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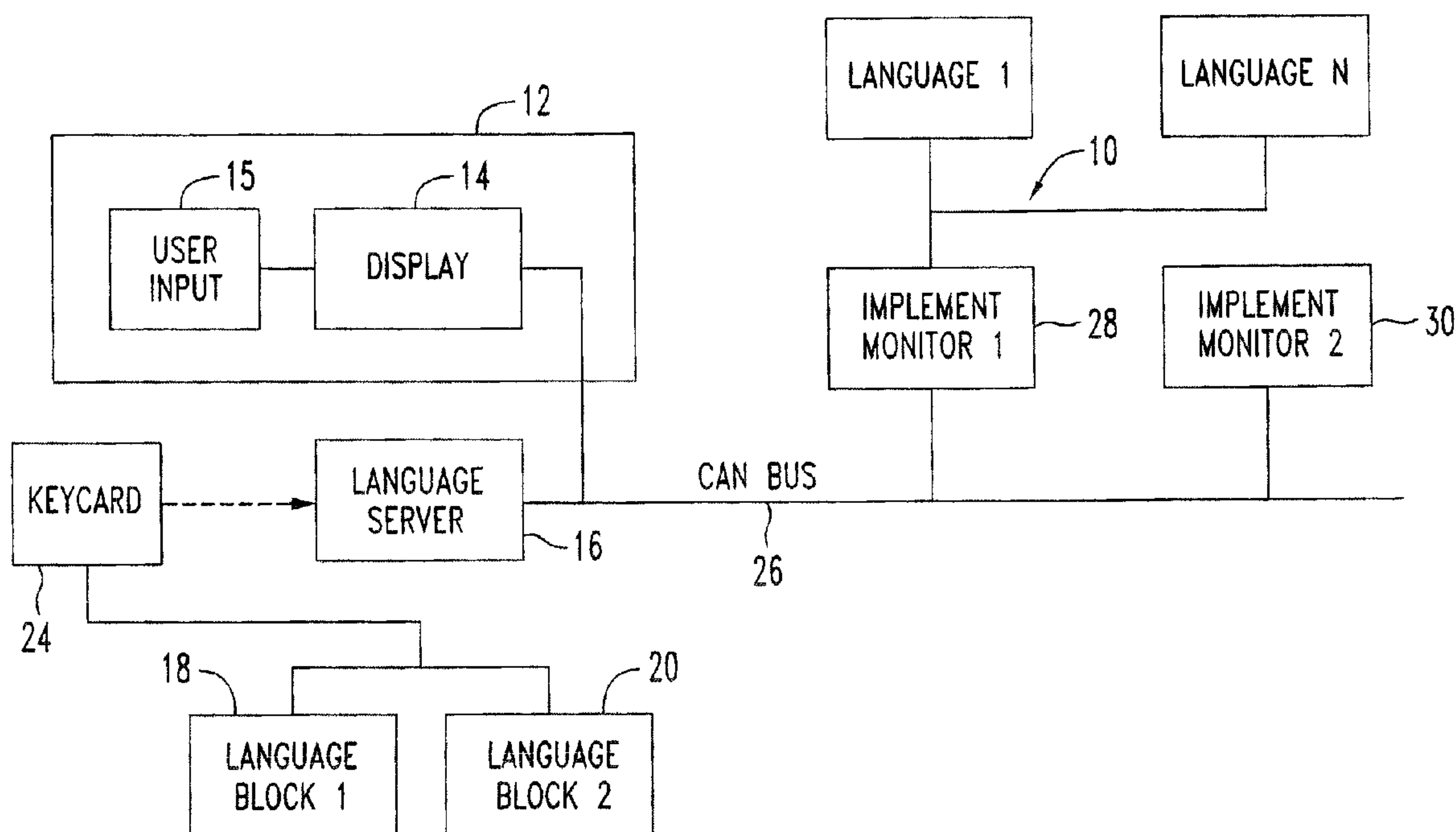
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(54) Titre : SYSTEME ET METHODE DE LANGUES CHARGEABLES POUR AFFICHAGE DE CONTROLE
D'INSTRUMENT

(54) Title: SYSTEM AND METHOD OF LOADABLE LANGUAGES FOR IMPLEMENT MONITORING DISPLAY



(57) Abrégé/Abstract:

The present invention discloses a method and system for providing user selectable loadable language blocks to at least one implement monitor and to a display for displaying information from at least one implement monitor, the system includes a first article of software programmed to generate a first language block, a second article of software programmed to facilitate translation of the first language block to a second language block, and a set of instructions contained within the language server to transfer at least one of the language blocks to the at least one implement monitor.

5 ABSTRACT OF THE DISCLOSURE

The present invention discloses a method and system for providing user selectable loadable language blocks to at least one implement monitor and to a display for displaying information from at least one implement monitor, the system
10 includes a first article of software programmed to generate a first language block, a second article of software programmed to facilitate, translation of the first language block to a second language block, and a set of instructions contained within the language server to transfer at least one of the
15 language blocks to the at least one implement monitor.

5 TITLE: SYSTEM AND METHOD OF LOADABLE LANGUAGES FOR
IMPLEMENT MONITORING DISPLAY

BACKGROUND OF THE INVENTION

10 1) Field of the Invention

The invention relates to implement monitoring and display. More particularly, the invention relates to a system and method of loading and distributing language blocks so that a single implement monitoring system is readily
15 configurable for displaying information in different formats and languages.

2) Related Art

One example of an implement monitoring and display system is the Green Star Display (GSD) available from John
20 Deere. The GSD is an electronic module with a general purpose display and general purpose key pad that can be used to display tractor and/or implement information. Its primary purpose is to provide a display head for various implement monitors. Such implement monitors may be used on combines,
25 tractors, self-propelled sprayers, utility vehicles, and other implements or equipment. Implement monitors can be used for implement performance information, GPS information, yield monitoring, and other purposes.

A single display unit may be used with multiple
30 implement monitors. Despite the advantages of such a system, problems remain. In particular, there are problems in adapting such a system to be used for different languages. In such a system, there are many problems in developing an interface suitable to be used with multiple languages. It is
35 desirable to make a single implement monitor display system that can be easily adapted to support multiple languages. Further, it is desirable to manufacture implement monitors

5 that can be adapted to multiple foreign languages. There are numerous problems in creating such a system.

