

11-20-00  
12-18-2000

U.S. Department of Commerce  
Patent and Trademark Office  
PATENT



101553859

RECORDATION FORM COVER SHEET  
PATENTS ONLY

TO: The Commissioner of Patents and Trademarks: Please record the attached original document(s) or copy(ies).

Submission Type

☒ New  
☐ Resubmission (Non-Recordation)  
Document ID#   
☐ Correction of PTO Error  
Reel #  Frame #   
☐ Corrective Document  
Reel #  Frame #

Conveyance Type

☐ Assignment ☐ Security Agreement  
☐ License ☐ Change of Name  
☐ Merger ☒ Other SECURITY RELEASE  
U.S. Government  
(For Use ONLY by U.S. Government Agencies)  
☐ Departmental File ☐ Secret File

Conveying Party(ies)

☐ Mark if additional names of conveying parties attached  
Name (line 1) FLEET NATIONAL BANK  
Name (line 2)   
Second Party  
Name (line 1)   
Name (line 2)   
Execution Date  
Month Day Year  
11-02-2000  
07483502

Receiving Party

☐ Mark if additional names of receiving parties attached  
Name (line 1) ROGERS CORPORATION  
Name (line 2)   
Address (line 1) ONE TECHNOLOGY DRIVE  
Address (line 2) P.O.BOX 188  
Address (line 3) ROGERS CT 06263-0188  
City State/Country Zip Code  
If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached (Designation must be a separate document from Assignment.)

Domestic Representative Name and Address

Enter for the first Receiving Party only.

Name CANTOR COLBURN LLP  
Address (line 1) 55 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002  
Address (line 2)   
Address (line 3)   
Address (line 4)

12/15/2000 6TDM11 00000135 07483502

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Correspondent Name and Address

Area Code and Telephone Number

Name

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Address (line 3)

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Pages

Enter the total number of pages of the attached conveyance document including any attachments.

# 26

Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

Patent Number(s)

07483502

07703633

07720224

4335180

4589057

4639485

07524373

07705624

07784501

4412962

4613540

4643280

07641427

07705625

07808206

4468074

4624978

4641125

If this document is being filed together with a new Patent Application, enter the date the patent application was

Month Day Year

Patent Cooperation Treaty (PCT)

Enter PCT application number only if a U.S. Application Number has not been assigned.

PCT

PCT

PCT

PCT

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PCT

Number of Properties

Enter the total number of properties involved.

# 89

Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41): \$

3,560.00

Method of Payment:

Enclosed ☒

Deposit Account ☐

Deposit Account

(Enter for payment by deposit account or if additional fees can be charged to the

Deposit Account Number:

# 06-1130

Authorization to charge additional fees:

Yes

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No

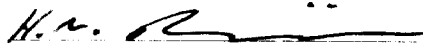
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Statement and Signature

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Charges to deposit account are authorized, as indicated herein.

H.M. BEDINGFIELD REG# 44,530

Name of Person Signing



Signature

NOVEMBER 14, 2000

Date

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Patent Application Number(s)

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07847497 012487

4655524 4687968 4768971

07897244 025043

4659758 4691972 4812213

07903600

4675625 4692476 4816717

07922110

4675626 4717345 4830623

07960518

4675627 4725650 4832459

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5077115	5233067	5287619
5097393	5281466	5274912
5147208	5312576	5459634
5149590	5276382	5309629

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<input type="text"/> 4645280	<input type="text"/> 4768971	<input type="text"/> 5009607
<input type="text"/> 4647125	<input type="text"/> 4812213	<input type="text"/> 5147208

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CONFIRMATORY RELEASE OF SECURITY INTEREST IN PATENTS

Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

Sir:

Fleet Bank, National Association, is the recipient of a security interest in, and a continuing lien upon, certain patents and patent applications more fully identified in a Commercial Revolving and Term Loan and Security Agreement dated as of April 15, 1993 among Rogers Corporation (the "Pledgor") and Fleet Bank, National Association (the "Secured Party"). Said security interest was noted in a "Patent Security Agreement" dated April 15, 1993, and the Schedule A thereto which lists all patents and patent applications subject to the security interest and continuing lien, said Patent Security Agreement and Schedule A having been filed and recorded on April 20, 1993, at Reel 6495, Frame 0322 et. seq. A copy of Schedule A is also attached hereto.

