MALAYAN PATENTS RELATING TO RUBBER

PART I

BY

J. L. WILTSHIRE

The study of patents relating to rubber is pursued at the Rubber Research Institute for two reasons, (1) the obvious necessity of being able to supply information to the industry and to apply this to the internal work of the Institute, (2) to facilitate the work of examining new claims, which frequently falls on the Director and on the Chemical Division. It may appear strange, but is certainly true that, even to residents in Malaya, information about patents granted by the F.M.S. and by the S.S. Governments is more difficult of access than any of the other patents normally of interest i.e. English, French, German, Italian and American, since no abstracts are published.

The position of patent law in this country is best understood by reference to the original F.M.S. Enactment of 1914 and the subsequent rules, orders and amendments. It must be understood that these are here discussed from the point of view of the technical man who may have to examine, use or oppose patents and not from the legal standpoint. Attention is confined mainly to the F.M.S. but the arrangements in the S.S. are similar although not identical.

The original Enactment referred to above is F.M.S. No. 19 of 1914 and is entitled "An Enactment to make better provision for the grant of Exclusive Privileges in respect of Inventions." This Enactment cancels the patent regulations of the constituent States of the Federation passed in 1896 and 1897 and is substantially the Enactment now in force. It is to be found in the collected "Laws of the F.M.S." and in the Edition in the library of this Institute i.e. the 1877-1920 Edition, it occurs on page 597 of Volume II.

Later amendments and orders made by the Executive are to be found in the following gazette notifications:—

Nos. 430 and 1560 of 1915; No. 922 of 1918;

Nos. 2363 and 4728 of 1922; No. 2424 of 1923;

No. 2599 of 1925; No. 5213 of 1928.

From the present point of view these are of little practical importance and refer mainly to alterations in forms and fees. The most important amendment is Enactment No. 2 of 1925 which extends the life of the grant from fourteen to sixteen years provided that the appropriate renewal fee is paid at the end of the seventh year.

It is not within our province to discuss the legal aspect of this Enactment but, since it is largely based on English patent law it may

be of interest to note that the English law arises from a special exception to the Statute of Monopolies of 1623. This statute abolished "all grievous and inconvenient monopolies except grants of privileges, for the sole working or making of any new manner of manufactures within the realm, to the true and first inventor of such manufactures which others at the time of making shall not use, so also they be not contrary to the law nor mischievous to the State by raising the prices of commodities at home or hurt of trade or generally inconvenient." The proviso attached to this exception is of the utmost importance. It appears to be frequently forgotten that patents are not granted primarily to give a manufacturer a monopoly in the selling of any product but to ensure to the inventor a reasonable reward for his inventive ingenuity. The holder of a patent who does not satisfy the demand for the patented article or who will not grant licences on reasonable terms is liable for an action for revocation of the patent or for the granting of compulsory licences on terms dictated by the court.

Our recent experience has shown us that many individuals who devote their attention to the development and improvement of the methods of treating rubber and its product do not appreciate the essential characters of a patentable invention. We cannot summarise the patent laws but it is possible to state certain basic principles on which the laws ultimately depend.

Patents are only granted to cover "a manner of manufacture." A principle or a formula are not patentable and a product can only be protected by covering the method of manufacturing it. Griffiths in his "Patent Law and Practice" (1923) gives the following characteristic features of a manner of manufacture:

(1) It is essentially an operation on some selected matter.
(2) The operation is an artificial one.
(3) The operation results in a product having a definite useful property or a collocation of definite useful properties.
(4) The product is a vendible body.

The second essential of a patentable invention is that it should possess novelty. This means that it should not previously have been known, used or described in public. It is important to remember that the word "public" is not to be construed in its widest sense and that it is necessary for the invention to be novel—not to the man in the street—but to a person versed in that particular art, science or manufacture. Novelty also implies a certain degree of inventive ingenuity and, if an invention is a mere natural development of any art or manufacture, it may be found invalid when submitted to a court of law.

The question of the absolute novelty of an invention—i.e. the question of whether the manner of manufacture described has or has

not been used before—is comparatively simple and depends mainly on a knowledge of the industry involved and a careful study of published literature. The question of inventive ingenuity is much more difficult to decide and, in fact, is probably the most difficult of all questions arising from patent practice. It most frequently arises from the application of an old idea to a new end or from the combination of two old ideas to serve a new purpose. Here again it must be remembered that the inventive ingenuity involved in any adaptation of old devices will be far less apparent to an expert than to a person not versed in the particular art. It is the expert's point of view that is decisive since, on the issue of inventive ingenuity, the court always considers the opinion of persons who are acquainted with the state of knowledge in the art at the date of the patent.

The third essential is utility and this is, to a large extent, covered by the previous statement that a manner of manufacture must give a vendible product.

The granting of a patent is no proof of its validity; proof can only be obtained by litigation in the law courts. If a grantee considers his rights are being infringed he may proceed by a civil suit. This exposes the patent to a very thorough examination since the alleged infringer may either attempt to prove the patent invalid or wrongly granted or may claim that his operations are not infringements of the patent concerned. Any manufacturer who thinks that his rights are interfered with by the grant of any particular patent and the exercise of exclusive privileges may proceed either by a suit for revocation or for grant of compulsory licence or may continue with the manufacture himself and await infringement proceedings from the grantee. The precise conditions under which such proceedings may be instituted are defined in the relevant enactments and the proper course to be followed in any particular instance must be the subject of legal advice.

