

LEO

SZILARD

D

Patent Applications which
did not issue into Patents

Germany (4)

To be reproduced in
Appendix

5. 89 028

5 89 288

United Kingdom (5)

To be reproduced in
Appendix

5730 / 34

United States (3)

To be reproduced
in Appendix

263, 017 (1939)

PATENT APPLICATIONS WHICH DID NOT ISSUE INTO PATENTS

G E R M A N Y

<u>Number</u>	<u>Date filed</u>	
S. 89 028	December 17, 1928	"Beschleunigung von Korpuskeln." *
S. 89 172	December 24, 1928	"Verfahren zur Beschleunigung des Zerfalls schwach aktiver oder radioaktiver Substanzen"
S. 89 288	January 5, 1929	"Korpuskularstrahlroehre" *
S. 99 399	June 25, 1931	"Einrichtung zur Dichtigkeitspruefung von luftdicht zu verschliessenden Apparaten, insbesondere von Kaelte- maschinen mit duennwandigen Behaeltern"

* Reproduced in Appendix

PATENT APPLICATIONS WHICH DID NOT ISSUE INTO PATENTS

UNITED KINGDOM

Number Date filed

5730/34 Feb. 21, 1934 * ASYNCHRONOUS AND SYNCHRONOUS TRANSFORMERS FOR PARTICLES *

scrap

The invention concerns methods and apparatus for the production of fast charged particles, e.g. electrons or protons. All these methods are based on multiple acceleration, i.e. the velocity of the particle is exceeding the maximum voltage which arises between any two parts of the apparatus. We shall have to deal with two different methods - the method of the asynchronous transformer, and the method of the synchronous transformer. In the first case we shall deal with single action and multiple action transformers, and we shall start by dealing with the asynchronous transformer method which is based on the acceleration of a charged particle in the electric field induced around a changing magnetic flux.

7839/34 Mar. 12, 1934 ** REPRODUCTION OF BOOKS **

The invention concerns methods and apparatus for the reproduction of publications; it relates to photographic reproduction of books on strips of film or paper (or sheets of film or paper) and to arrangements of the pages forming the reproduction of a book on the film which will enable the reader to find quickly the individual page or the individual book for which he is looking, as well as other means which serve the latter purpose.

The invention makes it possible to offer the reading public on a film roll, the length of which need not exceed 250 m, a library of 1,000 volumes. A special catalogue delivered with the film roll enables the reader to find for each book on his roll the index number which indicates the position of that particular book on the roll. By using this index number and making use of a device which is an object of this invention the reader can let the film run through a projector and stop it when the first page of the required book is in front of the lens of the projector, so that the first page of the book will appear on the screen. The reader can then easily bring any page of the book in which he is interested in front of the lens.

<u>Number</u>	<u>Date filed</u>	
10516/34	Apr. 6, 1934	REPRODUCTION OF SOUND **
26134/35	Sep. 19?, 1935	REPRODUCTION OF SOUND ** (modified version)

The invention concerns a method for registering sound, for instance speech or music by photographic methods, for instance on a strip of film, and reproducing it for instance by sending light through the film and using a photocell to convert the variations of light into sound.

6954/38	March , 1938	IMAGE MULTIPLIER ***
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This is a photoelectric device: the image of an object is projected on a semi-transparent photo cathode. The electrons emitted from any one point of that cathode are accelerated in vacuum and have to pass through two auxiliary electrodes and a grid before reaching a fluorescent screen.

(with James L. Tusk)

- * Reproduced in appendix
- ** Copy of application in Szilard files
- *** Draft of application in Szilard files

PATENT APPLICATIONS WHICH DID NOT ISSUE INTO PATENTS

UNITED STATES

<u>Number</u>	<u>Date filed</u>	
263,017	Mar. 20, 1939	APPARATUS FOR NUCLEAR TRANSMUTATION *
264,263	Dec. 29, 1951	PROCESS FOR PRODUCING MICROBIAL METABOLITES
320,816	Nov. 15, 1952	CAFFEINE CONTAINING PRODUCTS AND METHOD FOR THEIR PREPARATION

The invention relates to the effect of caffeine containing products on mammalian tissue cells.

*Look up + correspondence
- Rinderer, Korsch, Ramed*

* Reproduced in Appendix

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LIST of DISCLOSURES
of INVENTIONS, not patented

ad Tabin Reference (2)

preliminary first draft,
to be revised JW

DISCLOSURES

UNITED STATES

To be removed p/s

(Compiled by Kathleen Winsor, 5/1/69)

Date

Aug. 3, 1946

METHOD AND APPARATUS FOR LIQUID EXTRACTION (a)

A method and apparatus for liquid extraction in which the two solvents are contained in an annular gap in a rotating body and have a different tangential velocity while they are passed through the rotating body in a counter-current flow.

