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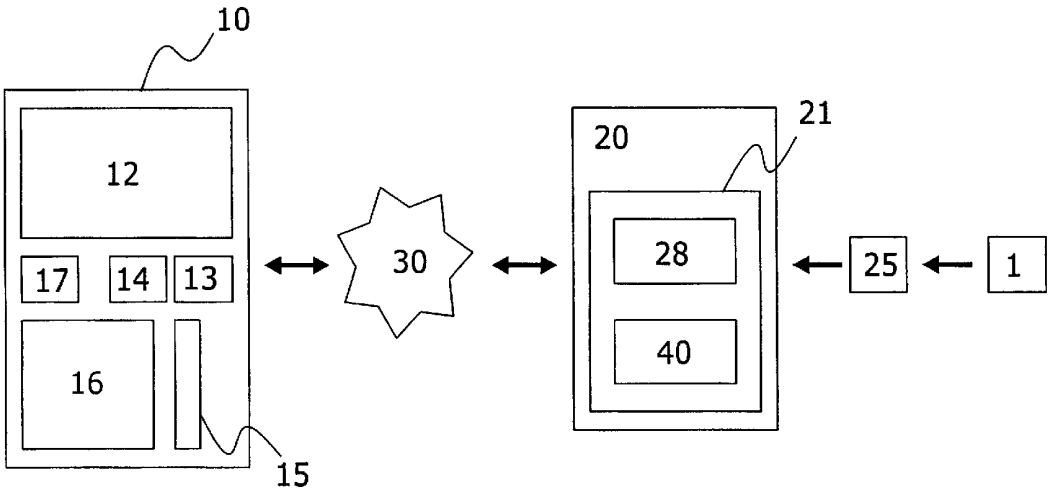
(54) Title: MERCHANDISE ORDERING SYSTEM USING VECTOR DATA AND METHOD



(57) Abstract: The present invention discloses a merchandise ordering system using vector data, procedure or constrained vector and the method of the same. The present invention is achieved by the server system having at least one of communication units for contacting with a client system using internet, having the memory for storing information of the merchandise containing the property of the merchandise and at least one of the configuration data of the merchandise containing the procedure or the constrained vector used for creating the vector data of merchandise, having the unit for constructing the norm of the merchandise using at least one of the configuration data of the merchandise and the property of the merchandise, and transmitting the norm of the merchandise for the request of the client system.

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TITLE OF INVENTION

MERCHANDISE ORDERING SYSTEM USING VECTOR DATA AND METHOD

TECHNICAL FIELD

The present invention relates to the merchandise ordering system using vector data and method. Specifically, it is an electronic commerce system and the method to process vector data of products, which user intends to purchase, is applied to the software for common design CAD program of user system. And its availability is decided and order of products is processed.

BACKGROUND ART

With regard to the process of selecting the products via e-business, it has been common for customer to select the products after checking the information of product image and the text that describes the products to be provided by e-shopping mall. Therefore, comparison to confirm the adequacy of product for the customer was unavailable and consequently, rate of returned product when customer receives the purchased goods was high. For example, provided that customer purchases one pair of trousers at the ordinary department store, the customer tries on selected clothes in the changing room and checks if it fits him or her or color and style of trousers are coordinated with the top. Unless it suits, the customer repeats to select other clothes for comparison and then finally can purchase the clothes through above process. The process of selecting products is called " purchase after

verification of adequacy" and it has been almost unavailable by the conventional e-business.

Though it was possible for the customer to select and compare each case thanks to the database based on the case reasonably forecast, it was just the comparison of similar case in a limited condition like putting the clothes on the mannequin. Consequently it was impossible to check the adequacy accurately when the customers actually wear the clothes by themselves. The reasons of its unavailability so far mentioned above are: 1 Products are displayed based on the bitmap image and the text that are irrelevant to the concept of figure; 2 The method to illustrate the various types of transformation of identical product group e.g. Changing the size of clothes with an identical style etc. was unavailable; 3 Technology to systematically integrate many types of technology and implement it with one consistent system.

DISCLOSURE OF INVENTION

It is an object of the present invention to provide new method for purchasing commodities and a system of thereof. Customers may purchase commodities after checking adequacy of purchase. The present invention results in selection of commodities precisely and conviently.

The above object can be accomplished by a server system which includes information providing server system and a user system which is connected with said server system by communication network, wherein said information is about commodities customers want to purchase, and wherein said server system identifies possibility of commodities' purchase,

said server system comprising, at least one means for communication

which connect said user system with internet; a memory storing at least one of said procedure or said constrained vector, and data on characters of commodities; and a means for creating standard of commodities by using at least one of said procedure or said constrained vector, and said data on character of commodities, wherein said server system transmits said created standard of commodities to said user system,

BRIEF DESCRIPTION OF DRAWINGS

The above and other objects, advantages and features of the present invention will be more apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIG 1 illustrates the overview of e-business system of this invention.

FIG 2 is a diagram of system that illustrates one of the examples of this invention based on the vector data of products. .

FIG 3 illustrates the actual diagram wherein attribute of products is displayed on the window.

FIG 4 illustrates the actual block diagram of this invention when procedure is added to the data of products.

FIG 5 describes the configuration of data structured of LISP.

FIG 6 illustrates the actual block diagram of this invention when constrained vector is included to the data of products.

FIG 7 is a formula under the constrained condition when value of user entry is provided to the constrained vector.

FIG 8 illustrates a flow chart when data of products, which are saved at the

server, are created.

FIG 9 illustrates a referring diagram whereby DXF Data Exchange Format of vector data is described.

FIG 10 illustrates the flow chart when constrained vector is created.

FIG 11 describes the example when configuration of data in the file converter that creates a constrained vector is indicated by the C-language.

FIG 12 is an exemplary diagram to describe the procedure.

FIG. 13 illustrates the procedure created by FIG 12.

FIG 14 illustrates a diagram wherein data from the temporary entry of table and table entry are displayed by file.

FIG 15 illustrates the example of configuration of product data that is provided by server system.

FIG 16 illustrates the block diagram when this invention is applied to the e-business system of mechanic parts.

FIG 17 illustrates the block diagram wherein system proposed in FIG 16 is illustrated by the block unit of function.

FIG 18 illustrates the tree configuration wherein browser of product configuration data, means to create the configuration of product and function block of data interface in the FIG 17 are described.

FIG 19 is an another case of this invention and illustrates the system block when solver or interpreter is provided to the server system.

FIG 20 is an another case of this invention and illustrates the system block when means to create data of product configuration is separated from the sever system.

FIG 21 is an another case of this invention and illustrates the system block when means to create data of product configuration is separated from the server

system and solver or interpreter is provided to the server system.

BEST MODE FOR CARRING OUT THE INVENTION

The invention is illustrated in more detail with the enclosed diagrams. FIG 1 illustrates briefly e-business system of this invention. When manufacturer of product enters the data of products including specific vector data 1, it is conversed to the product configuration data 28 by means to create the product configuration data 25. Because product design program is different according to the product manufacturer, it is conversed to the data of product configuration. It means the conversion with a vector data format that is commonly applied, conversion by the serial program code procedure in order to create the vector data or creation of vector data under the restrictive condition constrained vector. Product configuration data mentioned earlier is a terminology that includes all the vector data, procedure and constrained vector.

Database of product 21 in the server system 20 obtains the product data which includes at least one out of product configuration data such as vector data, procedure or constrained vector as well as product attribute data 40 including the data of changeable size of product. They can be saved by the memory of server system in a hyper text format and also hyper text can be transmitted via internet 30 at the request of user system 10 so that user is able to use above data of product.

User system 10 saves the transmitted product data at the memory 14 and checks it through the web browser 12. When customer wants to change the product, it enters the condition of conversion or allows customer to select the product in a wanted form among the many products groups that are provided by product data of server system 20. When procedure or constrained vector from the

said product configuration data is used, vector data, which meet the condition of conversion, are created by the creator of vector data 17 namely, an interpreter or solver in order to reflect the entered condition of conversion.

Constrained vector can be used instead of vector data and/or procedure in order to create a vector data relevant to the product configuration data. The role of interpreter is then replaced by the constrained solver. The difference between the interpreter and solver is that program to be issued by the defined rule of language is interpreted in order through an interpreter and demanded configuration of parts is accordingly produced while correlation of each factor in creating the constrained vector is processed based on the mathematical formula by the solver. And final configuration of vector data is created in result. The strength in using the interpreter lies in the almost unlimited ability to illustrate the parts. For instance, it is possible to illustrate the molding pin with or without the hole. On the other hand, constrained vector illustrates only the modified product that has a relative correlation. Thus, the product with a dramatic transformation, such as unavailable part of factor can not be illustrated. The convenience in drawing is the strength of using the solver. For procedure It takes much time to draw and only the well-trained experts can draw because each part must be illustrated in a programming language. On the other hand, constrained vector can be easily drawn in a short time by every one once he or she has a short-term training. When procedure method is implemented therefore, modeling must be processed by CAD software first and exported to the script file to enhance its convenience. The relevant method is named as historical method.

When vector data are created, they are converted to the specific vector data in a format which can be compared by the software for common design 16 of user. User is able to apply the specific vector data to the software for common design of

user in order to check the adequacy. When the adequacy of purchase is confirmed, the product is selected. When size etc. is required to change, repeat the process of entering the condition of transformation in order to select the appropriate product. Order of product is available afterwards.

Table 1 indicates the four methods to illustrate the data of product image. The method of bitmap is to indicate the image based on the graphic data of each pixel. And its type is various including Bitmap, GIF, TIF, JPEG etc. depending on the method to compress the image data. Image is illustrated by the simple command and value of co-ordinates from the vector method. One of the strengths is to be able to change flexibly the size as well as the distance of image. An availability to transform the image in a various type as it illustrates in a programming language is the strength of procedure. The form of image changes according to the value entered.

Vectorization means the work whereby image of bitmap is changed to that of vector and it is converted to the approximate value according to the entered constrained condition and original algorithm. But, it has physical and technical limit and 100% conversion is unavailable either. On the other hand, conversion of vector image to that of bitmap is not technically difficult.

【Table 1】

	Bitmap Method	Vector Method	Procedure	Constrained Vector
Method of illustration	Method to illustrate the picture in an identical method of mosaic with	Method to illustrate the picture only with a simple command and value of co-ordinates.	Picture is illustrated in a programming language so that various transformation	Various transformation is available as each factor of picture have a correlation (constraint).

	the combination of dot		is available.	
Unit of illustration	Data is entered based on the pixel. Each point on the screen of monitor.	Entity (factor) – minimum unit which comprises the command and attribute. E.g.) Line(0,0)-(100,100)	Same as the left	Same as the left
Example of usage	Almost of all image such as Bitmap, Raster image etc.	Almost CAD file and some images	N/A	Some CAD file (I-DEAS, PRO/E etc.)
Example to illustrate the tetragon Box	{(FFh, FFh, FFh), (80h,00h,01h), (80h,00h,01h), (80h,00h,01h), (80h,00h,01h), (FFh, FFh, FFh)}	BOX(0,0,100,100) or { Line(0,0)-(100,0), Line(100,0)-(100,100), Line(100,100)-(0,100), Line(0,100)-(0,0) }	If(User=100) BOX (0,0,100,100) else (User=200) BOX (0,0,200,200)	{ p1=(0,0), p2=polar(p1,0,100), p3=polar(p2,90,100), p4=polar(p1,90,100) Line(p1,p2), Line(p2,p3), Line(p3,p4), Line(p4,p1) }
Method of creation	It can be produced by entering the data such as a command & the value of co-ordinates. Or it can be easily produced by scanning the picture or using the digital camera.	It is produced by entering the data such as a command and the value of co-ordinates.	Enter the contents of the picture by condition according to the rule of the language.	Create by entering a data such as a command and the value of the co-ordinates. Constrained factor is then provided.
Feature	1. Precise illustration as good as a	1. Because each factor of the picture has an independent	1. Figure of the picture is not initially	1. When some of factors are modified in order,

	picture is available. 2. Concept of distance and size can not be illustrated. 3. Re-application such as modification, copy and integration with other data is unavailable by CAD program. 4. Size of data is decided according to the number of color and resolution and it is irrelevant to the contents of the picture. The size of the file is large.	value of co-ordinates, each part can be transformed individually. 2. It is possible to move the figure to the other point of screen, enlarge or minimize the figure. 3. Value of distance and the size can be illustrated. 4. Size of the data is decided according to the number of factor. Because data is saved only with the value of co-ordinates of the picture in general, it saves the space to save. 5. Re-application is available by the relevant program when form of data is transformed conversion according to CAD program.	decided but is decided when user enters the value of entry within the fixed range. 2. Since similar figure is processed by the identical file, saving space is required the least.	attribute of the factor is changed according to the correlation. 2. Correlation of the factors is displayed by mathematical function. 3. Similar figure can be illustrated like the procedure.
Vector creator	N/A	N/A	Interpreter	Constrained Solver
Similar figure	Impossible	Impossible	Illustrate almost limitlessly	Only the change of size is illustrated.

With regard to the four methods to illustrate the tetragon in detail, a) referring to the bitmap method, pixel value on the top edge and bottom edge is FFh while that of the left edge and right edge is 80h and 01h respectively. B) Referring to the vector method, it is simply illustrated by box (0, 0, 100, 100). It means that

co-ordinates value of starting point in the tetragon is (0, 0) and size of the width and height is 100 respectively. C) Procedure is a part to be illustrated by program code and user entry must be provided in order to specify as one vector data. In other words, IF (User=100) BOX (0, 0, 100, 100) else (USER=200) BOX (0, 0, 200, 200) indicates that vector data of BOX (0, 0, 100, 100) is created through interpreter when user enters 100. If user enters 200, vector data of BOX (0, 0, 200, 200) is created through interpreter. D) Constrained vector is a vector whereby correlation is provided. Constrained vector in the table 1 is illustrated as {p1= (0, 0), p2 = polar (p1, 0, 100), p3 = polar (p2, 90, 100), p4 = polar (p1, 90, 100), Line (p1, p2), Line (p2, p3), Line (p3, p4), Line (p4, p1)}. Correlation of each point such as p2, p3, p4 is defined based on the point of co-ordinates p1 (0, 0) and each point is connected by straight line. For example, p2=polar p1,0, 100 means that it is formed with 0 degree of angle from p1 and distanced by 100.

Data of product configuration from product data, that is provided from server system, can be supplied by a) Vector data, b) Procedure or c) Constrained vector method in order to achieve the objective of the present invention. In this case, configuration factor in the server system and user system differ to some degree.

FIG 2 illustrates one of the cases of this invention whereby vector data of product data is provided. Server system 20 is structured of product data database 21 which saves the product data including vector data, database management system which manages said database 22; Database Management System, it is defined as DBMS hereinafter and hyper text data 23 which sets up e-shopping mall. Product data database 21, DBMS 22 and hyper text 23 can be saved in one memory or respectively by the multiple memories.

User system 10 receives the hyper text from the server system 20 and saves it at the memory 14. Because product data including vector data is included in the

hyper text, web browser provides the product data to the user 12. Or when Java program other than hyper text is used, said data can be implemented immediately without being saved in the memory. When user wants to purchase certain product based on the available product data, he or she selects it and saves vector data of the relevant product at the memory 14.

When vector data saved in the memory 14 are available commonly to use, user applies said vector data to the software for common design 16 and decides if the product is what he or she intents to purchase. When size of product etc. should be changed, change the numerical value in the range of data modification which is approved by the manufacturer relevant to the available data of product attribute. And then, apply created vector data to the software for common design to decide. In order to convert the vector data properly to the software for common design, use data interface 15 to change in an adequate form. Said data interface is produced by API Application Program Interface that is provided by software for common design and it converses product configuration data in an appropriate format of software for common design.

FIG 2b illustrates the data of product data database 21. For the product data database 21, product attribute data 40 which indicates the size and price of the product and provides the bitmap image data of product 50 and vector data 60. Because bitmap image data of product 50 can be created by vector data 60, it can be omitted. Product attribute data 40 is illustrated respectively in order to illustrate basic attribute of the relevant product as well as other attributes including various transformable size etc. In other words, as illustrated in the FIG 3, basic figure of the product is displayed and specification range to be provided by the manufacturer in supplying the relevant product is indicated.

FIG 2c illustrates the configuration case of web browser 12 that displays the

data of product to the user. Data of the relevant product is displayed in more detail through web browser 12 and web browser 12 indicates the viewer window 70 wherein the bitmap image of product is displayed as well as the attribute of product. It comprises product attribute area 80 wherein attribute of product is convertible and the means to create vector image 90 whereby vector data of the relevant product is transmitted.