One prior art solution would be to use a system that provides built-in support for a limited number of languages. For example, such a system could support common languages
10 such as English, Spanish, German, and French. Such a prior art system is embodied in the Green Star product available from John Deere. Such an implementation is limited to a fixed list of foreign languages. Problems include a lack of support for these languages. For example, support can be a
15 problem because new product versions cannot be released until all four translations are complete. Engineers and software developers are not typically translation experts. Therefore, engineering would need to communicate with outside translators in order to provide support.

20 A further problem is that the process of adapting a software system for different languages involves more than merely substituting text strings. The whole screen format or user interface may need to be altered because of space requirements. Text strings in one language may be longer or
25 shorter than an equivalent in a different language. Thus, problems remain.

Therefore, it is a primary object of the present invention to improve upon the state of the art.

It is a further object of the present invention to
30 provide an implement monitoring display system that is capable of supporting more than four languages.

It is a still further object of the present invention to provide an implement monitoring system that facilitates translations from one language into other languages.

35 Yet another object of the present invention is to provide a method and system for providing an implement monitoring display system that reduces the amount of time and

5 resources needed to be devoted to communication between foreign language translation experts and engineering staff.

A further object of the present invention is to provide an implement monitoring system wherein languages can be easily updated.

10 A still further object of the present invention is to provide an implement monitoring system that can be easily adapted to any foreign language.

Another object of the present invention is to provide an implement monitoring display system that can be adapted for
15 use with multiple foreign languages without requiring revision of the source code.

Yet another object of the present invention is to provide for an implement monitoring system that provides for user selectable loadable language blocks.

20 A still further object of the present invention is to provide an implement monitoring system that allows language blocks loaded on a language server to be communicated to multiple implement monitors.

These and other objects of the present invention will
25 become apparent from the specification and claims.

BRIEF SUMMARY OF THE INVENTION

The present invention includes a system and method for providing user selectable loadable language blocks to at
30 least one implement monitor and to a display. An implement monitor is a language server in communication with a display. The display provides for displaying information from the at least one implement monitor. The language server is electrically connected to the display and a bus connects the
35 language server and at least one implement monitor. The system further provides for the creation of user selectable

5 loadable language blocks. The system includes a first article
of software programmed to generate a first language block, a
second article of software programmed to facilitate
translation of the first language block to a second language
block, and a set of instructions contained within the
10 language server to transfer at least one of the language
blocks to at least one implement monitor.

The present invention provides the advantages of an
implement monitoring system that is capable of being adapted
to support any number of foreign languages. The translation
15 between languages is facilitated through software. The
software allows not only translation, but also provides for
altering the user interface or the display format in order to
accommodate different languages. This includes changing
object types of display objects, changing selection types,
20 changing title types, in addition to merely translating the
words to ensure that the display format or interface is
suitable for use in different languages.

A language block, once created, can be loaded onto a
language server within the implement monitoring display
25 system. Once the language block is loaded, the language
block can be transferred from the language server
associated with a display to other implement monitors
interconnected on the same bus. In this manner, the present
invention provides for the advantage of being able to allow
30 an implement monitoring system to support multiple foreign
languages. The software is easily updateable to accommodate
new foreign languages or other software updates.

According to the method of the present invention, a
first language block is generated which contains text of a
35 first language to be visually displayed to provide visual
feedback of an implement monitor. Once the first language
block is generated, the first language block is translated

5 into a second language block containing text of a second language to be visually displayed to provide visual feedback of the implement monitor. Then a language server electrically connected to the display is loaded with the second language block. Next, the second language block is
10 transferred from the language server to an implement monitor. Visual feedback of the implement monitor is then displayed according to the second language block. Thus, according to the method of the present invention, a language block can be created, loaded onto a language
15 server of the display system, transferred to an implement monitor, and used to display visual feedback of the implement monitor.

The implement monitoring display system of the present invention provides for displaying information from at least
20 one implement monitor. The implement monitor display system includes a display for displaying information, a language server electrically connected to the display, a bus electrically connected to the implement monitor and the language server, a plurality of language blocks accessible
25 to the language server, a user input operatively connected to the language server for receiving a user selection of at least one of a plurality of language blocks, and the language server being programmed to transfer at least one of the plurality of language blocks to at least one implement
30 monitor.

This invention also contemplates that the information to be translated is sent by available modes to remote international locations where translated language can be easily read and understood. This shifts the responsibility
35 of translating the information to personnel located in the regions of the world where the translation will be utilized.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram showing the implement monitoring display system of the present invention.

Figure 2 is a front view of an implement monitoring display of the present invention.

10 Figure 3 is a flow diagram showing one methodology according to the present invention.

Figures 4A through 4G are pictorial representations of user interfaces of the present invention that illustrate how the screen format or user interface may be modified to
15 accommodate different languages.

DETAILED DESCRIPTION OF THE INVENTION

The invention provides for a system and method for implement monitoring that provides for support for multiple
20 languages. As shown in Figure 1, the implement monitoring system 10 includes an implement monitoring display 12. The implement monitoring display 12 is a unit that includes a display 14 electrically connected to a language server 16. In addition, user input 15 is electrically connected to
25 the language server 16. Loaded on or otherwise accessible to the language server 16 are a plurality of language blocks such as a first language block 18 and a second language block 20. A removable module such as a Key Card™ 24 is optionally electrically connected to the language server
30 16. Additional language blocks are contained on the removable module 24 in order to be loaded onto the language server 16. The language server 16 is also electrically connected to a bus 26. The bus 26 may be a Controller Area Network (CAN) bus or other bus or
35 interconnection such as is known in the art. Also connected to the bus 26 is at least one implement monitor. Implement monitors include monitors such as may be used to sense or

5 monitor engine performance or vehicle performance. In addition, the implement monitors may be associated with more specific monitoring tasks. For example, where used in conjunction with agricultural implements, the implement monitors may be used to monitor yield, or otherwise monitor
10 the harvesting process, monitor the planting process, monitor the application of chemicals, or other processes. As shown, a first implement monitor 28 and a second implement monitor 30 are electrically connected to bus 26.

Figure 2 provides a front view of the implement
15 monitoring display system 12 of the present invention. In Figure 2, the implement monitoring display system 12 includes a display 14, and a plurality of user inputs 15. Although not shown in Figure 2, the input monitoring display system 12 also includes a language server electrically connected to
20 the display 14 and to the user inputs 15. In addition, the implement monitoring display system is preferably adapted to receive a removable device such as a Key Card™ that contains additional language blocks.

