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CHANGES IN UNITED STATES PATENT LAWS.

From notices published in the foreign press concerning the changes in United States patent law that will take effect on January 1, 1898, it is clear that the new conditions created by the amended law are not fully understood abroad. Thus we have seen several statements to the effect that an application for United States patent lodged after January 1, 1898, will be rejected in *all* cases if it is filed more than seven months after the filing of an application for a foreign patent for the same invention. This interpretation of the new law is erroneous. The actual meaning is this: If a foreign patent *issues* before the *issue* of the United States patent for the same invention, the United States patent, to be valid, must have been applied for within seven months after filing the application for the foreign patent; and as soon as a foreign patent issues, the United States Patent Office may reject an application covering the same invention if the United States application was filed more than seven months after the foreign application. It is, therefore, apparent that when the United States patent *issues* first, the interval between the dates of filing is of no moment whatever. Further, a rejection of the United States application under the seven months' clause of the new law can be declared only after the *issue* of a foreign patent for the same invention. Thus it will appear that even when the United States patent is applied for more than seven months after the filing of a foreign patent application relating to the same invention, a valid patent may be obtained in this country, provided the applicant succeeds in securing the issue of the United States patent before that of the foreign patent. This fact will be of particular importance in the case of inventions protected by British, German, Russian or Scandinavian applications, since the issue of patents upon such foreign applications can be delayed for a considerable time if the inventor desires.

The new law changes the requirements for novelty in other respects also, and after January 1, 1898, an application for United States patent may be rejected, inter alia, upon reference to any foreign patent issued (to another inventor) more than two years before the filing of the United States application. Another ground of rejection is the issue of a foreign patent antedating the applicant's invention. In regard to this provision, we would observe that the date of an invention made abroad can be established only by the issue of a foreign patent, or the issue of a printed publication describing the invention, or the communication of the invention (for instance, by letter) to a person residing in the United States.

After January 1, 1898, it will often be of vital importance that an application for United States patent should be filed before the required date. Informalities in application papers are liable to cause a refusal of the Patent Office to accept the application for filing until corrected, and the delay may prove fatal.

THE PROPOSED GOVERNMENT ARMOR PLANT.

The agitation of the question of a government armor plant will at least serve to enlighten Congress and the country at large as to the great cost and many risks and uncertainties involved in the manufacture of armor plate. The proposal that the government should build a plant and make its own armor was the outcome of the recent attempt to reduce and put a fixed limit upon the price that should be paid to private firms. The government had been paying as high as five hundred dollars per ton for armor plate, which, in the opinion of Congress, should be obtainable for between three and four hundred dollars per ton. The attempt to secure bids for the supply of armor for the three latest battleships at the reduced price failed to secure any satisfactory results, and a board of experts was appointed to inquire into the cost of building a government factory and determine whether it could turn out material at less cost than the price demanded by the private firms.

In considering the question of cost of armor plate, there is one fundamental fact which must be borne in mind if we are to reach a just conclusion, and this is that the cost of manufactured products, other things being equal, will depend upon the regularity of the demand. The factory that keeps its fires going and its hands employed from January to December will turn out cheaper work than one that works intermittently, as orders may chance to come in. This is true of the simplest manufactures, and the cost of interrupted and intermittent work will increase rapidly in plants which are expensive to build and employ difficult and costly processes. Now it is safe to say that there is no branch of the iron and steel industry in which the guarantee of steady employment is so necessary for economic results as in the manufacture of armor plate, and this fact is clearly set forth in the report of the armor plate board, which has just been made public.

It is estimated that a plant capable of making 5,000 tons of armor a year, this being the capacity of the existing private plants, could be built for $3,750,000; but the board considers that it would be inexpedient to erect such a plant unless Congress is prepared to provide enough ships each year to keep the plant in constant operation. It is pointed out that an armor factory includes special furnaces, tools and appliances which are not available for any other class of work, and a class of labor specially skilled in the art. Under our present system it is possible that Congress may fail to make any appropriation for a current year. This would involve laying off indefinitely a trained force of men, who would soon scatter in search of other work. When a new appropriation was made it would be necessary to engage men that were ignorant of the process and train them in the use of the special appliances.

Another condition that has an important bearing upon the cost of armor plate is the rapidity with which new and improved methods of manufacture are being devised. Great as was the improvement introduced by the Harvey process, its results have been equaled, if not surpassed, by new processes employed at the Krupp works in Germany and in England; and the rapid progress of the art continually calls for radical and costly changes in the plant. These changes would cost considerably less if they were gradually introduced during the continuous working of the plant than they would if they were carried out hurriedly on the eve of an expected appropriation by Congress and after the plant had lain idle for twelve or twenty-four months.

The estimate for a government armor plant includes provision for building the necessary furnaces for a complete steel plant, for it is considered that the capacity to produce the steel ingots is important to the successful and economic administration of an armor factory. This policy is consistent with the practice of all the largest concerns in the steel industry, which consider that the best results can never be obtained when the ingots are obtained by purchase in the open market.

The tone of the report is unfavorable to the building or purchase of a government plant, and justly so. The facts as above outlined prove that the best policy under existing circumstances is to give a fair price, which will take account of the special risks involved in armor plate manufacture, and encourage private companies to continue in the business. This system has worked to good advantage in Europe, where the armor plate is manufactured almost entirely by private firms. At the same time it is evident that the real difficulty in the whole matter lies in the capricious methods adopted by Congress in the matter of naval appropriations. This could be removed by laying down a plan of naval construction which should extend over a lengthy period, in which a stated appropriation should be asked for each year, the number, style and design of the ships being determined by the requirements and naval developments of each current year. Such a fixed policy in the matter of appropriations would have an excellent effect in any case. If the government wished to build its own armor plant, it could do so with the expectation of running it on an economic basis, gathering within it a corps of skilled experts and workmen, and modifying the plant from time to time to meet the developments of the art. If, on the other hand, the armor were made by private firms, its price would unquestionably be favorably affected by the steady employment which the new policy would guarantee

SOME CURIOUS OLD PATENTS.

In our German contemporary Glaser's Annalen some interesting particulars are given as to early British patents. It will be seen that the idea, at least, of some of our modern inventions was anticipated by these curious old patents. We give below some interesting examples:

The first patent specification, accompanied by drawings, is that belonging to the British patent No. 169, of 1673, which describes a machine for grinding seeds and extracting oil; also a machine for cleaning and dredging rivers, harbors, etc. The second patent, with drawings, is the British patent No. 186, of 1675, relating to a mining pump.

Thomas Master, a Pennsylvania planter, secured a British patent, No. 401, of 1715, for a process for treating corn. This patent is remarkable in that it states that the invention was made by Mrs. Sibylla Masters. This is, perhaps, the first case of a patent granted for an invention made by a woman.

An English patent (making steel, etc.), granted May 6, 1671, to Prince Rupert, Duke of Cumberland, was assigned to King Charles II.

A patent granted to Prince Rupert, Duke of Cumberland, gave him the right to take oath from his workingmen that they would keep the invention secret.

The Marquis of Worcester, on November 15, 1661, secured a British patent, No. 131, covering the following inventions: A self-winding clock, rapid-firing guns and pistols, a device for detaching runaway horses, and, lastly, a ship constructed to sail against the wind and capable, when anchored, of use as a water motor or windmill.

The patent 183, of October 25, 1675, grants a London merchant, Justinian Angell, the right to erect two lighthouses at the mouth of the Humber, and to collect a duty from the skippers.

By letters patent No. 255, of August 23, 1687, the