When user checks the data of relevant product in detail through web browser 12 and then clicks the means to create, vector data of the relevant product is created based on the vector data of product saved at the memory 14. Created vector data is commonly used in general. In case of two dimensions, it is recommended to produce with DXF Data Exchange Format whereby the interchange of data is easy. For the three dimensions, using IGES or step file is desirable. User receives the created DXF from common software for design which is available in the user system and checks if product to purchase is relevant to the user's intention to use for design. User then checks the available range to convert the attribute of product provided from the server system with the area indicating product attribute 80 on the web browser 12. Then, changes the attribute of the relevant product in order to check more precisely if it is what he or she intends to purchase. When the product is necessary for design as a result of checking, user proceeds the order of relevant product to the server system.

FIG 4 illustrates one of the cases of this invention wherein procedure product data is provided in order to create vector data. Interpreter 19 is provided in the user system of FIG 4a unlike FIG 2. And in server system, procedure to create the vector data is provided for database of product 21 instead of vector data.

FIG 4b illustrates the feature of database of product 21 that is provided from server system. Specifically, to the database of product 21 of FIG 4b 1, product

attribute data 40 wherein size and price of the product etc. are indicated and bitmap image data of the product 50, vector data 60 and procedure 100 are provided. It is desirable to configure product attribute data 40 enough to be able to select the data of numerical value from all ranges that are provided by manufacturer unlike FIG 2. Because bitmap image data of product 50 and vector data 60 can be created by each procedure 100, they can be omitted. In this case, figure of the database of product 21 is illustrated in FIG 4 b 2.

When user checks the data of relevant product in detail by web browser 12 and then clicks the means to create vector image 90, web browser 12 enters the product attribute data size or color of each part of the product selected by user at the first memory area 14a and the procedure at the second memory area 14b. When interpreter 19 processes the procedure of second memory area based on the entry value of the first memory area, vector data of the product selected by user is created. User enters the created vector data to the software for common design 16 of user system and then, checks if product to purchase is what user intends to use for design in order to implement the purchase order via web.

As illustrated in FIG 4c, procedure receives the entry value of user and converses it to the vector data through interpreter. Because interpreter can be commonly processed by compiler/interpreter professional, illustration is made as configuration of LISP data is indicated in FIG 5.

FIG 6 illustrates one of the cases of this invention wherein constrained product data is provided in order to create vector data. Solver 18 is provided in the user system of FIG 6a unlike FIG 2. In server system, constrained vector to create vector data not vector data is provided to the database of product 21.

FIG 6 b illustrates feature of the database 21 that is provided by server system. In the database of product 21 of FIG 6 b 1, product attribute data 40

wherein size/price of the product are indicated and bitmap image data of the product 50, vector data 60 and constrained vector 110 are provided. It is recommended to configure product attribute data 40 enough to be able to select all ranges of the numerical data provided by manufacturer unlike FIG 2. Because bitmap image data of the product 50 and vector data 60 can be created respectively by constrained vector 110, they can be omitted. In this case, the figure of the database of product is illustrated in the FIG 6 b 2.

When user checks the data of relevant product in detail through web browser 12 and then clicks the means to create, web browser 12 enters product attribute data size and color of each part of the product selected by user to the first memory area 14a and constrained vector in the second memory area14b. When constrained vector saved in the second memory area is implemented based on the entry value of first memory area by solver 18, vector data selected by user is created. User can process the purchase order via web as he or she enters the created vector data to the software for common design 16 of user system and then checks if the product to purchase is what he or she intends to purchase the product to use for design.

As illustrated in FIG 6c, constrained vector receives the entry value of user and is converted to vector data through solver. FIG 7 displays the constraint conditional formula wherein user entry value is provided to the constrained vector. Vector data is created by a mathematical algorithm method according to the constraint conditional formula.

These constrained conditions are not linear and Newton-Raphson repetitive method is applied in order to solve. First of all, attain linear simultaneous equation of mathematical formula 1 based on the current point of specific point.

【Mathematical Formula 1】

$$J\triangle x = r$$

It is when constraint conditional formula Fi from the i row is illustrated by mathematical formula 2 and mathematical formula 3 in terms of J.

【Mathematical Formula 2】

$$Fi = f(x1, x2, \ldots, xn) = 0$$

【Mathematical Formula 3】

$$f_{ij} = \frac{\partial f_i}{\partial x_j}$$

It is Jacobian determinant illustrated by mathematical formula 4 and residual r is defined by mathematical formula 5.

【Mathematical Formula 4】

$$J = \begin{pmatrix} f_{11} & f_{12} & \cdots & f_{1n} \\ f_{21} & f_{22} & \cdots & f_{2n} \\ . & . & & \\ . & . & & \\ f_{m1} & f_{m2} & \cdots & f_{mn} \end{pmatrix}$$

【Mathematical Formula 5】

$$r = \{-F1, -F2, \ldots, -Fm\}^T$$

In the meantime, unknown variable Δx is defined by the mathematical

formula. Solve this formula of Δx and then, calculate new co-ordinates x ' according to mathematical formula 7.

【Mathematical Formula 6】

$$\Delta x = \{ \Delta x_1, \Delta x_2, \ldots, \Delta x_n \}^T$$

【Mathematical Formula 7】

$$x' = x + \Delta x$$

Then, calculate residual r by converting new co-ordinates x ' based on x. Unless residual value is 0, attain J of new Jacobian determinant and form mathematical formula 1. Continue this process until residual value becomes 0.

Ordinary linear simultaneous equation is applied as far as repetitive formula of Newton-Raphson to calculate at each step is concerned. Since the number of unknown variable and that of constraint condition become equal by said process, Jacobian determinant gets n x n square determinant. The solution method is based on the sparse determinant. And method of Gaussian elimination or decoupling with enhanced speed is available. Detailed description is omitted since it is understood commonly by relevant people in this area.

The method to convert specific vector data from the manufacturer of product to the vector data, procedure and constrained vector for the user is described hereinafter. In order to explain this invention in more detail, as illustrated in FIG 8, define the functional block to set up product DB, that is provided to the server system by combining specific vector data 26 and user entry 27, as the means to create product configuration data 25. And define said vector data, procedure and constrained vector which are provided to the server system as the product

configuration data 28.

Means to create product configuration data 25 consists of [user interface], [file I/O], [file converter] and [table entry]. With regard to the process to create product configuration data 28, it is created when user entry 27 is processed to the specific vector data 26 from outsourcing. Specific vector data are various CAD S/W model file such as AutoCAD, me10, Micro CADAM etc. and intermediate files IGES, DXF. The file is loaded in the memory through [file I/O]. It is not much difficult to converts the loaded file to the vector data of product configuration data. When data of CAD file is structured by two dimension, it commonly has basic factors such as line, circle, arc and text. On top of that, it has the secondary factors including solid and poly-line and non-configured such as layer and part. Because only basic data structure including line, circle, arc and text are illustrated by vector data of product configuration data, basic configuration of all CAD can be illustrated by vector data of the product configuration data. Those factors unavailable from vector data of the product configuration data are converted to the basic factors.and all non-configured data are deleted other than that of color and line. It must be noted that vector data of server system is illustrated in a very simplistic configuration in comparison with the actual CAD data. According to the case of this invention, conversion to DXF file occurs since simplified DXF is used by vector data of the product configuration data. In case of 0,0,0 of the first , 100,100,0 of the second point, white color and straight line, for instance, it is illustrated in a form of DXF as FIG 9. "File converter" processes the function of converting to the vector data of the product configuration according to the file configuration. And it creates the file by "File I/O".

Substantially complicated process is required to convert vector data to the constrained vector. Since constrained condition of each factor is added to the basic

vector configuration as far as constrained vector is concerned, the constrained condition must be defined. Because constraint is normally not provided to the entry data, it must be provided by algorithm to be set and modified by entry of user. The process to provide the constrained condition is identical to FIG 10. Entry file is saved in the memory by the different method depending on the type of file. For instance, the configuration of Auto CAD drawing file and me10 file is different, the method to save at the memory is different depending on the type of file. Relevant engineers can implemented the process easily as long as they know the configuration of file. In order to provide the constrained condition to the file, data at the memory must be converted to the data configuration defined by the case. Factor of figure and number in the entry file are processed separately. Factor of figure is processed as the basic factor in the "File Converter" and numerical factor is converted to the data by which constrained condition can be created. FIG 11 is an example wherein configuration of data in the file converter which creates the constrained vector is indicated by C-Language. When conversion of data structure is completed, segmentation of figure is processed by program if necessary, correlation among the overall figure factors is checked to find out all relevant constrained conditions and save them. User can modify the constrained condition by adding or deleting it etc., because constrained condition provided as above might be inconsistent with the intention of user.

Concerning segmentation of figure, there are segmentation by 1 Central line and 2 By correlation of figure factor. For segmentation by central line, search the two lines closest to the ending point of both sides among the points which cross the central line in the diagram. Then, divide by the crossing line between the central line and the said line. If two central lines are orthogonal each other, divide two central lines by the orthogonal point. For the segmentation by the correlation of

figure factor, segmentation by on point and by contacting are available. When starting point or ending point of figure are placed on the point of other factor, place the starting point or ending point on the figure even after changing and segmenting the figure factor. When figure factor is contacted with each other, divide the two factors by contact point. Constrained condition is created by 1 Constrained condition of numerical value 2 Setting the standard point in modifying the figure 3 Setting the standard point according to the correlation of figure factor 4 Attribute of figure factor. Constraint condition Priority 1 of numerical value is decided according to the type of numerical value. For instance, horizontal constrained condition is created in case of horizontal numerical value. If central line of said orthogonal is segmented, designate the closest point from the center of overall figures among the orthogonal points as the standard point priority 0. When orthogonal central line is unavailable, set the specific point on the very bottom of left side as a standard. Constrained condition by correlation among figure factors are created with a Correlation of figure factors by central line or with b Type of figure factors. For instance, when factor of central line has a mirror relation, provide the constrained condition Priority 3 wherein the distance between the factor and central line is identical. For the constrained condition by attribute of figure factor, provide the constrained condition wherein both points created by dividing and current point are situated on the identical point in case of divided straight line priority 2. More methods are available to create various types of constraint condition, but further description will not be made because relevant engineers in this area are able to easily understand as long as they follow said logic.

When constrained condition is created as above, value of the co-ordinates is attained by constrained condition. But, it becomes over constrained since the number is over supply. Thus, select only appropriate constrained condition and

the figure in transforming the figure. In this case, two dimensional figure has been assumed and the relevant number of constrained condition is 2N provided that number of characteristic point is N. If number of the constrained condition is m, it becomes m > 2N. With regard to the process to calculate configuration of transformed figure based on the constrained condition, the reverse determinant of Jacobian determinant is available, which is resulted from differentiating the formula of constrained condition based on the co-ordinates of characteristic point. Therefore, Jacobian determinant of constrained condition must not be singular in order to attain new coordinates. Also, constrained condition of 2N, that meets the relevant condition, constraints all characteristic point without shortage or excess. With the method of Gauss elimination that produces upper block triangular determinant, it can be checked if said determinant is singular. First of all, save the value from differentiating the m constrained condition formula based on the co-ordinates of characteristic point as determinant. The size of the determinant in this case becomes n x m n = 2N. Then, apply Gauss elimination method to the n x m determinant by selecting pivot.

All constrained condition formula can be illustrated by procedure. For instance, constrained condition of HORIZONTAL_DIM is F = abs(P2x-P1x)-val = 0. If it is illustrated by procedure according to the rule of LISP text, it is equivalent to (equal (- cadr(P2) cadr(P1) val). Therefore, procedure can be created relevant to the constrained condition. For instance, when procedure is created by the figure in FIG 12, it will be processed as manifested in FIG 13.

Procedure in FIG 13 offers the process whereby major table file is entered. (_Fread_table) this table file can be created by table entry. FIG 14 illustrates when data, which is created by the random table entry and table entry, is manifested with a file.

User interface is relevant to the user entry. It plays a role of agent for addition/deletion of said various constrained conditions, modification of procedure and entry of table etc.

FIG 15 illustrates the configuration of product data of server system. Concerning its feature, vector data or procedure are included in order for users to decide availability of purchase by themselves by applying to the design program.

The example of applying this invention to the e-business of mechanical parts will be described hereinafter. FIG 16 illustrates the block diagram of system wherein this invention is applied to the e-business of mechanical parts. This example illustrates the case when parts to be sold via e-business are applied in designing schematic diagram relevant to the mechanical area. As far as illustration of case is concerned, it must be noted that means to create product configuration data 25 is a name of functional block which enters the vector data and accordingly creates the database of product 21 which will be set at the server system 20. And format of product data is processed in a dynamic symbol type and product configuration data 28 is equivalent to the product data of system actually used.

Product data in a dynamic symbol type are created by means to product configuration data 25 and transmitted to the user system by internet. User tries to convert the product in real time through viewer window 70 that is displayed in the user web browser 12 using Java, Plug-In, Active-X Control etc., solver 18 or interpreter 19 in order to check the adequacy. Data interface 15 then converses the vector image of the solver or interpreter in order to make it in line with the software for common design 16 currently used.

FIG 17 illustrates the block diagram wherein system proposed in FIG 16 is described by functional block unit. Browser of product configuration data displays the configuration as well as feature of the product configuration data in order to

utilize the product configuration data 28 for the user. And it receives the user entry and creates DXF code that is processed by interface 15. Specific name, browser of product configuration data is adopted in this case. Concerning the means to create product configuration data 25, it is possible to enter not only module configuration whereby CAD file of various configurations is converted to the product configuration data as mentioned earlier, but also attribute of the product in a table form. Data interface is a module to create the vector data that is recognized by various types of software for common design 16. And it changes the format of file according to software for common design currently used. Electronic catalog system is the means to manage various product data. And software for common design is an ordinary software for design. Both are not the targets of this invention.

FIG 18 illustrates the tree structure whereby functional block including browser of product configuration data, means to create the product configuration and data interface is described. Browser of product configuration data consists of product configuration data viewer, GUI browser, interpreter of product configuration data and DXF code creator. With product configuration viewer, external figure of product configuration data is drawn in the web browser so that users can check the configuration of parts briefly before they select the parts. GUI browser creates GUI, which defines the configuration of parts and provides the user entry of attribute, and processes the entered data. Interpreter of product configuration data is a module which interprets the procedure of product configuration data. Vector data (DXF) is created by DXF code creator based on the data entered in GUI by user and interpretation resulted from the interpreter. In FIG 14, with DXF code creator, _Fentmake ( ) function creates finally the figure factor (Entity). When three dimensional factors are created, development period can be shortened as common Geometry Kernel Library such as AC2S and Parasolid

is utilized.

Means to create product configuration data 25 consist of user interface, file I/O, file converter and table entry. User interface is processed by the means to create the product configuration data. And file I/O is relevant to the input and output of file. File converter is a software which converses ordinary picture file to the format of product configuration data. And table entry is an editor that provides the data or attribute in a table format to the product configuration data. Data interface 15 comprises of file I/O and P/L extractor. File I/O is relevant to the input/output of the file and P/L Parts List extractor and extracting (BOM) Bill of Material to purchase.

FIG 19 is another case of the present invention and illustrates the block diagram wherein solver or interpreter is provided to the server system. When solver 18 or interpreter 19 are provided to the server system 20 as shown in FIG 19, traffic of server system network is increased, which is the weakness but, the strength is that setup of particular solver or interpreter at web browser 12 is not necessary for the user system 10.

FIG 20 is another case of this invention and illustrates the block diagram of system wherein means to create product configuration data is separated from the server system. If operator of the means to create product configuration data 25 and that of server system 20 for e-business are different, means to create product configuration data and server system are structured separately as illustrated in FIG 20.

FIG 21 is another case of this invention and illustrates the block diagram of system when means to create product configuration data is separated from the server system and solver or interpreter is provided to the server system. FIG 21 illustrates the structure when operator of the means to create product configuration

data 25 and that of server system 20 are different and solver and interpreter are provided to the server system. In this case, setup of particular solver or interpreter at web browser 12 in user system 10 is not required, which is the strength.

INDUSTRIAL APPLICABILITY

With this invention, it is possible to compare data of user, size, coincidence and coordination etc. and consequently to have an accurate comparison to confirm if product is appropriate to the user since it illustrates the configuration data of the product based on vector image. On top of that, product with various transformations for example, clothes with various colors but regular style and kitchen sink of which options are available is illustrated as one data. Thus space to save can be saved.

Because file saves the configuration data of product based on vector data, it is possible to edit part or entire contents of file and re-use without deforming or losing the contents. And consequently, it is possible to order purchase by modifying some of the data, which means purchase of product by order is available. For example, order to punch certain hole on the body of the bolt is acceptable when selecting the M5 bolt of which length is 10.

