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EDIFICIO SISKI
CARRERA 4 No. 72 - 35
BOGOTÁ 8, COLOMBIA

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SUPERINDUSTRIA Y COMERCIO

Radicación : 01009896 00000002

Folios: 52

Fecha (AMD): 2001-06-01 17:28:26

Tramite : 002 PATENTES D 1 REGISTRO/ 444 REPUESTA

Remite: 2020 DIVISION DE NUEVAS CREACIONES

Señora Jefe de la
DIVISION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

Referencia : Expediente No. 01.009.896
Solicitante : **BAXTER INTERNATIONAL INC.**
Asunto : Solicitud de patente para: **"MÉTODO Y ,
APARATOS PARA MONITOREAR Y CONTROLAR
TERAPIA DE DIÁLISIS PERITONEAL"**
Fecha de la solicitud : 9 de febrero de 2001.

TRAMITE: 002 - EVENTO: 001 - ACTUACION: 444

1. Yo, Emilio FERRERO, obrando como apoderado del solicitante en el asunto antes identificado, me refiero al oficio número 1073, notificado por fijación en lista del 19 de abril de 2001.

2. Mediante el oficio número 1073 se puso en conocimiento del solicitante el informe que contiene las observaciones hechas por su Despacho sobre la presente solicitud de patente. Atiendo a las observaciones de la manera siguiente:

2.1. Cesión de inventores. Presento junto con este escrito el documento en que consta la cesión del derecho a la patente otorgado por los inventores al solicitante, de acuerdo con lo requerido por ese Despacho.

2.2. Copia Certificada. Presento con este escrito copia certificada de la solicitud de patente estadounidense número 09/501,778 del 10 de febrero de 2000, en la cual se basa la reivindicación de la prioridad.

3. Puesto que se han atendido a cabalidad las observaciones hechas por su Despacho sobre la presente solicitud de patente, atentamente solicito que se continúe su tramitación.

Bogotá, - 1 JUN. 2001
Señora Jefe,

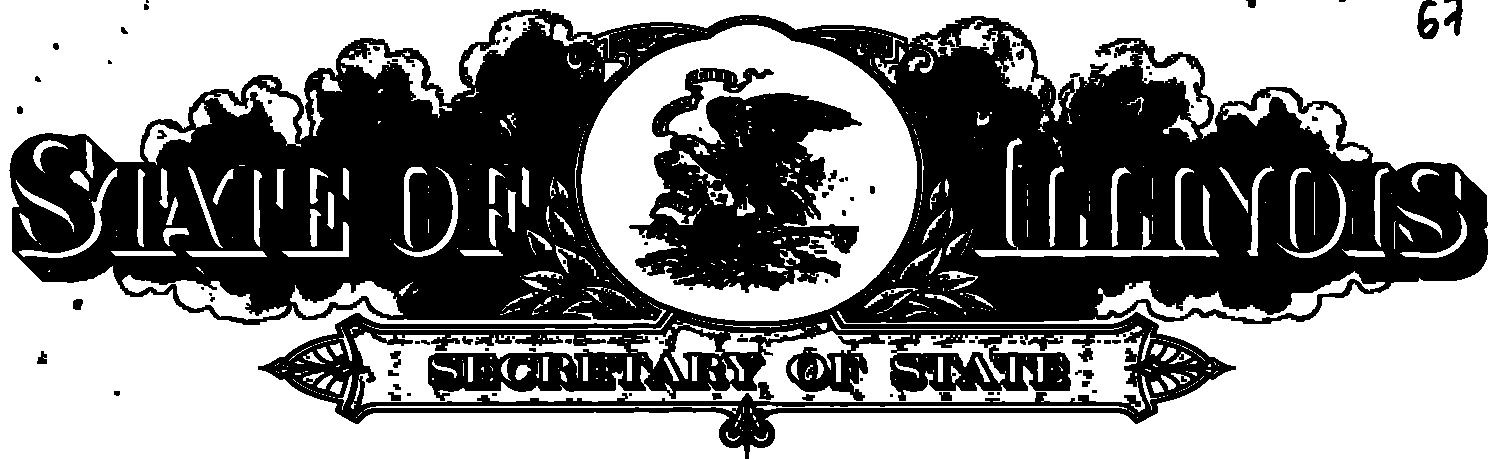


EMILIO FERRERO

T.P.A. No. 31.929

COLO 05873-801-029-5

 MRE-286



SPRINGFIELD, ILLINOIS

APOSTILLE

(Convention de La Haye du 5 Octobre 1961)

1. Country: United States of America
This public document
2. has been signed by KIMBERLY R. BARDWELL
3. acting in the capacity of NOTARY PUBLIC, LAKE COUNTY
4. bears the seal/stamp of STATE OF ILLINOIS

Certified

5. Springfield, Illinois
6. MARCH 16, 2001
7. by the Secretary of State, State of Illinois
8. No. 47495
9. Seal/Stamp:
10. Signature:

Jesse White

JESSE WHITE
SECRETARY OF STATE
STATE OF ILLINOIS

AFFIDAVIT OF CHARLES R. MATTENSON

I, Charles R. Mattenson, having been duly sworn, depose and state as follows:

- 1. I am an attorney licensed to practice law in the State of Illinois, and before the United States Patent and Trademark Office under Registration No. 30,660.
- 2. I am employed as an attorney by Baxter International, Inc. ("Baxter").
- 3. One of my responsibilities at Baxter is the responsibility for the United States patent application identified below and all applications foreign to the United States based on the United States application identified below:

Inventors:	Robert Warren Childers	Vital Eerlingen
	Patrick Balteau	Duane Belongie
U.S. Serial No.:	09/501,778	
U.S. Filing Date:	February 10, 2000	
Title:	METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL DIALYSIS THERAPY	
Our Reference:	DI-5429	

4. I have personally reviewed the original Assignment assigning to Baxter International Inc. the above identified United States application and all applications foreign to the United States based on the above-identified United States application.

5. The photocopy attached hereto is a true and accurate reproduction of the original Assignment assigning to Baxter International Inc. the above identified United States application and all applications foreign to the United states based on the United States application identified above.

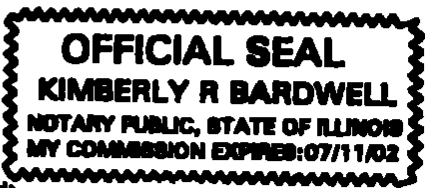
FURTHER AFFIANT SAYETH NOT.

Date: March 3, 2001

By: 
Charles R. Mattenson

BAXTER INTERNATIONAL INC.
One Baxter Parkway
Law Department, 3-3E
Deerfield, Illinois 60015, USA

On this 5th day of March 2001, before me, a Notary Public, appeared Charles R. Mattenson, to me personally known to be the person signing this affidavit, who, being duly sworn, deposes and states that he is the person whose signatures appears above and he attests to the fact that the statements made above are true and complete to the best of his/her knowledge and belief.

Seal: 

G/krb/5456a/fdt


Notary Public



69 7
UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

MAY 10, 2000

BAXTER INTERNATIONAL INC.
CHARLES R. MATTENSON
ONE BAXTER PARKWAY
DEERFIELD, IL 60015

PTAS

RECEIVED

MAY 23 2000

Renal Law Department



101292840A

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/10/2000

REEL/FRAME: 010608/0894
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

CHILDERS, ROBERT WARREN

DOC DATE: 11/10/1999

ASSIGNOR:

EERLINGEN, VITAL

DOC DATE: 11/10/1999

ASSIGNOR:

BALTEAU, PATRICK

DOC DATE: 11/10/1999

ASSIGNOR:

BELONGIE, DUANE

DOC DATE: 11/10/1999

ASSIGNEE:

BAXTER INTERNATIONAL INC.
ONE BAXTER PARKWAY
DEERFIELD, ILLINOIS 60015

SERIAL NUMBER: 09501778
PATENT NUMBER:

FILING DATE: 02/10/2000
ISSUE DATE:

MARGARET LASALLE, PARALEGAL
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

FORM PTO-1085

1/31/92

03-17-2000



EET

U.S. DEPARTMENT OF COMMERCE

Patent and Trademark Office

To the Honorable Commissioner

101292840

ached original documents or copy thereof.

1. Name of conveying party(ies):

Robert Warren Childers
Vital Eerlingen
Patrick Belteau
Duane Belongie

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No

3. Nature of conveyance:

- ☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Other _____

Execution Date November 10, 1999

2. Name and address of receiving party(ies):

Name: Baxter International Inc.

Internal Address: _____

Street Address: One Baxter ParkwayCity: Deerfield State: IL Zip: 60015Additional Name(s) & Address(es) attached ☐ Yes ☒ No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: 11/10/99

A. Patent Application No.(s)

B: Patent No.(s)

Atty. Docket No. DI-5429

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Charles R. Mattenson

Baxter International Inc.
Renal Division
One Baxter Parkway
Deerfield, IL 60015

6. Total number of applications and patents involved

17. Total Fee (37 CFR 3.41) \$ 40.00

- ☒ Enclosed
☒ Authorized to be charged to deposit account any
Additional fees

8. Deposit Account Number:

02-1444

(Attach duplicate copy of this page if paying by deposit account)

02/16/2000 DEBITED 00000144 09501778

DO NOT USE THIS SPACE

(40.00)

9. 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.

ROBERT M. BARRETT (Reg. No. 30,142)

Name of Person Signing

Signature

February 10, 2000

Date

Total number of pages comprising cover sheet: 2

Mail documents to be recorded and required cover sheet information to:

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

Serial No. ⁽¹⁾ _____

Filed ⁽¹⁾ _____

In consideration of ONE DOLLAR and other good and valuable considerations, the receipt and sufficiency whereof are hereby acknowledged, we hereby assign to BAXTER INTERNATIONAL INC. (hereinafter referred to as "assignee"), a corporation of Delaware, having a principal place of business at DEERFIELD, ILLINOIS, its successors, legal representatives and assigns, the entire right, title and interest throughout the world in our invention or improvements in

(2) **"METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL DIALYSIS THERAPY"**

and in the application for Letters Patent of the United States therefor, executed by each of us individually on the date(s) indicated below and any and all other United States applications and applications in any and all countries which we may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States or of any other country which may be obtained on any of the said applications, and in any release or extension thereof.

We hereby authorize and request the Commissioner of Patents to issue said Letters Patent to said BAXTER INTERNATIONAL INC. We hereby authorize and request the attorneys of record in said application to insert in this assignment the date and serial number of said application when officially known.

We warrant ourselves to be the owners of the interest herein assigned and to have the right to make this assignment; and further warrant that there are no outstanding prior assignments, licenses, or other rights in the interest herein assigned.

For said considerations we hereby agree, upon the request and at the expense of said assignee, its successors, legal representatives and assigns, to execute any and all divisional, continuation, and renewal applications for said invention or improvements, and any necessary oath or supplemental oath or affidavit relating thereto, and any application for the release or extension of any Letters Patent that may be granted upon said application that said assignee, its successors, legal representatives and assigns may deem necessary or expedient, and for the said considerations we further agree, upon the request of said assignee, its successors, legal representatives and assigns, in the event of said application or any division thereof, or Letters Patent issued thereon, or any release or application for the release thereof becoming involved in interference, to cooperate to the best of our ability with said assignee, its successors, legal representatives and assigns in the matters of preparing and executing the preliminary statement and giving and producing evidence in support thereof. We further agree to perform, upon such request, any and all affirmative acts to obtain Letters Patent, and vest all rights therein hereby conveyed in the said assignee, its successors, legal representatives and assigns whereby said Letters Patent will be held and enjoyed by the said assignee, its successors, legal representatives and assigns to the end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made, and for the said considerations we hereby also assign to said assignee, its successors, legal representatives and assigns the entire right, title and interest in said invention or improvements for any and all foreign countries and the right of priority for patent and utility model applications in all countries arising under any applicable international convention for the protection of industrial property and/or any internal priority legislation of such countries, and we further agree upon the request of said assignee, its successors, legal representatives and assigns to execute any and all documents that shall be required to be executed in connection with any and all applications for foreign Letters Patent therefor, including the prosecution thereof, and to execute any and all documents necessary to invest title in said foreign applications and patents in said assignee.

WITNESS our hand and seal

Date 11/10/99 Signature Robert Warren Childers

(2) Typed Name: Robert Warren Childers

(4) State of FLORIDA, County of PINELLAS
Signed before me on this 10 day of November, 1999
by Robert Warren Childers

Inventor

Date _____ Signature _____

(2) Typed Name: Vital Berlingen

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Vital Berlingen

Inventor

Rose M. Larose
Notary Public

My Commission CC846301
Expires May 12, 2001

Notary Public

Date _____ Signature _____

(2) Typed Name: Patrick Balteau

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Patrick Balteau

Inventor

Date _____ Signature _____

(2) Typed Name: Duane Belongie

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Duane Belongie

Inventor

Notary Public

Notary Public

Serial No. (1) _____

Filed (1) _____

In consideration of ONE DOLLAR and other good and valuable considerations, the receipt and sufficiency whereof are hereby acknowledged, we hereby assign to BAXTER INTERNATIONAL INC. (hereinafter referred to as "assignee"), a corporation of Delaware, having a principal place of business at DEERFIELD, ILLINOIS, its successors, legal representatives and assigns, the entire right, title and interest throughout the world in our invention or improvements in

(2) "METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL

DIALYSIS THERAPY"

and in the application for Letters Patent of the United States therefor, executed by each of us individually on the date(s) indicated below and any and all other United States applications and applications in any and all countries which we may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States or of any other country which may be obtained on any of the said applications, and in any release or extension thereof.

