Druckexemplar

DYNAMIC PROGRESS MARKING ICON

This invention relates to the data processing field. More particularly, this invention is an icon which dynamically marks the progress of a monitored computer task. The icon of the invention is displayed to the computer user, thereby keeping him informed as to the progress of a task without resorting to language sensitive messages.

Computers have dutifully performed billions of tasks commanded of them from computer users worldwide. Many of these tasks were quite simple for the computer to perform, and were completed with results displayed to the user almost instantaneously. However, some tasks requested by users of computers are much more complex, and require a considerable amount of processing power and time to complete.

Some of these complex tasks can take several seconds, minutes, or even several hours or days to complete. Even though a computer may be working frantically under the covers to satisfy a complex task requested by a user, the user quite often is given no indication as to what progress, if any, is being made in completing the task. Often after a large amount of time has elapsed, a user will erroneously conclude that the computer has encountered an error and has "hanged" or "gone casters up", and needs to be restarted. This scenario is frustrating to a computer user, who feels uninformed as to the progress of his requested task. More importantly, valuable computer resources are wasted if a computer is erroneously restarted in the middle of a complex task just because of poor or non-existent progress feedback to the user.

Attempts to address this problem have so far been quite primitive. Some programs display only a number,

such as 100 or 10, and count down to zero as a task is being processed. Other programs display a message, such as "Working on your request" over and over again, alternately displaying the message highlighted and non-highlighted. Neither of these techniques truly inform the user as to the progress of a task - they merely give the user something that changes on the screen to look at. Although these techniques may help in discouraging a user from restarting a system for awhile, the feedback provided does not give a user a warm feeling that progress is really being made on his task.

A better attempt at solving this problem is to repeatedly display a truly useful message to the user, such as "Now processing object number 12 out of 100", or "This task will complete in 5.05 minutes". Unfortunately, these messages need to be translated into several different languages when the computer is sold around the world, and this requirement can be quite burdensome and yield unpredictable results. In addition, these messages can be quite wasteful of space, and some languages require more space than other languages to communicate the same meaning. Summary of the Invention

It is a principle object of the invention to provide feedback to a computer user as to the progress of a task.

It is another object of the invention to provide feedback to a computer user as to the progress of a task in an efficient manner.

It is another object of the invention to provide feedback to a computer user as to the progress of a task in a manner that does not require burdensome and unpredictable language translations.

These and other objects are accomplished by the dynamic progress marker icon disclosed herein.

A dynamic progress marker icon is disclosed that dynamically changes to mark the progress of a task. In this manner, the user is kept informed of the status of a task being performed without resorting to language sensitive messages such as "Now processing object number 12 of 100". The icon does not require a graphics display to be used and therefore can be used on both graphics and non-graphics displays. The icon of the prepared embodiment has five rows consisting of four percent (%) symbols surrounded by a border. At the beginning of a task, a task monitor quantifies the task into substantially ~~equiv-alent~~ equal task work units <1>. All twenty "%" symbols are present and displayed to the user. When the task monitor determines that one task work unit has completed, one "%" symbol is replaced in the icon by a replacement character, such as a blank or null character. The replacement of one "%" symbol each time a task work unit completes continues until all of the "%" symbols are replaced, indicating 100% completion of the task. The order in which symbols inside the icon are replaced is determined by a pattern array which can be modified if desired. The symbols used inside the icon and for the border are selected to be available in virtually all languages, and can also be modified to meet the needs of a particular user.

Fig. 1 shows a block diagram of the computer system of the invention.

Figs. 2A-2U show the icon of the preferred embodiment of the invention as displayed to a user as a monitored task progresses.

Figs. 3A-3D show the icons of various alternate embodiments of the invention.

<1> : < with a quantification method as claimed in claim 1 >

Figs. 4A-4B show the icon matrix and programmable pattern array of the invention that determines the order in which the symbols inside the icon are replaced.

Figs. 5-8 show a flow chart of the generation of the dynamic progress marking icon of the invention.

Fig. 1 shows a block diagram of the computer system of the invention. Computer system 10 contains processor 11 and display 12. Processor 11 contains task 13, task monitor 14, and icon generator 15. Icon 20 is displayed on display 12.

Computer system 10 can be any computer system, such as a personal computer, a minicomputer, or a mainframe computer. In the preferred embodiment, computer system 10 is an IBM System/36 with an attached display. Note that processor 11 can be directly connected to display 12, or connected remotely over communications lines such as telephone lines, local area networks, etc. Note also that although only processor 11 is shown, more than one processor and/or special purpose hardware may be used to perform the function of task 13, task monitor 14, or icon generator 15.

Task 13 represents the item of work requested of computer system 10 by the computer user. An example of a task would be a request to back up a hard disk to magnetic tape. Task monitor 14 quantifies the amount of work required to complete task 13, and divides this quantified workload into a plurality of substantially equivalent task work units. Task monitor 14 then monitors task 13 and sends a message to icon generator 15 each time a task work unit has been completed. Responsive to receiving the message, icon generator 15 updates icon 20 displayed to the user on display 12 by replacing one of the symbols

contained in icon 20. The operation of computer system 10 will be described in more detail in conjunction with the discussion of Figs. 5-8.

Figs. 2A - 2U shows how icon 20 is displayed to a user as task 13 progresses. Icon 20 contains a plurality of symbols 21 arranged in rows and columns. In the preferred embodiment, symbols 21 are all represented by the "percent sign" character (ASCII code 037, EBCDIC code 6C) although this can be changed by the user if desired. In addition, symbols 21 could be represented by a plurality of different characters. Also, the character or characters used to represent symbols 21 could be graphics or non-graphics characters. The non-graphics character "%" was chosen in the preferred embodiment to represent symbols 21 because it could be used on either graphics or non-graphics displays. In addition, the "%" character was available in substantially all character sets worldwide. Since the "%" character is used to represent a percentage of a whole, it was a good choice to represent symbols 21.

Symbols 21 in icon 20 are surrounded by a border made up of horizontal border segments 22 and vertical border segments 23. Although icon 20 can be used without a border at all, a border is used in the preferred embodiment to enhance usability. In the preferred embodiment, horizontal border segments 22 are represented by the "-" character (ASCII code 045, EBCDIC code 60) although this can be changed by the user if desired. Another possible character that could be used is the "_" character (ASCII code 095, EBCDIC code 6D). In addition, horizontal border segments 22 could be represented by a plurality of different characters. For example, the corners may be represented by a different character than the middle section. Also, the character or characters used to represent horizontal border segments 22 could be graphics or non-graphics characters. The non-graphics character "-" was chosen

in the preferred embodiment to represent horizontal border segments 22 because it could be used on either graphics or non-graphics displays. In addition, the "-" character was available in substantially all character sets worldwide.

Vertical border segments 23 are represented by the ":" character ASCII code 058, EBCDIC code 7A) in the preferred embodiment, although this can be changed by the user if desired. Other possible character that could be used are the "(" character (ASCII code 040, EBCDIC code 4D), or the ")" character (ASCII code 041, EBCDIC code 5D). In addition, vertical border segments 23 could be represented by a plurality of different characters. Also, the character or characters used to represent vertical border segments 23 could be graphics or non-graphics characters. The non-graphics character ":" was chosen in the preferred embodiment to represent vertical border segments 23 because it could be used on either graphics or non-graphics displays. In addition, the ":" character was available in substantially all character sets worldwide.

Fig. 2A shows how icon 20 is displayed to the user when a task has just begun. In the preferred embodiment, icon 20 is displayed in the lower right hand corner of display 12 (Fig.1), and remains in the same location for the duration of the task. Of course, icon 20 could be displayed in a different location of display 12 or move from location to location as the task progresses.

Note that all symbols 21 are represented by the "%" characters in the preferred embodiment shown in Fig. 2A. When task monitor 14 indicates to icon generator 15 that one task work unit has been completed, icon generator 15 replaces one "%" character from icon 20 with a replacement character, such as a blank or null character. Fig. 2B shows what icon 20 looks like after one task work unit has been completed.

Figs. 2C through 2T, respectively, show how icon 20 is displayed to the user after each additional task work unit has been completed. The order in which symbols 21 are replaced is determined by a programmable pattern array, which is shown in Fig. 4B and will be discussed in more detail later.

