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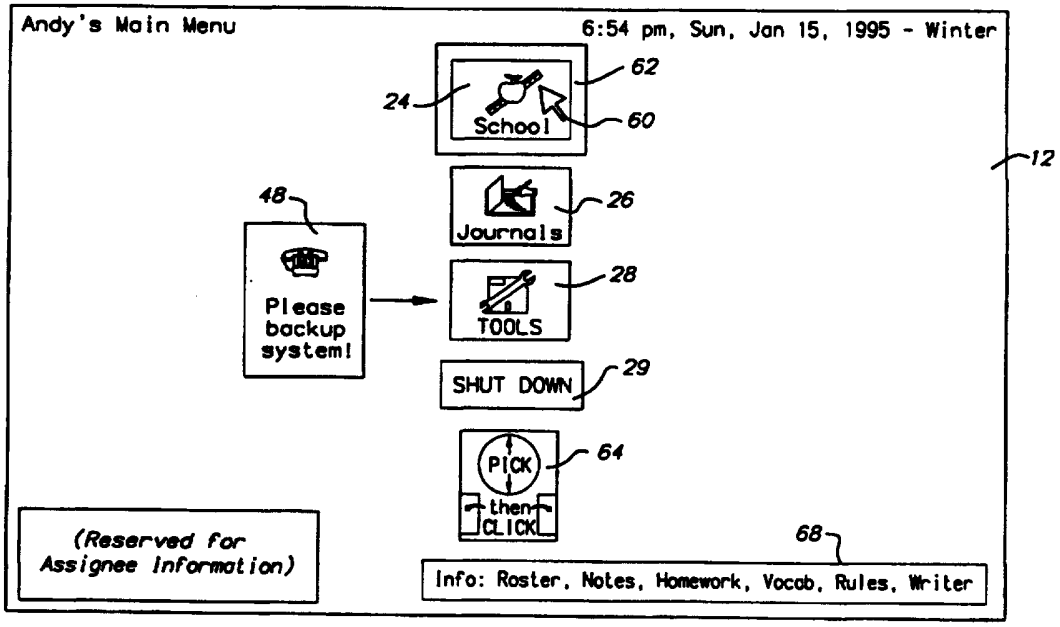

(57) Abstract

A compensatory assistive device (1) for students with cognitive impairment (including but not limited to traumatic brain injury, stroke, electrocution, anoxia, mental retardation, dementia, amnesia, and learning disabilities) and/or physical disabilities (such as cerebral palsy) is provided via an interactive computer system (2) that provides an easy-to-use, multi-subject, school planner using a graphical user interface configured with particular color associations, pointer travel limitations, simplified option selections and active view-screen limitations.

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EDUCATIONAL ORGANIZER

SPECIFICATION

FIELD OF THE INVENTION

The invention pertains to devices that provide cognitively-impaired students with a compensatory assistance apparatus. In particular, the invention pertains to a graphically interactive computer system that allows the student to read and respond to lessons, schedules, etc., while permitting access to an instructor for supervision purposes and access to a remotely-located storage/servicing entity via a modem line.

BACKGROUND OF INVENTION

Providing the cognitively-impaired student with an easy and fun way of learning and organizing tasks relies on the use of orthosis (the correction of mental or physical distortion) devices rather than prosthesis (replacement of missing body parts) devices. In other words, the learning disabled student is provided with prompts, cues, or other indicia which minimize or simplify a particular mental or physical distortion experienced by the student in order to facilitate the student's response to a particular task without the use of medical devices coupled to the student.

Desk-top personal computers provide the ideal technologic opportunity for implementation of an assistive device to enable cognitively or physically disabled students to accomplish an unlimited number of tasks. Examples of this are the software packages provided by Laureate Learning Systems, Inc., of Winooski, Vermont. Laureate Learning Systems, Inc. provide talking software that allows the disabled student to develop abilities, develop language skills, treat aphasia (a total or partial loss of the power of using or understanding words, usually caused by brain damage or injury) and traumatic brain injury, and reading difficulties. Any computer system having a keyboard, mouse and/or touch-screen can support these software packages.

Other exemplary software packages dedicated to the development of learning disabled students is provided in the

TECH-NJ Technology, Educators, & Children with Disabilities-New Jersey, Spring 1994, Vol. 5, No. 1.

The closest art available is a specially designed cognitive orthotic software system sold under the trademark "Essential Steps" by the Assignee of the present invention. This software system provides users with acquired brain injury and other cognitive impairments a comprehensive, easy-to-use computer that, among other things: manages time, schedules appointments and activities, budgets and manages money, provides a daily journal in an easily reviewable format, logs and reviews telephone calls, maintains a personal telephone directory and supports self-care and personal grooming. This system uses on-screen cues and directions, guided sequences, single keystroke functions, arousal alert, voice output for cuing and voice input for responding. However, this system, among other things, is not designed for assisting cognitively impaired students with school-related activities, allows the student only a limited number (and a limited size) of files to save, and does not allow the student to partition tasks into steps having their own completion dates. Finally, this system does not use a graphical user interface for simplifying the user response to avoid having the user memorize command strings.

OBJECTS OF THE INVENTION

Accordingly, it is the general object of this invention to overcome the disadvantages of the prior art.

It is an object of this invention to provide a compensatory assistive device for students with cognitive impairment (including but not limited to traumatic brain injury, stroke, electrocution, anoxia, mental retardation, dementia, amnesia, and learning disabilities), and/or physical disabilities (such as cerebral palsy).

It is yet another object of this invention to provide an easy-to-use computer orthotic software system that eliminates the need for the student user to memorize command strings (e.g., to boot the system, print documents) and storage hierarchies (e.g., directories, files).

It is still yet a further object of this invention to provide an easy-to-use computer orthotic software system that can be easily modified thereby allowing customization for the varied and specific needs of the disabled student.

It is even yet a further object of this invention to provide an easy-to-use computer orthotic software system that is operable on a standard personal computer which can be used in a network, in a notebook computer, and/or linked by modem for support and backup.

It is another object of this invention to provide a computer orthotic software system having highly simplified functions with on-screen instructions and cues, consistent screen design, single "click" selection with pointing devices and use of color associations.

It is yet a further object of this invention to provide an organized and structured school organizer for direct use by students without the need for assistance.

SUMMARY OF THE INVENTION

These and other objects of the instant invention are achieved by providing a compensatory assistive apparatus for a user (e.g., a student) with cognitive impairment (including but not limited to traumatic brain injury, stroke, electrocution, anoxia, mental retardation, dementia, amnesia, and learning disabilities), and/or physical disabilities (such as cerebral palsy) which allows the user to make entries and files therein. The apparatus comprises a first computer having a monitor and a graphical user interface that displays only one application on the monitor at any time. The graphical user interface requires the exiting of the application before entering another application. Within each application that is displayed on the monitor there is a predetermined number of user prompts and working information at predetermined locations on the monitor using predetermined colors. The graphical user interface uses a movable pointer which the graphical user interface restricts in displacement in all directions in the displayed application so that the movable pointer always remains in the view of the user. Furthermore, the graphical user interface displays a

guidance icon that graphically instructs the user what the user must do to respond. In addition, the graphical user interface automatically saves all files and entries created by the user to the first computer without user intervention. The apparatus has an input means for inputting data to the first computer and for controlling the pointer. The apparatus also has an output means for outputting data from the first computer.

DESCRIPTION OF THE DRAWINGS

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

Fig. 1 depicts a personal computer system in which the educational organizer can be employed;

Fig. 2A is overview of the educational organizer;

Fig. 2B is a block diagram of the Class function in the Roster;

Fig. 2C is a block diagram of the Journals option;

Fig. 2D is a block diagram of the Maintenance Menu;

Fig. 3 is the Main Menu of the educational organizer;

Fig. 4 is the roster menu of the educational organizer;

Fig. 5 is the Notes function for a science class of the educational organizer;

Fig. 6 is the Homework function for a science class of the educational organizer;

Figs. 7A-7E is the New subfunction of the Homework function in Fig. 6;

Fig. 8 is the Vocabulary function for a science class of the educational organizer;

Figs. 9A-9D is the New subfunction of the Vocabulary function in Fig. 8;

Fig. 10 is the Rules function for a science class of the educational organizer;

Fig. 11 is the Writer function for a science class of the educational organizer;

Fig. 12 is the New subfunction of the Writer function in Fig. 11;

Figs. 13A-13B are the Modify subfunction of the Writer function in Fig. 11;

Fig. 14 is the School Journal function of the educational organizer;

Fig. 15 is the Calendar subfunction of the School Journal function in Fig. 14;

Figs. 16A-16B are the Spelling subfunction of the School Journal in Fig. 14;

Fig. 17 is the Personal Journal function of the educational organizer;

Fig. 18 is the selected date display using the Calendar subfunction of the Personal Journal function;

Fig. 19 is the Tools menu of the educational organizer;

Figs. 20A-20C is the Back-Up function of the Tools menu in Fig. 19;

Fig. 21 is the Service function of the Tools menu in Fig. 19;

Fig. 22 is the User Information function of the Maintenance Menu;

Fig. 23 is the Classes function of the Maintenance Menu;

Fig. 24 is the New subfunction of the Classes function in Fig. 23;

Fig. 25 is the Modify subfunction of the Classes function in Fig. 23;

Fig. 26 is the Rules subfunction of the Classes function in Fig. 23;

Fig. 27 is the System function of the Maintenance Menu;

Fig. 28 is the Modules function of the Maintenance Menu;

Fig. 29 is the System Log function of the Maintenance Menu; and

Figs. 30A-30AV are the flow charts for the educational organizer.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in detail to the various figures of the drawing wherein like reference characters refer to like parts, there is shown at 1 in Fig. 1, a personal computer station which utilizes the educational organizer 20 (Figs. 2A-2D). The personal computer station 1 comprises a conventional notebook computer 2 (e.g., Austin Notebook Computer, MacIntosh Powerbook) having a graphical user interface (e.g., WINDOWS). The notebook computer 2 has a monitor 3 and a keyboard 4 and which is coupled to an associated docking station 5 (e.g., EDS20SN Expansion Docking Station manufactured by IPC/AUSTIN Direct, Inc.). The docking station 5 permits the notebook computer 2 to be coupled to a variety of I/O (input/output) devices such as a printer 6, a mouse 7, a joystick 8, a track ball 9, a touch pad 10 or even a sip-puff device 11 depending on the disability of the user. Another alternative input device is where the monitor 3 has a screen display 12 that is touch-sensitive, i.e., a "touch screen". The importance of the docking station 5 is that, among other things, it alleviates the user from having to couple, manually, I/O devices to his/her notebook computer 2 directly; the user need only couple the notebook computer 2 to the docking station 5 and turn on his/her computer 2 in order to initialize the educational organizer 20. The personal computer station 1 is also linked by modem line 13 to an external computer station (not shown).

