

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, JANUARY 14, 1882.

Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as 'Aiming and sighting', 'Air, compressed, uses of', 'American industries', etc., with corresponding page numbers.

TABLE OF CONTENTS OF THE SCIENTIFIC AMERICAN SUPPLEMENT No. 315, For the Week ending January 14, 1882.

Price 10 cents. For sale by all newsdealers.

Detailed table of contents for the supplement, categorized into sections like 'I. ENGINEERING AND MECHANICS', 'II. ELECTRICITY, MAGNETISM, ETC.', 'III. TECHNOLOGY AND CHEMISTRY', 'IV. MISCELLANEOUS', and 'V. HYGIENE AND MEDICINE'.

INNOCENT PATENTEE VERSUS INNOCENT PURCHASER.

Speaking of those cases of conflicting patent rights arising from the issuance of two patents to different parties for the same invention (one of which patents is subsequently declared void by the courts), and the liability of the purchasers of articles sold by the owner of the rejected patent to pay royalty to the successful patentee, the Secretary of the Interior said, in his late annual report: "This is wrong, and in many cases tends to grievous hardship. It should be remedied by proper legislation, exempting innocent purchasers in open market from any liability for the use of such patented articles or devices."

That men who have once paid for an article or process and the right to use it, purchasing in good faith from one who could show the certificate of the Patent Office that he had at least a presumptively legal right to sell, should object to making a second payment to another is quite natural. And since such second liability usually arises through the action of the United States courts, in trials to which the "innocent purchasers" are not party, it is equally natural that they should look to the government for relief. For them the simplest way out of the trouble is a law exempting them from any responsibility to arise after the purchase is made "in open market and in good faith;" and several bills to that effect are now before Congress.

But the innocent inventor and patentee is a party to be considered in this connection as well as the innocent purchaser; and it is simply amazing that an officer in the responsible position of the Secretary of the Interior, in whose department the Patent Office is, should so completely overlook the obvious injustice and folly of attempting to right the wrongs of one class of unoffending citizens by increasing the wrong done to another class equally unoffending.

The case is plain enough if one will only consider it calmly and impartially. By oversight, erroneous judgment, or otherwise, the Patent Office issues to B a patent for A's invention, whether before or after giving a patent to A does not now matter. The person primarily wronged is therefore A, the rightful patentee. To a less degree B is wronged in that he is officially encouraged to manufacture and make a market for something which he cannot hold, and to defend his presumptive right in a legal contest with A. Having, it may be by long and expensive litigation, defended the right which the Patent Office has allowed to be infringed, A finds his right still further infringed by the public use of his invention under privileges sold by B, whose title the courts have declared to be invalid. The original error of the Patent Office now bears another crop of evil fruit. If the true inventor and rightful patentee insists upon the use and enjoyment of his own, the innocent purchaser from the defeated patentee must suffer the penalty of a second payment, with a possibility that a new claimant may some day establish his claim in the courts and demand another payment, and so on endlessly.

At this stage the Secretary of the Interior would have Congress interpose a bar to the successful patentee and forbid his enforcing the claim which the courts have so tardily made good, thus arbitrarily limiting a right which the Constitution of the United States describes as "exclusive." The excuse for this invasion of the patentee's right is the fact that an enforcement of it would tend to hardship on the part of certain unfortunate purchasers. As well might Congress be asked to interpose relief in all cases of hardship arising from the innocent purchase of property whose legal status is subsequently changed by court decision. It is a common occurrence for suits to be brought and successfully maintained for the recovery of property, notably real estate, under conditions precisely parallel to those arising in disputed patent cases.

Mrs. Gaines's recovery of large areas in New Orleans and other southwestern cities, after the land had changed hands several times and much of it had been improved at great cost by those who had purchased in good faith supposing their title good, is but one of many examples that might be given. The resulting hardships to those who were disposed were certainly as grievous as any ever caused by disputed patent rights; but we have never heard that the innocent victims have ever enlisted the services of a cabinet officer to recommend a law exempting them and all persons in their situation from liability to the rightful owner for rent, after the courts had decided in his favor.

Conflicts of right, entailing more or less of hardship to the innocent and unwary, must be liable to arise so long as public officers and courts of justice are human and fallible; but such conflicts are not more common in connection with properties based on patents than with other species of property, nor are the evils involved more general or serious. If there are good reasons for making an exception to the general rule of the law in the case of disputed patents for invention, it rests upon those who ask to have it done to make them known. To declaim against grasping patent sharks and deplore the wrongs of innocent purchasers simply begs the question. For the official head of the office, whose faulty working has given rise to the evils complained of (evils working hardship to the rightful patentee as well as to the purchaser under voided patents), to side with one party and advise his relief at the cost of the other, exhibits, to say the least, a grave deficiency in official sagacity. A wiser and juster course would be to study the practical working of the Patent Office to discover whether it may not be possible to prevent, or to largely diminish the frequency of the issuance of conflicting patents, the real source of all the trouble.

