

that matter there is nothing in the way of a renewal of the international syndicate for the purpose of again regulating the price, in the course of the next year or so, when supplies of the metal become more plentiful.

The British as Inventors.

The details which we published lately of Mr. Brennan's wonderful "spinning-top railway," suggest that the world may be on the eve of a new revolution in the art of transport. The new balancing train has, it is true, yet to be tried on a large scale, but as a working model its success has been startling. The principle which it embodies is capable of the widest application. It may affect the future design of motor cars, and may even lead to a complete change in the method of working railways, though for obvious reasons any such transformation will be but slowly accomplished. In itself the gyroscopic railway is a miracle of ingenuity, and it is most satisfactory to reflect that it is the product of the British mind. The Britisher has often been reproached with a want of inventiveness. There is a strange want of humour in such a reproach, and a complete ignorance of the history of invention. For, as a matter of fact, almost all the great and fundamental inventions have been the work of British subjects. We have even heard a distinguished American authority assert that all the devices with which the ingenuity of the United States is commonly credited have been the achievement of Englishmen. Such a view is an overstatement and far from being absolutely correct, but it contains a measure of truth. Thus, the Northrop loom, of which so much has been heard, was patented first in the United States, but it was the invention of an Englishman. The pressed-steel car, the manufacture of which employs an enormous amount of capital and labour in the United States was of British origin. These examples could be multiplied almost indefinitely. It is no small tribute to the energy and persistence of the Englishman that he should be thus distinguished, when we remember that the State places every conceivable obstacle in his way. The English patent laws tax him unjustly, and penalise him for his very inventiveness. In the United States, on the other hand, very different treatment is accorded to the inventor. American statesmen have always borne in mind Washington's insistence on the importance of giving "effectual encouragement as well to the introduction of new and useful inventions from abroad, as to the exertions of skill and genius in producing them at home." At the same time the British policy of reserving for municipal monopolists the exploitation of electrical supply and electric traction has gravely affected the British inventor in the electrical industries. Here, again, the fundamental discoveries were made by Englishmen. Davy discovered the arc lamp; Faraday, Varley, and Wheatstone made the dynamo possible; Grove produced the first accumulator; Swan the earliest electric incandescent lamp; Hughes the microphone on which the modern telephone transmitting instrument is based. It was not for want of British originality that the electric industries were developed abroad, but because Englishmen were denied the opportunity of practical knowledge and experience in the years when the world was turning to the use of electricity. In other directions, passing over the great names of Stephenson, Watt, Arkwright, Brindley, and Smeaton, the pneumatic tyre, on which all mechanical road propulsion is now based,

where speed is a matter of moment, was a British invention. In maritime engineering the turbine is the product of British brains, and may rapidly supplant the older reciprocating engine. In naval engineering the originality that produced the *Dreadnought* shows that England has nothing to fear in any contest of skill. *Given better patent laws*, and more encouragement from the State to the inventor, given also a fair chance to new industries, with exemption from mandarin control, and there is every reason to think that England would surpass her former record. The country of Armstrong, Whitworth, Whithead, and Parsons has no cause to fear anything except its Government.

The New Patents and Designs Bill in England.

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The new Patents and Designs Bill, that has already passed through one of the standing committees of the House of Commons, is likely to have a very far-reaching effect on the future industries of Britain. One of the most valuable features of the new bill is that having reference to the power, which an inventor will possess, of filing additional patents of improvement that will run concurrently with the main or original patent with which the improvements are associated, but as to which additional patents no fees will be paid beyond those that are necessary for the ordinary application. It may thus well be that, in the future, an invention concerning which there are possibilities of improvement, may be covered by one patent and six subsequent patents of addition for details, and these seven separate patents would all be kept in force by the annual payments made after the fourth year of the original patent, instead of—as at the present time—requiring every patent granted to be covered by its own annual renewal fee. In engineering devices, particularly, it is quite common for the patent—for example—covering a new type of pump, to have associated with it several subsequent patents for improvements in detail, suggested by the working of the main patent; and it has been the practice heretofore to require that separate and independent patents should be applied for for these improvements. Hereafter a great saving will result to manufacturers and engineers in connection with machines upon which details and improvements can be very readily introduced without incurring the present annual costs for keeping each of such improvements in force.

Another feature of considerable interest is that which enables the applicant for a patent during his provisional period to file other provisional specifications, and then, at the end, to get one complete patent combining all that has been shown in the several provisional patents deposited during the period of provisional protection. One of the difficulties in the matter of litigation in the past has been due to the disconformity between provisional and complete specifications. Hereafter it will not be possible for any person to attack a patent on the ground of disconformity between the provisional and complete specifications.

The tribunal before which patent actions will be tried will probably hereafter resolve itself in one court, and, with a view to bringing everything into line, it is decided that the appeals from the patent office decisions, that are at present heard by the law officer, shall hereafter be heard by the judge, from

whom, however, no further appeal will be possible.

Owing to the manner in which unfair licenses have been granted by some patentees in the past, grave troubles have arisen concerning the harass under which certain industries have existed, and the complete subjection that certain owners of patents have held over those to whom they had licensed their patented machines and processes, so provision is made in the new bill for preventing such harassment in the future, and for rendering null and void licenses that are granted and contracts that are made with inequitable conditions attached to them. It will be important for patentees in the future to bear in mind the conditions of the new bill when arranging for licenses, or they will find no advantage resulting to themselves from the documents drawn up for their benefit.

Some attempt was made in committee to change the appointment of the Patent Office Comptroller by making him hereafter a legal official under the Lord Chancellor, instead of a departmental official under the Board of Trade. It was, however, urged against the proposal that, seeing the decisions that the Patent Office Comptrollers in the past have given have only been reversed upon appeal in about one case out of five hundred decisions, the committee, with one exception only, come to the conclusion that no case was made out for altering the present system of appointment and control of the patent office.

The portion of the Bill relating to designs will be very interesting to those producing articles that are valuable for their form and shape, rather than for their combination with other articles, and there are many mechanical devices which, made up in one form, produce results that cannot be obtained when made in any other form. For these mechanical designs the present life of protection when registered is five years. Under the new Bill the life is to be extended to ten years.

With a view of preventing the trade of this country being injured by patents that are applied for and yet never put into force in this country, the clauses in reference to the power of revocation will be read with much interest. It will be hereafter in the power of any person to apply to the patent office to have a patent revoked if the demand for the article—four years after the date of the patent—is being met mainly by goods manufactured solely abroad. Patentees, both British and foreign, who take patents out in this country will have, hereafter, before the expiration of four years, to see that the market which has been formed in this country for their patented products shall be met by the products actually manufactured in this country, unless it is shown, upon a petition and hearing before the Patent Office, that there are good reasons why the article cannot be manufactured here without prejudice to the other industries that would be dependent upon its production in a mechanical manner.

As the result of experiment, it has been learned that among woods, birch and poplar decay in three years, willow and horse-chestnut in four years, maple and beech, elm and ash, in seven years, while the juniper would be quite unharmed at the expiration of the same period.

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Hardening an ordinary drill in sulphuric acid, states the *English Mechanic* makes an edge that will cut tempered steel or facilitate cutting hard rock. The acid should be poured into a flat-bottomed vessel to a depth of about $\frac{1}{4}$ inch. The point of the drill is heated to a dull cherry red, and dipped in the acid to that depth. This makes the point extremely hard, while the remainder remains soft. If the point breaks, re-harden, but with a little less acid in the vessel.