On June 25, 1993, Fleet Bank, National Association released the Pledgor from the Commercial Revolving and Term Loan and Security Agreement, the continuing lien thereof, and all obligations thereunder solely as it related to the patents and patent applications listed on Schedule B, a copy of which is affixed hereto, and Fleet Bank, National Association surrendered and released any and all security interest or other interest it then or ever had in any and all of the patents and patent applications listed on said attached Schedule B and surrendered and released its security interest in, and continuing lien upon, all of the patents and patent applications described in the Patent Security Agreement filed and recorded on April 20, 1993, at Reel 6495, Frame 0322 et. seq. solely as it related to the patents and patent applications listed on Schedule B.



For valuable consideration, the receipt of which is hereby acknowledged, subject to the prior surrender and release of the patents and patent applications listed on Schedule B, Fleet Bank, National Association releases the Pledgor from the Commercial Revolving and Term Loan and Security Agreement, the continuing lien thereof, and all obligations thereunder as it relates to all of the patents and patent applications listed on Schedule A, and subject to the prior surrender and release of the patents and patent applications listed on Schedule B, Fleet Bank, National Association hereby surrenders and releases any and all security interest or other interest it now or ever has had in any and all of the patents and patent applications listed on said attached Schedule A, and subject to the prior surrender and release of the patents and patent applications listed on Schedule B, surrenders and releases its security interest in, and continuing lien upon, all of the patents and patent applications described in the Patent Security Agreement filed and recorded on April 20, 1993, at Reel 6495, Frame 0322 et. seq. as it relates to all of the patents and patent applications listed on Schedule A.

I declare under penalty of perjury that the foregoing is true and correct.

FLEET NATIONAL BANK, SUCCESSOR BY  
MERGER TO FLEET BANK, NATIONAL  
ASSOCIATION

Date: November 2, 2000

By: \_\_\_\_\_

Name: Roger C. Boucher

Title: Director

**Schedule A**

**Patents**

<u>PATENTS</u>						
	<u>PATENT</u>	<u>PATENT NUMBER</u>	<u>DATE ISSUED</u>	<u>COUNTRY</u>	<u>NATURE</u>	<u>DIVISION</u>
1.	Level indicating floats for liquid	0261114	10/6/81	US	Ornamental design for level indicating float	Willimatic
2.	Method of manufacturing high density fine line printed circuitry	4159222	6/26/79	US	A process for making high density fine line printed circuitry.	FID
3.	Cushion insole	4176476	12/4/79	US	A cushion insole for shoes	Poron
4.	Liquid level indicating floats	4191050	3/4/80	US	Float apparatus for indicating liquid level.	Willimantic
5.	Polyurethane foam product and process of manufacture thereof from thermosetting frothed mixture	4216177	8/5/80	US	Process is presented for forming cured polyurethane foam material.	Poron
6.	Rubber and Fabric feed belt	4270656	6/2/81	US	A feed belt having surfaces with different coefficient of friction.	Willimantic
7.	Adhesion of phenolics to copper	4281044	7/28/81	US	The bonding of phenolic resins and phenolic molding materials	Molding Materials
8.	Process for preparing extrudable polyamide granules	4302413	11/24/81	US	A process for the preparation of extrudable polyamide granules	Composite Materials
9.	Method of Manufacturing high density printed circuits	4306925	9/16/80	US	A printed circuit which may be highly flexible in configuration and design.	FID

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10.	Microwave circuit boards	4335180	6/15/82	US	Circuit boards have relatively high dielectric constants, excellent moisture resistance and reduced tendency to insure changes in dimensions after processing.	Microwave & Circuit Materials
11.	Improved mold structure and method of molding for mechanically frothed urethane foam	4412962	11/1/83	US	The mold is filled from the bottom via an annular runner which communicates with the mold cavity.	Willimantic
12.	Solder less Connection technique and Apparatus	4468074	8/28/84		Contact portions of a first array of conductive elements are urged against mating contacts of a second array by a pressure applicator.	FID
13.	Cooling and power and/or ground distribution system for IC's	4589057	5/13/86	US	Comprising a thermally conducting preferably metal plate having power distributing bus bars embedded therein.	Miscellaneous
14.	Window for broad bandwidth electromagnetic signal transmission and method of construction thereof	4613540	9/23/86	US	Window for Electro-magnetic signal transmission having broad band width capability.	Composite Materials
15.	High temperature polyamide processing aid	4624978	11/25/86	US	High temperature processing aid for melt processing polyamide polymers	Microwave & Circuit Materials