JOHN WILLIAM DRAPER.

Few names in modern science are more widely or honorably known than that of Dr. J. W. Draper, who died at his home at Hastings-on-Hudson, January 4. Mr. Draper was born near Liverpool, England, May 5, 1811. We present a portrait on another page. His taste for scientific investigation was developed early, chemistry being his favorite study. After studying some time at the University of London, he followed his family to this country in 1833, and completed his academic studies at the University of Pennsylvania, graduating with honor in 1836. Some of his scientific investigations having attracted attention, he was called to a professorship in Hampden-Sydney College, Virginia, where he stayed two years teaching chemistry, physiology, and natural philosophy. In 1839 he was called to the chair of chemistry and physiology in the University of New York, with which institution he has since been identified.

When the medical department of the University was organized Dr. Draper was chosen secretary, and in 1850, on the death of the first president, Dr. Valentine Mott, he succeeded to the presidency, filling that office until 1873, when he retired to give his attention to his literary work and his academic classes in science.

Notwithstanding the severe draught upon his time and strength demanded by his presidential and professional duties, Dr. Draper found time to pursue the scientific investigations which have gained him a place among the great leaders of intellectual progress in all ages. Indeed, in the broad scope of his researches and their direct and immediate bearing on human life and social progress, Dr. Draper exhibited rather the traits of the philosopher than the narrow characteristics of the specialist in chemical, physical, physiological, or historical science. Yet in all these departments his special studies were those of a clear-headed explorer and pioneer. His earlier studies in vegetable physiology were many years in advance of those of the rest of the scientific world. He led the way by twenty years into that marvelous field of research opened up by spectrum analysis. In his conception of the essential unity of radiant energy he was a full generation ahead of the physical investigators of Europe. As a philosophical historian, tracing the influence of material progress, association, and environment upon the natural development of nations and races toward civilization and rational thought, he was not less a leader and a worthy representative of the type of man toward which scientific civilization is making. Though in one respect what is known as a popular writer, Dr. Draper probably reached a wider range of active minds among all civilized peoples than any other modern writer, his principal treatises having been translated into most if not all of the leading languages of the world, some of them having been adopted as text books in the colleges of all nations, notably his "Physiology" and "The Intellectual Development of Europe." A minor, yet socially and industrially very important achievement of Dr. Draper, was in the early development of photography from life. In 1839 he secured the first sun-pictures ever taken of a living subject. He was also the first to photograph the moon.

A Fossil Stone Wall.

The Lexington (Ky.) Press says the workmen engaged in quarrying rock for Mr. Shannon, one mile from town on the old Frankfort pike, came upon a massive stone wall. It had every appearance of having been built by human hands, the mortar seams and joints being very plain. Above it about ten feet of drift and twenty feet of rock had been removed by the workmen, and on the side exposed the men had advanced fully forty feet from where they first struck rock. Thus it was firmly embedded in a solid limestone quarry, which certainly has formed about it since the wall was built. The face of the wall was well dressed, and its massive appearance gave evidence of the skill of hands perished long centuries ago, and could well be envied by the best of the stone masons of to-day.

[While there is no obvious reason for questioning the sincerity of this specific statement of the Press, we should be glad to see the report of some competent geologist upon the "fossil" wall.]

Goats to Protect Sheep.

The farmers of Hunterdon and Somerset counties, New Jersey, use goats to protect their sheep from dogs. Two goats can drive away a dozen dogs, and two are about all each farmer puts in with his sheep. As soon as a dog enters the field at night, the goats attack him, and their butting propensities are too much for the canine, who soon finds himself rolling over and over. A few repetitions of this treatment causes the dog to quit the field, limping and yelping. Formerly, when a dog entered a sheep field at night, the sheep would run wildly around and cry piteously. Since the goats have been used to guard them, they form in line behind the goats and seem to enjoy the fun. The idea of utilizing goats in this way came from the West, where they are put in sheep pens to drive away wolves.—N. Y. Sun.

Electric Lights at Hell Gate.

The dangerous navigation at Hell Gate, the eastern entrance to the harbor of New York, causes a nightly blockade of vessels. To obviate this delay to commerce the Light-house Board has indorsed a proposition to provide Hell Gate with electric lights, and Congress has been asked to authorize the necessary experiments. The plan is unquestionably practical and cannot fail to be beneficial.