Fig. 2U shows how icon 20 is displayed to the user after the last task work unit has been completed. Note that all symbols 21 have been replaced, and only the border remains. Icon 20 shown in Fig. 2U is displayed to the user momentarily to indicate completion of the task, and then the border is removed, thereby causing icon 20 to disappear from display 12.

Fig. 3A shows icon 31 of an alternate embodiment of the invention. Icon 31 still contains symbols 21, horizontal border segments 22 and vertical border segments 23. Note that instead of having symbols 21 arranged in rows and columns, they are arranged horizontally. The preceding discussion relating to icon 20 of Figs. 2A-2U is equally applicable to icon 31 shown in Fig. 3A.

Fig. 3B shows icon 32 of an alternate embodiment of the invention. Icon 32 still contains symbols 21, horizontal border segments 22 and vertical border segments 23. Note that instead of having symbols 21 arranged in rows and columns, they are arranged vertically. The preceding discussion relating to icon 20 of Figs. 2A-2U is equally applicable to icon 32 shown in Fig. 3B.

Fig. 3C shows icon 33 of an alternate embodiment of the invention. Icon 33 still contains symbols 21, horizontal border segment 22 and vertical border segment 23. Note that horizontal border segments 22 are represented by a plurality of characters: the "┌" character (ASCII code

218), the "—" character (ASCII code 196), the "┐" character (ASCII code 191), the "└" character (ASCII code 192), and the "┘" character (ASCII code 217). Vertical border segments 23 are represented on the "|" character (ASCII code 179). Icon 33 uses non-graphics extended ASCII codes available for use by the IBM PC, PC/XT, PC/AT, PS/2, and associated compatibles. Icon 33 may be preferred over icon 20 in computing environments where the characters used to make up the border are available for use.

Fig. 3D shows icon 34 of an alternate embodiment of the invention. Icon 34 still contains symbols 21, horizontal border segments 22 and vertical border segments 23. Note that both horizontal border segments 22 and vertical border segments 23 are made up a single character, a "*" (ASCII code 042, EBCDIC code 5C).

Figs. 4A-4B show the icon matrix and programmable pattern array of the invention that determines the order in which symbols 21 inside icon 20 are replaced. Fig. 4A shows icon matrix 40. Icon matrix 40 is arranged in rows and columns corresponding to the rows and columns of icon 20. Icon matrix 40 contains a plurality of cells 41. Each cell corresponds to a symbol 21 of icon 20. The cell numbers shown in cells 41 indicate the relative position of the cell in icon matrix 40.

Fig. 4B shows programmable pattern array 45. Pattern array 45 contains a plurality of array locations 46A-T. Each array location contains the cell number of a cell 41 in icon matrix 40. Array location 46A in pattern array 45 indicates the cell number for which the first corresponding symbol 21 of icon 20 is replaced when the first work unit has been completed. For example, the cell number in array location 46A is a "four". This indicates that the first symbol to be replaced in icon 20 is located in cell number four of icon matrix 40. Cell number four is located

in the upper right hand corner of icon matrix 40. Fig. 2B shows what icon 20 looks like when the symbol located in cell number four has been replaced.

Pattern array 45 contains pointer 47. Pointer 47 indicates the array location to be processed next. Pointer 47 is incremented to the next array location each time a symbol 21 is replaced from icon 20. Pattern array 45 shows that the symbol corresponding to cell number four is replaced when pointer 47 is pointing to array location 46A. Then pointer 47 is incremented to the next array location 46B. The symbol corresponding to cell number three is replaced next, followed by cell numbers eight, two, seven, twelve, and so on. The symbol corresponding to cell number seventeen is the last symbol to be replaced. Note that when icon 20 looks like that shown in Fig. 2A, pointer 47 is pointing to array location 46A. Likewise, when icon 20 looks like that shown in Fig. 2B, pointer 47 is pointing to array location 46B, and so on, until when icon 20 looks like that shown in Fig. 2T, pointer 47 is pointing to array location 46T.

Note that pattern array 45 can be modified as desired to create a different order of replacing characters from icon 20 other than that indicated in Fig. 4B. Note also that pattern array 45 would be modified if icon 31 or icon 32 of Figs. 3A or 3B were used instead of icon 20. Although pattern array 45 contains twenty array locations in the preferred embodiment, it can be shorter or longer depending on the number of symbols 21 contained in the icon.

Figs. 5-8 show a flow chart of the generation of the dynamic progress marking icon of the invention. Processing begins in block 60 of Fig. 5, where the quantify task

work unit subroutine is called to quantify a task work unit of task 13. Task monitor 14 (Fig. 1) is responsible for performing this quantification.

The quantify task work unit subroutine of Fig. 6 will now be discussed. Task monitor 14 first determines in block 61 if this particular task can be quantified by an estimate of time required to complete the task. If an estimate of the time required to complete this task is ascertainable, either because it is known or can be determined, the estimated task completion time is saved in time units, such as seconds, in block 62. Block 63 divides the total task completion time into a plurality of substantially equal task work units. Each task work unit corresponds to one of the symbols 21 of icon 20. For example, if task monitor 13 is able to ascertain that task 12 will take approximately sixty seconds to complete, block 63 divides sixty seconds by twenty, the number of symbols of the icon. This results in a task work unit of three seconds. Therefore, a symbol 21 of icon 20 will be erased every three seconds to indicate the completion of another task work unit. After block 63 determines the duration of a task work unit, control is returned in block 64 to Fig. 5.

If block 61 indicates that the estimated time required to complete the task is not ascertainable, block 65 looks to see if the number of work items in the task is ascertainable. For example, in the IBM System/3x and AS/400 environment, a work item is referred to as an object. Other definitions of work items could be easily made to fit a particular application. If the number of work items is ascertainable, this number is saved in block 66. Block 67 divides the number of work items into a plurality of substantially equal task work units, similar to the function of block 63. Each task work unit corresponds to one of the symbols 21 of icon 20. For example,

if task monitor 13 is able to ascertain that task 12 contains two hundred work items, block 67 divides two hundred by twenty, the number of symbols of icon 20. This results in a task work unit of ten work items. Therefore, a symbol 21 of icon 20 will be replaced every ten work items to indicate the completion of another task work unit.

If the quantified task work unit is not an integer multiple of work items or time units it is rounded up or down to the nearest number of work items or time units. The last task work unit covers the remaining work items, time units, or fractions thereof.

Note that in some examples, more than one symbol will be replaced for a single work item or time unit. For example, if task 12 contains ten work items, block 67 divides ten by twenty which results in a task work unit of one-half of a work item. Therefore, two symbols of icon 20 will be replaced for each work item.

After block 67 determines the duration of a task work unit, control is returned in block 64 to Fig. 5. If block 65 is answered negatively, an icon cannot be generated and the program ends in block 68.

Referring again to Fig. 5, block 51 checks to see if the user wants to change the character representing symbols 21, horizontal border 22, or vertical border 23 of icon 20, or change pattern array 45. Block 51 would normally be defaulted to answer no and control would move on to block 52. If block 51 is answered affirmatively, the change icon subroutine of Fig. 7 is called in block 70. Icon generator 15 (Fig. 1) is responsible for the changing the icon defaults if desired by the user.

The change icon subroutine of Fig. 7 will now be discussed. Icon generator 15 first asks the user if the "%" character is acceptable for symbol 21 in block 69. If not, the user is prompted for a new character in block 70. Note that the new character can be either a graphics or a non-graphics character.

Block 71 asks the user if the replacement character of " " (null or blank) is acceptable. If not, block 72 prompts the user for a new replacement character. Note that if a replacement character of blank or null or other non-displayable character is used, the user perceives that the symbol has been erased. If the replacement character is displayable, an entirely different perception is given to the user. For example, if a "*" was the replacement character, a "*" would replace a "%" each time a task work unit completed. Fig. 2R, for instance, would have three "%" symbols and seventeen "*" characters.

Block 73 asks the user if the "-" character is acceptable for horizontal border 22. If not, the user is prompted for a new character in block 74. Note that the new character can be either a graphics or a non-graphics character. Block 75 asks the user if the ":" character is acceptable for vertical border 23. If not, the user is prompted for a new character in block 76. Note again that the new character can be either a graphics or a non-graphics character.

