18139
The Use of Telephones by Royalty.....	18139
VIII. ENTOMOLOGY.—Destruction of Insects.—A description of a trap which destroys the insects with bird lime after they have been attracted by light.—1 illustration.....	18145
The Spread of Land Species by the Agency of Man, with Especial Reference to Insects.—By LELAND C. HOWARD.—The continuation of this most important paper on economic entomology.....	18147
IX. FINE ARTS.—New Gobelin's Tapestry for the Exposition of 1900.—1 illustration.....	18143
X. MARINE ENGINEERING.—A Suction and Bucket Dredger.—A dredger for use in the ports of the Sea of Azof.—2 illustrations.....	18135
XI. MECHANICS.—Perpetual Motion.—IV.—The fourth installment of this important series, giving some of the classical forms of perpetual motion apparatus.—4 illustrations.....	18136
XII. METALLURGY.—Aluminum for Making Clock Hands.....	18148
XIII. MINING.—The World's Gold Production.....	18137
XIV.—MISCELLANEOUS.—	
Engineering Notes.....	18141
Electrical Notes.....	18141
Miscellaneous Notes.....	18141
XV. STEAM ENGINEERING.—Mercury Columns.—3 illustrations.....	18149
XVI. TECHNOLOGY.—The Testing of India Rubber Goods.—A most valuable paper, giving the methods of testing the quality of the raw material and the manufactured goods.....	18140

## A PATENT ATTORNEY FIRM TO BE DISBARRED.

As the result of his investigation into the charges against Wedderburn & Company, of Washington, D. C., the Commissioner of Patents has recommended that the firm be disbarred. The case has had a lengthy hearing before Assistant Commissioner Greeley, who has decided that Wedderburn & Company are guilty of irregular practices, and recommended them for disbarment. The decision has been approved by Commissioner Butterworth and is now before the Secretary of the Interior, Cornelius N. Bliss, for review and approval. Briefly summarized, the charges which have brought this firm under the ban of the Commissioner were as follows: Unprofessional conduct in soliciting business by giving away medals for inventions; taking applications when there was no chance of a patent being granted; and making incomplete searches for patents.

The following extracts from part of Assistant Commissioner's Greeley's decision will serve to show some of the grounds on which the disbarment is based:

"The various papers sent by the respondents (Wedderburn & Company) with their first letter to a correspondent—the 'How to Get a Patent,' 'One Thousand Inventions Wanted,' etc.—were calculated and intended to encourage would-be patentees to believe that there was a great demand for the most simple inventions; that in many fields of invention there were no satisfactory devices; that the public was eagerly awaiting inventions in lines in which, as a matter of fact, there are hundreds of devices already patented. The 'One Thousand Inventions Wanted,' as is evident to any one experienced in the arts, is little more than a list of old inventions. Certainly very many of the inventions therein stated to be 'wanted' are inventions for which many patents have been granted. Throughout their advertisements and the pamphlets and papers sent out by them, these respondents endeavor to impress upon the public the value of simple inventions. They state in 'How to Get a Patent' that small things are most valuable. In 'Prizes on Patents' they state that 'it is not the great, complex and expensive inventions that bring the best returns to their authors, but the little, simple and cheap ones.' In the advertisement, 'Wanted, an Idea,' they ask 'Who can think of some simple thing to patent?' In all this there is that half truth that is in its effect worse than a falsehood.

It is true that some small inventions, simple inventions, which have required little thought and little knowledge of the prior art on the part of the inventor, have proved of value. It is equally true, no doubt, that in lotteries some one for a trifling outlay has won a large prize. Yet the effect of lotteries is recognized as demoralizing to a degree. To endeavor to impress upon the public the idea that any one without experience in the art, without knowledge of what is claimed in the art, without study, and thought, and experiment, can evolve inventions of value, is as demoralizing as the idea so strenuously insisted on by lottery agents that any one who buys a ticket may win the great prize. It is as true in inventions as in everything else, that what costs nothing is worth nothing. The valuable inventions are those which are the result of hard work, careful study, and experiment, by those who have familiarized themselves with what others have done and with the real needs in the art. The careful student does not always produce inventions of value, but he is at least not likely to merely reinvent what is already known, what is already before the public, either adopted by the public or tested and thrown aside as worthless. The tyro, ignorant of what has already been done, ignorant of what is practical, what is needed in the art, having before him such meager and misleading information as that contained in the 'One Thousand Inventions Wanted,' works in the dark, and it is not surprising that he at most merely reinvents what is old. Out of thirty-three thousand inventions on which searches were made by the respondents in two years, over twenty thousand were, even by their searchers, incompetent and inexperienced as many of them were found to be, at most reinventions of what was already old.