It should be pointed out at this juncture that the notebook computer 2/docking station 5 could be replaced with a desk-top computer (not shown) whereby the I/O devices would be directly coupled to the desk-top computer. It should also be noted that subsequent use of the phrase "primary user station" refers to that location where the primary user is coupled to the external computer station by the modem line 13. On the other hand, when the primary user is in a classroom setting, typically the student is using the notebook computer 2 as a stand-alone and is not coupled to the modem line 13. It should also be noted

that the primary user station could also be part of a computer network.

The educational organizer 20 (Figs. 2A-2D) is a multi-subject planner appropriate for the student having the cognitive impairment, i.e., the primary user, who is able to read and record in written language. In addition, the educational organizer 20 is also designed for use by secondary users, i.e., the teacher, therapist or parent who programs the higher level functions; and the tertiary users, i.e., the providers/ administrators. The student, teachers, parents or therapists can set up a schedule for school subjects, with complete flexibility in setting the number and names of subjects, instructors, classroom locations, class times and divisions for taking notes in each subject. For each subject the educational organizer provides "files" for keeping classroom notes, recording, planning and executing homework, building a subject-specific vocabulary, behavioral rules, and writing and recording text. The educational organizer 20 is also designed for tertiary users: remotely-located users who are coupled to each primary user station by way of modem. The tertiary users comprise the educational organizer administrators and programmers and serve as the central back-up station for all users. As will also be discussed later, a Maintenance Menu 22 (Figs. 23-29) is provided for use by only the secondary and the tertiary users for controlling the operation of the educational organizer 20 at every station; the primary users have no access to the Maintenance Menu 22. Alternatively, the secondary users and the tertiary users could have respective Maintenance Menus (not shown), dedicated to their respective uses in controlling the operation of the educational organizer 20; again, the primary user would have no access to either of these two Maintenance Menus.

In particular, as shown in Fig. 2A, the primary user has the choice of selecting options for School 24, Journals 26, Tools 28 or Shut Down 29 from the Main Menu (Fig 3). Except for the Tools option 28 and the Shut Down option 29, the user can immediately exit and return to the Main Menu. It should be

noted that these four Main Menu options (24-29) are not meant to be exhaustive but only illustrate an exemplary number of Main Menu options available in the educational organizer 20.

The selection of the Schools option 24 permits the user to select from a Roster 30 of classes (e.g., math, science, social studies, etc. as indicated by Class #1-Class #n in Fig. 2A). Each of the classes has a respective class function that is dedicated to that particular class, as will be discussed later. Upon completion of a class function (Fig. 2B), the user can then either select another class or exit to the Main Menu.

The selection of the Journals option 26 (Fig. 2C) permits the user to select from journal folders 32 comprising a School Journal 34 (Fig. 14), a Personal Journal 36 (Fig. 17), a Vocational Journal 38 (Fig. 2C) and a Medicine/Health Journal 40 (Fig. 2C). Again, it should be noted that these journals are not meant to be exhaustive but only illustrate an exemplary number of journal folders 32 for the educational organizer 20. Entry into one of these journals permits the user to enter text adjacent a time-entry prompt 42 (Fig. 14), much like a diary, as will be discussed later. One important feature of these journals is that the user is limited to making entries for past dates or the present date only (all future dates are unavailable), as will also be discussed later. Upon completion of the Journals option 26, the user can then either select another journal or exit to the Main Menu.

It should be noted at this juncture that upon exiting either the School option 24 or the Journal option 26, all user entries (including files, documents, etc.) are automatically saved to the primary user station notebook computer 2 without the need for user intervention.

The selection of the Tools option 28 (Fig. 2A) permits the user to select from a Back-Up option 44 and a Service option 46 (Fig. 19). The Back-Up option 44 guides the user through the process of saving all of his/her files to a remote location over the modem line 13 (Figs. 20A-20C) and allows the user to indicate which steps of the process are complete by activating a Done press button. Unlike the automatic saving feature of all

the user's files at the primary user's station, the user must actively save all of his/her files to the remote location. Failure to use the Back-Up option 44 after a predetermined number of days (e.g., seven days) following the last Back-Up option 44 selection causes a BACK-UP REMIND indication 48 to appear on the Main Menu (Fig. 3). This predetermined number of days is adjustable via the Maintenance Menu 22. The Service option 46 guides the user through the process of preparing his/her station for a remote login. In this manner, the tertiary user, using a second computer located at the remote location, can provide input to the primary user station's Maintenance Menu 22. Upon completion of either the Back-Up option 44 or the Service option 46 the user exits to the Main Menu.

The Shut Down option 29 permits any user the ability to exit from the Main Menu so that the display 12 returns to the typical DOS prompt at which time the user can shut off the notebook computer 2 power switch.

The Maintenance Menu 22 (Fig. 2D) permits only secondary and tertiary users the capability to modify the educational organizer 20 at every primary user station. The Maintenance Menu 22 comprises a User Information option 50 (Fig. 22), a Classes option 52 (Fig. 23), a System option 54 (Fig. 27), a Modules option 56 (Fig. 28) and a System Log 58 (Fig. 29) option. As can be seen, there is no entry point available to the primary users since they are prevented from accessing this menu. As will be discussed later, these options give the secondary/tertiary users the ability to, among other things, configure, and monitor the use of, the educational organizer 20 by the primary user or any user. Upon completion of any of these options (44-52), the secondary/tertiary user exits to the Main Menu.

The educational organizer 20 largely comprises software (Figs. 30A-30AV) that provides for controlling the monitor display 12, thereby providing the disabled user with the effective yet easy-to-use visual cues and/or even audio cues. This software also modifies the graphical user interface to

permit the student to use only simple responses (e.g., a single click of the mouse 7) without confusing the student (e.g., limiting the travel of the pointer indicator 60 [e.g., arrowhead-Fig. 3, text bar-Fig. 5, hourglass-Fig. 20B] so that it never leaves the field of view of the screen) for accomplishing a task that normally would require the operator to "select, drag and drop" an icon, template, etc. Therefore, the educational organizer 20 software is compatible with any number of operating systems (e.g., DOS, WINDOWS, MacIntosh System 7, XWINDOWS, etc.) that support some type of graphics function. As such, use of the educational organizer 20 will be discussed below with respect to a personal computer system 10 using WINDOWS with the understanding that this is exemplary only and that any other type of computer operating system having a graphical user interface can support the educational organizer 20. In addition, any subsequent reference made to "a window" is herein defined as "a single application program" and not restricted to a WINDOWS graphical user interface.

The educational organizer 20 limits the typical WINDOWS capability. In a conventional WINDOWS window,

> ...[a] typical WINDOWS graphical user interface (GUI) partitions the monitor screen into different areas, one for each program. The partitions, marked off with borders and a title, are called Windows. Each application writes only inside its own window. The user can shrink, enlarge or move the windows at will. p. 5, Programmer's Introduction to Windows 3.1 by Brian Myers and Chris Donner, copyright 1992.

However, the educational organizer 20 is designed so that the primary user can never open a second window (i.e., a second application) while a first window (i.e., a first application) is displayed on the screen 12; the primary user is guided by the educational organizer 20 through the window presently displayed on the screen 12 and when the user has completed the required tasks in the displayed window (or chooses to exit that window), the user is allowed to exit the displayed window and select a new window (i.e., a second application). In other words,

transparent to the primary user, the primary user is restricted to closing a window before opening another window. Hence, there is no maximizing nor minimizing of windows in the educational organizer 20. Furthermore, just as the primary user cannot control the size of the window, neither can the primary user control the location of the window, i.e, the window remains fixed in location on the monitor. In fact, much of the WINDOWS capability that is normally available for switching among, or in/out of, WINDOWS via the keyboard 4/mouse 7 is disabled. This is to insure the consistency of organization and design in order to facilitate and enhance rapid transfer of training and generalization. In addition, disabling such WINDOWS functions also prevents the user from inadvertently causing a failure or inadvertently closing/leaving a window.

As with other WINDOWS programs, the user of the educational organizer 20 controls the operation of the educational organizer 20 primarily with on-screen push buttons having distinct colors (e.g., in Fig. 6, the following press buttons have the indicated colors: New-olive, Modify-chocolate, Done-purple, Exit-red, History-magenta, Sort-blue, Print-green and Class-aqua) or radio buttons (e.g., Fig. 7A). These buttons are menu selections and function selections within individual applications. As stated previously, instead of the double click of the mouse 7, a single click simplifies operation for physically handicapped users. Text input is entered from the keyboard 4. To simplify operation of the software for physically handicapped users, the keyboard 4 controls are unnecessary except for text entry, but arrow keys can control pointer 60 movement on certain menus in order to accommodate users who prefer keyboard 4 control. For example, in moving to another word variation in the Spelling option (Fig. 16B) the user can select a word by pointing and clicking once with the mouse 7 or by just striking the up-arrow or down-arrow on the keyboard 4. The appearance of the on-screen pointer 60 can be controlled by other manufacturers driver software in order to enhance the visual aspects of the application.