It must be pointed out that the examination of every application for a grant which is carried out by, or on behalf of the Government is only a partial protection of the public. In this country the public has an additional period of two months in which to lodge protests or opposition. If no opposition is entered then the grant is made and, in the case of a wrongly granted patent, the offended members of the public have no alternative but litigation.

The most marked difference between patent practice in the United Kingdom and in Malaya lies in the degree of publicity given to the terms of the specification. Effective publication of a specification achieves two purposes (1) it protects the inventor by advertising the fact that he has developed a new manner of manufacture (2) it benefits the public by adding the new knowledge included in the specification to the general knowledge of the particular art or science.

In England effective publication is secured by the periodical issue of the Patent Office Journal which gives abridged specifications of all patents accepted and the titles of all patents open to inspection before acceptance. Publication is still further improved by the fact that all the technical journals reprint the details of the patents of interest to their own readers. Thus the Bureau of Chemical Abstracts publishes weekly the details of patents relating to all chemical manufactures. Similarly the engineers, the petroleum technologists and the rubber manufacturers all have regular information about patents which may affect their work. Publication is effective and there is no reasonable excuse for ignorance of the acceptance of any patent. If further information is required, when the abstract or title has been published, it is a simple matter to obtain unabridged copies. Photostat copies of specifications open to inspection before acceptance are available at a cost of eight pence per page. Printed copies of complete specifications accepted are available at a cost of one shilling each.

The position in Malaya is very different and publication is little more than a legal fiction. The Enactment requires that the *titles* of specifications accepted shall be published in every issue of the Gazette for two months from the date of acceptance and that, immediately on acceptance, the specification and drawings shall be open to public inspection. The register and files are open to inspection at a charge of fifty cents. Copies of specifications in the F.M.S. may be obtained at a charge of $0.50 per hundred words and in the S.S. for the cost of copying. As an example it may be mentioned that when it became necessary to obtain a copy of a Straits patent the charge was six dollars. The only information available, without special reference to the Government office concerned, is a number of titles of specifications accepted, scattered in various issues of the Gazette. In the S.S. the actual grant of privileges is also notified in the Gazette but this is not the practice in the F.M.S. Unfortunately many of the earlier titles give little or no indication of the nature of the invention and an applicant for a patent has the choice of a personal search in the offices at Kuala Lumpur *and* Singapore or a problematical selection of titles that may be relevant to his invention and a request that these specifications should be copied which involves considerable expense. In the F.M.S. it is also necessary to enquire whether the acceptance of any particular specification was, in fact, followed by a grant of privileges. The public has to pay heavily for finding out what it is not allowed to patent or to practise. In view of the close connection between the Federation and the Colony a simple and a useful reform would be the filing of F.M.S. grants in Singapore and S.S. grants in Kuala Lumpur.

Apart from the protection afforded to an inventor by an F.M.S. or S.S. grant of exclusive privileges, holders of United Kingdom patents can extend the validity of such patents to these States by simple registration. The registration must be effected within three years of the United Kingdom grant and expires with the original. Notifications of such acceptances are published *once* in the Gazette and since British Patent numbers are given it is a simple matter to obtain full information by reference to the appropriate technical journals.

It has been found necessary for the proper functioning of the Institute to have available a list of the patents relative to rubber granted in Malaya, such a list comprising both original grants and British Patent registrations in the F.M.S. and the Colony. This list has been compiled to the end of 1932 and, in view of the difficulty of obtaining information, is now published in the hope that it may be of general use to the rubber industry. Many of the patents in this list have lapsed through non-payment of renewal fees or through completion of their full term. These patents are still of importance since they may represent a bar to the patenting of devices which are thought by their inventors to be new.

The list is divided into five sections as under :—

Part I. F.M.S. Grants of Exclusive Privileges 1914-1932

Part II. Registration of U.K. or other British Patents in F.M.S. 1914-1932.

Part III. S.S. Grants of Exclusive Privileges 1914-1932.

Part IV. Registration of U.K. or other British patents in S S. 1914-1925.

Part V. Registration of U.K. or other British patents in S.S. 1925-1932.

The details listed in Parts I and II are from the register of grants kept by the Commissioner of Trade and Customs in Kuala Lumpur. The specifications are filed in the same office and may be inspected for a charge of 50 cents each. Parts III, IV and V are taken from the registers in the Colonial Secretary's office in Singapore. Until 1925 all U.K. patents registered in the Straits Settlements are included in the main register of specifications filed and are designated by the specification number. From 1925 onwards a separate register of such patents has been kept and a separate numbering system is in use. Specifications may be inspected on payment of a small fee. It was not possible to make a list of the grants made in the Straits Settlements prior to 1914.

The more important specifications have been abstracted and form another paper which it is intended to publish in the next issue of the Journal. Specifications which have been abstracted are marked in the following tables by an asterisk.

