

J.M.



Industria y Comercio
SUPERINTENDENCIA

Delegatura de Propiedad Industrial
División de Nuevas Creaciones



SOLICITUD
PATENTE DE INVENCION

21 EXPEDIENTE No. 04-19506

54 TITULO UN MONTAJE DE BOMBA DE FLOTACION

51 CLASIFICACION INTERNACIONAL _____

71 SOLICITANTE ERIC THIRIEZ

DOMICILIO Cartagena, Colombia.

74 APODERADO EMILIO FERRERON
Código No. 1092

22 BOGOTA, D.C., _____



Industria y Comercio
SUPERINTENDENCIA



34 019506 00

PETITORIO

Superintendencia y Comercio
Radicación : 04019506 00000000 Folio 1 de 2
Fecha (MD): 2004-03-03 17:12:30
Trámite : 011 PCI-PROTEM 279 FASE NRC1 411 PRESENTAL
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

FORMULARIO UNICO DE SOLICITUD DE PATENTE PCT ENTRADA EN FASE NACIONAL

1 SOLICITUD DE			
☒ Patente de Invención ☐ Patente de Modelo de Utilidad			
☐ Capítulo I ☒ Capítulo II			
2 SOLICITANTE (71)	Nombre ERIC THIRIEZ Dirección Calle 6 No 11-36 Castillo Grande Cartagena, Colombia Domicilio Cartagena Colombia	IDENTIFICACION C C ☐ NIT ☐ C E ☐ Otro ☐ Cual _____ Número _____	
3 REPRESENTANTE O APODERADO	Nombre EMILIO FERRERO Dirección Carrera 4ª No 72-35 Teléfono 347 36 11 Fax 217 92 11 E-mail <u>clientes@camyp.com</u> Domicilio Bogotá, Colombia	IDENTIFICACION C C ☒ NIT ☐ C E ☐ Otro ☐ Cual _____ Número <u>438 019</u> T P. <u>31 929</u>	
4 INVENTOR (ES) (72)	Nombre ERIC THIRIEZ Dirección Calle 6 No 11-36 Castillo Grande, Cartagena Colombia		
5 PCT (86) Solicitud Internacional No <u>PCT/IB02/03063</u> Fecha <u>6 de agosto de 2002</u> Publicación Internacional No <u>WO 03/014574 A1</u> Fecha <u>20 de febrero de 2003</u>			
6 Título (54) <u>UN MONTAJE DE BOMBA DE FLOTACION</u>			
7 Clasificación Internacional (51) <u>F04D 13/06</u>			
8 Prioridad	(33) País de Origen	(32) Fecha	(31) Número de Solicitud
SI ☒ NO ☐	<u>U S</u> <u>U S</u>	<u>6 de agosto de 2001</u> <u>25 de enero de 2002</u>	<u>09/923.020</u> <u>10/056 997</u>

9

Comprobante de pago No 04 - 16.318 Fecha 1 de marzo de 2004

10

Anexos

- ☒ Comprobante de pago de la tasa de presentación de la solicitud por \$ 422 000 oo
- ☐ Comprobante de pago por reivindicación de prioridad
- ☐ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica
- ☐ Poderes si fuere el caso
- ☐ Documento de cesión del inventor al solicitante o a su causante
- ☐ Declaraciones
- ☒ Copia de la solicitud Internacional (Resumen, descripción, reivindicaciones dibujos)
- ☒ Traducción de la solicitud Internacional al castellano (Resumen, descripción reivindicaciones, dibujos)
- ☐ Copia del examen preliminar efectuado por la IPEA
- ☐ Traducción del examen preliminar efectuado por la IPEA
- ☐ De ser el caso copia del contrato de acceso
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas
- ☐ De ser el caso certificado de depósito del material biológico
- ☒ Arte final 12x12
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud
- ☐ Otros

11

FIGURA CARACTERISTICA.

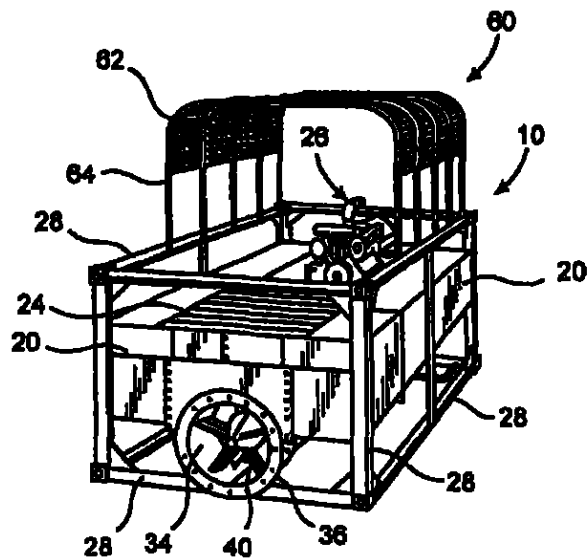


FIG 2

12

Solicito la concesión de la patente

NOMBRE EMILIO FERRERO

FIRMA 
C C 438 019 de Usaquén T P 31 929



MRE/mrm-Id-1-

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 February 2003 (20 02.2003)

PCT

(10) International Publication Number
WO 03/014574 A1

(51) International Patent Classification⁷ F04D 13/06
13/02, 3/00

(21) International Application Number PCT/IB02/03063

(22) International Filing Date 6 August 2002 (06.08.2002)

(25) Filing Language English

(26) Publication Language: English

(30) Priority Data
09/923,020 6 August 2001 (06 08 2001) US
10/056 997 25 January 2002 (25 01 2002) US

(71) Applicant and
(72) Inventor THIRIEZ, Eric [FR/CO] Calle 6 #11 36
Castillo Grande, Cartagena Colombia (CO)

(81) Designated States (national) AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU

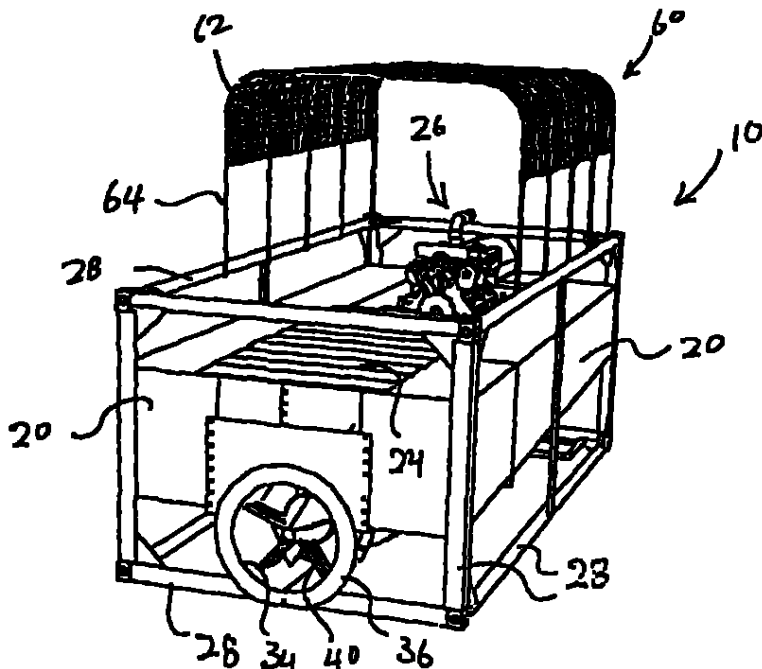
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN,
YU, ZA, ZM, ZW

(84) Designated States (regional) ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published
— with international search report

For two-letter codes and other abbreviations refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette

(54) Title FLOATING PUMP ASSEMBLY



(57) Abstract A floating pump assembly including a compact floatation assembly structured to float on a body of water and supporting a flow pump housing having an inlet, outlet and fluid drive assembly being submerged and wherein at least the outlet is oriented in a predetermined preferably horizontal orientation during operation and activation. A power assembly is supported on the floatation assembly and is drivingly connected to the fluid drive assembly for powered operation thereof. The predetermined orientation of at least the outlet and particularly the direction of discharge of water issuing from the outlet substantially is such as to eliminate or at least minimize the tendency of the floatation device to become disoriented or unstable at least in terms of being increasingly submerged into a deeper position within the body of water upon activation and operation of the floating pump assembly.

WO 03/014574 A1

Description
FLOATING PUMP ASSEMBLY

5 BACKGROUND OF THE INVENTION

Field of the Invention

 This invention is directed to a floating pump assembly preferably including a high capacity flow pump supported on a floatation assembly in an at least partially submerged location and in a predetermined orientation which substantially eliminates or at least minimizes the tendency of the floatation assembly to become unstable at least in terms of being further submerged into the body of water on which it is floating, during the activation and operation of the pump assembly

15 Description of the Related Art

 The general concept of a floating pump has been known and utilized for a variety of different applications for many years. Such applications include, but are not limited to, drainage, irrigation, transfer pumping, water control at excavation sites, dredging, and others. In use, conventional pumps of the type referred to herein are frequently connected to some type of primary mover or power supply generally including a drive motor. The drive motor is connected in driving relation to a propeller, drive shaft or like mechanism which serves to create a flow of liquid from an inlet location to an outlet location. The transfer of water or any liquid being treated is thereby accomplished as intended.

 By way of example only, floating pumps are commonly used in water treatment facilities as down-flow mixers or water aeration devices. As such, the pump housing, including the rotationally driven pump components therein, are typically disposed on some type of floating structure. As in most emergency and industrial applications, the pump housing and accordingly the path of fluid flow created by the operation of the pump are normally vertically oriented. In such a vertical orientation the drive motor or other power generating facility is located above but generally connected

to the pump housing so that the power take-off of the drive motor and the drive elements or working components thereof, are directly connected. Except in situations where the path of fluid flow is directed from an upper level of a body of water down towards the bottom or basin of the body of water, such as in down flow mixtures and certain aeration devices, the path of fluid flow is normally directed in the opposite direction. This is of course typical when floating pumps are used in a drainage application during heavy rain fall or in more common agriculture applications, such as for irrigation and the like.

However, regardless of the specific utilization of the floating pump, the physical structure and location of the power supply, operative components and floatation assembly are such as to typically maintain the pump housing in a vertical orientation. In such a vertical orientation, the power assembly used to drive the operative pump components is secured to the pump housing in a non-submerged location or is otherwise required to be maintained in an enclosed or sealed casing.

Accordingly, upon activation and continued operation known pump assemblies are frequently disoriented by being tilted and/or more deeply submerged in the body of water in which they are floating. Such instability results from the necessity of the floatation assembly to absorb the thrust force of the pump and the weight of the water as it fills the pump interior and the adjacent portions of an associated discharge or delivery conduit. As a result, the dimension and/or configuration of the floatation device or assembly included in many conventionally structured floating pumps must be significantly increased and/or enlarged. Indeed, the disadvantages of conventional floating pumps which include an oversized supporting float structure are significant, and as a result, the specific applications for which such floating pumps may be utilized may be limited.

Obviously, the above is not true in all uses for floating pumps. However, in many situations it is important to maximize the flow capacity of the floating pump, especially when attempting to transfer or otherwise treat large quantities of water. In such

6

situations it would be extremely beneficial to have the ability of a unitized or self-contained floating pump assembly including a pump housing disposed in a predetermined orientation and capable of extremely large flow capacities. Such an improved floating pump assembly could then be driven by a heavy duty power assembly such as, but not limited to, an internal combustion engine. In such a preferred pump assembly, the power assembly could be mounted on a floatation assembly of compact size and dimension and effectively accomplish a forced flow of significantly large quantities of water through an associated, properly oriented pump housing without encountering the instability disadvantages of the type encountered by conventional floating pumps.

Further, in order to overcome many, if not all, of the known problems and disadvantages commonly associated with conventional floating pump assemblies of the general type set forth above, it is preferred that the pump housing, associated drive assembly and resulting path of fluid flow be disposed in the aforementioned predetermined orientation. The preferred predetermined orientation of the pump housing is such as to eliminate the need for an oversized floatation assembly while minimizing the tendency of the pump assembly to submerge deeper into the body of water and below the surface on which the floatation assembly is intended to float. The predetermined orientation of the pump housing, fluid drive assembly and outlet or discharge of the pump housing, would thereby serve to maintain a forced path of water flow through the pump housing. Importantly, the direction of the path of fluid or water flow would eliminate or significantly reduce any reactive thrust force being exerted on the floatation assembly which would cause its instability. Therefore, during the operation of the fluid drive assembly, as well as the transition thereof from a non-operative mode into an operative mode, any tendency of the floatation to be disoriented, such as by being forced into a deeper submerged position would be substantially eliminated or at least significantly reduced.

An improved floating pump assembly of the type generally set forth above, would therefore allow for the utilization of a more

compact and manageable floatation assembly dimensioned and otherwise structured to support and maintain a heavy duty power supply, such as the aforementioned internal combustion engine, in an intended floating orientation. However, the size and/or configuration of the floatation assembly of the present invention would not have to be increased or expanded to overcome the tendency of the pump to be re-oriented into a more deeply submerged position in the body of the water, as is common during the start-up and operation of conventional floating pump structures.

Summary of the Invention

The present invention is directed to a floatation assembly of the type structured to deliver a high capacity fluid flow thereby enabling it to serve as an effective and efficient water treatment or handling facility in a variety of different applications. In addition, the floatation assembly of the present invention is compact as well as being self-contained to the extent of having a pump housing, and the pumping components associated therewith, as well as a power assembly mounted on a single, relatively compact floatation assembly. The floatation assembly can therefore be efficiently transported from one site to another and operatively positioned on the body of water to be treated in a quick and efficient manner.

In a conventional application of a floating pump assembly, the pump housing and power assembly are typically assembled in a single housing or casing and mounted on a floating structure in a generally vertical orientation. As such, the inlet of the pump housing is submerged and the outlet thereof is located above the water surface for appropriate connection to some type of transfer conduit or the like. Therefore, conventional floating pumps of the type described herein are normally oriented such that a reactive or thrust force is exerted on the floatation assembly upon activation of the pump assembly. This reactive force tends to render the floatation assembly unstable including being forced deeper into the body of water. As a result, the size and weight

of the floatation structure is frequently enhanced in an attempt to overcome such instability. The capacity of conventional floating pumps are somewhat restricted and many times must only be used in situations where a high capacity fluid flow is not required or expected. Naturally, under certain conditions a plurality of such floating pumps which collectively have the intended capacity to alleviate the emergency or floating conditions, may be required.

Accordingly, the floating pump assembly of the present invention overcomes the well recognized problems and disadvantages associated with conventional floating pump structures. More specifically, the present invention comprises a floatation assembly structured to float on a body of water and including the support platform or like support facility for the mounting of a power assembly thereon. As will be described in greater detail hereinafter, the power assembly is preferably in the form of a high output internal combustion engine, being diesel or gasoline driven, and being of a size and capacity to efficiently power a high capacity fluid drive assembly. The fluid drive assembly is an operative component of the pump and is at least partially mounted within a pump housing. Further, the power assembly is mounted on the support platform of the floatation assembly in either a non-submerged location or within a protected compartment of the floatation assembly which may be disposed below the water surface. In either embodiment, the power assembly is disposed in spaced, driving interconnection to the fluid drive assembly.

As will also be explained in greater detail hereinafter, the floatation assembly comprises, in at least one embodiment, a frame type structure which may include a protective cover, canopy, casing, etc. disposed in a protective position relative to the power assembly. The power assembly is thereby effectively protected from adverse ambient conditions, such as exist during bad weather conditions, even when it is located above deck in a relatively exposed position. Preferably, the protective cover is "convertible" in nature so as to be easily installed in its operative, protective position or removed therefrom as desired.