July 7, 1948

IMAGE MULTIPLIER (b)

Similar to British Patent Application No. 6954/38

April 8, 1953

ADDING MACHINE (c)

An adding machine built like a mechanical pencil, which may be carried in the pocket and can be used, for instance, for adding up during the day the caloric value of the various meals taken.

June 29, 1954

CIGARETTE HOLDER (c)

If a cigarette is smoked through this holder, it will cut down the amount of combustion products which are absorbed by the smoker per unit time (but not necessarily per cigarette smoked). This is accomplished by inhaling a mixture of the air which passes through the burning cigarette with the air which enters the cigarette-holder through an opening that forms a by-pass.

- a) Dated photocopies of disclosure in Szilard files, postmarked Aug. 3, Oct. 1, 1946, May 17, 19, 1949.
- b) Photocopies postmarked July 7-14, 1948, but not found in Szilard files so far.
- c) Dated postmarked photocopies of disclosure in Szilard files.

Date

Sept. 30, 1954 PROCESS AND APPARATUS FOR DE-SALTING SEA WATER (d)

This invention relates to the de-salting of sea water by freezing.

March 18, 1955 PROCESS AND APPARATUS FOR GROWING ALGAE (e)

Algae may be grown in a layer of sweet water which floats above a mass of salt water.

Nov. 15, 1956 THERAPEUTIC DAIRY PRODUCTS (f)

It is possible to prepare dairy products such as "milk", "cream" and "cheese" which are almost indistinguishable in taste from the commercial dairy products such as milk, cream and cheese, but which differ from them inasmuch as a high percentage - at least 80 % - of the milk fats has been removed and in its place a slightly smaller, equal or even larger amount of a vegetable oil with a high iodine value (iodine value higher than 60) has been substituted.

Jan. 10, 1957 AGENTS FOR PRODUCING DISEASE RESISTANCE (g)

A product adapted to be used as a DR agent for a specific disease which consists of a mixture of a quantity of the killed infectious agent of the disease (or an extract thereof which contains the relevant antigens) and a quantity of antiserum specific for this infectious agent (or a fraction of such antiserum which contains the relevant antibodies), the ratio of antibodies to antigens being large enough for the antibodies to saturate the antigens.

The DR agent described will produce the desired effect best if it is injected intradermally, or, if injected subcutaneously it should be injected together with an adjuvant such as, for instance Arlacel plus Bayol F. The expression "relevant antigen" must be taken to mean surface antigens of the infectious agent, and the expression "relevant antibodies" must be taken to mean antibodies against the surface antigens of the infectious agent.

- (d) Dated photocopies of disclosure in Szilard files, postmarked Oct. 4-12, 1954
- (e) Disclosure in Szilard files, signed and witnessed March 18, 1955
- (f) Dated photocopies of disclosure in Szilard files, postmarked Nov. 15, 1956
- (g) Dated photocopies of disclosure in Szilard files, postmarked Jan. 14, 15, 18, 1957. A revised version in the files is signed and witnessed March 22, 23, 27, 1957.

Date

Aug. 14, 1957 GRAMOPHONE AND GRAMOPHONE RECORD (h)

A gramophone containing one or more tuned circuits of audio-frequency (sonic or supersonic), means for rotating the turntable at at least two speeds, and means for switching the speed from the lowest to a higher speed when the said tuned audio-frequency circuits are energized.

Gramophone records on which is recorded one or more sonic signals (in an audible frequency or in a supersonic frequency).

Jan. 16, 1959 THERMO-ELECTRIC GENERATOR (i)

An apparatus suitable for the generation of electric power from heat. This apparatus consists of an assembly of individual thermo-electric generators. Each of the individual units consists of an outer tube which is kept hot and to which we shall refer as the "hot cathode", and a concentric inner tube. In the annular gap between the two tubes there is a vacuum in which there is maintained a low vapor pressure of an alkali metal, preferably caesium.

(h) Signed disclosure in Szilard files, witnessed Aug. 14, 1957.

(i) Dated photocopies of disclosure in Szilard files, postmarked from Jan. 16 to Feb. 13, 1959.

In addition, the following inventions were described in letters by Szilard to the University of Chicago dated September 28 and October 7, 1946. *

A method and apparatus for producing an air stream by means of rotating bodies, the air stream being perpendicular to the axis of the rotating bodies. This principle may be used in building an electric fan and also may be used in the designing of airplanes. In the case of airplanes, the air stream created would be directed vertically downwards and might perform the same function as at present performed by the propeller of the helicopter. The axis of the rotating bodies would however be horizontal and might coincide with the axis of the propeller which drives the airplane forward.