Before a description of the individual windows is covered, it is necessary to identify common visual indicia displayed in most, if not all, of the windows. As stated previously, the visual display 12 of the monitor 3 by the educational organizer 20 software is arranged to make the software easier for users with cognitive impairment. The spatial layout of menus, dialog boxes, text boxes, help and information bars (all of which can be termed "working information") leads to reduced and orderly visual scanning.

The colors used throughout the educational organizer 20 are consistent with the functions of the controls. For example, red push buttons always indicate "Exit" to Main Menu, green push buttons always indicate "Print", etc. The selected menu item is outlined in a red frame 62 (School option 22 in Fig. 3) to indicate it as selected as well as to indicate the location of the pointer 60. Distinct colors for the different push buttons are intended to simplify differentiation between controls in different menus. Color also serves to attract attention, enhance arousal, and sustain concentration.

Furthermore, in menu screens the pointer 60 is restricted to the area in which selections can be made, thereby reducing the possibility of losing the pointer 60. For example, in Fig. 3, travel of the pointer 60 is limited to either the School option 24, the Journals option 26 or the Tools option 28; the pointer 60 cannot be anywhere else, regardless of where the mouse 7 is currently located.

The screen layout of controls and text boxes is simple, highly structured, and consistent throughout the educational organizer 20 to improve intuitive understanding of functions and controls not only in individual modules (e.g., the Homework function, Figs. 7A-7E) but across modules (e.g., the Class functions of Fig. 2B: Notes, Homework, Vocabulary, Rules and Writer) as well. The screen layout is also modifiable to accommodate visual scanning requirements. For example, in the case of left neglect the menus throughout the educational organizer 20 are shifted to the right of the screen 12 while maintaining the entire screen 12 in a lighted condition. The

screen position of the menus and other working information can be standard, as in the included diagrams, or a center column for macular-spared vision loss (extreme tunnel vision), or left or right columns for neglect.

The Main Menu (Fig. 3) differs from the others, as it is intended to be the primary user's "home base" from where the user always starts. The primary user is not meant to abandon the program without returning to the Main Menu, and as a result, it has a different appearance.

Several features are consistent throughout the educational organizer 20. A guidance icon 64 having a contour representative of the active I/O device (e.g., mouse 7, joystick 8, etc.) that the user controls the pointer 60 with, and having an associated text "Pick and Click" (e.g., Fig. 3), is usually always present on the screen 12. It is included to take into account the needs of all users. This icon 64 is located near the appropriate menu from which selections are to be made, and serves to remind the user at all times about the basic operation of the program. It is configurable to different I/O devices and can be removed should it become superfluous. As shown in Fig. 3, the mouse-like contour of the guidance icon 64 informs the user that he/she can pick one of the options by moving the mouse 7 in a vertical direction and then clicking either the left or right mouse 7 button. Text may be included within the icon 64 to further assist the user. As such, the guidance icon 64 graphically and linguistically instructs the user what he/she must do to respond. It should be noted, that unlike the typical WINDOWS icon which represents a minimized window, the guidance icon 64 in the educational organizer 20 does not represent a second window that the primary user can open; rather, the guidance icon 64 provides only instruction to the primary user as to what actions are permitted in responding. In addition, an instruction box 66 may surround the guidance icon 64 to provide more detailed guidance, especially where there is a sequence of steps involved in responding (e.g., Fig. 16A).

In other instances, the guidance icon 64 (Fig. 9A) has an entry key appearance and is displayed within the instruction

box 66 to clearly indicate to the user that a keyboard entry must be used in this situation and not the mouse 7, track ball 9, etc.

The name of the current menu or modules is personalized to the user and appears in the upper left hand corner of the screen (Fig. 3). The current time, day of the week, date, and season are always in the upper right hand corner of the screen (Fig 3). At the bottom right of the screen is the Information Help Text Box 68, a field where explanatory text is displayed. This text changes to correspond with the position of the pointer 60 to provide context sensitive help on the selection of the pointer 60. This Help Text Box 68 provides ongoing support, thereby reducing perplexity, confusion, and reactive emotional distress. For example, when the user selects the School option 24, the Information Help Text Box 68 immediately presents the user with a list of all of the available options under School options 24 (Roster, Notes, Vocabulary, Rules and Writer, Figs. 2A-2B). The location of the Information Help Text Box 68 is intended to provide relevant information at a predictable location on the screen 12, thereby reducing visual scanning and memory demands. Lastly, the lower left corner of the screen 12 is reserved for information pertinent to the Assignee of the present invention.

The menus of the individual modules (e.g., Class Functions, Fig. 5) appear as file folders with tabs along the top of the screen 12, in order to evoke associations with school. Menu selections may have different controls formed by colored press buttons (Subfunctions, e.g., Fig. 6) along the bottom of the screen 12. Many of these subfunctions work similarly. For example, the Spelling subfunction permits a text to be spell-checked by allowing the user to select a Fix, Skip, Add or Cancel operation (Fig. 16A). These four operations are available everywhere the Spelling subfunction is available in the educational organizer 20.

Selection of the School Option 24 from the Main Menu brings the user to a Roster 30 menu (Fig. 4) that lists all of the user's classes including time, room number and teacher. The

user can select a particular class by clicking the mouse 7 key on an indicated class. Upon clicking on a particular class, the user is brought to the class functions (Fig. 5, Notes, Homework, Vocabulary, Rules and Writer) level from which the user can select. The default condition is the Notes function. The primary user can enter any one of the other functions simply by placing the pointer 60 on the tab of the desired file folder.

As shown in Fig. 5, the Notes function comprises a text area for taking notes during class. This can be a blank screen or, using the Maintenance Menu (Fig. 24), the teacher can choose up to six divisions (e.g., the "Who, What, Where, When, How, and Why of a related class subject) to be displayed on the screen 12 (Fig. 5) which are intended to organize note taking during class and cannot be edited by the primary user. The primary user is instructed to enter information accordingly under the appropriate division. The purpose of these queries is to organize and structure the pertinent class subject matter.

As shown in Fig. 6, the Homework function has a format that permits the primary user to schedule a homework assignment as a project having a due date but with the added feature that each project can be divided into smaller steps, each with their own respective completion dates. In this manner, the primary user can simplify the accomplishment of a large task by completing the overall project in a series of small steps or sub-goals. Selecting a due date for the overall homework assignment is a three phase process. First, upon selecting the New subfunction under the Homework function (Fig. 2B) the user is brought to the window of Fig. 7A wherein the user selects a homework-type (e.g., Handout, Reading Assignment, Test/Quiz, etc.) using the radio buttons in the upper left of the screen 12; the Cancel subfunction in the lower right of the screen 12 permits the user to undo the homework-type selection and return to the original Homework function (Fig. 6). Second, once the user has selected the homework-type, the user is presented with a calendar of the current month/year (Fig. 7B) for selecting a due date. It is important to note that all dates prior to the current date (i.e., the date indicated in the upper right

portion of the screen 12 in Fig. 7B) are remain dull in appearance (shown in Fig. 7B as italicized numbers); this indicates to the user that past dates are not permitted due dates for a homework assignment. All selectable dates are indicated in bold (shown in Fig. 7B as non-italicized numbers) with the current date being highlighted (shown in Fig. 7B as a bolded, non-italicized "15"). Note also that the user has the ability to scroll further to any date in the future, as indicated by the accompanying month arrow 70 and year arrow 72 (Fig. 7B). To facilitate the user in differentiating between work days and weekends and envision a work week as a distinct visual unit from the weekend, each calendar-month is constructed so that Monday begins the work week, while Saturday and Sunday are located adjacent each other at the end of the week and consist of a common color (shown in Fig. 7B as bolded, italicized numbers) that is different from the rest of the week. Third, once the due date is selected, the user is brought to a window that provides a field into which the user can describe the homework assignment and enter any steps, if desired (Fig. 7C). In the lower right of the screen 12, the operations Add Step, Complete and Cancel permit the user to either add a step to the assignment, complete the entry of the assignment and return to the original Homework function (Fig. 6), or cancel the entry of the assignment and return to the original Homework function (Fig. 6). Adding steps to the homework assignment is a two phase process. First, selection of the Add Step operation brings the user to the window shown in Fig. 7D which repeats the due date selections discussed earlier for assigning a due date to the overall project in Fig. 7B. Second, upon selection of a due date for a particular step, the user is brought to a window (Fig. 7E) which provides a field in which the step can be described that is similar to the homework assignment description window, as discussed earlier for Fig. 7C. It should be noted that the other subfunctions for Homework (Fig. 2B) are: Modify (for changing a selected assignment), Done (for marking selected homework as done), History (for reviewing a list of homework marked done) and Sort (for displaying assignments with

steps). Finally, it should be noted that the color of the text 74 (Fig. 6) of a homework assignment, any corresponding steps and their respective due dates can change (e.g., from black to green to red) as the due date of the assignment/step goes from pending to imminent to overdue.

As shown in Fig. 8, the Vocabulary function permits the student to develop a vocabulary list for every class. In addition, the user has the unique ability to display a comprehensive vocabulary list that includes other class vocabularies (Show All subfunction). Figs. 9A-9D depict a four step procedure of the New subfunction in the Vocabulary function (Fig. 2B): prompting the user to enter a new vocabulary word (Fig. 9A), user enters the new vocabulary word (Fig. 9B), user selects the part of speech that categorizes the new vocabulary word (Fig. 9C) and finally the user enters the definition of the new vocabulary word (Fig. 9D).

As shown in Fig. 10, the Rules function for a particular class permits the user to enter text regarding specific rules to be followed for the selected class.

