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Señores

DIVISION DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Santafé de Bogotá, D C

SUPERINDUSTRIA Y COMERCIO
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Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

RE Código 02-01-08

Expediente No 00 16 037

Solicitud de Patente

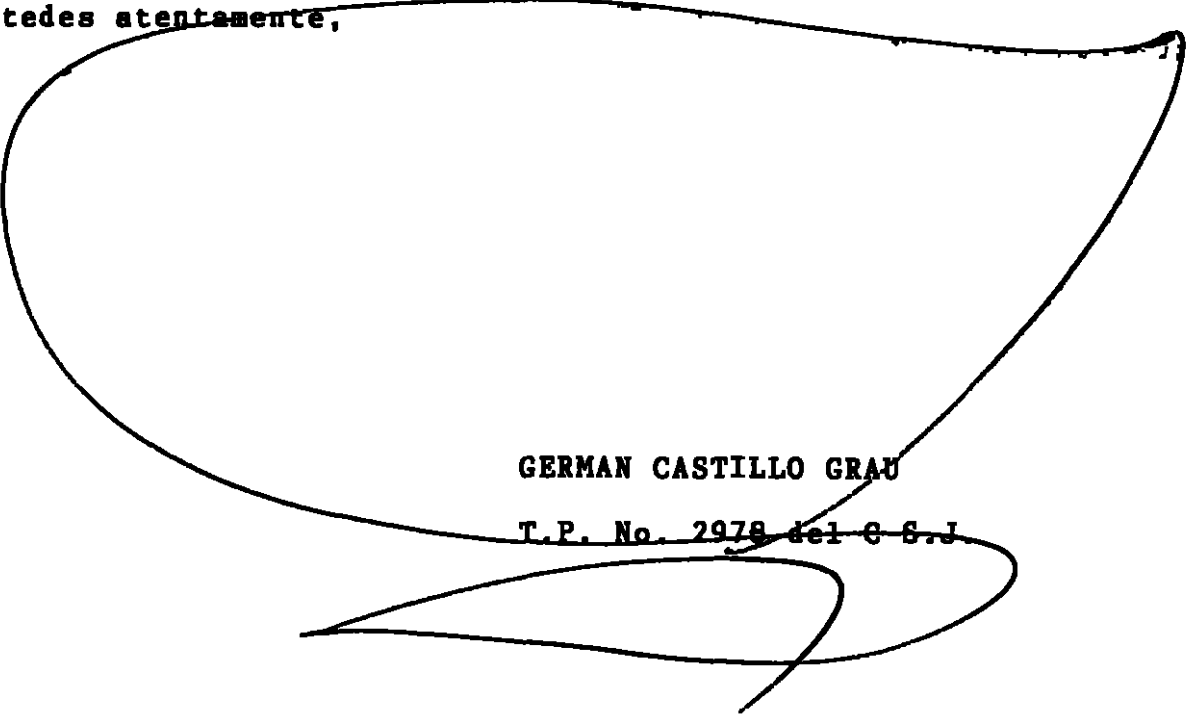
LAFARGE CORPORATION

En relación con el expediente de la referencia y dando cumplimiento a la última providencia recaída sobre este asunto por medio del presente escrito me permito manifestarles lo siguiente

- 1 - Acompaño una copia auténtica del poder conferido por la sociedad solicitante, debidamente legalizado y oficialmente traducido
- 2 - Acompaño la copia certificada de la solicitud básica de patente de la cual se reclama prioridad, la cual se encuentra traducida en sus apartes pertinentes
- 3 - Adjunto un nuevo juego de dibujos
- 4 - Igualmente adjunto el arte final por triplicado

Renuncio al término faltante de traslado, y les solicito ordenar
la publicación del extracto

De Ustedes atentamente,



GERMAN CASTILLO GRAU

T.P. No. 2978 del C.S.J.

25 29



CONSULADO DE COLOMBIA
WASHINGTON, D C

No. 1109

EL CONSULADO DE COLOMBIA
CERTIFICA

Que es auténtica la firma de PATRICK O HATCHETT
quien el día 1 DE MAYO DEL 2000
desempeñaba las funciones de OFICIAL DE AUTENTICACIONES DEPARTAMENTO DE ESTADO
la cual aparece al pie de los documentos anexo relacionados con poder General

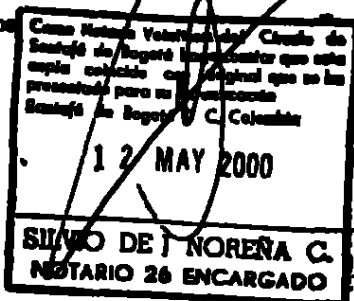
Dado en Washington, D.C. a los PRIMERO (1) días del mes de
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Pagado Impuesto de Timbre

Pagado Derecho Consular

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JAQUELINE ESPITIA ARIAS
Vicecónsul



MINISTERIO DE RELACIONES
EXTERIORES

Arguello

160713

España

CUYA FIRMA APARECE EN EL
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LAS FUNCIONES INDICADAS

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MAY -8 A 11 51

Michavero

DELEGACIONES
SANTAFE DE BOGOTA D.C.

Casa Notaria Valiente del Círculo de
Santafé de Bogotá ha verificado que este
copio original con el que se le
presenta para su certificación
Santafé de Bogotá D.C. Colombia

12 MAY 2000

SILVIO DE LA NOREÑA C.
NOTARIO 26 ENCARGADO

United States of America

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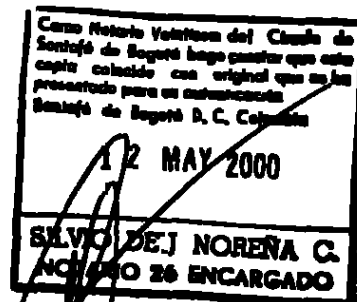


DEPARTMENT OF STATE

To all to whom these presents shall come, Greetings:



I Certify That the document hereunto annexed is under the Seal of the State(s) of Virginia, and that such Seal(s) is/are entitled to full faith and credit *



In testimony whereof, I, Madeleine K Albright, Secretary of State, have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Assistant Authentication Officer, of the said Department, at the city of Washington, in the District of Columbia, this first day of May, 2000

Madeleine K. Albright

Secretary of State

By

Paul V. Hunt

Assistant Authentication Officer,
Department of State

Issued pursuant to CIOIV, State of
Sept. 15, 1789, 1 Stat. 68-69; 22
USC 2657-22 USC 2651a, 5 USC
301 28 USC 1793 et. seq. 8 USC
1443(f); RULE 44 Federal Rules of
Civil Procedure.

**For the contents of the annexed document, the Department assumes no responsibility.
This certificate is not valid if it is removed or altered in any way whatsoever*

COMMONWEALTH OF VIRGINIA

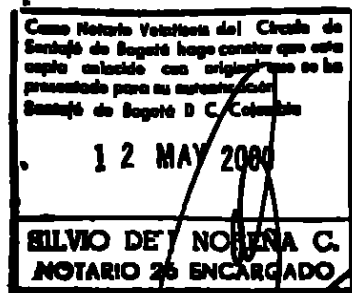


Office of the
Secretary of the Commonwealth

I, Anne P. Peters, Secretary of the Commonwealth, and as such, Keeper of the Great and Lesser Seals, do hereby certify that Pamela Melun, whose name is signed to the within Acknowledgment bearing date the 13th day of April, 2000, is and was at the time of signing same, a Notary Public for the Commonwealth of Virginia, that she is authorized by the laws of this Commonwealth to make and sign such instrument and that to all her official acts full faith, credit and authority are due and ought to be given.

Given under my hand and under the Great Seal of the Commonwealth, at Richmond, the 26th day of April, in the year of our Lord two thousand, and in the 224th year of the Commonwealth.

Anne P. Peters
Secretary of the Commonwealth



Castillo Grau & Associates

LAW OFFICES
P O BOX 251473
BOGOTA COLOMBIA

FOR PATENTS AND TRADE MARKS IN

COLOMBIA

PODER GENERAL

GENERAL POWER OF ATTORNEY

(1) LAFARGE CORPORATION

(1) LAFARGE CORPORATION

1 Applicant's name

domiciliado en (2) Reston, Estado
de Virginia, Estados Uni-
dos de América

domiciled in (2) 11130 Sunrise Valley Dr
Suite 300, Reston, Virginia 20191
United States of America

2 Applicant's Address

nombre al Dr (3) German Castillo Grau y/o Adriana
Castillo Gibsons y/o Luis Felipe Castillo Gibsons

hereby appoint Dr (3) German Castillo Grau and/or
Adriana Castillo Gibsons and/or Luis Felipe Castillo
Gibsons

3 Leave blank

con oficinas en la
Carrera 13 No 37 -43 Piso 12 en Bogotá
Colombia como sus representantes con poder
especial amplio y suficiente para recabar de
las oficinas y autoridades Colombianas
administrativas judiciales o de policía en
primera o segunda instancia la obtención de
Patentes de Invención Registro de Marcas de
Modelos y de Dibujos Industriales de Nombres
Comerciales y Enseñas lo mismo que
traspasos extensiones renovaciones cambios
de nombre registro de licencias de explotación
y registro de licencias de uso referentes a tales
actuaciones a cuyo efecto les faculta para dar
ante dichas autoridades todos los pasos
necesarios al objeto indicado elevar
solicitudes formular descripciones enmiendas
protestas declaraciones apelaciones y
reclamos solicitar la aplicación de medidas
cautelares aceptar en nuestro nombre y
representación la Cesión de derechos de
Invención y de patente de invención que se nos
haga por cualquier persona abonar todos los
impuestos cuotas y pagos determinados por la
ley recibir todos los documentos y valores
dando el descargo respectivo llenar
cualesquiera otros requisitos desistir y tomar
en fin todas las medidas que creyeren
conducientes al resguardo de nuestros
intereses y en caso de presentarse oposiciones
para que intervengan como demandantes o
como demandados con todas las demás
facultades legales necesarias Este poder
comprende además las facultades de recibir
desistir transigir comprometer sustituir
revocar sustituciones recibir notificaciones y
nombrar apoderados judiciales o extra-
judiciales