A method for separating compounds which differ in molecular weight without differing in chemical composition. This method is based on a difference in diffusion velocity and operates without the use of barriers. While the method utilizes the rotating system, it is not based on centrifugation.

A method for accelerating electrically charged particles by the betatron principle which permits the charged particle to be accelerated not only through one-half phase of the alternating current which is used for excitation of the magnet but permits the utilization of a number of half-cycles.


SL

A method for growing micro-organisms in bulk on surfaces rather than in suspension, which may be applicable in the production of antibiotic substances. It is characterized by having a large volume filled with porous ceramic bodies, leaving air spaces free between these bodies. The nutrient solution is absorbed in the porous bodies and micro-organisms are permitted to grow on the surfaces of the porous bodies.

Date

June 28, 1940 USE OF BERYLLIUM (j)

It would appear that the chances of a chain reaction with slow neutrons in a system essentially composed of uranium and carbon could be considerably improved by having a lattice of spheres of uranium metal embedded in graphite and each sphere surrounded with a spherical shell of beryllium metal.

 (j) Photocopies of three memoranda are in the Szilard files, dated June 28, July 4, Nov. 3, 1940; all are postmarked Nov. 14, 1940.

LEO SZILARD

Disclosures

1940 - 1959


Jan. 27, 1940 CHAIN REACTION IN A LATTICE OF SPHERES OF URANIUM
EMBEDDED IN GRAPHITE

"We shall consider the balance of neutron emission and absorption in a system composed of uranium and a light element, the latter serving the purpose of slowing down the neutrons. ... In order to make a chain reaction possible carbon is a much better element to use for slowing down the neutrons than hydrogen. ... We wish to conclude that it is possible to maintain a chain reaction in a lattice of spheres of uranium embedded in graphite, and that it does not take enormous masses of uranium to reach the point of divergence at which nuclear transmutation will go on with an intensity which is limited only by the necessity of avoiding overheating."

[Dated photocopies (22 pages) in the Szilard files,
postmarked January 27, 1940.]

DISCLOSURESDate

June 28, 1940

USE OF BERYLLIUM 

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Dec. 9, 1940

METHOD OF COOLING

1. No cooling liquid inside the graphite-uranium system.
2. Cooling by liquid bismuth, the bismuth surrounding the uranium spheres; the bismuth flowing in graphite channels and not in iron pipes.
3. Cooling by some cooling liquid, for instance a bismuth-lead compound containing 60% of bismuth, melting at 126° , flowing inside a uranium tube inside a uranium cylinder. This method can be used only if cylindrical bodies of uranium are embedded in graphite. In this arrangement liquid mercury could be used instead of liquid bismuth or bismuth alloys; also perhaps water. ~~Noter melting point of Bismuth 322° ; melt-~~ ing point of lead 326° . A Pb-Sn alloy containing 70% Sn melts at 185° . There may be suitable Sn-Pb-Bi alloys. Boiling point of bismuth is at 1470° . Boiling point of lead is at 1613° .

[Typed pages entitled PATENT, dated December 9, 1940, are in the files in a folder marked by Szilard "Nov 40. Acute. Pat."
~~No postmarked copy has been found so far.~~]

is at 10130.
Boiling point of pyranth is at 1410. Boiling point of 1689
29 melts at 182. There may be suitable 29-30-31 alloys.
The boiling point of 1689 250. A 30-31 alloy containing 10%
also behaves much like pyranth. Boiling point of pyranth 1330. Melts
could be used instead of pyranth or pyranth alloys
embedded in glass. In this arrangement pyranth would
can be used only if cylindrical rods of pyranth are
inside a minimum tube inside a minimum cylinder. This method
combining containing 60% of pyranth melting at 130. Flowing
3. Cooling by some cooling liquid, for instance a pyranth-1689
and not in iron pipes.
pyranth alloys: the pyranth flowing in glass or ceramic
3. Cooling by liquid pyranth: the pyranth surrounding the
1. no cooling liquid inside the glass-ceramic vessel.
Having a mixture of pyranth and 1689 would be
mixture of cooling space surrounded with a structural
wall of glass or ceramic.

Nov 28, 1940

Dec 3, 1940

[Photocopies of three memoranda are in the Szilard files,
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Foreign Patent and Published Application Data

The data indicated in the following table are used in the identification of foreign patents and published applications which are cited as references. The "Suggested Citation Date" is not always the effective date of the

reference. When the date becomes critical, it may be necessary to establish the effective date by checking the dates listed in the other columns. (See 901.05(b).)