We hereby authorize and request the Commissioner of Patents to issue said Letters Patent to said BAXTER INTERNATIONAL INC.

We hereby authorize and request the attorneys of record in said application to insert in this assignment the date and serial number of said application when officially known.

We warrant ourselves to be the owners of the interest herein assigned and to have the right to make this assignment; and further warrant that there are no outstanding prior assignments, licenses, or other rights in the interest herein assigned.

For said considerations we hereby agree, upon the request and at the expense of said assignee, its successors, legal representatives and assigns, to execute any and all divisional, continuation, and renewal applications for said invention or improvements, and any necessary oath or supplemental oath or affidavit relating thereto, and any application for the release or extension of any Letters Patent that may be granted upon said application that said assignee, its successors, legal representatives and assigns may deem necessary or expedient, and for the said considerations we further agree, upon the request of said assignee, its successors, legal representatives and assigns, in the event of said application or any division thereof, or Letters Patent issued thereon, or any release or application for the release thereof becoming involved in interference, to cooperate to the best of our ability with said assignee, its successors, legal representatives and assigns in the matters of preparing and executing the preliminary statement and giving and producing evidence in support thereof. We further agree to perform, upon such request, any and all affirmative acts to obtain Letters Patent, and vest all rights therein hereby conveyed in the said assignee, its successors, legal representatives and assigns whereby said Letters Patent will be held and enjoyed by the said assignee, its successors, legal representatives and assigns to the end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made, and for the said considerations we hereby also assign to said assignee, its successors, legal representatives and assigns the entire right, title and interest in said invention or improvements for any and all foreign countries and the right of priority for patent and utility model applications in all countries arising under any applicable international convention for the protection of industrial property and/or any internal priority legislation of such countries, and we further agree upon the request of said assignee, its successors, legal representatives and assigns to execute any and all documents that shall be required to be executed in connection with any and all applications for foreign Letters Patent therefor, including the prosecution thereof, and to execute any and all documents necessary to invest title in said foreign applications and patents in said assignee.

WITNESS our hand and seal

Date _____ Signature _____
(3) Typed Name: Robert Warren Childers

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Robert Warren Childers
Inventor

Notary Public

Date _____ Signature _____
(3) Typed Name: Vital Berlingen

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Vital Berlingen
Inventor

Notary Public

Date _____ Signature _____
(3) Typed Name: Patrick Balteau

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Patrick Balteau
Inventor

Notary Public

Date _____ Signature _____
(3) Typed Name: Duane Belongie

(4) State of _____, County of _____
Signed before me on this _____ day of _____, 19____
by Duane Belongie
Inventor

Notary Public

See reverse side for instructions to signatories to this form.

THIS DOCUMENT MUST BE EXECUTED IN THE PRESENCE OF A NOTARY PUBLIC

TRADUCCIÓN OFICIAL N° 300301 al español de un documento escrito en inglés, preparada por Jaime Armando Garavito Burgos, Traductor Oficial debidamente reconocido por el Ministerio de Relaciones Exteriores y aprobado por el Ministerio de Justicia de la República de Colombia mediante Resolución N° 034 de enero 11 de 1983

ESTADO DE ILLINOIS
(Aparece escudo en la mitad del título)
SECRETARÍA DE ESTADO
SPRINGFIELD, ILLINOIS
APOSTILLA
(Aparece leyenda en Francés)

1. País: Estados Unidos de América
Este documento público
2. ha sido firmado por KIMBERLY R. BARDWELL
3. quien actúa en calidad de NOTARIO PÚBLICO, CONDADO DE LAKE
4. lleva el sello del ESTADO DE ILLINOIS

Certificado

5. Springfield, Illinois
6. MARZO 16, 2001
7. por Secretaría de Estado, Estado de Illinois
8. N° 47495
9. Sello: (Aparece sello en relieve)
10. Firma: (firmado) JESSE WHITE
SECRETARÍA DE ESTADO
ESTADO DE ILLINOIS

I-168

DECLARACIÓN JURAMENTADA DE CHARLES R. MATTENSON

Yo, Charles R. Mattenson, debidamente juramentado, declaro y manifiesto lo siguiente:

1. Soy abogado autorizado para ejercer en el Estado de Illinois y ante la Oficina de Patentes y Marcas de los Estados Unidos bajo el Registro N° 30.660.

2. Me encuentro empleado como apoderado de Baxter International, Inc. ("Baxter").

3. Una de mis responsabilidades en Baxter tiene que ver con la solicitud de patente en los Estados Unidos identificada abajo y todas las solicitudes en otros países basadas en la solicitud de Estados Unidos arriba identificada:

Inventores: Robert Warren Childers Vital Eerlingen
Patrick Balteau Duane Belongie

Nº de Serie en los EE.UU.: 09/501.778

Fecha de presentación en los EE.UU.: Febrero 10, 2000

Título: MÉTODO Y APARATO PARA MONITOREAR Y CONTROLAR
TERAPIA DE DIÁLISIS PERITONEAL

Nuestra referencia: DI-5429

4. He revisado personalmente el Traspaso original mediante el cual se cede a Baxter International Inc. la solicitud en Estados Unidos arriba identificada y todas las solicitudes en otros países basadas en la solicitud de Estados Unidos arriba identificada.

5. La fotocopia anexa es una reproducción fiel y exacta del Traspaso original mediante el cual se cede a Baxter International Inc. la solicitud en Estados Unidos arriba identificada y todas las solicitudes en otros países basadas en la solicitud de Estados Unidos arriba identificada.

EL DECLARANTE NO AFIRMA NADA MÁS.

Fecha: Marzo 03, 2001 (firma ilegible)
Charles R. Mattenson

BAXTER INTERNATIONAL INC.
One Baxter Parkway
Law Department, 3-3E (Departamento Legal, 3-3E)
Deerfield, Illinois 60015, USA

Hoy 5 de marzo del 2001, ante mí, Notario Público, compareció Charles R. Matteson, a quien conozco personalmente como la persona que firma esta declaración juramentada, quien después de prestar el debido juramento declara y manifiesta que es la persona cuya firma aparece arriba y da fe del hecho de que las declaraciones hechas arriba son verdaderas y completas según su leal saber y entender.

Sello: (Aparece sello en tinta que dice: "SELLO OFICIAL; KIMBERLY R. BARDWELL, NOTARIO PÚBLICO, ESTADO DE ILLINOIS; MI COMISIÓN VENCE EL 07/11/02")

(firmado) Kimberly R. Bardwell, Notario Público

G/kxb/5456afdc

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS
Oficina de Patentes y Marcas
SUBSECRETARIO Y COMISIONADO DE PATENTES Y MARCAS
Washington, D.C. 20231
(Aparece código de barras)
101292840A

(Aparece escudo del Departamento de Comercio de los Estados Unidos de América)

MAYO 10, 2000

PTAS (SIC)

BAXTER INTERNATIONAL INC.
CHARLES R. MATTENSON
RENAL DIVISION (DIVISIÓN RENAL)
ONE BAXTER PARKWAY
DEERFIELD, IL 60015

(Aparece sello que dice:
"RECIBIDO MAYO 23, 2000
Departamento Legal Renal")

OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS
NOTA DE INSCRIPCIÓN DEL DOCUMENTO DE CESIÓN

EL DOCUMENTO ANEXO HA SIDO REGISTRADO POR LA DIVISIÓN DE CESIONES DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS. UNA COPIA MICROFILMADA COMPLETA SE ENCUENTRA DISPONIBLE EN LA SALA DE BÚSQUEDA DE CESIONES EN EL NÚMERO DE CARRETE Y

89
77

CUADRO ABAJO REFERENCIADOS.

FAVOR REVISAR TODA LA INFORMACIÓN CONTENIDA EN ESTA NOTIFICACIÓN. LA INFORMACIÓN CONTENIDA EN ESTA NOTIFICACIÓN DE INSCRIPCIÓN REFLEJA LOS DATOS PRESENTES EN EL SISTEMA DE CESIONES DE PATENTES Y MARCAS. EN CASO DE ENCONTRAR CUALQUIER ERROR O DE TENER PREGUNTAS CONCERNIENTES A ESTA NOTIFICACIÓN, PUEDEN CONTACTAR AL EMPLEADO CUYO NOMBRE APARECE EN ESTA NOTIFICACIÓN AL 703-308-9723. FAVOR ENVIAR LA SOLICITUD DE CORRECCIÓN A: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, (OFICINA DE PATENTES Y MARCAS DE LOS EE.UU., DIVISIÓN DE CESIONES, CASILLA DE CESIONES) CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON D.C. 20231

FECHA DE INSCRIPCIÓN: 02/10/2000 CARRETE/ CUADRO: 010608/0894

NÚMERO DE PÁGINAS: 3

MEMORIAL: TRASPASO DE LOS INTERESES DEL CEDENTE (VÉASE DOCUMENTO PARA DETALLES).

CEDENTE:

CHILDERS, ROBERT WARREN FECHA DEL DOC.: 11/10/1999

CEDENTE:

EERLINGEN, VITAL FECHA DEL DOC.: 11/10/1999

CEDENTE:

BALTEAU, PATRICK FECHA DEL DOC.: 11/10/1999

CEDENTE:

BELONGIE, DUANE FECHA DEL DOC.: 11/10/1999

CESIONARIO:

BAXTER INTERNATIONAL INC.
ONE BAXTER PARKWAY
DEERFIELD, ILLINOIS 60015

NÚMERO DE SERIE: 09501778 FECHA DE PRESENTACIÓN: 02/10/2000

NÚMERO DE PATENTE: FECHA DE EXPEDICIÓN:

010608 / 0894

MARGARET LASALLE, PARALEGAL
DIVISIÓN DE CESIONES
OFICINA DE REGISTROS PÚBLICOS

(En el margen superior izquierdo de esta página aparece lo siguiente en manuscrito: "02/10/00" y en el margen derecho aparece SELLO que contiene lo siguiente: "jc511 U.S. PTO(slc) 09/501778 - código de barras - "02/10/00". En el margen inferior izquierdo aparece lo siguiente:

"03/16/2000 DCOATES 00000144 09501778
01 FC:581 (40.00 OP")

03-17-2000
(Aparece código de barras)

FORMATO PTO-1595
1/31/92

EET

DEPARTAMENTO DE COMERCIO
DE LOS ESTADOS UNIDOS

101292840

Oficina de Patentes y Marcas

Para el Honorable Comisionado de Patentes y Marcas: Favor registrar los documentos originales anexos o copia de los mismos.

1. Nombre del (de los) cedente(s): Robert Warren Childers Vital Eerlingen Patrick Balteau Duane Belongie ¿Se adiciona(n) nombre(s) adicional(es) de otra(s) parte(s)? ☐ Sí ☒ No	2. Nombre y dirección de la(s) parte(s) que recibe(n): Nombre: Baxter International Inc. Dirección Interna: _____ _____ Dirección: One Baxter Parkway _____ Ciudad: <u>Deerfield</u> Estado: IL Zip: <u>60015</u> Nombre(s) & Destinatario(s) adicional(es) anexos ☐ Sí ☒ No
3. Naturaleza del traspaso: ☒ Cesión ☐ Fusión ☐ Acuerdo de Seguridad ☐ Cambio de nombre ☐ Otro _____ Fecha de Celebración <u>Noviembre 10, 1999</u>	4. Solicitud(es) número(s) o patente(s) número(s): Si este documento se archiva junto con una nueva solicitud, la fecha de suscripción de la solicitud es: <u>11/10/99</u> A. Solicitud de Patente N° (s) B: Patente N°(s) Archivo del Apoderado N° DI-5429 09/501778 ¿Números adicionales anexos? ☐ Sí ☒ No

5. Nombre y dirección de la parte a quien debe enviarse la correspondencia concerniente al documento: Charles R. Mattenson Baxter International Inc. Renal Division One Baxter Parkway Deerfield, IL 60015	6. Número total de solicitudes y patentes Involucradas 1
	7. Tarifa Total (37 CFR 3.41 \$ 40.00) ☒ Adjunta ☒ Se autoriza cargar cualesquier tarifas adicionales en la cuenta de depósito
	8. Número de la Cuenta de Depósito: 02-1444
	(Anexe el duplicado de esta página si el pago se efectúa a través de la cuenta de depósito)

NO USE ESTE ESPACIO

9. Declaración y firma: <i>Según mi leal saber y entender, la anterior información es verdadera y correcta y cualquier copia anexa es una copia fiel del documento original.</i> ROBERT M. BARRETT (Reg. N° 30.142) (firma ilegible) Febrero 10, 2000 Nombre de la persona que firma Número total de páginas incluidas en la página remitora 3
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Cesión
(Inventores Mancomunados)

Serie N° (1) Presentada (1)

Por la contraprestación de UN DÓLAR y otras contraprestaciones buenas y valiosas, cuyo recibo y suficiencia se reconocen por medio del presente, cedemos a BAXTER INTERNATIONAL INC. (en adelante "el Cesionario"), una sociedad de Delaware, con oficina principal de negocios en DEERFIELD, ILLINOIS, sus sucesores, representantes legales y cesionarios, la totalidad del derecho, título e intereses en el mundo sobre nuestro

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(2) "MÉTODO Y APARATO PARA MONITOREAR Y CONTROLAR TERAPIA DE
DIÁLISIS PERITONEAL"

y en la solicitud de Títulos de Patente de los Estados Unidos para el mismo, suscrita por cada uno de nosotros individualmente en la(s) fecha(s) indicada(s) abajo y todas y cada una de las demás solicitudes de Estados Unidos y solicitudes en todos y cada uno de los países donde podamos presentarlas, ya sea a título individual o conjuntamente con otros, sobre dicho invento o mejoras y sobre todos y cada uno de los Títulos de Patente de los Estados Unidos o de cualquier otro país que puedan ser obtenidos sobre cualquiera de dichas solicitudes y en cualquier reexpedición o prórroga de los mismos.

