

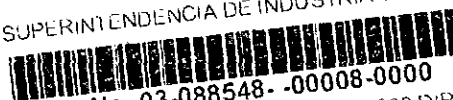
# CAVELIER

ABOGADOS

www.cavelier.com  
cavelier@cavelier.com

EDIFICIO SISKI  
CARRERA 4 N  
BOGOTÁ 8, C

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 03-088548-00008-0000

Fecha: 2010-04-06 17:02:22 Dep. 2020 DIR.NUEVASCR  
Ira. 11 PATENTEIYII Eve: 379 FASENACIONALI  
Act. 444 RESPUESTAREQUE Folios: 7

125  
611  
650  
314  
660

Señora Directora  
**DIRECCION DE NUEVAS CREACIONES**  
Superintendencia de Industria y Comercio  
E. S. D.

Trámite : 011  
Evento : 379  
Actuación : 444

Referencia : Expediente No. 03088548  
Asunto : Solicitud de patente para: **"SISTEMA DOBLE  
DE ALIMENTACIÓN DE QUÍMICOS SÓLIDOS"**.  
Solicitante : GE BETZ, INC.  
Fecha de solicitud : Octubre 3 de 2003.

1. Yo, Luz Clemencia de PAÉZ, mayor de edad, domiciliada en Bogotá, D.C., identificada con la Cédula de ciudadanía N° 35.456.344 de Usaquén, obrando como apoderada del solicitante en el asunto antes identificado de acuerdo con la sustitución que me ha sido efectuada por el Doctor Emilio Ferrero, me refiero al Oficio No. 130 notificado por fijación en lista del 8 de Enero de 2010.

2. Mediante el Oficio No. 130 se puso en conocimiento del solicitante el informe del examen de fondo que contiene las observaciones hechas por su Despacho sobre la presente solicitud de patente. Atiendo a las observaciones de la siguiente manera:

3. De la solicitud de patente:

3.1 Reivindicaciones.

Su Despacho enuncia:

- "El nuevo capítulo reivindicatorio fue mal numerado o no fue incluida la reivindicación 4 la cual esta faltando dentro de dicho capítulo reivindicatorio. Se sugiere allegar un nuevo capítulo reivindicatorio incluyendo dicho numeral 4 o si en realidad son seis (6) reivindicaciones la que el solicitante desea que se protejan, entonces, corregir la numeración de dicho capítulo".

# CAVELIER

ABOGADOS

126

Con respecto a lo señalado por su Despacho mi representada desea señalar lo siguiente:

Con el fin de atender las anteriores observaciones y de acuerdo con el artículo 34 de la Decisión 486, se presenta un nuevo capítulo reivindicatorio conformado por 7 reivindicaciones como sustituto del anteriormente presentado. En este nuevo capítulo reivindicatorio se incluye la reivindicación 4 que faltaba en el anterior pliego reivindicatorio y por tanto la objeción formulada a este respecto se debe tener por superada.

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

## 5. Anexos

- Nuevo pliego reivindicatorio conformado por 7 reivindicaciones.
- Formulario para modificaciones.
- Sustitución de poder a mi otorgada por el Doctor Emilio Ferrero.

Señora Directora,

*Luiz Clemencia de Paéz*  
**LUZ CLEMENCIA DE PAÉZ**  
C.C. N° 35.456.344  
T.P.A. No. 23.555