Country	Suggested citation date for examiners' use	Patenting date	Publication date
Australia Austria Belgium (1)	Complete specification accepted ... Ausgegeben am ... Brevet octroyé le ... (2) (or) Octrooi toegekend op ... (2) Brevet mis en lecture le ... (3) (or) Octrooi ter inzage gelegd op ... (3) Issued ... (or) Émis le ... Vydáno ... Patent udstedt den ...	Letters Patents Sealed* Anmeldung bekanntgemacht** Brevet octroyé le ... (or) Octrooi toegekend op ...	Complete specification published ... Ausgegeben am ... Brevet publié le ... (2) (or) Octrooi openbaar gemaakt op ... (2) Brevet mis en lecture le ... (3) (or) Octrooi ter inzage gelegd op ... (3) Issued ... (or) Émis le ... Vydáno ... Bekendtgjört den ... (or) Offentliggjört den ... Julkaitu ... Publicerad (4)
Canada (1)	Issued ... (or) Émis le ... Vydáno ... Patent udstedt den ...	Issued ... (or) Émis le ... Chráneno od ... Patent udstedt den ...	Issued ... (or) Émis le ... Vydáno ... Bekendtgjört den ... (or) Offentliggjört den ... Julkaitu ... Publicerad (4)
Czechoslovakia Denmark	Patent udstedt den ...	Patent udstedt den ...	Offentliggjört den ... Julkaitu ... Publicerad (4)
Finland (1)	Julkaitu ... Publicerad (4)	Patentti myönnetty— Patent beviljat den ... (4) Délivré ... *** Bekanntmachung der Anmeldung ...	Publié le ... Ausgabetag ... Ausgegeben am ... (2) Bekanntgemacht am ... (3) (or) Ausgabe der Auslegeschrift ... (3) (or) Auslegetag ... (3) Complete specification published ...
France East Germany West Germany	Délivré ... Ausgabetag ... Ausgegeben am ... (2) Bekanntgemacht am ... (3) (or) Ausgabe der Auslegeschrift ... (3) (or) Auslegetag ... (3) Complete specification published ... (or) Complete specification accepted ... Data di concessione ... (or) Des ... (or) Concesso il ... (or) Rilasciato il ... Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Patent sealed*	Complete specification published ... Auslegetag ... (3) Complete specification published ...
Great Britain	Complete specification published ... (or) Complete specification accepted ... Data di concessione ... (or) Des ... (or) Concesso il ... (or) Rilasciato il ... Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Data di concessione ... (or) Des ... (or) Concesso il ... (or) Rilasciato il ... Dagtekening ...	Stampato nel ... (before 1960) (1960 to present) ****
Italy	Des ... (or) Concesso il ... (or) Rilasciato il ... Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Patent gitt ... Udzielono ...	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Opublikowano ... (or) Warszawa ...
Netherlands	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Patent gitt ... Udzielono ...	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Opublikowano ... (or) Warszawa ...
Norway	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Patent gitt ... Udzielono ...	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Opublikowano ... (or) Warszawa ...
Poland	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Patent gitt ... Udzielono ...	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Opublikowano ... (or) Warszawa ...
Sweden	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Beviljat den ... Brevet enregistré ... (or) Brevet délivré le ... (or) Patent eingetragen ... (or) Patent erteilt ... (or) Brevetto iscritto ... (or) Brevetto registrato ... (or) Brevetto rilasciato ... ****	Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...
Switzerland (1)	Uitgegeven ... (2) Datum van ter inzagelegging ... (3) Offentliggjört ... Date at top right of patent (or) Warszawa ... (or) Opublikowano ... Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...	Beviljat den ... Brevet enregistré ... (or) Brevet délivré le ... (or) Patent eingetragen ... (or) Patent erteilt ... (or) Brevetto iscritto ... (or) Brevetto registrato ... (or) Brevetto rilasciato ... ****	Publicerat den ... Publié le ... (or) Veröffentlicht am ... (or) Pubblicato il ...
USSR	"Scientific Library" ... (stamp) Recent patents use; Дата опубликования описания ... (5)	****	Дата опубликования описания ...

*Announced in *Official Journal*; does not appear on patent.

**Announced in *Patentblatt*; does not appear on patent.

***Announced in *Bekanntmachungen*; does not appear on patent.

****Does not appear on patent.

(1) Countries which publish in more than one language.

(2) Patent.

(3) Printed application.

(4) Identical data printed in both Finnish and Swedish.

(5) Citation date to be used, if shown on patent.