Por medio del presente autorizamos y solicitamos al Comisionado de Patentes para que expida los mencionados Títulos de Patente a la mencionada BAXTER INTERNATIONAL, INC.

Por medio del presente autorizamos y solicitamos a los abogados de registro en dicha solicitud para que incluyan en esta cesión la fecha y número de serie de la mencionada solicitud cuando estos se conozcan oficialmente.

Certificamos que somos los propietarios de los intereses cedidos bajo el presente y que tenemos el derecho de hacer esta cesión. Certificamos también que no hay pendientes cesiones, licencias u otros derechos anteriores relativos a los intereses cedidos en virtud del presente.

Para las mencionadas contraprestaciones acordamos, a solicitud y a expensas del mencionado cesionario, sus sucesores,

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Fecha 11/10/99 (firmado) Robert Warren Childers

(3) Nombre impreso: Robert Warren Childers

(4) Estado de Florida, Condado de Pinellas

Firmado ante mí hoy 10 de noviembre de 1999

Robert Warren Childers

Inventor

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Rose M. Larose, Notario Público (Sello notarial en tinta)

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(3) Nombre impreso: Vital Eerlingen

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Inventor

Notario Público

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(3) Nombre impreso: Patrick Balteau

(4) Estado de _____, Condado de _____

Firmado ante mí hoy ____ de _____ de 19__

Patrick Balteau

Inventor

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Fecha _____ (firma ilegible) Duane Belongie

(3) Nombre impreso: Duane Belongie

(4) Estado de _____, Condado de _____

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Duane Belongie

Inventor

Notario Público

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COLO: 5873-801-029-5
WPCL5873 - ID # 277

Jaime A. Garavito B.
JAIME A. GARAVITO B.
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Por 034 de Enero 11 de 1983
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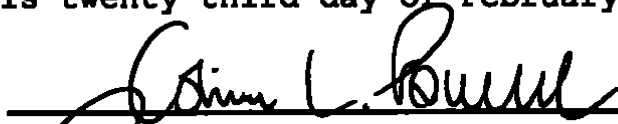


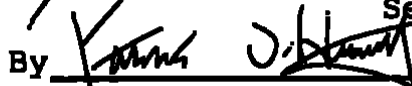
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Secretary of State

By 
Assistant Authentication Officer,
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*Issued pursuant to CHXIV, State of
Sept. 15, 1789, 1 Stat. 68-69; 22
USC 2657; 22USC 2651a; 5 USC
301; 28 USE 1733 et. seq.; 8 USC
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February 05, 2001

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APPLICATION NUMBER: 09/501,778

FILING DATE: February 10, 2000



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

N. WOODSON

Certifying Officer

UTILITY
PATENT APPLICATION
TRANSMITTAL

Attorney Docket No.

DI-6429

First Named Inventor or Application Identifier

Childers et al.

Express Mail Label No: EL 438 888 226 US

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

APPLICATION ELEMENTS

See MPEP chapter 800 concerning utility patent application contents.

1. ☒ Specification Total Pages 18
2. ☒ Drawing(s) (35 USC 113) Total Pages 6
3. ☒ Declaration and Power of Attorney Total Pages 4
 - a. ☒ Newly executed (original or copy) (Unexecuted)
 - b. ☐ Copy from prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 14 completed)
(Note Box 4 Below)
 - c. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting
inventor(s) named in the prior application,
see 37 CFR 1.63(d)(2) and 1.33(b).
4. ☐ Incorporation By Reference (usable if Box 3b is checked)
The entire disclosure of the prior application, from which a
copy of the oath or declaration is supplied under Box 3b,
is considered as being part of the disclosure of the
accompanying application and is hereby incorporated by
reference therein.

ACCOMPANYING APPLICATION PARTS

5. ☒ Assignment Papers (cover sheet & documentation)
Baxter International Inc.
6. ☐ Letter under 37 CFR 1.41(c).
7. ☐ English Translation Document (if applicable)
8. ☐ Information Disclosure Statement (IDS) (PTO-1448) ☐ Copies of IDS
Citations
9. ☐ Preliminary Amendment
10. ☒ Return Receipt Postcard (MPEP 803)
(Should be specifically itemized)
11. ☐ Small Entity ☐ Statement filed in prior application,
Statement(s) Status still proper and desired
12. ☐ Certified Copy of Priority Document(s)
13. ☐ Other: _____

14. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) ☐ of prior application No: _____

CLAIMS AS FILED

(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) BASIC FEE \$800.00
TOTAL CLAIMS	20	1	\$16.00	\$16.00
INDEPENDENT CLAIMS	05	3		
ANY MULTIPLE DEPENDENT CLAIMS? ☐ YES ☒ NO				
			TOTAL FILING FEE ->	\$708.00

☒ The Commissioner is hereby authorized to charge any additional fee which may be required in connection with this application, or credit any overpayment to ACCOUNT NO. 02-1444. A duplicate copy of this sheet is enclosed.

☒ A check in the amount of \$ 708.00 to cover the filing fee is enclosed.

15. CORRESPONDENCE ADDRESS

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SIGNATURE: _____

ROBERT M. BARRETT (Reg. No. 30,142)

DATE: February 10, 2000

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Childers et al. ATTY. DOCKET NO.: DI-5429
SERIAL NO: Unknown
FILED: Herewith
INVENTION: "METHOD AND APPARATUS FOR MONITORING AND
CONTROLLING PERITONEAL DIALYSIS THERAPY"

Assistant Commissioner for Patents

Washington, D.C. 20231

CERTIFICATE OF MAILING BY EXPRESS MAIL

Sir:

I hereby certify that the following documents relating to the above-identified application
were deposited in the United States Postal Service Express Mail "Post Office to Addressee" on
February 10, 2000:

1. Utility Patent Application Transmittal (in duplicate);
2. Specification (19 pages);
3. Drawings (6 pages);
4. Declaration and Power of Attorney form (4 pages);
5. Recordation Form Cover Sheet;
6. Assignment (2 pages);
7. Check for \$708.00;
8. Check for \$40.00; and
9. Return Receipt Postcard.

J. Hendrix
Signature of person mailing Express Mail

February 10, 2000

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SPECIFICATION

TITLE

"METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL DIALYSIS THERAPY"

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BACKGROUND OF THE INVENTION

The present invention relates generally to the treatment of end stage renal disease. More specifically, the present invention relates to methods and apparatus for monitoring
10 the performance of peritoneal dialysis.

Using dialysis to support a patient whose renal function has decreased to the point where the kidneys no longer sufficiently function is known. Two principal dialysis methods are utilized: hemodialysis; and peritoneal dialysis.

In hemodialysis, the patient's blood is passed through an artificial kidney dialysis
15 machine. A membrane in the machine acts as an artificial kidney for cleansing the blood. Because it is an extracorporeal treatment that requires special machinery, certain inherent disadvantages exist with hemodialysis.

To overcome the disadvantages associated with hemodialysis, peritoneal dialysis was developed. Peritoneal dialysis utilizes the patient's own peritoneum as a semi-
20 permeable membrane. The peritoneum is a membranous lining of the abdominal body cavity. Due to good perfusion, the peritoneum is capable of acting as a natural semi-permeable membrane.

Peritoneal dialysis periodically infuses sterile aqueous solution into the peritoneal cavity. This solution is called peritoneal dialysis solution, or dialysate. Diffusion and
25 osmosis exchanges take place between the solution and the blood stream across the natural body membranes. These exchanges remove the waste products that the kidneys normally excrete. The waste products typically consist of solutes like urea and creatinine. The kidneys also maintain the levels of other substances such as sodium and water which need to be regulated by dialysis. The diffusion of water and solutes across
30 the peritoneal membrane during dialysis is called ultrafiltration.

In continuous ambulatory peritoneal dialysis, a dialysis solution is introduced into the peritoneal cavity utilizing a catheter. An exchange of solutes between the dialysate

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and the blood is achieved by diffusion. Further removal is achieved by providing a suitable osmotic gradient from the blood to the dialysate to permit water outflow from the blood. This allows a proper acid-base, electrolyte and fluid balance to be achieved in the body. The dialysis solution is simply drained from the body cavity through the catheter.

Peritoneal dialysis raises a number of concerns including: the danger of peritonitis; a lower efficiency and therefore increased duration of dialysis hours compared to hemodialysis; and costs incurred when automated equipment is utilized.

A number of variations on peritoneal dialysis have been explored. One such variation is automated peritoneal dialysis ("APD"). APD uses a machine, called a cyclor, to automatically infuse, dwell, and drain peritoneal dialysis solution to and from the patient's peritoneal cavity. APD is particularly attractive to a peritoneal dialysis patient, because it can be performed at night while the patient is asleep. This frees the patient from the day-to-day demands of continuous ambulatory peritoneal dialysis during his/her waking and working hours.

The APD sequence typically lasts for several hours. It often begins with an initial drain cycle to empty the peritoneal cavity of spent dialysate. The APD sequence then proceeds through a succession of fill, dwell, and drain phases that follow one after the other. Each fill/dwell/drain sequence is called a cycle. APD can be and is practiced in a number of different ways.

Current APD systems do not monitor the patient intraperitoneal pressure during a therapy session. Current systems simply limit the external pressure (or suction) that a pump can apply to the line or lumen that is attached to the patient catheter. If the patient is located below the system, sometimes referred to as a cyclor, a gravity head will add to the positive fill pressure that the cyclor can apply to the patient catheter. Conversely, if the patient is located above the cyclor, the gravity head will decrease from the positive fill pressure that the cyclor can apply to the patient catheter.

The monitoring of intraperitoneal pressure would be useful because cyclers will sometimes not fully drain a patient between cycles. Specifically, currently-available cyclers are unable to determine whether a patient absorbed some fluid or whether some

fluid is simply not able to be drained out because of the position of the patient or the catheter.

As a result, some currently-available systems utilize a minimum drain threshold to determine the amount of fluid that should be delivered to the patient during the next fill. For example, if 85% of the fill volume has been drained when the cyclor determines that the patient is "empty", the next fill volume will be 100%. If only 80% were drained, the next fill volume would be limited to 95%.

A negative ultrafiltrate (uF) alarm will sound when the patient has retained more than a predetermined percentage of the fill volume. The predetermined percentage can typically be either 50% or 100% of the fill volume. However, the patient can override this alarm if he/she does not feel overfull. The number of times the patients can override the uF alarm during a single therapy may be limited by the software of the cyclor. However, the uF alarm typically does not consider the actual ultrafiltrate that may also accumulate in the peritoneal cavity along with the dialysate.

Currently-available cyclers fill the patient to a specific, preprogrammed volume during each cycle. The doctor prescribes this fill volume based upon the patient's size, weight and other factors. However, because currently-available cyclers cannot monitor intraperitoneal pressure, the doctor cannot take this factor into account when formulating the prescription. It is also known that intraperitoneal pressure (IPP) has an effect on ultrafiltration (UF).

Figures 1-3 provide schematic illustrations of current APD cyclers. None of them attempt to monitor intraperitoneal pressure.

Referring to Figure 1, a cyclor 10a is illustrated which includes a dialysate container 11, a patient 12 and a drain container 13 are illustrated schematically. The infusion of dialysate from the container 11 into the patient 12 is caused by the gravitational head indicated at 14 while the draining of used dialysate from the patient 12 to the drain container 13 is caused by the drain head indicated at 15. The cyclor 10a includes no sensors for monitoring the pressure inside the peritoneum of the patient 12. A single lumen 16 connects both the dialysate container 11 and drain container 13 to the patient 12. Valves 17, 18 operated by the cyclor 10a control the flow of either dialysate

from the container 11 to the patient 12 or waste material from the patient 12 to the drain container 13.

Turning to Figure 2, in the cyclor 10b, the drain container 13 and dialysate container 11 are contained within a pressurized chamber 19. The chamber 19 can be pressurized or evacuated to either fill or drain the patient. Again, the selective operation of valves 17, 18 control whether dialysate is being transferred to or from the patient 12. Again, no sensors are provided for detecting or monitoring intraperitoneal pressure of the patient 12.

Turning to Figure 3, in the system 10c, a dialysate container 11 is connected to a pump 21 which, in turn, connects the dialysate container 11 to a common lumen or catheter 16 which is connected to the patient. A fluid flow control valve is provided at 23 and is controlled by the cyclor 10c. The drain container 13 is also connected to a pump 24 which, in turn, connects the drain container 13 to the lumen 16. A control valve is again provided at 25.