an COLO-13879-841-002-1  
MGM\MGM\ID-168435\WPC13879  
No. M-2010-168435\MGM

Espacio reservado para el adhesivo de radicación

**FORMULARIO UNICO DE CORRECCIONES Y MODIFICACIONES**

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                      |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                     | <b>SOLICITUD DE:</b><br><input type="checkbox"/> Corrección de Error Material <input checked="" type="checkbox"/> Modificación a una solicitud                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |
| <b>2</b><br><b>SOLICITANTE</b>               | <b>Nombre:</b> GE BETZ, INC.<br>Sociedad constituida y existente bajo las leyes del Estado Pennsylvania, Estados Unidos de América.<br><b>Dirección:</b> 4636 Somerton Road,<br>Trevose,<br>Pennsylvania 19053,<br>Estados Unidos de América<br><b>Domicilio:</b> Trevose,<br>Pennsylvania,<br>Estados Unidos de América<br><b>Teléfono:</b> 546 09 70 <b>Fax:</b> 249 40 70<br><b>E-mail:</b> <a href="mailto:clientes@cavelier.com">clientes@cavelier.com</a> | <b>IDENTIFICACION:</b><br>C.C. <input type="checkbox"/> NIT <input type="checkbox"/><br>C.E. <input type="checkbox"/> Otro <input type="checkbox"/><br>Número: _____                                 |
| <b>3</b><br><b>REPRESENTANTE O APODERADO</b> | <b>Nombre:</b> Luz Clemencia de PAEZ<br><b>Dirección:</b> Carrera 4ª No. 72-35<br><b>Teléfono:</b> 347 36 11 <b>Fax:</b> 217 92 11<br><b>E-mail:</b> <a href="mailto:cavelier@cavelier.com">cavelier@cavelier.com</a>                                                                                                                                                                                                                                           | <b>IDENTIFICACION</b><br>C.C. <input checked="" type="checkbox"/> NIT <input type="checkbox"/><br>C.E. <input type="checkbox"/> Otro <input type="checkbox"/><br>Número: <u>35.456.344 TP 23.555</u> |
| <b>4</b>                                     | <b>Número de expediente:</b> <u>03.088.548</u>                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |
| <b>5</b>                                     | <b>Descripción de la corrección o modificación solicitada:</b><br>Presentó nuevo capítulo reivindicatorio compuesto por 7 reivindicaciones con el fin de superar las objeciones hechas por Su Despacho a la presente solicitud de patente y pido respetuosamente que el examen de patentabilidad sea realizado sobre estas nuevas reivindicaciones presentadas.                                                                                                 |                                                                                                                                                                                                      |
| <b>6</b>                                     | <b>Comprobante de pago No.</b> _____ <b>Fecha:</b> _____                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                      |
| <b>7</b>                                     | <b>Anexos</b><br><input type="checkbox"/> Comprobante de pago de la tasa por \$114.000, por concepto de modificaciones.<br><input type="checkbox"/> Comprobante de pago por reivindicaciones adicionales después de la décima reivindicación por.<br><input type="checkbox"/> Poderes, si fuere el caso<br><input type="checkbox"/> Documento que acredita la existencia y representación legal de las partes, cuando sean personas jurídicas.                  |                                                                                                                                                                                                      |



NOMBRE:

LUZ CLEMENCIA DE PAEZ

FIRMA:

*Luz Clemencia De Paez*

C.C. 35.456.344 de Usaquén T.P.A. 23.555

MGM

178

# CAVELIER

ABOGADOS

WEB SITE: www.cavelier.com  
E-MAIL: cavelier@cavelier.com

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

129  
TELEFONO: (57) (1) 347-3611  
TELEFAX: (57) (1) 217-9211 (57) (1) 310-4995

Señores

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO**

E.

S.

D.

Poderdante : **GE BETZ, INC.**

Poder conferido el : 11/08/2003

Yo, EMILIO FERRERO, obrando como apoderado principal del poderdante arriba mencionado, mediante el presente escrito sustituyo el poder a mi otorgado a la doctora LUZ CLEMENCIA DE PAEZ, identificada con cédula de ciudadanía No. 35.456.344 y Tarjeta Profesional N°23.555, con todas las facultades que me fueron conferidas.

Hago la anterior sustitución conforme al artículo 66 del Código de Procedimiento Civil.