Part I. F.M.S. Grants of Exclusive Privileges 1914-1932

Year	Number of Grant	Name of Grantee	Title of Invention
1914	1	Hendrie ...	Latex cup
	2	Reid ...	Spraying latex on drum for coagulation
	3	Duncan ...	Improvements in coagulation
1915	5	Shelton Agar	Machine for coagulating and curing
	7	Ferdinand ...	Latex cup
	8	Evans ...	Machine for washing and milling lower grades
	9	Mailer ...	Latex spout
	10	Macnab ...	Latex spout
	11	MacLennan ...	Machine for separating bark from naturally coagulated rubber
	12	Menzies ...	Latex spout
	13	Eaton and Grantham	Improved process for coagulation
	15	Shelton Agar	Patent rolling machine
	17	Ilcken and Down	Apparatus for manufacture of rubber
1916	19	Davidson ...	Improvements in coagulation
	20	Davidson ...	do.
	21	Davidson ...	do.
	23	Carbos ...	Improvements in coagulation
	24	Nash ...	Tapping knife with removable blades
	27	Cardwell Quinn	Apparatus for smoking
	28	Menzies ...	Improved latex cup
	31	Thomas and Maude	Improvements in coagulation
	32	Evans ...	Producing smoke, cleaning smoke and arresting sparks
	33	Harris ...	Division plate for coagulating tanks
	34	Weguelin ...	Latex spout

Year	Number of Grant	Name of Grantee	Title of Invention
1916	35	Kerbosch ...	Apparatus for coagulating
	38	Wickham ...	Apparatus for treating latex
	39	Davidson ...	Improvements in the manufacture of rubber
	40	Davidson ...	do.
	41	Davidson ...	do.
	43	Addition to No. 8	In name of F. E. Co. (Machine for washing and milling lower grades)
	44	Hall and Paynter	Latex spout
1917	49	Whiting ...	Latex spout
	50	Alexander ...	Apparatus for readily indicating bark consumption
	51	Ilcken and Down	Improvements in chemical process for manufacture of rubber
	52	do.	Improvements in process for purifying lower grades
	56	Ash ...	Rain shields for tapping cuts
	61	Khoo Kim Lian	Improved tapping knife
	62	Sawh ...	Improved cup holder
	65	Wickrama ...	Improved tapping knife
	70	Jarvis ...	Pressure machine for baling
	72	Wardrop and Steven	Scrap washer
1918	73	Holt ...	Crepe folder
	74	Holt ...	do.
	76	Ilcken and Down	Treatment of raw and scrap rubber
	77	Jarvis ...	Pressure machine for packing
	80	Kwa Siew Tee	Tapping knife
	82	Claessen ...	Utilising bark shavings
	84	Gibson ...	Pressure machine for packing
	87	Rubber Patents Ltd.	Process for obtaining maximum yield

Year	Number of Grant	Name of Grantee	Title of Invention
1918	88	Black and Simpson	Baling press
	90	Bailey ...	do.
	94	Wilkins and Cameron	Rain-shields for tapping cuts
1919	98	Keller ...	Brown bast scraper
	99	Maclean ...	Waterproof tapping cover
	100	General Rubber Co.	Improvements in apparatus for treating latex
	101	do.	Improvements in coagulum
	102	do.	Improvements in process including preparation for vulcanisation
	103	do.	Improvements in process for treating latex and products *
	104	do.	Improvements in manufacture of adhesive rubber composition
	105	do.	Improvement in process for treating latex
	106	do.	do.
	107	do.	Improvements in process for separating rubber from latex
	108	do.	Improvements in process for treating coagulum
	109	do.	Improvements in baling of rubber
	110	do.	Improvements in rubber compositions
	111	do.	Improvements in coagulum and preparation for vulcanisation *
	112	do.	Improvements in treatment of scrap
	115	Sime ...	Latex cup
	132	Fisher ...	Rubber press
	136	Hayley ...	Improved flexible wrapping
	138	Curran ...	Improved press
1920	148	Lintner & Co.	Process for coagulating latex
	150	Foh ...	Cup hanger
	160	Stephen ...	Scrap washer

Year	Number of Grant	Name of Grantee	Title of Invention
1920	162	Fisher ...	Latex strainer
	163	Simpson ...	Rainproof tapping cover
	171	Fish ...	Automatic rubber standardiser
	188	Hopkinson ...	Process for treating rubber latex *
	189	McIver ...	Combined spout and hanger
	191	Gjorup ...	Self-folding case for rubber
	193	Lake ...	Process for handling and treating latex
	194	Hopkinson ...	Rubber obtained by finely spraying latex, drying and compacting *
	202	Brown ...	Combined spout and hanger
1921	214	Davidson ...	Improvements in treatment of freshly coagulated rubber
	215	Laub ...	Manufacture from latex of coagulum which can be vulcanised immediately after drying and washing and which includes ingredients imparting specific properties to vulcanised rubber *
	216	do. ...	do. *
	218	Arisaka ...	Packing or preserving rubber
	223	Peachey ...	Process for vulcanisation of caoutchouc *
	224	Latham ...	Combined spout and hanger
	226	Randell ...	Cup holder
	241	Caulfield ...	Method of affixing rubber to paving blocks*
	243	S. Anon. des Caout. de Padang	Rolling freshly coagulated rubber.
	247	Peachey ...	Process for vulcanisation of caoutchouc *
	249	Hodges ...	Steam cavity-mould vulcaniser
	252	Tate ...	Non-inflammable rubber solution