The drain and fill rates of the cyclers 10a-10c illustrated in Figures 1-3 are determined by the gravitational head (see Figure 1) or the suction or pressure (see Figures 2 and 3) applied to the patient line 16. Typically, the cyclers 10a-10c fail to optimize either the fill rate or the drain rate because the pressure is either fixed by the gravitational head or the pressure or suction applied by the chamber 10b of Figure 2 which occurs at the opposing end of the patient line 16. Thus, without measuring the intraperitoneal pressure or having a way to estimate the same, it is difficult to optimize either the drain or fill rate. In the case of the cyclor 10c in Figure 3, optimizing the drain or fill rate is guesswork due to the lack of any pressure reading at all.

Accordingly, there is a need for an improved cyclor that measures patient intraperitoneal pressure during a therapy session, including both during the drain and the fill as well as the dwell. Further, there is a need for an improved cyclor that measures intraperitoneal pressure and which would use that data to more completely drain a patient between cycles. Further, there is a need for an improved cyclor which would accurately measure intraperitoneal pressure to avoid overfilling a patient. Finally, there is a need for an improved cyclor which would monitor intraperitoneal pressure during both the fill

and drain cycles to optimize the speed at which the patient is filled and drained and to therefore increase the dwell portion of a therapy session.

SUMMARY OF THE INVENTION

- 5 The present invention satisfies the aforementioned needs by providing a system for providing peritoneal dialysis to a patient which comprises a dialysate container connected to the patient with a first pressure sensor connected in-line therebetween, and a drain container connected to the patient with a second pressure sensor connected in-line therebetween.
- 10 In an embodiment, the system further comprises a first pump disposed in-line between the dialysate container and the first pressure sensor.
- In an embodiment, the dialysate flows from the dialysate container into the patient under a hydrostatic head.
- In an embodiment, a second pump is disposed in-line between the drain container
- 15 and the second pressure sensor.
- In an embodiment, the dialysate flows from the patient to the drain container under a hydrostatic head.
- In an embodiment, the second pressure sensor measures an intraperitoneal pressure of the patient while dialysate flows from the dialysate container to the patient.
- 20 In an embodiment, the first pressure sensor measures an intraperitoneal pressure of the patient while dialysate flows from the patient to the drain container.
- In an embodiment, the system further comprises a first lumen connecting the dialysate container to the first sensor and the first sensor to a catheter, and a second lumen connecting the drain container to the second sensor and the second sensor to the
- 25 catheter, the catheter being connected to the patient, a flow of dialysate from the patient to the drain container evacuating dialysate from the first lumen and causing said dialysate from the first lumen to flow through the second lumen and to the drain container.
- In an embodiment, the catheter is a dual lumen catheter.
- In an embodiment, the first and second sensors are redundant in-line
- 30 pressure/vacuum sensors.

In an embodiment, the present invention provides a method for dialyzing a patient comprising the steps of: placing a catheter in a peritoneum of the patient; providing at least one dialysate container; connecting the dialysate container to the catheter with a first lumen that includes a first pressure sensor disposed in-line and between the catheter and the dialysate container; providing at least one drain container; connecting the drain container to the catheter with a second lumen that includes a second pressure sensor disposed in-line and between the catheter and the drain container; transferring dialysate from the dialysate container to the peritoneum of the patient and monitoring an intraperitoneal pressure of the patient with the second pressure sensor; and transferring dialysate from the peritoneum of the patient to the drain container and monitoring the intraperitoneal pressure of the patient with the first pressure sensor.

In an embodiment, the step of transferring dialysate from the dialysate container to the peritoneum of the patient further comprises pumping dialysate from the dialysate container to the patient with a first pump disposed in-line between the dialysate container and the first pressure sensor.

In an embodiment, the step of transferring dialysate from the peritoneum of the patient to the drain container further comprises pumping dialysate from the peritoneum of the patient to the drain container with a second pump disposed in-line between the drain container and the second pressure sensor.

In an embodiment, the dialysate container is disposed vertically above the peritoneum of the patient and the step of transferring dialysate from the dialysate container to the peritoneum of the patient further comprises flowing dialysate from the dialysate container to the patient under a hydrostatic head.

In an embodiment, the drain container is disposed vertically below the peritoneum of the patient and the step of transferring dialysate from the peritoneum of the patient to the drain container further comprises flowing dialysate from the peritoneum of the patient to the drain container under a hydrostatic head.

Other objects and advantages of the invention will become apparent upon reading the following detailed description and appended claims, and upon reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 illustrates, schematically, a prior art automated peritoneal dialysis system;

5 Figure 2 illustrates, schematically, a prior art automated peritoneal dialysis system;

Figure 3 illustrates, schematically, a prior art automated peritoneal dialysis system;

Figure 4 illustrates, schematically, an automated peritoneal dialysis system made in accordance with the present invention;

10 Figure 5 illustrates, schematically, a second embodiment of an automated peritoneal dialysis system made in accordance with the present invention;

Figure 6 illustrates, schematically, a third embodiment of an automated peritoneal dialysis system made in accordance with the present invention;

15 Figure 7 illustrates, schematically, a fourth embodiment of an automated peritoneal dialysis system made in accordance with the present invention;

Figure 8 illustrates a pressure sensor made in accordance with the present invention;

Figure 9 illustrates a fifth embodiment incorporating dual pumping chambers and pressure sensors made in accordance with the present invention;

20 Figure 10 illustrates, schematically, a dual lumen catheter that can be utilized with the present invention;

Figure 11 is a sectional view taken substantially along line 11-11 of Figure 10;

Figure 12 illustrates, graphically, the urea concentration in blood and the urea concentration in a dialysate during a multiple dwell dialysis session;

25 Figure 13 illustrates, graphically, the concentration of urea in a patient's bloodstream versus the concentration of urea in a dialysate solution for an automated peritoneal dialysis solution practiced in accordance with the prior art; and

30 Figure 14 illustrates, graphically, the concentration of urea in a patient's bloodstream versus the concentration of urea in a dialysate for an automated peritoneal dialysis therapy session carried out in accordance with the present invention.

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It should be understood that the drawings are not necessarily to scale and that the embodiments are sometimes illustrated by graphic symbols, phantom lines, diagrammatic representations and fragmentary views. In certain instances, details which are not necessary for an understanding of the present invention or which render other details difficult to perceive may have been omitted. It should be understood, of course, that the invention is not necessarily limited to the particular embodiments illustrated herein.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

Turning to Figure 4, a cyclor 30 includes a dialysate container 11 connected to a pump 31. The pump 31 is connected to a pressure sensor 32. The pump 31 and pressure sensor 32 are disposed in-line in a lumen 33 that connects the dialysate container 11 to a catheter 34. Control valves are provided at 35, 36. A drain container 13 is also connected to a pump 36 which is connected to a sensor 37. The pump 36 and sensor 37 are also connected in-line to a lumen 38 which connects the drain container 13 to the catheter 34. Control valves are again provided at 41, 42. During the fill, the pump 31 pumps dialysate from the container 11 through the lumen 31 and catheter 34 into the peritoneum (not shown) of the patient 12. During this time, the sensor 37 monitors and measures the intraperitoneal pressure. A signal is sent to the controller of the cyclor 30 shown schematically at 43. A control panel is indicated generally at 44.

During the drain, the sensor 31 can accurately monitor and measure the intraperitoneal pressure of the patient 12. In the embodiment illustrated in Figure 4, no pumps or control valves are disposed between the sensor 32 and the patient 12.

Turning to Figure 5, a cyclor 50 is illustrated which includes reversible pumping chambers 51, 52 with sensors 53, 54 disposed between the reversible pumping chambers 51, 52 and the patient 12 respectively. Control valves 55 and 56 are disposed on another side of the reversible pumping chamber 51 and the sensor 53 and control valves 57, 58 are provided on either side of the reversible pumping chamber 52 and sensor 54. The sensors 53, 54 actually measure the pressure on the diaphragms of the reversible pumping chambers 51, 52.

Turning to Figure 6, a cyclor 60 is illustrated with a chamber 61 for accommodating the drain container 13 and a chamber 62 for accommodating the dialysate container 11. Each chamber 61, 62 is equipped with an integrated valve assembly and pressure sensor shown at 63, 64. In the embodiment 60 shown in Figure 5 6, the chamber 61 must be capable of being evacuated. Dialysate may flow from the dialysate container 11 by way of gravity or pressure fill. Again, the sensors of the valve assembly/sensor combinations 63, 64 monitor the intraperitoneal pressure of the patient 12 as discussed above.

In the embodiment 70 illustrated in Figure 7, the dialysate container 11 and drain container 13 are both connected to integrated control valves and pressure sensors 71, 72. Each of the integrated control valves and pressure sensors 71, 72 are connected to lumens 73, 74 respectively which are connected to the catheter 75a by way of a Y-connection. The details of all the Y-connections and clamps are not shown but are known to those skilled in the art. Flow from the dialysate container 11 to the patient is carried out under 15 the gravitational head shown at 75 while flow from the patient to the drain container 13 is carried out under the gravitational head shown at 76.

Figure 8 illustrates one in-line pressure sensor 80 that is suitable for use with the present invention. Redundant load cells 81, 82 are connected to the flexible pressure sensing membrane 83 by a vacuum connected by the line 84, 85. A lumen connecting 20 the cyclor to the patient is shown at 86.

Figure 9 illustrates a dual-pumping chamber cassette 87 which includes an output line 88 which connects the cassette 87 to the patient and an input line 89 connecting the patient to the cassette 87. The line 90 connects the cassette 87 to the dialysate container (not shown). Each pumping chamber 91, 92 are in communication with all three lines 25 88, 89 and 90. Thus, every line can be connected to either pumping chamber 91, 92. The pumping chambers 91, 92 are bound on one side by a common diaphragm shown at 93. Flow is controlled by the use of diaphragm valves shown at 94, 95, 96 and 97. Pressure sensors are shown at 120, 121, 122, 123, 124, 125. However, pressure sensors 123 and 120 are the sensors used to measure intraperitoneal pressure in accordance with the 30 present invention. The remaining sensors 121, 122, 124, 125 are used to monitor the operation of the pumps 126, 127.

When the left diaphragm pump 126 is pushing dialysate to the patient, the sensor 123 can measure the intraperitoneal pressure through the line 89. When the left diaphragm pump 126 is draining fluid from the patient through the line 89, the sensor 120 can measure intraperitoneal pressure through the line 88 and while the right pump 27 is pumping fluid to the drain container (not shown) through the drain line shown schematically at 128. When the right diaphragm pump 127 is being used to drain fluid from the patient, the sensor 120 can measure intraperitoneal pressure while the left diaphragm pump 126 is pumping fluid to the drain container (not shown) through the drain line shown schematically at 129.

Figures 10 and 11 illustrate a dual-lumen catheter 100 which includes separate passageways 101, 102. The employment of a dual lumen catheter 100 as compared to a dual lumen patient line can move the point at which the pressure is measured to within the peritoneum itself by way of communication through the separate flowpaths 101, 102. The dual lumen catheter 100 installs like a single lumen catheter, yet will function either as a flow through or a standard catheter. Both fluid pathways 101, 102 are used to withdraw and deliver fluid during the drain and fill. While one pathway delivers fluid, the other pathway drains. The end section, shown generally at 103, is perforated.

A comparison of an APD therapy for a prior art APD cyclers and one manufactured in accordance with the present invention are summarized as follows:

Therapy Parameter	Current APD Cycler	Cycler Using Invention
Total Therapy Volume	15 liters	15 liters
Fill Volume	2.2 liters	2.5 liters max
Fill Pressure Limit	not applicable	14 mm Hg max
Total Therapy Time	8 hours	8 hours
Last (Day) Fill Volume	1,500 ml	1,500 ml
Last Fill Dextrose	Same	Same
Initial Drain Alarm	1,200 ml	1,200 ml
Drain X of N Alarm	80%	80%

Table 1: Comparison of Therapies for Current Cyclers versus Cycler using Invention Method

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Therapy Phase	Therapy Parameter	Prior Art Cycler 1	Prior Art Cycler 2	Invention Cycler 3
5	Initial Drain	Drain Volume	1,200 ml	1,200 ml
		Patient Volume	300 ml	300 ml
	Fill 1 of 5	Fill Volume	2,200 ml	2,200 ml
		Patient Volume	2,500	2,800
		Fill Pressure	not applicable	12 mm Hg
10	Drain 1 of 5	Drain Volume	1,800 ml	2,200 ml
		Patient Volume	700 ml	300 ml
	Fill 2 of 5	Fill Volume	2,200 ml	2,200 ml
		Patient Volume	2,900 ml	3,000 ml
		Patient Pressure	not applicable	14 mm Hg
15	Drain 2 of 5	Drain Volume	1,800 ml	2,200 ml
		Patient Volume	1,100 ml	300 ml
	Fill 3 of 5	Fill Volume	2,200 ml	2,200 ml
		Patient Volume	3,300 ml	3,000 ml
		Patient Pressure	not applicable	14 mm Hg
20	Drain 3 of 5	Drain Volume	1,801 ml	2,200 ml
		Patient Volume	1,499 ml	300 ml
	Fill 4 of 5	Fill Volume	2,200 ml	2,200 ml
		Patient Volume	3,699 ml	2,500
		Patient Pressure	not applicable	not applicable
25	Drain 4 of 5	Drain Volume	1,800 ml	2,200 ml
		Patient Volume	1,899 ml	300 ml
	Fill 5 of 5	Fill Volume	uF Alarm Bypass	
			2,200 ml	2,200 ml
		Patient Volume	4,099 ml	2,500 ml
30		Patient Pressure	Patient Wakes Overfull, Manually Drains 1,500 ml	not applicable
	Drain 5 of 5	Drain Volume	1,800 ml	2,200 ml
		Patient Volume	799 ml	300 ml
	Final Fill	Fill Volume	1,500 ml	1,500 ml

Inspection of Table 1 shows that cycler 1 woke the patient at around 4:30 in the morning with a negative uF alarm at the beginning of Fill 5. The patient bypassed the alarm because he did not feel overfull and immediately fell back asleep. He woke up about 15 minutes later when he had difficulty breathing and felt extremely overfull. He manually drained about 1500 ml but was unable to go back to sleep. He filed a formal product complaint with the manufacturer.