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16.	Co-solvent accelerator for conversion of polyamide-acid solution to polyamide	4639485	1/27/87	US	CIP of 586, 221 comprises high boiling pyrrolidone-based solvents	Microwave & Circuit Materials
17.	Solderless connection technique between data/servo flex circuits and magnetic disc heads	4645280	2/24/87	US	Technique for providing a solderless connection between data/servo flex circuits and magnetic heads in disc drives is presented.	FID
18.	Solderless connector technique (includes case 84V)	4647125	3/3/87	US	Utilizes the pressure mating of contact areas with the added advantage of a wiping or cleaning action on contacting surfaces, achieved by bending or crimping the two layers adjacent to contact areas.	FID
19.	Solderless Connection Apparatus	4655524	4/7/87	US	Solderless connector wherein mechanical means applies a force against an elastomeric element to effect electrical contact between the terminal portion of printed circuit devices.	FID
20.	Heat stable phenolic composition	4659758	4/21/87	US	A phenolic compound has improved retention of useful properties over long periods of time at elevated temperature.	Molding Materials

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21.	Rolled delay line of the coplanar line type	4675625	6/23/87	US	A time delay device for adjusting the arrival time of an electronic signal at a specified area in a circuit pattern.	Miscellaneous
22.	Electronic signal time delay line/carrier assembly	4675626	6/23/87	US	Mounting or carrying device utilized in conjunction with electronic component suitable for use on printed wiring board	Miscellaneous
23.	High permeability rolled delay line of the coplanar type	4675627	6/23/87	US	Time delay device for adjusting the arrival time of an electronic signal at a specific area in a circuit pattern.	Miscellaneous
24.	Encapsulated electrolumin- escent lamp	4687968	8/18/87	US	Barrier for an el lamp having a phosphor-particle	Durel
25.	Solderless connection technique and apparatus	4691972	9/8/87	US	A first embodiment is characterized by wrapping separated layers of a two or more layer flexible circuit about an elastomeric resilient member	FID
26.	Complex block multipolymer surfactants	4692476	9/8/87	US	Complex block multipolymer surfactants comprising a siloxane polymer terminated with groups containing a hydroxyl.	Poron
27.	Solderless connector technique and apparatus	4717345	1/5/88	US	To establish electrical contact between flex circuit and another circuit device	FID

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28.	Heat stable phenolic composition	4725650	2/16/88	US	A novel phenolic compound preferably a glass reinforced phenolformaldehyde with mineral fillers has incorporated therein elastomers which primarily undergo crosslinking on oxidative aging.	Molding Materials
29.	Connector arrangement	4768971	9/6/88	US	System for electrically interconnecting conductive paths of a first circuit with corresponding paths of a second circuit.	FID
30.	Process for the manufacture of multilayer circuits with dynamic flexing regions and the flex circuit	4812213	3/14/89	US	A multilayer through-hole contacted flexible circuit and method of manufacture having a laminar construction which is strictly symmetrical in the bending areas and which has no exposed adhesive.	FID
31.	El lamp having a polymer phosphor layer formed in substantially a non cross linked state	4816717	3/28/89	US	El lamps that contain light-emitting phosphors and covering layers which have unusual durability, light transmissivity and resistance to moisture using simple screen printing and doctor blade coating techniques.	Durel