Block 77 asks the user if the default pattern array 45 (indicating the order in which symbols 21 are replaced from icon 20) is acceptable. If not, the user is prompted for a new pattern array in block 78.

Flow of control returns to Fig. 5 in block 79. The change icon subroutine would get slightly more complex if it was desirable to use more than one character for symbol

21 or horizontal border 22 or vertical border 23 for the icon, such as icon 33 (Fig. 3C), but this modification is well within the scope of those skilled in the art.

Referring again to Fig. 5, icon generator 15 (Fig. 1) displays icon 20 to the user on display 12 in block 53. At the beginning of the task, icon 20 shown in Fig. 2A is displayed. Block 80 then calls the update icon subroutine. Icon generator 15 (Fig. 1) is responsible for updating the icon.

The update icon subroutine of Fig. 8 will now be discussed. Block 81 sets a counter to be equal to the number of symbols 21 in icon 20, and moves pointer 47 to array location 46A in pattern array 45. In the preferred embodiment, the counter would be set to twenty. Block 82 continually checks to see if task monitor 14 has told task generator 15 that a task work unit has been completed. If so, block 83 checks to see if the counter is equal to zero. If the counter is not equal to zero, block 84 finds array pointer 47 in pattern array 45 (Fig. 4B) and reads the cell number stored in the indicated array location 46. Here, pointer 47 is pointing to array location 46A, and cell number four is read. Block 85 replaces the symbol contained in cell number four with the replacement character. If the replacement character is a blank or null or other non-displayable character, the symbol will appear to the user to have been erased. Block 86 refreshes display 12, thereby displaying to the user the updated icon. Block 87 increments array pointer 47 to the next array location 46B. Block 88 decrements the counter by one, and the flow of control returns to block 82, where the subroutine waits until the next task work unit is done. As each task work unit is completed, blocks 83-88 are performed, and icon 20 as shown in Figs. 2B-2U is generated one by one and displayed to the user. When block 83 determines that the counter is zero, indicating that the task has

been completed and the last symbol 21 has been replaced in icon 20, the subroutine returns in block 89 to block 54 of Fig. 5, where the border of icon 20 is removed.

In the situation where more then one symbol is replaced for a single work item or time unit, block 82 is repeatedly answered affirmatively and blocks 83-88 are performed until the correct number of symbols are replaced. For example, if task 12 contains ten work items, a task work unit is equal to one half of a work item. Therefore, each time a work item is done, task monitor 14 informs icon generator 15 that two task work units have been completed. Blocks 82-88 are performed twice, thereby replacing two symbols. Block 82 then waits for an indication that two more task work units have been completed.

~~While this invention has been described with respect to the preferred and alternate embodiments, it will be understood by those skilled in the art that various changes in detail may be made therein without departing from the spirit, scope and teaching of the invention. For example,~~ An attribute, such as blinking, underscore or highlight, could be used to indicate the next symbol to be replaced from the icon. In addition, the icon drawn in Fig. 2U can indicate the beginning of a task and symbols can be added to the icon instead of erased as the task progresses. This could be done easily by reversing the order of the pattern array, defining the symbol as " " (null or blank), and defining the replacement character as "%".

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CLAIMS

<①>: <composed of a number of task work items>

1 In a computer system (10) comprising a display device (12) a method of automatically and dynamically providing feedback to a user of said computer system as to the progress of a task (13), said method comprising the steps of : <①>

- at the beginning of said task, quantifying by means of a task monitor (14) said task into a plurality of substantially equivalent task work units, said quantifying comprising the steps of <②> {Insert blank line here}
- monitoring progress of said task by means of said task monitor and sending a message to an icon generator (15) each time a particular task work unit has been completed ; and

- upon reception of said message updating by said icon generator of an icon (20) representative of the progress of said task.

~~2. The method of claim 1 wherein said quantifying step performed by said task monitor comprises :~~

<③> : <- estimating said task completion time; and
{delete this blank line}
- dividing said task completion time into a plurality of substantially equal task work units;

or, if the estimated time required to complete the

~~3. The method of claim 1 wherein said quantifying step performed by said task monitor comprises :~~

task is not ascertainable :
- estimating a number of ascertainable work items in said task; and
{delete this blank line}

- dividing said number of ascertainable work items into a plurality of substantially equal task work units; >

2 4. The method of claim 1 wherein said icon comprises a plurality of symbols (21) arranged in a plurality of numbered cells (41) and wherein each of said symbols corresponds to one of said plurality of task work units.

3 5. The method of claim 4 wherein updating step comprises replacing said symbol corresponding to said particular task work unit with a replacement character.

4 6. The method of claim 5, wherein said replacing step further comprises the step of checking a pointer (47) in a pattern array (45), said pointer identifying the array location which contains the number of the cell corresponding to the next symbol (46) to be replaced in said icon.

5 7. The method of claim 6, wherein said replacing step further comprises the step of moving said pointer in said pattern array to the next array location.

6 8. The method of claim 6 further comprising the step of initializing said pattern array to indicate the order in which said symbols are replaced responsive to said replacing step.

7 9. A computer system for ~~efficiently~~ keeping a user informed as to the progress of a task comprising the means <(3)> to carry-out the method of anyone of claims 1 to 8.