The data of Table 1 shows that cycler 2 ran a completely normal therapy but the total therapy clearance (calculated based upon the sum of the night patient volumes) was only 84.5% of that obtained by cycler 3, which was using the cycler that used the method of the current invention.

The data of Table 1 shows that cycler 3 ran a completely normal therapy and that the fill volume was limited on one occasion by the maximum fill volume but on four occasions by the patient's intraperitoneal pressure. This patient never felt any discomfort and had no alarms during the night. The limit on the IPP prevented him from being overfilled even though he had successive drains that were not complete. The volume of fluid in his peritoneum never exceeded 3 liters.

The patient on cycler 1 had an intraperitoneal pressure in excess of 14 mm Hg during dwells 3 and 4. His breathing may have been impaired and his heart may have had to work harder but the discomfort was not enough to wake him up from a sound sleep until it peaked at 4,099 ml during dwell 5.

In conclusion, the method of the present invention provides for optimum fills and therefore more clearance while preventing overfills that bring discomfort and inhibit the function of vital body organs. A negative uF alarm would seldom occur because overfills of the required magnitude would be prevented by the IPP sensors.

25 Calculation of Intraperitoneal Pressure (IPP)

In order to calculate the IPP, one may first calculate the patient head height correction using conservation of energy:

$$\Delta(1/2\rho V^2 + P - p_a h) + \text{Frictional Losses} = 0$$

The velocity V of fluid through the patient line is the same at both ends of the line as is the fluid density, so this equation can be written as

$$(P_2 - P_1) - p_a(h_2 - h_1) + \text{Frictional Losses} = 0$$

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which can be rearranged as

$$\Delta h = \frac{(P_1 - P_2) - \text{Frictional Losses}}{\rho a_f}$$

5

Example 1

$$P_1 = 1.25 \text{ psig} = 85060 \text{ (gram/cm)} / (\text{cm}^2 \cdot \text{sec}^2)$$

$$P_2 = 0.9 \text{ psig} = 61240 \text{ (gram/cm)} / (\text{cm}^2 \cdot \text{sec}^2)$$

Frictional Losses = 39130 (gram/cm)/(cm²-sec²) with flow of 197 cmm/min in a 4 mm ID line at a velocity of approximately 172 cm/sec, wherein

10

$$a_f = 981 \text{ cm/sec}^2$$

$$\rho = 1 \text{ gram/cm}^3$$

15

$$\Delta h = \frac{((85060 - 61240) - 39130) \text{ (gram/cm)} / (\text{cm}^2 \cdot \text{sec}^2)}{1 \text{ gram/cm}^3 \cdot 981 \text{ cm/sec}^2}$$

$$\Delta h = -15.6 \text{ cm (The patient is 15.6 cm below the membrane)}$$

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Example 2

$$P1 = 1.25 \text{ psig} = 85060 \text{ (gram/cm)/(cm}^2\text{-sec}^2\text{)}$$

$$P2 = 0.45 \text{ psig} = 30620 \text{ (gram/cm)/(cm}^2\text{-sec}^2\text{)}$$

$$\text{Frictional Losses} = 39130 \text{ (gram/cm)/(cm}^2\text{-sec}^2\text{)} \text{ with flow of } 197 \text{ cm}^3\text{/min in a}$$

5 4 mm ID line at a velocity of approximately 172 cm/sec, wherein

$$a_s = 981 \text{ cm/sec}^2$$

$$\rho = 1 \text{ gram/cm}^3$$

$$10 \quad \Delta h = \frac{((85060-30620)-39130)(\text{gram/cm})/(\text{cm}^2\text{-sec}^2)}{1 \text{ gram/cm}^3 + 981 \text{ cm/sec}^2}$$

$$15 \quad \Delta h = +15.6 \text{ cm (The patient is 15.6 cm above the membrane)}$$

The patient head height can be established at the beginning of each fill. Any changes in the head height that occur during the fill can be attributed to an increase in intraperitoneal pressure (IPP) since the patient is asleep.

Turning to Figure 12, the concentration gradient between the urea concentration 110 in the patient's blood and the urea concentration 111 in the dialysate for typical APD cyclers is illustrated graphically. Comparing the results illustrated in Figures 13 and 14, it is evident that APD cyclers equipped with the sensors of the present invention provide superior results. Specifically, the data illustrated graphically in Figure 13 was obtained using a prior art APD cycler. The data obtained in Figure 14 was obtained using an APD cycler utilizing two sensors for monitoring intraperitoneal pressure. Note that the urea concentration 110 in the bloodstream is lower in Figure 14 than in Figure 13. Further note, the dialysate volume or fill volume is lower for the therapy illustrated in Figure 14 than the therapy illustrated in Figure 13. Thus, the present invention provides improved urea clearance with lower fill volumes.

30 It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is, therefore, intended that such changes and modifications be covered by the appended claims.

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WE CLAIM:

1. A system for providing peritoneal dialysis to a patient, the system comprising:
a dialysate container connected to the patient with a first pressure sensor
5 connected in-line therebetween, and
a drain container connected to the patient with a second pressure sensor connected in-line therebetween.
2. The system of claim 1 further comprising a first pump disposed in-line
10 between the dialysate container and the first pressure sensor.
3. The system of claim 1 wherein the dialysate flows from the dialysate container into the patient under a hydrostatic head.
- 15 4. The system of claim 1 further comprising a second pump disposed in-line between the drain container and the second pressure sensor.
5. The system of claim 1 wherein the dialysate flows from the patient to the drain container under a hydrostatic head.
- 20 6. The system of claim 1 wherein the second pressure sensor measures an intraperitoneal pressure of the patient while dialysate flows from the dialysate container to the patient.
- 25 7. The system of claim 1 wherein the first pressure sensor measures an intraperitoneal pressure of the patient while dialysate flows from the patient to the drain container.
8. The system of claim 1 further comprising a first lumen connecting the
30 dialysate container to the first sensor and the first sensor to a catheter, and

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a second lumen connecting the drain container to the second sensor and the second sensor to the catheter,

the catheter being connected to the patient,

a flow of dialysate from the patient to the drain container evacuating dialysate
5 from the first lumen and causing said dialysate from the first lumen to flow through the second lumen and to the drain container.

9. The system of claim 8 wherein the catheter is a dual lumen catheter.

10 10. The system of claim 1 wherein the first and second sensors are redundant in-line pressure/vacuum sensors.

11. A system for providing peritoneal dialysis to a patient, the system comprising:

15 a dialysate container connected to the patient with a first pump and a first pressure sensor connected in-line therebetween, the first sensor being disposed between the first pump and patient, and

a drain container connected to the patient with a second pump and a second pressure sensor connected in-line therebetween, the second sensor disposed between the
20 second pump and the patient.

12. The system of claim 11 wherein the second pressure sensor measures an intraperitoneal pressure of the patient while dialysate is pumped by the first pump from the dialysate container to the patient.

25

13. The system of claim 11 wherein the first pressure sensor measures an intraperitoneal pressure of the patient while dialysate is pumped by the second pump from the patient to the drain container.

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14. The system of claim 11 further comprising a first lumen connecting the dialysate container to the first pump and the first pump to the first sensor and the first sensor to a catheter, and

5 a second lumen connecting the drain container to the second pump and the second pump to the second sensor and the second sensor to the catheter, the catheter being connected to the patient, operation of the second pump evacuating dialysate from the first lumen and pumping said dialysate from the first lumen to the drain container.

10 15. The system of claim 14 wherein the catheter is a dual lumen catheter.

16. The system of claim 11 wherein the first and second sensors are redundant in-line pressure/vacuum sensors.

15 17. A method of dialyzing a patient comprising the steps of:
placing a catheter in a peritoneum of the patient;
providing at least one dialysate container;
connecting the dialysate container to the catheter with a first lumen that includes
a first pressure sensor disposed in-line and between the catheter and the dialysate
20 container;
providing at least one drain container;
connecting the drain container to the catheter with a second lumen that includes
a second pressure sensor disposed in-line and between the catheter and the drain
container;
25 transferring dialysate from the dialysate container to the peritoneum of the patient
and monitoring an intraperitoneal pressure of the patient with the second pressure sensor;
transferring dialysate from the peritoneum of the patient to the drain container and
monitoring the intraperitoneal pressure of the patient with the first pressure sensor.

30 18. The method of claim 17 wherein the step of transferring dialysate from the dialysate container to the peritoneum of the patient further comprises pumping

dialysate from the dialysate container to the patient with a first pump disposed in-line between the dialysate container and the first pressure sensor.

19. The method of claim 17 wherein the step of transferring dialysate from
5 the peritoneum of the patient to the drain container further comprises pumping dialysate from the peritoneum of the patient to the drain container with a second pump disposed in-line between the drain container and the second pressure sensor.

20. The method of claim 17 wherein the dialysate container is disposed
10 vertically above the peritoneum of the patient and the step of transferring dialysate from the dialysate container to the peritoneum of the patient further comprises flowing dialysate from the dialysate container to the patient under a hydrostatic head.

21. The method of claim 17 wherein the drain container is disposed vertically
15 below the peritoneum of the patient and the step of transferring dialysate from the peritoneum of the patient to the drain container further comprises flowing dialysate from the peritoneum of the patient to the drain container under a hydrostatic head.

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ABSTRACT

An automated peritoneal dialysis system and method are provided for monitoring and controlling automated peritoneal dialysis therapy based upon intraperitoneal pressure measured at a point near the end of the patient catheter during the fill, dwell and drain phases of automated peritoneal dialysis therapy.

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COMBINED DECLARATION AND POWER OF ATTORNEY
IN ORIGINAL APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name:

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: "METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL DIALYSIS THERAPY"

the specification of which; (check one)

☒ is attached hereto.
☐ was filed on _____ as Application
Serial Number _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
<u>N/A</u>			☐ ☐
(Number)	(Country)	(Day/Month/Year Filed)	
			☐ ☐
(Number)	(Country)	(Day/Month/Year Filed)	
			☐ ☐
(Number)	(Country)	(Day/Month/Year Filed)	

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Charles R. Mattenson (Reg. No. 30,660); Thomas S. Boreck (Reg. No. 32,964) and Robert M. Barrett (Reg. No. 30,142).

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at telephone number 847/948-3315

Address all correspondence to Charles R. Mattenson, Esq., Baxter International Inc., One Baxter Parkway, DE3-3E, Deerfield, IL 60015

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COMBINED DECLARATION AND POWER OF ATTORNEY
IN ORIGINAL APPLICATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of First Inventor Robert Warren Childers	Inventor's Signature	Date
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Post Office Address 8816 Bel Meadow Way, New Port Richey, FL 34655		
Full Name of Second Inventor Vital Eerlingen	Inventor's Signature <i>Vital Eerlingen</i>	Date
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Post Office Address Pasteelsblokweg 31, B-3010 Leuven, Belgium		
Full Name of Third Inventor Patrick Balteau	Inventor's Signature <i>Patrick Balteau</i>	Date
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Full Name of Fourth Inventor Duane Belongie	Inventor's Signature <i>Duane Belongie</i>	Date
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Post Office Address 2014 25th Avenue South, Minneapolis, MN 55406		

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1997-07-17

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COMBINED DECLARATION AND POWER OF ATTORNEY
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As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name;

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD AND APPARATUS FOR MONITORING AND CONTROLLING PERITONEAL DIALYSIS THERAPY

the specification of which; (check one)

☒ [X] is attached hereto.
☐ [] was filed on _____ as Application
Serial Number _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

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<u>N/A</u>			☐ [] ☐ []
(Number)	(Country)	(Day/Month/Year Filed)	
<u></u>	<u></u>	<u></u>	☐ [] ☐ []
(Number)	(Country)	(Day/Month/Year Filed)	
<u></u>	<u></u>	<u></u>	☐ [] ☐ []
(Number)	(Country)	(Day/Month/Year Filed)	

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IN ORIGINAL APPLICATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of First Inventor Robert Warren Childers	Inventor's Signature <i>Robert W. Childers</i>	Date <i>11/10/99</i>
Residence 8816 Bel Meadow Way, New Port Richey, FL 34655		Citizenship United States
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Full Name of Second Inventor Vital Eerlingen	Inventor's Signature	Date
Residence Pasteelsblokweg 31, B-3010 Leuven, Belgium		Citizenship Belgium
Post Office Address Pasteelsblokweg 31, B-3010 Leuven, Belgium		
Full Name of Third Inventor Patrick Balteau	Inventor's Signature	Date
Residence 69 Rue Louis Burteau, B-5032 Bothey, Belgium		Citizenship Belgium
Post Office Address 69 Rue Louis Burteau, B-5032 Bothey, Belgium		
Full Name of Fourth Inventor Duane Belongie	Inventor's Signature	Date
Residence		Citizenship
Post Office Address		