Figure 3 is a flow diagram of one method according to
25 the present invention. In step 32 of Figure 3, a first language block is generated. The first language block may be in the English language, although the present invention contemplates the first language block may be in any language. Preferably, the first language block is in a language that
30 the engineers and/or software developers are fluent in. In step 34, the language block is translated to create a second language block. In addition to merely translating words, the present invention provides for altering the display format or user interface associated with the first language block to
35 create a second display format or user interface associated with the second language block. For example, in the translation process, a single English word may not translate

5 precisely to a single German word. Furthermore, the English
word may be longer or shorter than the German word. The
present invention removes restrictions that previously
limited the ability to create proper translations. Alternate
display formats may be used. For example, the present
10 invention contemplates that object types may be changed. In
addition, the present invention contemplates that selection
types may be changed, as well as title types. These
different types are merely ways of describing the user
interface or the display format and the elements or objects
15 that are a part of the user interface or display format.

Next, in step 36, the second language block is loaded
onto a language server within the implement monitoring
display system. The present invention contemplates that the
language block may be loaded in any way. For example, the
20 language block may be loaded into the language server from
a Key Card™ or other removable module as well as any other
memory.

Next, in step 38, the second language block is
transferred to at least one implement monitor. Where the
25 language server is electrically connected on the bus to
one or more implement monitors, the language block is
transferred across the bus from the language server to the
implement monitor.

Next, in step 40, the information from the implement
30 monitor is displayed on the implement monitor display
according to the second language block. This includes
displaying text in the proper language and selecting proper
object types, title types, selection types and/or other
properties associated with the display format.

35 The adaptation of the screen format or user interface
supports the translation process. Figures 4A through 4G
illustrate representative manners in which the screen display

5 or user interface may be altered in the creation of a new
language block. It should be appreciated that these
alterations are made without requiring reprogramming.
Further, the present invention contemplates any number of
properties associated with the screen format or user
10 interface to be altered.

Where the first language block is created in English, an
English language file generator is used to create a file that
contains all the English text as used by the application. The
English language file generator records in the file
15 information as required by translators. After this function
is performed, an English language block translator tool is
then used to facilitate the translation of the English text
of other languages. The translator can now establish
language objects to translate groups of related text. This
20 allows the translators to rearrange wording to accommodate
the foreign text that is of a different length than the
English text or of a different syntax. This results in a
shifting of the translation responsibility from engineers to
the translator.

25 In Figure 4A, a screen display or format 42 is shown.
The screen display includes title text 44 as well as three
different selections, a first selection 46, a second
selection 48, and a third selection 50. The third selection
50 is selected. In addition, a toggle arrow 52 is shown that
30 allows a user to toggle between different selections. The
present invention provides for different variations on the
objects used, the titles used, and the selections used. The
object type to be used, the title type to be used, and the
selection type to be used depend at least partially upon the
35 amount or size of translated text.

Another example of a screen format or user interface is
shown in Figure 4B. The screen 42 includes title text 44 as

5 well as three selections, the first selection 46, a second selection 48 and a third selection 50. Figure 4A and Figure 4B differ according to the selection type chosen. The selection type chosen in Figure 4B allows the first selection 46 to be placed upon the same line as the title text 44.

10 This selection type accommodates the situation that arises when the first selection 46, the second selection 48, and the third selection 50 are too lengthy to fit on a single line - such as that shown in Figure 4A.

Figure 4C provides yet another illustration of how the screen display format can be altered in order to support the translation of language blocks into different languages. According to Figure 4C, there are four selections which include a first selection 46, a second selection 48, a third selection 50, and a fourth selection 54. The title is not shown in Figure 4C in order to make room for all of the available selections.

Another example is shown in Figure 4D. In Figure 4D a centered title 44 is shown and there are two selections available although only one selection is displayed at once. The selection 56 may be toggled between two or more values. Another example of a screen format is shown in Figure 4E. In Figure 4E, the title 44 is centered and there are two selections available, the sections being on different lines.

As shown in Figure 4F, there are eight selections available and the title 44 has two lines with the top title line being longer than the bottom title line.

In Figure 4G, the title 44 is centered and there are eight selections. Different selections (may be chosen by using a "go to" arrow 66 to change between the selections.

35 The present invention contemplates that the display format may be altered in these and other ways in order to accommodate proper foreign language translations. The object

5 type, title type, selection type, and other visual properties
of the display format are selected according to the amount of
space available after the text has been translated and other
considerations that may be proper given a particular
translation. The selection of the proper display format is
10 either automatically determined by the software or is
selected by a user.

Therefore the present invention provides a system and
method for providing user selectable loadable language blocks
to implement monitors and an implement monitoring display
15 system. The invention provides for altering language blocks
to accommodate various foreign languages. The invention does
so without requiring engineers to be involved in the
translation process.

It should be appreciated that the present invention
20 contemplates any number of languages to be used, any language
to be used, different screen display formats or interfaces,
different types of optional removable modules for containing
language blocks, any number of types of implement monitors,
and other variations.

25 As previously indicated the method wherein the visual
feedback is transmitted to remote international locations
where translated language can be easily read and understood
so as to shift the responsibility of dealing with the
translated information from local areas to support
30 appropriate and relevant operation in different regions of
the world.

5

Claims:

1. A system for providing user selectable loadable language blocks to at least one implement monitor and a display for displaying information from at least one implement monitor, a language server electrically connected to the display, and at least one implement monitor comprising:
- 10 a first article of software programmed to generate a first language block;
- a second article of software programmed to facilitate translation of the first block to a second language block; and
- 15 a language server to transfer at least one of the language blocks to at least one implement monitor.
- 20 2. The system of claim 1 wherein the second article of software is programmed to facilitate translation of the first language block to a second language block by allowing a user to alter a display format used for displaying information.
- 25 3. The system of claim 2 wherein the display format includes an object type to allow alteration of the text and the method by which it is presented.
4. A method for providing an implement monitoring display system, comprising:
- 30 generating a first language block containing text of a first language to be visually displayed to provide visual feedback of an implement monitor;
- translating the first language block into a second language block containing text of a second language to be visually displayed to provide visual feedback of the implement monitor;
- 35

5 transferring a second language block to a language server;
transferring the second language block from the language
server to an implement monitor; and
displaying visual feedback of the implement monitor according
to the second block.

10

5. The method of claim 4 further comprising altering a
first display format associated with the first language block
to create a second display format associated with the second
language block.

15

6. The method of claim 5 wherein the step of altering
includes changing an object type to allow alteration of the
text and the method by which it is presented.