With
offices at Carrera 13 No 37 -43 Piso 12 en
Bogotá Colombia as our representatives with
special ample and sufficient power to obtain
from the offices and Colombian authorities
administrative judicial and police in first or in
second instance Patents of Invention
registration of trade Marks of Models and
Industrial Drawings of Commercial Names and
ensigns as well as assignments extensions
renewals changes of name registration of
licences of exploitation and of licences of use
referring to said actions who are empowered to
take before said authorities all of the necessary
steps for the purposes indicated to file
applications to formulate descriptions
corrections protests declarations appeals and
claims apply for precautionary measures to
accept on our behalf and representation the
assignment of rights of invention and titles of
invention that may be done to us by any
person to pay all taxes quotas and payments
prescribed by law to receive all the documents
and proceeds giving the respective acquittance
or receipt to fulfill any other requisites to desist
and take in fact any other measures that may
be deemed conducive to the safeguard of our
interests and in case oppositions are
presented to intervene as complainant and
defendant with all necessary legal faculties
This power of attorney includes the faculties to
receive desist compromise transact
substitute it in all or in part to revoke
substitutions to receive notifications and to
appoint extra-judicial or judicial attorneys

4 Date

5 Applicant's signature

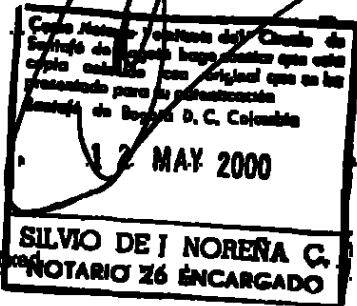
The applicant's signature
must be attested by a No-
tary Public through the
NOTARIAL CERTIFICATE
in the "(Individual)" when
the signer is a natural
person and in the
"(Corporations)" when is a
legal one The Notary's
signature must then be
legalized by a Colombian
Consular Officer

La firma del solicitante
debe ser atestada por un
Notario Público por medio
de la DECLARACION
NOTARIAL en la "(Indivi-
dual)" cuando el firmante
es una persona natural y
en la de "(Sociedades)"
cuando es una persona
jurídica La firma del
notario deberá ser lega-
lizada por el Consulado
Colombiano

Dado y firmado en (4)

Given and signed in (4) April 13, 2000

(5)



Corporate Seal to be affixed

Lafarge Corporation
by [Signature]

La declaración Notarial a la vuelta
Notarial acknowledgement on other side

DECLARACION NOTARIAL

(Individual)

A los días del mes de 19
comparecí personalmente ante mí No-
tario Público

a quien(es) doy fe de conocer y me consta que
es (son) la(s) persona(s) descritas y fir-
mante(s) del documento que precede decla-
rando ante mí que otorga(n) el mismo para los
fines y propósitos que en él se expresan

El Notario Público,

NOTARIAL CERTIFICATE

(Individual)

On this day of 19 personally
appeared before me a Notary Public

to me known and known to me be the
person(s) described in and who executed the
foregoing document, and he (they) duly ack-
nowledged to me that he (they) executed same
for the uses and purposes therein expressed

Notary Public

(Sociedades)

El infrascrito Notario Certifica que la firma
que antecede y dice
David C. Jones

es auténtica que el signatario desempeña
actualmente el cargo de **Vice-Presi-
dente de Asuntos Legales**
de **Lafarge Corporation**

que tiene facultad para otorgar este poder y
que dicha compañía está domiciliada en
Reston, Virginia, E.U.A.

y actualmente existe y está organizada de
acuerdo a las leyes de los Estados Uni-
dos de América

Todos los hechos anteriores le constan por
haber examinado los documentos respectivos
y de todo ello da fe

Dado y firmado en

El Notario Público

(Corporations)

The undersigned Notary Public certifies that
the preceding signature reading
David C. Jones

is authentic that the signor at present fills the
post of **Vice President - Legal Affairs**
and **Secretary**
of **LAFARGE CORPORATION**

and that he is empowered to grant this power
and that said company is domiciled in **11130**
Sunrise Valley Drive, Suite 300
Reston, Virginia 20191, US

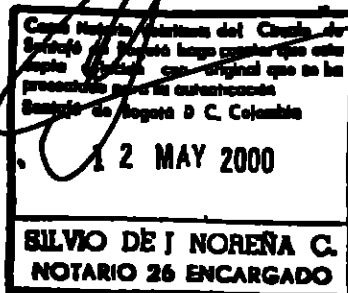
and actually exists and is organized in accor-
dance with the laws of The United States
of America

all the foregoing facts are known to the No-
tary due to his having examined the respective
documents to which he the Notary attests

Granted and signed in **Reston, VA**
April 13, 2000

Notary Public

Barbara M. M...
Miguelina M. M... 11-5000



(Con legalización Consular)

(With Consular legalization)*

TRADUCCIÓN OFICIAL NO 8113 DE UN DOCUMENTO ESCRITO EN INGLÉS, realizada por María Mercedes Unicoechea T, Traductora/Interprete Oficial según Res. 10607 del 31 de diciembre de 1981 del Ministerio de Justicia. Bogotá, 8 de mayo de 2000

LEGALIZACIONES DE UN PODER CON TRADUCCIÓN AL ESPAÑOL, OTORGADO POR LAFARGE CORPORATION, A LOS DOCTORES GERMAN CASTILLO GRAU Y/O ADRIANA CASTILLO GIBSONE Y/O LUIS FELIPE CASTILLO GIBSONE

PODER SUSCRITO en Virgina, por DAVID C JONES, Vicepresidente, Asuntos Legales y Secretario

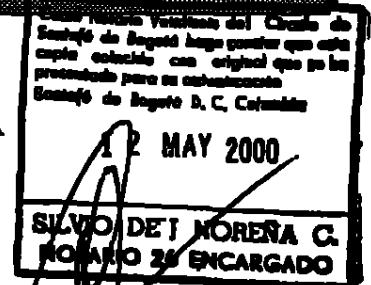
RECONOCIMIENTO NOTARIAL Suscrito por PAMELA MELVIN Notaria Pública, Estado de Virginia. Mi comisión termina el 30 de noviembre de 2000

MANCOMUNIDAD DE VIRGINIA

MANCOMUNIDAD DE VIRGINIA

Oficina del

Secretario de la Mancomunidad



Yo, Anne P Petera, Secretaria de la Mancomunidad, y como tal, Custodia de los Sellos, certifico por la presente que Pamela Melvin, cuyo nombre se ha suscrito en el Certificado que lleva la fecha 13 de abril de 2000, es y era en la fecha de suscribir el mismo, Secretaria Asistente de la Corte de Circuito del Condado de

María Mercedes Unicoechea T
Traductora/Interprete
Oficial

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Fairfax, que dicha Notaria está autorizada por las leyes de esta Mancomunidad para hacer y firmar dicho instrumento y que a todos sus actos oficiales se les debe dar plena fe y crédito

Dado bajo mi firma y Gran Sello de la Mancomunidad en Richmond, hoy 26 de abril de 2000

(FIRMA) *Anne P Petera. Secretaria.*

(GRAN SELLO DORADO)

No 00025307-1

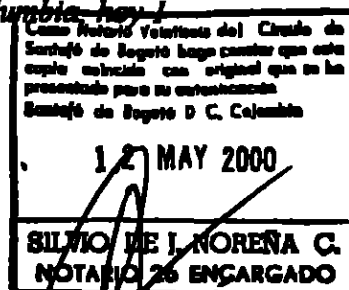
Estados Unidos de América
DEPARTAMENTO DE ESTADO

A todos a Quienes Llegue el Presente, Os Saludo

Certifico que el documento adjunto se encuentra bajo el sello del Secretario de Estado del Estado de Virginia, y que a dicho sello debe dársele plena fe y crédito.

En Testimonio de lo cual, Yo, Madeleine K. Albright Secretaria de Estado, he ordenado al Funcionario de Autenticaciones suscribir mi nombre y colocar el sello del Departamento de Estado en la Ciudad de Washington, Distrito de Columbia, hoy 1 de mayo de 2000

Madeleine K. Albright - Secretario de Estado
Patrick O Hatchett - Oficial de
Autenticaciones Departamento de Estado



EN ESPAÑOL La legalización de la firma y cargo anterior por parte del Consulado de Colombia en Washington, D C , de fecha 1 de mayo de 2000, bajo el No 1109, y por el Jefe de Legalizaciones del Ministerio de Relaciones Exteriores, de fecha 8 de mayo de 2000, bajo el No 160713

Handwritten signature: *Harold M. M... 2-1*

MINISTERIO DE RELACIONES
EXTERIORES

260811
MARIA VALENCIA
CUIA FICHA APARECE EN EL
DOCUMENTO DE SEMPENA
LAS FUNCIONES INDICADAS

NO SE ASUME
RESPONSABILIDAD DEL TEXTO

2000 MAY 10
JEFF DE LEGALIZACIONES
SANTA E DE BOGOTA D C

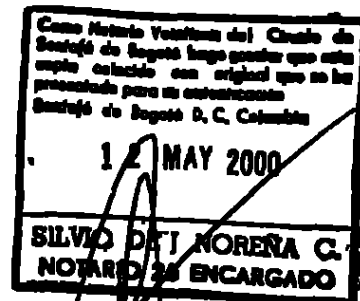
Como Notario Voluntario del Consejo de
Santafé de Bogotá luego constar que este
copio copiado con original que se ha
presentado para su inscripción
Santafé de Bogotá D C, Colombia
12 MAY 2000
SILVIO DE LA MORENA C
NOTARIO EN ENCARGADO