From the exhibits in the case, it is apparent that a large proportion of those reached by the respondents' advertisements are country people, many of them, as shown by their letters, possessed of little education and small knowledge of the arts. To induce such people to believe that these old and well worked fields of invention are new and untried fields in which inventions of value could be readily made by them is grossly deceptive; is demoralizing to the same extent and in the same way as the alluring prospects held out by the lottery agent. It has not always been the case that inventors sent on their inventions at once upon receipt of the respondents' first letter with its accompanying pamphlets and papers. When the supposed inventor failed to reply promptly, the respondents have in many instances, as shown by the evidence and as admitted in the stipulation signed by counsel, sent him an undated circular offering to advise him free of charge as to the patentability and salability of any device he might have. Those who took advantage of this apparently liberal offer (as, for instance, Nagaye, letter of August 3,

1896,) received in reply a letter containing information which, in so far as it was not positively false and misleading, was such advice as could very well have been given for nothing, for it was worth nothing. Instead of giving substantial advice as to patentability, it merely stated that the invention was of a patentable nature, but stated that to determine its patentability, a search at a cost of \$5 would have to be made. The respondents, in sending out the letter promising advice free of charge as to patentability, were well aware that novelty is an essential, the primary essential, of patentability, and no advice as to patentability that would be of any value could be given without determination of the novelty."

We reserve any comments upon the decision until a later issue.

## PROPOSED AMENDMENTS TO OUR PATENT LAWS.

It is characteristic of the times that there should be a growing disposition, just now, to inquire into the working of the patent laws of the country. The progressive spirit which prompts the inquiry is, on general principles, commendable. At the same time it should be borne in mind that the question of a change in existing laws should always be approached in a guarded and conservative spirit, especially when it affects a branch of our laws like that relating to patents, under which such splendid results have been achieved.

We are in receipt of a circular from the National Association of Manufacturers of America, which is being issued with a view of obtaining an expression of opinion on the advisability of certain proposed reforms in our patent laws. The first suggestion is that the government should charge an annuity on patents, in order to invalidate such patents as are not considered by the owners of sufficient value to warrant the payment of the annuity, but which interfere with the working of later and dependent patents. It is suggested that the annuity would clear the field of worthless patents and furnish an income to the government which "might be used to advantage in the Patent Office."

The chief objection to this proposal is that it is not possible for any one to foretell what is or is not going to become a valuable patent. It sometimes happens that a patent may lie dormant for years and may suddenly become invested with importance owing to some later discovery or invention. Furthermore, it may take some years of experimentation in order to get the invention in such a condition that it possesses commercial value. In the meantime, and while the inventor, who is generally impecunious, is harassed by adversity and the depression consequent upon his failure to perfect his invention, he is met with the necessity of raising funds to pay a harsh and unnecessary tax into an already overflowing treasury. To the poor inventor it would be an exceptional hardship.

As to the increased income which could be realized by the Patent Office, this institution already has more money than it can use; the surplus for the past year being over \$300,000, and the total surplus to its account in the treasury amounting to over \$5,000,000.

The second suggestion is that, in view of the fact that foreigners are allowed to procure patents in this country and hold the same without further expense or trouble than the first cost, while our citizens are obliged to pay annuities in many foreign countries, often amounting to hundreds of dollars, and also are in many cases obliged to work their devices at intervals, laws should be passed making annuities and working obligatory on all patents granted to foreigners in this country. In some countries it costs from \$600 to \$700 to secure and maintain a patent, as against \$35 government fees in the United States. It is proposed that if a native of such a country applies for a patent in the United States, he shall be made to pay initial fees and subsequent annuities of the same amounts as he would have to pay at home. That is to say, the price for a United States patent shall be no longer \$35 to all the world, but an amount varying according to the nationality of the applicant.

To this absurd proposal we feel it our duty to give our unqualified dissent. It is wrong in principle, and we fail to see that it can be productive of any good results should it be put into effect. Whether it is intended as such or not, it will carry the appearance of an act of retaliation against the foreign countries affected, and unless some good practical results can be shown as likely to follow from such a measure, we shall be open to a charge of a lack of international fairness and good feeling.

It does not properly concern us what the patent fees or requirements of other countries may be provided our citizens are afforded the same privileges as natives. This is the only question which concerns us and we believe that there is no nation which, in regard to these matters, has any discriminating laws against foreigners. Such a course as proposed would therefore be wrong in principle and foolish in policy, and would be distinctly retrogressive in spirit.

Additional importance is lent to this circular by a rumor from Washington that there is a movement on foot in that city to draw up amendments to the exist-