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32.	Connector arrangement for electrically interconnecting first and second arrays of pad-type connectors	4830623	5/16/89	US	For electrically inter-connecting an integrated circuit chip unit	FID
33.	Backlighting for electro-optical passive displays and transfective layer useful therefrom	4832459	5/23/89	US	In an el lamp having a phosphor layer disposed between corresponding lamp electrodes	Durel
34.	Electrical substrate material	4849284	7/18/89	US	Ceramic filled fluoropolymer based electrical substrate material for forming rigid printed wiring board substrate materials and integrated circuit chip carriers exhibits	Composite Materials
35.	Electroluminescent lamp	4853594	8/1/89	US	An electroluminescent lamp including a phosphor layer disposed between corresponding lamp electrodes	Durel
36.	Electrical connector	4913656	4/3/90	US	An electrical connector is presented for effecting a non-wiping pressure mated connection.	FID
37.	Method of laser drilling fluoropolymer materials	4915981	4/10/90	US	Method of ablating fluoropolymer composite materials is presented wherein small holes can be formed in laminate materials using UV lasers.	Microwave & Circuit Materials



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38.	Process for the manufacture of multilayer circuits with dynamic flexing regions and the flex circuit	4945029	7/31/90	US	Multilayer through-hole contacted flexible circuit and method of manufacture having laminar construction which is symmetrical in the bending area and which has no exposed adhesive.	FID
39.	Bus bar tab connector	4966563	10/30/90	US	Connector for electrically connecting a pair of rigid tabs protruding from electric power distribution components	Power Distribution
40.	Coaxial cable insulation and coaxial cable made therefrom	4987274	1/22/91	US	Polymer based film with superior thermal stability of dimensions and dielectric constant	Microwave & Circuit Materials
41.	Interconnect device and method of manufacture thereof	4995941	2/26/91	US	Interconnect device for electronic components	FID and Composite Materials
42.	Shape Retaining Flexible Electrical Circuit	4997702	3/05/91	US	Printed Circuit Board composed of an epoxy impregnated nonwoven web substrate laminated to electrically conductive sheets.	Bend Flex Microwave & Circuit Materials
43.	Flexible circuit connector	5009607	4/23/91	US	Solderless connector comprised of a male plug and a female adapter	FID
44.	Ceramic filled fluoropolymeric composite material	5024871	6/18/91	US	A composite material is presented comprised of a ceramic filled fluoropolymer	Composite Materials

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45.	Method of manufacturing a multilayer circuit board	5046238	9/10/91	US	Method of fabricating multilayer circuit.	Microwave & Circuit Materials
46.	Interconnect device and method of manufacture thereof	5049974	9/17/91	US	Interconnect device for electronic components such as IC's or MCM's and the like.	FID
47.	Multilayer interconnect device and method of manufacture	5053921	10/1/91	US	Interconnect device for integrated circuits, multichip modules, etc.	FID
48.	Ceramic filled fluoropolymeric composite material	5061548	10/29/91	UC	PTFE composite filled with approx. 50% by volume ceramic filler has improved rheology for filling voids in some types of multilayer circuit board constructions without excessive increase in Z-Axis CTE.	Composite Materials
49.	Interconnect device having coplanar contact bumps and method of manufacture thereof	5072520	12/17/91	US	An interconnect or circuit device having coplanar contact bumps and the method of manufacture are presented.	FID
50.	Thermoplastic composite material	5077115	12/31/91	US	A thermoplastic composite material comprises a thermoplastic matrix which is highly filled with a coated ceramic filler.	Composite Materials

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<u>PATENT</u>		<u>PATENT NUMBER</u>	<u>DATE ISSUED</u>	<u>COUNTRY</u>	<u>NATURE</u>	<u>DIVISION</u>
51.	Multilayer interconnect device and method of manufacture	5097393	3/17/92	US	Device has at least three layers of circuitry, one for signal transmission and two for voltage planes.	FID
52.	Flexible printed circuit with raised contacts	5147208	9/15/92	US	A flexible circuit is disposed on a substrate which includes a pattern comprised of a plurality of raised lands.	FID
53.	Electrical substrate material	5149590	9/22/92	US	Ceramic filled fluoropolymer based electrical substrate material	Composite Materials
54.	Coated filler particles and method for making same	5182173	1/26/93	US	Composite material with improved toughness is achieved by coating the surface of inorganic fillers / fibers.	Miscellaneous