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La anterior es una traducción fiel y completa de la cual se deja copia en los archivos
de la calle 84 no 18-38 of 201 para su confrontación. tel 623 3301

MARIA MERCEDES URICOECHEA T
C C 41 319,274 BOGOTA
TRADUCTORA/INTERPRETE OFICIAL
RES 10607 DEL 31 DE DERE/81, MINJUSTICIA

FIN DE LA TRADUCCION NO. 8113



Maria Mercedes

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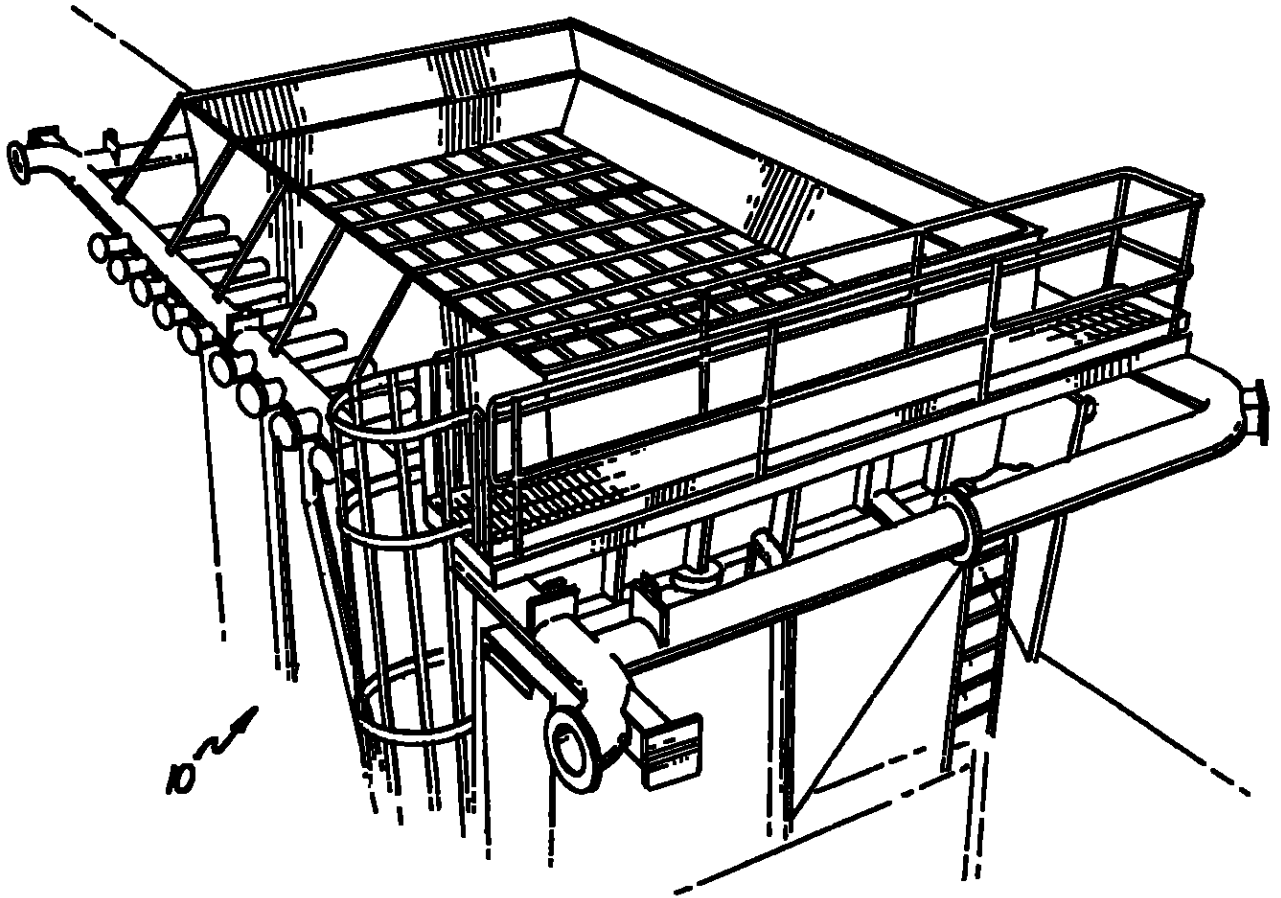


FIG. 1

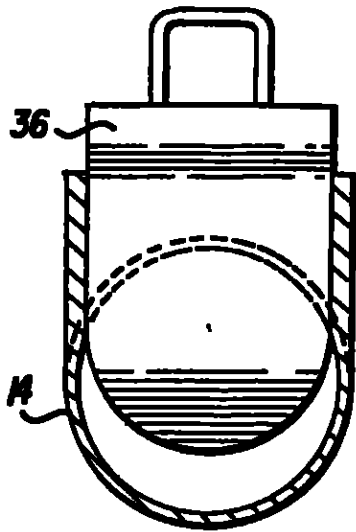
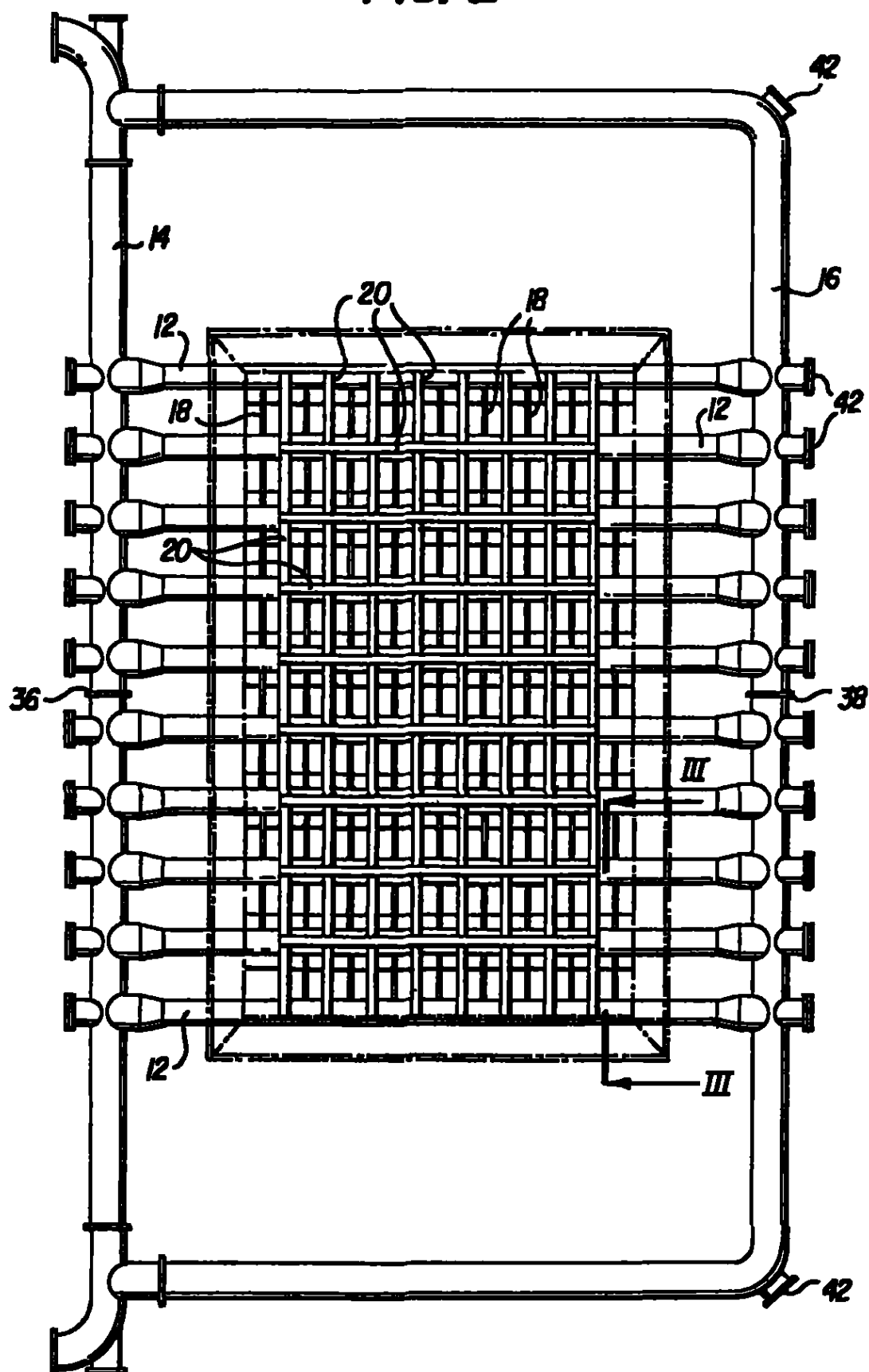