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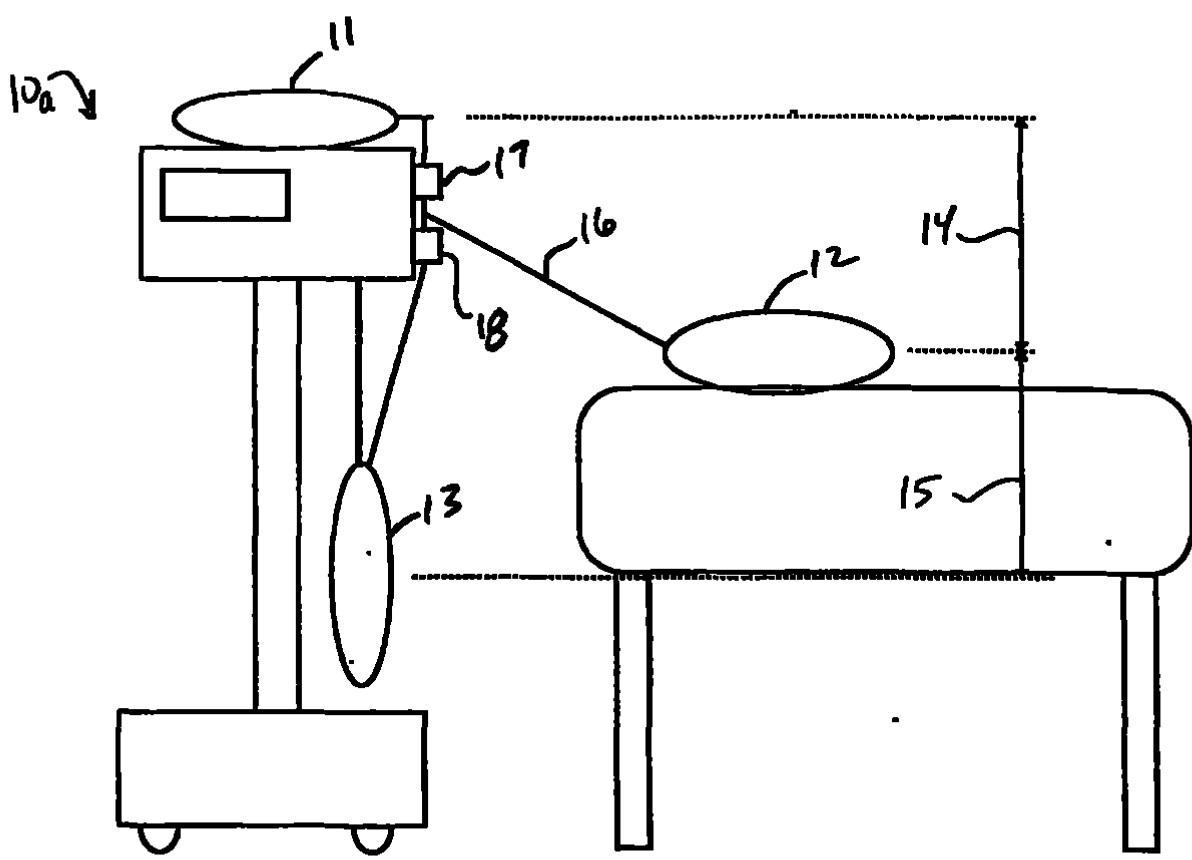


FIG. 1 (PRIOR ART)

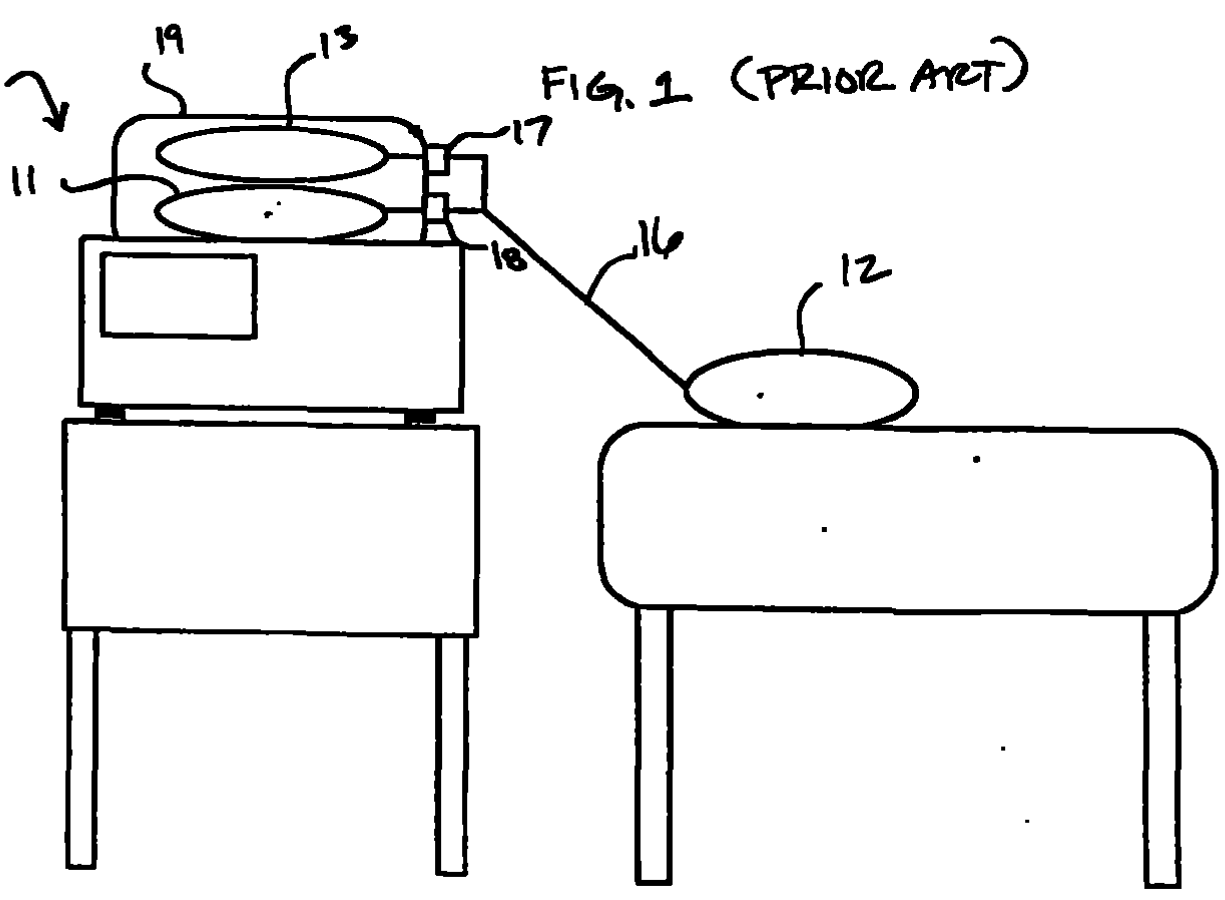


FIG. 2 (PRIOR ART)

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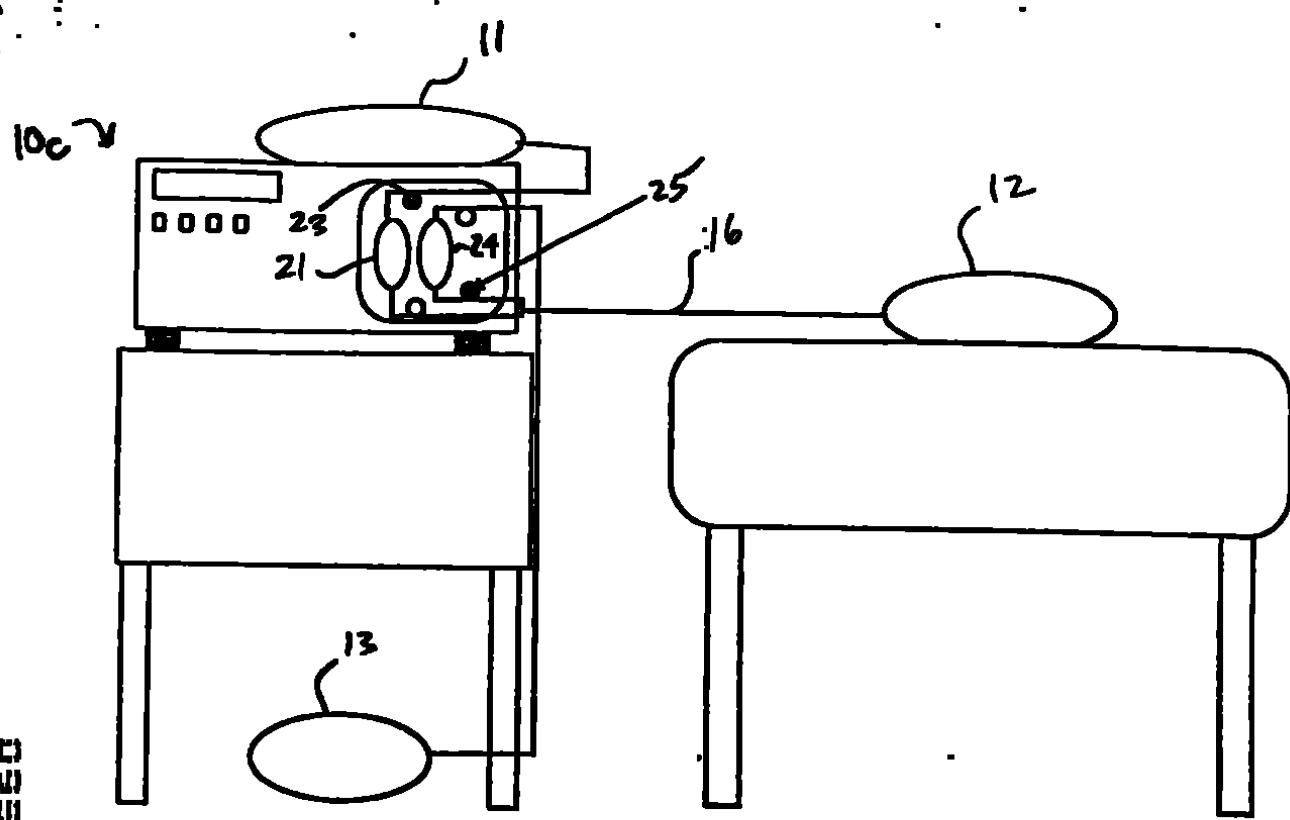


FIG. 3 (PRIOR ART)