901.05(b) Other Significant Data [R-17]

Occasionally, the exact date of foreign patenting becomes material. In the case of Australia, Austria, East Germany, Great Britain, India, Ireland, Japan and U.S.S.R., it does not appear on the printed copies of the patents. If necessary, this information can be secured from the Scientific Library. For the effective dates of Belgian patents, see the Memorandum of March 2, 1959, which has been reproduced in 41 J.P.O.S. at page 440. For the effective dates of Italian patents, see the Memorandum of October 25, 1960 distributed to all Examiners and published in 42 J.P.O.S. 795-8. Comments concerning German, French and Belgian procedure in granting patents are found in *Ex parte Gruschwitz et al.*, 138 U.S.P.Q. 505. This case did not involve anticipation but the bar of foreign patenting under 35 U.S.C. 102(d).

Some countries issue patents of addition and they should be identified as such and, when separately numbered as in France, the number of the addition patent should be cited.

"Patents of addition" generally cover improvements of a patented parent invention and can be obtained by the proprietor of the parent invention. Inventiveness in relation to the parent invention need not be demonstrated and the term is governed by the term of the parent patent.

For citation of the number of pages of drawing and specification, see 707.05(e).

Some foreign countries list the references cited during the prosecution. These, especially if they are U.S. patents, may be helpful, either as references of interest to the examiner or to suggest an overlooked field of search.

GERMANY

German allowed applications have been issued in printed form beginning September 1, 1955. Those printed from this date up to December 31, 1956, are captioned "Patentanmeldung." They should be cited as "German printed applications" and identified by the name of the applicant, the serial number of the application, and the date of publication. The applications printed after January 1, 1957, are captioned "Auslegeschrift" and have an additional number which is larger than 1,000,000 and which will be the number of the patent, if issued. This new number should be used instead of the original serial number. In addition to the above, data customarily given in citing foreign patents should be used. Printed applications are listed under "Other References" in the citation thereof.

German Utility Models (Gebrauchsmuster) may be used as references as prior patents, but not as prior printed publications since the full specifications are not printed effective as of their registration date. When necessary, the Librarian will obtain the complete text of the specification from the German Patent Office. A file of such copies is maintained in the Scientific Library.

NETHERLANDS

Netherlands applications, unless withdrawn, are printed beginning January 1, 1964. They are captioned "Octrooiaanvraag". They should be cited as Netherlands *applications* giving the number, date of publication, "Datum van ter inzagelling", name of applicant, "Aanvrager", and data customarily given in citing foreign patents.

GREAT BRITAIN

Certain British applications had become void and hence lack a date of acceptance. Nevertheless, they were given a number in the patent series. The date of publication (year only) is given following the statement "Printed for His Majesty's Stationery Office," and this should be cited.

British specifications prior to 1916 have printed in large heavy type at the head of the first page of the specification a number and year, as 1451 A.D. 1912. This, together with the name, as required by the rules, is always the proper citation of the patent. The year given at the head of the specification is either the year of filing or the year of acceptance, but in either case it is the official designation of the patent.

The year printed on the drawing is not always the year for correct designation of the patent. Where it is not, the correct year is shown by a small superior number or exponent placed to the right and above the serial number of the patent, as—

1910—No. 499¹¹

1912—No. 19421¹³

In instances of this kind the patent should be cited as No. 499 of 1911 or No. 19421 of 1913.

FRANCE

The date of recent French patents to be taken as the effective date *as a patent* for reference purposes is the date of the Official Bulletin of the French Patent Office (Bulletin Officiel de la Propriété Industrielle) in which the granting of the patent was announced. This date does not appear on the printed copies of the specifications of the patents. The printed copies give the date the patent was granted (délivré) and the number of the particular issue of the Official

Bulletin in which the granting of the patent was announced. The date of the issue of the Bulletin, if needed, may be obtained from the Bulletin itself in the Library and would be about five or six weeks later than the granting date. The granting date may be used for citation purposes but if the precise date is critical the effective date should also be given.

The date used as the effective date when the patent is used as a patent (rather than as a printed publication which date is later) has been the date on which the patent was granted, indicated on the printed copies by the word "délivré", as was established by decisions of the courts, the Commissioner of Patents, and the Board of Appeals. Owing to a change in the practice in the French Patent Office whereby the specifications of granted patents are now not available to the public until the date of the Official Bulletin, it is necessary to apply *In re Af Ekenstam*, 45 CCPA 1022, 256 F.2d 321, 1958 CD 402, 734 OG 290, 118 USPQ 349; and use the date on which the specification became available to the public as the effective date as a reference. This practice will apply to recent French patents, going back to number 1,148,401 announced in the Official Bulletin of July 11, 1957 and back to patent of addition number 67,251. No change in practice is indicated with respect to French patents prior to these numbers.