As shown in Fig. 11, the Writer function permits the user to type a document, letter, etc. regarding a particular class. One important feature of the Writer is that it permits the user to create and edit documents without the need for the user to assign a file name to the document, define a path for saving the document, nor remember a file name in trying to later retrieve the document. Instead, the Writer assigns a field within the document itself that permits the user to title his/her document. That title then becomes the equivalent to a file name; the user does not have to worry about condensing a document title into eight characters with an extender (e.g., solar.doc). In particular, Fig. 12 depicts the window after the user has selected the New subfunction of the Writer function (Fig. 2B). Figs. 13A-13B depict the Modify subfunction (Fig. 2B) having been selected in order to change the document name (Fig 13A) or edit the document text (Fig. 13B).

Selection of the Journals Option 26 from the Main Menu brings the user to Journal Folders 32 (Fig. 2C) that depict the

available journals as file folders. Upon selecting the School Journal (Fig. 14) the user is presented with a time-entry prompt 42 to begin entering text; as such, every entry has an associated automatic entry time. Furthermore, the user has the subfunctions of Spelling, Calendar, Print and Exit. Except for the Calendar subfunction, the other subfunctions operate as discussed previously with respect to the Class Functions (Fig. 5). The Calendar subfunction in the School Journal function operates in a similar fashion as the Calendar subfunction in the Homework Function (Figs. 7B and 7D) except for the available time period, i.e, the Calendar subfunction in the School Journal permits the user to select dates only in the past (which are indicated in non-italicized numbers, Fig. 15) including the present date (indicated by a bolded, non-italicized number "15", Fig. 15), but not in the future. As such, the month arrow 76 and year arrow 78 point into the past. In Figs. 16A-16B, the Spelling subfunction of the School Journal has been selected, thereby permitting the user to select any one of the four operations of Fix, Skip, Add or Cancel.

The primary user can enter the Personal Journal (as well as any other available journal) by simply placing the pointer 60 on the tab of the desired file folder. It should be noted that the Vocational Journal and the Medicine/Health Journal indicated in Fig. 2C are proposed journals that provide the primary user with journals specific to job/work tasks and the taking of medication/doctor visits, respectively. These two journals have respective functions (Fig. 2C, 80 and 82, e.g., Spelling, Calendar and Print) that operate similarly to the subfunctions in the School Journal and the Personal Journal. At this time, the Vocational Journal and the Medicine/Health Journal are not available on the educational organizer 20 and as such there is no file folder appearing in the Journal Folders window (e.g., Fig. 14).

Upon entry into the Personal Journal (Fig. 17), the primary user is immediately prompted to type in a user-selected password and to enter that password using the entry key on the keyboard 4. The field where the password is typed in does not

echo the keystrokes on the screen 12, i.e., as the primary user enters the password, the question marks are all that are seen during the entry. Use of the password and the non-echo feature of this window provide the user with restricted access to this journal because it is personal in nature. In addition, this feature also prevents access to the Personal Journal by the tertiary users at the remote back-up location where the content of the Personal Journal is also saved using the Back-Up option 44. Once the correct password is entered, entry into the Personal Journal (Fig. 18) is permitted. Further operation of the Personal Journal (Fig. 18) is similar to operation of the School Journal discussed above with regard to Figs. 14-16B.

Access to the Maintenance Menu 22 (Fig. 2D) by the secondary/tertiary user is achieved by a command known only to them (e.g., positioning the pointer 60 on the upper-most option in the Main Menu and depressing the keyboard "Ctrl" key simultaneously with either the left or right button on the mouse 7). As stated earlier, the educational organizer 20 is customizable by teachers or therapists to meet the needs of the individual user. The customization is accomplished via the Maintenance Menu 22. This menu permits the system configuration, preferences and roster structure, and note taking structure to be modified. The default option is the User Information option 50 (Fig. 22) that displays user information such as the user's name, address, and phone number. As with the Roster 30 and the Journal folders 32, entry into another option in the Maintenance Menu 22 is achieved by locating the pointer 60 on the tab of a desired option. The teacher or therapist can exit the Maintenance Menu 22 by selecting the Exit press button (Fig. 22) and return to the Main Menu.

The Classes option (Fig. 23) contains information concerning the roster 30 of a particular user, with the ability to, among other things, add, edit or remove classes. Upon entry into the Classes option (Fig. 23) the first two columns labeled "Class ID" and "Name" are displayed on the screen 12 in a common color (e.g., blue) whereas the columns labeled "Teacher", "Room", "Grade" and "Monday" appear in a different common color

(e.g., white). The purpose of the different color for the first two columns is that they remain fixed in the display 12 while the other columns can be scrolled to the left using the scroll bar 84 in order to reveal other columns not visible at the right of the display 12. To add a new class, the New press button is selected and to edit an existing class the Modify press button is selected. Selection of the New press button takes the teacher/therapist to a display 12 as shown in Fig. 24 that permits the secondary user to enter a new class with all of the appropriate class information. As shown in the lower portion of Fig. 24, the teacher/therapist can enter the desired queries discussed earlier with regard to the Notes function (Fig. 5). Upon completion, the secondary user can select the Completion press button and return to the display 12 of Fig. 23 or the secondary user can choose to cancel the new entry by selecting the Cancel press button and return to the display 12 of Fig. 23. If the secondary user wishes to edit an existing class, the secondary user selects the Modify press button which brings the secondary user to the display 12 of Fig. 25 for editing the corresponding information of the selected class. Upon completion of the editing, the secondary user has the same options for leaving this display as discussed previously regarding the addition of a new class in the Classes option (Fig. 23).

In addition, the teacher/therapist can edit the Rules function (Fig. 2B) of the primary user by selecting the Rules press button on the Classes function (Fig. 23). Selection of this press button brings the secondary user to the Rules function (Fig. 26), permitting the teacher/therapist to modify or add to the rules text. Upon completion of this, the teacher/therapist can exit that display 12 by selecting the Complete press button to save all new text and then exit to the Classes function (Fig. 23) or the secondary user can select the Cancel press button to cancel any new text and to exit to the Classes function (Fig. 23).

The System option (Fig. 27) is where the lower level program decisions are made. These include the appearance of the

display 12, which can be modified for macular-spared vision loss, and lateral neglect or inattention. Sound options are controlled from this menu, as well as input device options.

The Modules option (Fig. 28) is where the various modules that comprise the system are added or removed from the Main Menu by being installed or uninstalled, as indicated. In particular, the Class functions (Fig. 2B) are modular in design, i.e., they can be removed or installed based on a particular primary user's needs without affecting the other Class functions. For example, one user may not need a Vocabulary function whereas another user may not require a Notes function nor a Writer function in their respective educational organizers 20. Using the Modules option, the tertiary user can easily uninstall these particular functions without affecting the overall operation of each of the users' educational organizers 20.

The System Log (Fig. 29) displays a record of system use by any of the users. This content of the display cannot be edited but does permit the secondary/tertiary user to re-arrange the content by use of radio buttons, as indicated. In addition, the System Log uses a fixed column-scroll function as discussed previously regarding the Classes option (Fig. 23). In particular, the column labeled "Function Accessed" is displayed in a color (e.g., blue) that is different from the columns to the right of that column: "Start Date", "Start Time", "End Date", "End Time"(not shown), and "Elapsed Time" (not shown).

One feature that permits the tertiary user the ability to exit the educational organizer 20 without exiting the graphical user interface (e.g., WINDOWS) is the simultaneous depression of the keyboard Shift, Ctrl and Alt keys while clicking either the left or right mouse key.

Without further elaboration, the foregoing will so fully illustrate my invention that others may, by applying current or future knowledge, readily adopt the same for use under various conditions of service.

CLAIMS

1. A compensatory assistance apparatus (1) for use by a user with cognitive impairment which allows the user to make entries and files therein, said apparatus (1) comprising:

a first computer (2) having a monitor (3) and a graphical user interface that displays only one application on the monitor (3) at any time, said graphical user interface requiring the exiting of said application before entering another application, each application displaying on said monitor (3) a predetermined number of user prompts and working information at predetermined locations on the monitor (3) using predetermined colors;

said graphical user interface using a movable pointer (60), said graphical user interface restricting said movable pointer (60) in displacement in all directions in said displayed application so as to always remain in the view of the user;

said graphical user interface displaying a guidance icon (64) that graphically instructs the user what the user must do to respond;

said graphical user interface automatically saving all files and entries created by the user to said first computer (2) without user intervention;

input means (4, 7, 8, 9, 10, 11, 12, 13) for inputting data to said first computer (2) and for controlling said movable pointer (60); and

output means (6, 12, 13) for outputting data from said first computer (2).

2. The compensatory assistance apparatus (1) of Claim 1 wherein said graphical user interface displays on the monitor (3) a Main Menu upon power-up of said apparatus (1), said menu comprising a predetermined number of options (24, 26, 28, 29) and wherein one of said options is outlined in a predetermined color whenever said mobile pointer (60) is positioned by the user on said one of said options (24, 26, 28, 29).

3. The compensatory assistance apparatus (1) of Claim 2 wherein said graphical user interface displays an information strip (68) on the monitor (3), said information strip (68) having text provided therein that lists all of the available choices corresponding to said one of said options (24, 26, 28, 29) that is outlined.

4. The compensatory assistance apparatus (1) of Claim 3 wherein said graphical user interface displays information, including time, date and season and the user's name at all times.

5. The compensatory assistance apparatus (1) of Claim 1 wherein said guidance icon (64) has a contour whose appearance is similar to the input means (4, 7, 8, 9, 10, 11, 12, 13).

6. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a keyboard (4).

7. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a track ball (9).

8. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a touch pad (10).

9. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a mouse (7) having at least one button depressible by the user.

10. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a touch screen monitor (12).

11. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a joystick (8).

12. The compensatory assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a sip puff (11).

13. The compensating assistance apparatus (1) of Claim 1 wherein said input means (4, 7, 8, 9, 10, 11, 12, 13) comprises a second computer (13) at a remote location.

