

THE CERTIFICATION OF TIMEPIECES.

At the recommendation of the board of managers of the Winchester Observatory of Yale College, the corporation of the college has established a horological bureau for the rating of watch movements and other timepieces, and the prosecution of researches calculated to aid in the construction of refined apparatus for the measurement of time.

For carrying on this work the bureau has been furnished with a large number of instruments of precision, and arrangements have been made with the Safe Deposit Company of New Haven for the erection within their steel vaults of the necessary apparatus and closets for safely keeping the watch and chronometer movements while being tested. These closets comprise a refrigerator (40° Fah.), provided with zinc cases for 100 movements surrounded by chemically dried air; an oven (90° Fah.) of equal capacity, heated by coils of pipe carrying hot water; and closets of ordinary temperature (65° to 75° Fah.), having a capacity of 800 movements.

Eight classes of certificates will be issued with timepieces which have been submitted for trial, stating in detail the results obtained with each particular movement. The cost of testing or certifying ranges between \$1 and \$4. While under examination the movements will be carefully guarded by the Safe Deposit Company. They are not to be opened or in any way tampered with for any reason whatever, and will not be handled except by trained observers.

First-class movements will be subjected while rating to variations of position and temperature as follows: Dial up; twelve days at ordinary temperatures, one day in the refrigerator, and one day in the oven. Dial vertical; fourteen days pendent up, two days pendent right, and two days pendent left. Dial down; two days. Dial up; eight days. The variations of rate under each of these conditions will be given in the certificate. For lower grade certificates the tests are less protracted.

The astronomer in charge of the bureau, Mr. Leonard Waldo, will supply blanks and information as to the conditions of issuing certificates; and in his annual report he will publish in detail the rates of such timepieces in the various classes as may show progress in the horological art.

The results of such work cannot fail to advance the standard of watch manufacturing. It will also enable watch buyers to know precisely what they are getting, an advantage which they will not be slow to appreciate.

IMPORTANT DECISION BY THE U. S. CIRCUIT COURT—THE PAGE ELECTRICAL PATENT SUSTAINED.

The suit of the Western Union Telegraph Company against the Holmes Burglar Alarm Company, has just been decided in the United States Circuit Court in this city, Judge Blatchford presiding, in favor of the plaintiffs. If this decision is sustained by the United States Supreme Court, the Western Union Telegraph Company will be the possessors of one of the most gigantic of modern monopolies. The company will have the control of nearly all telegraph and electrical instruments, telephones perhaps excepted. In fact from the present time onward, until the Supreme Court gives a contrary decision, the Western Union Telegraph Company are masters of the field. By this decision, it may almost be said, that the exclusive right to use electricity for commercial and domestic purposes is taken from the public and transferred to the hands of the above corporation. This result is due to the wicked practice of private legislation in which Congress too often indulges. The injury done in this way to the public interests is incalculable.

The history of this case is briefly as follows:

Many years ago, dating back to 1836, it is said, Charles Grafton Page, of Washington, D. C., first made electrical inventions, among which, it is alleged, was an electrical coil and armature, which had a set screw applied to adjust or regulate the throw or motion of the armature. Without this little set screw, or its mechanical equivalent, it would be practically impossible to work an ordinary telegraph instrument, signal apparatus, burglar alarm, or electric motor.

Page suffered his invention to go into public use without taking steps to apply for a patent, and under the general patent laws, in consequence of his neglect, lost all right to a patent.

But in 1854 it appears to have occurred to him that perhaps at some future time or another he might coax Congress to grant a special act in his favor, and as preliminary thereto he filed an application for a patent, which under the law was refused examination, on the ground that the invention was public property, and he himself was an examiner in the Patent Office. Page was, in fact, the examiner of electrical patents, and for many years it had been his official duty to issue hundreds of patents, all of which contained his alleged original invention.

In 1868 Page was taken sick, and when it appeared that he had not long to live, Congress, at the instance of his friends, with a view to assist his family, passed the following unwise and sweeping act:

Chap. XXXII.—An act to authorize Charles Grafton Page to apply for and receive a patent:

Be it enacted by the Senate and House of Representatives of America, in Congress assembled, that the Commissioner of Patents is hereby authorized to receive and entertain a renewal of the application of Charles Grafton Page for letters patent for his "induction apparatus and circuit-breakers,"

now on file in the United States Patent Office, including therewith his circuit-breakers described by him prior to said application; and that if the Commissioner shall adjudge the said Page to have been the first inventor thereof, he shall issue to him a patent, which patent shall be valid notwithstanding said Page's invention may have been described or in use prior to said application, and notwithstanding the fact that said Page is now an examiner in the United States Patent Office: provided, that any person in possession of said apparatus prior to the date of said patent shall possess the right to use, and vend to others to use, the said specific apparatus in his possession, without liability to the inventor, patentee, or any other person interested in said invention or patent therefor.

