Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT
NO. 37 PARK ROW, NEW YORK.

O. D. MUNN. A. E. BEACH.

TERMS FOR THE SCIENTIFIC AMERICAN.

One copy, one year postage included..... $3 20
One copy, six months, postage included..... 1 60

Clubs.—One extra copy of THE SCIENTIFIC AMERICAN will be supplied gratis for every club of five subscribers at $3.20 each; additional copies at same proportionate rate. Postage prepaid.

Remit by postal order. Address

MUNN & CO., 37 Park Row, New York.

The Scientific American Supplement

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, postage paid, to subscribers Single copies, 10 cents. Sold by all news dealers throughout the country.

Combined Rates.—The SCIENTIFIC AMERICAN and SUPPLEMENT will be sent for one year postage free, on receipt of *seven dollars*. Both papers to one address or different addresses as desired.

The safest way to remit is by draft postal order, or registered letter.

Address MUNN & CO., 37 Park Row, N. Y.

Scientific American Export Edition.

The SCIENTIFIC AMERICAN Export Edition is a large and splendid periodical, issued once a month. Each number contains about one hundred large quarto pages, profusely illustrated, embracing: (1.) Most of the plates and pages of the four preceding weekly issues of the SCIENTIFIC AMERICAN, with its splendid engravings and valuable information; (2.) Commercial, trade, and manufacturing announcements of leading houses. Terms for Export Edition, $5.00 a year, sent prepaid to any part of the world. Single copies 50 cents. ☞ Manufacturers and others who desire to secure foreign trade may have large, and handsomely displayed announcements published in this edition at a very moderate cost.

The SCIENTIFIC AMERICAN Export Edition has a large guaranteed circulation in all commercial places throughout the world. Address MUNN & CO. 37 Park Row, New York.

NEW YORK, SATURDAY, OCTOBER 29, 1881.

Contents.

(Illustrated articles are marked with an asterisk.)

TABLE OF CONTENTS OF

THE SCIENTIFIC AMERICAN SUPPLEMENT.

No. 304,

For the Week ending October 29, 1881.

Price 10 cents. For sale by all newsdealers.

PATENT REFORM.

About this time every year, particularly if there is no topic of general interest before the country, there appears in one or the other of our morning papers an article on patent reform, thrown out, apparently, as a "feeler." The tone and sentiment of these articles are always the same. The line of argument is substantially identical in all, and the internal evidences of style and motive strongly encourage the hypothesis that they have a common source which is not altogether unknown to American inventors and patentees. This year the *Times* gets it.

Taking for his text the late action of the English National Chamber of Trade favoring the proposed reform of the British patent law in the direction of lessened fees and extended terms of patent right, thus approximating the British system to the American, the writer objects, on the ground that it is a serious practical question whether the stimulus given by the cheapness of patents, and, still more powerfully, by the excessively easy granting, does not work injuriously to all parties except brokers and lawyers. "This excessive liberality," the writer says, "is extended so far that the law confining patents to 'any new and useful' invention is practically a dead letter. Patents are granted for devices not only not 'useful,' but for those which will not operate as intended and declared to do. . . . Nor is novelty exacted strictly enough, for every person who has examined the subject can cite devices which have been substantially patented over and over."

That the examiners in the Patent Office do not know everything and are not incapable of making mistakes the warmest friend of the patent system would not hesitate to admit; but he would hesitate, we think, to accept that as an excuse for lessening the encouragement which the patent system holds out to inventors. It is presuming a great deal to assume, as the *Times* writer does, that our inventors generally are mentally incompetent and need to be protected against their own unreasonable eagerness to pay their money for letters patent on things that are of no use.

The writer continues:

"A patent worth having is worth paying for much more heavily than is now charged; but the worthless ones, now far the majority, are an injury. Any change which tends to lessen these, without working too much offsetting harm, will prove a public benefit. It is plain that if government could practically make the successful invention pay accordingly there could be no reasonable objection; the difficulty in this is to pick out the successful ones at first, or to follow up the list and sift out the good ones afterward, but this work is fairly well done automatically by natural selection. Inventions which prove commercially valuable can afford to bear supplementary taxes, and those which are not worth payment will escape it. Hence the English system of supplemental fees is thoroughly sound, taxing patents which can bear it and extinguishing the useless ones. This extinguishment is itself very valuable, for a useless patent often becomes vexatiously obstructive."

Here are the old familiar sophistries. The underlying assumptions are all opposed to the spirit and policy of the system which has so bountifully demonstrated its practical wisdom that even conservative England is beginning to appreciate it.

The idea that an inventor, who has brought forth, painfully or otherwise, something of value to the rest of the community, should be compelled to pay for the privilege, heavily or lightly, is simply absurd. That the penalty imposed should increase with the amount of the benefaction is still more absurd. Indirectly the successful invention does contribute to government support in taxes in proportion to the rate at which it increases individual and public wealth; but that is for service by the government other than and independent of the issuance of an official certification of the invention in the form of letters patent. The assertion that the majority of patents are worthless is so contrary to the evidence of fact that it cannot be set down to ignorance. The point of the whole paragraph lies in the advocacy of the policy of extinguishing "useless patents;" and its mischievousness turns on the assumption that all patents which are not speedily developed and made commercially productive are useless. This position too is flatly contrary to the evidence of fact, as shown in history and illustrated in the testimony taken in official investigations in this country and in Europe.

