



No. 13-103756-00001-0000

Fecha: 2013-07-02 16:54:26 Dep. 2020 DIR.NUEVASCR
Tra. 2 PATENTES Eve: 1 REGDEPOSITO
Act. 329 CTOINFORMACION Folios: 41

Señor Director
DIRECCION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

Trámite : 002
Evento : 001
Actuación : 329

Referencia : Expediente No. 13.103.756
Asunto : Solicitud de Patente para **CENTRO DE CONTROL DE MOTORES Y SISTEMA DE COMUNICACIONES PARA EL MISMO**
Solicitante : **EATON CORPORATION**
Clase : H02P 031/000
Fecha de solicitud : 23 de Abril de 2013

1. Yo, Luz Clemencia de PAEZ, en mi condición de apoderada de la sociedad solicitante en el asunto identificado en la referencia, acompaño con el presente escrito copia certificada de la solicitud de patente No. 13/453,283 presentada en Estados Unidos de América el 23 de abril de 2012, de la cual se reclama prioridad en esta solicitud de patente, junto con la correspondiente traducción al español.

La copia certificada del documento de prioridad está siendo presentada dentro del término legal correspondiente, esto es 23 de agosto de 2013, de conformidad con lo establecido en los artículos 10 y 11 de la Decisión 486 de la Comisión de la Comunidad Andina.

2. Solicito a ese Despacho tener en cuenta los anteriores documentos y continuar con el trámite correspondiente.

Señor Director,

Luz Clemencia de Paéz
LUZ CLEMENCIA DE PAEZ
C.C. No. 35.456.344 de Usaquén
T.P.A. 23.555

COLO-01349-0801-006-8
VCBUJGGND-245517WPCL1349
No. M-2013-245517VCB

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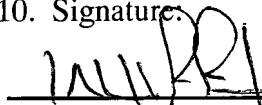
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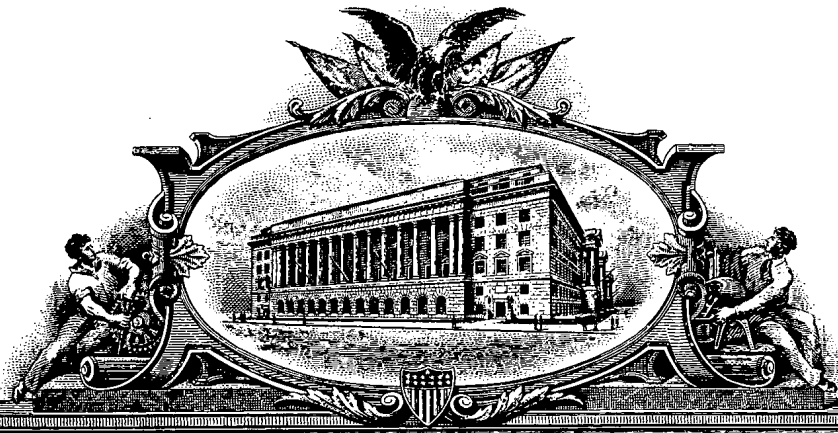
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APPLICATION NUMBER: *13/453,283*

FILING DATE: *April 23, 2012*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US13/453,283*

By Authority of the
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R. PONDEXTER

Certifying Officer

Electronic Acknowledgement Receipt

EFS ID:	12604421
Application Number:	13453283
International Application Number:	
Confirmation Number:	9379
Title of Invention:	MOTOR CONTROL CENTER AND COMMUNICATION SYSTEM THEREFOR
First Named Inventor/Applicant Name:	GERALD RAYMOND FELDMEIER
Customer Number:	101730
Filer:	Grant E Coffield/Denise Bagnato
Filer Authorized By:	Grant E Coffield
Attorney Docket Number:	11-PCS-255(030)
Receipt Date:	23-APR-2012
Filing Date:	
Time Stamp:	14:47:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 1250
RAM confirmation Number	1244
Deposit Account	050275
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	11-PCS-255030UTILITY.pdf	135929	no	1
			e75700f00ad704387349f2b66802b5690e55b4d		
Warnings:					
Information:					
2	Oath or Declaration filed	11-PCS-255030DECLARATION.pdf	198532	no	2
			a5b457602db37d2d1db6464893aa1bab0291d545		
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	11-PCS-255030IDS.pdf	66102	no	4
			d30e3f6b25cd3e01ae5bb289dcf30bc6a5670534		
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4		11-PCS-255030SPECIFICATION.pdf	134321	yes	15
			db484adda66819b5be933a0792bf1fe762cd2d4		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	10	
	Claims		11	14	
	Abstract		15	15	
Warnings:					
Information:					
5	Drawings-only black and white line drawings	11-PCS-255030DRAWINGS.pdf	87991	no	6
			32bd8931ab775d7d2100feb51e01e7d14b34361d		
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6	Fee Worksheet (SB06)	fee-info.pdf	32951	no	2
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Electronic Acknowledgement Receipt		
EFS ID:	12605592	
Application Number:	13453283	
International Application Number:		
Confirmation Number:	9379	
Title of Invention:	MOTOR CONTROL CENTER AND COMMUNICATION SYSTEM THEREFOR	
First Named Inventor/Applicant Name:	GERALD RAYMOND FELDMEIER	
Customer Number:	101730	
Filer:	Grant E Coffield/Denise Bagnato	
Filer Authorized By:	Grant E Coffield	
Attorney Docket Number:	11-PCS-255(030)	
Receipt Date:	23-APR-2012	
Filing Date:		
Time Stamp:	15:33:01	
Application Type:	Utility under 35 USC 111(a)	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Authorization to access Appl. by Trilateral Office	11-PCS-255030AUTHORIZATION.pdf	96061 c7f56a031dd7a572dcd797bf77c294a87d4101b3	no	2

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

DATE OF DEPOSIT: April 23, 2012

PTO/SB/05 (04-05)

Approved for use through 07/31/2006. OMB 0651-0032
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**UTILITY
PATENT APPLICATION
TRANSMITTAL**

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

11-PCS-255(030)

First Inventor

Gerald R. Feldmeier

Title

"MOTOR CONTROL CENTER AND COMMUNICATION
SYSTEM THEREFOR"

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Fee Transmittal Form** (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☐ **Applicant claims small entity status.**
See 37 CFR 1.27.
3. ☒ **Specification** [Total Pages 15]
Both the claims and abstract must start on a new page
(For information on the preferred arrangement, see MPEP 608.01(a))
4. ☒ **Drawing(s)** (35 U.S.C. 113) [Total Sheets 6]
5. **Oath or Declaration** [Total Sheets 2]
 - a. ☒ Newly executed (original or copy)
 - b. ☐ A copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 18 completed)
 - i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
name in the prior application, see 37 CFR
1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or
Computer Program (Appendix)
☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
(if applicable, items a. - c. are required)
 - a. ☐ Computer Readable Form (CRF)
 - b. ☐ Specification Sequence Listing on:
 - i. ☐ CD-ROM or CD-R (2 copies); or
 - ii. ☐ Paper
 - c. ☐ Statements verifying identity of above copies

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ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement**
(when there is an assignee) ☐ **Power of Attorney**
11. ☐ **English Translation Document** (if applicable)
12. ☒ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☐ **Return Receipt Postcard** (MPEP 503)
(Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
(if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i).
Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other: _____

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation

☐ Divisional

☐ Continuation-in-part (CIP)

of prior application No.: _____

Prior application information:

Examiner _____

Art Unit: _____

19. CORRESPONDENCE ADDRESS

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101730

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/Grant E. Coffield/

Date

2012-04-23

Name
(Print/Type)

Grant E. Coffield

Registration No.
(Attorney/Agent)

52,758

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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11-PCS-255(030)

MOTOR CONTROL CENTER AND COMMUNICATION SYSTEM THEREFOR

5 BACKGROUND

Field

The disclosed concept relates generally to motor control systems, and more particularly, to motor control centers. The disclosed concept also relates to communication systems for motor control centers.

10 Background Information

Motor control centers are used, for example, in some commercial and industrial applications to distribute electrical power to a variety of loads (e.g., without limitation, relatively high power electrical motors, pumps, and other loads).