Although the preferred embodiments of the present invention have been described in detail herein, it is to be understood that these descriptions are merely illustrative. The inventive system may be modified in a variety of ways and equivalents in order to suit a particular purpose while still employing the unique concepts set forth.

CLAIMS

What is claimed is:

1. A server system which includes information providing server system and a user system which is connected with said server system by communication network, wherein said information is about commodities customers want to purchase, and wherein said server system identifies possibility of commodities' purchase, said server system comprising,

at least one means for communication which connect said user system with internet;

a memory storing procedure for creating vector data on said commodities and data on characters of commodities; and

a means for creating standard of commodities by using said procedure and said standard of commodities,

wherein said server system transmits said created standard of commodities to said user system.

2. The server system as in claim, wherein said means for creating standard of commodities includes a program which includes a step, said step outputting said vector data by carrying out said procedure, and wherein said data on characters of commodities is input data, said data selected by said user and stored in said memory.

3. A server system which includes information providing server system and a user system which is connected with said server system by communication

network, wherein said information is about commodities customers want to purchase, and wherein said server system identifies possibility of commodities' purchase, said server system comprising,

at least one means for communication which connect said user system with internet;

a memory storing a constrained vector for creating vector data on said commodities and data on characters of commodities; and

a means for creating standard of commodities by using said constrained vector and said standard of commodities,

wherein said server system transmits said created standard of commodities to said user system.

4. The server system as in claim, wherein said means for creating standard of commodities includes a program which includes a step, said step outputting said vector data by carrying out said constrained vector, and wherein said data on characters of commodities is input data, said data selected by said user and stored in said memory.

5. The server system as in one of claims 1 or 3, said server system further comprising a means for transforming data, said means transforming commodities data supplied by said commodities' manufacturers into said procedure or said constrained vector.

6. The server system as in claim 5, wherein said means for transforming data comprising, a file input/output part which provides input of said commodities data and output of said procedure or said constrained vector;

a file transforming part which transforms said commodities data into said procedure or said constrained vector;

a table input part which creates tables for creating said procedure; and

an interface part which provides interface.

7. The server system as in claim 6,

wherein said means for transforming data is accomplished by a storing apparatus including a program, said program comprising steps of,

storing said commodities data;

transforming data structure of said commodities data;

dividing figures which are in said commodities data;

selecting and creating constraint condition though relation of said figures; and

creating constraint vector among said commodities vector data.

8. A user system which includes an information providing server system and a user system which is connected with said server system by communication network, wherein said information is about commodities customers want to purchase, and wherein said user system checks adequacy of commodities, said user system comprising,

at least one means for communication which connect said user system with internet;

a memory storing at least one of procedure for creating vector data on said commodities and constraint vector, and data on characters of commodities;

a means for displaying, said means displaying image of said commodities;

a means for creating standard of commodities by using at least one of said

procedure or said constraint vector, and said data of commodities character; and

a means for checking adequacy, said means checking adequacy of said commodities,

wherein said standard of commodities is applied to said means for checking adequacy and purchase of said commodities is decided.

9. The user system as in claim 8, said user system further comprising,

a data interface which transforms said standard of commodities said into form applied to said means for checking adequacy, wherein said standard of commodities is created from said procedure and said constrained vector.

10. The user system as in claim 8, wherein said means for creating standard of commodities includes a storing apparatus with a program which includes a step, said step outputting said vector data by carrying out said procedure or said constrained vector, and wherein said data on characters of commodities is input data, said data selected by said user and stored in said memory.

11. An electronic commerce system which includes information providing server system, a user system which is connected with said server system by communication network, and a means for transforming data which transforms commodity data provided by a manufacturer into procedure to create vector data of said commodities or constrained vector, wherein said information is about commodities customers want to purchase, and wherein said electronic commerce system checks possibility of commodities' purchase, said server system comprising,

at least one means for communication which connect said user system with

internet;

a memory storing at least one of said procedure or said constrained vector, and data on characters of commodities; and

a means for creating standard of commodities by using at least one of said procedure or said constrained vector, and said data on character of commodities,

wherein said server system transmits said created standard of commodities to said user system,

wherein said user system comprising,

at least one means for communication which connect said user system with internet;

a memory storing said standard of commodities transmitted from said server system;

a means for displaying, said means displaying image of said commodities;

a means for checking adequacy, said means checking adequacy of said commodities,

wherein said standard of commodities is applied to said means for checking adequacy and purchase of said commodities is decided,

wherein said means for transforming data comprising, a file input/output part which provides input of said commodities data and output of said procedure or said constrained vector;

a file transforming part which transforms said commodities data into said commodities vector data;

a table input part which creates tables for creating said procedure; and

an interface part which provides interface.

12. The electronic commerce system, wherein said means for

transforming data is accomplished by a storing apparatus including a program, said program comprising steps of,

storing said commodities data;

transforming data structure of said commodities data;

dividing figures which are in said commodities data;

selecting and creating constraint condition though relation of said figures; and,

creating constraint vector.

13. The electronic commerce method, for said method an information providing server system and a user system are installed, said user system connected with said server system by communication network, wherein said information is about commodities customers want to purchase, and wherein a user checks whether or not purchase of commodities, said electronic commerce method comprising steps of,

storing commodity information which stores data on character of commodities, wherein said server system including at least one of vector data, procedure for creating said vector data or constrained data;

creating standard of commodities which creates standard of commodities to be purchased by using said data on character of commodities and at least one of vector data, procedure for creating said vector data or constrained data;

transmitting which transmits said created standard of commodities to said user system; and

deciding purchase of commodities by applying said transmitted standard of commodities to a means for checking adequacy of purchase of commodities.