FIG. 7

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FIG. 2



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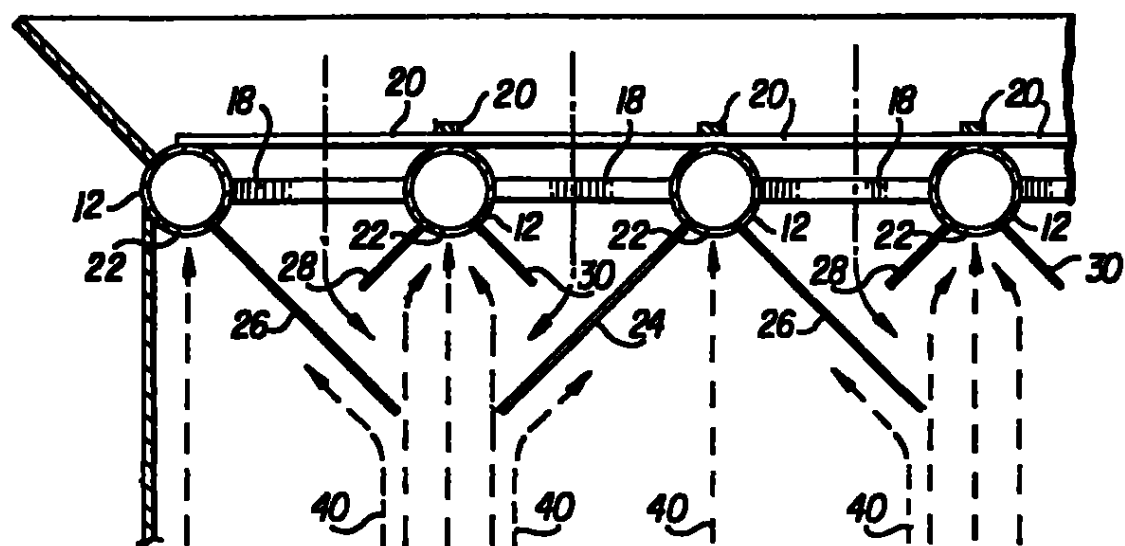


FIG. 3

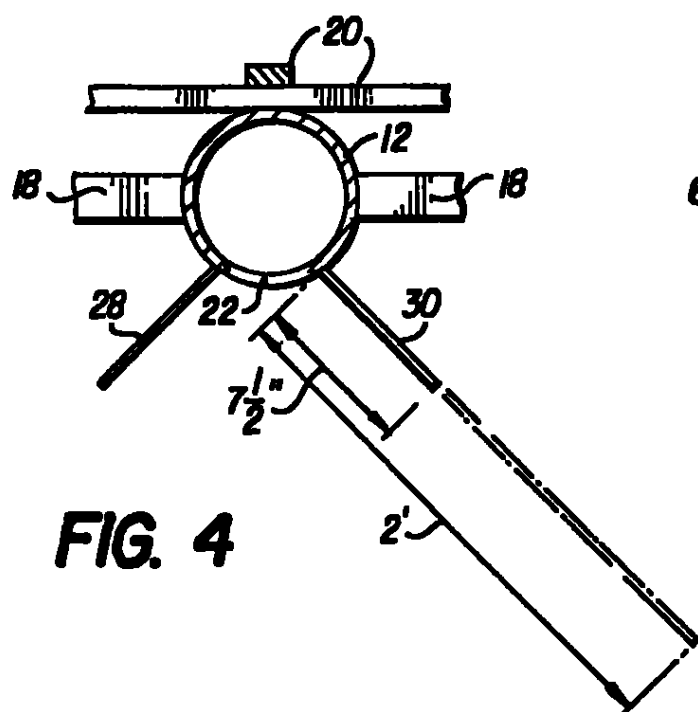


FIG. 4

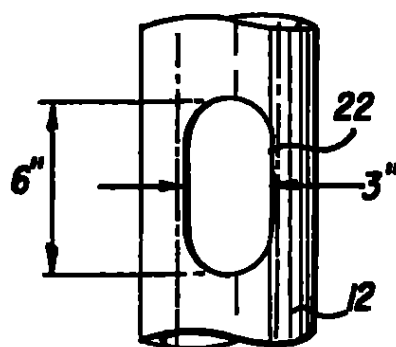
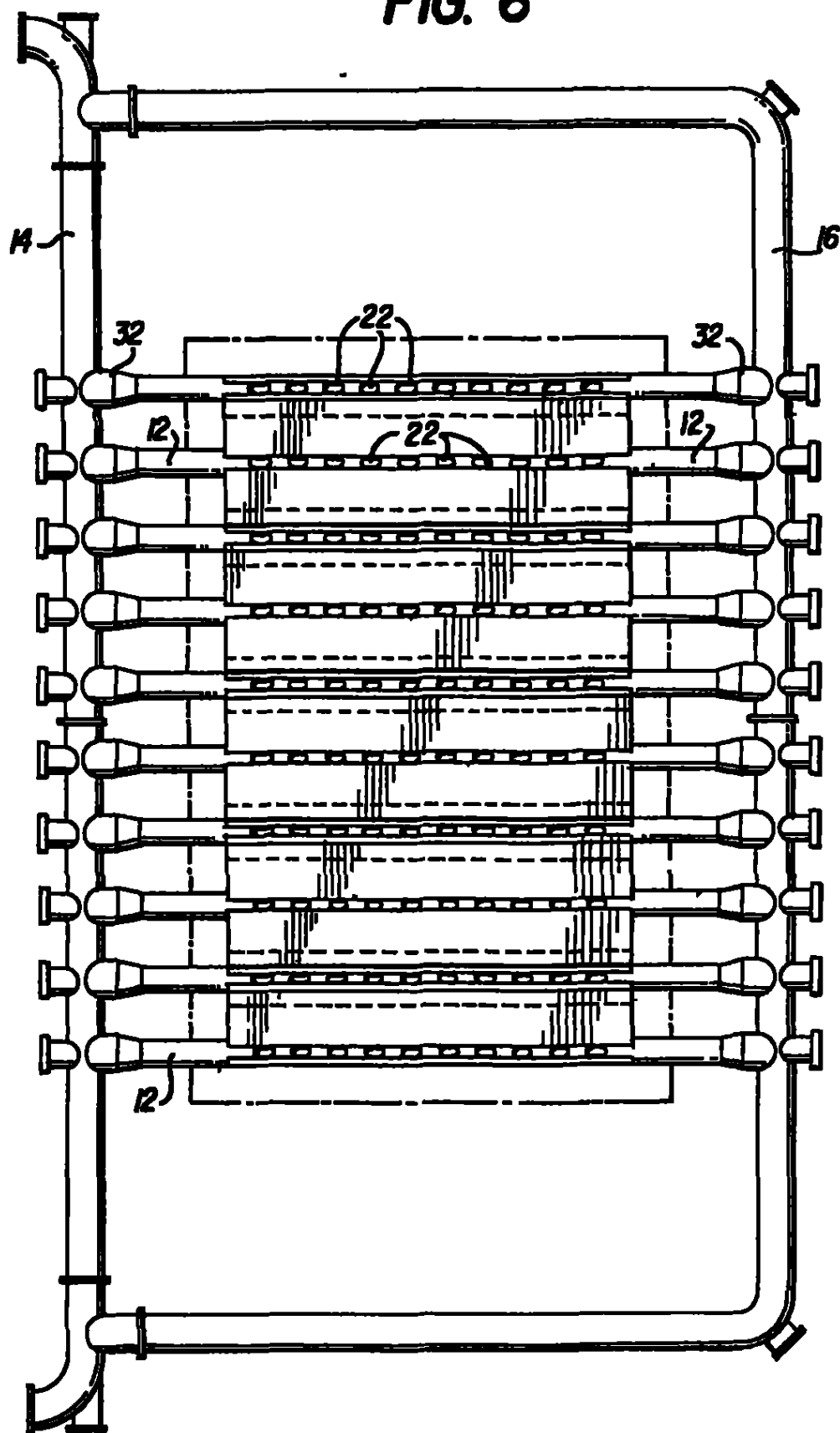


FIG. 5

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FIG. 6





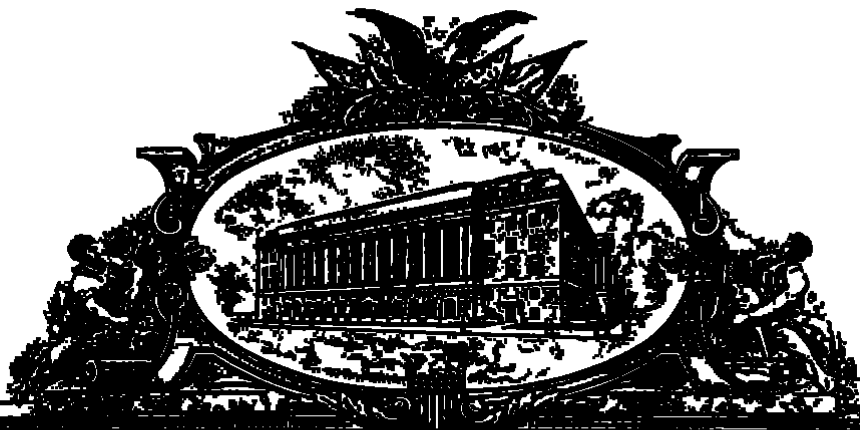
F R M A T D E D I G I T A L I Z A C I N
R E L A C I O N D E A N E X O S



R o y a n
T e c h n o l o g i e s S . A.
B o g o t á C o l o m b i a

Expediente No		No de Folio
00016037		36
Item	No de unidades	
1	CD	
2	DVD	
3	REVISTA	
4	LIBRO	
5	PERIODICO	
6	DISQUETES	
7	SOBRE DE MANILA	
8	SOBRE BLANCO TAMAÑO CARTA	
9	SOBRE BLANCO TAMAÑO OFICIO	
10	OTROS	
Observaciones Ate final		

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THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

March 13, 2000

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111**

APPLICATION NUMBER 09/263,523

FILING DATE March 05, 1999



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

**T LAWRENCE
Certifying Officer**

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10400 U S PTO
03/05/99

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
UTILITY PATENT
APPLICATION TRANSMITTAL LETTER

10400 U S PTO
09/26/93
03/05/99

Box PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D C 20231

Sir

Enclosed for filing is the utility patent application of Ernie HYDES for DUST
COLLECTION SYSTEM.