Figure 1, for example, shows a portion of a motor control center 10. The motor control center 10 includes a multi-compartment enclosure 12 for receiving a plurality of motor control modules or subunits 14,16,18,20,22,24, commonly referred to as “buckets”. Typically, each bucket (see, e.g., bucket 22 of Figure 1) is a removable, pull-out subunit that has, or is installed behind, a door 26. The door 26 is preferably coupled to the enclosure 12 by hinges 28 (shown in phantom line drawing in Figure 1) to permit access to motor control components of the bucket 22 while it is installed in the enclosure 12. Motor control centers and subunits therefor are described in greater detail, for example, in commonly assigned U.S. Patent Nos. 7,684,199 and 7,688,572 and U.S. Patent Application Publications 2011/0149480, 2008/0258667, and 2008/0022673, all of which are hereby incorporated herein by reference.

25 Traditionally, communication network systems are motor control center
subunit-based. That is, the communication modules for the systems are mounted on the
subunits or buckets such that, when a subunit or bucket is removed, the corresponding
communication module is also removed. This can cause a wide variety of problems. For
example, when a bucket including the communication module is unplugged from the
30 motor control center, the computerized controlling program loses the connection which
may cause a malfunction of the system. Furthermore, the buckets are replaced or
rearranged on a relatively regular basis, which means the main software program would

11-PCS-255(030)

need to be configured. This would require expert assistance to re-address all of the buckets. Among other disadvantages, are lost production, due to downtime to address the system failure.

5 There is room for improvement in motor control centers, and in communication systems therefor.

SUMMARY

10 These needs and others are met by embodiments of the disclosed concept, which are directed to a communication system for a motor control center wherein, among other benefits, the communication module of the system is based in the motor control center structure rather than being removable with the individual subunit or bucket.

15 As one aspect of the disclosed concept, a communication system is provided for a motor control center. The motor control center includes an enclosure and a plurality of subunits. The enclosure comprises a framework for dividing the enclosure into a plurality of compartments. The subunits are removably disposed within the compartments. The communication system comprises: a mounting bracket structured to be fixedly attached to the framework within a corresponding one of the compartments, the mounting bracket comprising a hinge; and a communication module mounted on the mounting bracket, the communication module comprising a housing and a number of
20 features disposed on the housing. The hinge of the mounting bracket is structured to allow the communication module to pivot with respect to the compartment to provide access to the features.

25 The mounting bracket may further comprise a first portion and a second portion, wherein the hinge pivotably couples the first portion to the second portion. The first portion may be structured to be fixedly attached to the framework, and the communication module may be mounted on the second portion.

30 The communication system may further comprise a plurality of wireways, and the enclosure of the motor control center may further comprise a top, a bottom, a first end, and a second end. A plurality of the compartments may be disposed one on top of another to form a number of columns between the first end and the second end of the enclosure. Each of the columns may include a first side and a second side disposed

11-PCS-255(030)

opposite and distal from the first side, and each of the columns may include a plurality of wireways. A first wireway may extend between the top and the bottom of the enclosure adjacent to the first side of a corresponding one of the columns, and a second wireway may extend between the top and the bottom of the enclosure adjacent to the second side of the corresponding one of the columns. The communication module may further comprise a plurality of cables or wires, wherein at least one of the cables or wires is disposed in each of the first wireway and the second wireway.

The communication system may further comprising a shield for shielding electromagnetic interference between a number of cables or wires disposed in the wireways.

A motor control center employing the aforementioned communication system, is also disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

A full understanding of the disclosed concept can be gained from the following description of the preferred embodiments when read in conjunction with the accompanying drawings in which:

Figure 1 is an isometric view of a portion of a motor control center and subunits therefor;

Figure 2 is a simplified isometric view of a motor control center and communication system therefor, in accordance with an embodiment of the disclosed concept, showing one subunit being withdrawn from the motor control center enclosure;

Figure 3 is a simplified front elevation view of a portion of the motor control center and communication system therefor of Figure 2, shown after the subunit has been removed;

Figure 4 is a simplified front elevation view another portion of the motor control center, and communication system and wireways therefor, in accordance with an embodiment of the disclosed concept;

Figure 5 is a schematic diagram for the motor control center and communication system therefor;

11-PCS-255(030)

Figure 6 is a front elevation view of a mounting bracket for a communication module of the communication system, in accordance with an embodiment of the disclosed concept, showing the mounting bracket in the open position;

Figure 7 is a front elevation view of the mounting bracket of Figure 6, modified to show the bracket in the closed position;

Figure 8 is a top plan view of the mounting bracket of Figure 7, shown with a communication module mounted thereto, in accordance with an embodiment of the disclosed concept; and

Figure 9 is a side elevation view of the mounting bracket and communication module of Figure 8.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Directional phrases used herein, such as, for example, left, right, front, back, top, bottom and derivatives thereof, relate to the orientation of the elements shown in the drawings and are not limiting upon the claims unless expressly recited therein.

As employed herein, the term “motor control center” refers to any known or suitable low voltage control gear expressly including, but not limited to, switchboards.

As employed herein, the term “low voltage control gear” refers to any known or suitable electrical apparatus having a horizontal bus feeding a series of vertical buses and associated electrical switching apparatus or subunits and expressly includes, but is not limited to, motor control centers and switchboards.

As employed herein, the term “fastener” refers to any suitable connecting or tightening mechanism expressly including, but not limited to, rivets, screws, bolts and the combinations of bolts and nuts (*e.g.*, without limitation, lock nuts) and bolts, washers and nuts.

As employed herein, the statement that two or more parts are “connected” or “coupled” together shall mean that the parts are joined together either directly or joined through one or more intermediate parts. Further, as employed herein, the statement that two or more parts are “attached” shall mean that the parts are joined together directly.

11-PCS-255(030)

As employed herein, the term “number” shall mean one or an integer greater than one (i.e., a plurality).

Figures 2-4 show a communication system 200 for a motor control center 100 (partially shown in Figures 2-4; shown schematically in Figure 5). The motor control center 100 includes an enclosure 102 and a plurality of subunits 104,106 (see also subunits 104' and 106' in Figures 2 and 4). More specifically, the enclosure 102 comprises a framework 110 for dividing the enclosure 102 into a plurality of compartments 112 (see also compartment 112' of Figure 4).

As best shown in Figure 2, each subunit 104 (shown in simplified form in Figure 2) is removably disposed within a corresponding compartment 112. In the example shown, the compartment 112 includes a pivotable door 108, which is shown in the open position, to permit the subunit 104 to be removed from the enclosure compartment 112. It will be appreciated that such door (e.g., without limitation, door 108), or other suitable cover (not shown), has been removed in Figures 3 and 4 for ease of illustration. It will further be appreciated that the motor control center 100 may have any known or suitable alternative number and/or configuration (not shown) of subunits (e.g., 104,104',106,106') other than what is shown and described herein, without departing from the scope of the disclosed concept.

The communication system 200 includes a mounting bracket 202 (best shown in Figures 6-9), which is fixedly attached to the framework 110 of the motor control center enclosure 102, within a corresponding one of the compartments 112 thereof (see also mounting bracket 202' attached to framework 110 within compartment 112' of Figure 4). Among other benefits, the mounting bracket 202 includes a hinge 204. A communication module 210 (best shown in Figures 8 and 9; shown in simplified form in Figures 2-4; shown schematically in phantom line drawing in Figure 5) is mounted on the mounting bracket 202.

As best shown in Figures 8 and 9, the communication module 210 includes a housing 212 having a number of features 214,216 disposed thereon. The hinge 204 is structured to allow the communication module to pivot (e.g., without limitation, between an opened position, shown in solid line drawing in Figure 8, and a closed position, partially shown in phantom line drawing in Figure 8) with respect to the

11-PCS-255(030)

compartment 112. In this manner, the hinged mounting bracket 202 provides access to the communication module features 214,216, as will be discussed in greater detail hereinbelow.