# PATENT APPLICATIONS

<u>PATENT</u>		<u>STATUS</u>	<u>DATE FILED</u>	<u>SERIAL NUMBER</u>	<u>COUNTRY</u>	<u>NATURE</u>	<u>Division</u>
1.	Dielectric composite	Filed	02/21/90	07/483502	US	Composite material comprises a polymeric matrix.	Composite Materials
2.	Metallized polymeric substrates	Allowed	05/08/90	07/522375	US	Metallized fluoropolymer surface is achieved by sodium etching	Composite Materials
3.	Shape retaining flexible electric circuit and method of manufacture thereof	Filed	5/15/90	07/524373	US	PCB composed of polymer impregnated nonwoven laminate to electric conductive sheets	Microwave & Circuit Materials
4.	Low volume fraction ceramic filled fluoropolymeric composite material	Filed	7/17/91	07/641427	US	Ceramic is coated with a silane and has a volume % fraction of 26-45	Composite Materials
5.	Low volume fraction ceramic filled fluoropolymeric composite material	Filed	5/22/91	07/703633	US	A composite material comprised of a ceramic filled fluoropolymer	Composite Materials
6.	Particulate filled composite film and method for making same	Filed	5/24/92	07/704983	US	Polymer matrix composite film.	Composite Materials
7.	Particulate filled composite film and method for making same	Filed	5/24/91	07/705624	US	A fluoropolymer matrix.	Composite Materials
8.	Particulate filled composite film and method for making same	Filed	5/24/91	07/705625	US	Porous fluoropolymer film matrix	Composite Materials
9.	Electroluminescent lamp	Filed	6/24/92	07/720224	US	El lamp with a coated substrate panel.	Durel
10.	Lead Attachment for Electroluminescent Lamp	Filed	08/20/91	07/747846	US	An el sheet form lamp provides an improved electrical connection.	Microwave & Circuit Materials
11.	Flexible circuit having flexing section of reduced stiffness and method of manufacturing thereof	Allowed	9/11/91	07/756993	US	Flex circuit having a flexing, cyclic bending, section of lower stiffness than adjacent parts of the circuit.	FID

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# **PATENT APPLICATIONS**

<u>PATENT</u>		<u>STATUS</u>	<u>DATE FILED</u>	<u>SERIAL NUMBER</u>	<u>COUNTRY</u>	<u>NATURE</u>	<u>Division</u>
12.	Thin flexible epoxy based circuit laminate	Filed	10/30/91	07/784501	US	Single and double clad flex circuit mats.	Microwave & Circuit Material
13.	Dielectric composite	Filed	12/13/91	07/808206	US	A composite material comprises a thermoplastic fluoropolymer matrix.	Composite Materials
14.	Cyanate ester microwave material	Filed	03/13/92	07/847497	US	New improved laminated microwave circuit material.	Microwave & Circuit Material
15.	Multichip module substrate and method of manufacture	Filed	03/09/92	07/847895	US	MCM substrate product.	Miscellaneous
16.	Filled blended fluoropolymeric circuit substrate material and method of manufacture thereof	Filed	06/11/92	07/897244	US	Fluoropolymeric matrix filled with coated ceramic filler.	Composite Materials
17.	Deactivated edge clip	Filed	06/24/92	07/903600	US	EI lamp with a coated substrate panel forming an electrode	Dural
18.	Thin flexible epoxy based circuit laminates	Filed	07/29/92	07/922110	US	Single and double clad flex circuit materials comprise an epoxy impregnated thermally stable web laminated to electrically conductive sheets	Microwave & Circuit Materials
19.	Method of manufacturing a multilayer circuit board	Filed	09/01/92	07/939105	US	A plurality of circuit layers comprised of a dielectric substrate having a circuit formed thereon.	Microwave & Circuit Materials
20.	Fluoropolymer lamination process	Filed	10/13/92	07/960518	US	Method for low cost lamination of fluoropolymeric composites, preferably for use as electrical substrate materials	Circuit Material & Composite Materials