In at least one preferred embodiment of the present invention the floating pump assembly comprises an axial flow pump defined, at least in part, by the aforementioned fluid drive assembly disposed at least partially on the interior of the pump housing in fluid communication between the inlet and the outlet thereof. However, it is emphasized that the floating pump assembly of the present invention could also incorporate a mixed flow pump, a centrifugal flow pump, a multi-stage flow pump and others.

Accordingly, regardless of the type of pump structure utilized, the recognized disadvantages and problems associated with conventional floating pump assemblies are substantially overcome by orienting the pump housing and/or fluid drive assembly as well as inlet and outlet in a preferred and predetermined operative orientation. In such predetermined orientation, a path of fluid flow is created upon activation and operation of the fluid drive assembly, wherein the path of fluid flow extends through the pump housing from the inlet to the outlet. By way of example, the pump housing, fluid drive assembly and other operative components directly associated with pumping the water along the predetermined path, may define an axial flow pump. However, regardless of the particular pump structure utilized, the path of water flow through the pump housing and/or especially the orientation of the outlet as the water is discharged from the housing, should be such as to negate, minimize or substantially reduce the effect of the reactive or thrust force generated as water fills and is discharged from the pump housing.

Therefore, in its submerged orientation, the flow pump further overcomes the known disadvantages and problems of the type set forth above by being positioned in the aforementioned predetermined orientation. More specifically, the pump housing, fluid drive assembly and particularly the outlet of the flow pump are preferably arranged in a substantially horizontal orientation. As such, both the inlet and outlet of the pump housing are preferably maintained in a submerged position. This serves to establish the aforementioned path of fluid flow through the pump housing in a substantially horizontal direction of travel,

dependent on the type of flow pump structure being utilized. Therefore, any reactive force tending to further submerge the flotation assembly or cause its instability, is eliminated or significantly reduced. As a result, there are no significant forces during the initial transfer of the fluid activation assembly from an inactive mode to an active mode or during the continuous operation of the fluid drive assembly which would create the problematic instability of the flotation assembly. The flotation assembly can therefore be of a smaller, more compact dimension and configuration, which of course must be sufficient to support the weight of the power assembly and the structural components of the flotation assembly itself in a floating orientation on the surface of the body of the water.

It is to be emphasized that when utilizing pump structures other than an axial flow pump, the predetermined orientation of the outlet or discharge end of the pump housing should preferably be substantially horizontal. As such, the disposition of other operative components of the flow pump in the aforementioned predetermined orientation could assume positions other than a true horizontal orientation and still serve to minimize the tendency of the flotation assembly to become unstable when the flow pump is operating.

Depending upon the particular practical application to which the floating pump assembly of the present invention is applied, a water transfer conduit may be connected directly to the outlet portion of the pump housing. Such transfer conduit may be of significant length and extend from a point off shore, where the floating pump assembly of the present invention is located, to a water delivery site on or beyond the shore line. In any event, it is to be emphasized that in at least one preferred embodiment of the present invention, both the inlet and the outlet of the pump housing are in a completely or at least partially submerged position. The path of fluid flow created by the operation of the fluid drive assembly and in particular the direction of water flow is oriented so as to minimize any reactive force being exerted on the flotation assembly which would cause its instability. The

floatation assembly would not experience any tendency to be physically disoriented or be additionally submerged beyond its normal floating position

5 These and other objects, features and advantages of the present invention will become more clear when the drawings as well as the detailed description are taken into consideration

Brief Description of the Drawings

10 For a fuller understanding of the nature of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which

Figure 1 is a side view showing the floating pump assembly of the present invention in operation

15 Figure 2 is a top perspective view of the floating pump assembly of the present invention

Figure 3 is a top, at least partially exploded, perspective view of the embodiment of Figures 1 and 2

20 Figure 4 is a side view of the floating pump assembly of the present invention

Figure 5 is an end view of the embodiment of Figure 4

5 Figure 6 is a bottom view of the embodiment of Figures 4 and 5

25 Figure 7 is a side view of another embodiment of the floatation assembly of the present invention wherein the flow pump utilized is a centrifugal flow pump

30 Figure 8 is a side view of yet another preferred embodiment of the floatation assembly of the present invention wherein a power assembly associated therewith is located on an interior of a floatation assembly at a below deck location

Like reference numerals refer to like parts throughout the several views of the drawings

Detailed Description of the Preferred Embodiment

35 As disclosed in the accompanying drawings, the present invention is directed to a floating pump assembly generally

indicated as 10 The floating pump assembly 10 is of the type capable of high capacity fluid flow and particularly adaptable for use on large bodies of water generally indicated as 12 or any other practical application, especially where high capacity liquid flow is required

As shown in Figure 1, the floatation assembly 10 is connected to a transfer conduit schematically represented and generally indicated as 14 The transfer conduit 14 may be of a significant length and extend from the floatation assembly 10 to a point of dispersal, generally indicated as 16 The water being transferred is delivered from the outlet 14' of the transfer conduit 14 into the dispersal area It is to be noted that the transfer conduit 14 is not per se an included part of the present invention Of course, it is recognized that the utilization of such a transfer conduit 14, in a variety of different forms may, depending on a specific application, be a necessary part to the successful transfer of water 12, as schematically represented in Figure 1

More specifically, the floating pump assembly 10 of the present invention comprises a floatation assembly generally indicated as 18 and disclosed in Figure 3 in an exploded form The floatation assembly 18 includes any applicable floatation structure 20 having a support platform or like supporting facility 22, mounted thereon or being an integral part thereof As a part of the support platform or like facility 22, a walkway or personnel support 24 may be provided to facilitate access to a power assembly, generally indicated as 26 In the embodiment of Figures 1 through 7, the power assembly 26 is disposed in a non-submerged location above the surface 12' of the body of water 12 on which the floatation assembly 18 is operatively positioned

Other structural features of the floatation assembly 18 include a structural support frame 28 disposed in surrounding, containing relation to the float structure 20, personnel platform 24, power assembly 26 and other operative components of the floating pump assembly 10 to be described in greater detail hereinafter Frame 28 may be formed from a metallic or other high

strength, relatively light weight material and may be of generally open construction as perhaps best shown in Figures 2 and 3

Another feature of the most preferred embodiment of the present invention comprises the floating pump assembly including a pump housing 30 having an at least partially hollow interior and including a somewhat elongated configuration comprising an inlet 32 and an outlet 34. The outlet 34 is preferably connected to the inlet of the transfer conduit 14 by a flexible coupling 35, as best disclosed in Figures 7 and 8. The flexible coupling 35 is structured to accommodate relative movement between the transfer conduit 14 and the flotation assembly 18, such as during rough weather conditions. An annular flange 36 or other connecting structure may be used to establish stable securement of the inlet of the transverse conduit 14 to the outlet 34 of the pump housing 30.

In addition, the present invention comprises a fluid drive assembly generally indicated as 38 and including a pump member 40 preferably in the form of a propeller connected at one end of the elongated drive shaft 42. As will be explained in greater detail with reference to Figure 7, pump structures other than the axial flow pump may be utilized in the floating pump assembly 10 of the present invention. The opposite end 44 of drive shaft 42 is connected in direct driven relation to the power assembly 26 by a power take-off and drive assembly 46. The power take-off and drive assembly 46 may include any of a variety of different mechanical linkage or gearing assemblies. However, as shown in the preferred embodiment of the present invention, the power take-off assembly 46 includes a drive belt 48 connected between appropriate gears or pulleys 51 and 52, respectively connected to the power take-off of the power assembly 26 and the distal end 44 of the drive shaft 42.

Other features associated with the pump housing 30 include an elongated cage-like structure 54 disposed in at least partially surrounding relation to the drive shaft 42. The cage 54 is formed from an open mesh, apertured or like "flow through" construction which enables the free passage of water therethrough into the

inlet 32 of the pump housing 30. The cage prevents engagement and/or interference of any debris or alternatively the bottom of the body of water 12 on which the floating pump assembly 10 is supported, with the fluid drive assembly. Accordingly, the cage 54 extends substantially the entire length of the drive shaft 42 and may or may not be considered a part of the pump housing 30. Appropriate cross braces 56 may be provided so as to supportingly interconnect the cage 54 in its intended, operative position relative to an under portion of the float structure 20 and/or the containment frame 28.

In at least one embodiment of the present invention and as clearly shown in the accompanying Figures, one structural feature of the present invention is the maintenance of the pump housing 30 in a submerged location below the float structure 20, while still being supported in a stable manner on the floatation assembly 18. More specifically, the submerged location of the pump housing 30 is such as to maintain both the inlet 32 and the outlet 34 thereof at least partially submerged and preferably completely submerged during the continuous operation of the fluid drive assembly 38.

Clearly, the propeller 40 is located in fluid communication with both the inlet 32 and the outlet 34. As such, the pump housing 30, inlet and outlet 32 and 34 respectively, drive shaft 42 and other operative components associated with the pump housing 30 and the fluid drive assembly 38 serve to define an axial flow pump. Accordingly, upon rotation of the drive member 40, water will flow through the open construction of the cage 54, into the inlet 32 and coaxially along the length of the pump housing 30. The forced flow of water will be directed outwardly from the outlet 34, in a substantially horizontal direction, into the inlet end of the transfer conduit 14, as described above.

The orientation of the established path of fluid flow, as described above, is therefore substantially coincident with the longitudinal axis of the pump housing 30. In addition, the pump housing 30, fluid drive assembly 38, outlet 34 and resulting path of water flow is disposed in a predetermined orientation which

will substantially eliminate or at least minimize any reactive forces being exerted on the floatation assembly 18. Therefore any at least partially, forces which would tend to destabilize or disorient the floatation assembly 18 or tend to additionally submerge the floatation assembly 18 within the body of water 12, would be substantially eliminated, significantly reduced and therefore minimized. As a result a more effective, compact and efficiently sized and configured float structure 20 and floatation assembly 18 can be used to support the power assembly 26 and pump housing 30 in its intended, operative position. In such operative position the power assembly 26 is of course maintained drivingly interconnected to the drive shaft 42 and pump member 40.

It is emphasized that the aforementioned preferred orientation of the pump housing 30 and in particular the path of water flow as it issues from the outlet 34 is substantially horizontal and in most instances substantially parallel to the median surface level 12'. Therefore, any reactive forces resulting from the activation and continuous operation of the fluid drive assembly 40, 42, etc. will not adversely affect the float structure 20 or floatation assembly 18 in a manner which would cause the floatation assembly 18 to become unstable or to be additionally submerged or be drawn deeper below the surface 12' of the body of water 12.

It is further emphasized that when a flow pump other than an axial flow pump is utilized, the aforementioned predetermined orientation of the pump housing, fluid drive assembly, etc. need not assume a true horizontal orientation in order to minimize the aforementioned reactive forces on the floatation assembly 18. For example, as shown in Figure 7, one preferred embodiment of the floating pump assembly 10' of the present invention includes the utilization of a centrifugal flow pump 70 supported on the floatation assembly 18 in an at least partially submerged position below the water surface 12' of the body of water 12. As such, the centrifugal pump housing 72 includes an inlet 74 and an outlet 76. As set forth above, the outlet 76 is secured to the inlet of the transfer conduit 14 by a flexible coupling 35. Accordingly, while

operative components, such as a fluid drive assembly (not shown for purposes of clarity) associated with the centrifugal pump 70 is disposed in a substantially horizontal orientation, the important features of the predetermined orientation of the centrifugal pump 70 is that the outlet 76 is oriented in a substantially horizontal orientation. This predetermined, horizontal orientation of at least the outlet 76 (but preferably other portions of the pump housing 70) serves to eliminate, significantly reduce and thereby minimize any thrust or other reactive forces being exerted on the floatation assembly 18 which would tend to cause its instability. Also, it is emphasized that the axial flow pump of Figures 1 through 6 and 8 and the centrifugal flow pump of Figure 7 are examples only of the various different types of flow pump structures which may be utilized with the floating pump assembly 10, 10' of the present invention. Other pump structures which may be utilized include, but are not limited to, mixed flow pumps, multi-stage pumps, etc. Therefore, the aforementioned predetermined orientation of the path of fluid flow passing through and particularly from the associated pump housing, again dependent on the type of pump structure utilized, while not being truly horizontal, should be other than the normally vertical orientation of many of the floating pump assemblies known and conventionally used.

Other structural features of the present invention include a protection assembly generally indicated as 60 and disclosed for use with the embodiments of Figures 2 and 4 through 7. The protection assembly 60 preferably comprises a protective cover or the like 62 disposed in overlying, at least partially enclosing and protective relation to the power assembly 26. The power assembly 26 is thereby protected from exposure to adverse ambient conditions such as weather, rough water, etc. The protection assembly 60 may be defined by a variety of different structures having various configurations, sizes, etc. By way of example, and as shown in Figures 4 and 5, the protection assembly 60 may be in the form of the cover 62 defined by a flexible material canopy supported by spaced apart substantially arcuate type braces 64.

including an opening or vent area 66 to accommodate the exhaust gasses from the power assembly 26

Yet another preferred embodiment of the present invention is disclosed in Figure 8 wherein the floatation assembly 18' includes a hull-like configuration defining an open area or chamber 19 located below deck and/or at least partially below the surface 12' of the body of water 12. The power assembly 26 is located within the below deck chamber 19 and is thereby contained in a location which is substantially protected from exposure to unfavorable ambient conditions, such as harsh weather, wind, etc which would tend to expose the power assembly 26 to waves, water, rain, etc. Accordingly, while the power assembly 26 is located below deck, within the chamber 19 it is of course not "submerged" in the true sense. Exhaust facility such as at 26' are provided to extent upwardly from the chamber 19 so as to vent the exhaust to atmosphere. Naturally, the power assembly 26 is maintained in driving relation to the fluid drive assembly generally indicated as 40. For purposes of example only, the type of pump structure utilized is the axial flow pump as should be evident.

Accordingly, the floating pump assembly of the present invention overcomes many of the disadvantages and problems recognized in this area of commerce by providing a flow pump which is oriented so as to define a path of forced fluid flow being discharged from an outlet in a predetermined, at least substantially horizontal direction. The predetermined orientation of the water discharge outlet in this manner thereby eliminates or at least minimizes any thrust or reactive force being exerted on the floatation assembly 18, which would tend to physically disorient or destabilize it during operation or activation thereof as the flow pump changes from an inactive mode to an active mode.