20

7. An implement monitoring display system for displaying
information from at least one implement monitor, comprising:
a display for displaying information;

a language server electrically connected to the display;
an implement monitor electrically connected to the language

25

server and the display;

a plurality of language blocks accessible to the language
server;

a user input operatively connected to the language server for
receiving a user selection of at least one of the

30

plurality of language blocks; and

the language server being programmed to transfer at least one
of the plurality of language blocks to at least one
implement monitor.

35

8. The implement monitoring display system of claim 7
wherein each of the plurality of language blocks include a
display format representation.

5

9. The implement monitoring display system of claim 8; wherein the display format representation includes an object type to allow alteration of the text and the method by which it is presented.

10

10. The implement monitoring display system of claim 7 further comprising a removable module operatively connected to the language server, the removable module containing at least one of the plurality of language blocks.

15

11. The method of claim 4 wherein the visual feedback is transmitted to remote international locations where translated language can be easily read and understood so as to shift the responsibility of dealing with the translated

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information to personnel located in the regions of the world where the translation will be utilized.

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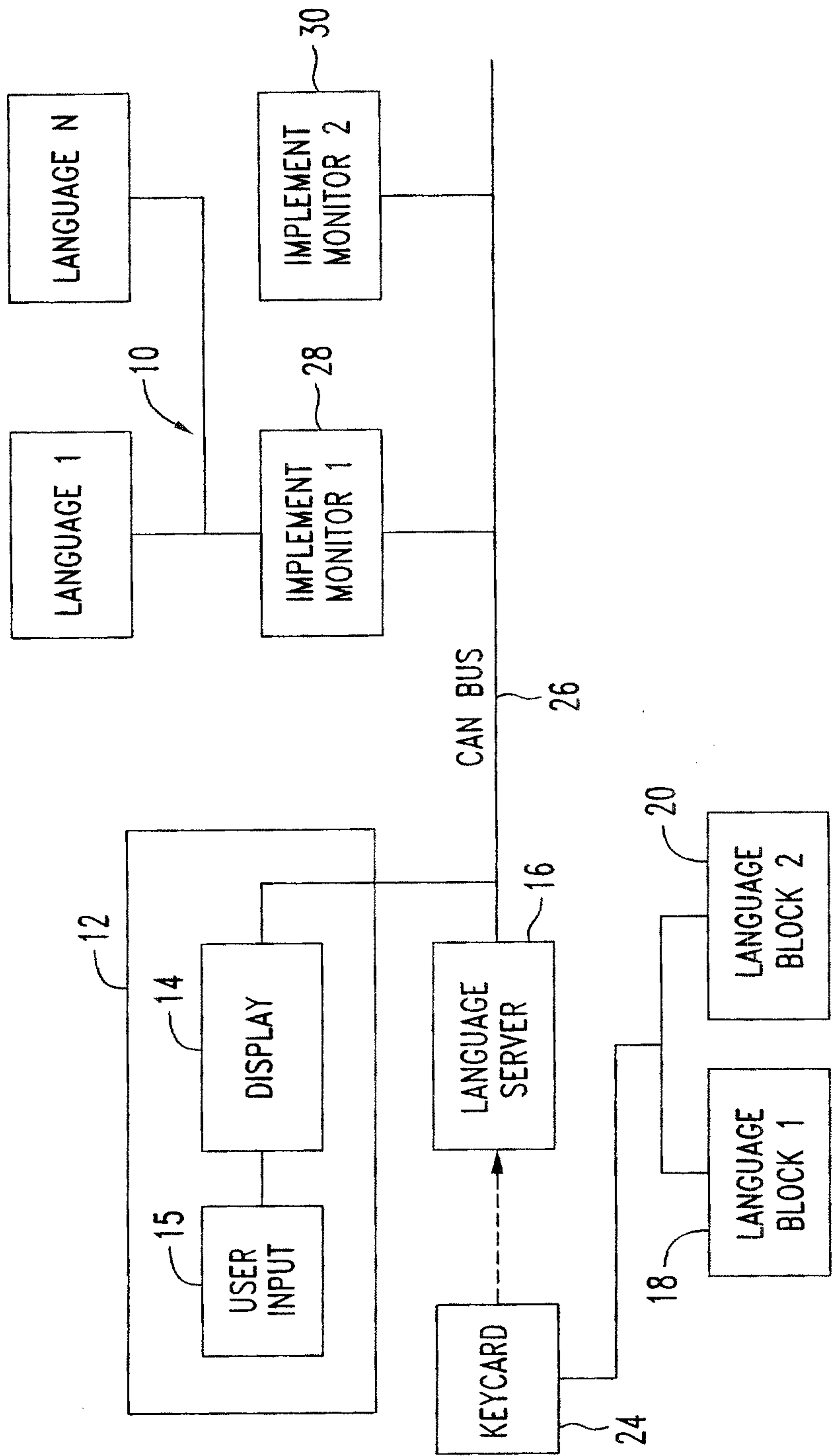
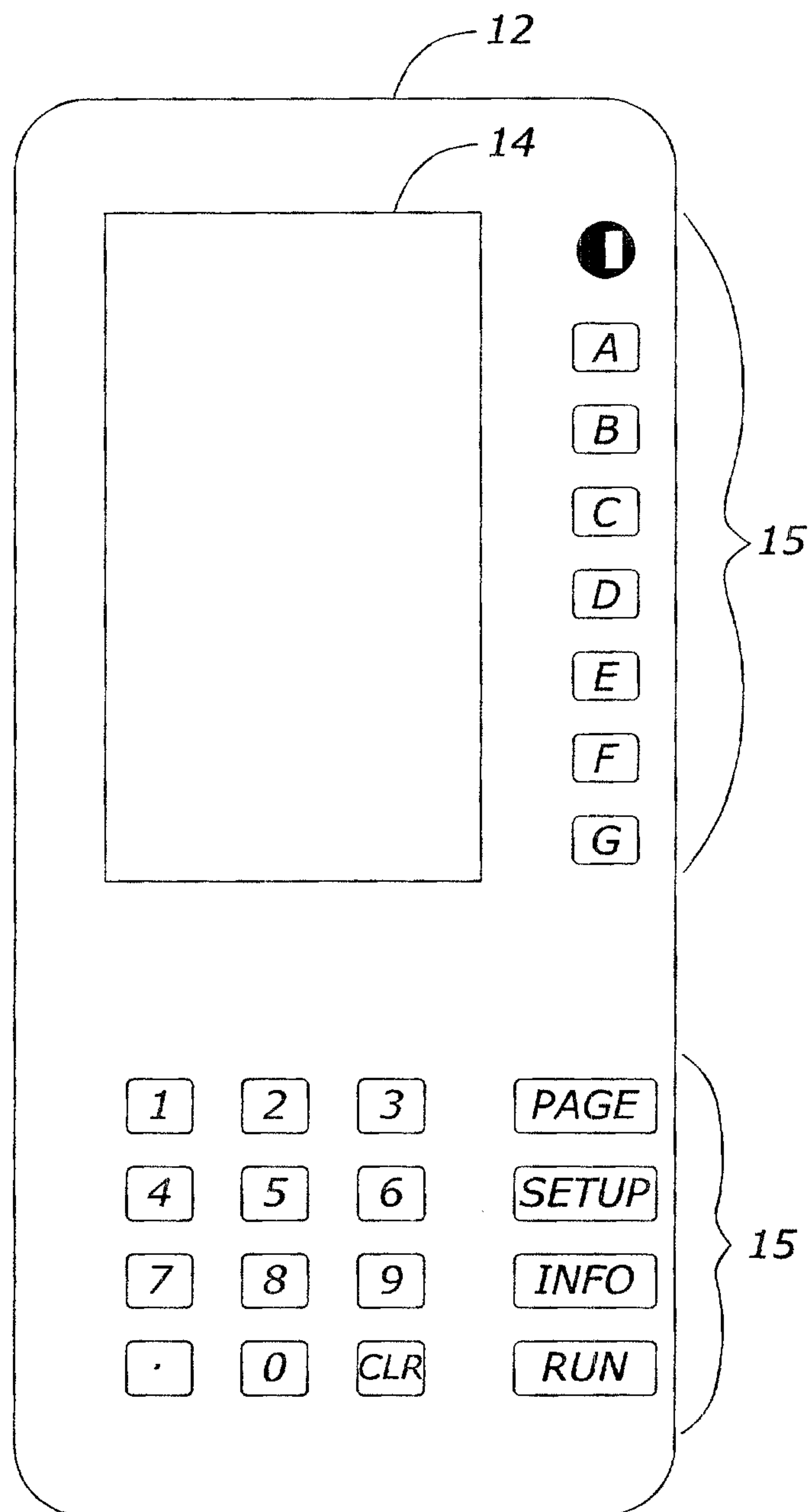
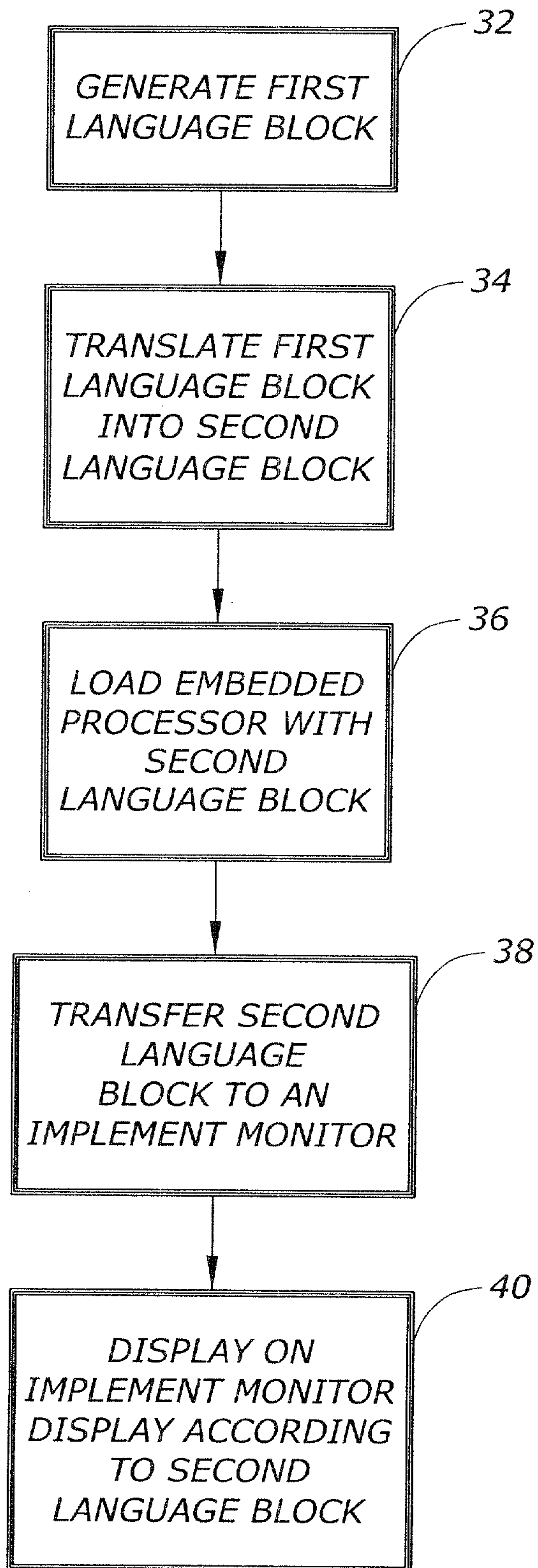