<(3)> : < claimed in claims 1 to 8 >

~~R0988-032~~

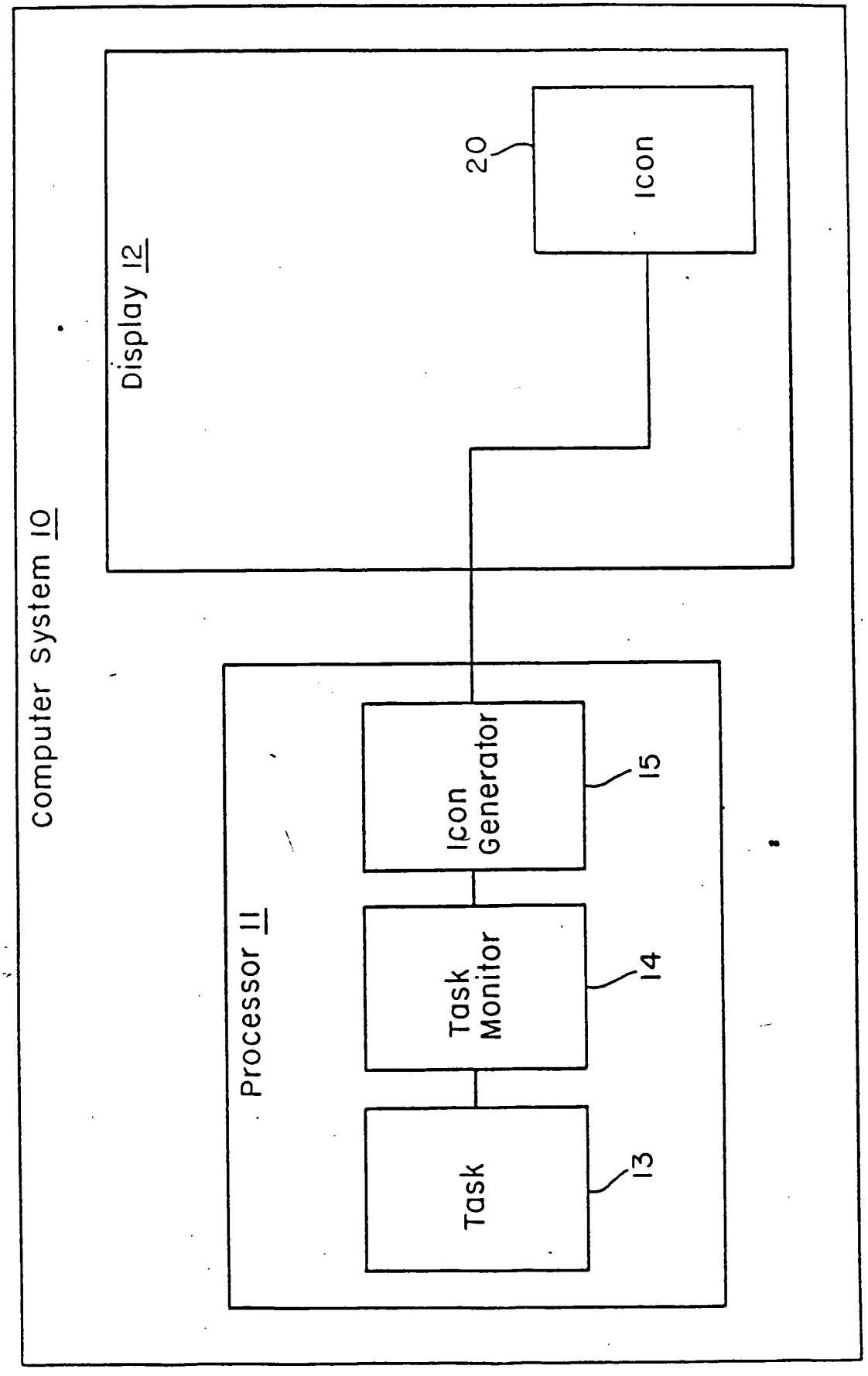

FIG. 1

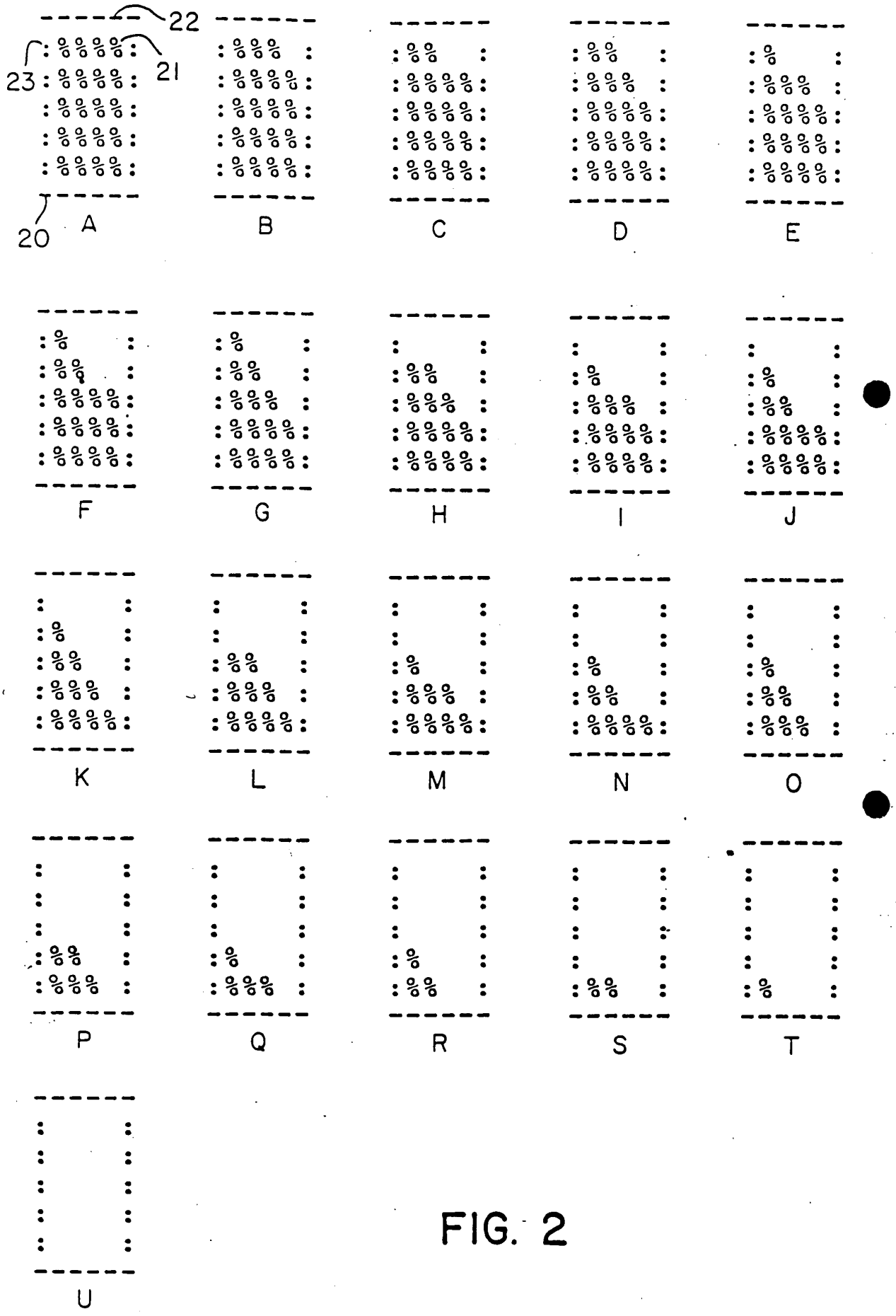

FIG. 2

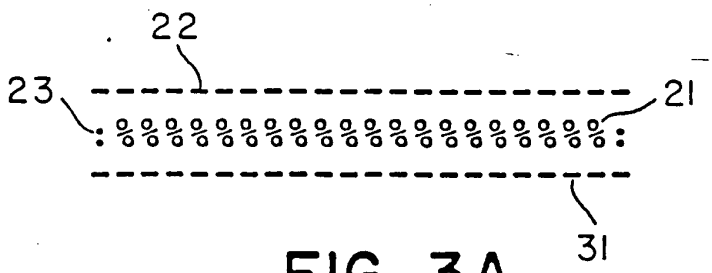

FIG. 3A

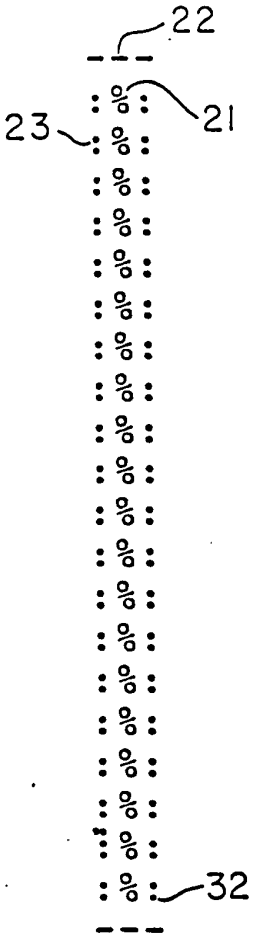

FIG. 3B

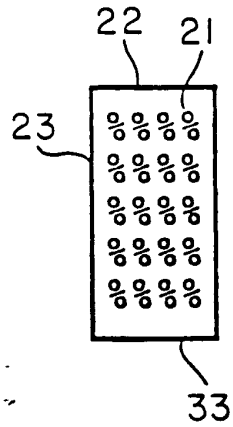

FIG. 3C

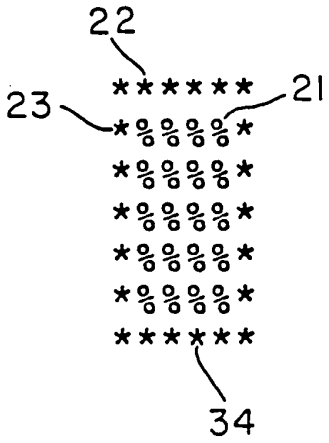

FIG. 3D

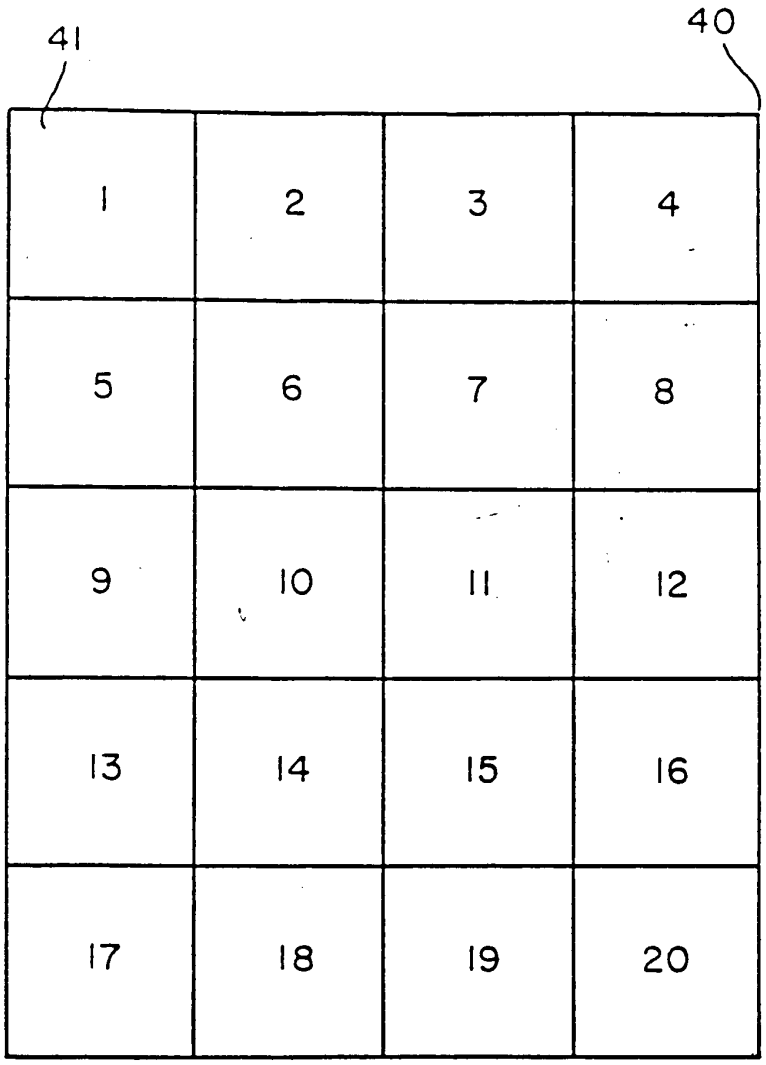
41
40
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