Since many modifications, variations and changes in detail can be made to the described preferred embodiment of the invention, it is intended that all matters in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense. Thus, the scope of

the invention should be determined by the appended claims and their legal equivalents

Now that the invention has been described,

:

Claims

- 1 A floating pump assembly comprising
- a) a flotation assembly structured to float on a body of water,
- 5 b) a pump housing including an inlet and an outlet and a fluid drive assembly disposed in fluid communication with said inlet and said outlet,
- c) said fluid drive assembly structured to establish a path of fluid flow between said inlet and said outlet,
- 10 and
- d) said pump housing supported on said flotation assembly and disposed to orient at least said outlet in a predetermined orientation which minimizes physical disorientation of said flotation assembly
- 15 2 A floating pump assembly as recited in claim 1 wherein said path of fluid flow is at least partially coincident to a longitudinal axis of said pump housing
- 3 A floating pump assembly as recited in claim 2 wherein said pump housing and said fluid drive assembly are collectively
- 20 oriented to at least partially define an axial flow pump
- 4 A floating pump assembly as recited in claim 3 wherein said inlet and said outlet are disposed in a submerged position during operative and inoperative periods of said fluid drive assembly
- 25 5 A floating pump assembly as recited in claim 1 wherein said pump housing is mounted on said flotation assembly so as to be at least partially filled with water between said inlet and said outlet
- 6 A floating pump assembly as recited in claim 5 wherein said
- 30 fluid drive assembly is at least partially mounted within said housing and is at least partially submerged during activation thereof
- 7 A floating pump assembly as recited in claim 6 wherein said pump housing is disposed in a predetermined orientation
- 35 relative to the surface of the body of water so as to facilitate increased stability of said flotation assembly

during operation of said fluid drive assembly

8 A floating pump assembly as recited in claim 7 wherein said
predetermined orientation is such as to minimize increased
submersion of said flotation assembly during transition of
5 said fluid drive assembly from an inoperative mode to an
operative mode

9 A floating pump assembly as recited in claim 1 wherein said
pump housing and said outlet is disposed in a predetermined
orientation which reduces submersion of said flotation
10 assembly during operation of said fluid drive assembly

10 A floating pump assembly as recited in claim 9 wherein said
predetermined orientation further reduces submersion of said
flotation assembly during transition of said fluid drive
assembly from an inoperative mode to an operative mode

15 11 A floating pump assembly as recited in claim 10 wherein said
predetermined orientation is at least partially defined by
said inlet, said outlet and said fluid drive assembly
disposed beneath the surface of the body of water in a
substantially common predetermined orientation

20 12 A floating pump assembly as recited in claim 11 wherein said
common predetermined orientation is at least partially
defined by a substantially horizontal orientation

13 A floating pump assembly as recited in claim 1 wherein said
predetermined orientation is at least partially defined by
25 a substantially horizontal orientation of said outlet

14 A floating pump assembly as recited in claim 1 further
comprising a power assembly mounted on said flotation
assembly in spaced relation to said pump housing and
connected in driving relation to said fluid drive assembly

30 15 A floating pump assembly comprising
a) a flotation assembly structured to float on a body of
water,
b) a pump housing including an inlet and an outlet and a
fluid drive assembly disposed in fluid communication
35 with said inlet and said outlet and structured to
establish a predetermined path of fluid flow

therebetween,

c) a power assembly mounted on said flotation assembly and connected in driving relation to said fluid drive assembly,

d) said pump housing supported on said flotation assembly in an at least a partially submerged location, and

e) at least said outlet disposed in a predetermined orientation to facilitate stabilization of said flotation assembly during operation of said fluid drive assembly

16 A floating pump assembly as recited in claim 15 wherein said predetermined orientation further facilitates stabilization of said flotation assembly during transition of said fluid drive assembly from an inoperative mode to an operative mode

17 A floating pump assembly as recited in claim 15 wherein said power assembly and said pump housing are disposed in spaced relation to one another, said power assembly disposed in a non-submerged location on said flotation assembly

18 A floating pump assembly as recited in claim 17 further comprising a protection assembly mounted on said flotation assembly in at least partially enclosing relation to said power assembly and structured to protect said power assembly against exposure to adverse ambient conditions

19 A floating pump assembly as recited in claim 17 wherein said pump housing is disposed substantially below said power assembly, said predetermined orientation at least partially defined by said path of fluid flow maintained in at least a partially submerged location during an operative mode and an inoperative mode of said fluid drive assembly

20 A floating pump assembly as recited in claim 19 wherein said predetermined orientation is further and at least partially defined by a substantially horizontal disposition

21 A floating pump assembly as recited in claim 20 wherein said path of fluid flow is correspondingly disposed to a longitudinal axis of said pump housing

22 A floating pump assembly as recited in claim 21 wherein said

14
13

pump housing, said fluid drive assembly and said predetermined path of fluid flow collectively comprise an axial flow pump

23 A floating pump assembly as recited in claim 15 wherein said
5 predetermined orientation is at least partially defined by a substantially horizontal disposition of said outlet

24 A floating pump assembly comprising

a) a flotation assembly structured to float on a body of water and including a pump housing supported thereon,

10 b) said pump housing having an inlet and an outlet and a fluid drive assembly disposed in fluid communication therewith,

c) a power assembly supported on said flotation assembly in connected, driving relation to said fluid drive assembly, and

15 d) said inlet, said outlet and said fluid drive assembly being at least partially submerged and at least said outlet disposed in a predetermined orientation which facilitates stabilization of said flotation assembly
20 upon activation and operation of said fluid drive assembly

25 A floating pump assembly as recited in claim 24 further comprising a protection assembly mounted on said flotation assembly in at least partially enclosing relation to said
25 power assembly and structured to protect said power assembly against exposure to adverse ambient conditions

26 A floating pump assembly as recited in claim 24 wherein said
30 fluid drive assembly comprises a drive member mounted within said pump housing and disposed and structured to establish a path of fluid flow from said inlet to said outlet upon operation of said fluid drive assembly

27 A floating pump assembly as recited in claim 26 wherein said predetermined orientation and said path of fluid flow are substantially horizontally disposed

35 28 A floating pump assembly as recited in claim 26 wherein said fluid drive assembly further comprises an elongated drive

shaft connected to said drive member and rotatable therewith,
said drive shaft rotationally connected to and driven by said
power assembly

5 29 A floating pump assembly as recited in claim 28 wherein said
drive shaft extends outwardly from said pump housing along
a length of said flotation device

30 A floating pump assembly as recited in claim 29 further
comprising a cage structure including a substantially open
construction and disposed in spaced at least partially
10 surrounding relation to said drive shaft

31 A floating pump assembly as recited in claim 30 wherein said
cage extends along at least a majority of said drive shaft

32 A floating pump assembly as recited in claim 24 wherein said
inlet, said outlet and said fluid drive assembly are
15 structured to collectively comprise a centrifugal flow pump
wherein said predetermined orientation of said outlet is
substantially horizontal

33 A floating pump assembly as recited in claim 24 wherein said
inlet, said outlet and said fluid drive assembly are disposed
20 in a substantially horizontal orientation

34 A floating pump assembly as recited in claim 33 wherein said
inlet, said outlet, said fluid drive assembly and said pump
housing collectively define an axial flow pump

15
4

FIG 1

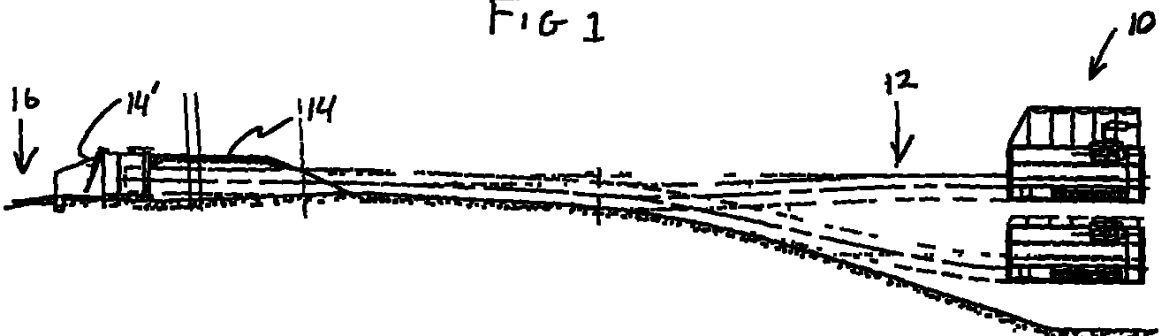
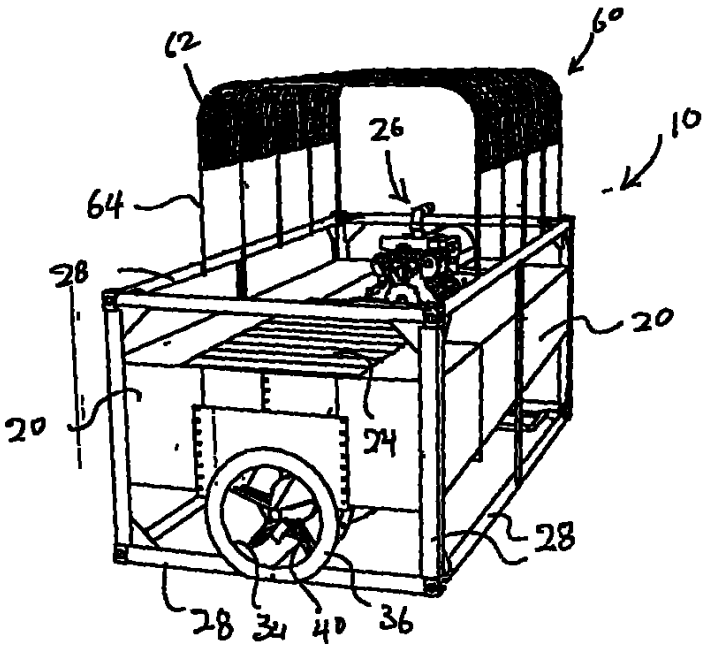


FIG 2



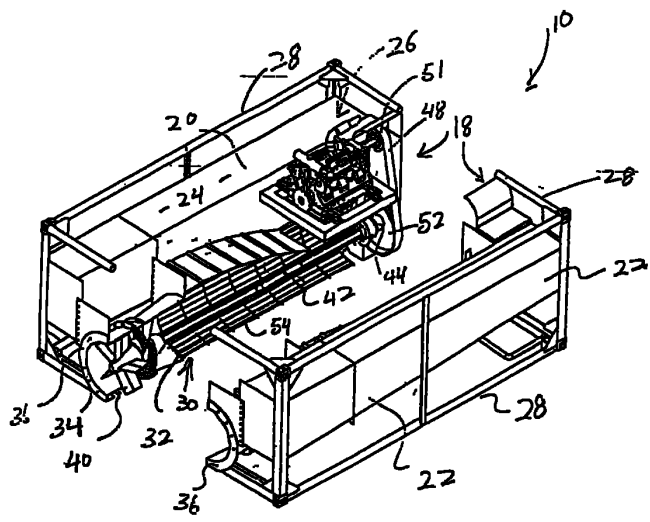


Fig 3

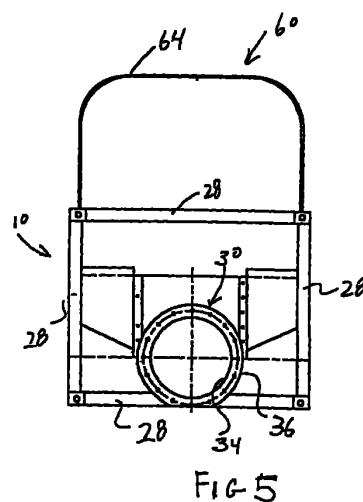
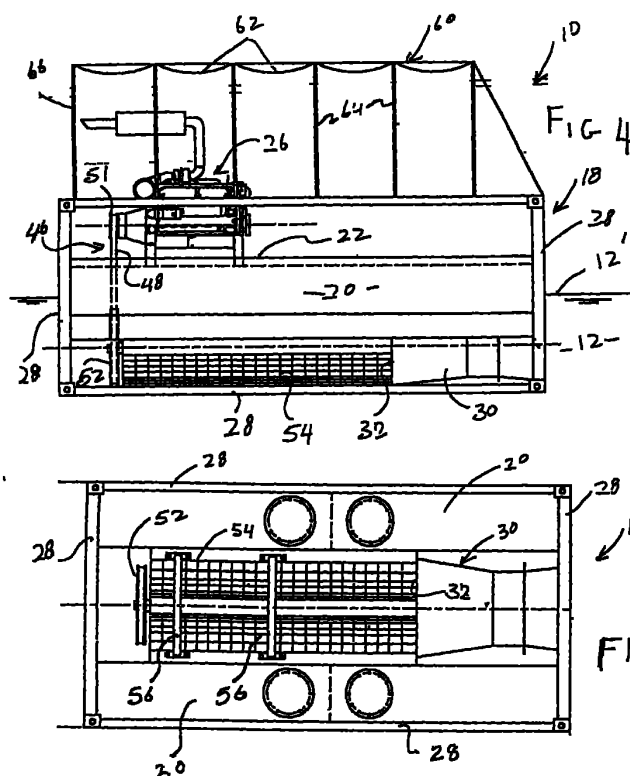


Fig 7

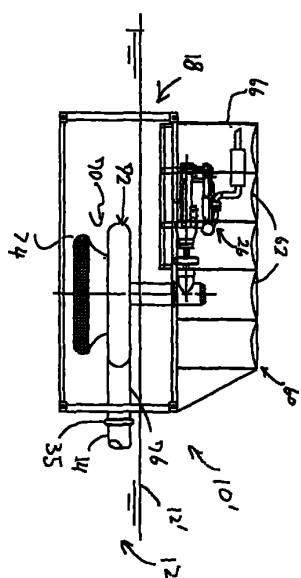
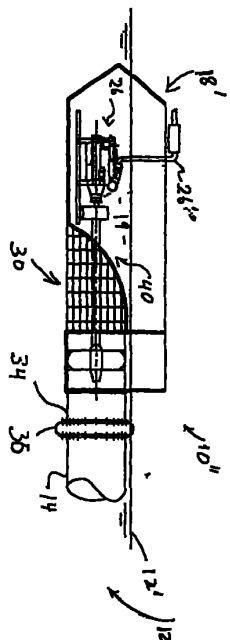


Fig 8



From the INTERNATIONAL BUREAU

PCT

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47 1(c) first sentence)

To

MATOS Peter, A.
Malloy & Malloy P A
2800 S.W. Third Avenue
Historic Coral Way
Miami FL 33129
ETATS-UNIS D AMERIQUE

Date of mailing(day/month/year)

20 February 2003 (20 02 03)

Applicant's or agent's file reference

4 569 02

IMPORTANT NOTICE

International application No

PCT/IB02/003063

International filing date(day/month/year)

06 August 2002 (06 08 02)

Priority date(day/month/year)

06 August 2001 (06 08 01)

Applicant

- 1 Notice is hereby given that the International Bureau has communicated, as provided in Article 20 the international application to the following designated Offices on the date indicated above as the date of mailing of this notice

KP KR

In accordance with Rule 47 1(c) third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s)

- 2 The following designated Offices have waived the requirement for such a communication at this time.

AE AG AL, AM, AP AT AU, AZ, BA, BB BG BR BY BZ, CA CH, CN CO, CR, CU CZ, DE, DK DM DZ, EA, EC
EE EP ES, FI GB, GO GE GH GM HR HU, ID IL, IN IS JP KE KG KZ LC LK LR LS, LT LU LV MA, MD MG
MK, MN MW MX, MZ NO NZ OA OM, PH PL, PT RO RU, SD, SE SG, SI SK, SL TJ TM, TN TR, TT TZ UA
UG UZ, VN YU ZA, ZM ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49 1(a-bis))

- 3 Enclosed with this notice is a copy of the international application as published by the International Bureau on 20 February 2003 (20 02 03) under No WO-03/014574

4. TIME LIMITS for filing a demand for international preliminary examination and for entry into the national phase

The applicable time limit for entering the national phase will subject to what is said in the following paragraph, be 30 MONTHS from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date, but also in respect of any designated Office, in the absence of filing of such demand where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details see PCT Gazette No 44/2001 of 1 November 2001 pages 19926, 19932 and 19934 as well as the PCT Newsletter October and November 2001 and February 2002 issues

In practice, time limits other than the 30-month time limit will continue to apply for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months or other time limit), Office by Office, refer to the PCT Gazette, the PCT Newsletter and the PCT Applicant's Guide Volume II National Chapters, all available from WIPO's Internet site at <http://www.wipo.int/pct/en/index.html>.