Also enclosed are

- ☒ 4 sheet(s) of ☒ formal ☐ informal drawing(s)
- ☐ a claim for foreign priority under 35 U S C §§ 119 and/or 365 is ☐ hereby made to
filed in on ,
☐ in the declaration
- ☐ a certified copy of the priority document;
- ☐ a Constructive Petition for Extensions of Time,
- ☐ statement(s) claiming small entity status,
- ☒ an Assignment document,
- ☐ an Information Disclosure Statement, and
- ☐ Other

The declaration of the inventor(s) ☒ also is enclosed ☐ will follow

- ☐ Please amend the specification by inserting before the first line the sentence --This application claims priority under 35 U S C §§119 and/or 365 to filed in on , the entire content of which is hereby incorporated by reference --

09263523-030599

The filing fee has been calculated as follows [] and in accordance with the enclosed preliminary amendment

	NO OF CLAIMS		EXTRA CLAIMS	RATE	FEE
Basic Application Fee					- \$760 00
Total Claims	10	MINUS 20 =	0	x \$18 00	0
Independent Claims	2	MINUS 3 =	0	x \$78 00	0
If multiple dependent claims are presented add \$260 00					
Total Application Fee					760 00
If verified Statement claiming small entity status is enclosed, subtract 50% of Total Application Fee					
Add Assignment Recording Fee of \$40 00 if Assignment document is enclosed					40 00

- ☒ A check in the amount of \$ 800.00 is enclosed for the fee due
☐ Charge \$ _____ to Deposit Account No 02-4800 for the fee due

Please address all correspondence concerning the present application to

William C Rowland
Burns, Doane, Swecker & Mathis, L.L.P
P O Box 1404
Alexandria, Virginia 22313-1404

The Commissioner is hereby authorized to charge any appropriate fees under 37 C F R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No 02-4800 This paper is submitted in triplicate

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P

Date March 5, 1999

By William C Rowland
William C Rowland
Registration No 30,888

P O Box 1404
Alexandria Virginia 22313-1404
(703) 836-6620

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DUST COLLECTION SYSTEM

BACKGROUND OF THE INVENTION

1 Field of the Invention

5 The present invention relates to a dust collection system, and in particular, to an arrangement on top of a hopper for preventing excessive dust from escaping into the atmosphere during loading of the hopper

2 Description of Related Art

10 Although the present invention is primarily intended to minimize dust during the loading of dockside mobile hoppers with clinker using ship cranes, the application has widespread application For example, the present invention could be utilized in grain bins, and in any other application in which particulate matter
15 generates unacceptable levels of dust during loading thereof

Many states have environmental regulations controlling and limiting the generation of dust See, e g , Chapter 403 of Title 62 of the Florida Statutes
20 and the rules promulgated thereunder in the Florida Administrative Code See, in particular, Section 62-204, F A C

Prior to the present invention, several efforts had been made to control dust For example, U S Patent No
25 4,324,524 discloses a dust retention device for containing dust arising from the handling of particulate material The '524 patent discloses a plurality of shutters 6, 7, 8, that are suspended from rods 9
However, the shutters 6, 7, 8 are not overlapping, and
30 there is an opening between the shutters through which

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dust can escape Furthermore, the shutters are able to pivot or rotate about the rods 9, thus enabling the openings to become rather significant As a result, large quantities of dust may be emitted through these openings

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U S Patent No 4,699,187 discloses another dust control system The system disclosed in '187 patent utilizes large shield plates 24, 24' to trap dust therebeneath The system disclosed in the '187 patent does not utilize a plurality of openings extending along the area underneath the plates 24, 24' Instead, the disclosed system utilizes collectors 20, 20' at each end of the system In addition, the '187 system includes a fabric filter 22 over the intake areas, which would limit the ability of the system to collect and remove dust

20
U S Patent No 3,885,606 discloses an apparatus for loading fine granular and pulverized loose solids The disclosed apparatus seems more concerned with breaking up the material and removing air from it, than for containing dust

25
Accordingly, prior to the present invention, there existed a need in the art for an economical and effective system for minimizing the amount of dust generated when loose particulate material, such as cement clinker, is loaded into a hopper

OBJECTS AND SUMMARY

30
It is an object of the present invention to provide a dust collection system that effectively collects dust as particulate matter is loaded into hoppers

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It is another object of the present invention to provide a dust collection system that includes a plurality of small ports evenly distributed throughout the opening to the hopper so that the dust can be collected in small, uniform quantities

It is still, yet another object of the present invention to provide a dust collection system that includes a plurality of inverted V-shaped plates that are arranged in an overlapping matter to promote effectiveness in collecting the dust

It is still another object of the present invention to provide a dust collection system, wherein the ports for collecting the dust are provided at the apex of inverted V-shaped plates so that the dust, which naturally rises upwardly, is collected through the ports

According to the present invention, the dust collection system includes a frame defining an opening through which a particulate material is inserted, and a plurality of hollow supports extending across the opening. The system further includes at least one plate extending along a length of each of the plurality of hollow supports, wherein each of the plates extends from its respective one of the plurality of hollow supports in a downward direction. A plurality of openings extends along a lower side of each of the plurality of hollow supports, and a device for drawing dust in through the plurality of openings is also provided

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BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a top perspective view of a cement hopper incorporating the present invention,

5 Figure 2 is a top plan view of the present invention,

Figure 3 is a cross-sectional view taken along lines 33 of Figure 2,

Figure 4 is a detailed view of Figure 3,

10 Figure 5 is a view of the underside of one of the pipes of Figure 3 illustrating the openings therein,

Figure 6 is a view similar to Figure 2, except that illustrates the underside of a central portion of the device, and

15 Figure 7 is a detailed view of a cutoff plate used in the present invention

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5 20 The present invention relates to a dust collection system for collecting dust from clinker material as the clinker material is loaded into hoppers using a crane bucket. However, the present invention has wide applicability, and may also be used in other environments, such as in grain bins or in other hoppers for loose, particulate material

25 According to one preferred embodiment, a mobile hopper 10 is located at the edge of a dock for receiving clinker material from a ship. At the top of the hopper is a frame that includes a plurality of hollow support pipes 12 extending in parallel across the frame opening. The hollow support pipes 12 are supported at each end by manifold pipes 14, 16. Enlarged junction sections 32

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form the transition between the hollow support pipes 12 and the manifold pipes 14, 16

Each of hollow support pipes 12 are spaced from each other by approximately two feet, on centers The_ 5 hollow support pipes 12 are preferably eight inch diameter, schedule 80 pipes However, alternatives may be used for the hollow support pipes

A plurality of metal bracing bars 18 are secured by welding, or some other suitable means, between the 10 hollow support pipes 12 to provide additional structural integrity to the system The bracing bars 18 are preferably one inch by two inches in cross section, and are about fifteen inches in length

In addition, a grid of metal bars 20 extend across 15 the top of the hollow support pipes 12 The bars 20 are intended to provide protection for the hollow pipes 12 For example, when the crane bucket is lowered into the hopper 10, the bucket will contact and rest upon the bars 20, without damaging the hollow pipes 12 The 20 support bars 20 are preferably one inch by three inches in cross section

At the underside of each of the hollow support pipes 12 are a plurality of openings 22 The openings are preferably oval and are preferably evenly spaced 25 along the support pipes so that the entire opening of the frame is uniformly populated with the openings 22 See, e g , Figure 6 The oval openings 22 are preferably about six inches along the major axis and about three inches along the minor axis See Figure 5

Every other hollow support pipe 12 includes a pair 30 of long vanes 24, 26 extending downwardly therefrom The vanes 24, 26 extend substantially along the entire length of each of the respective pipes 12 The vanes

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24, 26 are preferably about one-quarter inch thick, which is sufficient to keep them from being bent or damaged by the clinker material dropping through the frame. The long vanes 24, 26 in a preferred embodiment are two feet in width. See Figure 4.

On each of the hollow support pipes 12 between the previously described pipes 12 having the long vanes 24, 26, are arranged a pair of short vanes 28, 30. Each of the short vanes 28, 30 are also about one-quarter inch thick and have a width of about seven and one-half inches. See Figure 4.

The manifold pipes 14, 16 are separated into two sections by removable separating plates 36, 38. See Figure 7. When the separating plates 36, 38 are in place within their respective manifold pipes 14, 16, the system is essentially divided into two sections. In other words, all dust collected by the hollow support pipes 12 at the top half of Figure 2 is directed to one dust collector, while all dust collected by the hollow support pipes 12 at the bottom half of Figure 2 is directed to a different dust collector.

At each end of the manifold pipes 14, 16 are arranged conventional suction apparatus for creating a low pressure throughout the manifold pipes 14, 16 and the connected plurality of hollow support pipes 12. The suction apparatus collectively draws about 15,000 cubic feet per minute. The air velocity through the manifolds is about 5,000 feet per minute in a preferred embodiment.