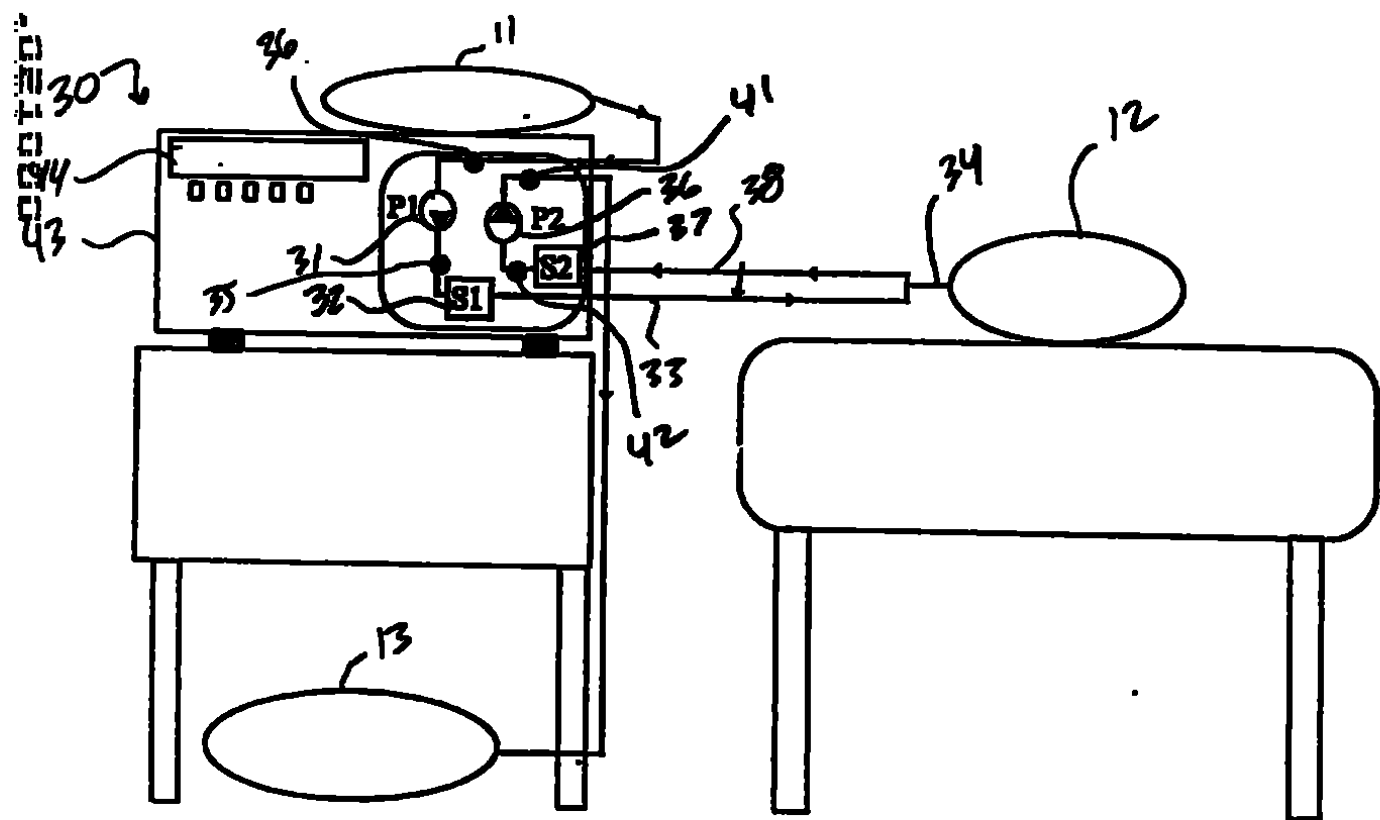


FIG. 4

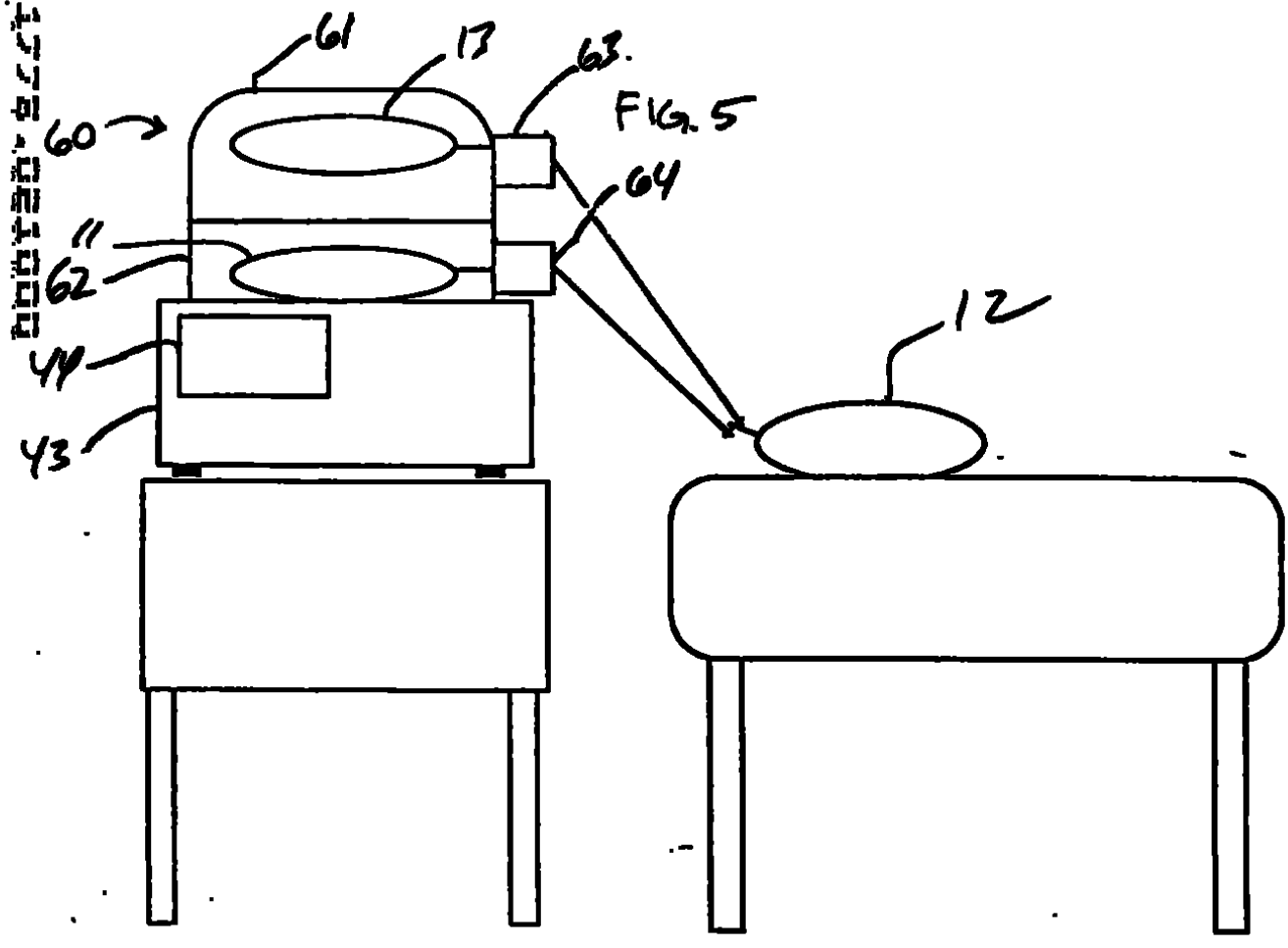
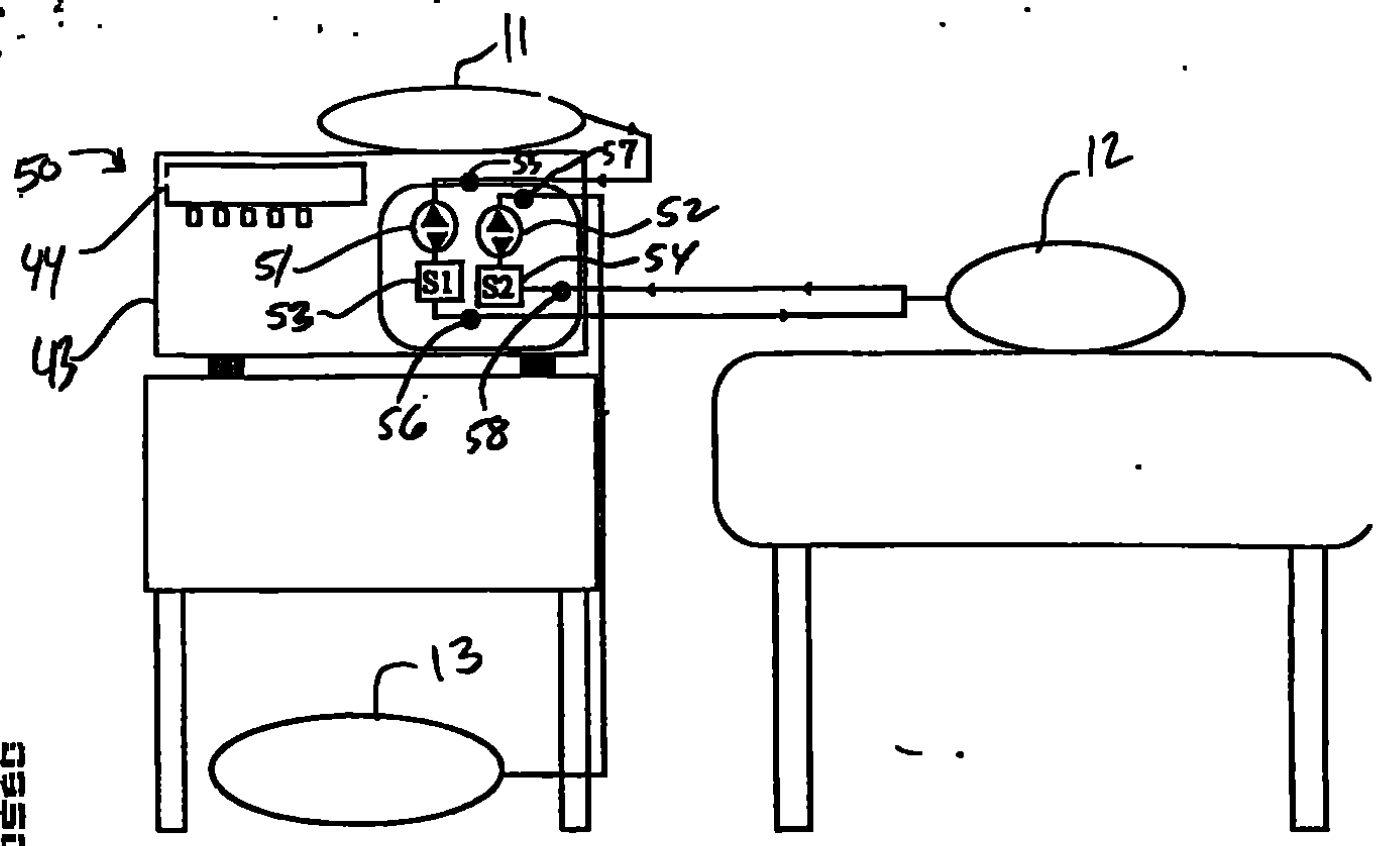