Year	Number of Grant	Name of Grantee	Title of Invention
1921	253	Sayers ...	Improved pail for latex collection
	255	Roa ...	Improved apparatus for treating latex
1922	256	Schidrowitz ...	Improvements in manufacture of rubber*
	261	Barns ...	Re-inforced rubber road traffic surface*
	266	Davidson ...	Treatment of freshly coagulated rubber
	270	Hopkinson ...	Fabrication of rubber and filamentary material*
	276	General Rubber Co.	Improved process for treating latex*
	277	Stothard ...	Improvements in methods and apparatus for tapping and collecting
	283	Walker ...	Machine for cutting rubber*
	296	Marshall ...	Vulcanisation process for manufacture of high pressure expanded vulcanised rubber
1923	317	S. Anon. des Caoutchoucs de Padang	Rolling freshly coagulated rubber
	321	Westendorp ...	Protecting tapping cut from rain
	332	Thomas ...	"The Tappers Delight"
	334	Jeffrey & Wilkinson	Process of conversion of latex of any S. G. into non-oxidisable rubber composition such as tiles, mats and floor covers*
	335	Parry Davis	"Multex" (No details)
	336	do.	"Mother of latex" (No details)
1924	349	Russell ...	Improvement in vulcanisation of rubber
	356	Hoare ...	Improvements in manufacture of sheet rubber
	359	General Rubber Co.	Process and apparatus for drying coagulable liquids *
	363	Hatfield ...	Instantaneous determination of D. R. C. in buckets
	370	General Rubber Co.	Apparatus for drying rubber latex*
	373	Anode Rubber Co.	Immediate production of mechanically unworked rubber from latex*
	374	do.	Immediate production of rubber sheet and moulded articles*
	376	Parry Davis	Condensation of rubber latex vulcanised or unvulcanised *

Year	Number of Grant	Name of Grantee	Title of Invention
1924	380	Wilkinson ...	Manufacture of rubber composition from rubber latex *
	383	Wright ...	Automatic rubber mill
	408	Percival ...	Apparatus for use in collecting latex
	410	Hopkinson ...	Process and apparatus for obtaining rubber from latex *
	411	Bamber ...	Preparation of crude dipentenes from rubber *
	419	Stutchbury & Hauser	Improvements in manufacture of caoutchouc
	421	Niblock ...	Scrap washer
1925	429	General Rubber Co.	Improvements in manufacture of raw rubber *
	430	do.	Improved process for drying latex
	449	Evans ...	Partitions for coagulating tank
	450	Naugatuck Chemical Co.	Improvements in manufacture of rubber-containing mixtures *
	453	Anode Rubber Co.	Improvements in manufacture of rubber goods from emulsions *
	454	do.	do. *
	457	K. D. P. ...	Process and apparatus for concentrating latex *
	464	Van der Mark & Kremer	Manufacturing objects from unvulcanised rubber
1926	469	Laub ...	Rain shields for trees
	475	Kendal & Graham ...	Process of cold vulcanisation of latex *
	490	Malcolm Watson	Improvements in collection of latex
	498	General Rubber Co.	Preserving latex and products therefrom *
1927	506	Anode Rubber Co.	Improvements in manufacture of rubber goods from dispersions by electrophoretic methods *
	507	General Rubber Co.	Apparatus for drying rubber latex *
	519	Wilkinson ...	Manufacture of rubber from latex *
	523	Naugatuck Chemical Co.	Improvements in method of treating latex*
1928	527	Dunlop Co. ...	Improvements in manufacture of rubber articles *

Year	Number of Grant	Name of Grantee	Title of Invention
1928	529	Dunlop Co. ...	Improvements in manufacture of rubber articles *
	530	do.	Producing rubber goods direct from latex*
	533	Rubber Electro-deposition Patents Ltd.	Improvements in production of rubber*
	536	Singhan ...	Improvements in art of concentrating latex (REVOKED)*
	537	U. S. R. P. ...	Method of treating latex*
	538	Termausen ...	Combined spout and hanger*
	541	Naugatuck Chemical Co.	Methods of preserving latex*
	551	Dunlop Rubber Co.	Improvements in direct production of rubber goods from dispersions of rubber*
	557	do.	Improvements in manufacture of rubber*
	558	Cresson ...	Improvements in composite rubber-faced surfacing material*
	566	Kendall & Graham ...	Rubber oil anti-malarial mixture*
	573	Dunlop Rubber Co. ...	Production of articles substantially of organic materials from aqueous dispersions of same*
	595	Cramer ...	Improvement in budding by excluding use of false material *
1929	601	Singhan ...	Addition to No. 536 (REVOKED)*
	627	Naugatuck Chemical Co.	Process for treating latex*
	628	do.	Treatment of rubber and products therefrom *
	629	do.	Treatment of latex*
	630	Perera & Cobb	Production of preserved rubber sheet
	634	Cramer ...	Method of grading planting material
	636	Walker ...	Combined spout and holder
1930	644	Schweizer ...	Apparatus for collecting and straining rubber latex
	648	Perera & Cobb	Improvements in production of preserved rubber sheet
	652	Naugatuck Chemical Co.	Preservation of latex *
	653	do.	Method of preserving latex*