As shown in Figures 6-8, the mounting bracket 202 preferably includes a first portion 206, and a second portion 208, wherein the hinge 204 pivotably couples the first portion 206 to the second portion 208. In the example shown and described herein, the first portion 206 is fixedly attached to the framework 110 of the motor control center 100 (see, for example and without limitation, Figures 2-4). The communication module 210 is mounted on the second portion 208 in any known or suitable manner. For example and without limitation, a plurality of fasteners could be employed both to suitably fasten the first portion 206 to the framework 110, and to fasten the communication module 210 to the second portion 208 of the mounting bracket 202. In addition, or alternatively, the housing 212 of the communication module 210 may include a recessed channel 220, and the second portion 208 of the mounting bracket 202 may include a DIN rail 222, wherein the DIN rail 222 is structured to be disposed in the recessed channel 220 to secure the communication module 210 to the second portion 208 of the mounting bracket 202 in a generally well known manner, as shown in Figure 9.

Referring again to Figure 3, it will be appreciated that the communication module 210 and, in particular, the mounting bracket 202 therefor, could be suitably attached within the corresponding compartment 112 of the motor control center enclosure 102 in any known or suitable configuration. For example and without limitation, the bracket 202 and communication module 210 may be mounted on the side (e.g., right side from the perspective of Figure 3) of the framework 110 of the compartment 112, as shown in solid line drawing in Figure 3, or on the top framework 110 of the compartment 112, as shown in simplified form in phantom line drawing in Figure 3. Regardless of the mounting location within the compartment 112, it will be appreciated that, in accordance with the disclosed concept, the communication module 210 remains disposed within the compartment 112 and fixedly attached to the motor control center 100, even when the corresponding subunit (see, for example, subunit 104 of Figure 2) has been removed from the compartment 112. Among other benefits, this advantageously keeps the

11-PCS-255(030)

communication system 200 intact (e.g., without limitation, the specific position within the motor control center 100 can be readily identified and verified).

One difficulty associated with maintaining the communication module 210 fixedly attached within the compartment 112 in such a structured-based manner, is the ability to access the aforementioned features (e.g., without limitation, features 214,216 (Figures 8 and 9)) of the communication module 210, within the relatively tight confines of the compartment 112. In the non-limiting example shown and described herein, the features 214,216 include at least one switch 214 (see, for example and without limitation, DIP switch 214 of Figure 8; also shown schematically in Figure 5), and at least one connector 216 (see, for example, Ethernet receptacle 216 (shown in simplified form in phantom line drawing in Figures 8 and 9; also shown schematically in Figure 5)). For example and without limitation, motor control center users must be able to access the DIP switch 214 (Figure 8) when the subunit (see, for example, subunit 104 of Figure 2) is removed. It will be appreciated that the communication module 210 is suitable for protocol such as, for example and without limitation, Ethernet and Modbus protocols. However, any known or suitable alternative protocol option could be employed, without departing from the disclosed concept. In any event, such protocol options need to ID register in the form of the DIP switch 214 to arrange a specific address code. It will also be appreciated that the communication module 210 is capable, for example, of being addressed remotely, for example and without limitation, using any known or suitable website based software, a home computer, or any other suitable communication element 300 (see, for example and without limitation, communication element 300 shown in simplified form in phantom line drawing in Figure 5).

Accordingly, the disclosed communication system 200 provides a mechanism for keeping the communication module 210 in a fixed position relative to the motor control center 100, while allowing it to pivot on a unique mounting bracket 202 mounted to the motor control center enclosure framework 110, within a corresponding compartment 112 of the enclosure 102. In this manner, the advantages of hard-mounting the communication module 210, such that it is fixed to the motor control center 100, are realized, while at the same time providing necessary access to communication module features (e.g., without limitation, switches 214; connectors 216).

In addition to the foregoing, the disclosed communication system 200 preferably further includes a number of additional unique and advantageous features. For example and without limitation, the example communication system 200, preferably includes a plurality of wireways 230,232 (Figures 2-4; see also wireways 230',232' of Figures 2 and 4), which comprise passageways for cables or wires 240,242,244 (see, for example cables 240,242,244 partially shown in simplified form in Figure 4). More specifically, as shown in Figure 2, the motor control center enclosure 102 includes a top 114, a bottom 116, and opposing first and second ends 118,120. A plurality of the aforementioned compartments 112 (see also compartment 112' of Figure 4) are disposed one on top of another to form a number of columns 130,130'. Four such columns (e.g., 130,130') are shown in Figure 2, one column 130 is shown in Figure 3, and portions of two columns 130,130' are shown in Figure 4.

As best shown with reference to column 130 in Figure 4, it will be appreciated that each of the columns (e.g., 130) includes a first side 132 and a second side 134 disposed opposite and distal from the first side 132. In accordance with the disclosed concept, each of the columns 130 also includes a plurality of wireways 230,232. More specifically, as shown in Figure 4, a first wireway 230 extends longitudinally between the top and bottom 114,116 of the motor control center enclosure 102, adjacent to the first side 132 of the column 130, and a second wireway 232 extends in a similar manner adjacent to the second side 134 of the column 130. Accordingly, wireways 230,232 (see also wireways 230',232') are provided on both sides 132,134 of the compartments 112, such that wires or cables 240,242,244 can neatly and effectively extend from within the compartment 112 into and through an appropriate nearby wireway 230,232.

EXAMPLE

By way of a non-limiting example, which is provided solely for purposes of illustration and is not intended to limit the scope of the disclosed concept, in Figure 4, an Ethernet cable 240 extends outwardly (e.g., to the left from the perspective of Figure 4) from the communication module 210 and, in particular, from a connection with Ethernet connector 214 (shown in simplified form in Figures 8 and 9), and into wireway

11-PCS-255(030)

230. A 24 VDC control circuit wire 242 (shown in simplified form in phantom line drawing in Figure 4; also shown schematically in Figure 5) also extends (e.g., to the left from the perspective of Figure 4) toward and into the same wireway 230. A third cable, which in the example shown and described herein is a 120 VAC control circuit wire 244, extends in the opposite direction (e.g., to the right from the perspective of Figure 4) into and through wireway 232 on the opposite side of the compartment 112.

Accordingly, it will be appreciated that the disclosed communication system 200 advantageously provides additional passageways (e.g., without limitation, wireways 230,230', 232,232') for accommodating any known or suitable type and/or configuration of wires or cables (e.g., without limitation, 240,242,244) associated with the communication module 210 and/or the motor control center compartment 112, generally.

The disclosed motor control center 100 also preferably further includes a shield 250 (Figures 2-4) for shielding electromagnetic interference that may occur between one or more of the aforementioned cables or wires (e.g., 240,242,244) within the wireways 230,230',232,232'. Preferably, the shield comprises a steel divider 250. In the example shown and described herein, the steel divider 250 is formed, at least in part, by the aforementioned framework 110 of the motor control center enclosure 102. More specifically, the additional wireway (e.g., 232) of the disclosed system 200 separates or divides at least adjacent wireways (see shield 250 between wireways 232' and 230 of Figures 2-4). In this manner, the shield 250 segregates, for example and without limitation, relatively big and bulky power cabling from relatively sensitive communication system wiring. Accordingly, the shield or steel divider 250 functions to turn each wireway 230,230',232,232' into a segregated steel chamber, to isolate undesirable electromagnetic interference.

It will be appreciated that although that all of the foregoing advantageous features (e.g., without limitation, pivotable mounting bracket 202 for fixedly mounting the communication module 210 to the motor control center enclosure framework 110; unique configuration of a plurality of wireways 230,230',232,232'; shield 250) are described in combination hereinabove, for economy of disclosure, that embodiments

11-PCS-255(030)

featuring only one or two of these features are also within the scope of the disclosed concept.

While specific embodiments of the disclosed concept have been described in detail, it will be appreciated by those skilled in the art that various modifications and
5 alternatives to those details could be developed in light of the overall teachings of the disclosure. Accordingly, the particular arrangements disclosed are meant to be illustrative only and not limiting as to the scope of the disclosed concept which is to be given the full breadth of the claims appended and any and all equivalents thereof.

11-PCS-255(030)

What is claimed is:

1. A communication system for a motor control center, said motor control center including an enclosure and a plurality of subunits, the enclosure comprising a framework for dividing said enclosure into a plurality of compartments, said subunits being removably disposed within said compartments, said communication system comprising:

a mounting bracket structured to be fixedly attached to said framework within a corresponding one of said compartments, said mounting bracket comprising a hinge; and

a communication module mounted on said mounting bracket, said communication module comprising a housing and a number of features disposed on said housing,

wherein said hinge of said mounting bracket is structured to allow said communication module to pivot with respect to said compartment to provide access to said features.