Señora Jefe,



EMILIO FERRERO

T.P.A. N° 31.929

C.C. N° 438.019 de Usaquén

Acepto:



LUZ CLEMENCIA DE PAEZ

T.P.A. N° 23.555

C.C. No. 35.456.344 de Usaquén

COMO NOTARIA SEXTA DEL CIRCULO DE BOGOTA  
06/04/2010 CONSTA QUE LA FOTOCOPIA COINCIDE  
CON EL ORIGINAL QUE HE TENIDO A LA VISTA  
BOGOTA D.C. REPUBLICA DE COLOMBIA

06 ABR. 2010

## REIVINDICACIONES

1. Un método de alimentación química sólida, que comprende:

Proporcionar al menos dos tazones de alimentación<sup>(14,16)</sup>, conteniendo cada uno una cantidad de químicos sólidos que se disuelven por inmersión en agua para formar una solución líquida; uno de dichos tazones<sup>(14)</sup> sirve como tazón principal y el otro como tazón<sup>(16)</sup> de respaldo.

Suministrar agua a cada tazón a partir de una fuente.<sup>(26)</sup>

Controlar el suministro de agua<sup>(14)</sup> a uno de los tazones por medio de una primera válvula<sup>(54)</sup> acoplada a la fuente de agua, dicha primera válvula normalmente estando en una posición abierta para permitir el flujo de agua a uno de dichos tazones;

Controlar el suministro de agua al otro tazón por medio de una segunda válvula<sup>(56)</sup> acoplada a la fuente de agua, dicha segunda válvula normalmente estando en una posición abierta para permitir el flujo de agua al segundo tazón;

Recibir solución líquida desde cada uno de los tazones de alimentación en un sumidero<sup>(12)</sup>, y contener tal solución líquida a un nivel predeterminado;

Sensar la conductividad de dicha solución líquida por medio de un sensor<sup>(32)</sup> soportado por dicho sumidero<sup>(12)</sup> en comunicación con dicha solución líquida y generar una señal a una conductividad predeterminada de dicha solución líquida para indicar que el producto químico en uno de los tazones se encuentra agotado; y

Cerrar dicha primera válvula<sup>(54)</sup> por medio de una unidad de control<sup>(62)</sup> que responde a dicha señal impidiendo así el flujo de agua a uno de dichos tazones<sup>(14)</sup> y la apertura de dicha segunda válvula, lo que permite el flujo de agua al tazón de respaldo, en donde este último ahora sirve como tazón primario.

2. El método de acuerdo con la reivindicación 1, en donde se demora la activación de dichas válvulas durante un cierto periodo de tiempo después de que dicho sensor detecta dicha conductividad predeterminada.

3. El método de acuerdo con la reivindicación 1, que comprende introducir agua dentro de dicho sumidero a través de un colector dispuesto en dicho sumidero, donde dicho colector comprende

través de dicho colector por medio de una tercera válvula, dicha tercera válvula estando acoplada a dicha fuente de agua.

5. El método de acuerdo con la reivindicación 4, que comprende proveer una señal a dicha unidad de control cuando el nivel de dicha solución líquida cae por debajo de dicho nivel predeterminado por medio de un interruptor de nivel inferior de apoyo de dicho sumidero para la comunicación con dicha solución líquida.

6. El método de acuerdo con la reivindicación 5, que incluye abrir dicha tercera válvula para permitir el flujo de agua dentro de dicho sumidero a través del colector, dicha tercera válvula respondiendo a dicha señal de dicho interruptor de bajo nivel.

7. El método de acuerdo con la reivindicación 6, comprendiendo adicionalmente proveer una señal a dicha primera, segunda y tercera válvula para mantener todas las válvulas en una posición cerrada para así prevenir cualquier flujo de agua hacia los tazones y al sumidero, dicha señal siendo provista por un interruptor de nivel superior soportado por dicho sumidero para comunicarse con dicha solución líquida contenida en el mismo.

MGM\MGM\ID-147621\WPC13879



US005152252A

**United States Patent** [19]

Bolton et al.

[11] **Patent Number:** 5,152,252[45] **Date of Patent:** Oct. 6, 1992**[54] WATER TREATMENT CONTROL SYSTEM FOR A BOILER**

[75] **Inventors:** Michael P. Bolton, Fox Point; James A. Rodrian, Grafton; Donald R. Janke, Milwaukee, all of Wis.

[73] **Assignee:** Autotrol Corporation, Milwaukee, Wis.