14. The compensatory assistance apparatus (1) of Claim 1 wherein said output means (6, 12, 13) comprises a printer (6).

15. The compensatory assistance apparatus (1) of Claim 1 wherein said output means (6, 12, 13) comprises a monitor (12).

16. The compensatory assistance apparatus (1) of Claim 1 wherein said output means (6, 12, 13) comprises a second computer (13) at a remote location.

17. The compensatory assistance apparatus (1) of Claim 9 wherein said graphical user interface restricts the mouse button to one click in selecting an option displayed on said monitor (3).

18. The compensatory assistance apparatus (1) of Claim 1 wherein said graphical user interface is configurable to position all working information in a particular location within a display (12) of said monitor (3) while maintaining said display (12) in its entirety in a lighted condition for use by a user having a neglect disability that forces said user to focus only at said particular location.

19. The compensatory assistance apparatus (1) of Claim 2 wherein one of said options (24, 26, 28, 29) comprises a school-related option (24).

20. The compensatory assistance apparatus (1) of Claim 19 wherein when said user selects said school-related option (24), a plurality of class options (30) is provided for selection therefrom.

21. The compensatory assistance apparatus (1) of Claim 20 wherein when said user selects one of said plurality of said class options (30), a plurality of class functions is provided for selection therefrom, said class functions being modular to permit the removal or installation of at least one of said class functions without affecting other class functions.

22. The compensatory assistance apparatus (1) of Claim 21 wherein one of said plurality of class functions comprises a notes function, said notes function comprising an application having a predetermined number of queries that have been entered previously by a teacher while permitting the user to enter a response adjacent a respective query within that application.

23. The compensatory assistance apparatus (1) of Claim 20 wherein one of said plurality of class functions comprises a homework function, said homework function comprising means for partitioning a homework project into steps and allowing the assignment of due dates in the future only to each of said steps, said homework function permitting the status of said steps to be indicated by a color corresponding to step completion or lateness.

24. The compensatory assistance apparatus (1) of Claim 23 wherein said homework function comprises a calendar subfunction that displays weeks wherein the dates corresponding to Saturday and Sunday are adjacent each other at the end of a particular week to illustrate the weekend as a visual unit to said user.

25. The compensatory assistance apparatus (1) of Claim 20 wherein one of said plurality of class functions comprises a vocabulary function, said vocabulary function comprising an application that permits the user to establish a vocabulary list specifically for said one of said plurality of class functions.

26. The compensatory assistance apparatus (1) of Claim 25 wherein said vocabulary function further comprises means for generating a single vocabulary list from said plurality of class functions.

27. The compensatory assistance apparatus (1) of Claim 20 wherein one of said plurality of class functions comprises a rules function, said rules function comprising an application that permits the user to enter rules regarding classroom behavior and any other classroom activity related specifically to the selected one of said class options (30).

28. The compensatory assistance apparatus (1) of Claim 20 wherein one of said plurality of class functions comprises a writer function, said writer function providing the user with a text writer for preparing any document related to class work, said document having a memo field reserved for a title created by the user which is used by said graphical user interface to automatically save said document upon exit by said user.

29. The compensatory assistance apparatus (1) of Claim 2 wherein one of said options (24, 26, 28, 29) comprises a plurality of journal options (26).

30. The compensatory assistance apparatus (1) of Claim 29 wherein one of said journal options (26) includes a school journal (34), said school journal (34) allowing the user to enter or read text regarding school activities for dates only in the present or past.

31. The compensatory assistance apparatus (1) of Claim 30 wherein said school journal (34) further comprises a calendar subfunction that displays weeks wherein the dates corresponding to Saturday and Sunday are adjacent each other at the end of a particular week to illustrate the weekend as a visual unit to said user.

32. The compensatory assistance apparatus (1) of Claim 31 wherein said calendar subfunction automatically indicates the exact time of entry into said application for logging text.

33. The compensatory assistance apparatus (1) of Claim 32 wherein one of said journal options (26) includes a personal journal (36), said personal journal (36) comprising code entry means for allowing only the primary user to enter text or read text regarding personal notes for dates only in the past or present, said personal journal (36) comprising an application that automatically indicates the exact time of entry into said application for logging text.

34. The compensatory assistance apparatus (1) of Claim 29 wherein one of said journal options (26) comprises a vocational journal (38).

35. The compensatory assistance apparatus (1) of Claim 29 wherein one of said journal options (26) comprises a medicine/health journal (40).

36. The compensatory assistance apparatus (1) of Claim 2 wherein one of said options (24, 26, 28, 29) comprises a tools option (28), said tools option (28) comprising a back-up application (44) that instructs the user to back-up said files and entries to a second computer at a remote location.

37. The compensatory assistance apparatus (1) of Claim 36 wherein said back-up application (44) further comprises means for indicating (48) to the user that the user has not backed-up said files and entries to said second computer for at least seven days.

38. The compensatory assistance apparatus (1) of Claim 36 wherein said tools option (28) further comprises a service application (46), said service application instructing the user to prepare said first computer (2) for connection to said second computer.

39. The compensatory assistance apparatus (1) of Claim 1 wherein said graphical user interface displays on the monitor (12) a maintenance menu (22) for use by a secondary user, said maintenance menu being inaccessible to the user with cognitive impairment.

40. The compensatory assistance apparatus (1) of Claim 39 wherein said maintenance menu (22) comprises means for configuring (50, 52, 54, 56) said graphical user interface to accommodate a particular user with cognitive impairment.

41. The compensatory assistance apparatus (1) of Claim 40 wherein said maintenance menu (22) further comprises means for monitoring use (58) of said graphical user interface.

42. The compensatory assistance apparatus (1) of Claim 41 wherein a second computer coupled to said first computer via a modem line (13) can provide input to said first computer (2) using said means for configuring (50, 52, 54, 56) said graphical user interface.