SWITZERLAND

The effective dates of Swiss patents are discussed in *Ex parte Reuge*, 115 USPQ 51 and in *Ex parte Appeal No. 194-38*, 1966 CD 31, 152 USPQ 70. It should be noted that two different systems are in operation in Switzerland. The majority of patents are issued without search and examination in the light of references, and the date used for these is the publication (veröffentlicht, publié, publicato) date. In two fields, inventions relating to time-keeping, and inventions relating to the non-mechanical treatment of textiles and fibers, applications are searched and examined in the light of the prior art and the procedure differs from that followed in the other cases; it follows, in general, the procedure in Germany as described in *Ex parte Gruschwitz et al.*, 1963 CD 859, 138 USPQ 505. Patents which have been issued under the examination system can be recognized from information given in the heading which refers to the publication of the application (the French and German language applications, Demande publiée and Gesuch bekanntgemacht, respectively). As in the German practice, when a case is found allowable by the examiner the application is published for oppo-

sition and the specification is issued in printed form (also referred to as *Auslegeschrift*, German and *Mémoire expose*, French). These printed copies have not been received by the U.S. Patent Office. If it becomes necessary in connection with a Swiss patent issued under the examination system to establish a date earlier than the date the patent was granted, the library can obtain a copy of the earlier printed application from the Swiss Patent Office.

901.05(c) Obtaining Copies

Photocopies of foreign patents can be ordered by an Examiner for placement in the shoes of a class in which he examines, if the patents would be of frequent use in that class (905.01).

901.05(d) Translation

Examiners may request translators in the Translation Section to assist them orally or with written translations of any specifications in languages with which the examiner is not familiar. (See 901.06(a), *Translations—Requests for Translations*, and 903.03, *Classification of Foreign Patents*, below.) Alternative versions of specifications, in English or other languages known to the Examiner, can commonly be found. Searches for alternate versions are performed in the Stack Service Section of the Scientific Library. As a substitute for translation, this service materially reduces the apparent problem posed by a foreign language specification.

901.06 Non-Patent Publications

All printed publications may be used as references, the date to be cited being the publication date. Recognized abbreviations of names of periodicals may be used in their citation (707.05(e)).

There are some publications kept or circulated in every group and each assistant Examiner should ascertain which are available in his group and whether or not any of them is likely to bear on any class assigned to him.

901.06(a) Scientific Library

The technical literature, foreign patents and services supplied by the Scientific Library are important to the Examiner for two primary reasons. In the first place, they provide material which must be known or searched to determine whether claims of applications are directly anticipated, and therefore unpatentable under the provisions of 35 U.S.C. 102. In the

LEO SZILARD

Patents, Patent Applications
and Disclosures

~~Bibliography~~
1923 - 1959

Bibliography

LEO SZILARD

Patents, Patent Applications
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1923 - 1959

Introductory Essay by Julius
Tobin

ad Taken Introduction, Reference (7)
(page 5)

Excerpts of Correspondence with Fermi & Segré

c/o The Clarendon Laboratory,
Parks Road,
Oxford.

13th March 1936.

Dear Professor Fermi,

I have to write to you now about the question of practical applications of modern nuclear physics, though I am by no means certain that such practical applications of importance at present really exist. Since however I received a letter from Mr. Giannini (a copy of which I enclose), I wish to tell you why I have applied for certain patents in this field and what I propose to do with them.

I feel that I must not consider these patents as my private property and that if they are of any importance, they should be controlled with a view of public policy. I see no objection to a commercial exploitation of some such patents, but I believe that the income (if there is any substantial income) should not be used for private purposes, but rather for financing further research or, if the income is very large, for other constructive purposes.

ad Tabin, Reference (7) ^{conf'd}

When I filed all these patents, my intention was to hand them over, as soon as they turn out to be important, to a research corporation which could be set up at any moment in one form or another and which could use its funds for promoting further research. I personally do not think very much of producing radio-active elements for medical purposes and I should not like to be responsible for inducing manufacturers to embark upon such an enterprise at present. On the other hand, it is conceivable that certain applications of very great importance might materialise in a not too distant future and I have lately been taking, rightly or wrongly, a rather optimistic view on this subject. I have been writing a memorandum on the subject, which I might send you in due course of time and am sufficiently optimistic to feel justified in proposing that a fund should be created of about £5,000 and used for further experiments. It seems to me that such a fund should be used up in the course of the next three years and used in three different ways. First of all, it should be used for salaries of young physicists who could carry on systematic investigations which would fit in well with our present work, but on which we cannot embark for lack of time. Secondly, it should be used for hiring radium to be used for some such experiments on the basis of a very favourable offer of radium which I have received in this connection. Thirdly, such funds should be used for enabling

any of us to move from one laboratory to another whenever such a movement is justified from the point of view of apparatus which is present in one laboratory and lacking in another.