For filing a demand for international preliminary examination see the PCT Applicant's Guide Volume I/A Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II)

It is the applicant's sole responsibility to monitor all these time limits

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Judith Zahra

Facsimile No (41 22) 740 14 35

Telephone No (41 22) 338 91 11

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IB 02/03063

20

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F04D13/06 F04D13/02 F04D3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F04D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol 2000, no 01, 31 January 2000 (2000-01-31) - & JP 11 287194 A (EBARA CORP), 19 October 1999 (1999-10-19) abstract, figures 1-14	1-16, 23-29, 33, 34
X	NL 6 706 567 A (UNIVERSITÄT ROSTOCK) 11 November 1968 (1968-11-11) the whole document	1, 15, 24
X	PATENT ABSTRACTS OF JAPAN vol 2000, no 21, 3 August 2001 (2001-08-03) - & JP 2001 115983 A (EBARA CORP), 27 April 2001 (2001-04-27) abstract	1, 15, 24
-/-		

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

Special categories of cited documents

- *A document defining the general state of the art which is not considered to be of particular relevance
- *E earlier document but published on or after the international filing date
- *L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O document referring to an oral disclosure, use, exhibition or other means
- *P document published prior to the international filing date but later than the priority date claimed

- *T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & document member of the same patent family

Date of the actual completion of the international search

17 October 2002

Date of mailing of the international search report

24/10/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5518 Paludman 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Ingelbrecht, P

INTERNATIONAL SEARCH REPORT

Int. ☐ Application No
PCT/IB 02/03063

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2 212 062 A (HENRICKSON MARK J ,ROGERS RONALD R (CA)) 28 February 1999 (1999-02-28) the whole document _____	1,15,24, 32

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 02/03063

21
20

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 11287194	A	19-10-1999	NONE	
NL 6706567	A	11-11-1968	NONE	
JP 2001115983	A	27-04-2001	NONE	
CA 2212062	A	28-02-1999	CA 2212062 A1	28-02-1999

PATENT COOPERATION TREATY

28/21

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

Thiriez, Eric
c/o Malloy & Malloy P A
2800 S W Third Avenue
Miami, Florida 33129
ETATS-UNIS D'AMERIQUE

WRITTEN OPINION

(PCT Rule 66)

Date of mailing (day/month/year) 10/12/2003	
Applicant's or agent's file reference 4 569 02	REPLY DUE within 1 / 00 months/days from the above date of mailing
International application No. PCT/IB.02/03063	International filing date (day/month/year) 06/08/2002
Priority date (day/month/year) 06/08/2001	
International Patent Classification (IPC) or both national classification and IPC F04D13/06	
Applicant THIRIEZ, Eric	

- This written opinion is the first drawn up by this International Preliminary Examining Authority
- This opinion contains indications relating to the following items:
 - ☒ Basis of the opinion
 - ☐ Priority
 - ☐ Non-establishment of opinion with regard to novelty inventive step and industrial applicability
 - ☐ Lack of unity of invention
 - ☒ Reasoned statement under Rule 66.2(a)(i) with regard to novelty inventive step or industrial applicability - citations and explanations supporting such statement
 - ☐ Certain documents cited
 - ☐ Certain defects in the international application
 - ☐ Certain observations on the international application
- The applicant is hereby invited to reply to this opinion

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension see Rule 66.2(d)

How? By submitting a written reply accompanied where appropriate by amendments, according to Rule 66.3
For the form and the language of the amendments, see Rules 66.8 and 66.9

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis
For an informal communication with the examiner see Rule 66.5

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion
- The final date by which the international preliminary examination report must be established according to Rule 69.2 is. 06/12/2003

Name and mailing address of the IPEA/

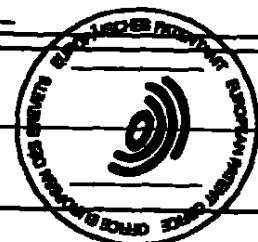


European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk Netherlands
Tel. (+31 70) 240-2040
Fax. (+31 70) 240-3016

Authorized officer

Examiner

Formalities officer
(incl. extension of time limits)
Tel (+49-89) 2399 2828



Form PCT/IPBA/408 (cover sheet) (march 2002)

WRITTEN OPINION

International application No PCT/ IB 02/ 03063

I Basis of the opinion

- 1 The basis of this written opinion is the application as originally filed

V Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability

- 1 In light of the documents cited in the international search report, it is considered that the invention as defined in at least some of the claims does not appear to meet the criteria mentioned in Article 33(1) PCT, i.e. does not appear to be novel and/or to involve an inventive step (see international search report, in particular the documents cited X and/or Y and corresponding claims references)
- 2 If amendments are filed, the applicant should comply with the requirements of Rule 66.8 PCT and indicate the basis of the amendments in the documents of the application as originally filed (Article 34 (2) (b) PCT) otherwise these amendments may not be taken into consideration for the establishment of the international preliminary examination report. The attention of the applicant is drawn to the fact that if the application contains an unnecessary plurality of independent claims, no examination of any of the claims will be carried out

NB Should the applicant decide to request detailed substantive examination, then an international preliminary examination report will normally be established directly. Exceptionally the examiner may draw up a second written opinion, should this be explicitly requested

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To.

Thiriez, Eric
c/o Malloy & Malloy P A
2800 S W Third Avenue
Miami, Florida 33129
ETATS-UNIS D'AMERIQUE

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))Date of mailing
(day/month/year)

12-09-2003

Applicant's or agent's file reference

4 569 02

IMPORTANT NOTIFICATION

International application No.

PCT/IB 02/03063

International filing date (day/month/year)

06/08/2002

Priority date (day/month/year)

06/08/2001

Applicant

THIRIEZ, Eric

- 1 The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application

04/03/2003

- 2 This date of receipt is:

- ☐ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
☒ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
☐ the date on which this Authority has in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections

- 3 ☐ **ATTENTION** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details see the *PCT Applicant's Guide, Volume II*

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on.

- 4 Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/

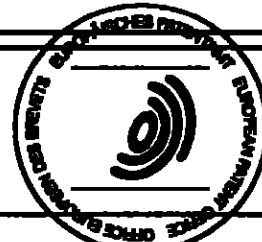


European Patent Office P B 5818 Patentlaan 2
NL-2280 HV Rijswijk - Netherlands
Tel. (+31 70) 340-2040
Fax (+31 70) 340-3016

Authorized officer

KORVING J D

Tel. (+31 70) 340-2052



25 24

The demand must be filed directly with the competent International Preliminary Examining Authority or if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ US

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated)

For International Preliminary Examining Authority use only	
Identification of IPFA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
Applicant's or agent's file reference 4569.02	
International application No. PCT/IB02/03063	International filing date (day/month/year) 6 AUG 2002 (06.08.02)
(Earliest) Priority date (day/month/year) 6 AUG 2001 (06.08.01)	
Title of invention FLOATING PUMP ASSEMBLY	
Box No. II APPLICANT(S)	
Name and address. (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
Telephone No. (305) 858-8000	
Facsimile No. (305) 858-0008	
Teleprinter No.	
Applicant's registration No. with the Office 37,884 and 37,670	
THIRIEZ, Eric Calle 6 #11-36 Castillo Grande Cartagena, COLOMBIA SOUTH AMERICA	
State (that is, country) of nationality FR	State (that is, country) of residence: FR
Name and address. (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality	State (that is, country) of residence:
Name and address. (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality	State (that is, country) of residence:
☐ Further applicants are indicated on a continuation sheet.	

Box No. VI CHECK LIST

The demand is accompanied by the following elements, as the language referred to in Box No. IV for the purposes of international preliminary examination

- | | | |
|---|--|--------|
| 1 | translation of international application | sheets |
| 2 | amendments under Article 34 | sheets |
| 3 | copy (or where required, translation) of amendments under Article 19 | sheets |
| 4 | copy (or where required, translation) of statement under Article 19 | sheet |
| 5 | letter | sheet |
| 6 | other (specify) | sheets |

For International Preliminary Examining Authority use only
received not received

- | | |
|--------------------------|--------------------------|
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |

The demand is also accompanied by the item(s) marked below

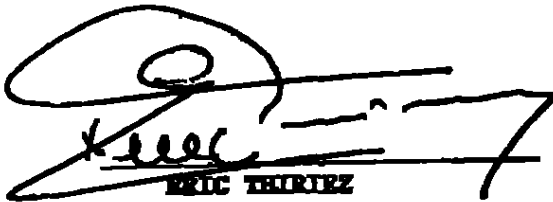
- 1 ☒ fee calculation sheet
- 2 ☐ original separate power of attorney
- 3 ☐ original general power of attorney
- 4 ☐ copy of general power of attorney
reference number if any

- 5 ☐ statement explaining lack of signature
- 6 ☐ sequence listings in computer readable form
- 7 ☐ tables in computer readable form related to sequence listings
- 8 ☒ other (specify) **Cert Exp Mail**

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Note to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

THIRTEZ, Eric
Calle 6 #11-36
Castillo Grande
Cartagena, COLOMBIA
SOUTH AMERICA



ERIC THIRTEZ

For International Preliminary Examining Authority use only

1 Date of actual receipt of DEMAND

2 Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b).

3 ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below does not apply☐ The applicant has been informed accordingly4 ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.5 ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSABLE pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

Box No. III AGENT OR COMMON REPRESENTATIVE, OR ADDRESS FOR CORRESPONDENCE

The following person is ☐ agent ☐ common representativeand ☐ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority in addition to the agent(s)/common representative appointed earlier

Name and address (Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country.)

MATOS, Peter A.

MALLOY, Jennie S.

Attorneys for Applicant

Malloy & Malloy, P.A.

2800 S.W. Third Avenue

Miami, Florida 33129

United States of America

Telephone No.

(305) 858-8000

Facsimile No.

(305) 858-0008

Teleprinter No.

Agent's registration No. with the Office

37,884 and 37,670

☒ Address for correspondence. Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments.*

1 The applicant wishes the international preliminary examination to start on the basis of:

☐ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69 1(d)). (This check-box may be marked only where the time limit under Article 19 has not yet expired.)

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby elects all eligible States (that is, all States which have been designated and which are bound by Chapter II of the PCT)

excluding the following States which the applicant wishes not to elect:

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty

For receiving Office use only	
PCT/RB 02 / 03063	International Application No.
06 AUGUST 2002	06 08.02
INTERNATIONAL BUREAU OF WIPO	
PCT International Application	
Name of receiving Office and "PCT International Application"	
Applicant's or agent's file reference (if desired) (12 characters maximum) 4 569 02	

Box No. I TITLE OF INVENTION FLOATING PUMP ASSEMBLY	
Box No. II APPLICANT ☒ This person is also inventor	
Name and address. (Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this box is the applicant's State (that is, country) of residence (if no State of residence is indicated below.) THIRIEZ, Eric Calle 6 #11-36 Castillo Grande Cartagena, COLOMBIA SOUTH AMERICA	Telephone No. (305) 858-8000 Facsimile No. (305) 858-0008 Teleprinter No. Applicant's registration No. with the Office 4 569 02
State (that is, country) of nationality FR	State (that is, country) of residence FR
This person is applicant for the purposes of ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address. (Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this box is the applicant's State (that is, country) of residence (if no State of residence is indicated below.)	This person is. ☐ applicant only ☒ applicant and inventor ☐ inventor only (If this check-box is marked, do not fill in below.) Applicant's registration No. with the Office
State (that is, country) of nationality	State (that is, country) of residence.
This person is applicant for the purposes of ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box	
☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE, OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as ☐ agent ☐ common representative	
Name and address. (Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country.) MATOS, Peter A. MALLOY, Jennie S MALLOY & MALLOY, P A 2800 S W Third Avenue Historic Coral Way Miami, Florida 33129 United States of America	Telephone No. (305) 858-8000 Facsimile No. (305) 858-0008 Teleprinter No. Agent's registration No. with the Office 37.884
☒ Address for correspondence Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

Box No. V DESIGNATION OF STATES *Mark the applicable check-boxes below; at least one must be marked.*

The following designations are hereby made under Rule 4.9(a):

Regional Patent

- ☒ **AP** ARIPO Patent GH Ghana GM Gambia KE Kenya LS Lesotho MW Malawi, MZ Mozambique, SD Sudan SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (*if other kind of protection or treatment desired, specify on dotted line*)
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus KG Kyrgyzstan KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, SK Slovakia, TR Turkey and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (*if other kind of protection or treatment desired, specify on dotted line*)

National Patent (*if other kind of protection or treatment desired, specify on dotted line*)

- | | | |
|---|--|--|
| ☒ AE United Arab Emirates | ☒ GM Gambia | ☒ NZ New Zealand |
| ☒ AG Antigua and Barbuda | ☒ HR Croatia | ☒ OM Oman |
| ☒ AL Albania | ☒ HU Hungary | ☒ PH Philippines |
| ☒ AM Armenia | ☒ ID Indonesia | ☒ PL Poland |
| ☒ AT Austria | ☒ IL Israel | ☒ PT Portugal |
| ☒ AU Australia | ☒ IN India | ☒ RO Romania |
| ☒ AZ Azerbaijan | ☒ IS Iceland | ☒ RU Russian Federation |
| ☒ BA Bosnia and Herzegovina | ☒ JP Japan | |
| ☒ BB Barbados | ☒ KE Kenya | ☒ SD Sudan |
| ☒ BG Bulgaria | ☒ KG Kyrgyzstan | ☒ SE Sweden |
| ☒ BR Brazil | ☒ KP Democratic People's Republic of Korea | ☒ SG Singapore |
| ☒ BY Belarus | ☒ KR Republic of Korea | ☒ SI Slovenia |
| ☒ BZ Belize | ☒ KZ Kazakhstan | ☒ SK Slovakia |
| ☒ CA Canada | ☒ LC Saint Lucia | ☒ SL Sierra Leone |
| ☒ CH & LI Switzerland and Liechtenstein | ☒ LK Sri Lanka | ☒ TJ Tajikistan |
| ☒ CN China | ☒ LR Liberia | ☒ TM Turkmenistan |
| ☒ CO Colombia | ☒ LS Lesotho | ☒ TN Tunisia |
| ☒ CR Costa Rica | ☒ LT Lithuania | ☒ TR Turkey |
| ☒ CU Cuba | ☒ LU Luxembourg | ☒ TT Trinidad and Tobago |
| ☒ CZ Czech Republic | ☒ LV Latvia | |
| ☒ DE Germany | ☒ MA Morocco | ☒ TZ United Republic of Tanzania |
| ☒ DK Denmark | ☒ MD Republic of Moldova | ☒ UA Ukraine |
| ☒ DM Dominica | | ☒ UG Uganda |
| ☒ DZ Algeria | ☒ MG Madagascar | ☐ US United States of America |
| ☒ EC Ecuador | ☒ MK The former Yugoslav Republic of Macedonia | |
| ☒ EE Estonia | ☒ MN Mongolia | ☒ UZ Uzbekistan |
| ☒ ES Spain | ☒ MW Malawi | ☒ VN Viet Nam |
| ☒ FI Finland | ☒ MX Mexico | ☒ YU Yugoslavia |
| ☒ GB United Kingdom | ☒ MZ Mozambique | ☒ ZA South Africa |
| ☒ GD Grenada | ☒ NO Norway | ☒ ZM Zambia |
| ☒ GE Georgia | | ☒ ZW Zimbabwe |
| ☒ GH Ghana | | |