FIG. 1

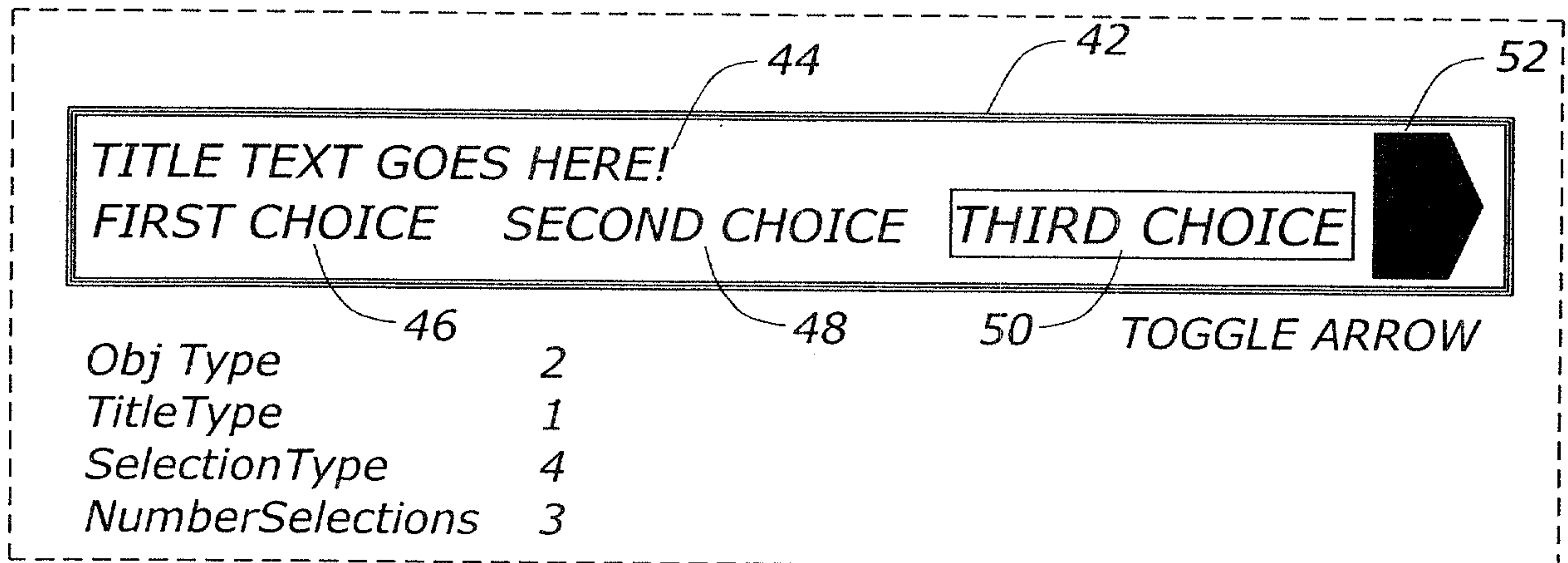
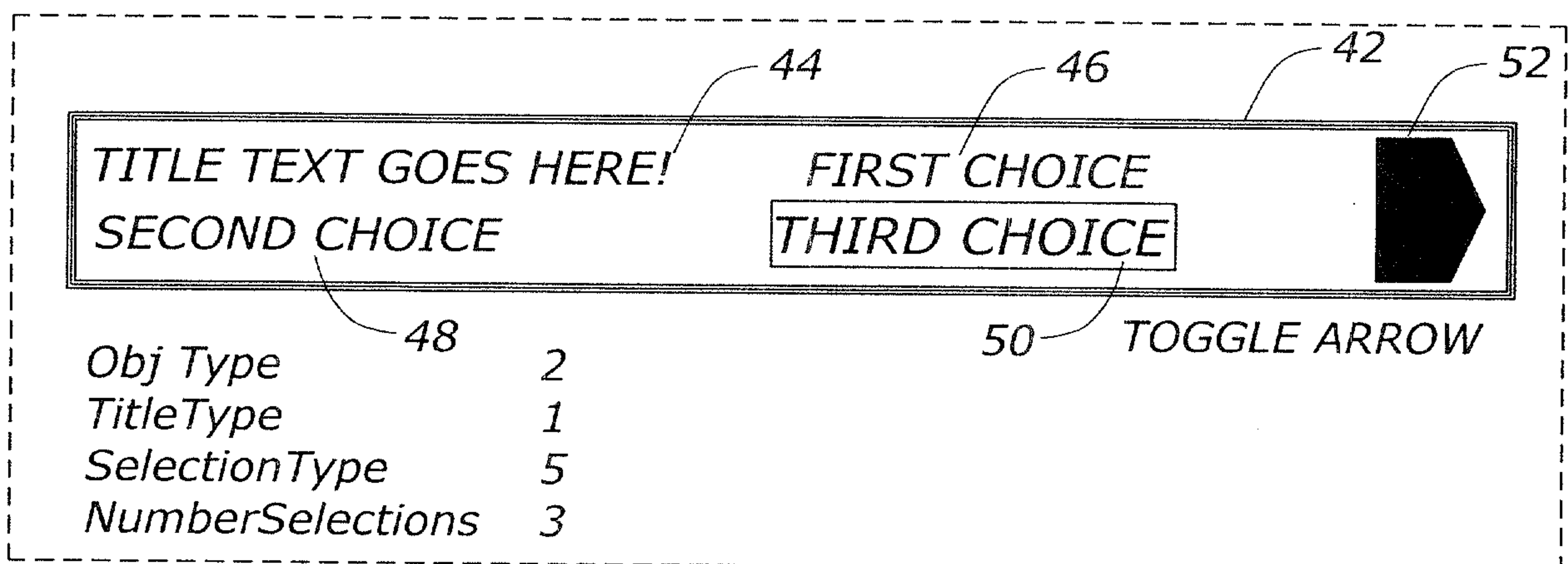
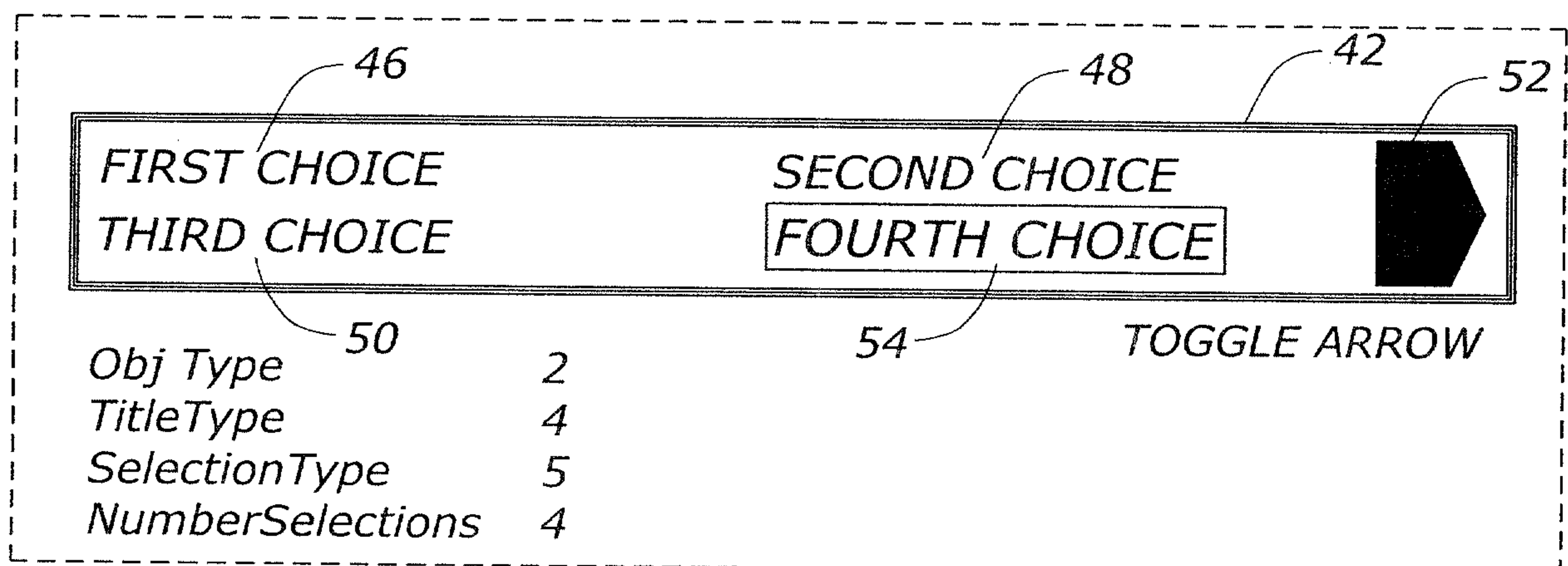
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Fig. 2