[21] **Appl. No.:** 824,634

[22] **Filed:** Jan. 23, 1992

[51] **Int. Cl.:** F22B 5/02

[52] **U.S. Cl.:** 122/401; 122/451 R; 137/5; 210/139; 210/177

[58] **Field of Search:** 122/451 R, 401; 210/96.1, 138, 139, 177; 137/5

**[56] References Cited****U.S. PATENT DOCUMENTS**

|           |        |                |          |
|-----------|--------|----------------|----------|
| 4,460,008 | 7/1984 | D'Leary et al. | 137/5 X  |
| 4,659,459 | 4/1987 | D'Leary et al. | 210/96.1 |
| 4,903,642 | 2/1990 | Tamaru et al.  | 122/401  |
| 4,990,245 | 2/1991 | Wieme          | 210/138  |

**OTHER PUBLICATIONS**

Brochure for the Model 250 Boiler TDS control by Lakewood Instruments. No Date.

Brochure regarding the Model 65 clock timer from Lakewood Instruments. No Date.

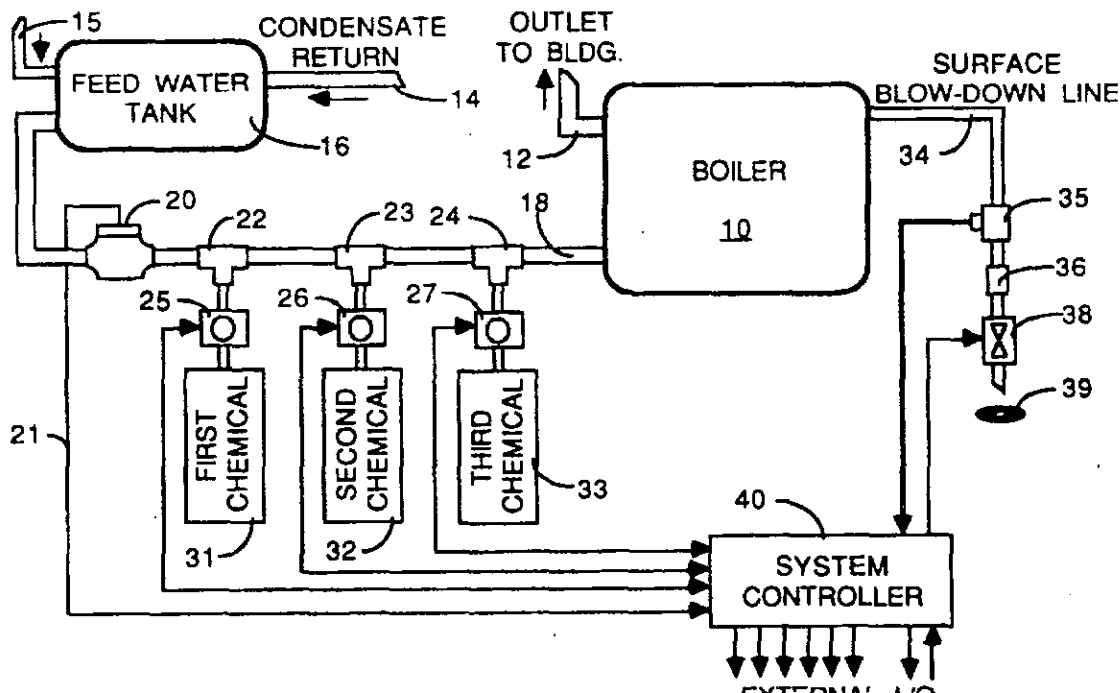
Brochure describing the System K electronic pulse timer from Morr Controls. Nov. 1986.

*Primary Examiner*—Edward G. Favors  
*Attorney, Agent, or Firm*—Quarles & Brady

[57]

**ABSTRACT**

An apparatus controls treatment of water flowing through a boiler and includes a device that monitors the conductivity of the water. A controller opens a drain valve at periodic intervals, and closes the drain valve when the conductivity drops below a defined threshold. A mechanism measures the volume of water that flows into the boiler and a chemical is added to the water when a specified amount of water has flowed into the boiler. Alternatively the application of the chemical can occur at regular intervals of time. The chemical is applied for a user definable period of time. The application of the chemical is suspended when the cessation of water flow into the boiler is detected.