FIG.1

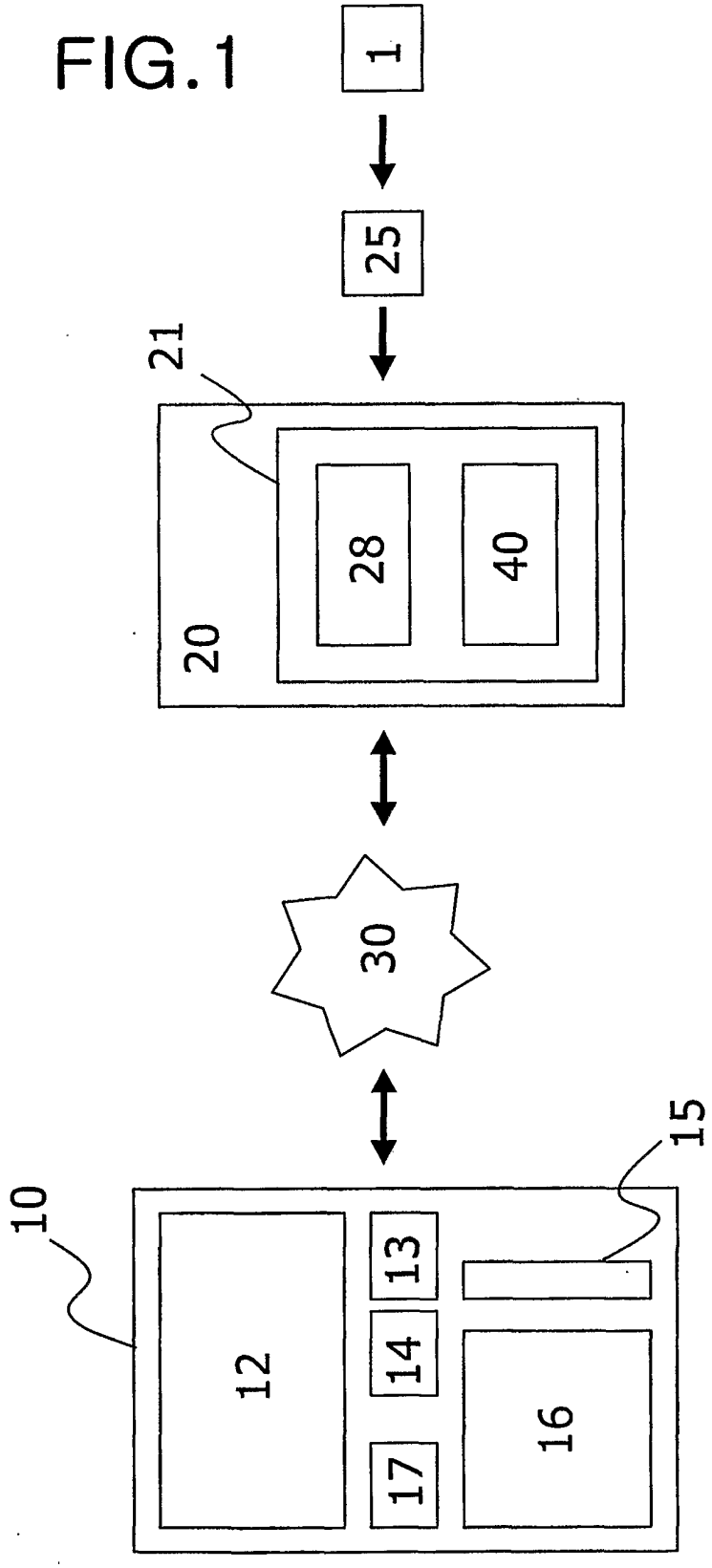


FIG.2a

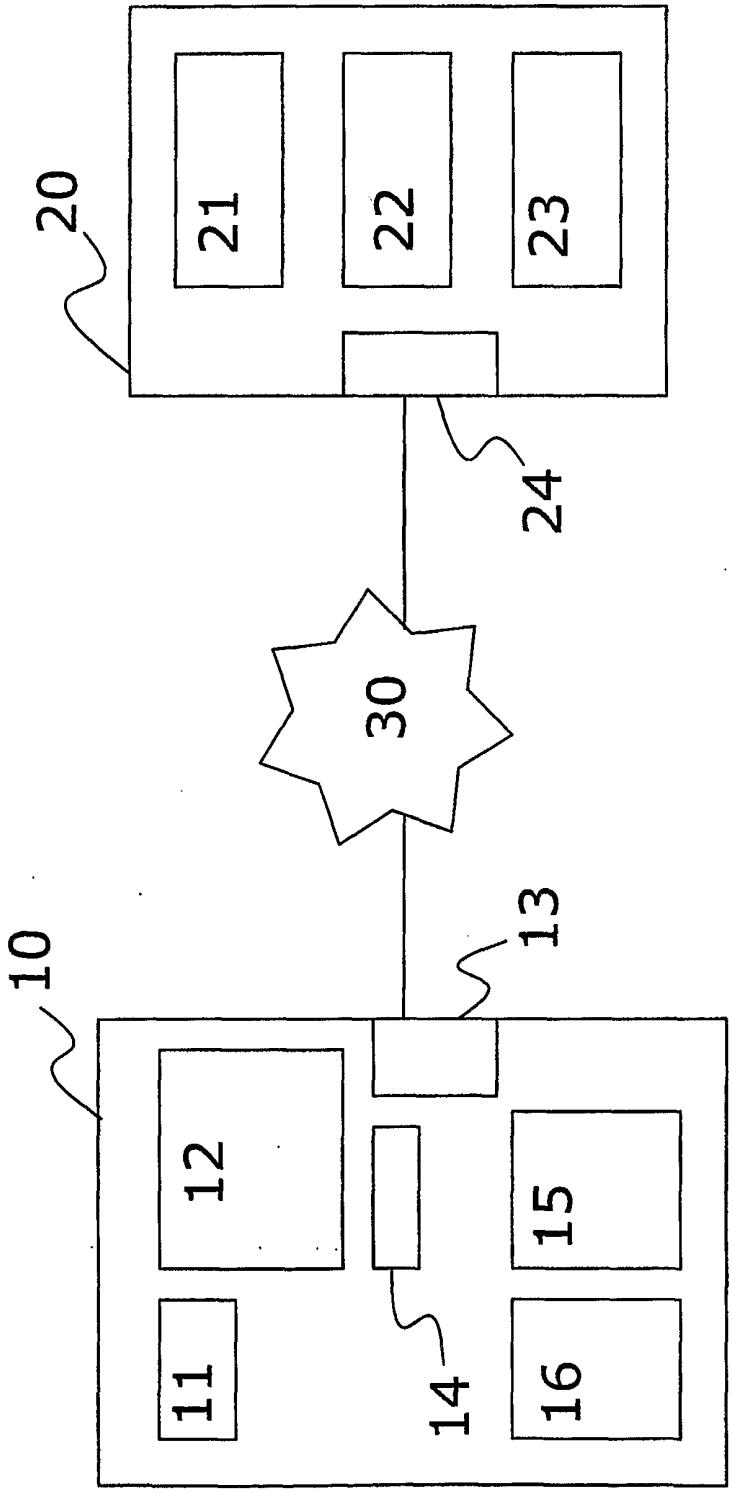


FIG.2b

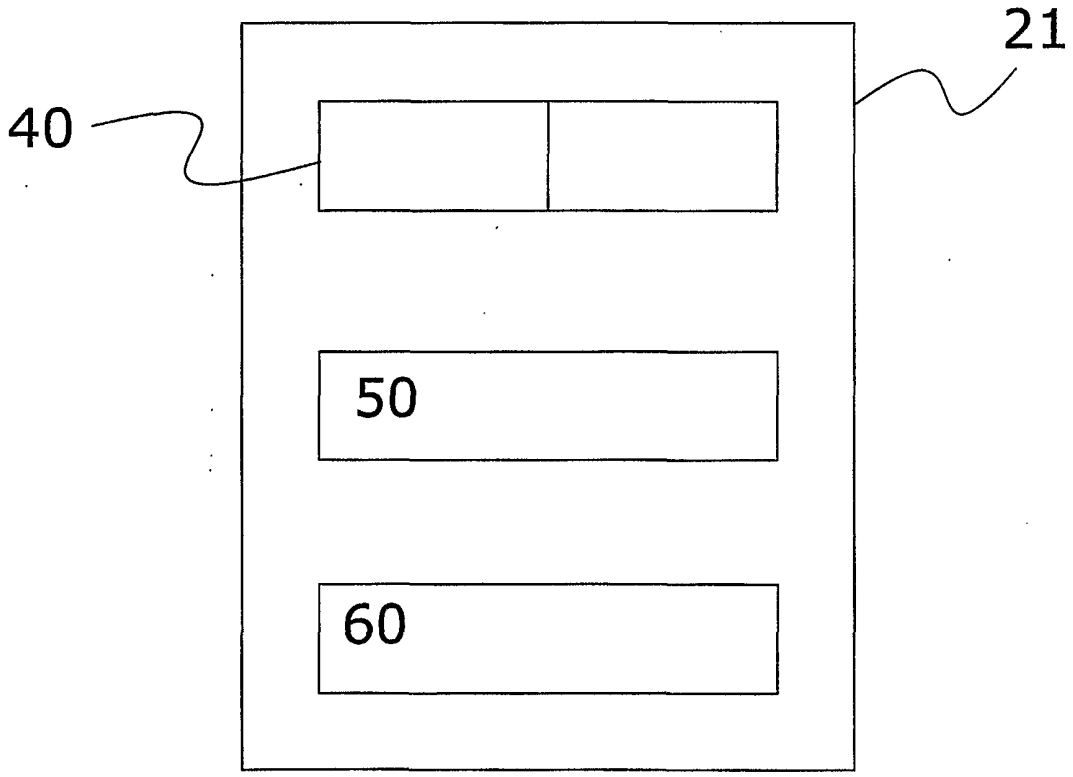


FIG.2c

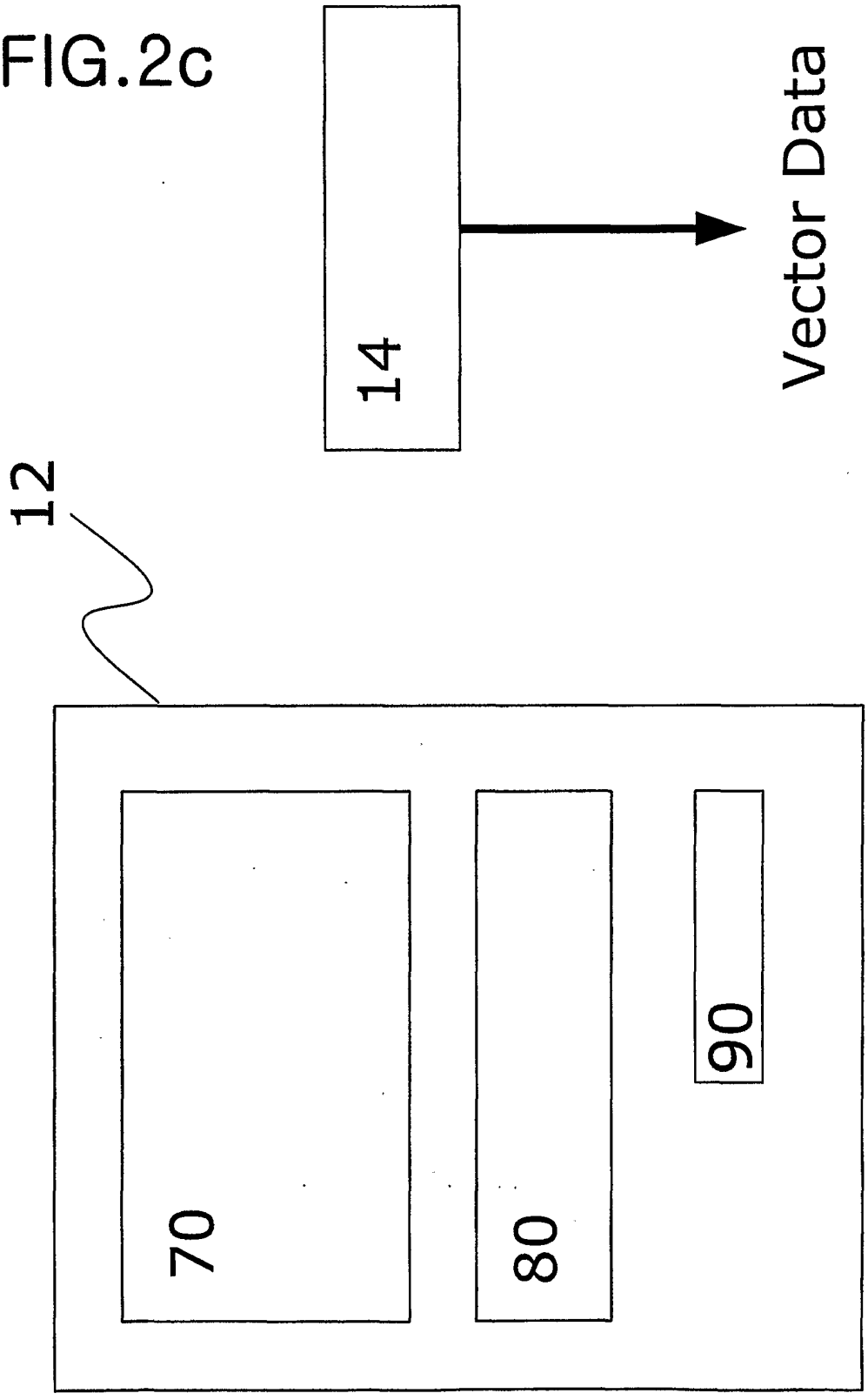
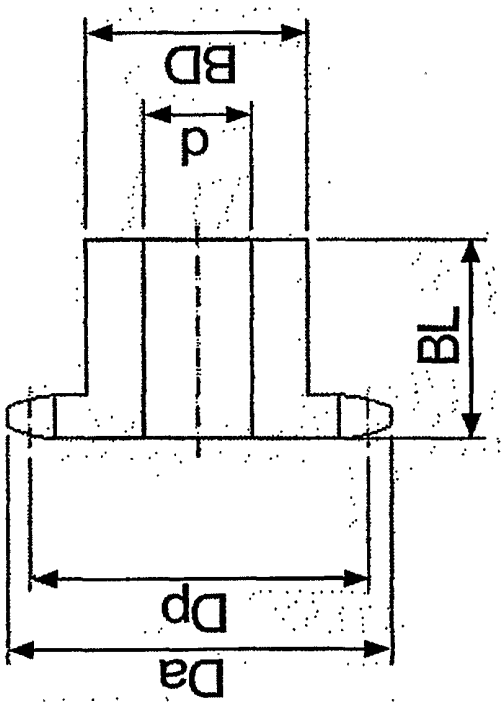


FIG.3



Standard No.	Spec No. Type	Spec No. Di	Do	Dp	BL A	BL B	BL C	BD K	BD J	Weight (Kg)	Solidity (HRC)	Price (Won)
3006	SUS 2060 RB	10	140	123.29	18	20	55	83	45	2.50	61-64	70,000
		11	153	135.23	18	20	55	83	45	2.60		77,000
		12	165	147.21	18	20	55	83	45	2.80		86,800
		13	177	159.2	18	20	55	83	45	3.10		98,000

FIG.4a

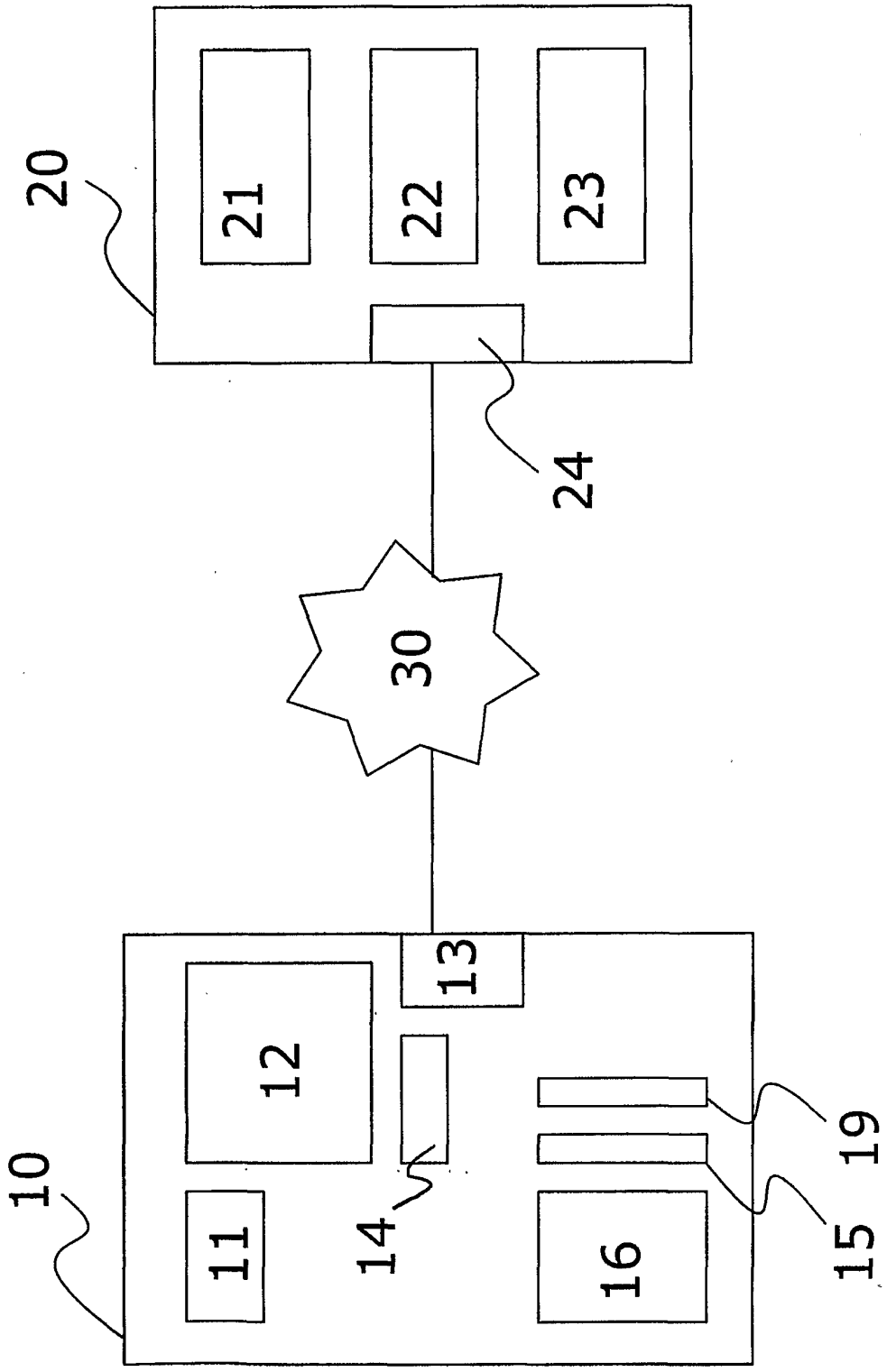


FIG.4b

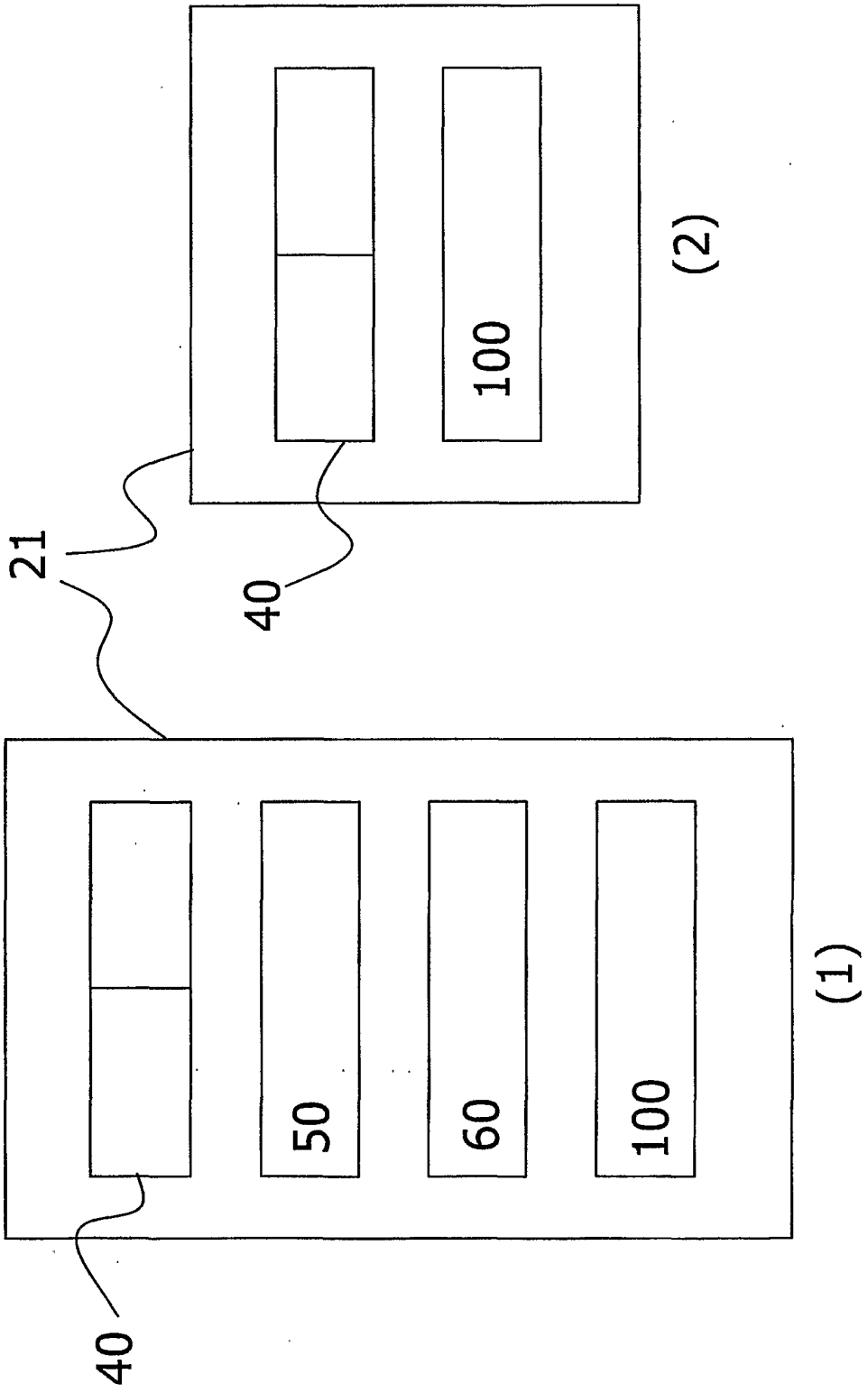
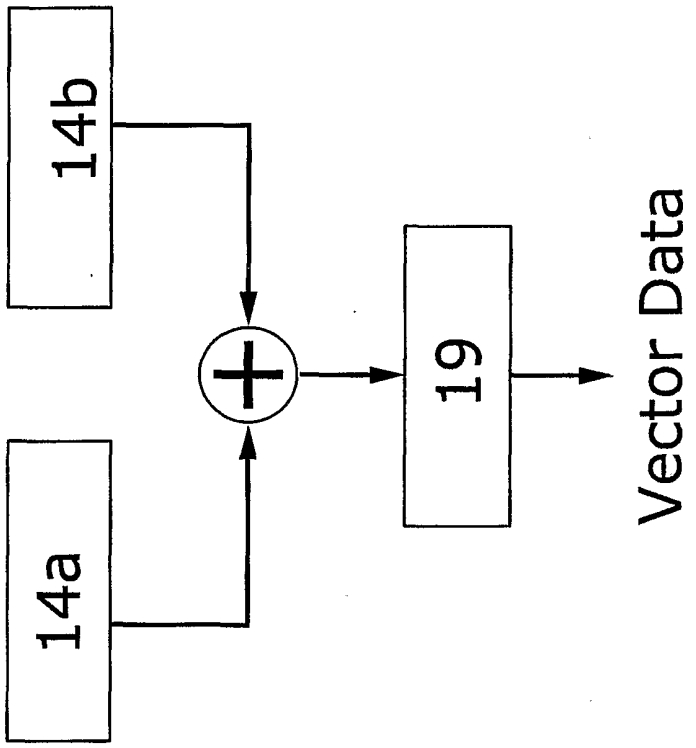


FIG.4c



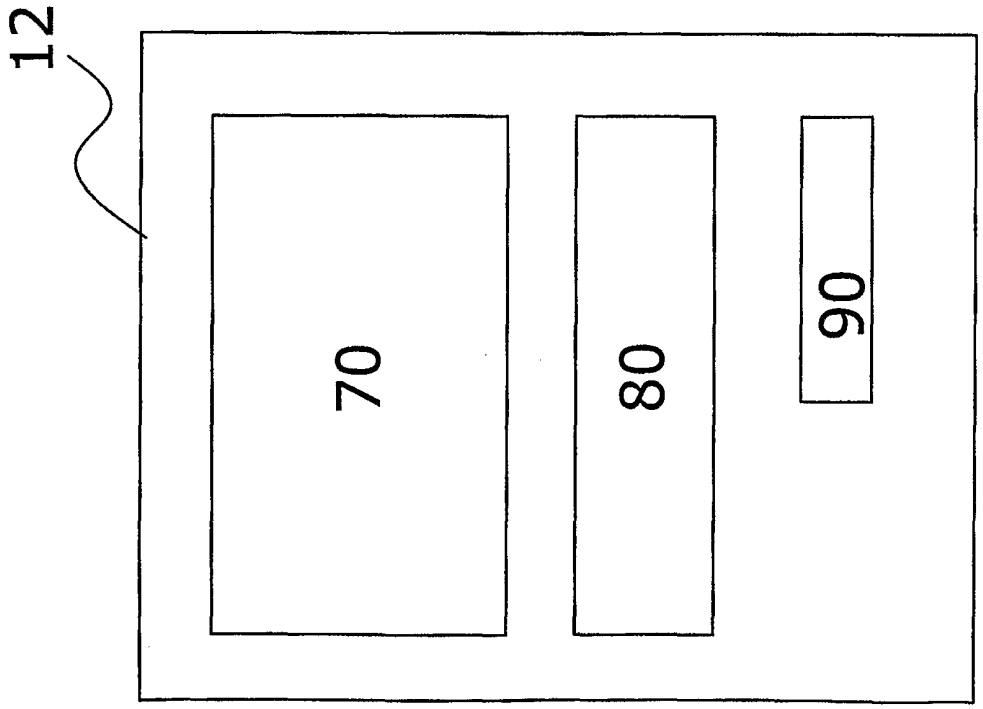


FIG.5

```
typedef struct node {
      char n_type ; /* type of node */   char n_flags ; /* flag bits */
      union {     struct xsym{            /* symbol node */
                        struct node *xsy_plist;       /* symbol plist - (name . plist) */
                        struct node *xsy_value;             /* the current value */  }
                        n_xsym;
                  struct xsubr {          /* subr/fsubr node */
                        struct node *(*xsu_subr)();  /* pointer to an internal routine */}
                        n_xsubr;
                  struct xlist {                  /* list node (cons) */
                        struct node *xl_car;    /* the car pointer */
                        struct node *xl_cdr;    /* the cdr pointer */ } n_xlist;
                  struct xint {             /* integer node */
                        FIXNUM xi_int ;         /*integer value */       } n_x int;
                  struct xfloat {                 /* float node */
                        FLONUM xf_float;                    /*float value */} n_xfloat;
                  struct xstr {                   /* string node */
                        int xst_type;           /* string type */
                        char *xst_str;          /* string pointer */
                  } n_xstr;
                  struct xfptr {      /* file pointer node */
                        FILE *xf_fp;                    /* the file pointer */
                        int xf_savech;                  /* lookahead character for input
                        files */
                  } n_xfptr;
                  struct xvect {      /* vector node */
                        int xv_size;              /*vector size */
                        struct node **xv_data;/* vector size */
                  } n_xvect;
            } n_info;} NODE;
/* execution context */
typedef struct context {int c_flags;/* context type flags */
      struct node *c_expr;          /* expression (type dependant) */
      jmp_buf c_jmpbuf;                   /* longjmp context */
      struct context *c_xlcontxt;   /* old value of xlcontext */
      struct node ***c_xlstack;     /* old value of xlstack */
      struct node *c_xlenv;         /* ole value of xlenv */
      int c_xltrace;                /* old value of xltrace */
} CONTEXT;
/* function table entry structure */
struct fdef {       char *f_name;         /* function name */
      int f_type;                   /* function type SUBR/F SUBR */
      struct node *(*f_fcn)();      /* function code */
      };
      /* memory segment structure definition */
      struct segment { int sg_size;struct segment *sg_next;     struct node
      sg_nodes[1];};
```