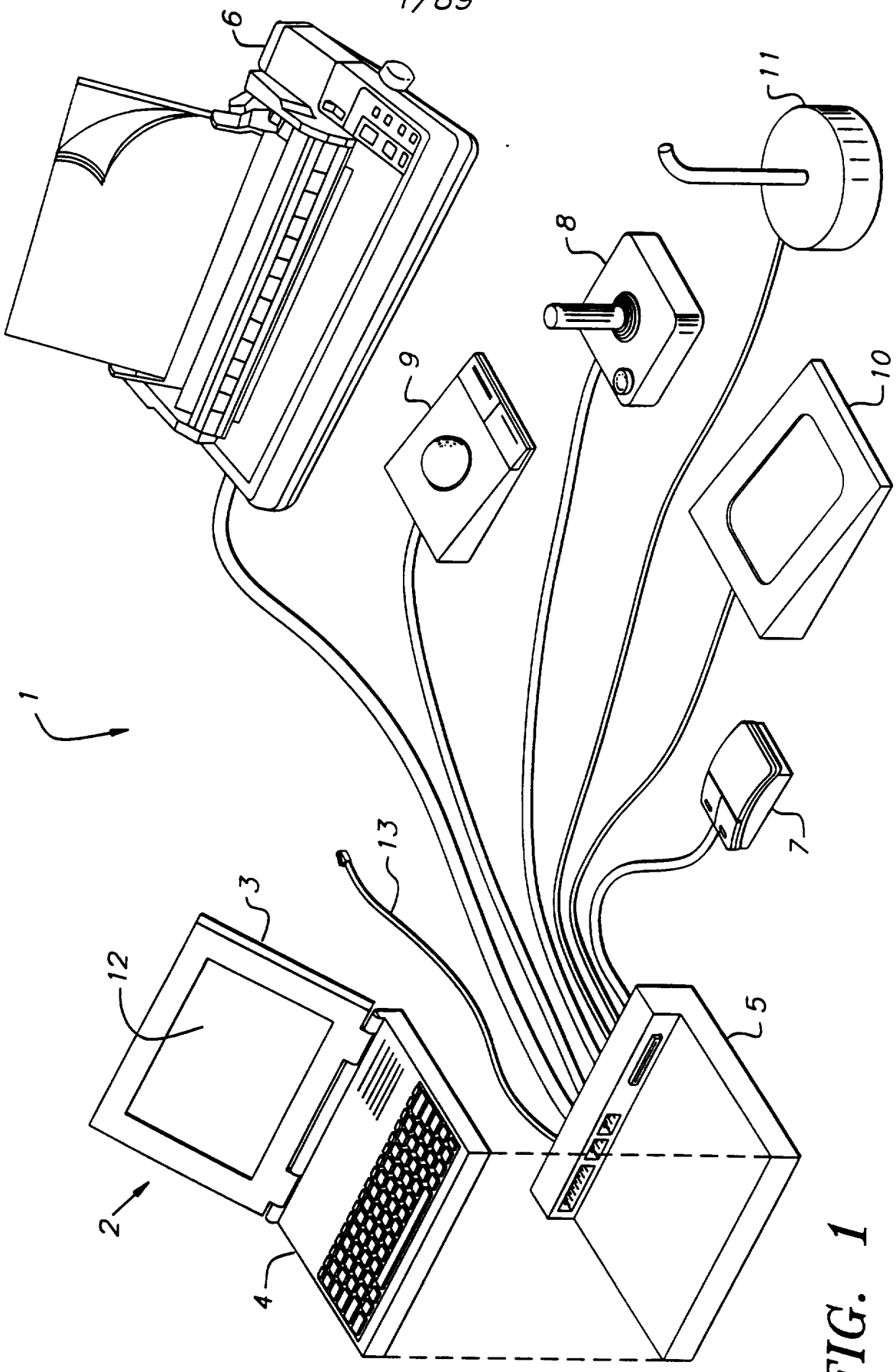


FIG. 1

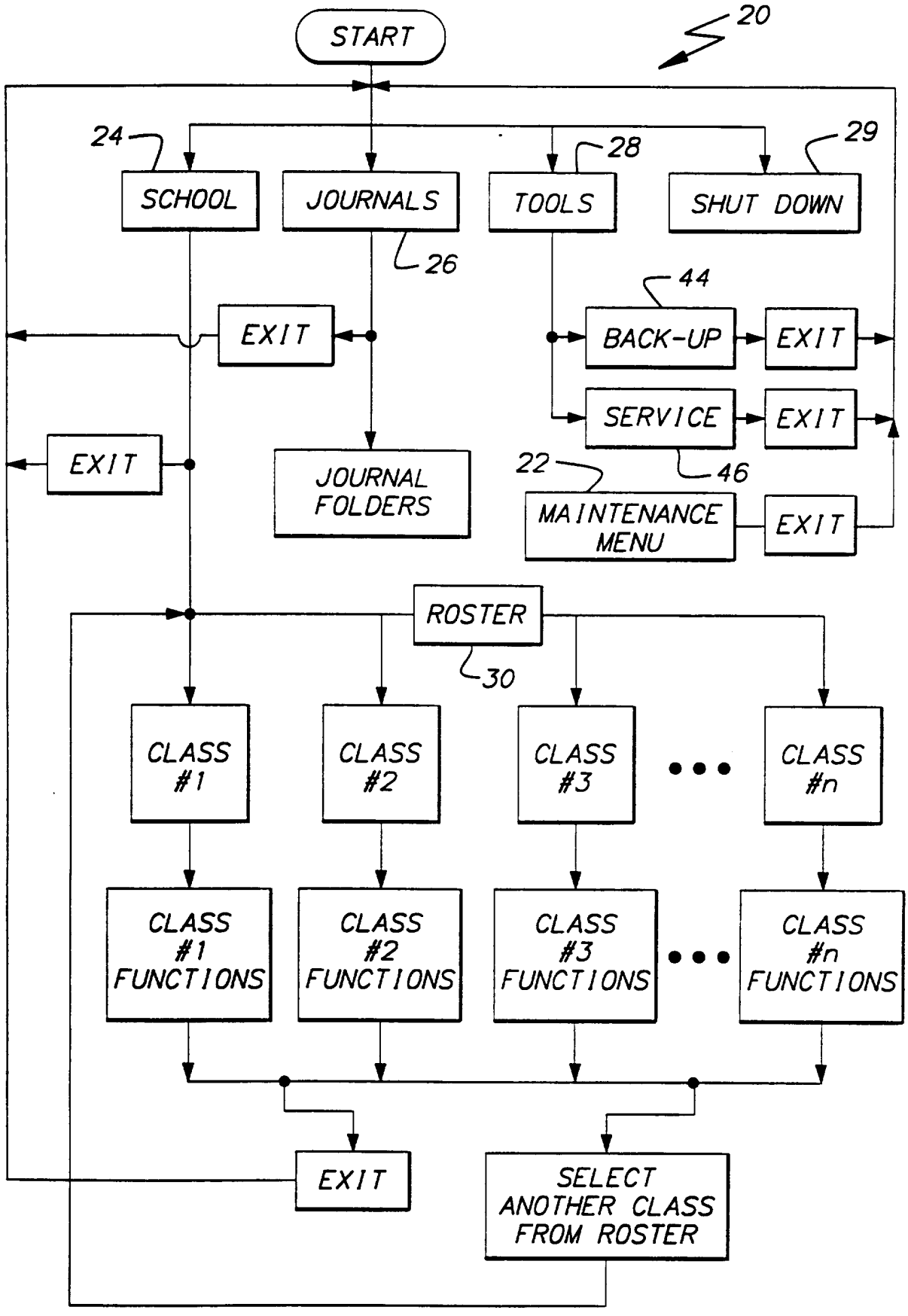

START
20
24
SCHOOL
JOURNALS
26
TOOLS
28
SHUT DOWN
29
EXIT
44
BACK-UP
EXIT
SERVICE
EXIT
46
EXIT
JOURNAL FOLDERS
22
MAINTENANCE MENU
EXIT
ROSTER
30
CLASS #1
CLASS #2
CLASS #3
CLASS #n
CLASS #1 FUNCTIONS
CLASS #2 FUNCTIONS
CLASS #3 FUNCTIONS
CLASS #n FUNCTIONS
EXIT
SELECT ANOTHER CLASS FROM ROSTER

FIG. 2A

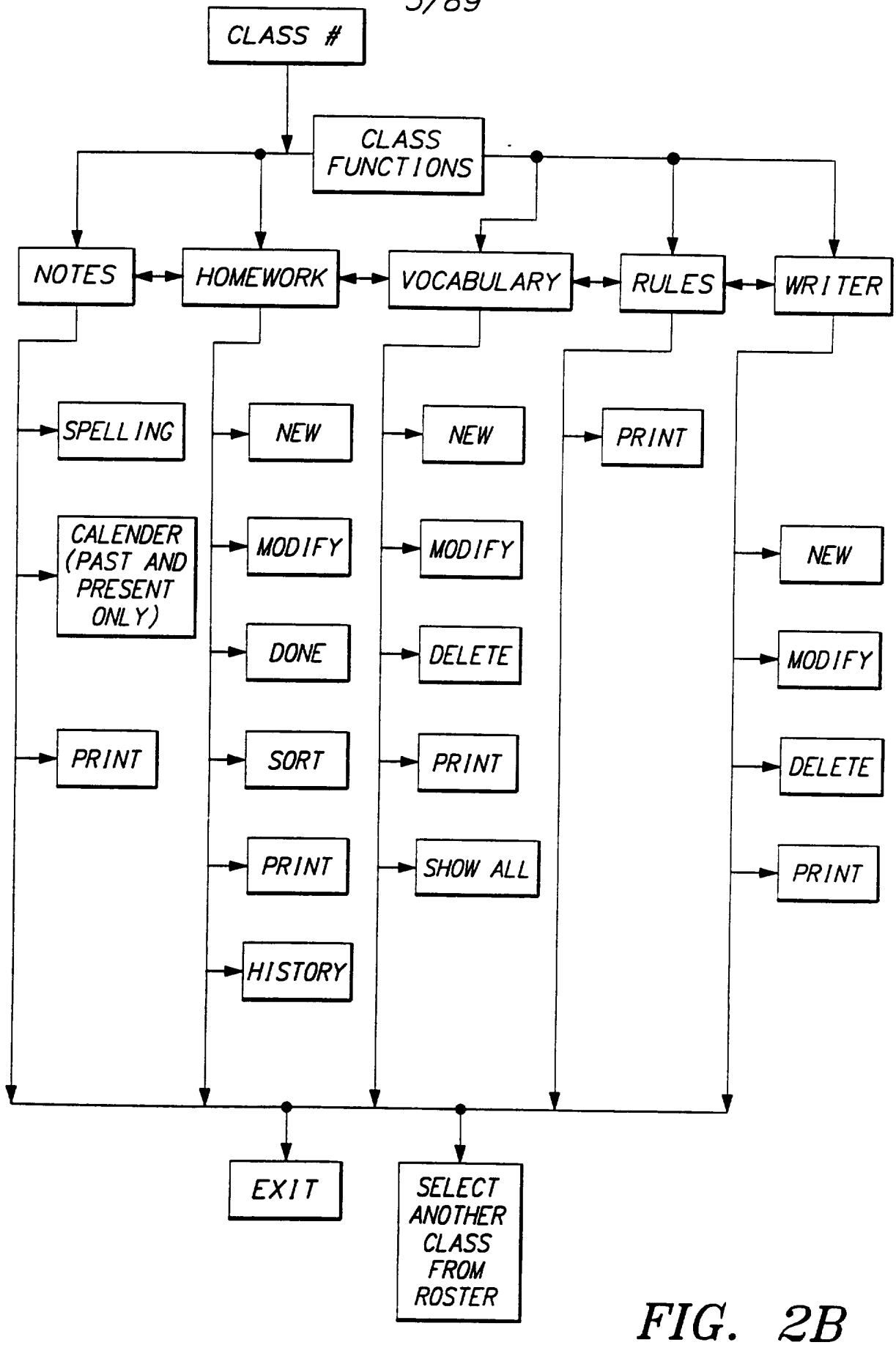

CLASS #
CLASS FUNCTIONS
NOTES
HOMEWORK
VOCABULARY
RULES
WRITER
SPELLING
CALENDER (PAST AND PRESENT ONLY)
PRINT
NEW
MODIFY
DONE
SORT
PRINT
HISTORY
NEW
MODIFY
DELETE
PRINT
SHOW ALL
PRINT
NEW
NEW
MODIFY
DELETE
PRINT
EXIT
SELECT ANOTHER CLASS FROM ROSTER