Year	Number of Grant	Name of Grantee	Title of Invention
1930	659	Naugatuck Chemical Co.	Treatment of latex *
	664	do.	A method of concentrating rubber latex *
	663	do.	Preservation of latex *
	665	do.	Method of concentrating latex and removing non-rubber *
	671	Cargills	Preparation for prevention and treatment of disease
1931	677	Naugatuck Chemical Co.	Improvements in process for treating rubber latex *
	678	do	Improvements in treatment of latex *
	680	Willems	Machine for manufacture of sole crepe
	682	Meinesz	New apparatus for making rubber in form of sheet by atomising and drying latex *
	690	Bührmann	Improvements in and process for baling
	695	Schweizer	Improvements in latex coagulating tanks *
	698	Parry Davis	Improvements relating to vulcanisation *
	699	do.	Improvements relating to roadmaking *
	702	W.H. Pratt	Improved machine for preparation of sheet
	703	Naugatuck Chemical Co.	Improvements in preservation of latex *
	704	Brunton	Improved instrument for tapping
1932	705	Singhan	Improvements in production of rubber pastes *
	712	Savege	Sheeting battery for rubber *
	718	Ungar & Schidrowitz	Process for manufacture of softened rubber *
	719	Kirby	Improvements in sectional units for coagulating tanks *

PART II

Registration of U.K. or other British Patents in F.M.S. 1914—1932

Year	No. of Certificate	U. K. Patent	Name of Grantee	Title of Invention
1923	4	219635	Utermark	Process for preparing concentrated milk sap *
1924	7	236633	Hammond	Process for the coagulation of rubber latex *
1924	13	226440	United States Rubber Plantations, Assignees of I. Traube	Improvements relating to the production of concentrated rubber latex and of rubber from rubber latex *
1925	47	252673	Anode Rubber Co. Ltd.	Method for the production of rubber goods directly from latex *
1927	58	294002	The General Rubber Co.	Method of treating rubber latex *
1927	65	288206	I.G. Farbenindustrie, A.G.	Improvements in the vulcanisation of latex *
1927	66	289022	do.	Improvements in the preservation of latex *
1928	67	300456	do.	Improvements in the preservation and treatment of latex *
1927	68	300719	do.	Improvements in the production of raw rubber from rubber latex *
1927	71	307315	Dunlop Rubber Co. Ltd.	An improved method and apparatus for concentrating or drying liquids *
1928	72	309245	I.G. Farbenindustrie Aktiengesellschaft	Improvements in the production of rubber from rubber latex *
1927	85	294412	do.	Improvements in the preservation and treatment of latex*
1928	95	319410	Dunlop Rubber Co. Ltd.	Improvements in or relating to the preparation of concentrated india rubber latex *
1928	102	324375	do.	Improvements in or relating to the production of reversible latex compositions *

Year	No. of Certificate	U. K. Patent	Name of Grantee	Title of Invention
1928	103	324104	Dunlop Rubber Co. Ltd.	Improvements in or relating to the manufacture of rubber articles *
1928	106	326497	do.	Improvements in or relating to the manufacture of goods of rubber or similar material *
1929	108	327451	do.	do.
1929	125	337269	Revertex Ltd.	Process of concentrating latices *
1927	127	293771	do.	Process for concentrating natural latices *
1929	130	332525	Dunlop Rubber Co. Ltd.	Improvements in or relating to the manufacture of goods of rubber or similar material *
1929	131	332526	do.	
1929	139	344875	Societa Italiana Pirelli and Ugo Pestatozza	Improved method and means of concentration of rubber latexes and other aqueous dispersions of rubber *
1931	140	363872	Revertex Ltd.	Process for the production of rubber-latex concentrates *
1932	147	382235	Metallgesellschaft A.G.	Process for inspissating or concentrating rubber latex *
	148	383062	Huttenbach, Lazarus and Sons Ltd.	Improvements relating to the manufacture of rubber sheet from coagulated latex *

PART III

S.S. Grants of Exclusive Privileges 1914—1932

Year	No. of Grant	Name of Grantee	Title of Invention
1914	257	Ilcken	Artificial drying of copra, rubber, cocoa, tobacco etc. by combination of rotary and tunnel hot air process
	260	U.S. Tyre Co., Ltd.	Improvements in vehicle tyres
	261	Reid	Process and apparatus for coagulating and curing rubber latex by breaking up and atomising and spraying by pressure evenly in thin layers on surface of a drum or other suitable surface revolving or stationary and in smoke or other fumes or gases
	262	Duncan	Improvements in the preparation and coagulation of rubber latex
1915	264	Hawthorn	Improvements in apparatus for coagulating, smoking and manufacturing rubber
	267	Jackson	A latex coagulating machine
	268	Dunlop Rubber Co.	Improvements in the manufacture of crude rubber
	269	MacLennan	Mechanical process for separating refuse such as bark, wood-scrap from naturally coagulated latex
	271	Ilcken & Down	Chemical process for manufacture of rubber from latex and for treatment of raw and scrap rubber
	272	do.	Apparatus for manufacture of rubber from latex
	273	Jackson	Device for throwing rain aside from tapping groove
	275	Nash	Tapping knife with renewable blades
	277	Gray	Holder for latex cup
	280	Trusty	Improved knife for tapping rubber
	283	Evans	Machine for washing, milling and cleaning lower grades
	284	Maude, Crosse, Pratt & Barrowcliff	Improvements in process for preparation of rubber by coagulating latex
1916	290	Beavis	Spout for collection of latex