FIG.6a

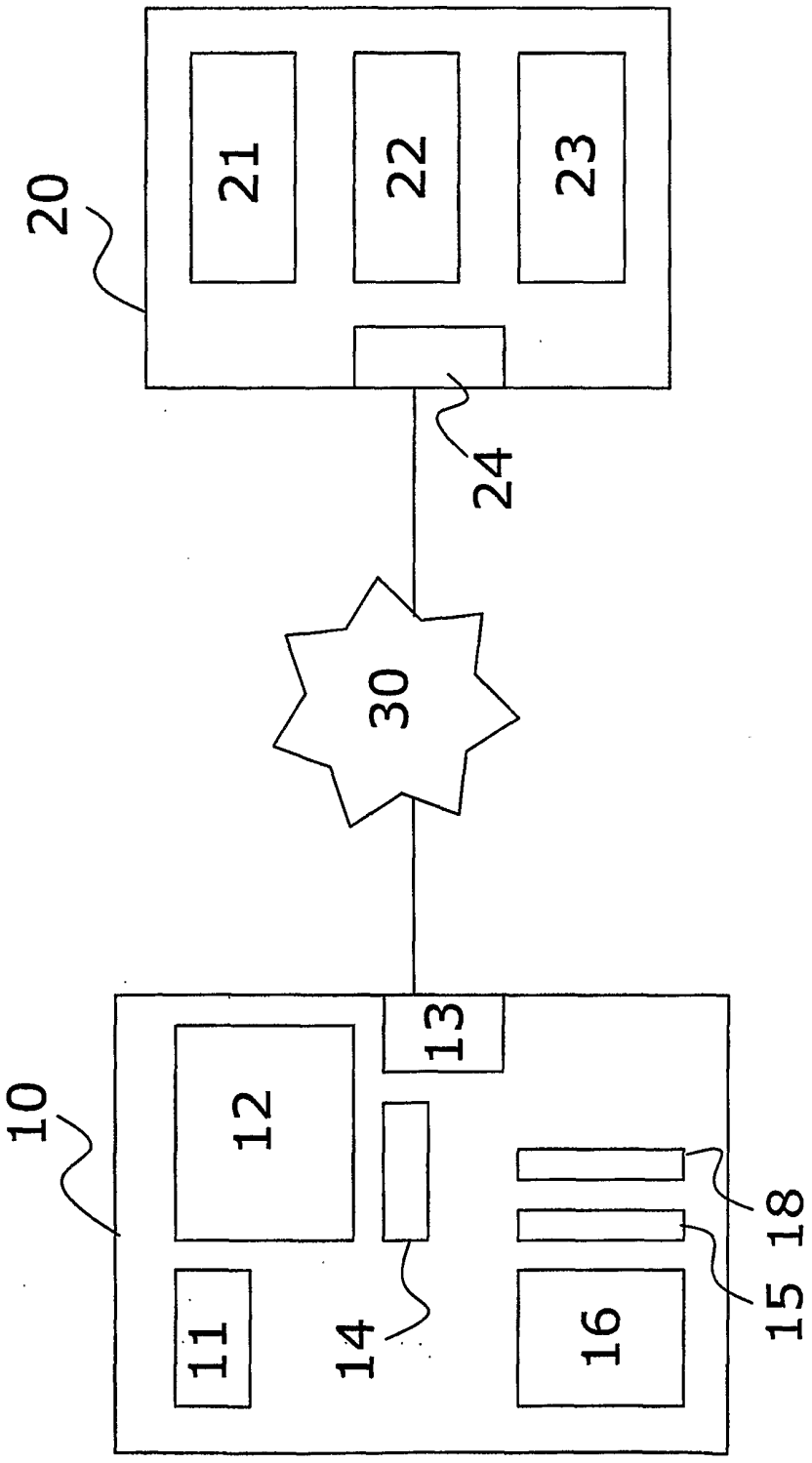


FIG.6b

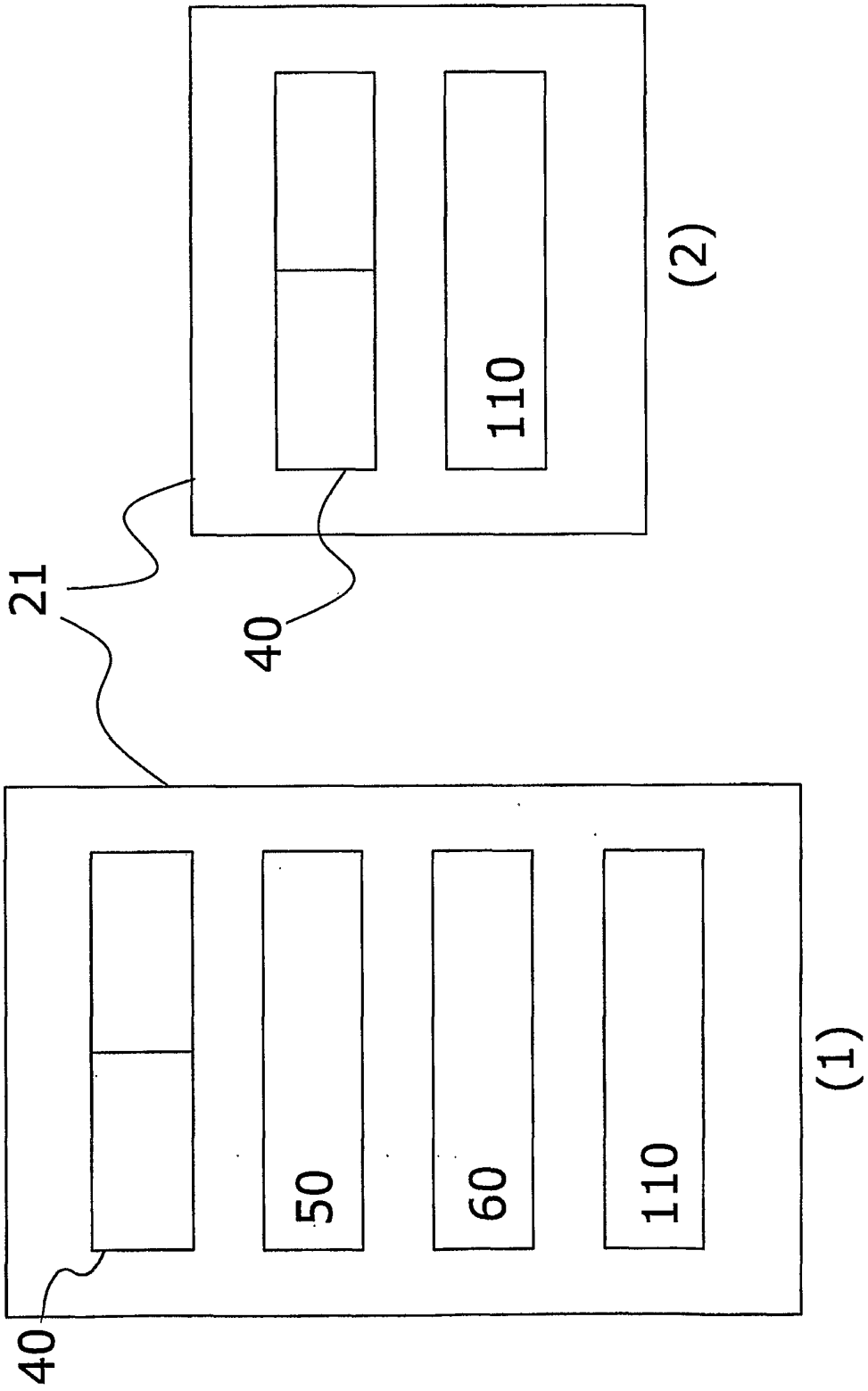
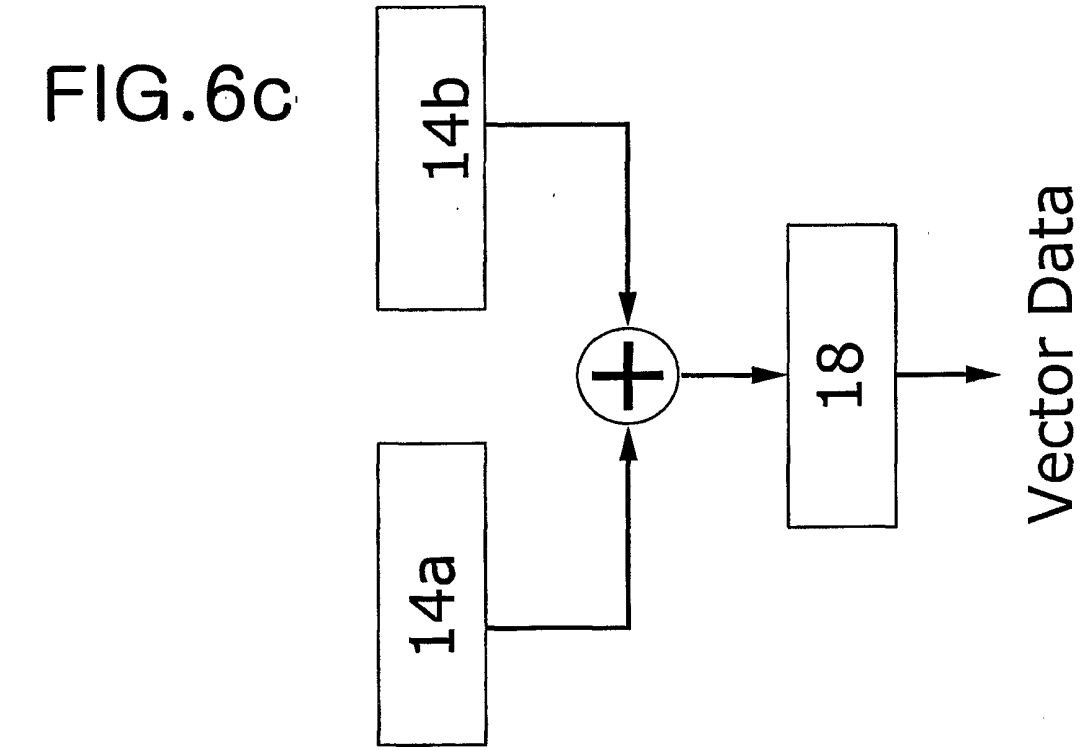


FIG.6c



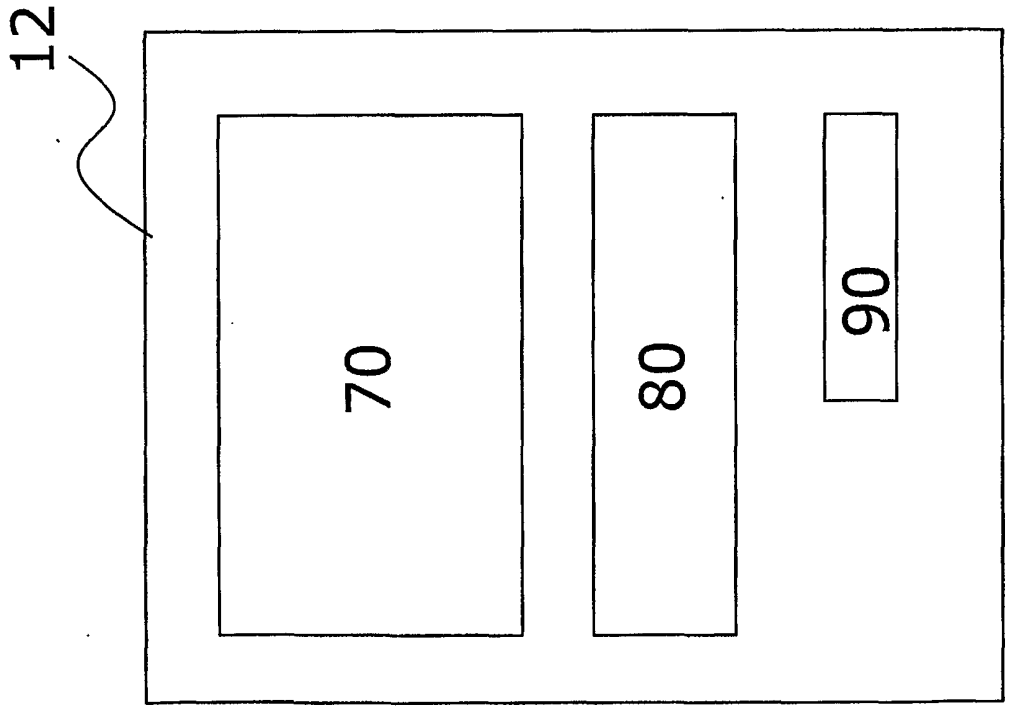


FIG.7

Constraint Conditional Name	Constraint Conditional Formula
HORIZONTAL_DIM	F = abs(P2x - P1x) - val = 0
VERTICAL_DIM	F = abs(P2y - P1y) - val = 0
PARALLEL_DIM	F = |r| - val = 0
DIRECTED_DIM	F = r1*r2/|r2| - val = 0
ANGULAR_DIM	F = |r1xr2|/(r1*r2)-tan(val) = 0
DIAMETER_DIM	F = |r| - val/2 = 0
RADIUS_DIM	F = |r| - val = 0
ARC_LENGTH_DIM	F = rθ = |r1|arctan(|r1xr2|/(r1*r2)) - val = 0
ARC	F = r1*r1 - r2*r2 = 0
FIXED_X	F = Px - val = 0
FIXED_Y	F = Py - val = 0
HORIZONTAL_LINE	F = P2y - P1y = 0
VERTICAL_LINE	F = P2x - P1x = 0
PARALLEL_LINE	F = r1xr2 = 0
PERPENDICULAR_LINE	F = r1*r2 = 0
TANGENT_LINE_ARC	F = r1*r2 = 0
NORMAL_LINE_ARC	F = r1xr2 = 0
TANGENT_ARC_ARC	F = r1xr2 = 0
SAME_DISTANCE_POINTS	F = |r1xr2| - |r1xr3| = 0