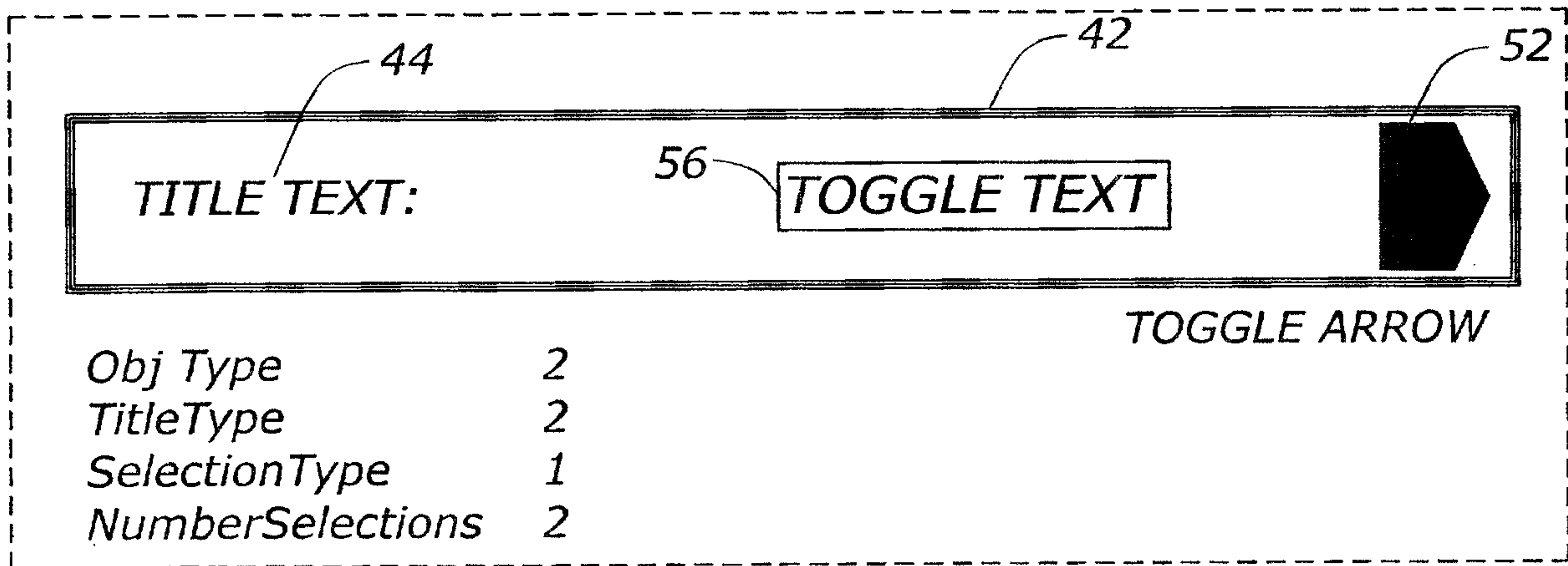
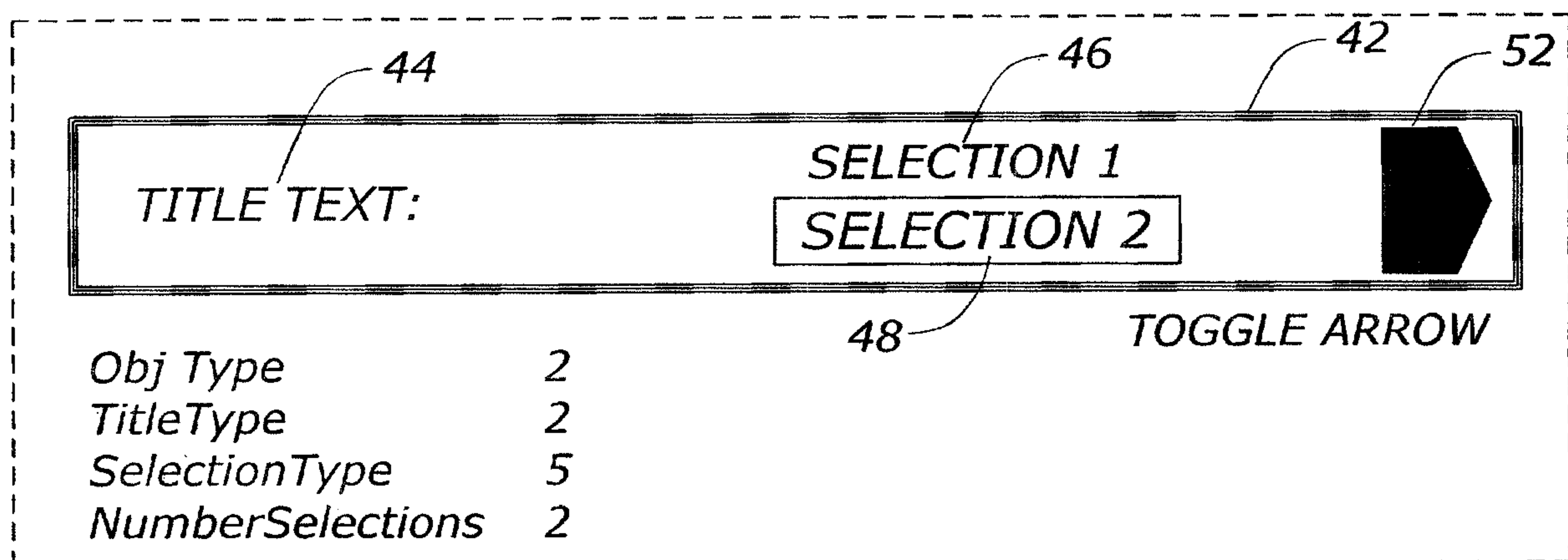
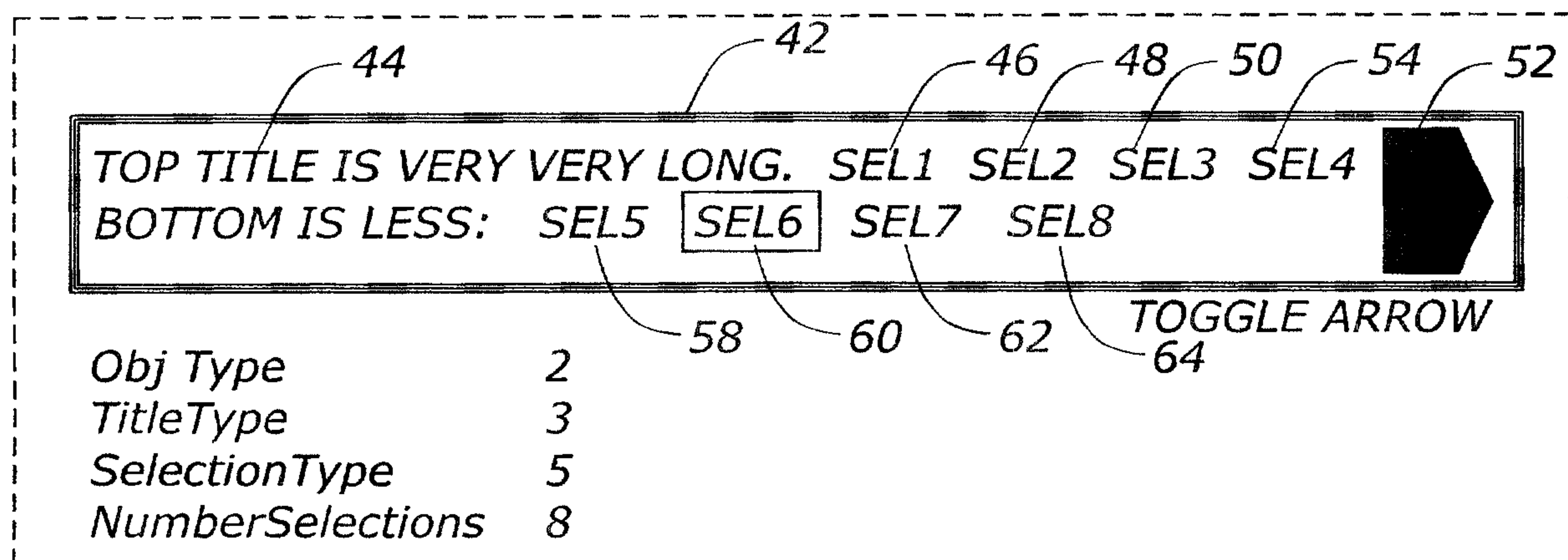
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Fig. 3