FIG. 4A

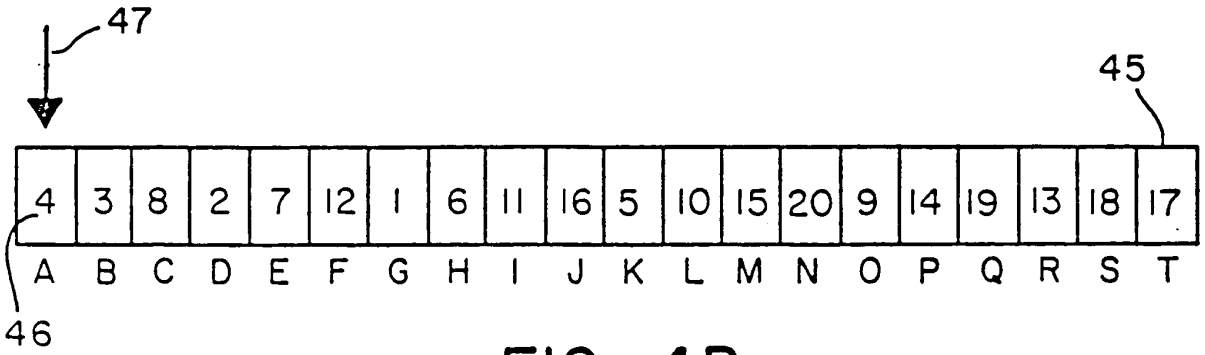
47
45
4 3 8 2 7 12 1 6 11 16 5 10 15 20 9 14 19 13 18 17
A B C D E F G H I J K L M N O P Q R S T
46

FIG. 4B

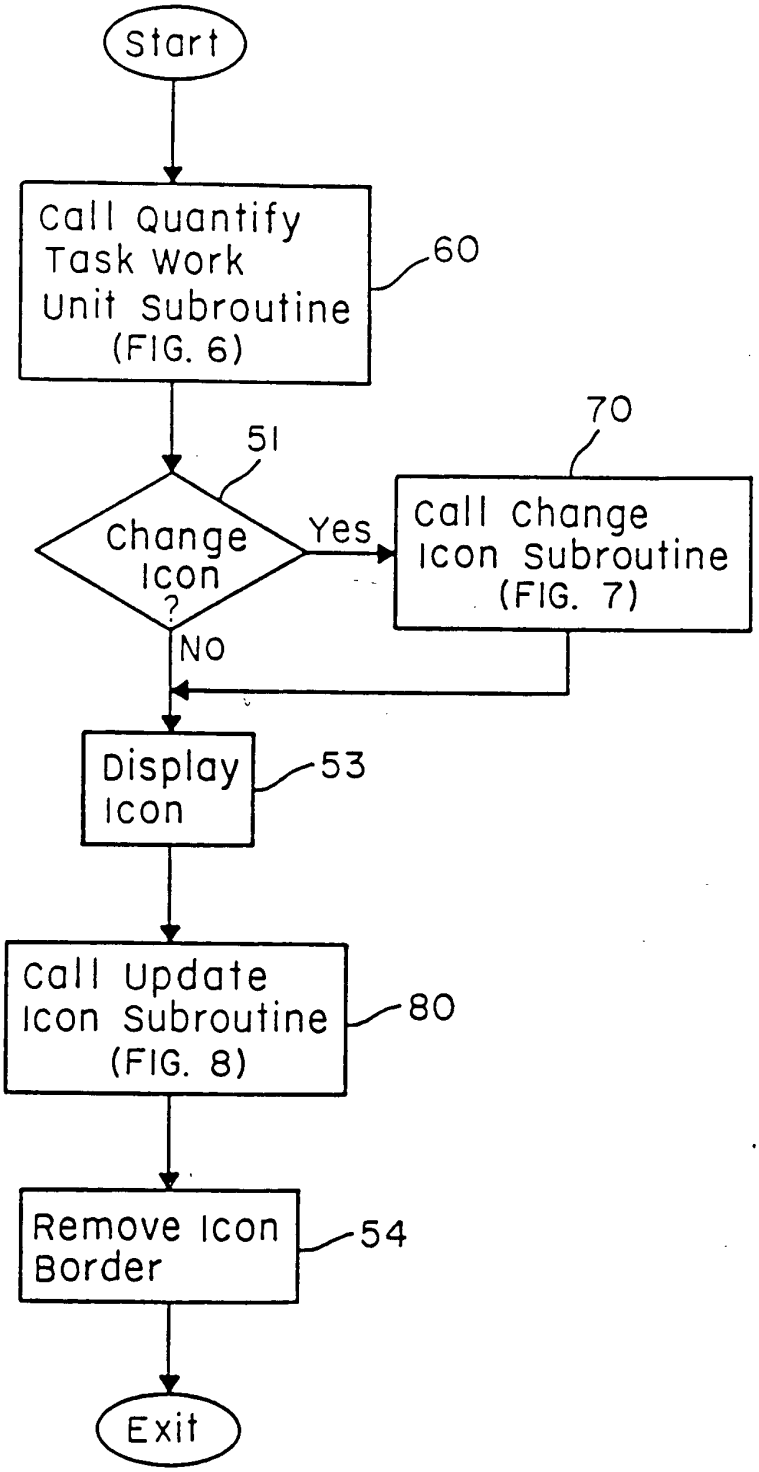
Start
Call Quantify Task Work Unit Subroutine (FIG. 6)
60
51
Change Icon ?
Yes
70
Call Change Icon Subroutine (FIG. 7)
NO
Display Icon
53
Call Update Icon Subroutine (FIG. 8)
80
Remove Icon Border
54
Exit