Year	Number of Grant	Name of Grantee	Title of Invention
1916	293	Ilcken & Down	Improvements in chemical process for manufacture of rubber from latex
	296	Whiting & Bloomfield	Spout for collection of latex
	298	Hall & Paynter	Spout for collection of latex
	299	Barker	Improvements in process for smoking and drying rubber
	300	Teo Guan Tye	Improvements in extraction of Para rubber crepe from bark crepe
	301	Ilcken and Down	Improved chemical process for purifying inferior and scrap rubber
	302	Rasmussen	Process of conveniently handling and storing latex during coagulation and by which space required for storing large number of pans is reduced to a minimum
	303	Maclean	Process for preparation or refining and preserving raw jelutong rubber
1917	305	Sawh	Latex cup and hanger
	306	Thian Lock Choo and F.P. Loh	Process for manufacturing and refining jelutong from its latex
	309	Khoo Kim Lian	Improved knife for tapping rubber trees
	310	Jackson	Rubber shoe sole
	311	Arisaka	Packing and preserving latex
	313	Thomas and Maude	Improvements in coagulating rubber latex
	315	Ilcken and Down	Chemical process for manufacture of rubber from latex and treatment of raw and scrap rubber and gum
	317	Holt	Crepe rubber folder in form of drum with flange attachments
	321	Carty	Combined spout and hanger
	322	Jarvis	Preparation and pressure for packing rubber crepe or sheet by special apparatus
	325	Jarvis	Improvements in foregoing
	327	Arisaka	Treadle machine for washing and crepeing rubber
	329	Ilcken and Down	Process for obtaining maximum yield of rubber from latex
	334	Kwa Siew Tee	Combined process of coagulating and smoking with the "smoking-rubber" mixture
	335	Lambart	Improved spout and hanger

Year	No. of Grant	Name of Grantee	Title of Invention
1917	339	Maclean	All-weather water-proof cover for tapping cuts
	342	Gibson	Pressure gear for applying pressure to rubber or other material in boxes or bales
	344	Thian Lock Choo	Refining and preserving Jelutong
	345	Carey and Ash	Rain shield for tapping cuts
	349	Bailey	Device for baling
	354	General Rubber Co.	Improvements in rubber coagulum and process for preparation from latex
	355	do.	Improvements in rubber composition and process for production thereof
	356	do.	Treatment of rubber and similar materials
	357	do.	Improvements in rubber coagulum and process or preparation for vulcanisation
	358	do.	Improvements in process for baling rubber
	359	do.	Improvements in process and apparatus for treating coagulum
	360	do.	Improvements in process for treating latex and products therefrom
	361	do.	Improvements in adhesive rubber composition
	362	do.	Improvements in apparatus for treating latex
	363	do.	Improvements in process and apparatus for treating latex, including preparation for vulcanisation
	364	do.	Improvements in rubber coagula and preparation of same for vulcanisation
	365	do.	Improvements in process for separating rubber from rubber-containing material
	366	do.	Improvements in process for treating latex and products therefrom
1918	372	Watt	Improvements in machine for macerating and crepeing scrap
	373	Black & Simpson	Baling press
	375	Claessen	Utilisation of bark shavings from rubber trees
	376	Curran	Improved press for packing rubber

Year	No. of Grant	Name of Grantee	Title of Invention
1918	378	Sime	Latex cup
	387	Berendonck	Improvements in pneumatic tyres
	388	Stathouder	Improvements in process of preparing rubber by coagulation of latex
	389	Niblock	Machine for washing scrap rubber
1919	391	Roberts	Crepe-folding machine
	393	Hayley	Improved flexible wrapping for rubber
	397	Hunter Dry Kiln Co.	Process of treating rubber
	398	United Engineers Ltd.	Improvements to "Hillside" rubber press
	408	Stephen	Improvements in machines for cleaning scrap rubber
	413	Fish	Rubber Standardiser
	414	Davidson and Holland	Process for refining Jelutong
1920	419	Hally	Protective device for rubber trees
	426	Tan Teek Puan	Improved coagulant for rubber, to be called "Acetocol"
	427	Cammaert	Combined spout and cup-holder
	436	Whittaker and Ardron	Rainshield for rubber trees
	448	Han Tiong Sawh	Improved latex spout
	449	Hopkinson	Process for treating rubber-containing latex
	450	Hopkinson	Products obtained from rubber-containing latex
	453	Sayers	Improved pail for latex collection
	455	Gjorup	Self-baling folding case for rubber sheets
1921	460	Laub	Manufacture from latex of a coagulum which can be vulcanised immediately after drying and washing and including ingredients imparting specific properties to the rubber when vulcanised
	462	Laub	Manufacture of coagulum which can be vulcanised immediately after drying and washing