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

☐	☐	☐
☐	☐	☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (*Confirmation (including fees) must reach the receiving Office within the 15-month time limit.*)

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application country or Member of WTO	regional application, [*] regional Office	international application, receiving Office
item (1) (06 08 2001) 06 AUG 2001	09/923,020	US		
item (2) (25 01 2002) 25 JAN 2002	10/056,997	US		
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

☐ all items ☒ item (1) ☐ item (2) ☐ item (3) ☐ item (4) ☐ item (5) ☐ other, see Supplemental Box

^{*} Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii))

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used)

ISA / US EP

Request to use results of earlier search, reference to that search (If an earlier search has been carried out by or requested from the International Searching Authority)

Date (day/month/year)

Number

Country (or regional Office)

Box No. VIII DECLARATIONS

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration)

Number of
declarations

- ☐ Box No. VIII (i) Declaration as to the identity of the inventor
- ☐ Box No. VIII (ii) Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent
- ☐ Box No. VIII (iii) Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application
- ☐ Box No. VIII (iv) Declaration of inventorship (only for the purposes of the designation of the United States of America)
- ☐ Box No. VIII (v) Declaration as to non-prejudicial disclosures or exceptions to lack of novelty

Box No. IX CHECK LIST: LANGUAGE OF FILING

This international application contains:

(a) the following number of sheets in paper form:

request (including
declaration sheet)

4

description (including
sequence listing part)

15

claims

5

abstract

4

drawings

29

Sub-total number of sheets

sequence listing part of

description (number of

sheets filed in paper

form, whether or not also

filed in computer readable

form; see (b) below)

Total number of sheets

29

(b) sequence listing part of description filed in

(i) ☐ only (under Section 801(a)(1))(ii) ☐ in addition to being filed in paperform (under Section 801(a)(2))
Type and number of carriers (diskette,
CD-ROM, CD-R or other) on which the
sequence listing part is contained (additional
copies to be indicated under item 9(ii), in
right column)

This international application is accompanied by the following

Number
of items1. ☒ fee calculation sheet

1

2. ☐ original separate power of attorney

1

3. ☐ original general power of attorney

1

4. ☐ copy of general power of attorney; reference number,
if any:5. ☐ statement explaining lack of signature

1

6. ☐ priority document(s) identified in Box No. VI as
item(s):

1

7. ☐ translation of (nonrandom) application into
(language):

1

8. ☐ separate indications concerning deposited microorganisms
or other biological material

1

9. ☐ sequence listing in computer readable form (indicate also type
and number of carriers (diskette, CD-ROM, CD-R or other))

1

(i) ☐ copy submitted for the purposes of international search
under Rule 13ter only (and not as part of the
international application)(ii) ☐ (only where check-box (b)(i) or (b)(ii) is marked in left
column) additional copies (including, where applicable,
the copy for the purposes of international search under
Rule 13ter)(iii) ☐ together with relevant statements as to the identity
of the copy or copies with the sequence listing part
specified in left column10. ☐ other (specify):

1

Figures of the drawings which
should accompany the abstract:

1

Language of filing of the
international application:

English

Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Place in each signature, indicate the name of the person signing and the capacity in which the person signs. (If such capacity is not obvious from reading the signature.)

THIRIEZ, Eric
Calle 6 #11-36, Castillo Grande
Cartagena, COLOMBIA
SOUTH AMERICABy: 
Eric Thiriez

For receiving Office use only	
1. Date of actual receipt of the prepared international application:	2. Drawings: ☐ received ☐ not received
3. Corrected date of actual receipt due to later but timely received papers or drawings comprising the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority (if two or more are designated): ISA/	6. ☐ Transmittal of search copy delayed until search fee is paid

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	

32 71

From the INTERNATIONAL SEARCHING AUTHORITY

PCTNOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To

Malloy & Malloy P A
Attn Matos, Peter A
2800 S W Third Avenue
Historic Coral Way
US-Miami, Florida 33129
UNITED STATES OF AMERICADate of mailing
(day/month/year)

24/10/2002

Applicant's or agent's file reference

4 569 02

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/IB 02/03063

International filing date
(day/month/year)

06/08/2002

Applicant

THIRIEZ, Eric

- 1
- ☒
- The applicant is hereby notified that the International Search Report has been established and is transmitted herewith

Filing of amendments and statement under Article 19

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46)

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report, however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34 chemin des Colombettes
1211 Geneva 20 Switzerland
Facsimile No.: (41-22) 740 14.35

For more detailed instructions, see the notes on the accompanying sheet.

- 2
- ☐
- The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith

- 3
- ☐
- With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made

- 4 Further action(s) The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application or of the priority claim must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority

European Patent Office P B 5818 Patentaan 2
NL-2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx 31 651 epo nl
Fax (+31-70) 340-3016

Authorized officer

Christine Schipflinger

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, Article, "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new
- (iv) the claim replaces one or more claims as filed
- (v) the claim is the result of the division of a claim as filed

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added; or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]
"Claims 1, 10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under Article 19(1)" (Rule 48.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Office, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 4 569 02	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as where applicable Item 6 below	
International application No PCT/IB 02/03063	International filing date (day/month/year) 06/08/2002	(Earliest) Priority Date (day/month/year) 06/08/2001
Applicant THIRIEZ, Eric		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1 Basis of the report

- a With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed unless otherwise indicated under this item

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b))

- b With regard to any nucleotide and/or amino acid sequence disclosed in the international application the international search was carried out on the basis of the sequence listing

☐ contained in the international application in written form

☐ filed together with the international application in computer readable form

☐ furnished subsequently to this Authority in written form

☐ furnished subsequently to this Authority in computer readable form

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

- 2 ☐ Certain claims were found unsearchable (See Box I)

- 3 ☐ Unity of invention is lacking (see Box II)

4 With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows

5 With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established according to Rule 38 2(b) by this Authority as it appears in Box III. The applicant may within one month from the date of mailing of this international search report submit comments to this Authority.

6 The figure of the drawings to be published with the abstract is Figure No

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☒ because this figure better characterizes the invention.

2
☐ None of the figures.

36

Ingebrecht, P

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 02/03063

36

37

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2 212 062 A (HENRICKSON MARK J ,ROGERS RONALD R (CA)) 28 February 1999 (1999-02-28) the whole document	1, 15, 24, 32

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/IB 02/03063

37
38

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 11287194	A	19-10-1999	NONE	
NL 6706567	A	11-11-1968	NONE	
JP 2001115983	A	27-04-2001	NONE	
CA 2212062	A	28-02-1999	CA 2212062 A1	28-02-1999

Descripción

Un montaje de bomba de flotación

ANTECEDENTES DE LA INVENCION

Campo de la invención

Esta invención esta dirigida a n montaje de bomba de flotación que incluye preferiblemente un soporte de bomba de flujo de alta capacidad sobre un montaje de flotacion en un sitio al menos parcialmente sumergido y en una orientación predeterminada que elimina sustancialmente o al menos minimiza la tendencia del montaje de flotación para volverse inestable en menos en términos de ser adicionalmente sumergida dentro del cuerpo de agua en el cual esta está flotando, durante la activación y operación del montaje de bomba

Descripción de la técnica relacionada

El concepto general de una bomba de flotación se ha conocido y utilizado para una variedad de diferentes aplicaciones

durante muchos años Tales aplicaciones incluyen pero no están limitadas a, drenaje, irrigación, bombeo de transferencia control de agua y sitios de excavación, drenado, y otros En uso, las bombas convencionales del tipo referido aquí están frecuentemente conectadas a algún tipo de motor primario o fuente de potencia que incluye generalmente un motor de impulsión El motor de impulsión está conectado en relación de impulsión con un propulsor, eje de impulsión o mecanismo similar que sirve para crear n flujo de líquido desde un sitio de entrada a un sitio de salida La transferencia del agua o cualquier líquido que está siendo tratado se logra de esta manera como se pretende

Por via solo ejemplo, las bombas de flotación son comunmente utilizadas en instalaciones de tratamiento de agua como mezcladores de flujo descendiente o dispositivos de aireación de agua Como tal, la carcasa de bomba, incluyendo los componentes de bomba rotacionalmente impulsados allí, están típicamente disgustos en algún tipo de estructura de flotación Como en la mayoría de las aplicaciones de emergencia e industriales, la carcasa de bomba y de acuerdo con esto la senda de flujo de fluido creada por la operación de la bomba son normalmente orientadas de manera vertical En tal orientación vertical el motor de impulsión u otra

instalación que genera potencia se localiza por encima pero generalmente conectada a la carcasa de la bomba de tal forma que el retiro de potencia del motor de impulsión y los elementos de impulsión o los componentes de trabajo de esta, están directamente conectados. Excepto en situaciones donde la senda de flujo de fluido está dirigida desde un nivel superior de un cuerpo de agua abajo hacia el fondo o receptor del cuerpo de agua, tal como en mezclas de flujo en descenso y ciertos dispositivos de aireación, la senda de flujo de fluido esta normalmente dirigida la dirección opuesta. Esto es por supuesto típico cuando las bombas son utilizadas en una aplicación de drenaje durante la caída de lluvia pesada o en aplicaciones de agricultura más comunes, tal como la irrigación y similares.

Sin embargo, sin importar la utilización específica de la bomba de flotación, la estructura física y la localización del suministro de potencia, los componentes operativos y el montaje de flotación son tal que mantienen típicamente la carcasa de bomba e una orientación vertical. En tal orientación vertical, el montaje de potencia utilizado para impulsar los componentes operativo de la bomba se aseguran a la carcasa de la bomba en una localización no sumergida o son

requeridos de otra manera para ser mantenidos en una cubierta incluida o sellada

De acuerdo con esto, luego de la activación y la operación continuada los montajes e bomba conocidos son frecuentemente desorientados al ser inclinados y/o más profundamente sumergidos en el cuerpo de agua en el cual ellos están flotando Tal inestabilidad resulta de la necesidad de que el ,montaje de flotación absorba la fuerza de empuje de la bomba y el peso del agua e la medida en que esta llena el interior de la bomba y las porciones adyacentes de un conducto de descarga y de suministro asociado Como resultado, la dimensión y/o la configuración del dispositivo de flotación o el montaje incluido en muchas bombas de flotación convencionalmente estructuradas deben ser significativamente incrementadas y/o agrandadas De hecho, las desventajas de las bombas de flotación convencionales que incluyen una estructura de flote soportante sobredimensionada son significativas, y como resultado, las aplicaciones específicas para las cuales tales bombas de aplicación pueden utilizar se pueden limitar

Obviamente, lo anterior no es cierto en todos los usos de las bombas de flotación Sin embargo, en muchas

situaciones es importante maximizar la capacidad de flujo de la bomba flotante, específicamente cuando intenta transferir o tratar de otra manera grandes cantidades de agua. En tales situaciones sería extremadamente benéfico tener la capacidad de un montaje de bomba de flotación unitaria o autocontenida que incluye una carcasa de bomba dispuesta en una orientación predeterminada y capaz de capacidades de flujo extremadamente grandes. Como tal el montaje de bomba de flotación mejorado podría ser impulsado por un montaje de potencia de trabajo pesado tal como, pero no limitado a, un motor de convulsión interna. En tal montaje de bomba preferido, el montaje de potencia se puede montar sobre un montaje de flotación de tamaño compacto y dimensión y lograr efectivamente el flujo forzado de cantidades significativamente grandes de agua a través de una carcasa de bomba asociada adecuadamente orientada sin encontrar las desventajas de inestabilidad del tipo encontrado por las bombas de flotación convencionales.

Además, con el fin de solucionar muchos, sino todos los problemas conocidos y las desventajas comúnmente asociadas

Con los montajes de bombas de flotación convencionales del tipo general establecido anteriormente, se prefiere que la carcasa de bomba, el montaje de impulsión asociado y la senda resultante del flujo de fluido se dispongan en la orientación

anteriormente determinada La orientación preferida determinada de la carcasa de bomba es tal que elimina la necesidad de un montaje de flotación sobredimensionado aunque minimizando la tendencia del montaje de bomba a sumergirse más profundamente dentro del cuerpo de agua y por debajo de la superficie sobre la cual el montaje de flotación pretende flotar La orientación determinada de la carcasa de la bomba, el montaje de impulsión de fluido y la salida o descarga de la carcasa de la bomba, servirían de esta manera para mantener la senda forzada del flujo de agua a través de la carcasa de la bomba De manera importante, la dirección de la senda de fluido o el flujo de agua eliminaría o reduciría significativamente cualquier fuerza de empuje de reacción que se ejerza sobre el montaje de flotación que originaría su inestabilidad Por lo tanto, durante la operación del montaje de impulsión de fluido, así como también la transición de este desde un modo no operativo un modo operativo, cualquier tendencia de la flotación ha ser desorientada, tal como a ser forzada dentro de una posición sumergida más profunda sería sustancialmente eliminada o al menos significativamente reducida

Un montaje de bomba de flotación mejorado del tipo generalmente establecido anteriormente, permitiría por lo

~~44~~
45

tanto la utilización de un montaje de flotación más compacto y manejable y de otra forma se estructuraría para sostener y mantener un suministro de potencia de trabajo pesado, tal como el motor de convulsión interna anteriormente mencionado, en una orientación de flotación pretendida Sin embargo, el tamaño y/o la configuración del montaje de flotación de la presente invención no tendría que incrementarse o expandirse para solucionar la tendencia de la bomba a ser reorientada en una posición más profundamente sumergida en el cuerpo del agua, como es común durante el arranque y operación de las estructuras de bomba de flotación convencionales

Resumen de la Invención

La presente invención está dirigida a un montaje de flotación de tipo estructurado para suministrar una alta capacidad de flujo de fluido posibilitándole de esta manera servir como una instalación de tratamiento o manejo de agua efectiva y eficiente en una variedad de diferentes aplicaciones. Adicionalmente, el montaje de flotación de la presente invención es compacto así como también autocontenido hasta el punto de tener una carcasa de bomba, y los componentes de la bomba asociados con este, así como también

el montaje de potencia montado en un montaje de flotación sencillo, relativamente compacto. El montaje de flotación puede por lo tanto ser eficientemente transportado desde un sitio a otro y operativamente ubicado sobre el cuerpo de agua a ser tratado de una manera rápida y eficiente.