2. The communication system of claim 1 wherein said mounting bracket further comprises a first portion and a second portion; and wherein said hinge pivotably couples the first portion to the second portion.

3. The communication system of claim 2 wherein the first portion is structured to be fixedly attached to said framework; and wherein said communication module is mounted on the second portion.

4. The communication system of claim 3 wherein the housing of said communication module includes a recessed channel; wherein the second portion of said mounting bracket includes a DIN rail; and wherein said DIN rail is disposed in said recessed channel.

5. The communication system of claim 1 wherein said number of features includes at least one switch and at least one connector; and wherein said communication module is structured to be pivotable on said mounting bracket to access said at least one switch and said at least one connector within said compartment.

6. The communication system of claim 1 further comprising a plurality of wireways; wherein the enclosure of said motor control center further comprises a top, a

11-PCS-255(030)

bottom, a first end, and a second end; wherein a plurality of said compartments are disposed one on top of another to form a number of columns of said compartments between the first end and the second end of the enclosure; wherein each of said columns includes a first side and a second side disposed opposite and distal from the first side; and wherein each of said columns includes a plurality of wireways.

7. The communication system of claim 6 wherein said plurality of wireways is a first wireway extending between the top and the bottom of the enclosure adjacent to the first side of a corresponding one of said columns, and a second wireway extending between the top and the bottom of the enclosure adjacent to the second side of said corresponding one of said columns; wherein said communication module further comprises a plurality of cables or wires; and wherein at least one of said cables or wires is disposed in each of said first wireway and said second wireway.

8. The communication system of claim 6 further comprising a shield for shielding electromagnetic interference between a number of cables or wires disposed in said wireways.

9. The communication system of claim 8 wherein said shield is steel divider; and wherein said steel divider is formed at least in part by said framework.

10. The communication system of claim 1 further comprising a communication element for communicating with said communication module.

11. A motor control center comprising:
 an enclosure comprising a framework for dividing said enclosure into a plurality of compartments;
 a plurality of subunits, said subunits being removably disposed within said compartments; and
 a communication system comprising:
 a mounting bracket fixedly attached to said framework within a corresponding one of said compartments, said mounting bracket comprising a hinge, and
 a communication module mounted on said mounting bracket, said communication module comprising a housing and a number of features disposed on said housing,

11-PCS-255(030)

wherein said hinge of said mounting bracket allows said communication module to pivot with respect to said compartment to provide access to said features.

12. The motor control center of claim 11 wherein said mounting bracket further comprises a first portion and a second portion; and wherein said hinge pivotably couples the first portion to the second portion.

13. The motor control center of claim 12 wherein the first portion is fixedly attached to said framework; and wherein said communication module is mounted on the second portion.

14. The motor control center of claim 13 wherein the housing of said communication module includes a recessed channel; wherein the second portion of said mounting bracket includes a DIN rail; and wherein said DIN rail is disposed in said recessed channel.

15. The motor control center of claim 11 wherein said number of features includes at least one switch and at least one connector; and wherein said communication module is pivotable on said mounting bracket to access said at least one switch and said at least one connector within said compartment.

16. The motor control center of claim 11 further comprising a plurality of wireways; wherein the enclosure of said motor control center further comprises a top, a bottom, a first end, and a second end; wherein a plurality of said compartments are disposed one on top of another to form a number of columns of said compartments between the first end and the second end of the enclosure; wherein each of said columns includes a first side and a second side disposed opposite and distal from the first side; and wherein each of said columns includes a plurality of wireways.

17. The motor control center of claim 16 wherein said plurality of wireways is a first wireway extending between the top and the bottom of the enclosure adjacent to the first side of a corresponding one of said columns, and a second wireway extending between the top and the bottom of the enclosure adjacent to the second side of said corresponding one of said columns; wherein said communication module further comprises a plurality of cables or wires; and wherein at least one of said cables or wires is disposed in each of said first wireway and said second wireway.

11-PCS-255(030)

18. The motor control center of claim 16 further comprising a shield for shielding electromagnetic interference between a number of cables or wires disposed in said wireways.

19. The motor control center of claim 18 wherein said shield is steel divider; and wherein said steel divider is formed at least in part by said framework.

20. The motor control center of claim 11 further comprising a communication element for communicating with said communication module.

11-PCS-255(030)

ABSTRACT OF THE DISCLOSURE

A communication system is provided for a motor control center. The motor control center includes an enclosure and a plurality of subunits. The enclosure comprises a framework for dividing the enclosure into a plurality of compartments. The subunits are removably disposed within the compartments. The communication system includes a mounting bracket fixedly attached to the framework, within a corresponding one of the compartments, and a communication module mounted on the mounting bracket. The communication module includes a housing and a number of features such as, for example and without limitation, a DIP switch and electrical connector(s), disposed on the housing. Accordingly, when the subunit is removed from the compartment, the communication module remains, fixed to the enclosure framework. The mounting bracket includes a hinge that allows the communication module to pivot with respect to the compartment to provide access to the features.

COMBINED DECLARATION for PATENT APPLICATION and POWER OF ATTORNEY	ATTORNEY DOCKET NO.: 11-PCS-255(030)
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AS A BELOW-NAMED INVENTOR, I HEREBY DECLARE THAT:

My residence, Post Office address, and citizenship are as stated below next to my name;

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed, and for which a patent is sought on the invention entitled:

"MOTOR CONTROL CENTER AND COMMUNICATION SYSTEM THEREFOR"

THE SPECIFICATION OF WHICH X IS ATTACHED HERETO

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

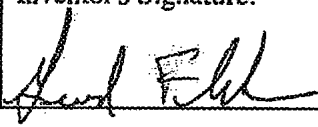
I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, Section 1.56.

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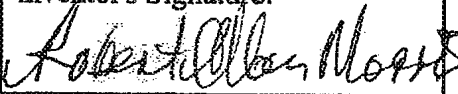
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I hereby acknowledge that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements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

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11-PCS-255(030)