Approved March 19, 1868.

On the passage of this act the Commissioner of Patents, in accordance with the mandates of the special law, caused the examination to be made, and then ordered the issue of a patent, which was dated April 14, 1868. Dr. Page died May 5, 1868.

It was pretty generally doubted at the time of the passage of the law and the grant of the patent, whether the latter could ever be sustained in the courts, and among the greatest doubters were members of the Western Union Telegraph Company. However, as there would be a possibility of litigation against them in any event, by the holders of the Page patent, they concluded that the safest way was to purchase an interest in the patent enough for their own protection, and for a small sum they acquired such interest from the heirs of Mr. Page. Subsequently, it appears, the Western Union Company acquired the substantial control of the patent, and in 1874, after careful preparation, brought this suit against the Holmes Burglar Alarm Company as a test suit.

Judge Blatchford's decision, we understand, sustains all the points made by the plaintiffs. It was urged in the case that the Special Act of Congress, in 1868, was unconstitutional, as the apparatus had been in use so long, but the decision is that the Special Act was constitutional. The validity of the entire patent was affirmed, the claims specifically sustained in the decision being the eleventh, twelfth, and thirteenth, and here is where the great importance of the case appears. These three claims are:

11. The adjustment of the retractile force of an automatic circuit breaker, as set forth.

12. The combination of an electro-magnet armature and adjustable retractor.

13. Adjusting or regulating the length of vibration of the armature of an electro-magnet by means of a set screw or any mechanical equivalent for substantially the same purpose, substantially as herein set forth.

We intend in a future number to discuss the subject further and present abstracts from the Judge's decision, which, we are informed, covers fifty pages, and is a very formidable and exhaustive document.

THE INSPECTION OF SMALL STEAMERS.

In his report for 1879, the Supervising Inspector General of Steam Vessels took notice of the excessive license fee for steam yachts and other small vessels using steam power, and suggested that a charge of \$5 would be enough for the annual inspection of such craft.

The objection to the present fee of \$25 is two-fold; it is out of proportion to the size and importance of the vessels paying the license, being as much as is charged for steamers of 100 tons burden, and it is practically prohibitory to a large class of men who would otherwise build and use such vessels for pleasure or profit. There are thousands of miles of inland waters, small lakes, rivers, bayous, and the like, which would in the aggregate play an important part in furthering inland commerce, if small steamers could be used without having to pay an inspection tax large enough to swallow up all or a great portion of the profits of such use. Thousands of farmers, cotton growers, fruit growers, and others, might, and we are confident would, find such vessels an easy and profitable means for conveying produce to local centers of distribution and consumption, to the great advantage of local and general traffic, where ordinary cartage is impossible or unprofitable. This with the great extension which would be given to the employment of steam power for propelling pleasure boats by a reduction of the inspection fee could not fail to give a great impetus to the manufacture of small boilers and engines, and to their adaptation to many lines of domestic and productive work. Already the limited use of steam for small pleasure yachts has given rise to many inventions and the development of considerable industrial establishments. The very important torpedo boat of Herreshoff may be instanced as one of the indirect fruits of the manufacture of small marine engines; and there is no telling what other inventions of radical importance might not result from the lifting of the practical embargo which an excessive license fee has hitherto laid upon the general use of small steamers.

It is gratifying to note that a bill has been introduced in Congress to carry out the Inspector General's recommendation. Its passage would be altogether beneficial.

Another Comet.

The Smithsonian Institution has received from the Astronomer Royal of England the announcement of the discovery by Gill, at Cape Town, South Africa, on February 12, of a comet in 8 hours 58 minutes right ascension, 12° 31' north declination, with a daily motion of 2° 35' in right ascension and 20' south.

ARTIFICIAL DIAMONDS.

