Calendar of Patent Records.

August 18, 1835.—Numerous modifications of the steamboat paddle-wheel designed to reduce splashing and loss of power on entering and leaving the water were invented in the early days of steam navigation. One of the best known is the cycloidal wheel, in which each float, instead of being a single piece, is composed of several pieces of narrow width set one in advance of the other along the line of a cycloidal curve. Originally suggested by Joshua Field in 1833, this wheel was first patented by Elijah Galloway on Aug. 18, 1835. The wheels were used on the City of Dublin steam packets and were extensively adopted. Galloway was also the inventor six years earlier of a wheel in which the blades were automatically feathered. This wheel was successfully applied by William Morgan, by whose name it is usually known.

August 19, 1791.—On Aug. 19, 1791, there was granted in France a patent to Le Bas of Paris for "Moyens et procédés pour conserver et rendre à Paris, ainsi que dans tout le royaume, du poisson de mer et de rivière très frais et même vivant",—the first for the transportation of fresh food for long distances. The fish were to be conveyed in double-walled wagons, the space between the walls being filled with ice and salt, and replenished at allotted places on the way.

August 21, 1841.—The first incandescent electric lamp patent was granted to Frederick De Moleyns of London on Aug. 21, 1841. The lamp consisted of an exhausted glass globe in the upper part of which was a tube open at the bottom and containing powdered charcoal and a platinum wire which ran through the tube and was coiled at the lower end. A second wire, coiled at its upper end and nearly touching the first, came up through the lower portion of the globe. The powdered charcoal filled the two coils and bridged the gap between them, and was heated to incandescence on the passage of a current, any charcoal that was burnt up being replaced from the supply in the tube.

August 22, 1781.—Though an agricultural drill for sowing seed, the invention of Locatelli, an Austrian living in Spain, was described in the *Philosophical Transactions* for 1665, and the advantages of the use of such an implement were loudly proclaimed by Jethro Tull in his "Horse-hoeing Husbandry" published in 1731, it was not until Aug. 22, 1781, that the first patent for a machine drill was granted—to Thomas Proud of Bagley in Yorkshire, who attached the drill to the side of a common plough beam.

August 22, 1850.—The first method of mechanical refrigeration to come into general use was by means of compressed air, and the pioneer of this system was the American, Dr. James Gorrie, whose English patent was granted, in the name of the agent, W. E. Newton, on Aug. 22, 1850. Plant, built by James Watt and Co., was erected in London, but was not commercially successful and it was some years before the apparatus was perfected. Sir William Siemens made a valuable report on the Gorrie plant and suggested improvements for which he applied for a patent, though this was not proceeded with.

August 23, 1780.—James Pickard's patent for the application of the crank to the steam engine, which caused James Watt to invent his sun-and-planet movement as an alternative method of producing the rotary motion, was granted on Aug. 23, 1780.

August 23, 1815.—Seidlitz powders date from the patent granted to Thomas Field Savory, of New Bond Street, on Aug. 23, 1815, for his "discovered and combined neutral salt powder which possesses all the properties of the medicinal spring at Seidlitz in Germany". The patent was declared to be invalid in the courts, but the name caught the public fancy.

Societies and Academies.

DUBLIN.

Royal Dublin Society, June 25.—Irish Radium Committee Report for the year 1928. A brief history is given of the foundation of the Irish Radium Institute in 1914 and of the invention by Dr. Joly of the needle method of treatment. Reports are included from medical users on the treatment of 291 patients during the year 1928; in many cases the results were very successful.—**H. A. Cummins, Violet E. C. Kennelly, and M. Grimes**: A study of fungi found in milk. Among samples of milk examined in the Department of Dairy Bacteriology, University College, Cork, during the first five months of this year, twenty-one species of fungi were found, many of which had not previously been reported in milk.—**P. A. Murphy and R. McKay**: Some insect vectors of virus diseases in plants. A list found by various workers to be capable of conveying leaf-roll, both aerially and through the soil. In experimental work with aphides extending from 1922 until 1928, the number of successful leaf-roll infections secured with *Myzus persicæ* were 19 out of 25; with *Myzus pseudosolani*, 2 out of 40; with *Macrosiphum solanifolii*, 1 out of 151; and with unidentified aphides, 5 out of 34. Insects other than aphides play no appreciable part in causing infection in the field. *M. persicæ* is capable of conveying infection from sprouting tubers, young plants, or full-grown plants to sprouting tubers, young plants, and full-grown plants. The younger the inoculated plant, and apparently also the younger the plant providing infection, the quicker the symptoms develop on the former. This is correlated with greater ease of infection in the earlier stages of growth. Plants infected early in the season generally give rise to a totally diseased crop in the following year. The tubers of those inoculated late in the season may escape infection altogether, or some of them may become diseased and some remain healthy.—**L. P. W. Renouf**: A hydrographical and biological study of Lough Hyne, Co. Cork.—**J. Reilly**: (1) An investigation of the polysaccharides. (1) Inulan. (2) The cryoscopic constants of acetamide.—**J. H. J. Poole**: A suggested new type of sensitive, suspended needle galvanometer. By the use of a high-permeability core, the sensitivity of an astatic galvanometer may be much increased if difficulties connected with the demagnetisation of the core can be overcome.

PARIS.

Academy of Sciences, July 8.—**Charles Richet**: Some statistics concerning the foreign associates and corresponding members of the Academy of Sciences. Details of age at election, age at death, period of membership and nationality.—**Gabriel Bertrand and Mme. C. Voronca-Spirt**: Titanium in cryptogams. Ferns, algæ, and fungi were analysed, care being taken to avoid contamination with earth or dust. Titanium was generally present in the proportion of some milligrams per kilogram of material. Negative or doubtful results were obtained in a few cases, including yeast and *Aspergillus niger*.—**L. Léger and O. Duboscq**: The evolution of *Paramœbidium*, a new genus of Eccrinideæ, a parasite of aquatic larvæ of insects.—**B. Hostinsky**: The probabilities of phenomena connected in Markoff's series.—**N. Lusin**: The problem of implicit functions.—**Radu Badesco**: An integral equation.—**Guido Ascoli**: The approximation of functions.—**J. Haag**: The extension of Phillips's conditions concerning the balance wheel.—**J. Ph. Lagrula**: The rapid location of the photographic position of a minor planet or non-catalogued