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Fig. 4AFig. 4BFig. 4C

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Fig. 4DFig. 4EFig. 4F

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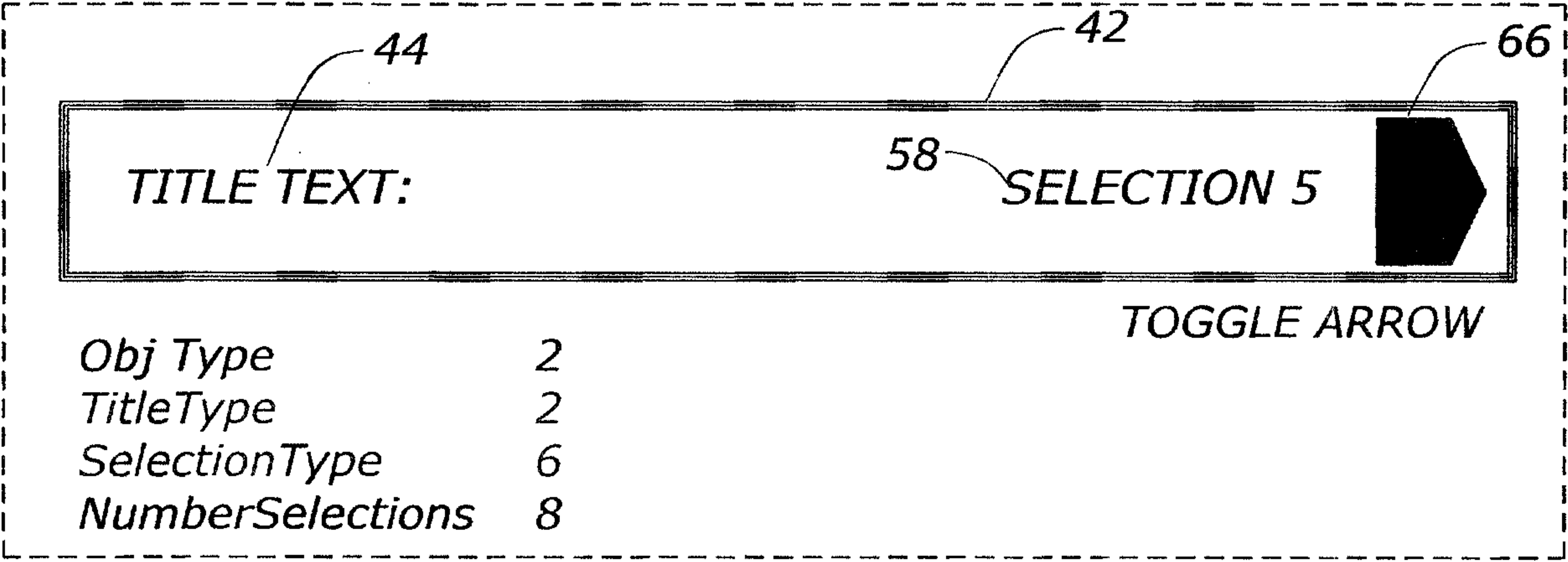


Fig. 4G

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