Operation of the Apparatus

As a load of clinker material is dropped into the hopper 10, some of the material lands on the top of the

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long vanes 24, 26 and cascades down the width of the long vanes 24, 26 into the hopper The remaining portion of the clinker material lands on the short vanes, 28, 30, from which it cascades down onto the long vanes 24, 26, and joins the remaining material as it cascades into the hopper As the material falls into the hopper, dust 40 is generated within the hopper 10 and billows upwardly However, the upwardly moving dust 40 is trapped by the overlapping arrangement of long and short vanes 24, 26, 28, 30 Furthermore, in view of the fact that the plurality of openings 22 are located at the apex of the short and long vanes 24, 26, 28, 30, the dust 40 that has risen upwardly in the hopper 10 is sucked into the plurality of hollow support pipes 12 through the openings 22 and is carried through the manifold pipes 14, 16 to the appropriate dust containment apparatus

At the bottom of the hopper, the clinker material encounters a vibrating feeder which charges a conveyor system which carries the clinker material to a material storage building

Because the plurality of openings 22 are uniformly situated throughout the frame opening of the hopper 10, the dust 40 is collected in small portions reducing the likelihood of clogging In addition, because of the large plurality of openings 22, very little dust escapes upwardly through the plates The majority of the dust is contained within the system

Clean out ports 42 are provided on each of the manifold pipes 14,16, preferably in alignment with the hollow pipes 12 Thus, the plates on the clean out ports 42 can be removed providing easy access for cleaning out the hollow pipes 12 In addition, clean

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out ports can also be provided on corners of the manifolds 14, 16 or in any other location that may require periodic cleaning

- 5 Although only preferred embodiments are specifically illustrated and described herein, it will be appreciated that many modifications and variations of the present invention are possible in light of the above teachings and within the purview of the appended claims without departing from the spirit and intended scope of the invention

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What is claimed is

1 1 A dust collection system, comprising
2 a frame defining an opening through which a
3 particulate material is inserted,
4 a plurality of hollow supports extending across the
5 opening,
6 at least one plate extending along a length of each
7 of the plurality of hollow supports, each of said plates
8 extending from its respective one of the plurality of
9 hollow supports in a downward direction,
10 a plurality of openings extending along a lower
11 side of each of the plurality of hollow supports, and
12 means for drawing dust in through the plurality of
13 openings

1 2 The dust collection system of claim 1, wherein each
2 of the plurality of hollow supports includes two plates
3 extending downwardly therefrom so as to form an inverted
4 V

1 3 The dust collection system of claim 2, wherein the
2 plates of every other of the hollow supports are wider
3 in a direction transverse to the longitudinal direction
4 of the hollow supports than the plates of the remaining
5 hollow supports

1 4 The dust collection system of claim 3, wherein the
2 longer plates of the every other hollow supports extend
3 beneath the plates of the remaining hollow supports

1 5 The dust collection system of claim 1, further
2 comprising a collection pipe extending along one end of

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3 the plurality of hollow supports, and the hollow
4 supports are connected to the collection pipe so that
5 dust drawn into the hollow supports can pass through the
6 collection pipe to a dust collector - -

1 6 A dust collection system, comprising
2 a frame defining an opening through which a
3 particulate material is inserted,
4 a plurality of hollow supports extending across the
5 opening, each of the hollow supports including a
6 plurality of openings extending along a lower side
7 thereof,

8 a plurality of overlapping plates extending in a
9 downward direction from the plurality of hollow supports
10 and arranged such that any dust traveling straight up in
11 a vertical direction from below the frame will contact
12 at least one of the plurality of overlapping plates, and
13 means for drawing dust in through the plurality of
14 openings

1 7 The dust collection system of claim 6, wherein each
2 of the plurality of hollow supports includes two of the
3 overlapping plates extending downwardly therefrom so as
4 to form an inverted V

1 8 The dust collection system of claim 7, wherein the
2 plates of every other of the hollow supports are wider
3 in a direction transverse to the longitudinal direction
4 of the hollow supports than the plates of the remaining
5 hollow supports

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1 9 The dust collection system of claim 8, wherein the
2 longer plates of the every other hollow supports extend
3 beneath the plates of the remaining hollow supports

1 10 The dust collection system of claim 6, further
2 comprising a collection pipe extending along one end of
3 the plurality of hollow supports, and the hollow
4 supports are connected to the collection pipe so that
5 dust drawn into the hollow supports can pass through the
6 collection pipe to a dust collector

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Abstract of the Disclosure

A dust collection system includes a frame defining an opening through which a particulate material is inserted, a plurality of hollow supports extending across the opening, at least one plate extending along a length of each of the plurality of hollow supports, each of said plates extending from its respective one of the plurality of hollow supports in a downward direction, a plurality of openings extending along a lower side of each of the plurality of hollow supports, and a device for drawing dust in through the plurality of openings

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**COMBINED DECLARATION AND POWER OF ATTORNEY
FOR UTILITY PATENT APPLICATION**

Attorney's Docket No
015291-005

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 more than one name is listed below) OF THE SUBJECT MATTER
WHICH IS CLAIMED AND FOR WHICH A PATENT IS SOUGHT ON THE INVENTION ENTITLED

DUST COLLECTION SYSTEM

the specification of which

(check one) ☒ is attached hereto;
☐ was filed on _____ as
Application No. _____
and was amended on _____
(if applicable)

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 TO THE OFFICE ALL INFORMATION KNOWN TO ME TO BE
MATERIAL TO PATENTABILITY AS DEFINED IN TITLE 37 CODE OF FEDERAL REGULATIONS, Sec. 1.56
(as amended effective March 16 1992)

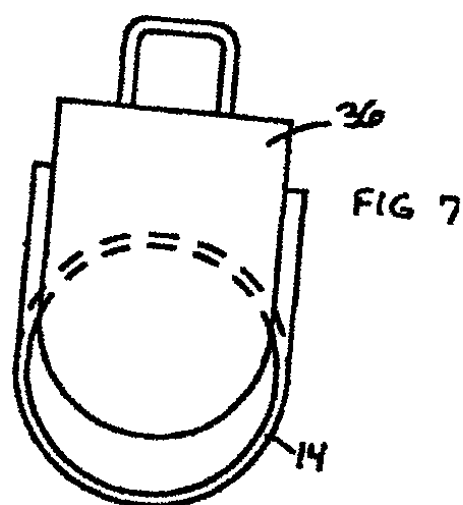
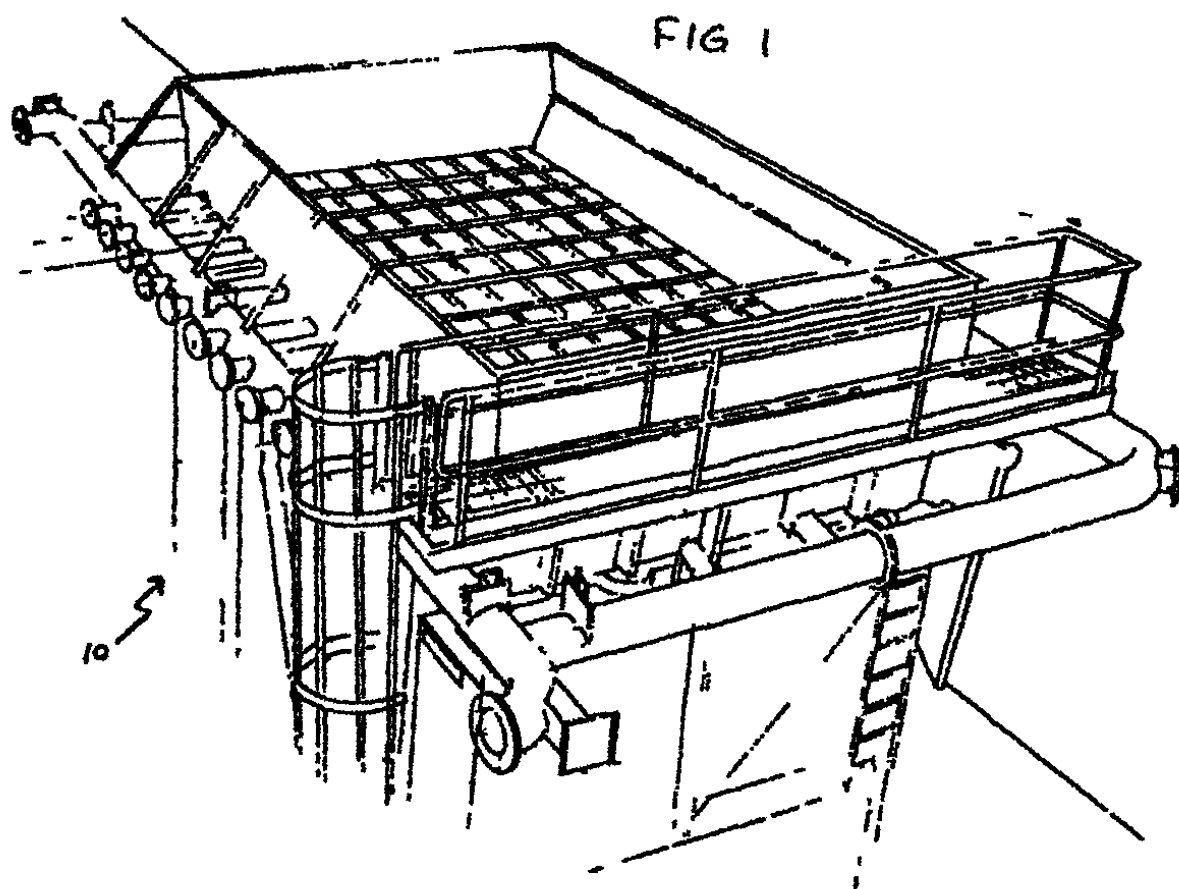
I do not know and do not believe the said invention was ever known or used in the United States of America before
my or our invention thereof or patented or described in any printed publication in any country before my or our
invention thereof or more than one year prior to said application, that said invention was not in public use or on sale
in the United States of America more than one year prior to said application, that said invention has not been patented
or made the subject of an inventor's certificate issued before the date of said application in any country foreign to the
United States of America on any application filed by me or my legal representatives or assigns more than twelve
months prior to said application;

I hereby claim foreign priority benefits under Title 35 United States Code Sec. 119 and/or Sec. 365 of any foreign
application(s) for patent or inventor's certificate as indicated below and have also identified below any foreign
application for patent or inventor's certificate on this invention having a filing date before that of the application(s) on
which priority is claimed.