FIG. 2B

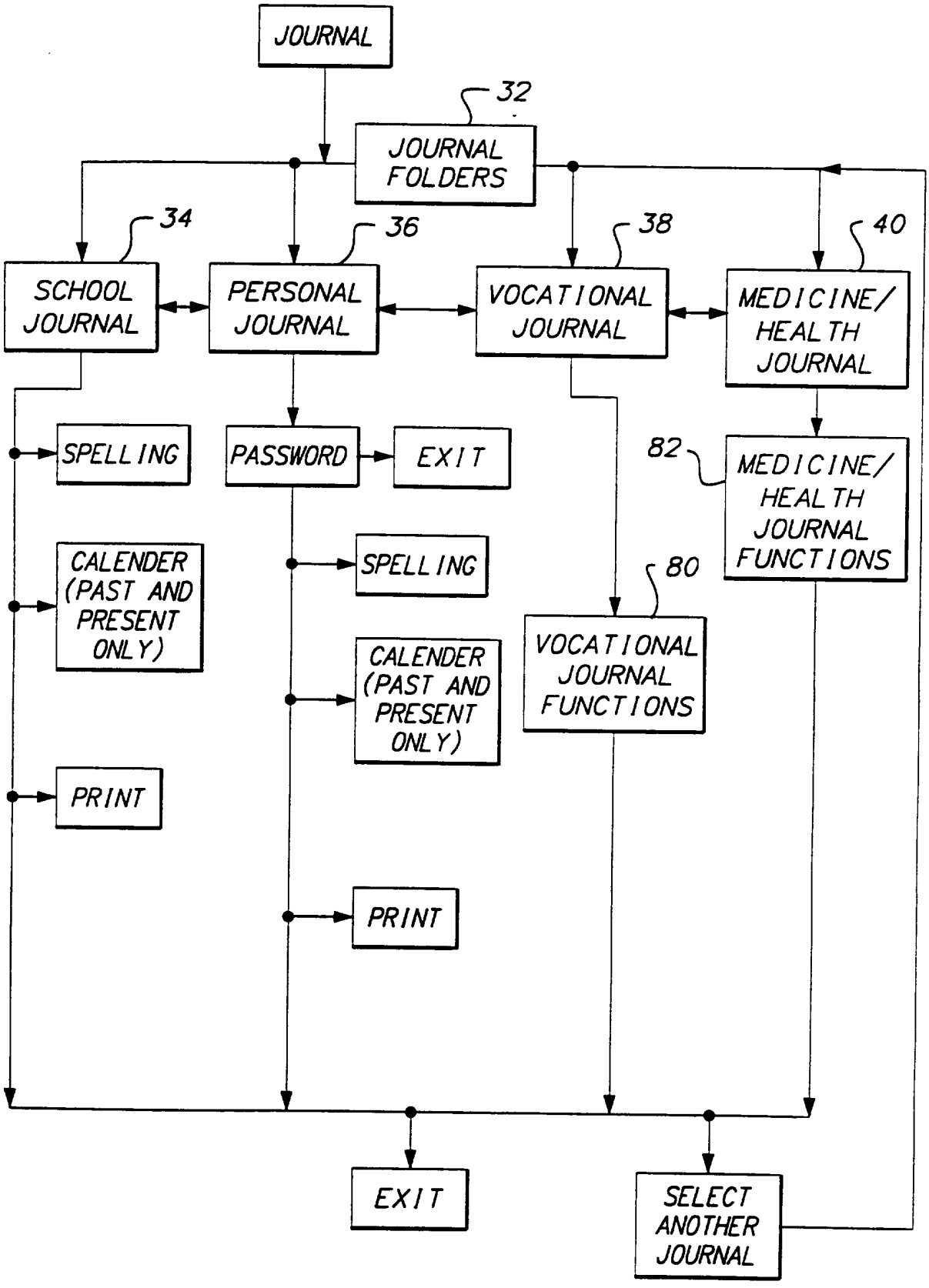

JOURNAL
32
JOURNAL FOLDERS
34
36
38
40
SCHOOL JOURNAL
PERSONAL JOURNAL
VOCATIONAL JOURNAL
MEDICINE/ HEALTH JOURNAL
SPELLING
PASSWORD
EXIT
82
MEDICINE/ HEALTH JOURNAL FUNCTIONS
CALENDER (PAST AND PRESENT ONLY)
SPELLING
80
CALENDER (PAST AND PRESENT ONLY)
VOCATIONAL JOURNAL FUNCTIONS
PRINT
PRINT
EXIT
SELECT ANOTHER JOURNAL

FIG. 2C

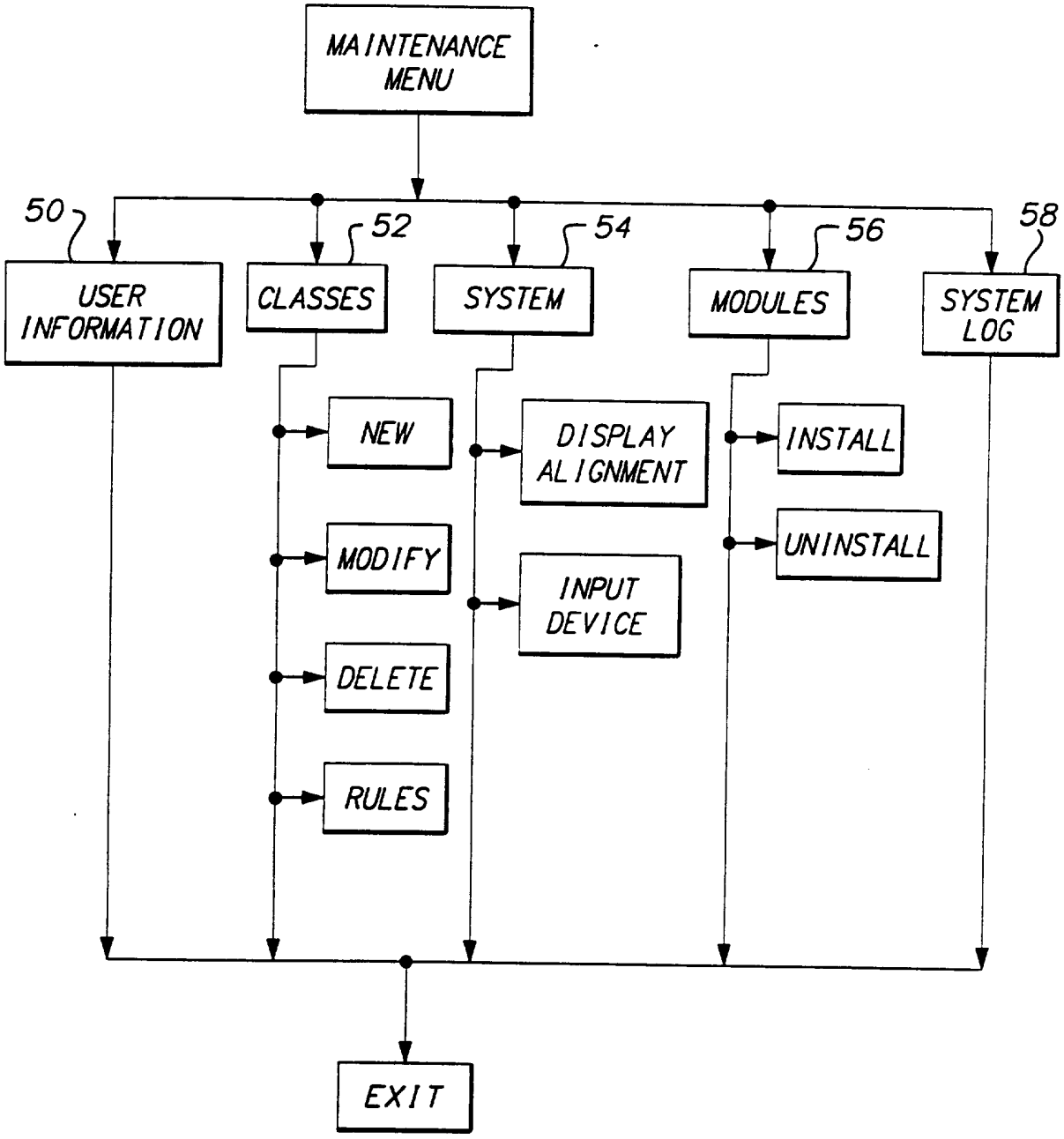

MAINTENANCE MENU
50
52
54
56
58
USER INFORMATION
CLASSES
SYSTEM
MODULES
SYSTEM LOG
NEW
MODIFY
DELETE
RULES
DISPLAY ALIGNMENT
INPUT DEVICE
INSTALL
UNINSTALL
EXIT