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**PATENT APPLICATIONS**

<u>PATENT</u>		<u>STATUS</u>	<u>DATE FILED</u>	<u>SERIAL NUMBER</u>	<u>COUNTRY</u>	<u>NATURE</u>	<u>Division</u>
21.	Area Array Interconnect	Filed	11/6/92	07/973229	US	X-ray _____ interconnect device such as of the tab type has a plurality of input/output I/O leads for connection to an electronic device such as an IC.	FID
22.	Electroluminescent Lamp Devices	Filed	12/16/92	07/991295	US	Modular el lamp with selectively lit areas.	Durel
23.	Method of manufacturing multi-layer circuit boards	Filed	12/31/92	07/999493	US	A plurality of stacked circuit layers comprise a polymeric substrate capable of bonding	Microwave & Circuit Materials
24.	Method of manufacturing a multilayer circuit board	Filed	12/31/92	07/999494	US	A plurality of stacked circuit layers	Microwave & Circuit Materials

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ADDENDUM TO  
PATENT APPLICATIONS

PATENT	STATUS	DATE FILED	SERIAL NUMBER	COUNTRY	NATURE
Cyanate Ester Microwave Circuit Material	Filed	1/28/93	012,487	U.S.	New improved laminated microwave circuit material.
Planar Fuse Panel	Filed	1/1/93	025,043	U.S.	Fuse holder that is directly formed in connecting power distribution circuitry.

Microwave  
+ Cir. Mats.  
Div.

PDP

**SCHEDULE OF PATENTS AND PATENT APPLICATIONS**

<u>PATENT NO.</u>	<u>PATENTEE</u>	<u>ISSUE DATE</u>	<u>TITLE</u>
4,438,561	Mueller	3/27/84	METHOD OF REWORKING PRINTED CIRCUIT BOARDS
4,468,074	Gordon	8/28/84	SOLDERLESS CONNECTION TECHNIQUE AND APPARATUS
4,645,280	Gordon et al	2/24/87	SOLDERLESS CONNECTION TECHNIQUE BETWEEN DATA/SERVO FLEX CIRCUITS AND MAGNETIC DISC HEADS
4,647,125	Landi et al	3/3/87	SOLDERLESS CONNECTOR TECHNIQUES
4,655,524	Etzel	4/7/87	SOLDERLESS CONNECTION APPARATUS
4,691,972	Gordon	9/8/87	SOLDERLESS CONNECTION APPARATUS
4,717,345	Gordon et al	1/5/88	SOLDERLESS CONNECTOR TECHNIQUE AND APPARATUS
4,768,971	Simpson	9/6/88	CONNECTOR ARRANGEMENT



SCHEDULE B - (2 of 3)

<u>PATENT NO.</u>	<u>PATENTEE</u>	<u>ISSUE DATE</u>	<u>TITLE</u>
4,812,213	Barton et al	3/14/89	PROCESS FOR THE MANUFACTURE OF MULTILAYER CIRCUITS WITH DYNAMIC FLEXING REGIONS AND THE FLEXIBLE CIRCUITS MADE THEREFROM
4,830,623	Owens et al	5/16/89	CONNECTOR ARRANGEMENT FOR ELECTRICALLY INTERCONNECTING FIRST AND SECOND ARRAYS OF PAD- TYPE CONTACTS
4,913,656	Gordon et al	4/3/90	ELECTRICAL CONNECTOR
4,945,029	Bronnenberg	7/31/90	PROCESS FOR THE MANUFACTURE OF MULTILAYER CIRCUITS WITH DYNAMIC FLEXING REGIONS AND THE FLEXIBLE CIRCUITS MADE THEREFROM
5,009,607	Gordon et al	4/23/91	FLEXIBLE CIRCUIT CONNECTOR
5,147,208	Bachtler	9/15/92	FLEXIBLE PRINTED CIRCUIT WITH RAISED CONTACTS

<u>PATENT NO.</u>	<u>PATENTEE</u>	<u>ISSUE DATE</u>	<u>TITLE</u>
5,219,640	Gazit et al	6/15/93	FLEXIBLE CIRCUIT HAVING FLEXING SECTION OF REDUCED STIFFNESS, AND METHOD OF MANUFACTURE THEREOF
USSN 634,620	Rubenstein et al	Filing Date 12/27/90	ELECTRICAL CIRCUIT INTERCONNECTION
Re. 34,190	Rubinstein	3/9/93	CONNECTOR ARRANGEMENT
4849014	Simpson, et al	1/20/90	METHOD OF FORMING CONTACT BUMPS IN CONTACT PADS