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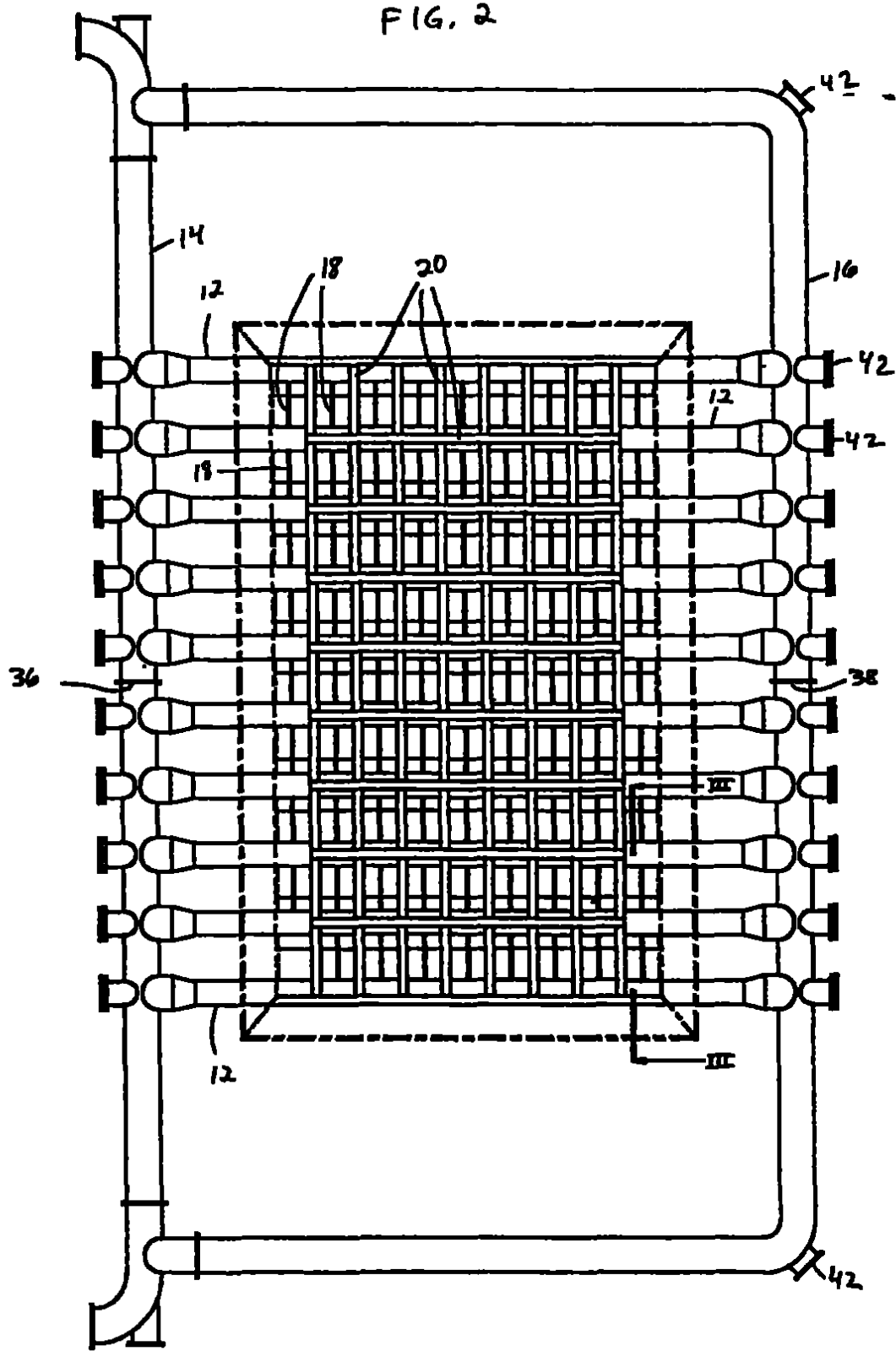
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COMBINED DECLARATION AND POWER OF ATTORNEY			Attorney's Docket No 015291-005		
COUNTRY/INTERNATIONAL	APPLICATION NUMBER	DATE OF FILING (day month, year)	PRIORITY CLAIMED		
			YES NO		
			YES NO		
I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention.					
William L. Mathis	17,337	George A. Hovance, Jr	28,223	Peter K. Shiff	31,917
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Robert S. Swicker	19,885	R. Joseph Goss	28,510	Matthew L. Schneider	32,814
Finson N. Mandros	22,124	R. Danny Haxington	27,903	Michael G. Savage	32,596
Benton S. Dufflet, Jr	22,030	Eric H. Wehltan	30,505	Gerald F. Swain	30,113
Norman H. Stegno	22,716	James W. Peterson	26,057	Michael J. Uro	33,089
Ronald L. Grzesiowski	24,970	Teresa Stanek Raa	30,427	Charles F. Wisland III	33,096
Frederick G. Michaud, Jr	26,003	Robert R. Krein	25,825	Bruce T. Winder	33,515
Alan B. Kopecki	25,813	William C. Rowland	30,888	Teddi R. Walters	34,040
Regis E. Shuter	26,999	T. Gene Dillabenty	25,423	Donald S. Jellison	31,979
Samuel C. Miller III	27,340	Patrick C. Kenna	32,858	Harold R. Brown III	36,341
Ralph L. Freshard, Jr	16,110	Bruce J. Buggs Jr	32,344	Allen R. Baum	36,086
Robert G. Mahai	28,531	William H. Bess	25,932	Steven M. de Bois	35,023
and					
Address all correspondence to: William C. Rowland BURNS DOANE, SWICKER & MATHIS L.L.P P O Box 1404 Alexandria, Virginia 22313-1404					
Address all telephone calls to: William C. Rowland at (703) 836-6620.					
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 SOLE OR FIRST INVENTOR		SIGNATURE		DATE	
Eric HYDES		<i>Eric Hydies</i>		2/26/99	
RESIDENCE		CITIZENSHIP			
Lutz, Florida		U.S.A.			
POST OFFICE ADDRESS					
2410 Regal Drive, Lutz, Florida 33549					