FIG.8

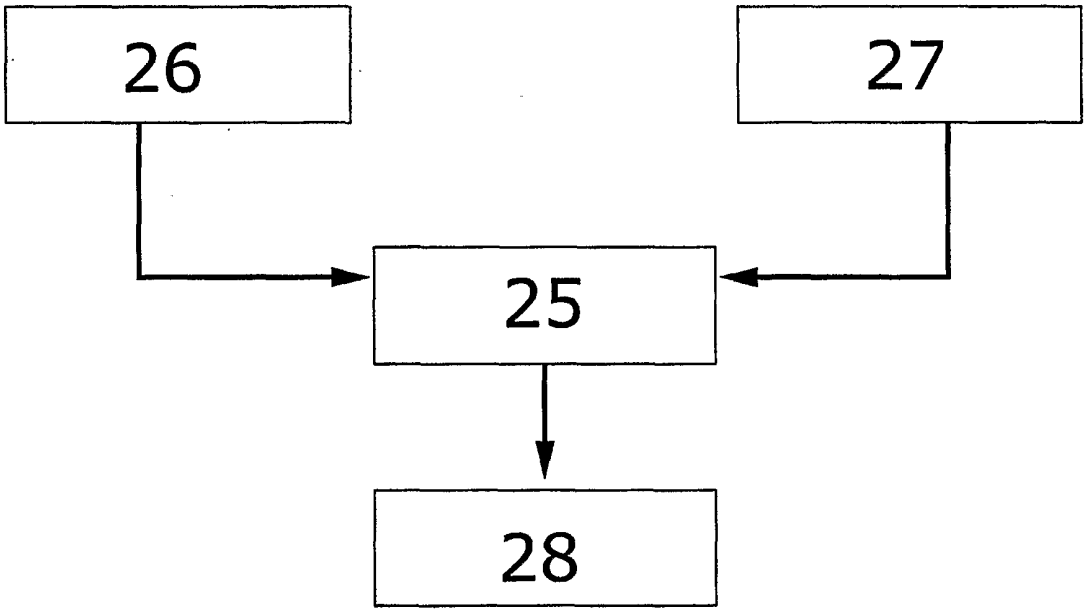


FIG.9

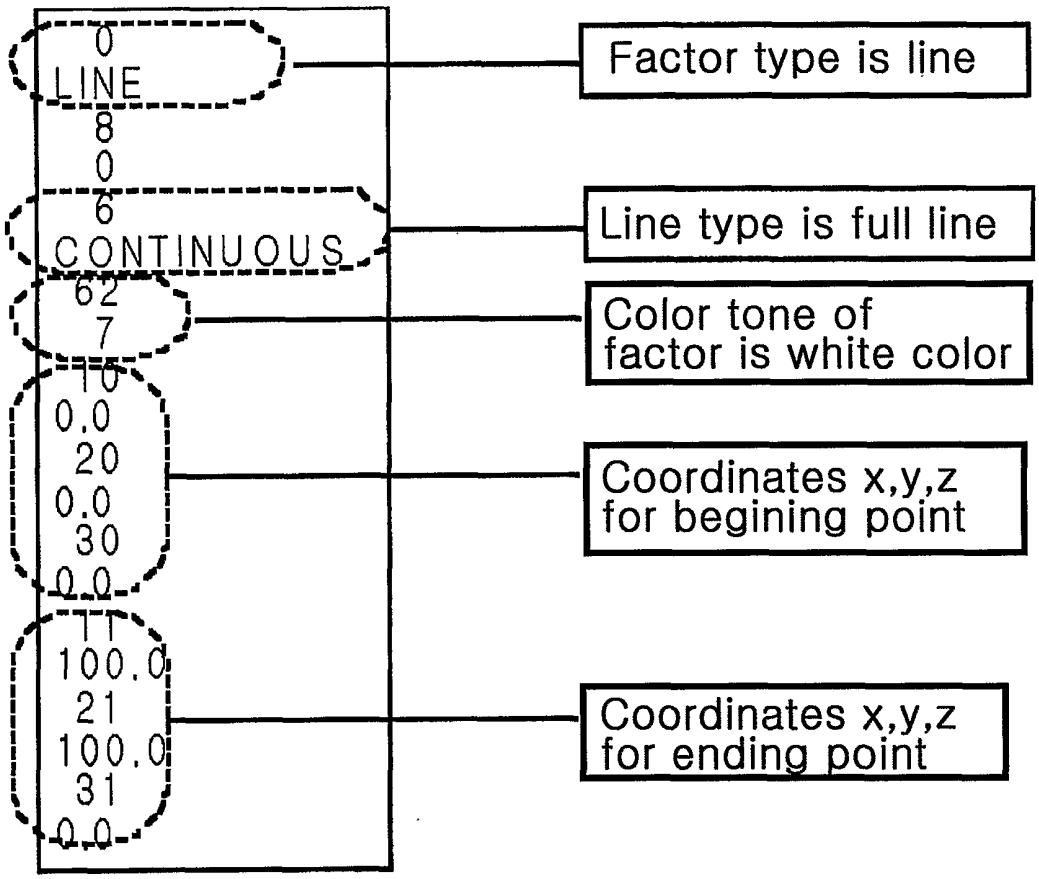

0
LINE
8
0
6
CONTINUOUS
62
7
10
0.0
20
0.0
30
0.0
11
100.0
21
100.0
31
0.0
Factor type is line
Line type is full line
Color tone of factor is white color
Coordinates x,y,z for begining point
Coordinates x,y,z for ending point

FIG.10

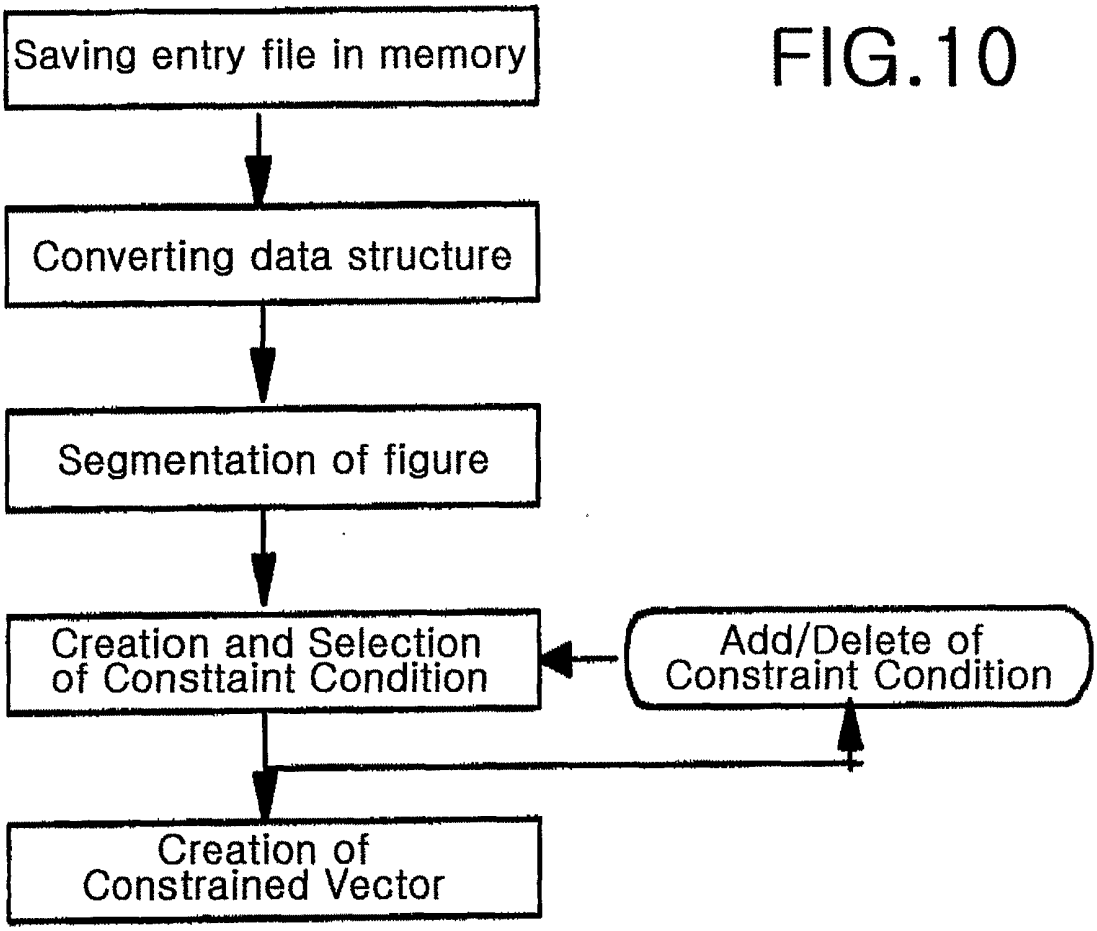

Saving entry file in memory
Converting data structure
Segmentation of figure
Creation and Selection of Consttaint Condition
Add/Delete of Constraint Condition
Creation of Constrained Vector

FIG.11

```
typedef struct prop_point prop_point;
struct prop_point
{     REAL x,     y;     int col;     int type;     void  *misc;
      prop_point *parent;          prop_point *lson,       *rson; } ;
typedef prop_point *PntPtr;
typedef struct prop_line prop_line;
struct prop_line
{     short       attr;       PntPtr      sp,   ep;   };
typedef struct prop_arc prop_arc;
struct prop_arc
{     PntPtr      cp,   sp,   ep;};
typedef struct prop_circle prop_circle;
struct prop_circle
{     PntPtr      cp;   REAL       rad;};
typedef union prop_kind prop_kind;
union prop_kind
{     PntPtr            p;          prop_line         *l;
      prop_arc          *a;         prop_circle       *c;};
typedef struct prop_elem prop_elem;
struct prop_elem
{     int id;           int                      type
      prop_kind         kind;       GEO_ENTITY    *cad_enty;
      prop_elem         *prev,      *next;        void        *misc;};
typedef prop_elem     *ElePtr;
typedef struct prop_constraint prop_constraint;
struct prop_constraint
{     int tupe;         PntPtr      p1,   p2,   p3,   p4;
      REAL val,   old_val;     int row, order;
      DIM_ENTITY        *dim;
      prop_constraint   *prev; prop_constraint *next;};
typedef struct c_constraint c_constraint;
struct c_constraint
{     REAL val;         REAL old_val;
      DIM_ENTITY        *dim;       GEO_ENTITY  *cad_enty;
      c_constraint *prev;           c_constraint            *next; };
```

FIG.12

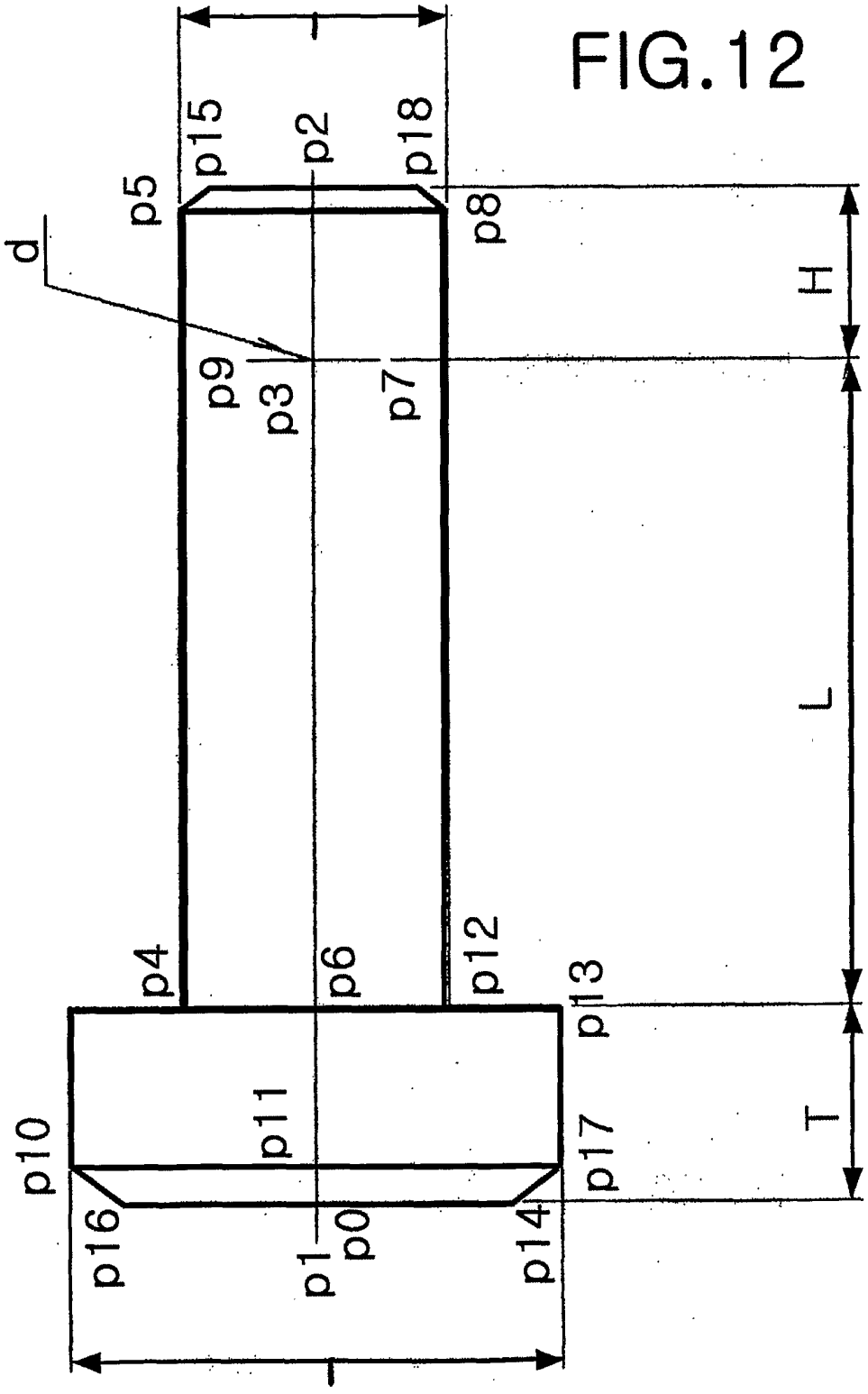

p15
p2
p18
p5
p8
d
H
p9
p3
p7
L
p4
p6
p12
p13
p10
p11
p17
T
p16
p1
p0
p14

FIG.13a

```
(defun HCLP_F (a1 a2 a3 a4)
      (set q txt_file a1)                    (setq find_key a2)
      (set q HCLP_f_find (Fread table txt_file find_key))
      (set q i 0)          (_Fcheck a3)          (set q int Pt a4)
      (set q D (atof (nth 0 HCLP_f_find)))          . (set q L (float a3))
      (set q l1 (atof (nth 2 HCLP_f_find)))
      (set q N (atof (nth 3 HCLP_f_find)))
      (set q d1 (atof (nth 4 HCLP_f_find)))
      (set q T (atof (nth 5 HCLP_f_find)))
      (set q H (atof (nth 6 HCLP_f_find)))
      (set q source_length (length a1));; creat name of dxf file to name of .txt entered

      (set q input1 (substr a1 1 (- source_length 4)))
      (set q input (strcat input1 "_F"))   ;;
      (_Fdxf_start input) ;; name of dxf file
      (set q l1_real (-L l1))
      (set q P0 (list  (+  (nth 0 int Pt)  0)(+ (nth 1 intPt) 0)))
      (set q P1 (polar P0 _Ggak180 ( / H 10
      (set q P2 (polar P0 0 (+  (+  N  (+ T L))  ( /  D  10)) ))
      (set q PD (polar P0 _Ggak90 (- ( / H 2)  ( /  H  10)) ))
      (set q PE (polar P0 _Ggak270 (- ( / H 2)  ( /  H  10)) ))
      (set q P11 (polar P0 _Ggak0  ( / H 10)))
      (set q PF (polar P11 _Ggak270  ( / H 2)))
      (set q P10 (polar P11 _Ggak90  ( / H 2)))
      (set q PC (polar P0 _Ggak0 T))
      (set q PA (polar PC _Ggak90 (/ H 2)))
      (set q PB (polar PC _Ggak270 (/ H 2)))
      (set q P21 (polar PC _Ggak90 (/ D 2)))
      (set q P24 (polar PC _Ggak270 (/ D 2 )))
      (set q P5 (polar P21 _Ggak0 (- (+ N L) (/ D 10)) ))
      (set q P1D (polar PC _Ggak0 (- (+ N L) (/ D 10)) ))
      (set q P8 (polar P24 _Ggak0 (- (+ N L) (/ D 10)) ))
      (set q P19 (polar PC _Ggak0 (+ L N)) )
      (set q P17 (polar P19 _Ggak90 (- (/ D 2) (/ D 10))))
      (set q P18 (polar P19 _Ggak270 (- (/ D 2) (/ D 10)) ))
      (set q P1C (polar PC -Ggak0 L))
      (set q P1A (polar P1C _Ggak90 (/ D 4)))
      (set q P 1B (polar P1C _Ggak270 (/ D 4)) )
      ;; factor creation part
```

FIG.13b

```
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P1) (cons 11 P2) (cons 62
yellow) (cons 6 "CENTER")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P21) (cons 11 P5) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P24) (cons 11 P8) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PA) (cons 11 PB) (cons 62
white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PD) (cons 11 PE) (cons 62
white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PF) (cons 11 P10) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PF) (cons 11 PB) (cons 62
white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PF) (cons 11 PE) (cons 62
white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P10) (cons 11 PA) (cons
62white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 PD) (cons 11 P10) (cons
62white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P17) (cons 11 P18) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P1A) (cons 11 P1B) (cons
62 yellow) (cons 6 "CENTER")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P5) (cons 11 P8) (cons 62
white) (cons 6 " CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P18) (cons 11 P8) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "CIRCLE") (cons 8 "0") (cons 10 P1C) (cons 40) (/ d1
2)) (cons 62 white) (cons 6 "CONTINUOUS")))
(_Fentmake (list (cons 0 "LINE") (cons 8 "0") (cons 10 P5) (cons 11 P17) (cons
62 white) (cons 6 "CONTINUOUS")))
(_Fdxf_end)      ;;    DXF   END
)
```