Year	No. of Grant	Name of Grantee	Title of Invention
1921	467	De Neve	Improvements in method and apparatus for tapping and collecting latex
	475	Cresson	Terra-caoutchouc blocks
	483	Miijachi	Producing sheets and slabs of rubber by use of porous and hygroscopic moulds
	491	Hansen	Implements to enable ploughs to be used in root-filled areas
	492	Stothard	Improvements in method and apparatus for collecting latex from trees
	493	Roa	Improved apparatus for treatment of latex
	495	Hodges	Self-contained mould vulcaniser
1922	496	Consigleire	Collapsible canvas bag for packing rubber
	497	Schidrowitz	Improvements in the manufacture of rubber
	503	Hopkinson	Production of a fabrication of rubber and filamentary material
	504	Barns	Reinforced rubber road and traffic surface
	507	Cheong Pheck Tee	Refining raw jelutong
	509	General Rubber Co.	Improved process for treating rubber and similar material
	511	McLeroth Tyre Co.	Improved air tubes for pneumatic tyres
	516	Bunker	Manufacture of chemical mixture for preservation of latex
	517	Firestone Tyre Co.	Improved method and apparatus for drying rubber
	530	Westendorp	Device for protecting tapping cut against rain
	533	Minton	Improvements in rubber or rubber-coated articles
	536	McLeroth Tyre Co.	Improvements in air tubes for pneumatic tyres
1923	544	Vultex Ltd.	Improvements in manufacture of rubber
	557	Smith	Rubber-cushioned ship's fender
	561	Blake and Offenberg.	Manufacture of resilient rubber brushes
	562	Koch	Improved implements for removing portions of the bark of trees
1923	566	Bosch	Improved instrument for tapping rubber trees

Year	No. of Grant	Name of Grantee	Title of Invention
1923	567	Jeffrey and Wilkinson	Process for conversion of latex of any specific gravity into a non-oxidisable rubber composition for flooring, mats, tiles and roofing
	571	Hoare, Dick and Adkins	Improvements in manufacture of sheet from latex and apparatus therefor
	572	General Rubber Co.	Improvements in process and apparatus for drying coagulable liquids
1924	577	Anode Rubber Co.	Process and device for immediate production of mechanically unworked pure rubber sheet from latex
	578	do.	For direct production of moulded articles from latex
	579	General Rubber Co.	Improvements in apparatus for drying rubber latex
	581	Parry Davis	Process for the manufacture of condensed rubber latex
	590	Shiro Satoh	Wire hanger for latex cup
	593	Stutchbury and Hauser	Improvements in manufacture of caoutchouc, balata and similar gums
	602	Tan Kah Kee	Improvements in manufacture of inner tubes direct from latex
	605	do.	Improvements in manufacture of rubber soles and heels
	611	Wilkinson	Improvements in the manufacture of rubber compositions from latex
	612	Shalless	Scrap washing machine
	620	Percival	Improved appliances for use in collecting latex
	625	Hopkinson	Process and apparatus for obtaining rubber from latex
1925	634	General Rubber Co.	Improvements in the manufacture of crude rubber
	642	do.	Improvements in the process and apparatus for drying latex
	647	Gill	Improvements in rubber rolling machine
	651	Boardman	Improved latex spout and hanger
	654	Dunlop Rubber Co.	Manufacture of an all-rubber tyre
	656	Raeber and Schweizer	Latex cup hanger
	660	K.D.P. Ltd.	Process and apparatus for concentrating latex
	670	Van der Mark	Improvements in articles of unvulcanised rubber

Year	No. of Grant	Name of Grantee	Title of Invention
1925	673	Laub	Manufacture of an ebonite or vulcanite veneer
1926	692	Anode Rubber Co.	Improvements in the direct production of rubber goods from emulsions
	702	Naugatuck Chemical Co.	Improvements in the manufacture of rubber-containing mixtures
	703	Anode Rubber Co.	Improvements in the manufacture of rubber goods from rubber emulsions
	708	do.	Method and apparatus for manufacture of rubber goods from rubber dispersions by electrophoretic means
	710	General Rubber Co.	Improvements in apparatus for drying latex
	730	Tan Kah Kee	Manufacture of rubber-soled wooden sandals
1927	732	Ritchie	Measurement of latex collected by individual coolies
	733	Rubber Electro Deposition Patents Ltd.	Improvements in the production of rubber
	737	Dunlop Rubber Co.	Production of rubber goods direct from latex
	738	Naugatuck Chemical Co.	Improved method of treating latex and products thereof
	740	Dunlop Rubber Co.	Method of producing articles substantially made of organic materials from dispersions containing the said organic materials.
	747	United States Rubber Plantations	Method of treating latex and products therefrom
1928	748	Naugatuck Chemical Co.	Method of preserving rubber latex
	750	Cresson	Improved composite rubber-faced surfacing material
	752	Cargills	Preparation for treatment and prevention of disease in rubber trees
	758	Dunlop Rubber Co.	Improvements in the manufacture of rubber articles
	774	do.	do.
	788	I.G. Farben-Industrie A.G.	Improvements in the process for preserving and treating latex
	802	Dunlop Rubber Co.	Improvements in the manufacture of rubber
	805	do.	Improvements in the direct production of rubber goods from dispersions