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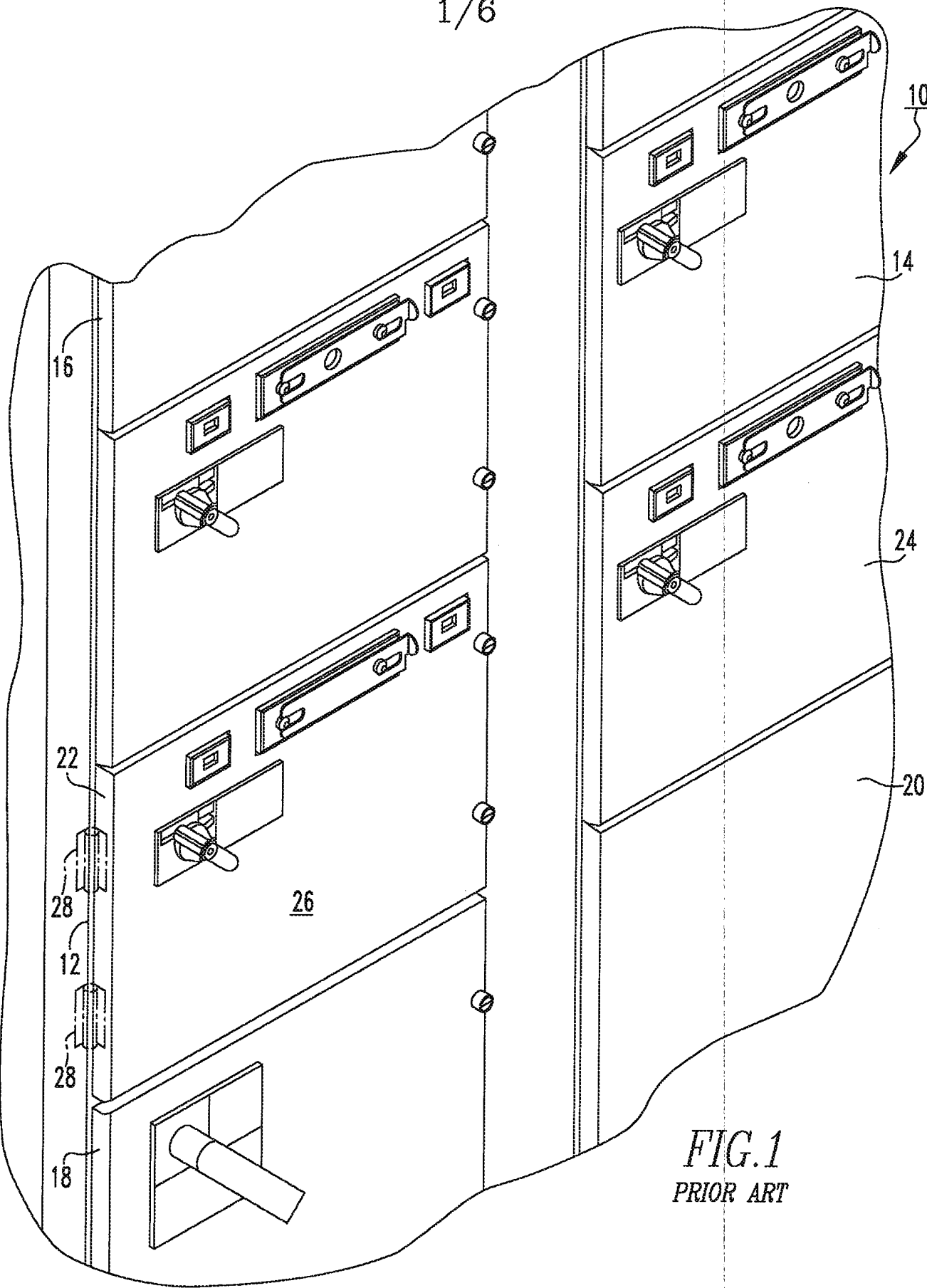
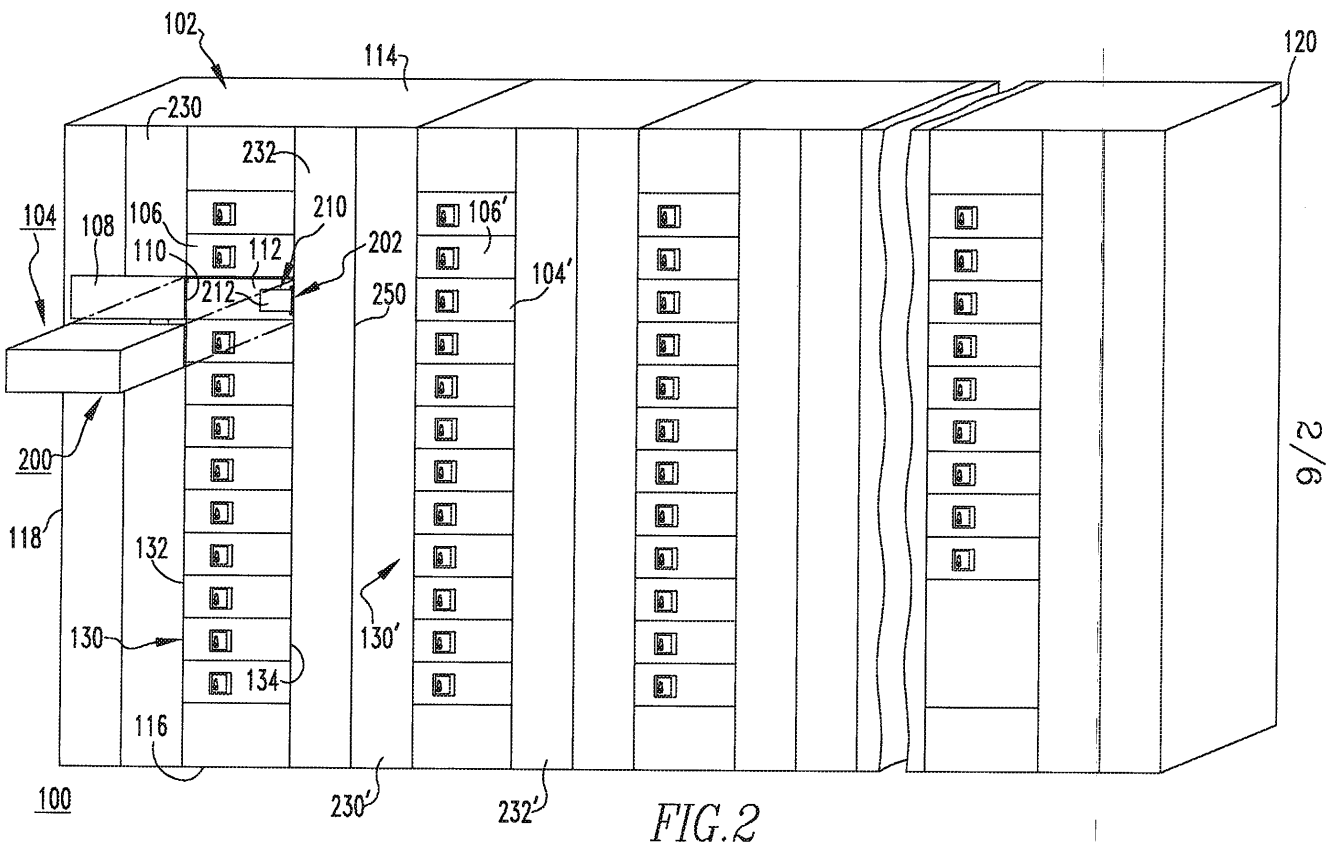