It is the position taken by those, and those only, who are pecuniarily interested—as principals or attorneys—in so modifying the operation of the patent law as to facilitate the seizure and enjoyment of patented inventions without the preliminary formality of consulting the inventor or incurring any subsequent risks of damages for infringement. With a large number of classes of inventions it rests with a few wealthy organizations to decide absolutely whether a new invention within the class, however meritorious it may be, shall or shall not be speedily developed and made remunerative to the patentee. Such organizations, or many of them, would no doubt assent heartily to the *Times* writer's position that "the extinguishment of all [patents] which do not develop value within a term of years would be beneficial;" but the public who do not wish to wait for improvements until the patents on them have been officially killed, and the inventors who invent primarily for their own betterment and not to swell the income of railway companies and the like, are inclined to take another and more equitable view of the rights of the patentee, and at the same time prefer that the benefits to be derived from inventions shall be more equitably distributed.

HAMILTON E. TOWLE.

The recent death abroad of Hamilton E. Towle, inventor, mechanical engineer, and manufacturer, of this city, recalls the remarkable achievement which first brought his name prominently before the public. In September, 1861, Mr. Towle, then a young graduate of the Lawrence (Mass.) Scientific School, was a passenger on the Great Eastern, from Liverpool to New York, when her rudder post was broken in a storm. Seeing that the efforts of the ship's officers to retrieve the disaster were useless or worse, young Towle drew up plans for a temporary steering apparatus, and, backed by some prominent American passengers, was granted a hearing and grudgingly allowed to carry his plan into effect, thereby saving the ship, which had been rolling helplessly in the trough of the sea for many critical hours. This historical feat of engineering, requiring infinite pluck and skillful labor as well as rare genius, was described at length and illustrated by engravings in the SCIENTIFIC AMERICAN of October 26, 1861.

Mr. Towle was a mechanical experimenter and inventor from boyhood, and his active and ingenious mind bore good fruit for many years. Previous to his last illness Mr. Towle was at the head of the Towle Manufacturing Company, of this city.

The Microphone in Observatories.

Mr. Van Rysselberghe's idea of using the microphone in observatories has been adopted in the observatory at Geneva, and by the aid of the instrument, in combination with the telephone, the sound beats of the normal pendulum can be heard in every part of the building. The observatory is also connected with the Hôtel Municipal, so that the beats of the electric clock regulator in that building can be heard and compared with the pendulum beats.

A Large Refrigerating Machine.

The Boyle Ice Machine Company, of Chicago, have undertaken to cool artificially the beer storage and fermenting rooms of the Philip Best Brewing Company, of Milwaukee. The capacity of the rooms to be cooled exceeds 1,600,000 cubic feet. The contract price of the refrigerating machinery is $80,000. It is estimated that at least twenty freight cars will be required to transport the machinery and connections, exclusive of the steam boilers. The Boyle Company employ the ammonia process.

The Lighthouse Service.

There are now under the control of the Lighthouse Board about seven hundred lighthouses, besides something like eight hundred lights, on interior rivers. In their annual report the Board ask for $50,000 to introduce electric lights in several of the more prominent lighthouses. The lamps proposed for this purpose have been thoroughly tested, and are said to be in every way satisfactory and much more effective than the lights now in use. The estimates for new work and for the maintenance of the service amount to about $3,000,000.

A Railway Injured by an Earthquake.

A severe earthquake was lately felt in the southern part of the North Island, New Zealand. No lives were lost, but in some of the townships in the Manawatu district scarcely a chimney was left standing. In Foxton, for instance, no less than 250 were thrown down. Fissures extending for many miles are reported to have been made, and the railway line was rendered unsafe in that neighborhood, owing to the undulations of the earth alternately raising and depressing the rails. Since the large shock a good many of a slight nature have occurred.

Constant Sources of Electricity.

A section suitably cut in a hemihedral crystal with inclined surfaces and placed between two leaves of tin, constitutes a condenser which is capable of charging itself when compressed. With this system we may realize a new instrument, a condenser source, which possesses special properties. It may serve as a standard of static electricity for measuring charges and capacities. The authors give in this memoir an absolute measurement of the quantities of electricity liberated by tourmaline and quartz under a given pressure.—*MM. Jacques and Pierre Curie.*

Angular Distance of Colors.

The projection of a table of colors upon the sides of an equilateral triangle renders it possible to determine the exact angular distance of the colors, a result which has not yet been obtained, and which suffices to connect together the facts at present known. The author gives a diagram representing the law of the mixture of colors, and which will be advantageously substituted for Newton's rule.—*A. Rosenstiehl.*

Underground Telegraph in Philadelphia.

The work of laying the conduit for the underground telegraph system on Market street has now proceeded as far as Eleventh east from the public buildings, and work is progressing at the rate of half a square a night. The conduits have twenty separate chambers. Each chamber has a capacity for fifty wires, and connection is made by means of manholes, which are located at each square.—*Philadelphia Record.*