Year	No. of Grant	Name of Grantee	Title of Invention
1929	807	McGhee	Improvements in the manufacture of rubber-soled footwear
	808	Hultman	Process of making rubber-like materials
	828	Naugatuck Chemical Co.	Treatment of latex
	835	do.	Treatment of rubber and products obtained therefrom
	841	Gillespie & Grant	Improved apparatus for hanging rubber sheet in smoke houses
	851	Perera and Cobb	Chemical production of preserved rubber sheets
	853	K. D. P. Ltd.	Process for concentrating natural latices
1930	854	Nakamura	Rubber tapping knife
	855	Wilhelmi	Method and device for manufacturing rubber footwear
	858	Naugatuck Chemical Co.	Method of preserving latex and products thereof
	859	Schweizer	The S-D. patent strainer for latex
	869	Naugatuck Chemical Co.	Preservation of latex
1931	872	do.	Improvements in the treatment of latex
	873	McGhee	Improved pressure moulds for manufacture of rubber footwear
	889	Naugatuck Chemical Co.	Improvements in the preservation of latex
	891	K. D. P. Ltd.	Process of concentrating latices
1931	892	Schweizer	An all metal latex coagulating tank
	893	Parry Davis	Improvements relating to vulcanisation
	897	do.	Improvements relating to roadmaking
	901	Willems	Method for the manufacture of sole crepe
	905	Cresson	Improved manufacture of Terra-caoutchouc blocks or slabs for road facing, flooring etc.
	907	Pratt	Improved machine for the preparation of sheet rubber

Year	No. of Grant	Name of Grantee	Title of Invention
1932	910	Malcolm Watson	Improvements in the collection of latex from trees
	914	Sime Darby	Improved latex coagulating tank
	915	Ungar and Schidrowitz	Improvements in the manufacture of rubber
	Specn. No 6406/32	E.H. Kirby	Improvements in latex coagulating tanks—sectional units

PART IV

Registration of U.K. and other British patents in S.S. 1914—1925

Year	S.S. Specification No.	British Patent No.	Name of Holder	Title of Invention
1914	568	11470	Davidson	Improvements in the extraction of rubber from latex
	575	26270	Wickham	Improvements in apparatus for treating latex
	580	25256	Davidson	Improvements in the extraction of rubber from latex
	590	20118	Nederland G. P. Mat.	Process for the manufacture of gutta-percha
1915	593	13438	Davidson	Improvements in the treatment of rubber latex
	616	16840	Pinto	Improved method of coagulating latex
1916	629	28118	Bosch	Improved instrument for tapping
	647	22490	Davidson	Improvements in machinery for rubber
	648	22489	do.	Improved apparatus for coagulating latex
	649	17168	do.	Improvements in the manufacture of rubber
1918	758	Ceylon No. 1462	Wilkins	Device for protecting tapping cut from rain
	766	102495	Bosch	Improvements in instrument for tapping rubber trees
	817	103298	Lintner	Process and apparatus for coagulating latex
	818	119488	Kapoewas Rubber Co.	Cup hanger
1920	896	124680	W.E. Lake	Improved process for treating and handling latex
1921	918	151344	Davidson	Improved treatment of fresh coagulum
	937	159106	do.	do.
1922	1000	129826	Peachey	Process for vulcanisation of caoutchouc
1924	1181	Ceylon No. 1833	Bamber	Manufacture of crude dipentene from rubber

PART V

Registration of U.K. and other British patents in S.S. 1925—1932

Year	Registration number	British Patent number	Name of Holder	Title of Invention
1925	20	236633	Hammond	Process for coagulation of latex
	21	219635	Utermark	Process for concentrating milksap
1926	31	226440	U. S. R. P.	Improved process for the concentration of latex
	38	245405	Beech Nut Co.	An improved jelutong product
1927	61	294002	General Rubber Co.	Improvements in method of preserving latex
1928	77	252673	Anode Rubber Co.	Production of rubber goods direct from latex
1929	91	288206	I.G. Farbenindustrie	Improvements in the vulcanisation of latex
	95	289022	do.	Improvements in the preservation of latex
	96	307315	Dunlop Rubber Co.	Improvements in apparatus for concentrating and drying liquids
	97	303544	do.	Improvements in the manufacture of goods from an aqueous dispersion of, or containing, rubber
	99	300456	I.G. Farbenindustrie	Improvements in the preservation and treatment of latex
	102	300719	do.	Improvements in the production of raw rubber from latex
	103	309391	Dunlop Rubber Co.	Improvements in the production of articles substantially made of fabric, coated, proofed or impregnated with organic materials and the production of sheetings of organic materials
	114	312257	do.	Process for the production of rubber tubing
	115	311844	do.	Process and device for direct production of thread from concentrated and compounded latex
1930	117	309245	I.G. Farbenindustrie	Improvements in the production of rubber from latex
	119	308626	Dunlop Rubber Co.	Improvements in the manufacture of articles from aqueous dispersions containing organic materials

Year	Registration number	British Patent number	Name of Holder	Title of Invention
1930	129	319410	Dunlop Rubber Co.	Improvements in the process of concentrating latex
	134	324104	do.	Improvements in the manufacture of rubber articles
	136	327451	do.	Improvements in the manufacture of rubber goods
	138	324375	do.	Improved process for the production of reversible rubber latex compositions
1931	143	330970	do.	Process for manufacture of articles from aqueous dispersions
	150	337269	Revertex Ltd.	Process for concentrating latex
1932	161	332525	Dunlop Rubber Co.	Improvements in the manufacture of rubber goods
	162	332526	do.	Improvements in the manufacture of rubber goods
	168	344875	Soc. It. Pirelli	Improved method for the concentration of rubber latex