En una aplicación convencional de un montaje de bomba flotante, la carcasa de la bomba y el montaje de potencia son típicamente ensamblados en una carcasa simple o en una cubierta y montado sobre una estructura flotante con una orientación generalmente vertical. Como tal, la entrada de la carcasa de la bomba está sumergida y la salida de esta está localizada por encima de la superficie de agua a una conexión apropiada a algún tipo de conducto de transferencia o similar. Por lo tanto, las bombas flotantes convencionales del tipo descrito aquí son normalmente orientadas de tal forma que una fuerza reactiva o de empuje se ejerza sobre el montaje de flotación luego de la activación del montaje de bomba. Esta fuerza de reacción tiende a ser inestable el montaje de flotación incluyendo el ser forzada más profundamente dentro del cuerpo de agua. Como resultado, el tamaño y el peso de la estructura de flotación es frecuentemente mejorado en un intento para solucionar tal inestabilidad. La capacidad de las bombas de flotación

convencionales están un poco restringidas y muchas veces deben ser utilizada en situaciones donde una alta capacidad de flujo de fluido no se requiere o se espera Naturalmente, bajo ciertas condiciones una pluralidad de tales bombas de flotación que colectivamente tiene la capacidad pretendida para aliviar la emergencia las condiciones de flotación, se puede requerir

De acuerdo con esto, el montaje de bomba de flotación de la presente invención soluciona los bien reconocidos problemas y desventajas asociadas con las estructuras de bomba de flotación convencionales Más específicamente, la presente invención comprende un montaje de flotación estructurado para flotar sobre un cuerpo de agua y que incluye la plataforma de sostenimiento o instalación de sostenimiento similar para el montaje de un montaje de potencia sobre esta Como se describirá con gran detalle en lo sucesivo, el montaje de potencia está preferiblemente en la forma de un motor de combustión interna de alta salida, sea impulsado por diesel o gasolina, y ser de un tamaño y capacidad para potenciar eficientemente un montaje de impulsión de fluido de alta capacidad El montaje de impulsión de fluido es un componente operativo de la bomba y está al menos parcialmente montado dentro de una carcasa de bomba Además, el montaje de potencia esta montado sobre la

plataforma de sostenimiento del montaje de flotación en un sitio no sumergido o dentro de un compartimiento protegido del montaje de flotación que se puede disponer por debajo de la superficie de agua. En cualquier modalidad, el montaje de potencia está dispuesto en interconexión de impulsión espaciada con el montaje de impulsión de fluido.

Como también se explicará con gran detalle en lo sucesivo, el montaje de flotación comprende, en al menos una modalidad, una estructura tipo armadura que puede incluir una cubierta protectora, pabellón, cubierta, etc., dispuesto en una relación de posición protectora con el montaje de potencia. El montaje de potencia es protegido de esta manera efectivamente de condiciones ambientales adversas, tales como las que existen durante malas condiciones climáticas, aún cuando estas se localicen por encima del muelle en una posición relativamente expuesta. Preferiblemente, la cubierta protectora es "convertible" de naturaleza de tal forma que es fácilmente instalada en su posición operativa, protectora o removida de esta según se desee.

En al menos una modalidad preferida de la presente invención el montaje de bomba de flotación comprende una bomba de flujo axial definida, en al menos en parte, por el

montaje de impulsión de fluido anteriormente mencionado dispuesto en al menos el interior de la carcasa de la bomba en comunicación fluida entre la entrada y la salida de esta Sin embargo, se enfatiza que el montaje de bomba de flotación de la presente invención se podría incorporar a una bomba de flujo mezclada, una bomba de flujo centrífuga, una bomba de flujo multietapa u otras De acuerdo con esto, sin importar el tipo de estructura de bomba utilizada, las desventajas reconocidas y los problemas asociados con los montajes de bombas de flotación convencionales son sustancialmente solucionados al orientar la carcasa de bomba y/o el montaje de impulsión de fluido así como también la entrada y la salida en una orientación operativa preferida y predeterminada En tal orientación predeterminada, una senda de flujo de fluido se crea luego de la activación y operación del montaje de impulsión de fluido, en donde la senda de flujo de fluido se extiende a través de la carcasa de bomba desde la entrada a la salida Por vía de ejemplo, la carcasa de la bomba, el montaje de impulsión de fluido y otros componentes operativos directamente asociados con el bombeo del agua a lo largo de una senda predeterminada, pueden definir una bomba de flujo axial Sin embargo, sin importar la estructura de bomba particular utilizada, la senda de flujo de agua a través de la carcasa de la bomba y/o

especialmente la orientación de la salida en la medida en que el agua se descarga de la carcasa, deben ser tales que nieguen, minimicen o reduzcan sustancialmente el efecto de fuerza de reacción o de empuje generada en la medida en que el agua llena y se descarga de la carcasa de la bomba

Por lo tanto, en su orientación sumergida, la bomba de flujo adicionalmente soluciona las desventajas y problemas conocidos del tipo establecido anteriormente al ser ubicada en una orientación predeterminada anteriormente mencionada. Más específicamente, la carcasa de la bomba, el montaje de impulsión de fluido y particularmente la salida de la bomba de flujo están preferiblemente dispuestas en una orientación sustancialmente horizontal. Como tales, tanto la entrada como la salida de la carcasa de la bomba son mantenidas preferiblemente en una posición sumergida. Esto sirve para estabilizar la senda anteriormente mencionada de flujo de fluido a través de la carcasa de la bomba en una dirección sustancialmente horizontal de viaje, dependiendo del tipo de estructura de bomba de flujo a ser utilizado. Por lo tanto, cualquier fuerza de reacción que tienda a sumergir adicionalmente el montaje de flotación u originar su inestabilidad, se elimina o se reduce significativamente. Como resultado, no existen fuerzas significativas durante la

transferencia inicial del montaje de activación de fluido desde un modo inactivo a un modo activo o durante la operacion continua del montaje de impulsión de fluido que crearía la inestabilidad problemática del montaje de flotación El montaje de flotación puede por lo tanto ser de una dimensión y configuración más pequeña, más compacta que, por supuesto, deben ser suficientes para sostener el peso del montaje de potencia y los componentes estructurales del montaje de flotación mismos en una orientación de flotación sobre la superficie del cuerpo de agua

Se debe enfatizar que cuando se utilizan estructuras de bomba diferentes de la bomba de flujo axial, la orientación predeterminada de la salida o el extremo de descarga de la carcasa de la bomba deben ser preferiblemente sustancialmente horizontales Como tal, la exposición de otros componentes operativos de la bomba de flujo en la orientación anteriormente mencionada predeterminada podrían asumir posiciones diferentes a la orientación real horizontal aun servir para minimizar la tendencia del montaje de flotación que se vuelve inestable cuando se opera la bomba de flujo

Dependiendo de la aplicación práctica particular a la cual se aplique el montaje de bomba de flotación de la

~~51~~
52

presente invención, el conducto de transferencia de agua se puede conectar directamente a la porción de salida de la carcasa de bomba. Tal conducto de transferencia puede ser de longitud significativa y extenderse desde un punto lejos de la orilla, donde el montaje de bomba de flotación de la presente invención este localizado, a un sitio de suministro de agua sobre o más allá de la línea de costa. En cualquier evento, se debe enfatizar que al menos una modalidad preferida de la presente invención, tanto la entrada como la salida de la carcasa de bomba están en una posición completa o al menos parcialmente sumergida. La senda del flujo de fluido creada por la operación del montaje de impulsión del fluido y en particular la dirección del flujo de agua se orienta de tal forma que minimiza la fuerza de reacción que es ejercida sobre el montaje de flotación que originaría su inestabilidad. El montaje de flotación no experimentaría ninguna tendencia a ser físicamente desorientado o a ser adicionalmente sumergido más allá de su posición de flotación normal.

Estos y otros objetos, características y ventajas de la presente invención serán más claros cuando los dibujos así como también la descripción detallada sean tomados en consideración.

Breve descripción de los dibujos

Para un entendimiento adicional de la naturaleza de la presente invención, se debe hacer referencia a la siguiente descripción detallada tomada en conexión con los dibujos que la acompañan los cuales

La figura 1 es una vista lateral que muestra un montaje de bomba de flotación de la presente invención en operación

La figura 2 es una vista e pesrspectiva desde la parte superior del montaje de bomba de flotación de la presente invención

La figura 3 es una vista en perspectiva al menos parcialmente en explosión de la modalidad de las figuras 1 y 2

La figura 4 es una vista lateral del montaje de bomba de flotación de la presente invención

La figura 5 es una vista de extremo de la modalidad de la figura 4

La figura 6 es una vista de fondo de la modalidad de la figura 4 y 5

La figura 7 es una vista lateral de otra modalidad del montaje de flotación de la presente invención en donde la bomba de flujo utilizada es una bomba de flujo centrífuga

La figura 8 es una vista lateral de aún otra modalidad preferida del montaje de flotación de la presente invención en donde el montaje de potencia asociad con esta se localiza sobre el interior de un montaje de flotación en un sitio por debajo del muelle

Los numerales de referencia similares se refieren a partes similares a lo largo de las varias listas de los dibujos

Descripción detallada de la modalidad preferida

Como se describe en los dibujos que la acompañan, la presente invención está dirigida a un montaje de bomba de flotación generalmente indicado como 10 El montaje de bomba de flotacion 10 es del tipo capas de alta capacidad de flujo de fluido y particularmente adaptable para uso sobre grandes

cuerpos de agua generalmente indicados como 12 o cualquier otra aplicación práctica, especialmente donde se requiere alta capacidad de flujo de líquido

Como se muestra en la figura 1, el montaje reflotacion 10 está conectado a un conducto de transferencia esquemáticamente representado e indicado de manera general como 14. El conducto de transferencia 14 puede ser de longitud y extensión significativa desde el montaje de flotación 10 a un punto de dispersión, generalmente indicado como 16. El agua a ser transferida es suministrada desde la salida 14' del conducto de transferencia 14 dentro del área de dispersión. Se debe notar que el conducto de transferencia 14 no es per se una parte incluida de la presente invención. Por supuesto, se debe reconocer que la utilización de tal conducto de transferencia 14, en una variedad de diferentes formas puede, dependiendo de la aplicación específica, ser una parte necesaria de la transferencia exitosa del agua 12, como se representa esquemáticamente en la figura 1.

Más específicamente, el montaje de bomba de flotación 10 de la presente invención comprende un montaje de flotación indicado generalmente como 18 y descrito en la figura 3 como

una forma en explosión El montaje de flotación 18 incluye cualquier estructura de flotación aplicable 20 que tiene una plataforma de soporte o similar que soporta la instalación 22, montada sobre esta o que es parte integral de esta Como una parte de la plataforma de sostenimiento o instalación similar 22, un camino o soporte de personal 24 se puede suministrar para facilitar el acceso a un montaje de potencia, generalmente indicado como 26 En la modalidad de las figuras 1 a 7, el montaje de potencia 26 está dispuesto en un sitio no sumergido por encima de la superficie 12' del cuerpo de agua 12 sobre el cual el montaje de flotación 18 está operativamente ubicado

Otras características estructurales del montaje de flotación 18 incluyen una estructura de soporte estructural 28 dispuesta en relación circundante de contención con la estructura de flote 20, la plataforma de personal 24, el montaje de potencia 26 y otros componentes operativos del montaje de bomba flotante 10 a ser descritos con mayor detalle en lo sucesivo La estructura 28 se puede formar de un material metálico u otro material de alta resistencia de peso relativamente ligero y puede ser de construcción abierta como quizás se ve mejor en las figuras 2 y 3

Otra característica de la mayoría de las modalidades preferidas de la presente invención comprende el montaje de bomba de flotación que incluye una carcasa de bomba 30 que tiene al menos parcialmente el interior hueco y que incluye una configuración algo elongada que comprende una entrada 32 y una salida 34. La salida 34 está preferiblemente conectada a la entrada del conducto de transferencia 14 por medio de un acople flexible 35, como se describe mejor en la figura 7 y 8. El acople flexible 35 se estructura para acomodar movimiento relativo entre el conducto de transferencia 14 y el montaje de flotación 18, tal como durante condiciones climáticas adversas. El reborde anular 36 u otra estructura de conexión se puede utilizar para establecer un seguro estable de la entrada del conducto de transferencia 14 a la salida 34 de la carcasa de bomba 30.

Además, la presente invención comprende un montaje de impulsión de fluido indicado generalmente como 38 y que incluye el miembro de bomba 40 preferiblemente en la forma de un propulsor conectado a un extremo del eje de impulsión alongado 42. Como será explicado con mayor detalle con referencia a la figura 7, las estructuras de bomba diferentes de la bomba de flujo axial se pueden utilizar en el montaje

52
58

de bomba de flotación 10 de la presente invención. El extremo opuesto 44 del eje de impulsión 42 está conectado en relación de impulsión directa con el montaje de bomba 26 por medio de un montaje de corte de energía e impulsión 46. El corte de energía y el montaje de impulsión. El corte de potencia y el montaje de impulsión 46 pueden incluir cualquiera de una variedad de diferentes uniones mecánicas o montajes de engranaje. Sin embargo, como se muestra en la modalidad preferida de la presente invención, el montaje de corte de potencia 46 incluye una correa de impulsión 48 conectada entre engranajes o poleas apropiadas 51 y 52, respectivamente conectadas al corte de potencia del montaje de potencia 26 y el extremo distante 44 del eje de impulsión 42.

Otras características asociadas con la carcasa de bomba 30 incluyen una estructura elongada similar a jaula 54 dispuesta al menos relación parcialmente circundante con el eje de impulsión 42. La jaula 54 se forma con una construcción de malla abierta, con aberturas o similar "Para flujo a su través"

la cual posibilita el paso libre de agua a su través por la entrada 32 de la carcasa de bomba 3. La jaula evita el acoplamiento y/o la interferencia de cualquier residuo o alternativamente el fondo del cuerpo de agua 12 sobre el cual el montaje de bomba flotante 10 está

sostenido, con el montaje de impulsión de fluido De acuerdo con esto, la jaula 54 se extiende sustancialmente la longitud completa del eje de impulsión 42 y puede o no puede ser considerada una parte de la carcasa bomba 30 Abrazaderas de atravesar adecuada 56 se pueden suministrar con el fin de interconectar de manera que sostenga la jaula 54 en su posición pretendida, operativa con relación a una porción inferior de la estructura de flotación 20 y/o la armadura de contenimiento 28

En al menos una modalidad de la presente invención y como claramente se muestra en las figuras que la acompañan, una característica estructural de la presente invención es mantener la carcasa de bomba 30 en un sitio sumergido por debajo de la estructura de flote 20, aunque aun estando soportada de manera estable sobre el montaje de flotación 18 Más específicamente, el sitio sumergido de la carcasa de bomba 30 es tal que mantiene tanto la entrada 32 como la salida 34 de esta al menos parciablemente sumergida y preferiblemente completamente sumergida durante la operación continua del montaje de impulsión de fluido

Claramente, el propulsor 40 se localiza en comunicación fluida con tanto la entrada 32 como la salida 34 Como tal,

la carcasa de bomba 30, la entrada y la salida 32 y 34 respectivamente, el eje de impulsión 42 y otros componentes operativos asociados con la carcasa de bomba 30 y el montaje de impulsión de fluido 38 sirve para definir una bomba de flujo axial. De acuerdo con esto, luego de rotación del miembro de impulsión 40, el agua fluirá a través de la construcción abierta de la jaula 54, en la entrada 32 y coaxialmente junto con la longitud de la carcasa de bomba 30. El flujo forzado de agua se dirigirá hacia fuera de la salida 34, en dirección sustancialmente horizontal, dentro del extremo de entrada del conducto de transferencia 14, como se describió anteriormente.