FIG. 5

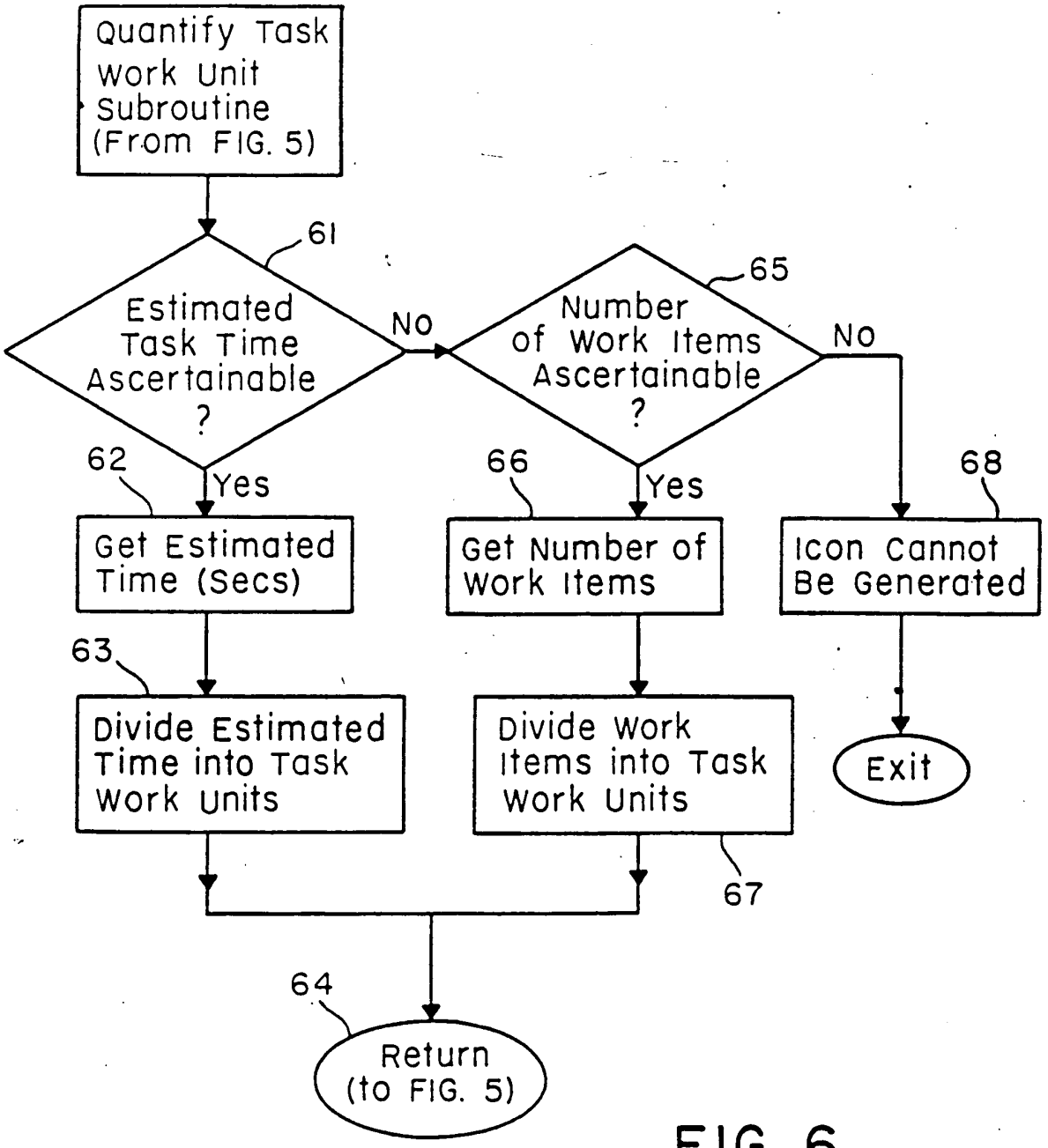
Quantify Task Work Unit Subroutine (From FIG. 5)
61
Estimated Task Time Ascertainable ?
NO
65
Number of Work Items Ascertainable ?
NO
62
Yes
66
Yes
68
Get Estimated Time (Secs)
Get Number of Work Items
Icon Cannot Be Generated
63
Divide Estimated Time into Task Work Units
Divide Work Items into Task Work Units
Exit
67
64
Return (to FIG. 5)

FIG. 6

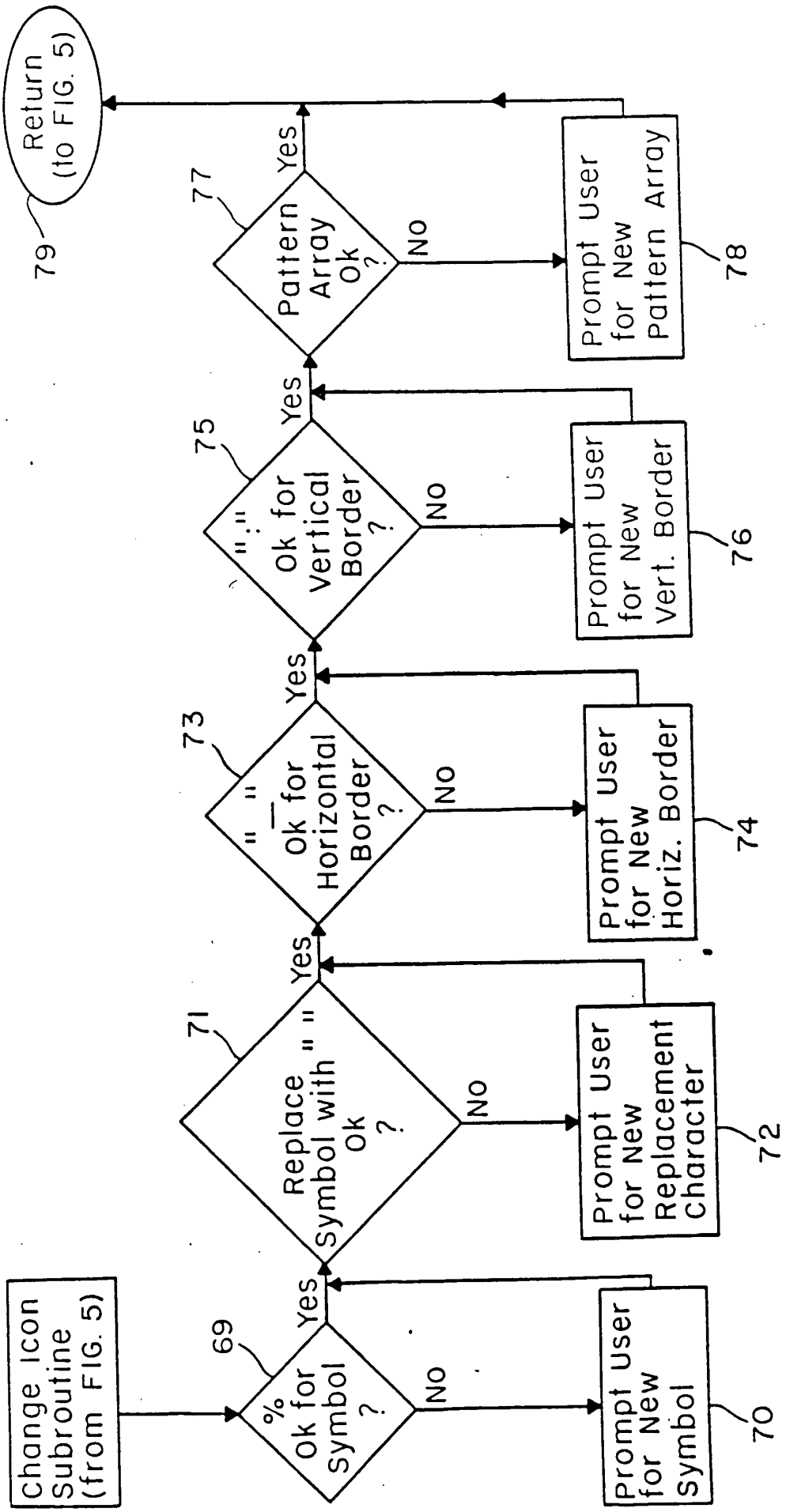
Change Icon Subroutine (from FIG. 5)
69
% Ok for Symbol ?
Yes
No
Prompt User for New Symbol
70
71
Replace " " Symbol with Ok ?
Yes
No
Prompt User for New Replacement Character
72
73
" " Ok for Horizontal Border ?
Yes
No
Prompt User for New Horiz. Border
74
75
":" Ok for Vertical Border ?
Yes
No
Prompt User for New Vert. Border
76
77
Pattern Array Ok ?
Yes
No
Prompt User for New Pattern Array
78
79
Return (to FIG. 5)