**15 Claims, 7 Drawing Sheets**

5,152,252

11

by entry 87 of the configuration data table. When an exit from the warning state is indicated, the program execution advances to step 163 where the display 56 is cleared of any warning message that was previously being displayed, the state semaphore is changed at step 164 to indicate the reset state. The program execution then returns to step 110 of the main program.

When the controller is in the reset state, the program execution branches from step 160 to step 166. At this step, the microcomputer 44 stores a low logic level in the output data latch 72 that is associated with the first relay 74 to close the drain valve 38 terminating the blow down. Then at step 167, the sampling timer is loaded with the sampling interval read from entry 91 of the configuration data table 87. Finally at step 168, the state semaphore is changed to indicate the idle state before the one-second subroutine terminates.

Referring once again to the main control program flowchart of FIG. 4, when the one-second subroutine terminates at any of the previously described points, the program execution returns from step 109 which called the subroutine to step 110. At this time, the one-second counter is tested to determine if five seconds have elapsed since the counter was reset. Whenever five seconds has elapsed, a five-second subroutine is called from step 111.

With reference to FIG. 7 the five-second subroutine commences execution at step 200 where the microcomputer 44 zeroes the one-second counter so that another five-second interval can be measured. Then at step 201 the microcomputer sends the most recent conductivity measurement to the driver 50 for the 4-20 milliampere current loop output.

The program execution advances to step 202 at which the microcomputer 44 reads the count from the internal counter circuit that receives the flow rate signal from meter 20 before resetting the count to zero. At step 204, the microcomputer uses this count, acquired during the five second flow sampling period, together with the information about the flow meter 20 stored in section 99 of data table 87 to calculate the incremental volume of water fed to the boiler 10 during the flow sampling period. The incremental water volume measurement is added at step 206 to a memory location which holds the total volume of water fed to the boiler 10 since installation of the system controller 40. Next the incremental water volume measurement is added to the contents of the volume register for each of the three chemicals in the microcomputer's internal memory. The sums are stored back into those registers at step 208. The contents of each of the three memory registers indicate the amount of water that has flowed into the boiler 10 since the last application of the corresponding chemical.

The incremental water volume measurement also is added to an output signal volume register at step 210. Then at step 212 this latter register is examined to determine if a water flow signal pulse should be sent by the fifth opto-isolator 82. This signal is pulsed every time a given amount of water has been fed to the boiler as indicated by entry 100 in the configuration data table 87. Thus, whether to pulse this signal is determined by comparing this data table entry with the contents of the output signal volume register. When appropriate a signal

12

The execution of the five-second subroutine terminates returning to the main control program at step 112.

At that step in the program shown in FIG. 4, the microcomputer 44 inputs from the keypad 54 are tested to detect if a key is depressed by the operator. If so, a variable that indicates the type of data to be presented on display 56 is changed to the next type at step 114. In the run mode the keypad 54 is used only to change the type of data being displayed. For example, information regarding the relay states, time of day, water conductivity, total flow volume and sensor temperature alternatively can be displayed. The set-up switch 53 then is checked at step 116 to determine whether the system is to be placed in the set-up mode and if so, the program execution jumps to the set-up routine at step 118. The program execution then returns to step 102 to repeat the control loop.

We claim:

1. A water treatment controller for a boiler which includes a drain valve, a water inlet and a mechanism for adding a chemical to water used by the boiler, said water treatment controller comprising:

means for sensing the conductivity of boiler water; valve control means for periodically opening the drain valve, and for closing the drain valve when the conductivity is less than a defined threshold level;

means for detecting the flow of water through the inlet;

means for operating the mechanism to add the chemical in response to an occurrence of a given event; means for measuring of the amount of time that the chemical is being added to the water after the occurrence of the given event;

means for terminating the addition of the chemical when said means for measuring indicates that the chemical has been added for a predefined interval; and

means for halting the addition of chemical when said means for detecting the flow of water indicates that water has ceased flowing through the inlet.