La orientación de la senda establecida de flujo de fluido, como se describió anteriormente, es por lo tanto sustancialmente coincidente con el eje longitudinal de la carcasa de bomba 30. Además, la carcasa de bomba 30, el montaje de impulsión de fluido 38, la salida 34 y la senda resultante de flujo de agua se disponen en una orientación predeterminada que eliminará sustancialmente o al menos minimizará cualquiera fuerza de reacción que se ejerza sobre el montaje de flotación 18. Por lo tanto, cualquiera, al menos parcialmente, fuerza que tendiera a desestabilizar o desorientar el montaje de flotación 18 o tendiera a sumergir

adicionalmente el montaje de flotación 18 dentro del cuerpo de agua 12, seria sustancialmente eliminado, significativamente reducido y por lo tanto minimizado Como un resultado más efectivo, la estructura de flote compacta y eficientemente dimensionada y configurada 20 y el montaje de flotación 18 se pueden utilizar para sostener el montaje de potencia 26 y la carcasa de bomba 30 en su posición operativa pretendida En tal posición operativa el montaje de potencia 26 está, por supuesto, mantenido interconectado impulsadamente al eje de impulsión 42 y al miembro de bomba 40

Se enfatiza que la orientación preferida anteriormente mencionada de la carcasa de bomba 30 y en particular la senda de flujo de agua como esta es expelida de la salida 34 es sustancialmente horizontal y en la mayoría de los casos sustancialmente paralela al nivel de superficie medio 12' Por lo tanto, cualquier fuerza de reacción resultante de la activación y operación continua del montaje de impulsión de fluido 40, 42, etc no afectará adversamente la estructura de flote 20 o el montaje de flotación 18 de manera que originara que se volviera inestable el montaje de flotación 18 o se sumergiera adicionalmente o fuera arrastrado más

profundamente por debajo de la superficie 12' del cuerpo de agua 12

Se enfatiza adicionalmente que cuando la bomba de flujo diferente de la bomba de flujo axial se utiliza, la orientación predeterminada anteriormente mencionada de la carcasa de bomba, el montaje de impulsión subido, etc no necesita asumir una orientación real horizontal con el fin de minimizar las fuerzas de reacción anteriormente mencionadas sobre el montaje de flotación 18. Por ejemplo, como se muestra en la figura 7, una modalidad preferida del montaje de bomba flotante 10' de la presente invención incluye la utilización de una bomba de flujo centrífuga 70 sostenida sobre el montaje de flotación 18 en una posición al menos parcialmente sumergida por debajo de la superficie de agua 12' del cuerpo de agua 12. Como tal, la carcasa de bomba centrífuga 72 incluye una entrada 74 y una salida 76. Como se estableció anteriormente, la salida 76 se asegura a la entrada del conducto de transferencia 14 mediante un acople flexible 35. De acuerdo con esto, aunque los componentes operativos, tales como el montaje de impulsión fluida (no mostrado con propósitos de claridad) asociado con la bomba centrífuga 70 se dispone en una orientación sustancialmente

horizontal, la característica importante de la orientación predeterminada de la bomba centrífuga 70 es que la salida 76 se orienta en una orientación sustancialmente horizontal. Esta orientación horizontal predeterminada de al menos la salida 76 (pero preferiblemente otras porciones de la carcasa de bomba 70) sirve para eliminar, reducir significativamente y de esta manera minimizar cualquier fuerza de empuje u otras de reacción que sean ejercidas por el montaje de flotación 18 que lo que tendería a originar su inestabilidad. También, se enfatiza que cualquier bomba de flujo axial de la figura 1 a 6 y 8 y la bomba de flujo centrífuga de la figura 7 son ejemplos solo de varios diferentes tipos de estructuras de bomba de flujo que se pueden utilizar con el montaje de bomba de flotación 10, 10' de la presente invención. Otras estructuras de bomba que se pueden utilizar incluyen, pero no están limitadas a, bombas de flujo mezclado, bombas multietapa, etc. Por lo tanto, la orientación anteriormente mencionada predeterminada de la senda de flujo de fluido que pasa a través y particularmente de la carcasa de bomba asociada, depende de nuevo del tipo de estructura de bomba utilizada, aunque no siendo realmente horizontal, debe ser diferente de la normalmente orientación vertical de muchos de los montajes de bomba de flotación conocidos y convencionalmente utilizados.

Otras características estructurales de la presente invención incluyen un montaje de protección generalmente indicado como 60 y descrito para uso con las modalidades de la figura 2 y 4 hasta 7. El montaje de protección 60 comprende preferiblemente una cubierta protectora o similar 62 dispuesta en traslapamiento, al menos incluyendo parcialmente y en relación de protección con el montaje de potencia 26. El montaje de potencia 26 está protegido de esta manera de la exposición a las condiciones ambientales adversas tal como clima, aguas tempestuosas, etc. El montaje de protección 60 se puede definir mediante una variedad de diferentes estructuras que tienen varias configuraciones, tamaños, etc. Por vía de ejemplo y como se muestra en las figuras 4 y 5, el montaje de protección 60 puede estar en la forma de la cubierta 62 definida mediante un dosel de material flexible sostenido por abrazaderas separadas del tipo sustancialmente arqueado 64 incluyendo un área de abertura o ventilación 66 para acomodar los gases de salida del montaje de potencia 26.

Aun otra modalidad preferida de la presente invención se describe en la figura 8 en donde el montaje de flotación 18 incluye una configuración similar a cáscara que define un

área o cámara abierta 19 localizada por debajo del muelle y/o al menos parcialmente por debajo de la superficie 12' del cuerpo de agua 12' El montaje de potencia 26 está localizado dentro y por debajo de la cámara de muelle 19 y está contenido por lo tanto en un sitio que es sustancialmente protegido de exposición a condiciones ambientales no favorables, tales como clima adverso, viento, etc Lo que tendería a exponer el montaje de potencia 26 a las olas, agua, lluvia, etc De acuerdo con esto, aunque el montaje de potencia 26 está localizado por debajo del muelle, dentro de la cámara 19 este, por supuesto, no está "sumergido" en el sentido real La instalación de escape tal como en 26' está provista para extenderse hacia arriba desde la cámara 19 con el fin de ventilar la salida a la atmósfera Naturalmente, el montaje de potencia 26 se mantiene en relación de impulsión con el montaje de impulsión fluido generalmente indicada como 40 Para los propósitos del ejemplo solamente, el tipo de estructura de bomba utilizada es la bomba de flujo axial como será evidente

De acuerdo con esto, el montaje de bomba de flotación de la presente invención soluciona muchas de las desventajas y problemas reconocidos en esta área de comercio al suministrar una bomba de flujo que se orienta con el fin de definir una

senda de flujo de fluido forzada que se descarga de una salida en una dirección determinada al menos sustancialmente horizontal. La orientación determinada de la salida de descarga de agua de esta manera elimina por lo tanto o al menos minimiza cualquier fuerza de empuje o reacción que se ejerza sobre el montaje de flotación 18, lo que tendería a desorientar físicamente o a desestabilizarla durante operación o activación de esta en la medida en que la bomba de flujo cambia de un modo inactivo a un modo activo.

En razón a que muchas modificaciones, variaciones y cambios en detalle se pueden hacer a la modalidad preferida descrita de la invención, se pretende que todos los asuntos de la descripción anterior mostrados en los dibujos que la acompañan sean interpretados como ilustrativos y no en el sentido limitante. Así, el alcance de la invención se debe determinar por las reivindicaciones finales y su equivalencia legal.

Ahora que la invención se ha descrito

66
67**REIVINDICACIONES**

- 1 Un montaje de bomba de flotación que comprende
 - a) un montaje de flotación estructurado para flotar sobre un cuerpo de agua,
 - b) una carcasa de bomba que incluye una entrada y una salida y un montaje de impulsión de fluido dispuesto en comunicación fluida con dicha entrada y dicha salida,
 - c) dicho montaje de impulsión de fluido estructurado para establecer una senda de flujo fluido entre dicha entrada y dicha salida,
 - d) dicha carcasa de bomba sostenida sobre dicho montaje de flotación y dispuesta para orientar al menos dicha salida en una orientación predeterminada que minimiza la desorientación física de dicho montaje de flotación
- 2 Un montaje de bomba de flotación como se menciona la reivindicación 1 en donde dicha senda de flujo de fluido es al menos parcialmente coincidente con un eje longitudinal de dicha carcasa de bomba
- 3 Un montaje de bomba de flotación como se menciona en la reivindicación 2 en donde dicha carcasa de bomba y dicho montaje de impulsión de fluido están colectivamente

orientados para definir al menos parcialmente una bomba de flujo axial

4 Un montaje de bomba de flotación como se menciona en la reivindicación 3 en donde dicha entrada y dicha salida están dispuestas en una posición sumergida durante los periodos operativos e inoperativos de dicho montaje de impulsión de fluido

5 Un montaje de bomba de flotación como se menciona en la reivindicación 1 en donde dicha carcasa de bomba está montada sobre dicho montaje de bomba está montada sobre dicho montaje de flotación con el fin de ser al menos parcialmente llenado con agua entre dicha entrada y dicha salida

6 Un montaje de bomba de flotación como se menciona en la reivindicación 5 en donde dicho montaje de impulsión de fluido está al menos parcialmente montado dentro de dicha carcasa y es al menos parcialmente sumergido durante la activación de esta

7 Un montaje de bomba de flotación como se menciona en la reivindicación 6 en donde dicha carcasa de bomba está dispuesta en una orientación predeterminada con relación a la superficie del cuerpo de agua con el fin de facilitar la

estabilidad incrementada de dicho montaje de flotación durante la operación de dicho montaje de impulsión de fluido

8 Un montaje de bomba de flotación como se menciona en la reivindicación 7 en donde dicha orientación predeterminada es tal que minimiza la inmersión incrementada de dicho montaje de flotación durante la transición de dicho montaje de impulsión de fluido desde un modo inoperativo a un modo operativo

9 Un montaje de bomba de flotación como se menciona en la reivindicación 1 en donde dicha carcasa de bomba y dicha salida está dispuesta en una orientación predeterminada que reduce la inmersión de dicho montaje de flotación durante la operación de dicho montaje de impulsión de fluido

10 Un montaje de bomba de flotación como se cita en la reivindicación 9 en donde dicha orientación predeterminada reduce además la inmersión de dicho montaje de flotación durante la transición de dicho montaje de impulsión de fluido desde un modo inoperativo a un modo operativo

11 El montaje de bomba de flotación como se menciona en la reivindicación 10 en donde dicha orientación predeterminada está al menos parcialmente definida por dicha entrada, dicha

salida y dicho montaje de impulsión de fluido dispuesto inmediatamente por debajo de la superficie del cuerpo de agua en una orientación predeterminada sustancialmente comun

12 Un montaje de bomba de flotación como se menciona en la reivindicación 11 en donde dicha orientación predeterminada comun es al menos parcialmente definida por una orientación sustancialmente horizontal

13 Un montaje de bomba de flotación como se menciona en la reivindicación 1 en donde dicha orientación predeterminada está al menos parcialmente definida por una orientacion sustancialmente horizontal de dicha salida

14 Un montaje de bomba de explotación como se menciona en la reivindicación 1 que comprende además un montaje de potencia montado sobre dicho montaje de flotación la relación espaciada a dicha carcasa de bomba y conectada en relación de impulsión con dicho montaje de impulsión de fluido

15 El montaje de bomba de de flotación que comprende

a) un montaje de flotación estructurado para flotar sobre un cuerpo de agua,

b) una carcasa de bomba que incluye una entrada y una salida y un montaje de impulsión de fluido dispuesto en

comunicación fluida con dicha entrada y dicha salida y estructurada para establecer una senda predeterminada de flujo de fluido entre ellos,

c) un montaje de potencia montado sobre dicho montaje de flotación y conectado en relación de impulsión con dicho montaje de impulsión de fluido,

d) dicha carcasa de bomba sostenida sobre dicho montaje de flotación en al menos un sitio parcialmente sumergido, y

e) al menos dicha salida dispuesta en una orientación predeterminada para facilitar la estabilización de dicho montaje de flotación durante la operación de dicho montaje de impulsión de fluido

16 Un montaje de bomba de flotación como se menciona en la reivindicación 15 en donde dicha orientación predeterminada facilita además la estabilización de dicho montaje de flotación durante la transición de dicho montaje de impulsión de fluido desde un modo inoperativo a un modo operativo

17 Un montaje de bomba de flotación como se menciona en la reivindicación 15 en donde dicho montaje de potencia y dicha carcasa de bomba están dispuestos en relación espaciada uno con el otro, dicho montaje de potencia dispuesto en un sitio no sumergido sobre dicho montaje de flotación

18 Un montaje de bomba de flotación como se menciona en la reivindicación 17 que comprende además un montaje de protección montado sobre dicho montaje de flotación en al menos parcialmente una relación incluyente con dicho montaje de potencia y estructurado para proteger dicho montaje de potencia Cintra la exposición a condiciones ambientales adversas

19 Un montaje de bomba de flotación como se menciona en la reivindicación 17 en donde dicha carcasa de bomba se dispone sustancialmente por debajo de dicho montaje de potencia, dicha orientación predeterminada al menos parcialmente definida por dicha senda de flujo de fluido mantenida en al menos un sitio parcialmente sumergido durante un modo operativo y un modo inoperativo de dicho montaje de impulsión de fluido

20 Un montaje de bomba de flotación como se menciona en la reivindicación 19 en donde dicha orientación predeterminada es adicional y a menos parcialmente definida por una disposición sustancialmente horizontal

21 Un montaje de bomba de flotación como se menciona en la reivindicación 20 en donde dicha senda de flujo de fluido está correspondientemente dispuesta con un eje longitudinal de dicha carcasa de bomba

22 Un montaje de bomba de flotación como se menciona en la reivindicación 21 en donde dicha carcasa de bomba, dicho montaje de impulsión de fluido y dicha senda predeterminada de flujo de fluido comprende colectivamente una bomba de flujo axial

23 Un montaje de bomba de flotación como se menciona en la reivindicación 15 en donde dicha orientación predeterminada es al menos parcialmente definida por una disposición sustancialmente horizontal de dicha salida

24 Un montaje de bomba de flotación que comprende

- a) un montaje de flotación estructurado para flotar sobre un cuerpo de agua y que incluye una carcasa de bomba sostenida sobre esta,
- b) dicha carcasa de bomba que tiene una entrada y una salida y un montaje de impulsión de fluido dispuesta en comunicación fluida con este,

c) un montaje de potencia sostenido sobre el montaje de flotación en relación de impulsión conectada con dicho montaje de impulsión de fluido, y

d) dicha entrada, dicha salida y dicho montaje de impulsión es al menos parcialmente sumergido y al menos dicha salida dispuesta en una orientación predeterminada que facilita la estabilización de dicho montaje de flotación luego de la activación de operación de dicho montaje de impulsión de fluido

25 Un montaje de bomba de explotación como se menciona en la reivindicación 24 que comprende además un montaje de protección montado sobre dicho montaje de flotación en al menos una relación parcialmente incluyente con dicho montaje de potencia y estructurado para proteger dicho montaje de potencia contra la exposición a condiciones ambientales adversas

26 Un montaje de bomba de flotación como se menciona en la reivindicación 24 en donde dicho montaje de impulsión de fluido comprende un miembro de impulsión montado dentro de dicha carcasa de bomba y dispuesto y estructurado para establecer una senda de flujo de fluido desde dicha entrada a

dicha salida luego de la operación de dicho montaje de impulsión de fluido

27 Un montaje de bomba de flotación como se menciona en la reivindicación 26 en donde dicha orientación predeterminada y dicha senda de flujo de fluido están dispuestas sustancialmente de manera horizontal

28 Un montaje de bomba de flotación como se menciona en la reivindicación 26 en donde dicho montaje de impulsión de fluido comprende además un eje de impulsión alargado conectado a dicho miembro de impulsión y rotable con este, dicho eje de impulsión rotacionalmente conectado e impulsado por dicho montaje de potencia

29 Un montaje de bomba de flotación como se menciona en la reivindicación 28 en donde dicho eje de impulsión se extiende hacia fuera de dicha caracas de bomba a lo largo de la longitud de dicho dispositivo de flotación