FIG. 1
PRIOR ART



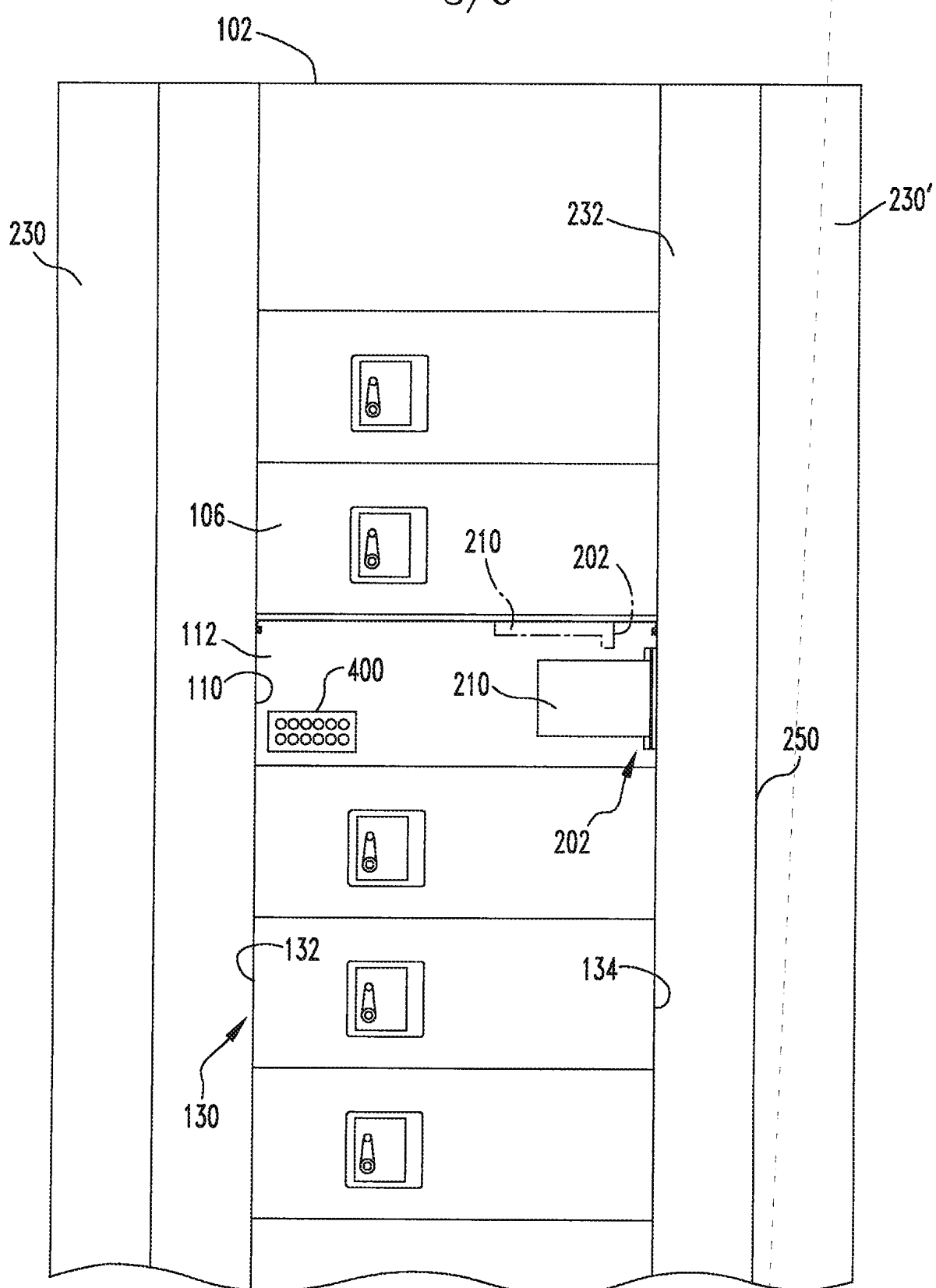
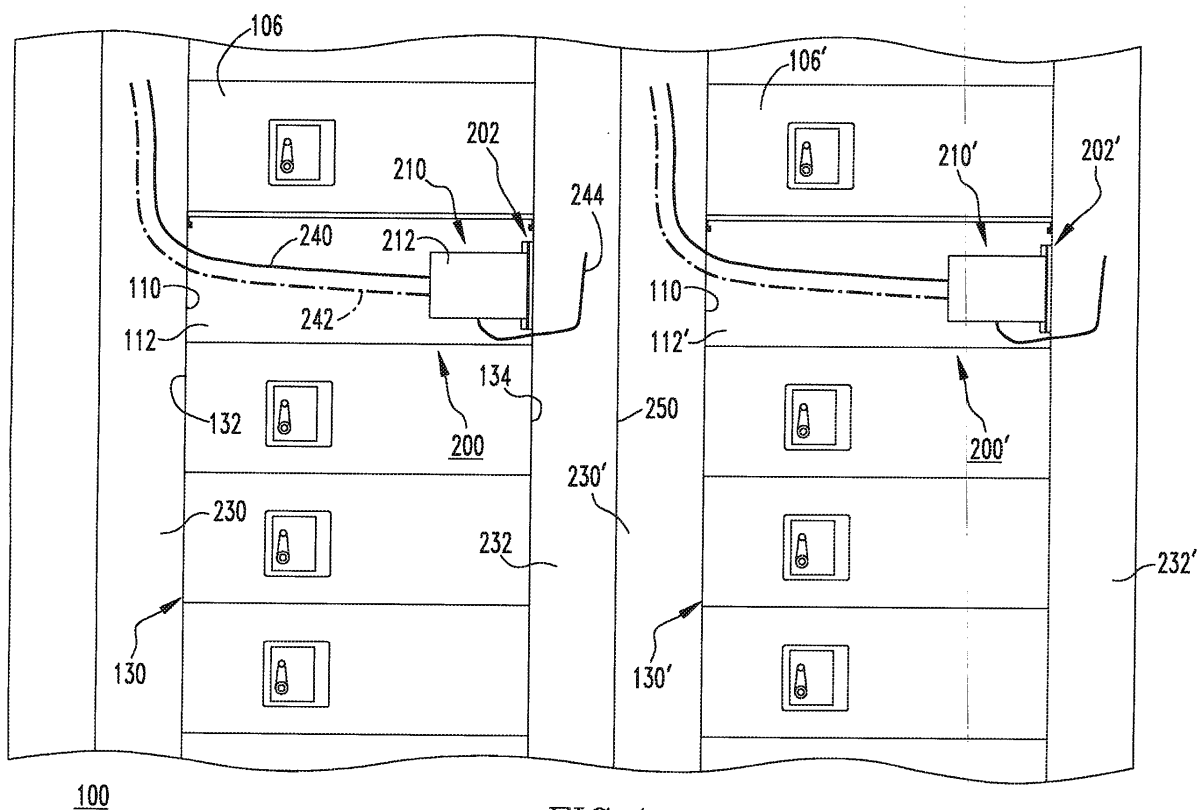
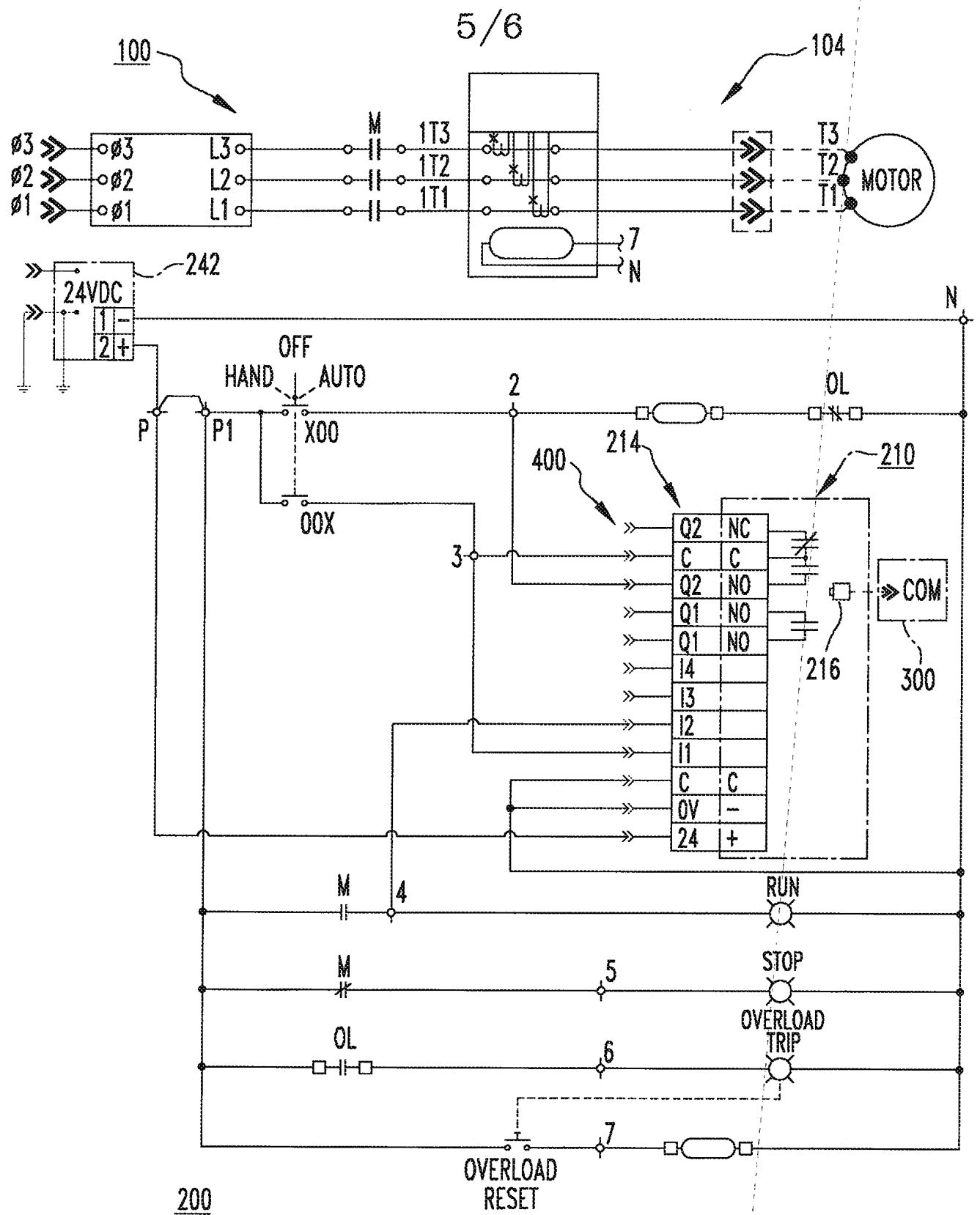