2. The water treatment controller as recited in claim 1 wherein said means for operating suspends adding the chemical when water ceases flowing through the inlet, and resumes when water again flows through the inlet.

3. The water treatment controller as recited in claim 2 wherein the operation of said means for measuring is suspended and a measurement of time is retained when water ceases flowing through the inlet, and the operation of said means for measuring resumes when water flows again through the inlet.

4. The water treatment controller as recited in claim 1 further comprising means, responsive to said valve control means, for measuring a length of time that the drain valve is opened; and means for producing a warning signal when the length of time exceeds a predetermined amount.

5. The water treatment controller as recited in claim 1 wherein:

said means for detecting the flow of water includes means for measuring the volume of water flowing through the inlet; and

said means for operating the mechanism to add a

5,152,252

13

nism to add the chemical to the water after a preset interval of time has elapsed from a previous addition of the chemical.

7. A water treatment controller for a boiler which includes a drain valve, a water inlet and a mechanism for adding a chemical to water used by the boiler, said water treatment controller comprising:

means for sensing the conductivity of water flowing from the boiler through the drain valve, such sensing commencing a preset interval of time after the drain valve is opened;

valve control means for periodically opening the drain valve, and for closing the drain valve when the conductivity is less than a user defined threshold level;

means for measuring of the amount of water flowing through the inlet;

means for operating the mechanism to add the chemical to water for a preset length of time either in response to a predefined amount of water flowing through the inlet since a previous application of the chemical, or at a predefined interval of time since a previous application of the chemical, as selected by a user; and

means for halting the addition of the chemical whenever said means for measuring indicates that water has ceased flowing through the inlet.

8. The water treatment controller as recited in claim 7 wherein said means for operating the mechanism to add the chemical to water includes a timer for measuring an amount of time that the chemical is added to the water, in which the operation of said timer is suspended whenever said means for measuring indicates that water is not flowing through the inlet.

9. A controller, for an apparatus that adds a chemical to fluid flowing through a conduit, comprising:

means for sensing the flow of fluid through the conduit;

means for timing an amount of time that the chemical is being added to the fluid; and

means for operating the apparatus by enabling addition of the chemical in response to an occurrence of a given event, disabling the addition of the chemical when said means for timing indicates that the chemical has been added for a user defined period, and suspending the addition of chemical when said means for sensing indicates that fluid has ceased flowing through the conduit.

10. The controller as recited in claim 9 wherein said means for operating the apparatus resumes the sus-

14

pended addition of the chemical when fluid flows again through the conduit.

11. The controller as recited in claim 9 wherein the operation of said means for timing is suspended and a measurement of time is retained when fluid ceases flowing through the conduit, and the operation of said means for timing resumes with that measurement when fluid flows again through the conduit.

12. The controller as recited in claim 9 wherein:

said means for sensing the flow of fluid measures the volume of fluid flowing through the conduit; and said means for operating the apparatus enables addition of the chemical to the fluid in response to an indication from said means for sensing that a predefined volume of fluid has flowed through the conduit.

13. The controller as recited in claim 9 wherein said means for operating the apparatus enables addition of the chemical to the fluid when a preset interval of time has elapsed from a previous addition of the chemical.

14. A control system, for a boiler which includes a drain valve and a water inlet, comprising:

means for detecting the conductivity of water flowing from the boiler through the drain valve, such detecting commences a preset interval of time after the drain valve is opened;

valve control means for periodically opening the drain valve, and for closing the drain valve when the conductivity is less than a defined threshold level;

means for measuring of the amount of water flowing through the inlet;

an electric switch;

switch control means for closing said switch for a preset length of time either in a first mode when a predefined amount of water flows through the inlet or in a second mode at a predefined interval of time after a previous closure of said switch, the first or second mode being selected by a user of the control system, and said switch control means in the first mode opening said switch whenever said means for measuring indicates that water has ceased flowing through the inlet.

15. The control system as recited in claim 14 wherein when said switch is opened in response to a cessation of water flow through the inlet, said switch control means closes said switch for a remainder of the preset length of time when the water flows again through the inlet.

\* \* \* \* \*