FIG. 7

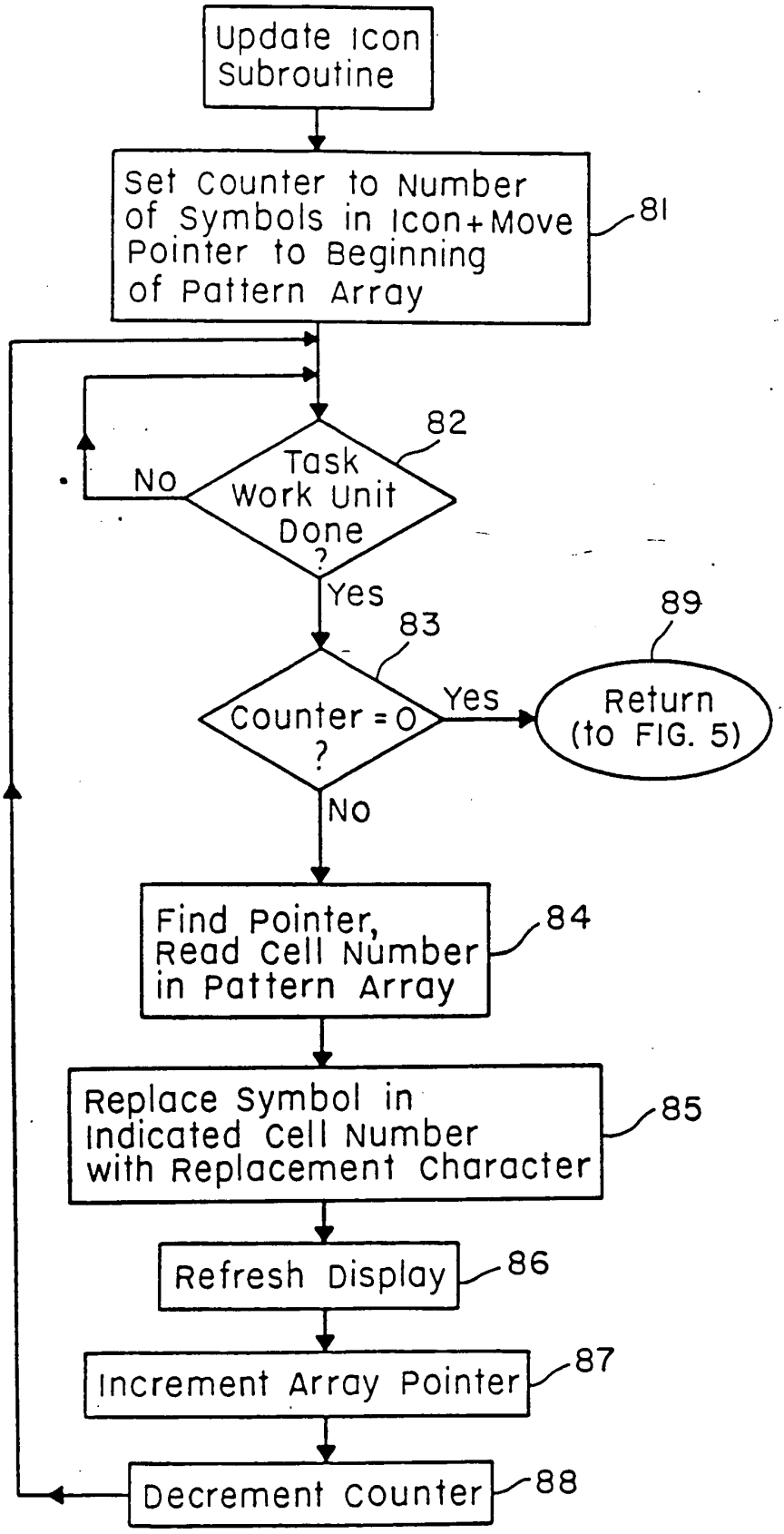
Update Icon Subroutine
Set Counter to Number of Symbols in Icon+Move Pointer to Beginning of Pattern Array
81
82
Task Work Unit Done ?
No
Yes
83
Counter = 0 ?
Yes
89
Return (to FIG. 5)
No
Find Pointer, Read Cell Number in Pattern Array
84
Replace Symbol in Indicated Cell Number with Replacement Character
85
Refresh Display
86
Increment Array Pointer
87
Decrement Counter
88

FIG. 8

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(0 89) 2399-0
Tx 523 656 epmu d
FAX 089/2399-4465

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Generaldirektion 2 | Directorate General 2 | Direction générale 2

Vekemans, André
Compagnie IBM France
Département de Propriété Intellectuelle
F-06610 La Gaude
FRANCE

Application No./Patent No.	Ref.	Date
90480028.1-2201	RO 9 88 032	18.01.95
Applicant/Proprietor: International Business Machines Corporation		

Communication under Rule 51(4) EPC

You are hereby informed that the Examining Division intends to grant a European patent on the basis of the above application with the text and drawings as indicated below:

Designated state(s): DE ES FR GB IT

Description, page(s):
1 - 14 as originally filed

Claim(s), No(s).:
1 - 9 received on 30.11.1993 with letter of 22.11.1993

Drawing(s), sheet(s):
1/8 - 8/8 as originally filed

With the following amendments to the above-mentioned documents

Proposed by the Examining Division

Description, page(s) : 3 (**), 14
Claim(s), No(s). : 1 (*)(**)(***), 2, 3, 9(****)
Drawing(s), sheet(s) :

Comments
(*) "quantifying" must be defined in the independent claim (Art. 84 - clarity) by incorporating the features of claims 2 and 3 into claim 1; moreover the quantification in terms of completion time or, if the completion time is not ascertainable, in terms of the number of "work items" is an essential technical feature of the invention, which must be present in any independent claim (Guidelines C-III, 4.4); note that T115/85 explicitly insists that the claims refer "to the technical means necessary for carrying out the functions" (see reason 11 of T115/85). "Work items" has been defined.
Claims 4-9 have been renumbered 2-7.

(**) For the consistency of the terminology, "equivalent" has been replaced by "equal".

Registered letter

(***) What is estimated and ascertainable is not the "work items" themselves but the time necessary to complete them (see the description page 10, line 5 - page 11, line 7) or, if the estimated time is not ascertainable, their number.

(****) Claim 9 may not seek protection for "means" that are not defined in the claims !
"efficient" : see the Guidelines, C-III, 2.1.

A copy of the relevant documents is enclosed.

The title of the invention in the three official languages of the European Patent Office, the international patent classification, the designated Contracting States and the registered name of the applicant are shown on the attached EPO Form 2056.

You are requested to state your approval of the text specified above **within four months** of this notification. Failure to do so will result in refusal of the application under Article 97(1) EPC (Rule 51(5) EPC).

Your attention is drawn to the notice of the president of the EPO of 22.10.1991 - measure 7 - (OJ EPO 12/1991).

Further information concerning the acceptability of amendments or the filing of a separate set of claims for one or more designated Contracting States that have entered a reservation under Article 167(2)(a) EPC will be found in the Guidelines for Examination in the EPO, C-VI, 4.8 to 4.10 and C-VI, 15.1.2 to 15.1.4

EUROPÄISCHES PATENTAMT - EUROPEAN PATENT OFFICE - OFFICE EUROPÉEN DES BREVETS
MÜNCHEN

H. Schall
Formalities Officer
Tel.No.: (089) 2399-2647

Enclosures: EPO Form 2056
24 Copies of the relevant documents

Registered letter

AGRA, NUPA, CDOC and ACLA coded

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COPY

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Département de Propriété Intellectuelle
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FRANCE

Datum/Date

Zeichen/Ref./Réf.	Anmeldung Nr./Application No./Demande n°.//Patent Nr No./Brevet n°.
RO 9 88 032	90480028.1-2201

Anmelder/Applicant/Demandeur//Patentinhaber/Propriétaire
International Business Machines Corporation

For the intended grant of a European patent, (1) the title of the invention in the three official languages of the European Patent Office, (2) the International Patent Classification and (3) the designated Contracting States and the applicant's registered name, address and country of residence or principal place of business are set out below.