FIG.14

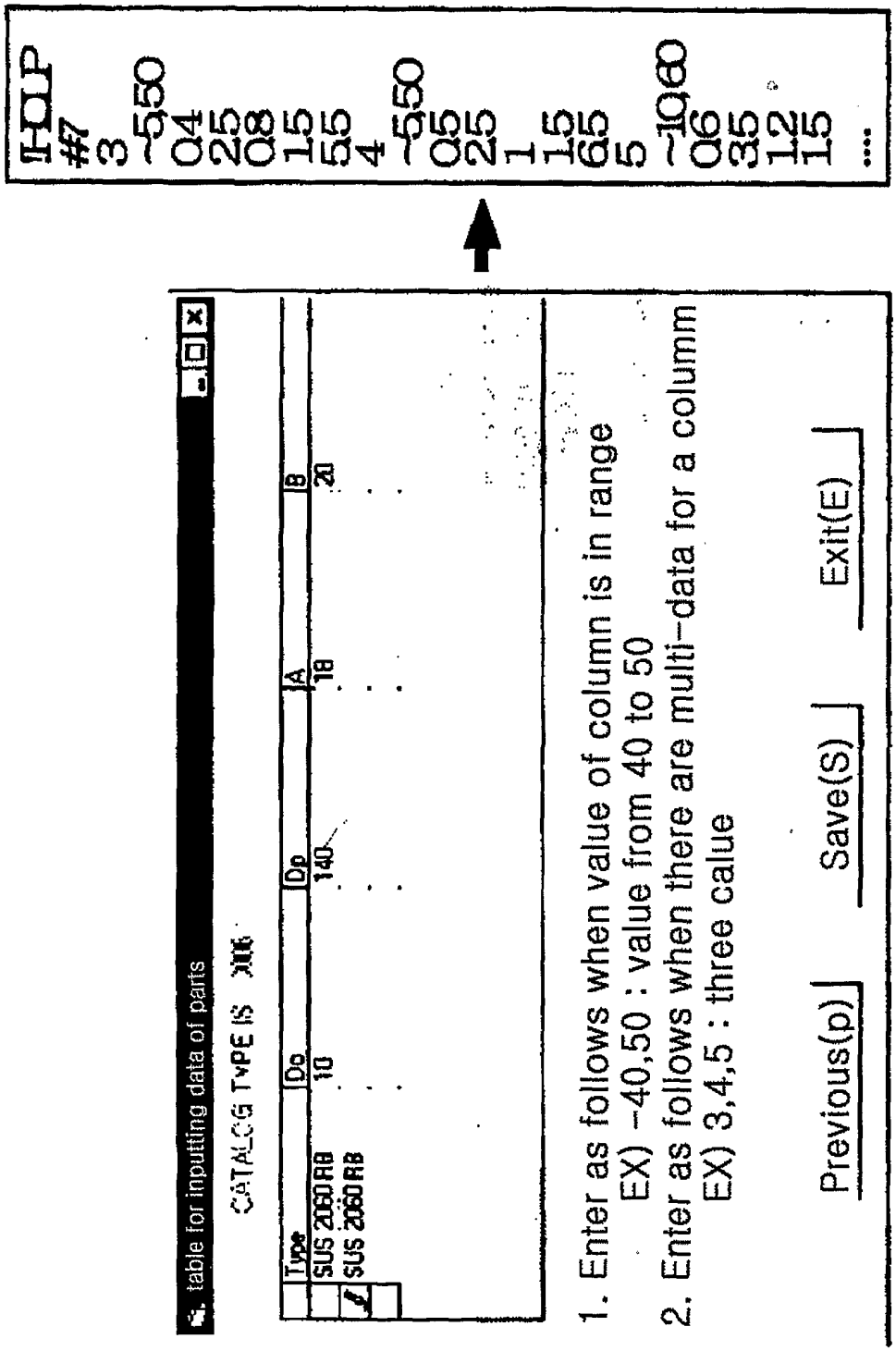


table for inputting data of parts
CATALOG TYPE IS
Type
Dc
Dp
A
B
SUS 2060RB
10
140
18
20
1. Enter as follows when value of column is in range
EX) -40,50 : value from 40 to 50
2. Enter as follows when there are multi-data for a columm
EX) 3,4,5 : three calue
Previous(p)
Save(S)
Exit(E)

FIG.15

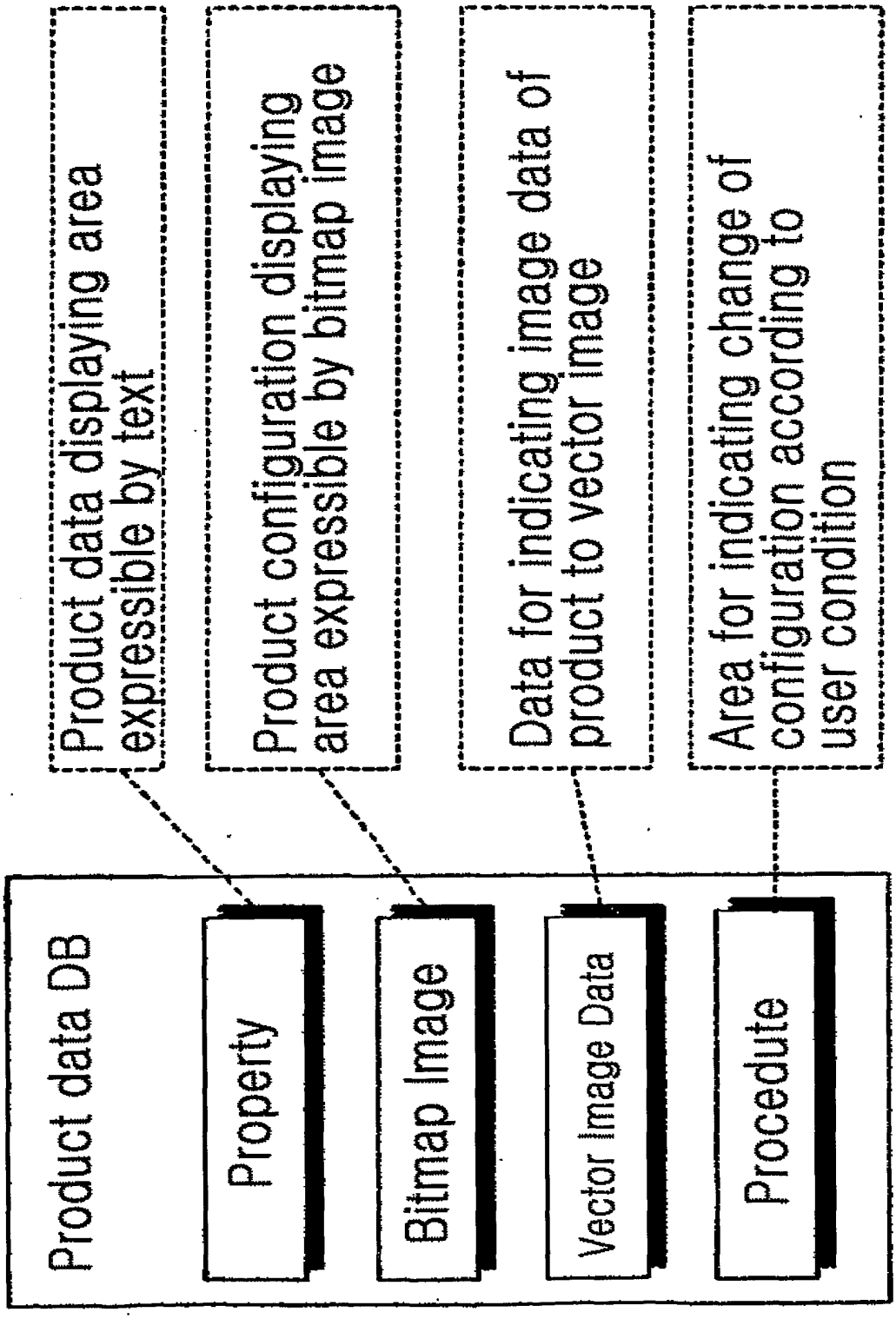
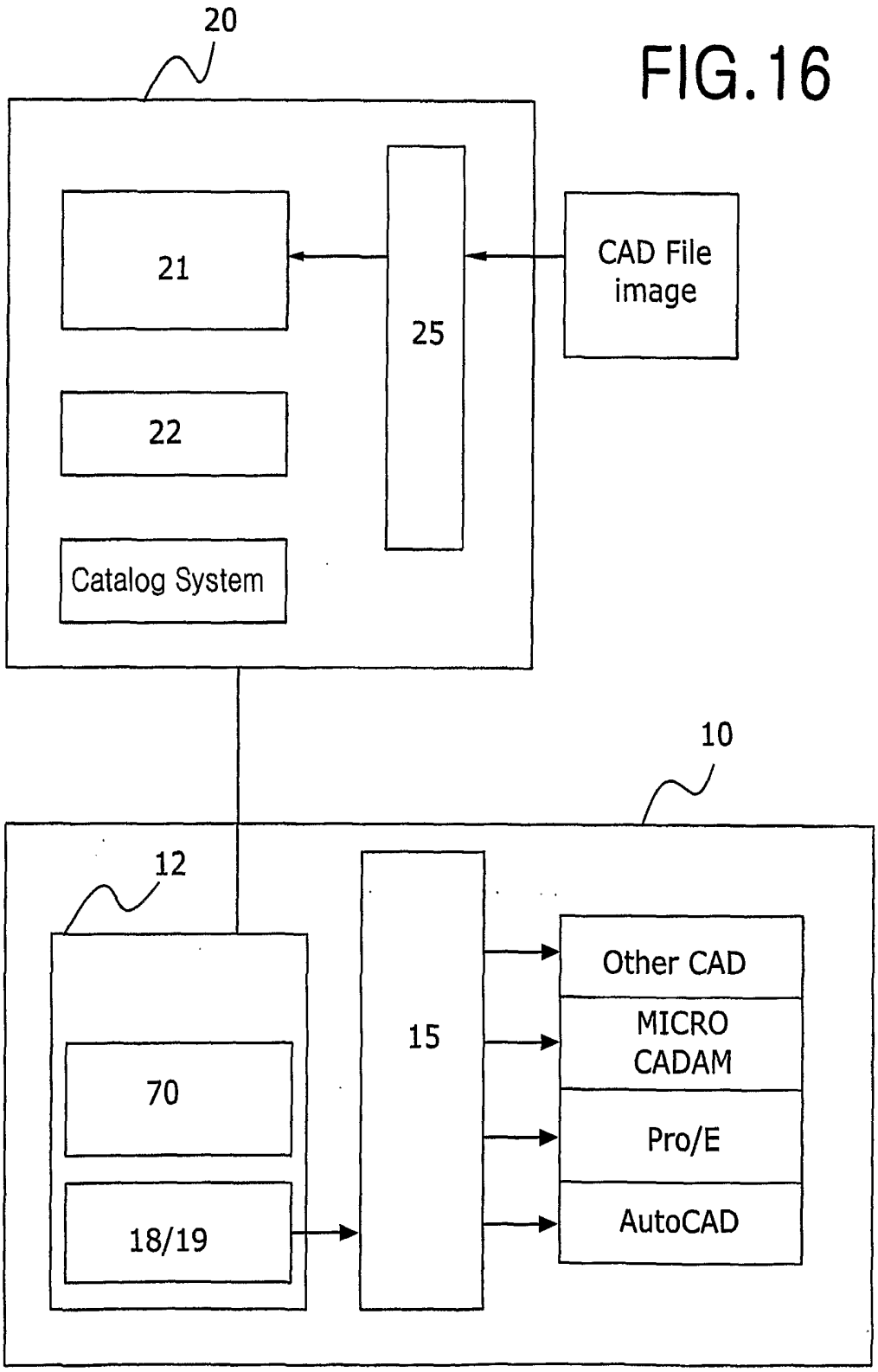

Product data displaying area expressible by text
Product configuration displaying area expressible by bitmap image
Data for indicating image data of product to vector image
Area for indicating change of configuration according to user condition
Product data DB
Property
Bitmap Image
Vector Image Data
Procedute

FIG.16


20
21
22
Catalog System
25
CAD File image
10
12
70
18/19
15
Other CAD
MICRO CADAM
Pro/E
AutoCAD