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FIG. 2



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FIG. 3

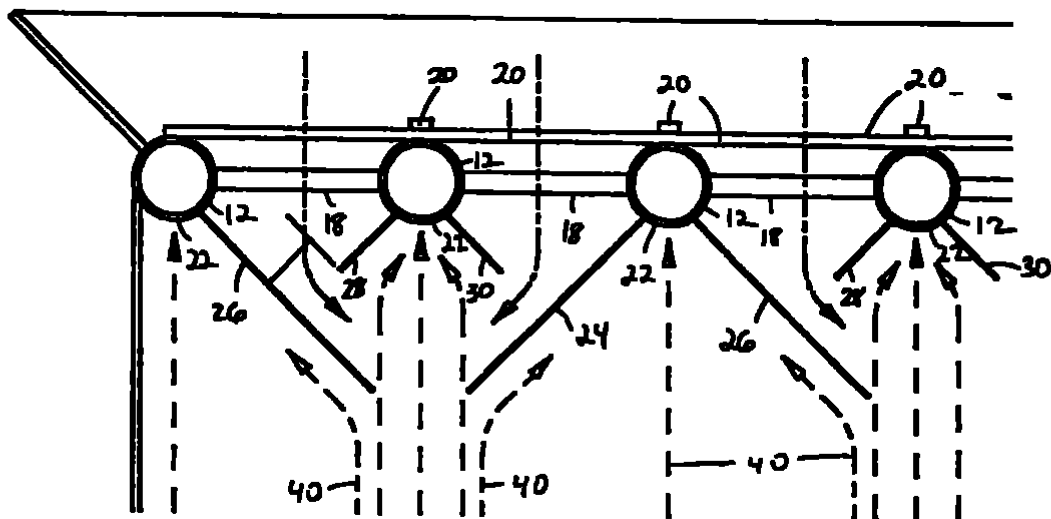


FIG 4

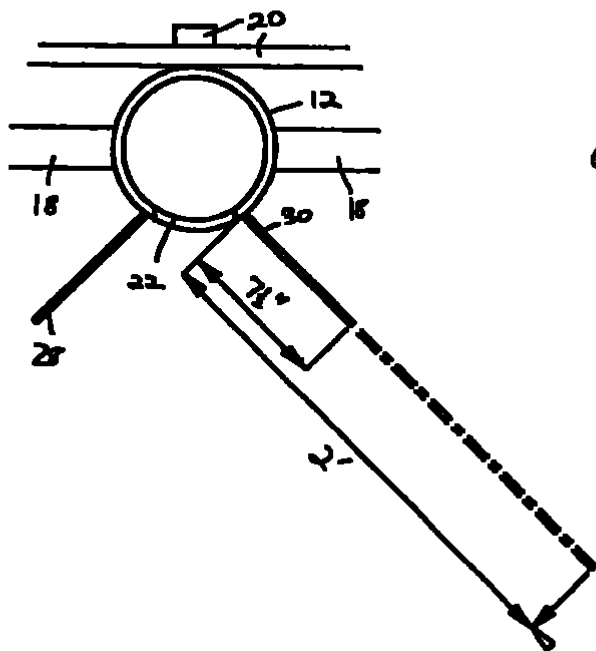
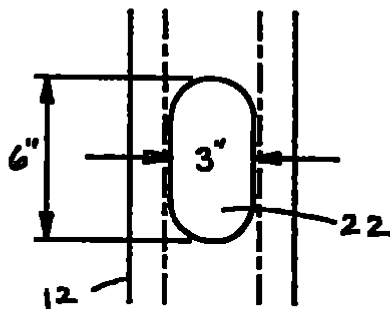
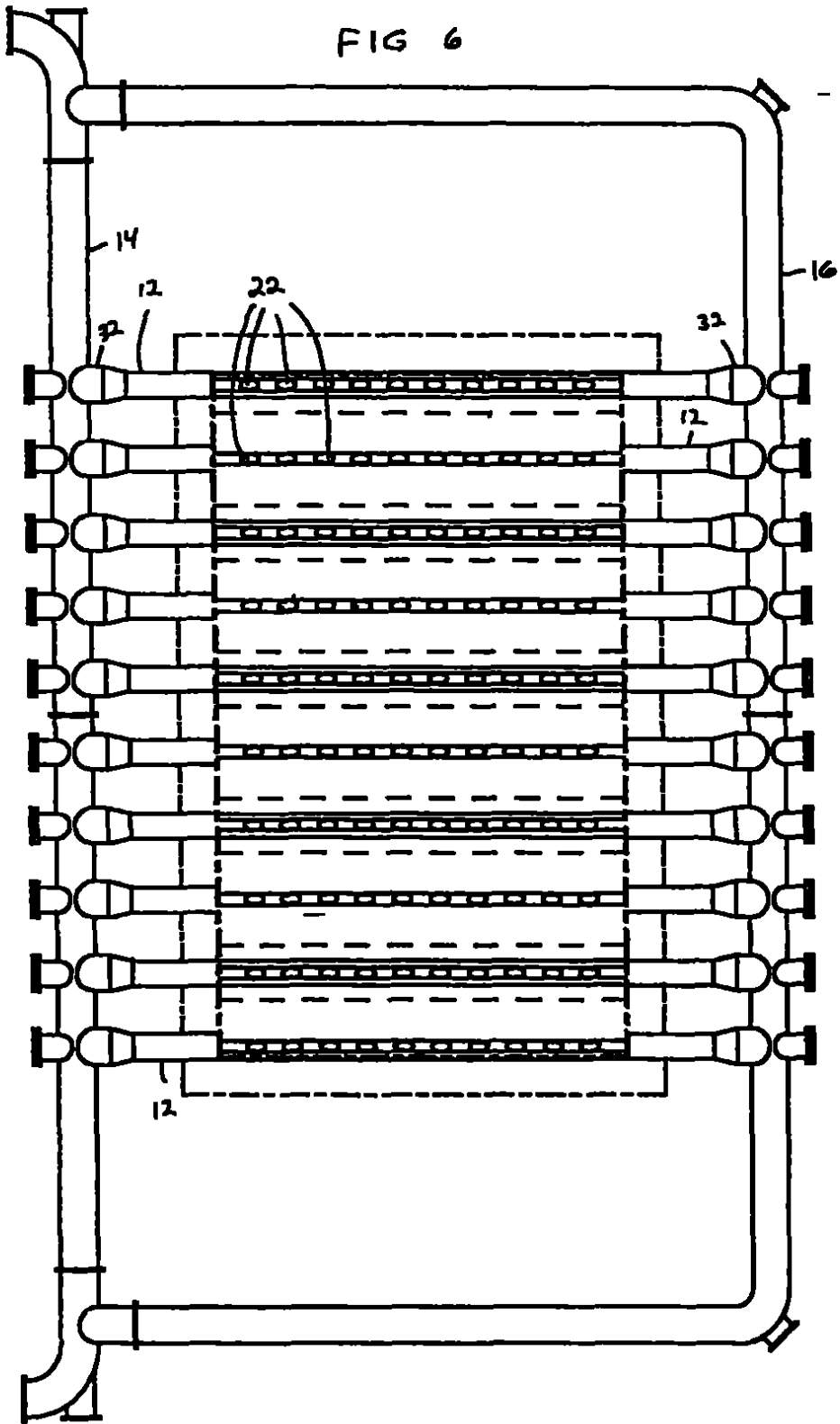


FIG 5



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A TODOS A QUIENES LLEGUE EL PRESENTE.

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS

Oficina de Marcas y Patentes

13 de marzo de 2000

LA PRESENTE CERTIFICA QUE LA ADJUNTA ES UNA COPIA TOMADA DE LOS REGISTROS DE LA OFICINA DE MARCAS Y PATENTES DE LOS ESTADOS UNIDOS, DE LOS DOCUMENTOS DE LA SOLICITUD DE PATENTE ABAJO IDENTIFICADA Y LA CUAL CUMPLE CON LOS REQUISITOS PARA QUE LE SEA CONFERIDA UNA FECHA DE RADICACIÓN SEGUN 35 USC 111

NUMERO DE SOLICITUD 09/263,523

FECHA DE RADICACIÓN 5 de marzo de 1999

Por Autoridad del

COMISIONADO DE MARCAS Y PATENTES

(FIRMA) T LAWRENCE

Oficial de Certificaciones

(SELLO DORADO DE OBLEA)

SISTEMA DE RECOLECCIÓN DE POLVO

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REIVINDICACIONES

- 1 Un sistema de recolección de polvo, que comprende
 - un marco que define una abertura a través de la cual material en partículas es introducido,
 - una pluralidad de soportes ahuecados que se extienden a través de la abertura,
 - al menos una lámina que se extiende a lo largo de cada una de la pluralidad de soportes ahuecados, cada una de dichas láminas se extiende desde su una respectiva de la pluralidad de soportes ahuecados en dirección hacia abajo,
 - una pluralidad de aberturas que se extienden a lo largo de un lado inferior de cada una de la pluralidad de soportes ahuecados, y
 - medios para sacar polvo a través de la pluralidad d aberturas
- 2 El sistema de recolección de polvo según la reivindicación 1, en donde cada una de la pluralidad de soportes ahuecados incluye dos láminas que se extienden hacia debajo de modo que formen una V invertida
- 3 El sistema de recolección de polvo de la reivindicación 2, en donde las láminas de cada tercer tubo de los tubos de soporte ahuecados

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son mas anchas en dirección transversal a la dirección longitudinal de los soportes ahuecados que las laminas del resto de los soportes ahuecados

4 El sistema de recolección de polvo de la reivindicación 3, en donde las láminas más largas de cada tercer tubo de los tubos de soporte ahuecados se extienden por debajo de las láminas del resto de los soportes ahuecados

5 El sistema de recolección de polvo de la reivindicación 1, qu
ademas comprende un tubo recolector que se extiende a lo largo de un extremo de la pluralidad de soportes ahuecados, y los soportes ahuecados están conectados al tubo recolector de modo que el polvo introducido a los soportes ahuecados pueda pasar a través del tubo recolector a un recolector de polvo

6 Un sistema de recolección de polvo, que comprende

un marco que define una abertura a través de la cual material en partículas es introducido,

una pluralidad de soportes ahuecados que se extienden a traves de la abertura cada uno de los soportes incluye una pluralidad de aberturas que se extienden a lo largo de un lado inferior de las mismas,

una pluralidad de láminas traslapadas que se extienden en dirección hacia debajo de la pluralidad de soportes ahuecados y dispuestas de modo que el polvo que suba en dirección vertical desde el marco entre en contacto al menos con una de la pluralidad de las láminas traslapadas, y

medios para sacar polvo a través de la pluralidad de aberturas

7 El sistema de recolección de polvo de la reivindicación 6, en donde cada una de la pluralidad de soportes ahuecados incluye dos de las láminas traslapadas que se extienden hacia debajo de los mismos d modo que formen una V invertida

8 El sistema de recolección de polvo de la reivindicación 7 en donde las láminas de cada tercer soporte ahuecado son más anchas en dirección transversal a la dirección longitudinal de los soportes ahuecados que las láminas del resto de los soportes ahuecados

9 El sistema de recolección de polvo de la reivindicación 8 en donde las laminas mas largas de cada tercer soporte ahuecado se extienden por debajo de las láminas del resto de los soportes ahuecados

10 El sistema de recolección de polvo de la reivindicación 6, que además comprende un tubo recolector que se extiende a lo largo de un extremo de la pluralidad de soportes ahuecados, y los soportes ahuecados están conectados al tubo recolector de modo que el polvo introducido en los soportes ahuecados pueda pasar a través del tubo recolector a un recolector de polvo

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2do EXAMEN DE FORMA PATENTE DE INVENCION

Folio 67

Radicación no 00-16037

Concepto Técnico no 1203

Clasificación Internacional de Patentes B65G 65/00

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 [☐] La prioridad coincide con la materia reivindicada
- SI [☒] NO [☐] **CUMPLE LOS REQUISITOS TÉCNICOS**

OBSERVACIONES Y OTROS SI [☐] NO [☒] ver hoja(s) anexa(s)

Nuevas figuras, folios 36 a 39
Arte final 12 cm x 12 cm, folio 40

EXAMINADOR TÉCNICO
202030

Bogotá D C, 23-08-2002

Carrera 13 No 27-00 Piso 5 y 10
Conmutador 334 12 21-2-3-4
Fax 281 31 25 e-mail Info@slc.gov.co
Santa Fe de Bogotá D C - Colombia

Folio 68

2020
Bogotá DC

Doctor(a)
GERMAN CASTILLO GRAU
Apoderado(a)

REFERENCIA	Radicación No	00-16037
	Trámite	002
	Evento	001
	Actuación	416
	Oficio No	1687
	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, a los **30 SET. 2002**

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

Bogotá DC
la Gaceta de Propiedad Industrial, de fecha
ley expiró el
terceros

El extracto de esta solicitud fue publicado en el número de
El término hábil señalado por la
y SI ____ NO ____ se presentaron oposiciones por parte de

202030

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Conmutador 334 12 21-2-3-4
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Santa Fe de Bogotá D C - Colombia