A new dispatch from London states that Professor Maskevitch, of the mineral department of the British Museum, announces the production of artificial diamonds by J. Ballantine Hannay, of Glasgow. Tests by Prof. M. leave no doubt that the crystals are diamonds. In our SUPPLEMENT, No. 216, Feb. 21, we gave an account of the production of artificial diamonds by R. S. Baxter, of Dundee, whose specimens are also positively identified as diamonds. The MacTear crystals, it will be remembered, were proved not to be diamonds.

A NEW METEORITE.

Following closely upon the Estherville, Iowa, meteorite of May, 1879, comes the finding of another lost celestial body, this time in Alabama. In 1873 a heavy mass of metal was found by John F. Watson while plowing on a newly cleared piece of land near Chulafinne, Cleberne county, Ala. Among many early speculations as to its nature, some thought it to be bog iron ore, as there are deposits of this ore in the vicinity; others thought it might be native iron. Mr. Watson, to test (?) it, had a small piece cut off by the village blacksmith and forged into a plow point, and had also some horseshoe nails made. It being so easily wrought tended to confirm the native iron theory. It is well known among scientists that terrestrial iron is of extreme rarity, being found only in few basaltic rocks, and then in very inconsiderable quantities. During the seven years following the discovery its real nature was unsuspected and not recognized until revealed in the following manner:

Mr. W. E. Hidden, an expert mineralogist and attaché of Mr. Thomas A. Edison, while in this region last November prospecting for rare minerals, met with ex-Governor W. H. Smith, of Alabama, and heard from him the facts as above stated. This aroused his curiosity, as his knowledge of mineralogy convinced him that in view of the facts as stated, the several hypotheses were incorrect, and that the mass of metal was of meteoric origin and not an ore of iron.

After a considerable outlay of time and money it was finally brought to New York city, and is now in Mr. Hidden's cabinet, which contains three other undescribed meteorites from the Southern States, collected within a year, this one being the largest and of most interest.

Originally it was reddish brown in color and incrustated with scales of rust, which fell off while being heated in the forge. It now weighs 14.5 kg. (31 lb.), about 1.5 kilos having been cut off to make the plow point and horseshoe nails as stated. Its shape is somewhat triangular, the three diameters being each about 25 cm.; it has an average thickness of 6 cm.

A fine metallic surface was readily obtained by filing, which, polished and etched with nitric acid, developed with marked perfection the Widmannstätten lines, which is the convincing proof of its meteoric origin.

A careful analysis by J. B. Mackintosh, M.E., of Columbia College, shows it to be beyond a doubt a meteorite, and of the usual iron-nickel alloy variety.

The quick oxidation of meteorites in our atmosphere, and its being found at only a slight depth from the surface, would warrant placing the date of its fall not later than twenty-five years ago. This wanderer through space, which has strayed from its path and is now on an endless visit to us, will be placed for a short time on exhibition at Tiffany's, Union Square, New York city. This meteorite must not be confounded with the famous Claiborne, Ala., meteorite, which latter, it will be remembered, did not show the Widmannstätten figures, and contained besides an unusual percentage of nickel.

The particulars of this new meteorite are from an interesting paper lately read by Mr. Hidden before the Academy of Sciences in this city.

The American Society of Mechanical Engineers.

A new professional organization, the American Society of Mechanical Engineers, was born in this city February 17. Hitherto American mechanical engineers have had no national society; and this branch of the engineering profession has lacked in consequence the mutual aid and professional coherence which has characterized the departments of civil and mining engineering, whose powerful associations have proved so beneficial to the members of them.

Accordingly, by invitation of Professors Thurston, Sweet, and other prominent mechanical engineers, some thirty gentlemen of eminence in the profession, from most of the Middle and Eastern States, met as above stated to take the preliminary steps for organizing a national society. Letters were also read from a dozen or more prominent engineers encouraging the project. The meeting was called to order by Professor John E. Sweet, formerly of Cornell University, and Messrs. A. L. Holley and Samuel S. Weber were chosen chairman and secretary.

The object of the society, as set forth in the original draught of the by-laws and rules for the government of the association, is to enable mechanical engineers to meet and compare notes, and to facilitate the interchange of ideas respecting improvements in the various branches of mechanical science by the publication of papers, etc. The members are to be divided into four classes—regular members, associates, honorary members, and junior members. The initiation fees are fixed at \$15 and \$10, and the annual dues \$10. Payment of \$150 will entitle eligible candidates to life membership. Seven years' practice as mechanical engineer is a condition of membership, provision being made in junior membership for such as have served for a shorter period.