30 Un montaje de bomba de flotación como se menciona en la reivindicación 29 que comprende además una estructura de jaula que incluye una construcción sustancialmente abierta y

dispuesta en una relación espaciada al menos parcialmente circundante con dicho eje de impulsión

31 Un montaje de bomba de flotación como se menciona en la reivindicación 30 en donde dicha jaula se extiende a lo largo de al menos la mayoría de dicho eje de impulsión

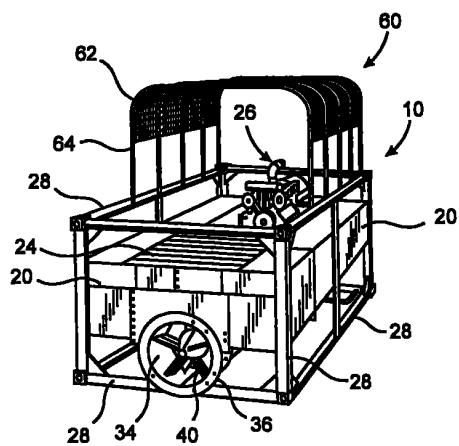
32 Un montaje de bomba de flotación como se menciona en la reivindicación 24 en donde dicha entrada , dicha salida y dicho montaje de impulsión de fluido están estructurados para comprender colectivamente una bomba de flujo centrifuga en donde dicha orientación predeterminada de dicha salida es sustancialmente horizontal

33 Un montaje de bomba de flotación como se menciona en la reivindicación 24 en donde dicha entrada, dicha salida y dicho montaje de impulsión de fluido están dispuestos en una orientación sustancialmente horizontal

34 Un montaje de bomba de flotación como se menciona en la reivindicación 33 en donde dicha entrada, dicha salida, y dicho montaje de impulsión de fluido y dicha carcasa de bomba definen colectivamente una bomba de flujo axial

Resumen de la descripción

Un montaje de bomba de flotación que incluye un montaje de flotación compacto estructurado para flotar sobre un cuerpo de agua y sostener una carcasa de bomba de flujo que tiene una entrada, una salida y un montaje de impulsión de fluido que está sumergido y en donde al menos la salida está orientada en una orientación predeterminada, preferiblemente horizontal durante la operación de activación. El montaje de potencia está sostenido sobre el montaje de flotación y está conectado de manera impulsada con el montaje de impulsión de fluido para la operación de potencia de este. La orientación predeterminada de al menos la salida y particularmente la dirección de descarga del agua emitida desde la salida sustancialmente es tal que elimina o al menos minimiza la tendencia del dispositivo de flotación de desorientarse o desestabilizarse al menos en términos de ser crecientemente sumergido en a una posición más profunda dentro del cuerpo de agua luego de la activación de operación del montaje de bomba de flotación.



78

28
79

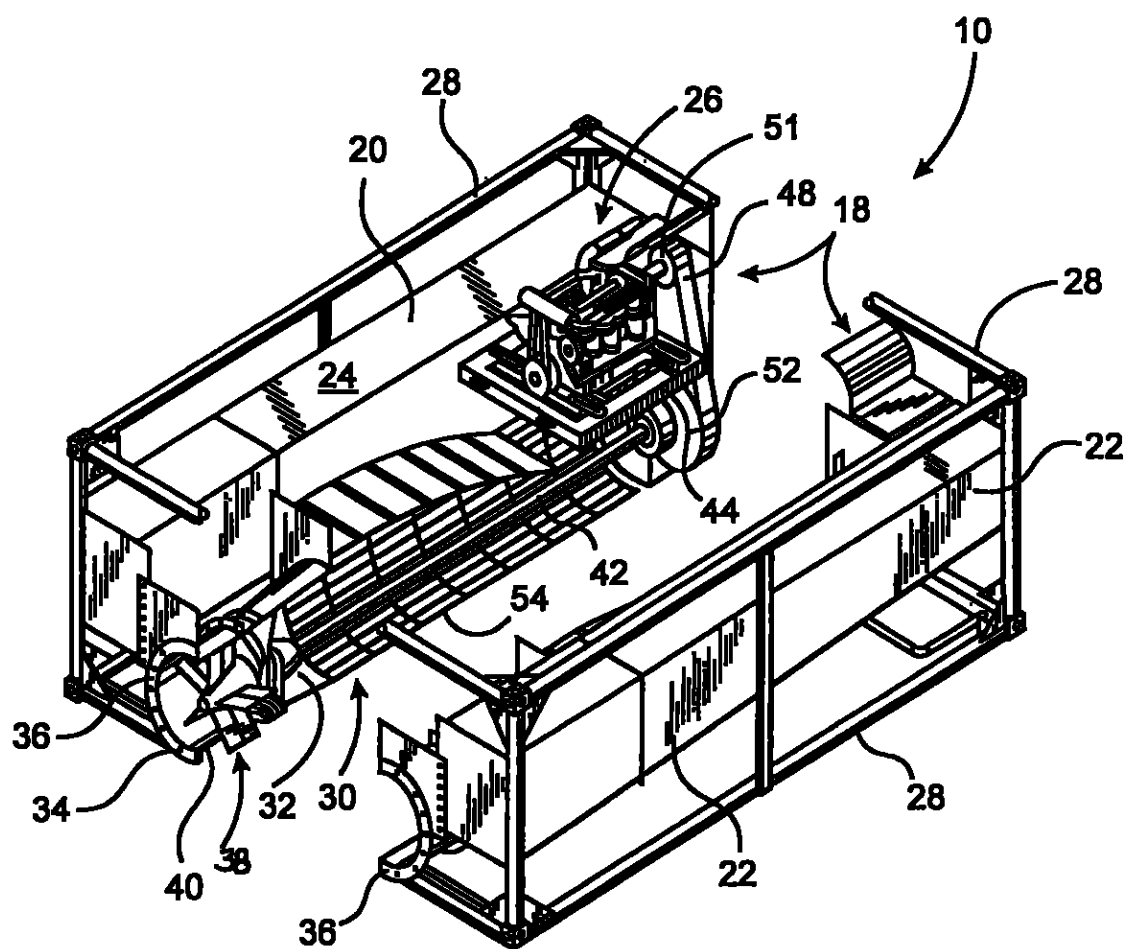
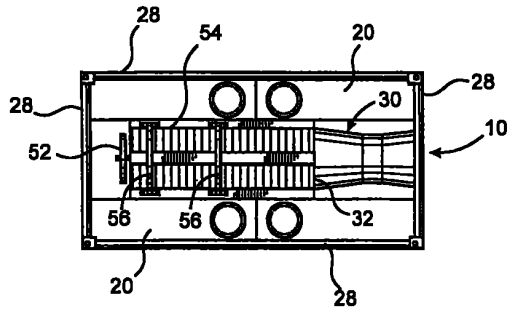
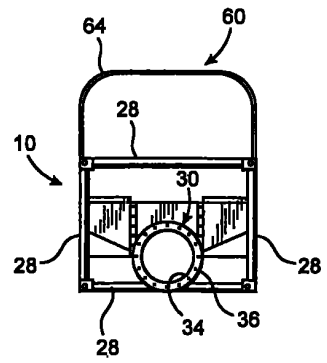
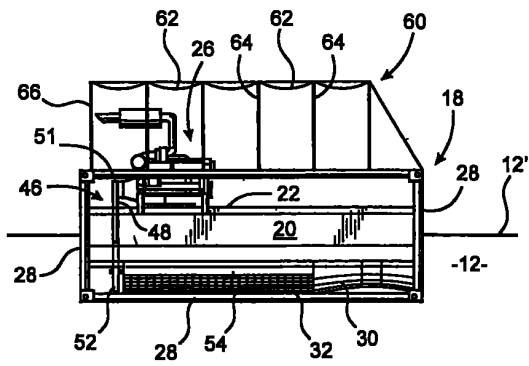


FIG. 3



4

~~80~~
81

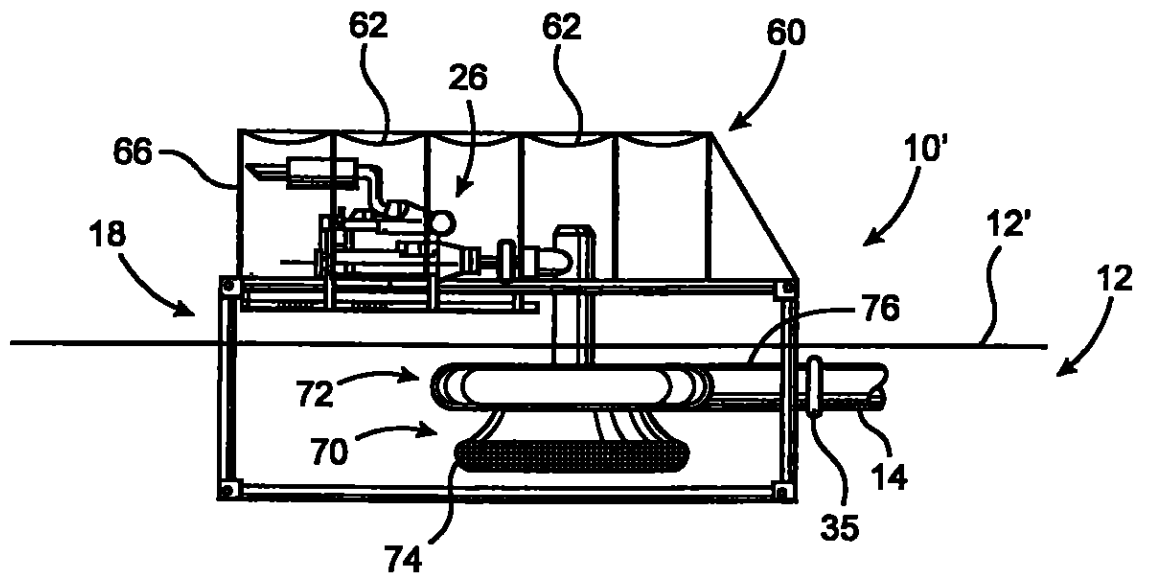


FIG. 7

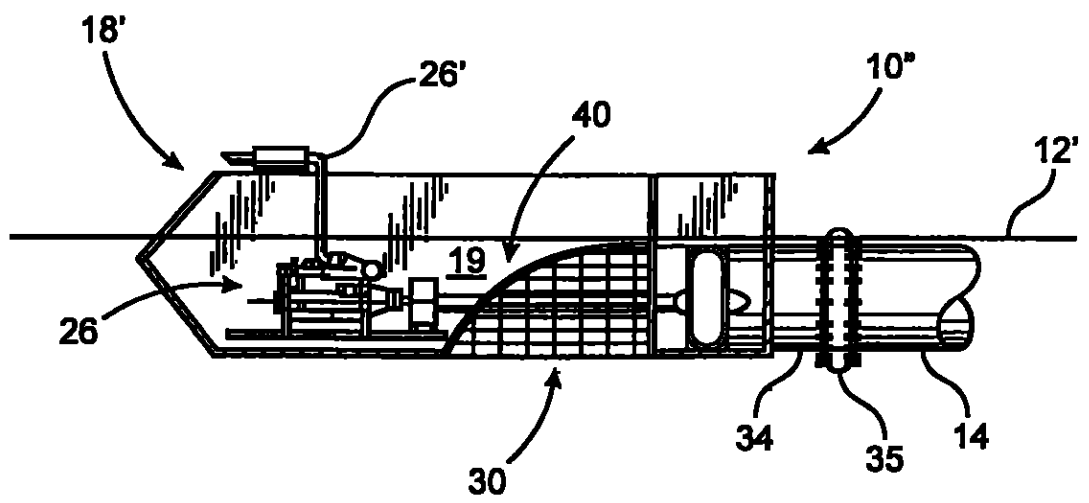


FIG. 8

F RMATO DE DIGITALIZACION
RELACION DE ANEXOS



Royal
Technologies S.A.
Integración de Soluciones Tecnológicas

82

Expediente No		04019506	No de Folio
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	✓ 1	
9	SOBRE BLANCO TAMAÑO OFICIO		
10	OTROS		

Observaciones

Arte final

82
43

MIT 800176089-2

RECIBO OFICIAL DE CAJA 04 - 16 318
FECHA MARZO 1 DE 2004

Superintendencia y Comercio
Radicación: 04019306 00000000 Folios: 02
Fecha (MM): 2004-03-01 17:12:50
Trámite: 011 PCT-PATENT 2/9 FOLIO: NACI 411 PRESENTAC
Dependencia: 2820 DIVISION DE MARCAS Y DISEÑOS

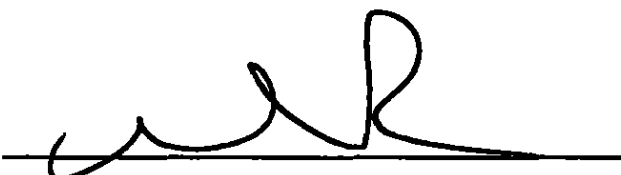
***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No PAGO	FECHA PGO	Vr PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	20338560	01/03/2004	31 169 400 00

***** CONCEPTO *****

CANT	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	1 TRAMITES DE SOL DE PATENTE DE IN	422 000 00
		TOTAL	422 000 00

SON CUATROCIENTOS VEINTIDOS MIL PESOS

RESPONSABLE 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No _____

Ob 14153-841-001-2

REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCION / MODIFICACION DE UTILIDAD	()	()
Indicación de que se solicita la concesion d una pat. ut.	()	()
Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	()
- Descripción de la invención.	()	()
Dibujos de ser estos pertinentes.	()	()
Comprobante de Pago de las tasas establecidas		

COMPLETA () INCOMPLETA ()

DISEÑO INDUSTRIAL ()

- Indicación de que se solicita el registro de Diseño Industrial	()	()
- Datos de identificación del solicitante o de la persona que presenta la solicitud	()	()
- Representación grafica y fotografica del Diseño Industrial o muestra del Material que incorpora el diseño	()	()
Comprobante de pago de las tasas establecidas	()	()

COMPLETA () INCOMPLETA ()

ESQUEMA DE TRAZADO ()

- Indicación de que solicita el registro de un Esquema de trazado	()	()
- Datos de identificación del solicitante o de la persona que presenta La solicitud	()	()
Representacion grafica del esquema de trazado	()	()
Comprobante de pago de las tasas establecidas	()	()

COMPLETA () INCOMPLETA ()

Firma Responsable

Opudia M Neva

Fecha



2020
Bogotá, D C ,

Doctor(a)
EMILIO FERRERO

Oficio N° 05193

ASUNTO

Solicitante	ERIC THIRIEZ
Radicación N°	04 - 19506
Solicitud internacional	PCT/IB02/03063
Fecha inicio fase nacional	06/03/2004
Trámite	011
Evento	379
Actuación	430
Folios	001

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Unica de la Superintendencia de Industria y Comercio, se le comunica que

□ La solicitud no contiene el poder debidamente otorgado, con el lleno de los requisitos exigidos por los artículos 63 y subsiguientes del Código de Procedimiento Civil. Adicionalmente, deberá presentar el documento que acredita la existencia y representación legal de la sociedad solicitante, cuando ésta fuere persona jurídica.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enuncados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Unica N° 10 de 2001.


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

El anterior requerimiento fue notificado por fijación en lista de fecha 21 de mayo 2004

202059

Carrera 13 No 27-00 Pisos 5 7 y 10
Conmutador 382 0840
Fax 382 2695
E-mail Info@sic.gov.co
www.sic.gov.co
Bogotá D C Colombia

11
21-5-8

,