(1)
- Dynamisches, den Fortgang anzeigendes Ikon
- Dynamic progress marking icon
- Icône dynamique indiquant le progrès

(2) CLASS STRING: G06F9/46, G06F9/44

(3) DE-ES-FR-GB-IT
International Business Machines Corporation
Old Orchard Road
Armonk, N.Y. 10504/US

Application No. 90 480 028.1

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IV.1. Documents for grant of patent

In the text for all designated Contracting States:
DE ES FR GB IT

Description:

Page(s): 1 - 14 as originally filed

Claim(s):

No.: 1 - 9 received on 30.11.93 with letter of 22.11.93

Drawing(s):

Sheet: 1/8 - 8/8 as originally filed

With following amendments to the above-mentioned documents by the Examining Division:

Description Page(s): 3 (**), 14

Claim(s) No.: 1 (*)(**)(***), 2, 3, 9(****)

Comments:

(*) "quantifying" must be defined in the independent claim (Art. 84 - clarity) by incorporating the features of claims 2 and 3 into claim 1; moreover the quantification in terms of completion time or, if the completion time is not ascertainable, in terms of the number of "work items" is an essential technical feature of the invention, which must be present in any independent claim (Guidelines C-III, 4.4); note that T115/85 explicitly insists that the claims refer "to the technical means necessary for carrying out the functions" (see reason 11 of T115/85). "Work items" has been defined.
Claims 4-9 have been renumbered 2-7.

(**) For the consistency of the terminology, "equivalent" has been replaced by "equal".

(***) What is estimated and ascertainable is not the "work items" themselves but the time necessary to complete them (see the description page 10, line 5 - page 11, line 7) or, if the estimated time is not ascertainable, their number.

(****) Claim 9 may not seek protection for "means" that are not defined in the claims !
"efficient" : see the Guidelines, C-III, 2.1.

Application No. 90 480 028.1

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2. Patent classification

The classification indicated on the published patent application remains unchanged. It is as follows:
G06F9/46, G06F9/44

3. Title of the invention

The title indicated on the published patent application remains unchanged. It reads as follows:

Dynamisches, den Fortgang anzeigendes Ikon

Dynamic progress marking icon

Icône dynamique indiquant le progrès

04.01.95
Date

Signature of legally qual. member	Signature Chairman	Signature primary examiner	Signature 2nd examiner
	LUBERICHS A.	TIBAUX M J P G	BARRACO G.S.

R 30 IBM 1.93 17

Prière d'adresser la correspondance à :

Compagnie IBM France

Le Plan-du-Bois
La Gaude
Alpes Maritimes
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REGISTERED LETTER + A.D.

EUROPEAN PATENT OFFICE
Directorate General 2
Erhardtstrasse 27,
D-8000 MUNICH 2
R.F.A.

Attention : Mr. Tibaux

La Gaude, 22 novembre 1993

Your Ref. : Application No. 90480028.1-2201
Our Ref. : RO 9 88 032/YR

Dear Sirs,

A new set of claims is submitted which addresses the points raised in the examiner's communication dated 07.06.93. What is claimed is a method for automatically providing visual indications about the progress of a task in a computer system. A decision of the Technical Board of Appeal (T115/85) already confirmed that "giving visual indications automatically about conditions prevailing in an apparatus or system is basically a technical problem". In addition the claims have been recast to better articulate the way the claimed method and system addresses the technical problem consisting in automatically and dynamically providing feedback on the progress of a task to the user of a computer system.

The applicant believes that in its present form the new set of claims is now allowable under Article 52(2) (d), and (3) EPC.

Very Truly Yours,

Alain de Pena
Authorized Representative

YRR/fm

EXRE3
03. 12. 93

Compagnie IBM France
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La Défense 4 - 92400 Courbevoie
RCS Nanterre B 552 118 465 - Code APE 2701

CLAIMS

1 In a computer system (10) comprising a display device (12) a method of automatically and dynamically providing feedback to a user of said computer system as to the progress of a task (13), said method comprising the steps of :

- at the beginning of said task, quantifying by means of a task monitor (14) said task into a plurality of substantially equivalent task work units;

- monitoring progress of said task by means of said task monitor and sending a message to an icon generator (15) each time a particular task work unit has been completed ; and

- upon reception of said message updating by said icon generator of an icon (20) representative of the progress of said task.

2. The method of claim 1 wherein said quantifying step performed by said task monitor comprises :

- estimating said task completion time; and

- dividing said task completion time into a plurality of substantially equal task work units.

3. The method of claim 1 wherein said quantifying step performed by said task monitor comprises :

- estimating a number of ascertainable work items in said task; and

- dividing said number of ascertainable work items into a plurality of substantially equal task work units.

4. The method of claim 1 wherein said icon comprises a plurality of symbols (21) arranged in a plurality of numbered cells (41) and wherein each of said symbols corresponds to one of said plurality of task work units.

5. The method of claim 4 wherein updating step comprises replacing said symbol corresponding to said particular task work unit with a replacement character.

6. The method of claim 5, wherein said replacing step further comprises the step of checking a pointer (47) in a pattern array (45), said pointer identifying the array location which contains the number of the cell corresponding to the next symbol (46) to be replaced in said icon.

7. The method of claim 6, wherein said replacing step further comprises the step of moving said pointer in said pattern array to the next array location.

8. The method of claim 6 further comprising the step of initializing said pattern array to indicate the order in which said symbols are replaced responsive to said replacing step.

9. A computer system for efficiently keeping a user informed as to the progress of a task comprising means to carry-out the method of anyone of claims 1 to 8.

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Generaldirektion 2	Directorate General 2	Direction générale 2

Vekemans, André
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FRANCE

Datum/Date: 07.06.93

Zeichen/Ref/Réf	Anmeldung Nr./Application No./Demande n°//Patent Nr./Patent No./Brevet n°
RO 9 88 032	90480028.1-2201/

Anmelder/Applicant/Demandeur//Patentinhaber/Proprietor/Titulaire
International Business Machines Corporation

COMMUNICATION PURSUANT TO ARTICLE 96(2) AND RULE 51(2) EPC

The /further/ examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a **period**

of FOUR **months**

from the notification of this communication, this period being computed in accordance with Rules 78(3) and 83(2) and (4) EPC.

Amendments to the description, claims and drawings are to be filed where appropriate within the said period in **three copies** on separate sheets (Rule 36(1) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).

M. Tibaux
Primary examiner
for the Examining Division

Telephone numbers:

Primary examiner (089) 23 99-2656
(substantive examination)

Formalities officer (089) 23 99-2649
(formalities including extension of time limits)

Examiners' clerk (089) 23 99-2244
(other matters)

Enclosures : 2 page(s) reasons (Form 2906)

Registered letter

File copy

Communication despatched, EXRE and statistical data recorded

07.06.93
Date

Initials

Bescheid/Protokoll (Anlage)		Communication/Minutes (Annex)		Notification/Procès-verbal (Annexe)	
Datum Date Date	07.06.93	Blatt Sheet Feuille	1	Anmelde-Nr.: Application No.: Demande n° :	90 480 028.1

The examination is being carried out on **the following application documents:**

The application documents as originally filed

*****

1). Presentations of information are not patentable according to Art. 52 (2) (d), and (3) EPC. This remains true when the presentations of information are present on a known hardware system, except if the claimed subject-matter, considered as a whole, provides a new technical effect in comparison with the prior art. (Cf. "Guidelines for Examination", Part C, Chapter IV, 2.3)

2). The objective problem solved by the claimed method consists in presenting to the user information about the progress of a task, or about the progress of a task in a given manner. This is achieved by means of changes in an icon.

This problem fundamentally relates to a manner of presenting information, and the effect obtained is not of technical nature.

3). Consequently the claims are not acceptable because the claimed subject-matter, considered as a whole, does not provide any contribution to the art in a field not excluded from patentability under Art. 52(2) EPC

Bescheid/Protokoll (Anlage)	Communication/Minutes (Annex)	Notification/Procès-verbal (Annexe)
Datum Date Date: 07.06.93	Blatt Sheet Feuille: 2	Anmelde-Nr.: Application No.: 90 480 028.1 Demande n° :

4). The Examiner has carefully reviewed the application and could not distinguish any subject-matter which could serve as a basis for a new, allowable claim.

Should the Applicant nevertheless regard some particular matter as patentable an independent claim including such particular matter should be filed taking account of Rule 29(1) EPC.

The Applicant should also indicate in the letter of reply, and make arguments for, the technicality of any features claimed.

All terms used in the new claims to be filed should be rigorously defined in the text of the claims, in order to meet the clarity requirements of Art. 84 EPC. In the claims as they stand the following terms are not defined :

- "work", "task work units" (claim 1);
- "work items" (claim 2);
- "progress" (claim 12);
- "substantially equivalent task" (claim 13).

5). The attention of the applicant is drawn to the fact that the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, Article 123(2) EPC.