FIG. 3



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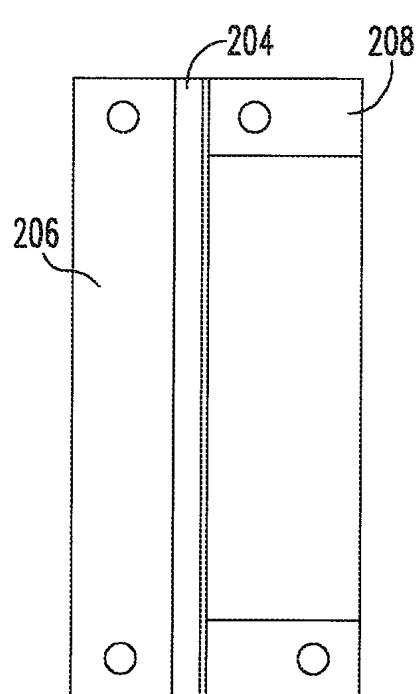


FIG. 6

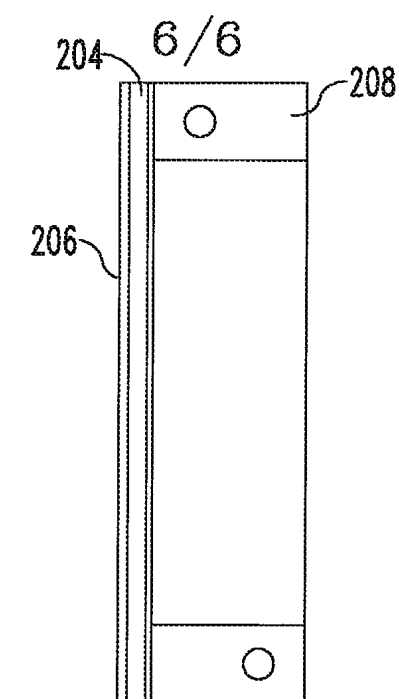


FIG. 7

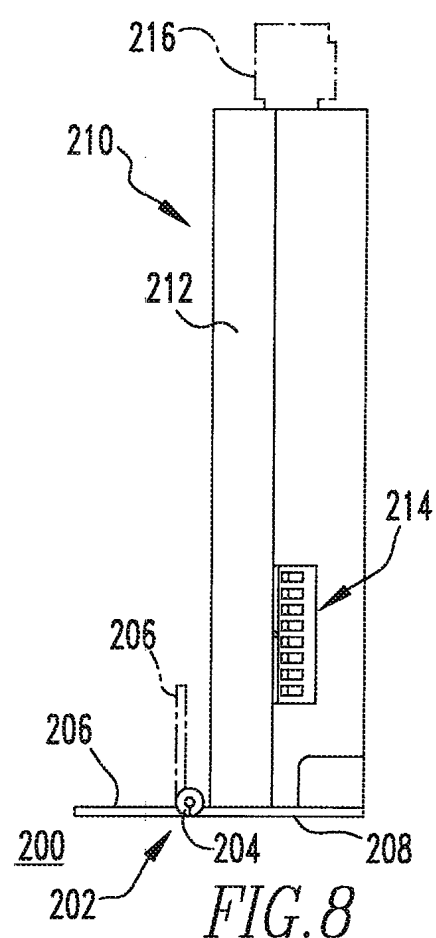


FIG. 8

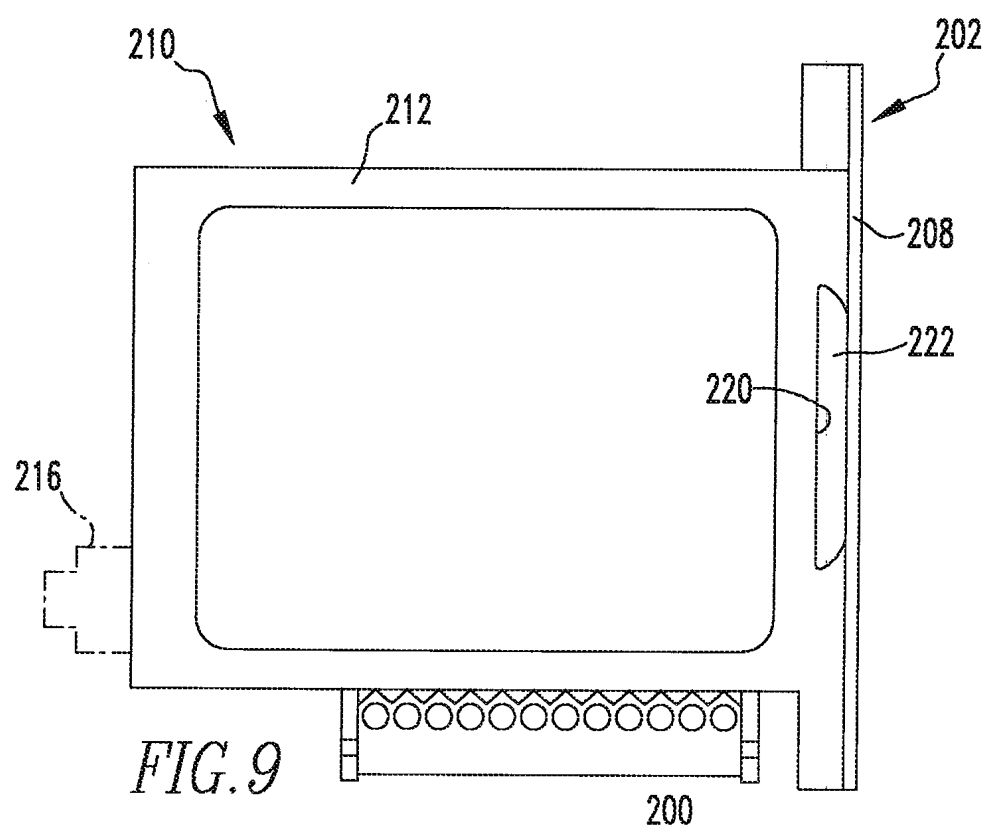


FIG. 9

TRADUCCIÓN SIMPLE REALIZADA POR SHARON BENREY PACHECO DE LOS SIGUIENTES DOCUMENTOS, ESCRITOS ORIGINALMENTE EN INGLÉS.

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5. En Washington, D.C.
6. El nueve de abril de 2013
7. Por *el Oficial Asistente de Autenticación, Departamento de Estado de los Estados Unidos*
8. No: 13026268-8
9. Sello/timbre
10. Firma

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POR MEDIO DE LA PRESENTE SE CERTIFICA QUE EL DOCUMENTO QUE FIGURA EN ANEXO ES UNA COPIA FIEL TOMADA DE LOS ARCHIVOS DE LA OFICINA DE MARCAS Y PATENTES DE LOS ESTADOS UNIDOS, DE AQUELLOS DOCUMENTOS DE LA SOLICITUD DE PATENTE IDENTIFICADA A CONTINUACIÓN QUE CUMPLIÓ CON LOS REQUISITOS PARA OTORGÁRSELE UNA FECHA DE PRESENTACIÓN BAJO 35 USC 111.

NÚMERO DE SOLICITUD: 13/453,283

FECHA DE PRESENTACIÓN: 23 de abril de 2012

EL CÓDIGO DEL PAÍS Y EL NÚMERO DE SU SOLICITUD DE PRIORIDAD, A USARSE PARA LA PRESENTACIÓN EN EL EXTRANJERO BAJO LA CONVENCION DE PARÍS, ES US13/453,283

Con autorización del
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de la Oficina de Marcas y Patentes de los Estados Unidos

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Oficial de Registro

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DE COMERCIO

SBP\SBP\ID-242551\WPCL1349

REIVINDICACIONES

1. Un sistema de comunicaciones (200) para un centro de control de motores (100), dicho centro de control de motores (100) incluyendo un alojamiento (102) y una pluralidad de sub-unidades (104, 106; 104', 106'), el alojamiento (102) comprendiendo un armazón (110) para dividir dicho alojamiento (102) en una pluralidad de compartimentos (112, 112'), dichas sub-unidades (104, 106; 104', 106') estando dispuestas de manera removible dentro de dichos compartimentos (112, 112'), dicho sistema de comunicaciones (200) comprendiendo:

una abrazadera de montaje (202) estructurada para unirse de manera fija a dicho armazón (110) dentro de uno correspondiente de dichos compartimentos (112, 112'), dicha abrazadera de montaje (202) comprendiendo una articulación (204); y

un módulo de comunicaciones (210) montado sobre dicha abrazadera (202), dicho módulo de comunicaciones (210) comprendiendo un alojamiento (212) y un número de características (214, 216) dispuestas en dicho alojamiento (212),

en donde dicha articulación (204) de dicha abrazadera de montaje (202) se estructura para permitir que dicho módulo de comunicaciones (210) pivotee con respecto a dicho compartimento (112, 112') para proporcionar acceso a dichas características (214, 216).