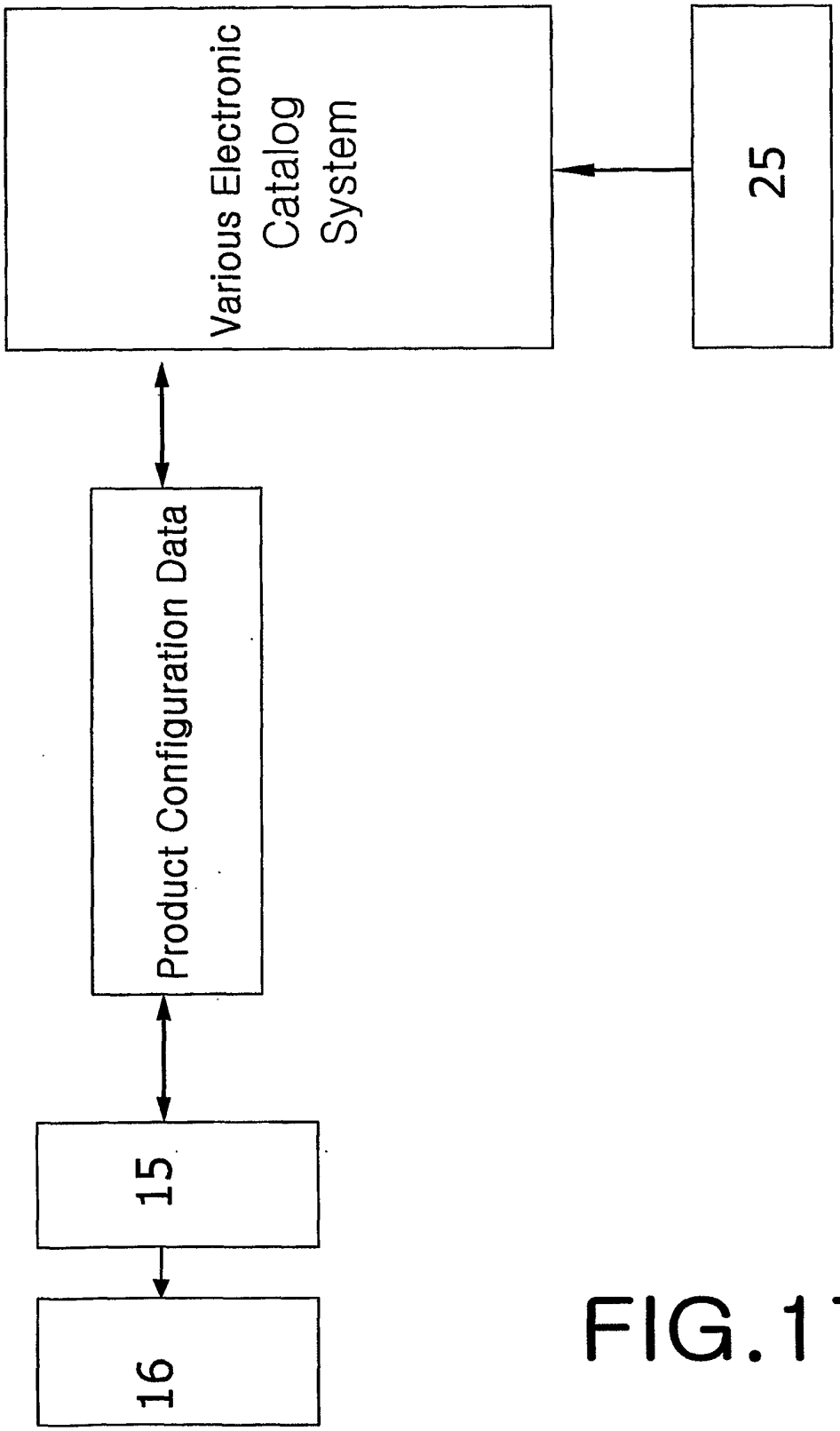

Various Electronic Catalog System
25
Product Configuration Data
15
16

FIG.17

FIG.18

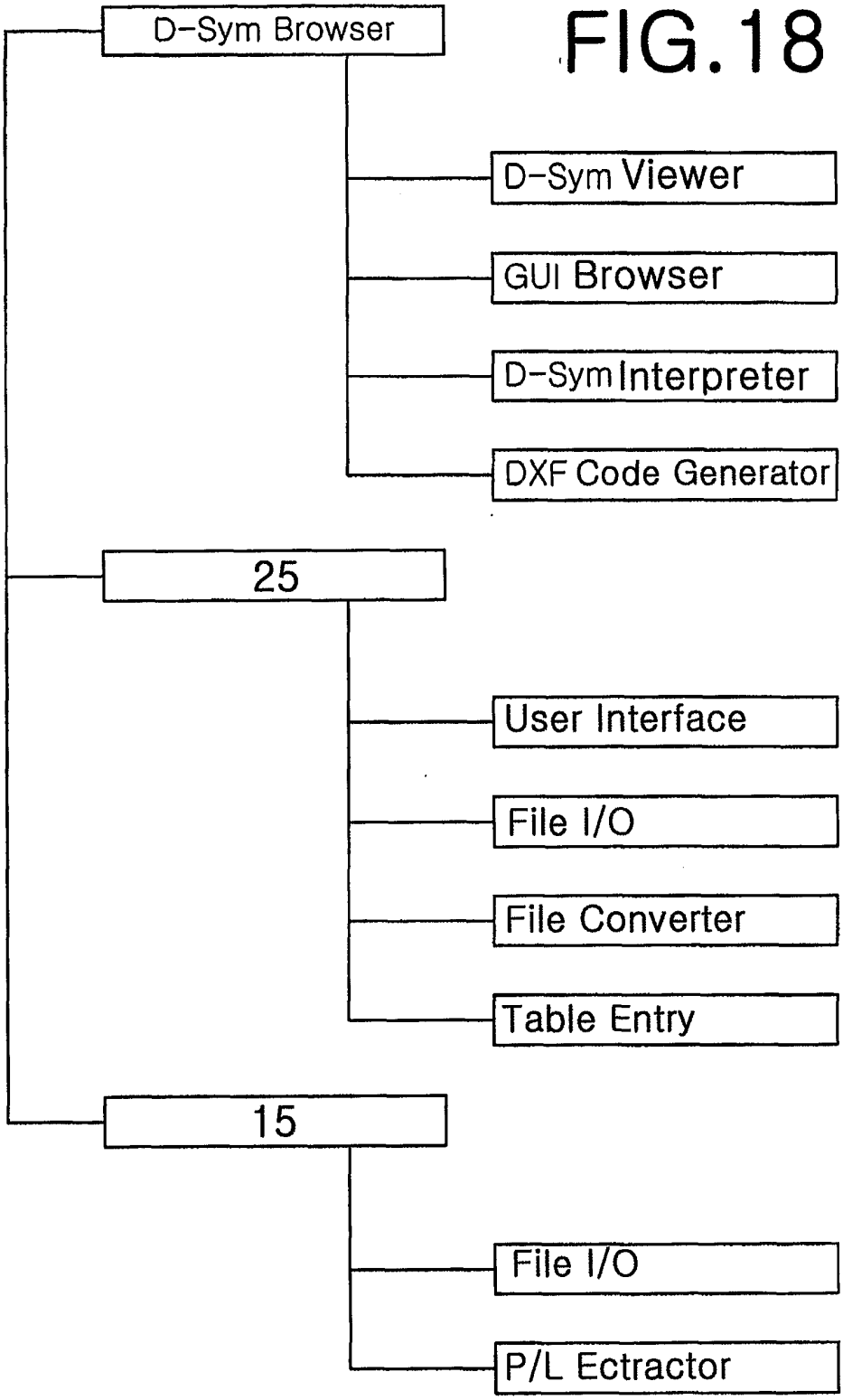

D-Sym Browser
D-Sym Viewer
GUI Browser
D-Sym Interpreter
DXF Code Generator
25
User Interface
File I/O
File Converter
Table Entry
15
File I/O
P/L Ectractor

FIG.19

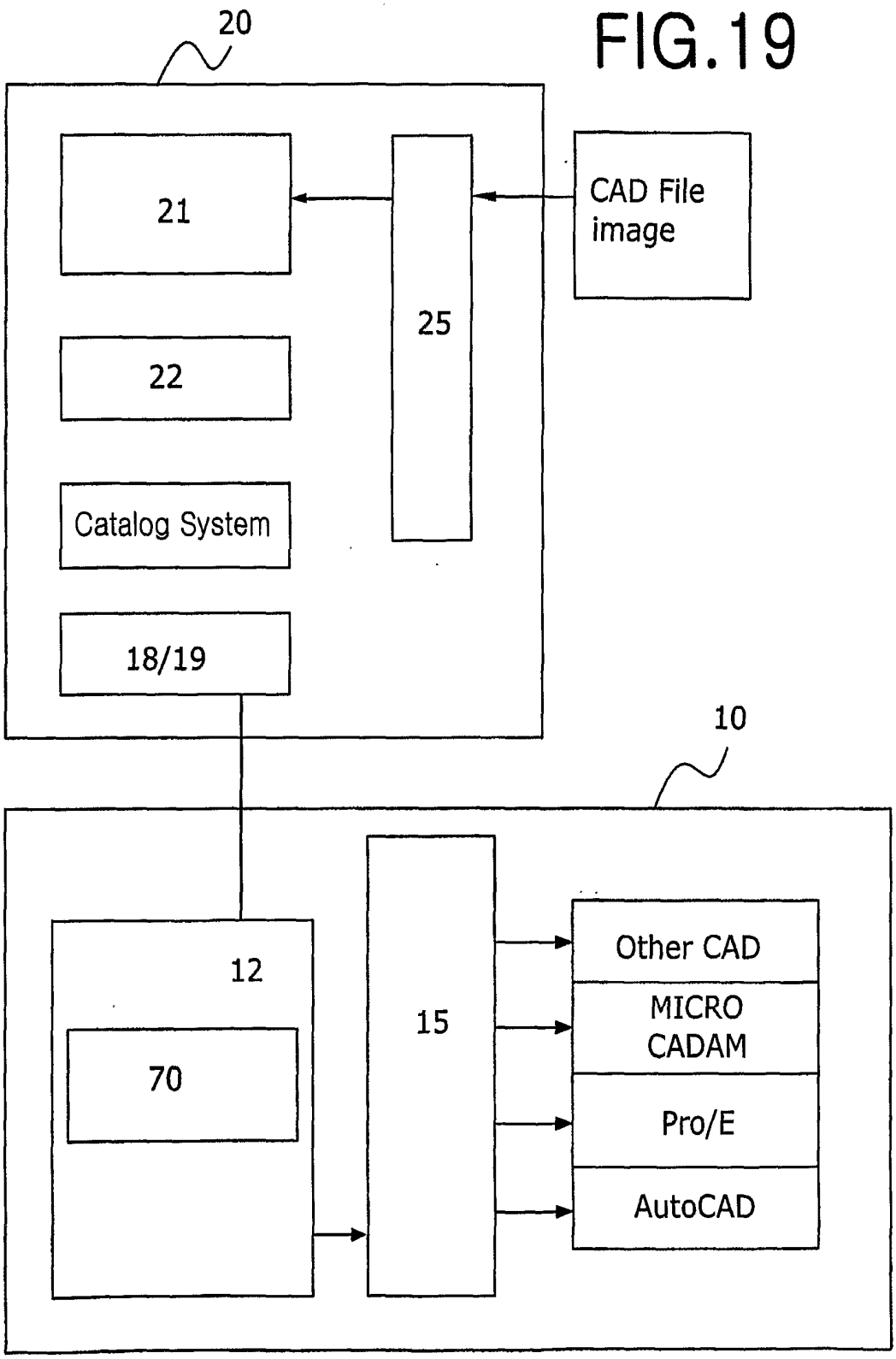

20
21
22
Catalog System
18/19
25
CAD File image
10
12
70
15
Other CAD
MICRO CADAM
Pro/E
AutoCAD

FIG.20

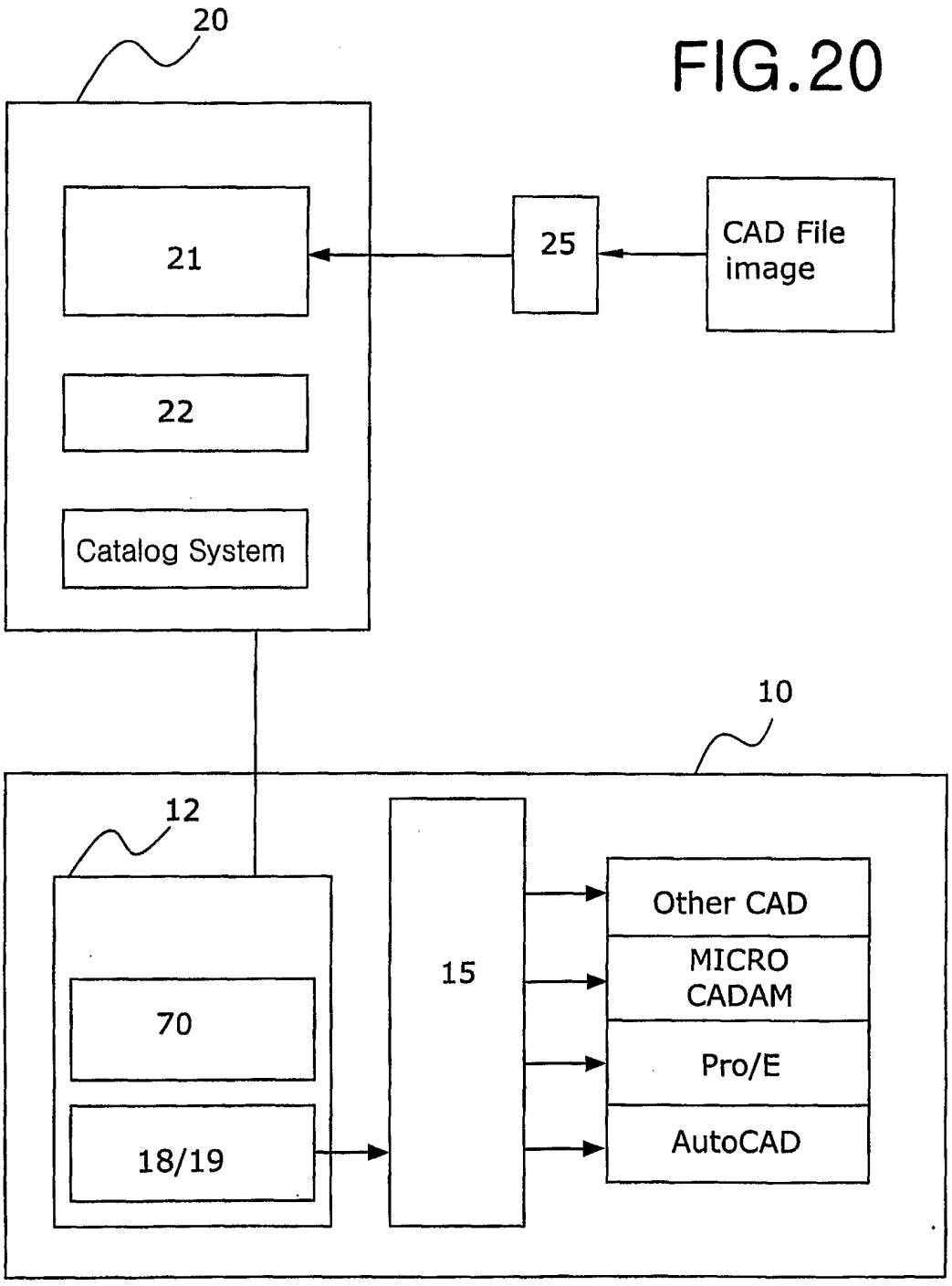
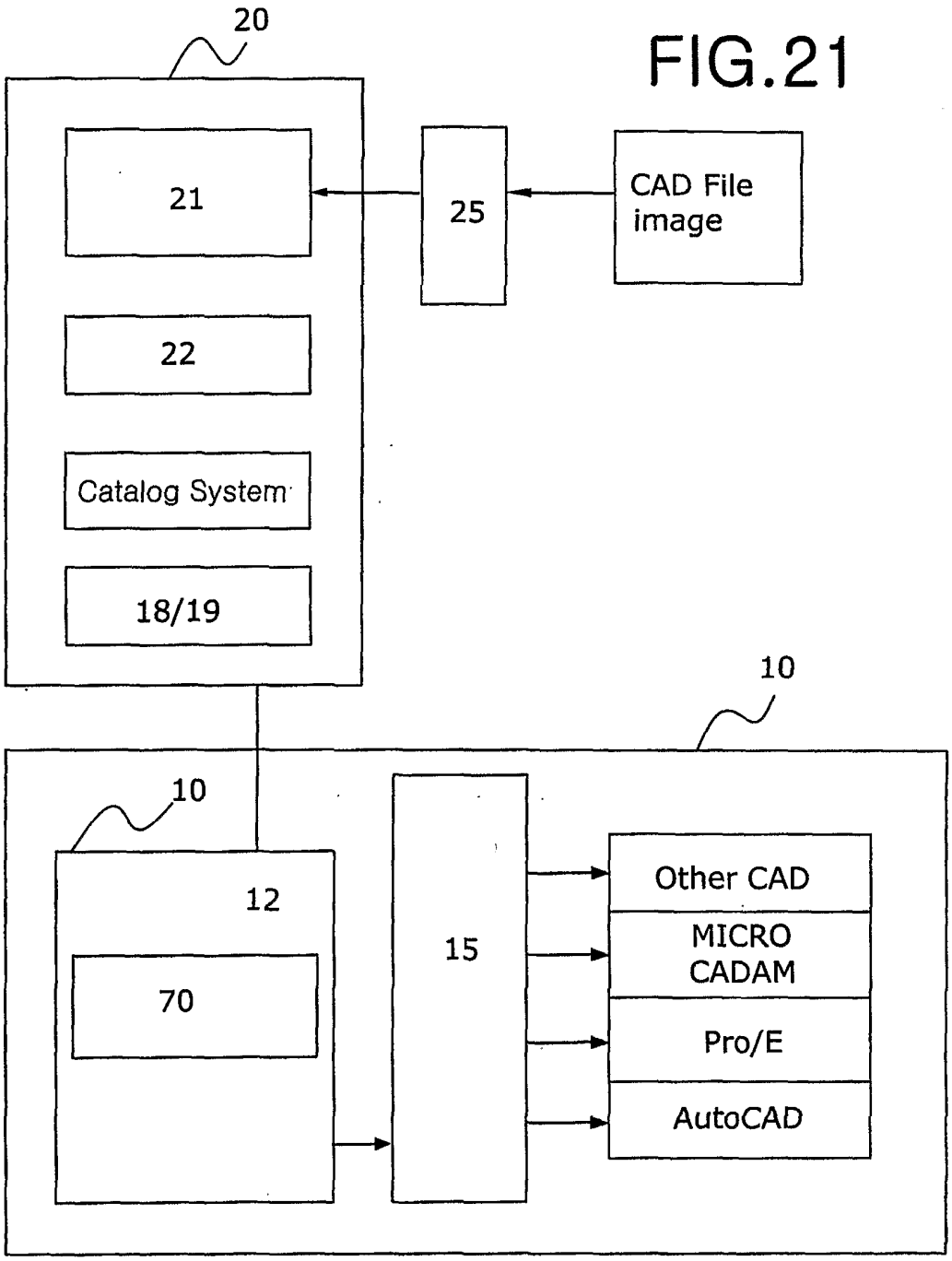

20
21
22
Catalog System
25
CAD File image
10
12
70
18/19
15
Other CAD
MICRO CADAM
Pro/E
AutoCAD

FIG.21


20
21
22
Catalog System
18/19
25
CAD File image
10
10
12
70
15
Other CAD
MICRO CADAM
Pro/E
AutoCAD

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR01/00275

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 17/60

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

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)

IPC G06F

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search trerms used)

KIPONET, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP, 03094376(CANON INC,) 19 APRIL 1991 see Abstract	1-13
A	DE,19533472(DEUTSCHE TELEKOM MOBIL,) 13 MARCH 1997 see claim 1	1-13
A	EP,0779587 (N K KIKAKU KK) 18 JUNE 1997 see claim 1	1-13
A	US,6029146 A (Crossmar, Inc..) 22 FEBRUARY 2000 see Abstract	1-13

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* *Special categories of cited documents:*

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
09 JULY 2001 (09.07.2001)	10 JULY 2001 (10.07.2001)

Name and mailing address of the ISA/KR	Authorized officer
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Facsimile No. 82-42-472-7140	Telephone No. 82-42-481-5993

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/KR01/00275

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		JP, 9167185	24 JUNE 1997
		US,5890137	30 MARCH 1999