Though I do not know whether my efforts to raise such a fund will be successful, I should be glad if you could let me know whether you would care to share the responsibility for controlling such a fund.

With best wishes,

Yours sincerely,

~~c/o The Clarendon Laboratory,
Parks Road,
Oxford.~~

*John's
deletion*

13th March, 1936.

Dear Professor Fermi,

8 [I have been intending to write to you for some time in order to thank you for the last manuscript which you sent me, and also in order to tell you about ideas which have been put forward about selective absorption in the course of the last two months. They came simultaneously from Bohr, who was here for a visit, and from Wigner and Breit, with whom I have been in Correspondence. You certainly saw Bohr's paper in "Nature" and I am going to send you a manuscript from Breit and Wigner as soon as I get it back from Cambridge.

I have to write to you now about the question of practical applications of modern nuclear physics, though I am by no means certain that such practical applications of importance at present really exist. Since however I received a letter from Mr. Giannini (a copy of which I enclose), I wish to tell you why I have applied for certain patents in this field and what I propose to do with them.

I feel that I must not consider these patents as my private property and that if they are of any importance, they should be controlled with a view of public policy. I see no objection to a commercial exploitation of some such patents, but I believe that the income (if there is any substantial income) should not be used for private purposes, but rather for financing further research or, if the income is very large, for other constructive purposes.

5 [I know of one precedent for such procedure which was fairly successful. Some years ago Cotrell, whom you

perhaps know, took out in the U.S.A. certain patents and formed a research corporation to which he handed over his patents for commercial exploitation of the products. The profits are being used entirely for the promotion of further research.

5
In 1928 I formed the mistaken view that artificial disintegration would be developed in the course of a few years and would soon lead to practical application of very great importance. At that time I filed three patents which described the methods for the production of fast protons which later on were developed and published by Lawrence, one of them being the cyclotron, and also described the production of radio-active elements by bombardment of fast protons and alpha-particles. All these patents have subsequently been abandoned.

In 1933 I again formed the view that practical applications of very great importance are impending. Whether this view is correct, I could not say. It seemed to me that the production of radio-active elements by neutrons might have some importance and I filed a patent on this subject, after Joliot's discovery, on March 12th, 1934. A number of other applications followed, but it remains to be seen whether any of them have real practical significance.

When I filed all these patents, my intention was, as soon as they turned out to be important, to hand them over to a research corporation which could be set up at any moment in one form or another and which could use its funds for promoting further research. I personally do not think very much of producing radio-active elements for medical purposes and I should not like to be responsible for inducing manufacturers to embark upon ^{such an} ~~research and~~ enterprise at present. On the other hand, it is conceivable that certain applications of very great importance might materialise in a not too distant future and I have lately been taking, rightly or wrongly,

a rather optimistic view on this subject. I have been writing a memorandum on the subject, which I might send you in due course of time and am sufficiently optimistic to feel justified in proposing that a fund should be created of about £5,000 and used for further experiments. It seems to me that such a fund should be used up in the course of the next three years and used in three different ways. First of all, it should be used for salaries of young physicists who could carry on systematic investigations which would fit well ^{with} ~~in~~ our present work, but on which we cannot embark for lack of time. Secondly, it should be used for hiring radium to be used for some such experiments on the basis of a very favourable offer of radium which I have received in this connection. Thirdly, such funds should be used for enabling any of us to move from one laboratory to another whenever such a movement is justified from the point of view of apparatus which is present in one laboratory and lacking in another.

Though I do not know whether ~~my~~ efforts to raise such a fund will be successful, I should be glad if you could let me know whether you would care to share the responsibility for controlling such a fund.

I understand from Giannini's letter that you have applied for certain patents. You might perhaps have similar ideas about the commercial exploitation of your patents. Should you, however, no longer control these patents, or should you have other intentions with them, that would in no way affect the present issue. ^{One} I should not give at present too much significance to any single patent in this field. If important applications should materialize in the future, some importance might, however, be attached to the co-operation of those who work in this field, and also to their willingness to take responsibility in this matter.

8 { Forgive me please for writing to you such a long and somewhat boring letter. I should appreciate any comment which you care to make on this subject; Giannini will leave England on March the 19th, and if I hear from you before this date, I could discuss the matter with him before he leaves.

With best wishes,

Yours sincerely,

4
c/o Clarendon Laboratory,
Parks Road,
O x f o r d .

X (R-1)

(X)

1st April, 1936.

Dear Segrè,

Many thanks for your letter of March 21st. Please let me know when you reach a decision in Rome about the question of "patents". Could you please convey to the others some of the following points of view and suggestions which I am tentatively putting forward. Perhaps you could bear them in mind when you are discussing this thing in Rome at Easter.