2. El sistema de comunicaciones (200) de la reivindicación 1, en donde dicha abrazadera de montaje (202) además comprende una primera porción (206) y una segunda porción (208); y en donde dicha articulación (204) acopla a
5 manera de pivote la primera porción (206) con la segunda porción (208).

3. El sistema de comunicaciones (200) de la reivindicación 2, en donde la primera porción (206) se estructura para unirse de manera fija a dicho armazón (110); y
10 en donde dicho módulo de comunicaciones (210) se monta en la segunda posición (208).

4. El sistema de comunicaciones (200) de la reivindicación 3, en donde el alojamiento (212) de dicho módulo de comunicaciones (210) incluye un canal rebajado
15 (220); en donde la segunda porción (208) de dicha abrazadera de montaje (202) incluye un riel DIN (222); y en donde dicho riel DIN (222) se dispone en dicho canal rebajado (220).

5. El sistema de comunicaciones (200) de la reivindicación 1, en donde dicho número de características
20 incluye por lo menos un interruptor (214) y por lo menos un conector (216); y en donde dicho módulo de comunicaciones (210) se estructura para ser capaz de pivotar sobre dicha abrazadera de montaje (202) para obtener acceso a dicho por lo menos un interruptor (214) y dicho por lo menos un conector
25 (216) dentro de dicho compartimento (112).

6. El sistema de comunicaciones (200) de la reivindicación 1, comprendiendo además una pluralidad de vías de cables (230, 232); en donde el alojamiento (102) de dicho centro de control de motores (100) además comprende una parte superior (114), una parte inferior (116), un primer extremo (118), y un segundo extremo (120); en donde una pluralidad de dichos compartimentos (112, 112') se disponen uno encima de otro para formar un número de columnas (130, 130') de dichos compartimentos (112) entre el primer extremo (118) y el segundo extremo (120) del alojamiento (102); en donde cada una de dichas columnas (130) incluye un primer lado (132) y un segundo lado (134) dispuesto opuesto y distante del primer lado (132); y en donde cada una de dichas columnas (130) incluye una pluralidad de vías de cables (230, 232).

7. El sistema de comunicaciones (200) de la reivindicación 6, en donde dicha pluralidad de vías de cables (230, 232) es una primera vía de cables (230) extendiéndose entre la parte superior (114) y la parte superior (116) del alojamiento (102) adyacente al primer lado (132) de una correspondiente de dichas columnas (130), y una segunda vía de cables (232) extendiéndose entre la parte superior (114) y la parte inferior (116) del alojamiento (102) adyacente al segundo lado (134) de dicha una correspondiente de dichas columnas (130); en donde dicho módulo de comunicaciones (210) comprende además una pluralidad de cables o alambres (240,

242, 244); y en donde por lo menos uno de dichos cables o alambres (240, 242, 244) se dispone en cada una de dicha vía de cables (230) y dicha segunda vía de cables (232).

8. El sistema de comunicaciones (200) de la reivindicación 6, comprendiendo además un blindaje (250) para blindar interferencia electromagnética entre un número de cables o alambres (240, 242, 244) dispuesto en dichas vías de cables (230, 232).

9. El sistema de comunicaciones (200) de la reivindicación 8, en donde dicho blindaje es un divisor de acero (250); y en donde dicho divisor de acero (250) se forma por lo menos en parte por dicho armazón (110).

10. El sistema de comunicaciones (200) de la reivindicación 1, comprendiendo además un elemento de comunicaciones (300) para comunicarse con dicho módulo de comunicaciones (20).

11. Un centro de control de motores (100) que comprende:

un alojamiento (102) que comprende un armazón (110) para dividir dicho alojamiento (102) hacia una pluralidad de compartimentos (112, 112');

una pluralidad de sub-unidades (104, 106; 104', 106'), dichas sub-unidades (104, 106; 104', 106') estando dispuestas de manera removible dentro de dichos compartimentos (112, 112'); y

un sistema de comunicaciones (200) que comprende:

una abrazadera de montaje (202) unida de manera fija a dicho armazón (110) dentro de uno correspondiente de dichos compartimentos (112, 112'), dicha abrazadera de montaje
5 (202) comprendiendo una articulación (204), y

un módulo de comunicaciones (210) montado sobre dicha abrazadera de montaje (202), dicho módulo de comunicaciones (210) comprendiendo un alojamiento (212) y un número de características (214, 216) dispuestas sobre dicho
10 alojamiento (212),

en donde dicha articulación (204) de dicha abrazadera de montaje (202) permite que dicho módulo de comunicaciones (210) pivotee con respecto a dicho compartimento (112, 112') para proporcionar acceso a dichas
15 características (214, 216).

12. El centro de control de motores (100) de la reivindicación 11, en donde dicha abrazadera de montaje (202) además comprende una primera porción (206) y una segunda porción (208); y en donde dicha articulación (204) acopla a
20 manera de pivote la primera porción (206) con la segunda porción (208).

13. El centro de control de motores (100) de la reivindicación 12, en donde la primera porción (206) se une de manera fija a dicho armazón (110); y en donde dicho módulo de
25 comunicaciones (210) se monta sobre la segunda porción (208).

14. El centro de control de motores (100) de la reivindicación 13, en donde el alojamiento (212) de dicho módulo de comunicaciones (210) incluye un canal rebajado (220); en donde la segunda porción (208) de dicha abrazadera de montaje (202) incluye un riel DIN (222); y en donde dicho riel DIN (222) se dispone en dicho canal rebajado (220).

15. El centro de control de motores (100) de la reivindicación 11, en donde dicho número de características incluyen por lo menos un interruptor (214) y por lo menos un conector (216); y en donde dicho módulo de comunicaciones (210) es capaz de pivotar sobre dicha abrazadera de montaje (202) para obtener acceso a dicho por lo menos un interruptor (214) y dicho por lo menos un conector (216) dentro de dicho compartimento (112).

16. El centro de control de motores (100) de la reivindicación 11, comprendiendo además una pluralidad de vías de cables (230, 232); en donde el alojamiento (102) de dicho centro de control de motores (100) comprende además una parte superior (114), una parte inferior (116), un primer extremo (118), y un segundo extremo (120); en donde una pluralidad de dichos compartimentos (112, 112') se disponen uno encima de otro para formar un número de columnas (130, 130') de dichos compartimentos (112) entre el primer extremo (118) y el segundo extremo (120) del alojamiento (102); en donde cada una de dichas columnas (130) incluye un primer lado (132) y un

segundo lado (134) dispuesto opuesto y distante del primer lado (132); y en donde cada una de dichas columnas (130) incluye una pluralidad de vías de cables (230, 232).

5 17. El centro de control de motores (100) de la reivindicación 16, en donde dicha pluralidad de vías de cables (230, 232) es una primera vía de cables (230) extendiéndose entre la parte superior (114) y la parte superior (116) del alojamiento (102) adyacente al primer lado (132) de una correspondiente de dichas columnas (130), y una segunda vía de
10 cables (232) extendiéndose entre la parte superior (114) y la parte inferior (116) del alojamiento (102) adyacente al segundo lado (134) de dicha una correspondiente de dichas columnas (130); en donde dicho módulo de comunicaciones (210) comprende además una pluralidad de cables o alambres (240,
15 242, 244); y en donde por lo menos uno de dichos cables o alambres (240, 242, 244) se dispone en cada una de dicha vía de cables (230) y dicha segunda vía de cables (232).

20 18. El centro de control de motores (100) de la reivindicación 16, comprendiendo además un blindaje (250) para blindar interferencia electromagnética entre un número de cables o alambres (240, 242, 244) dispuesto en dichas vías de cables (230, 232).

25 19. El centro de control de motores (100) de la reivindicación 18, en donde dicho blindaje es un divisor de acero (250); y en donde dicho divisor de acero (250) se forma

por lo menos en parte por dicho armazón (110).

20. El centro de control de motores (100) de la reivindicación 11, comprendiendo además un elemento de comunicaciones (300) para comunicarse con dicho módulo de
5 comunicaciones (20).