FIG. 6

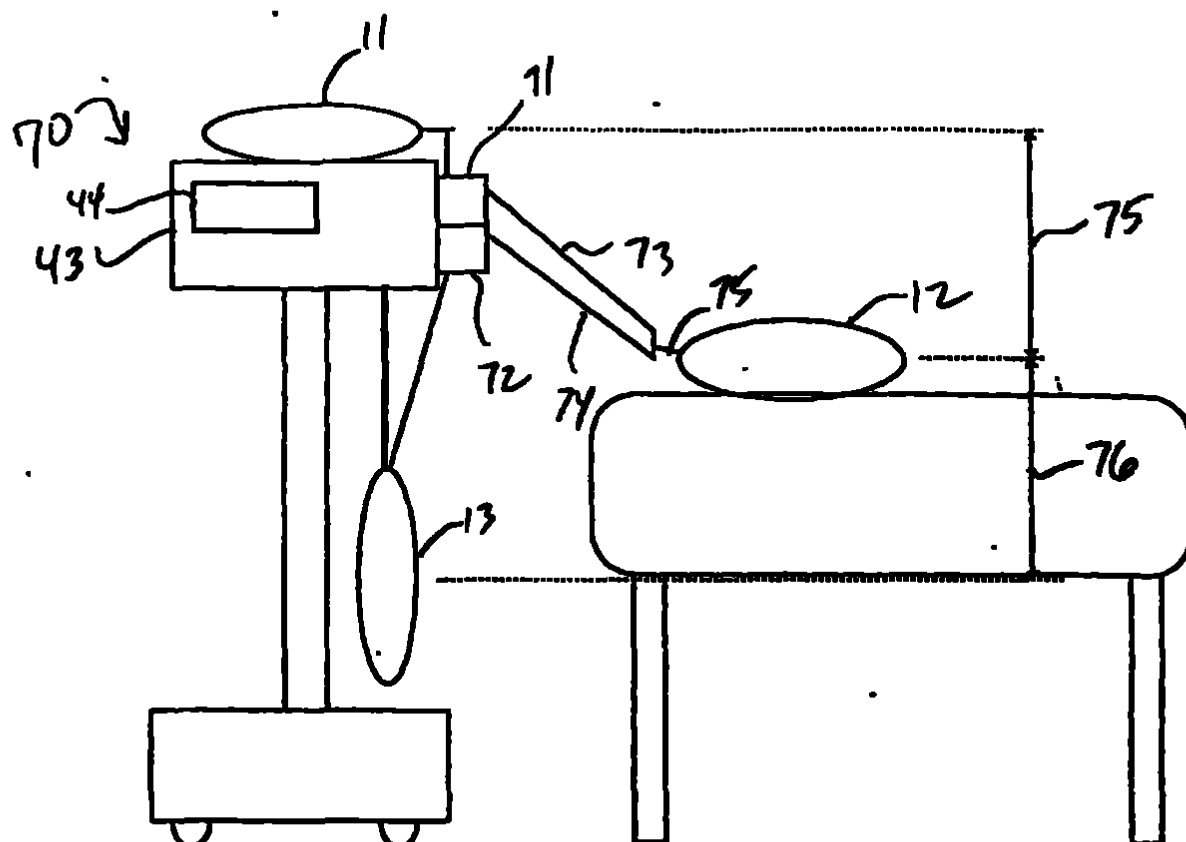


FIG. 7

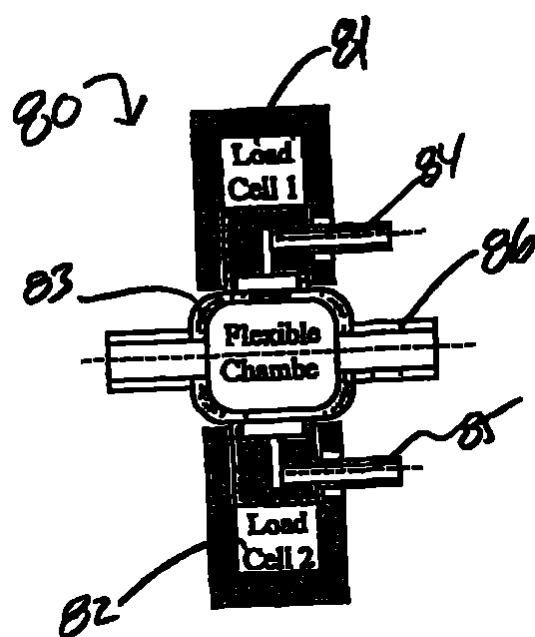


FIG. 8

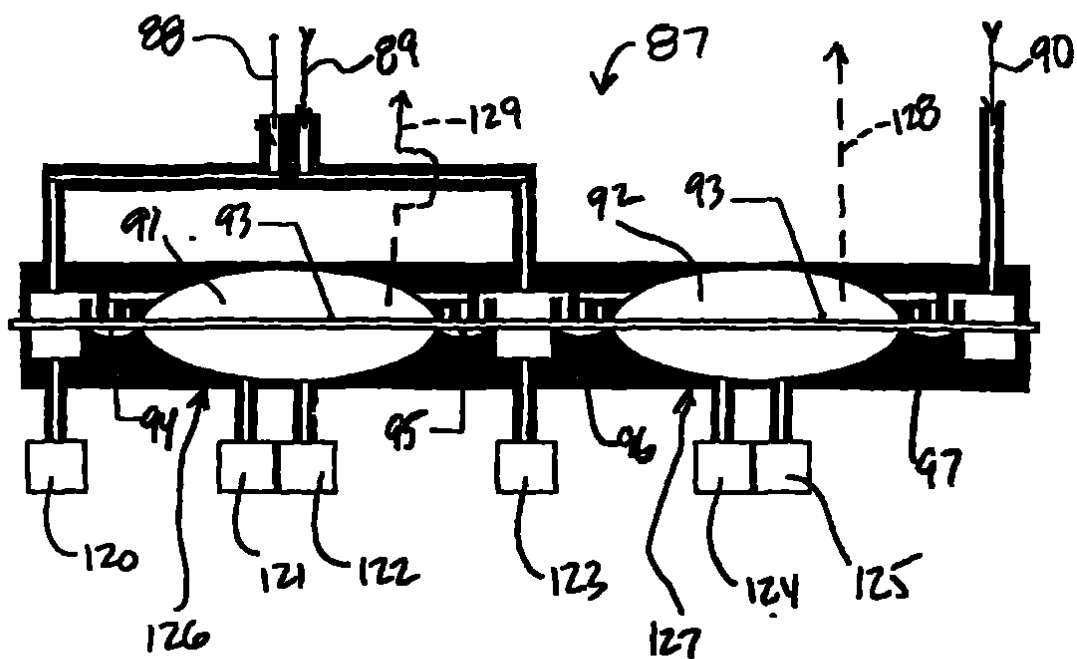


FIG. 9

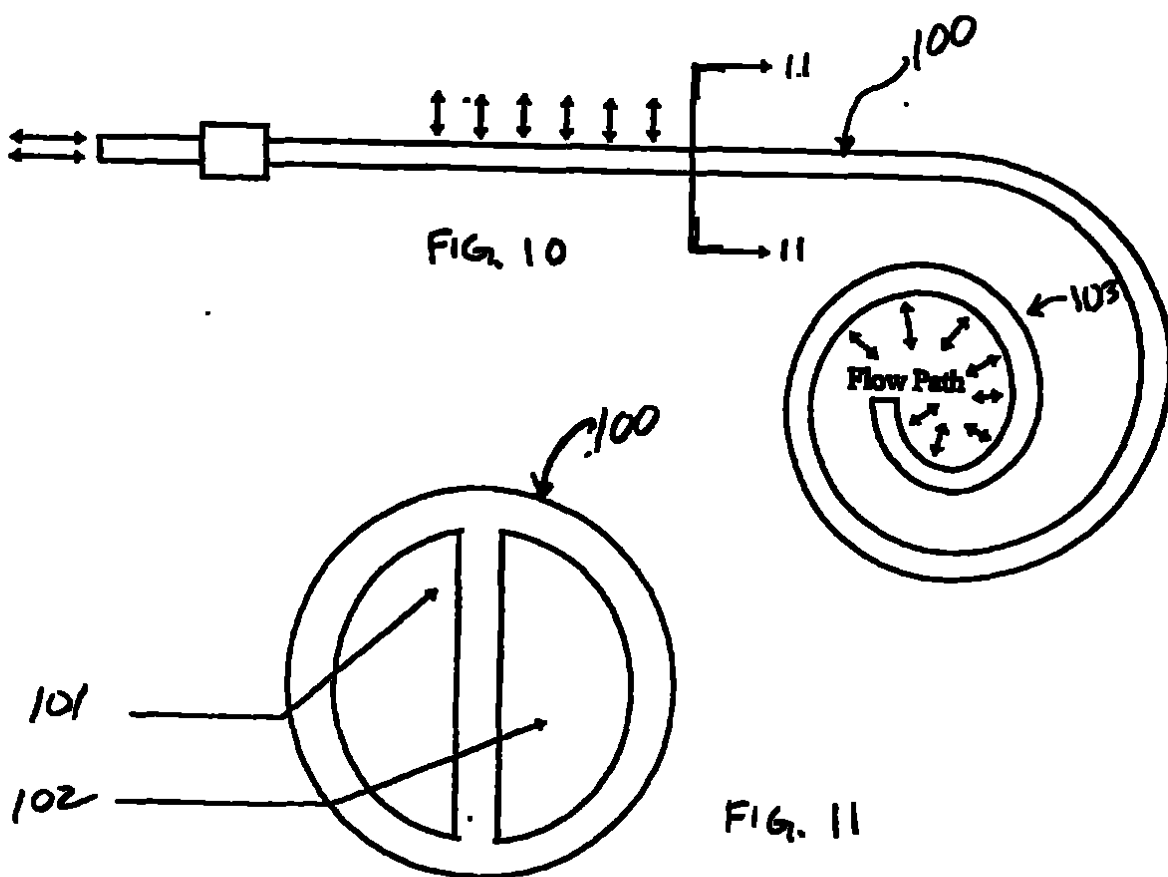


FIG. 11

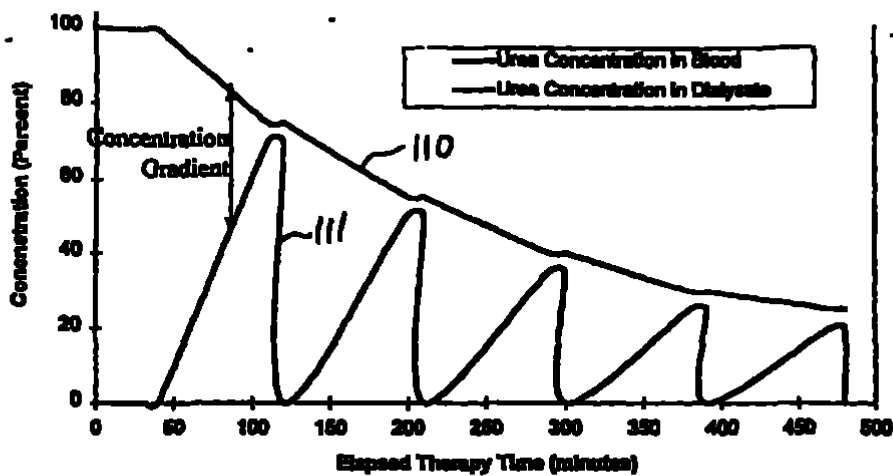


Fig. 12

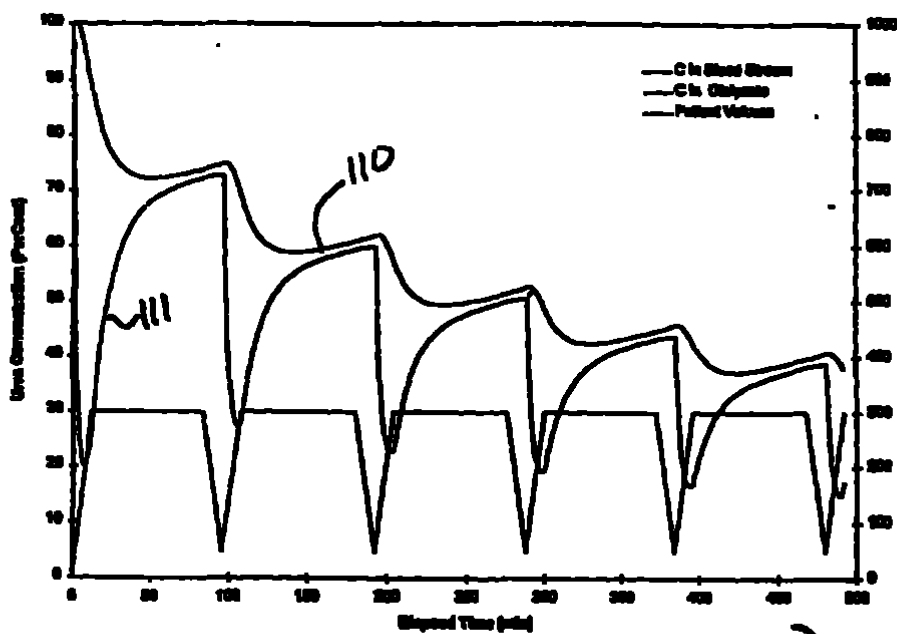


Fig. 13 (PRIOR ART)

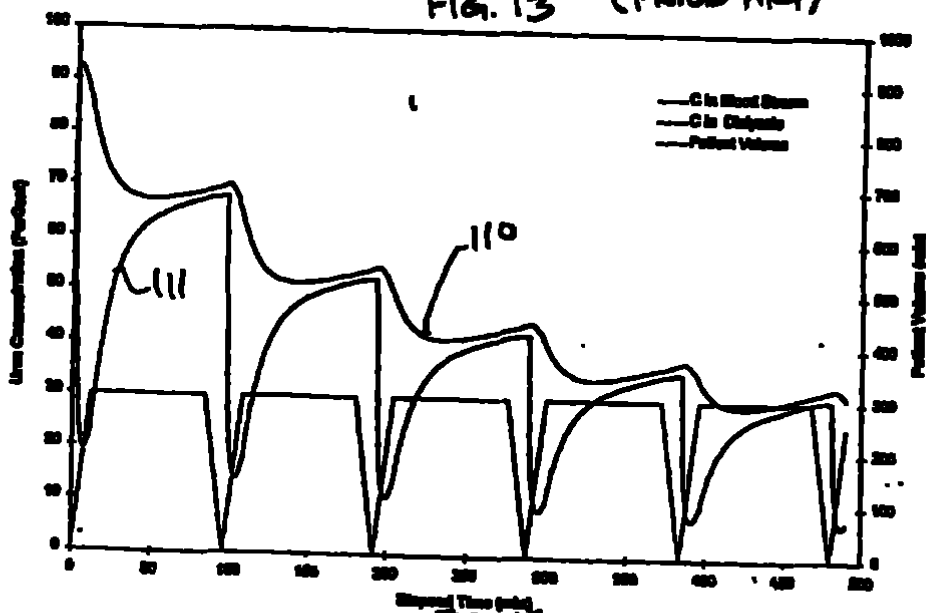


Fig. 14

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2do. EXAMEN DE FORMA PATENTE DE INVENCION

Folio 121

Radicación no 01-08896

Concepto Técnico no 446

Clasificación Internacional de Patentes: A61M 1/28; B01D 61/32

Practicado el examen de acuerdo a lo establecido en el Art. 38 de la Decisión 486 se determinó que esta solicitud de Patente de Invención:

- SI ☒ NO ☐ Contiene un resumen de la invención (Art.26-e).
- SI ☒ NO ☐ Contiene el título o nombre de la invención (Art.27-d).
- SI ☒ NO ☐ Contiene la descripción de la invención (Art.26-b).
- SI ☒ NO ☐ NO ES APLICABLE ☐ Contiene los dibujos necesarios para comprender la invención (Art.26-d)
- SI ☒ NO ☐ Contiene una o más reivindicaciones. (Art.26-c).
- SI ☐ NO ☐ NO ES APLICABLE ☒ Han sido desarrollados los productos y/o procedimientos a partir de recursos genéticos o de sus productos derivados de los que cualquiera de los Países Miembros es país de origen. (Art. 26- h).
- SI ☐ NO ☐ NO ES APLICABLE ☒ Los productos y/o procedimientos han sido obtenidos o desarrollados a partir de los conocimientos tradicionales de las comunidades indígenas, afroamericanas, o locales de los países miembros, de acuerdo a lo establecido en la Decisión 391 y sus modificaciones y reglamentaciones vigentes.(Art.26-I).
- SI ☐ NO ☒ La invención se refiere a un producto relativo a un material biológico. (Art.26-J).
- SI ☒ NO ☐ NO ES APLICABLE ☐ La prioridad coincide con la materia reivindicada.
- SI ☒ NO ☐ **CUMPLE LOS REQUISITOS TÉCNICOS**

OBSERVACIONES Y OTROS: SI ☐ NO ☐ ver hoja(s) anexa(s)

- NO PRESENTA TRADUCCION DEL CAPITULO REIVINDICATORIO DE LA PRIORIDAD INVOCADA

EXAMINADOR TÉCNICO
202051

Bogotá D. C., febrero 21 de 2003



Folio 142

2020
Bogotá DC

Doctor(a)
EMILIO FERRERO
Apoderado(a)

REFERENCIA:	Radicación No.	01-09896
	Trámite	002
	Evento	001
	Actuación	418
	Oficio No.	480
	Folios	001

Teniendo en cuenta que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en los artículos 26 y 27 de la Decisión 486 de la Comisión de la Comunidad Andina, y en las demás disposiciones vigentes sobre la materia, se envía el extracto de la solicitud a la Oficina de Comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial, conforme lo establece el artículo 40 de la misma Decisión.

Cúmplase
Dado en Bogotá DC,

28 FEB 2023


ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones

202051

DIVISION DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 01-9896

EL EXTRACTO DE LA PRESENTE SOLICITUD DE PATENTE DE INVENCION

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No 528, DE

FECHA 30 DE MAYO DE 2003, EL TERMINO HABIL SEÑALADO POR LA LEY

EXPIRA EL 29 DE AGOSTO DE 2003.

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI

NO **X**