Point 1. Let us first envisage the possibility that practical applications in the field of nuclear physics will become so important that an attempt to exercise some measure of control over them through disinterested scientists will appear to be justified. In order to achieve this, some sort of association could then be brought into existence to which we could all hand over our patents, so that most of us should be able to remain more or less aloof.

Such an association need not follow the example of the Research Corporation (New York) by mixing manufacturing activities and the promotion of science. It could confine its activities to bringing about a co-operation between industry and scientific research along the following lines:

The association could grant non-exclusive rights for the use of its patents to manufacturers under the condition that they contribute to a fund which is used for promoting further research and on the further condition that the manufacturer does not block the way for others by patents of his own. The funds which are available could be used for carrying out systematic investigations in University laboratories which fit in well with the work already carried on in such laboratories. The results of such investigations ought to be

automatically available to all industrialists who contribute their share to the research fund of the association. Perhaps it is possible to avert in this way competitive research into nuclear physics in industrial laboratories.

2. It may very well be that no important applications of nuclear physics may arise and in this case none of us will be willing to take much trouble about these patents. Unless, however, we are willing to take the trouble involved in their proper administration and in the proper administration of the funds which would be forthcoming, I for my part would rather withdraw the patents which I have taken out, than let them float about in an irresponsible way.

At present we do not know whether or not the practical applications will be sufficiently important for us to go out of our way and exercise some sort of control over the patents. The question therefore arises what should be done until we can decide about the proper course of action.

It seems to me that in the meantime we could ask some men like Chadwick, Cockroft or Fermi, or at least two of them, to accept the responsibility for whatever action is in the meantime required and jointly to decide each issue which arises.

If we think that it is justified to raise funds for further research we may attempt to do so and I have been in touch with some private persons who may or may not be willing to contribute towards such a fund. In my personal opinion we might feel justified in suggesting that a fund of £5,000 should be created and that this fund should be spent on research in the course of the next three years. It should be used to carry out investigations which fit in well with our present work, but which have a more direct bearing on possible practical applications. There are three main ways in which such a fund could be used for the present:

- a) For hiring radium and providing certain laboratories which are badly off in this respect with steady

sources of neutrons (radium properly mixed with beryllium).

- b) For salaries of young physicists who could carry out certain systematic measurements in one of the laboratories in which such work is already in progress.
- c) For enabling any of us to move from one laboratory to another if this is justified from the point of view of apparatus which is present in one laboratory, lacking in the other and needed for the particular experiments which now appear to be of interest.
when you see him in Rome

Please ask Fermi/to let me know if he would care to share the responsibility for the decisions which may now be required until we either withdraw the patents or find some definite form for their administration.

The question of the patents for which you are no longer free is hardly of primary importance. We ought, however, to bear in mind that it must be awkward for any scientist to have a personal income from such patents, while other scientists, who also could have taken out such patents, refrain from doing so. It is not customary to take out patents on scientific discoveries and it is hardly desirable to act against such an unwritten law unless one has reason to think that a departure is justified by unique circumstances.

Naturally, customs are different in different countries and you have at any rate really discovered something, while I have mostly taken out patents on subsequent discoveries of other people. Our cases are different, and I ~~however~~ do not think it right for me to have any financial advantages or any other privileges through patents which are connected with nuclear physics.

Please give my kind regards to all and thank your wife for her excellent German typing.

Yours sincerely,

(LEO SZILARD)

APPENDIX to

Introductory Essay by

Julius Tobin

same material

in Poent and others

Patents and Applications to be published:

- 1) Refrigerator patent, - Einstein, German and/or English, published
- 2) Application for linear accelerator German, 1928 (unpubl.)
- 3) " " re lat. to cyclotron, 1929 (unpubl.)
- 4) Brit. Appl. 1934 - "Synch. and Synchro. Transformers for particle." (unpubl.)
- 5) Brit. Patent 440,023 (published)
- 6) " " 630,726 (")
- 7) (abandoned) U.S. appl. 263,017 (1939)
- 8) Deleted part of U.S. appl. 10,500 (unpublished)
- 9) U.S. 2,708,656 - Szilard-Fermi Patent
- 10) List of "disclosure." - dates

2-2-1969

p. 2 1) Check 1963 tape

1 R 2) List of known disclosures & dates

" R 3) List of Patent Applications and patents

p. 4 - R 4) Reproduce 1 Gylation Patents

p. 5 - R 5) Fermi Sepié letters →
March 19, 1936 5

March 13, 1936 F

April 1, 1936 5 (be sure to omit last 5)

R 6) Br. Appl. 7840 (March 12, 1934)
or deleted 10,500 (better version)

Reproduce for adp. 5

Change p. 6, p. 7.