FIG. 2D

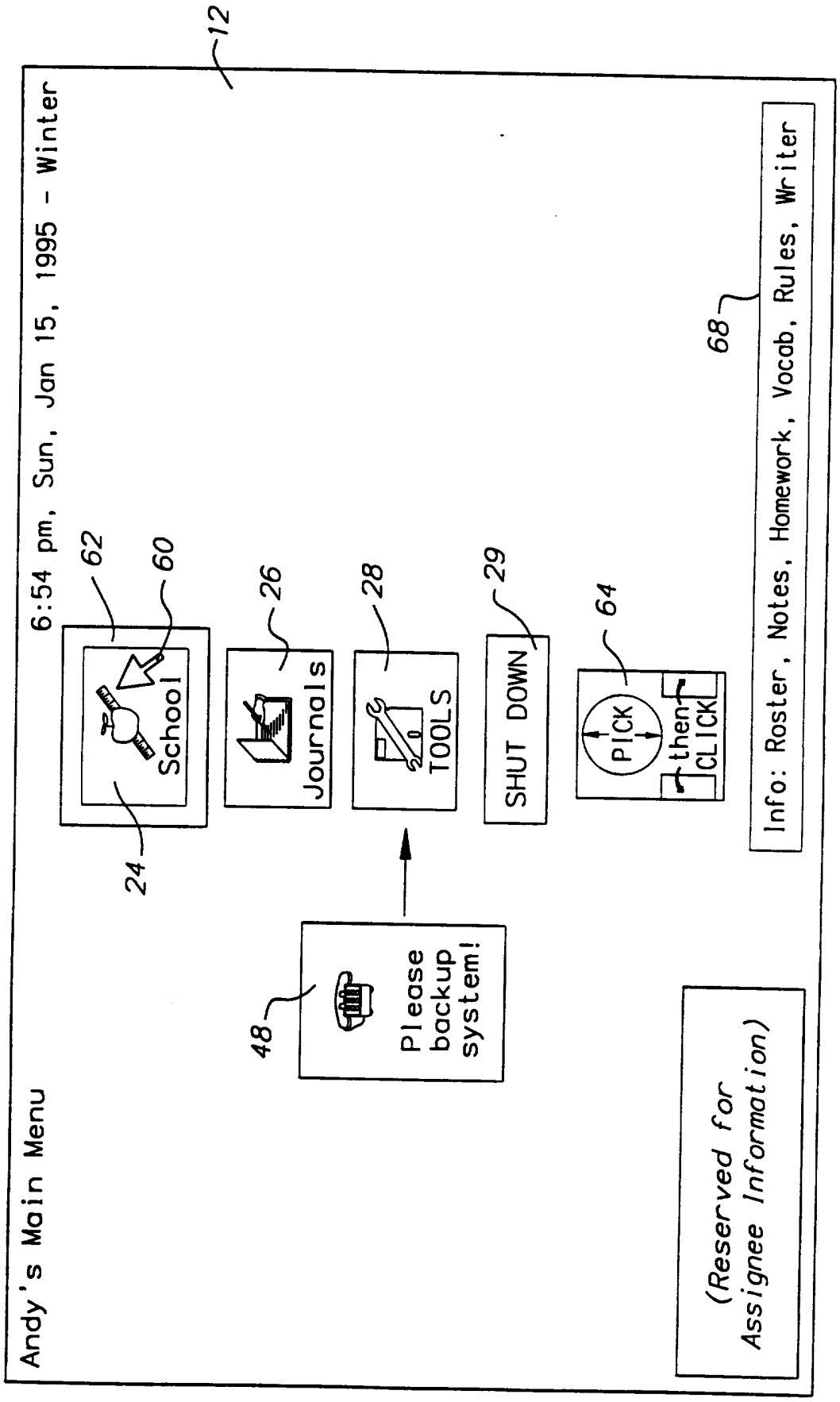

12
Andy's Main Menu
6:54 pm, Sun, Jan 15, 1995 - Winter
62
60
School
24
26
Journals
28
TOOLS
29
SHUT DOWN
64
PICK
then CLICK
68
Info: Roster, Notes, Homework, Vocab, Rules, Writer
48
Please backup system!
(Reserved for Assignee Information)

FIG. 3

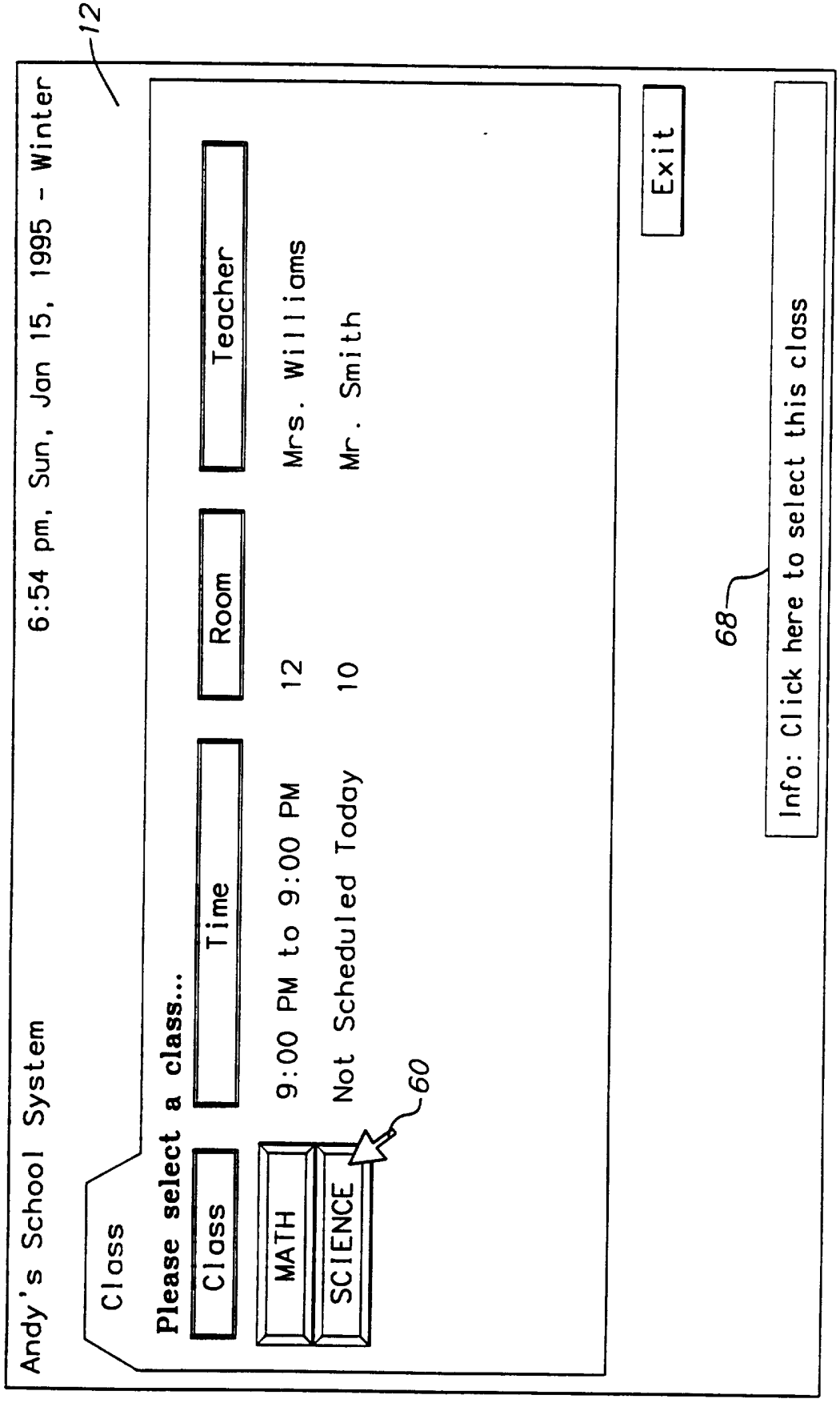

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Class
Please select a class...
Class
Time
Room
Teacher
MATH
SCIENCE
9:00 PM to 9:00 PM
12
Mrs. Williams
Not Scheduled Today
10
Mr. Smith
60
Exit
68
Info: Click here to select this class

FIG. 4

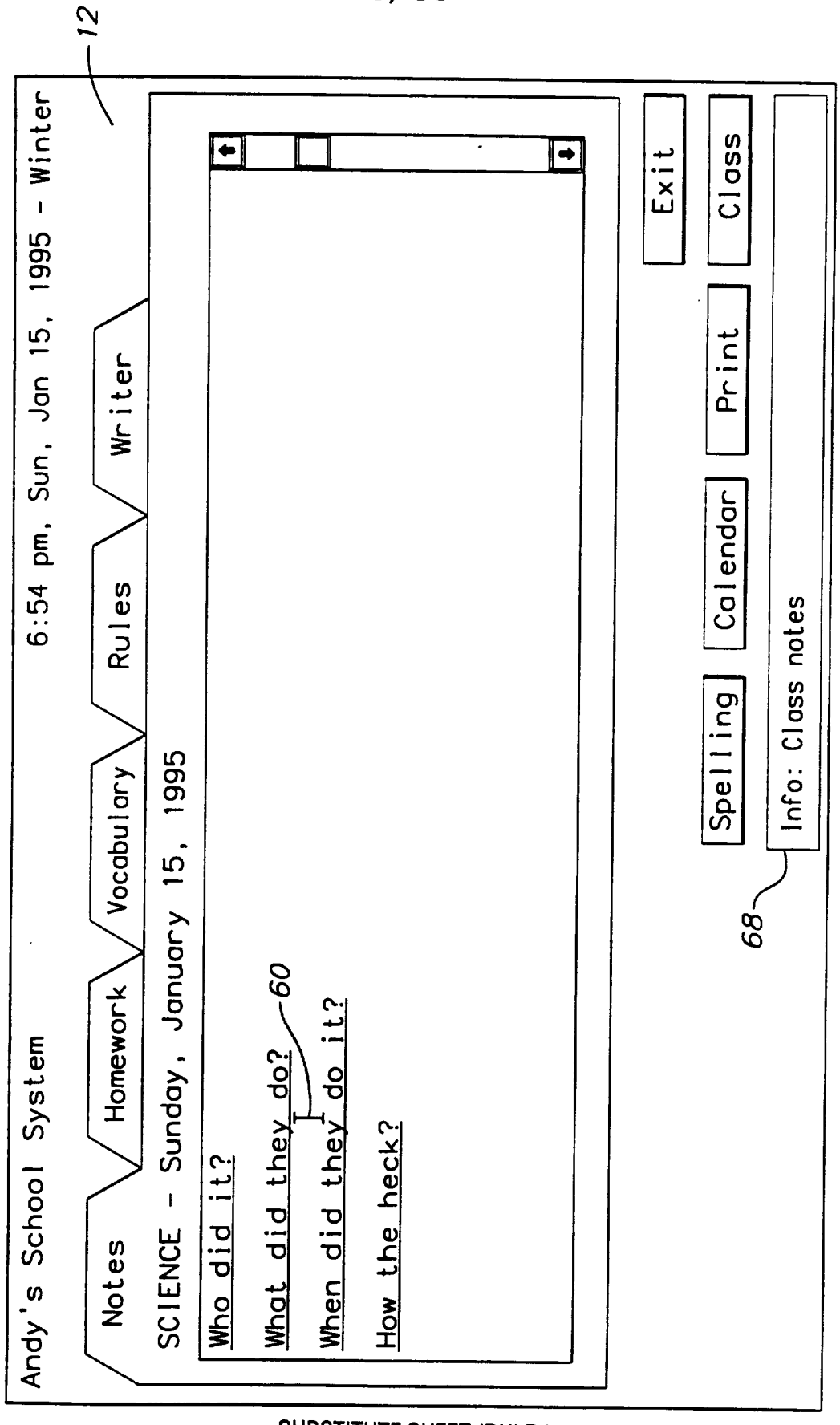

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Notes
Homework
Vocabulary
Rules
Writer
SCIENCE - Sunday, January 15, 1995
Who did it?
What did they do?
When did they do it?
How the heck?
60
Exit
Class
Print
Calendar
Spelling
Info: Class notes
68

FIG. 5

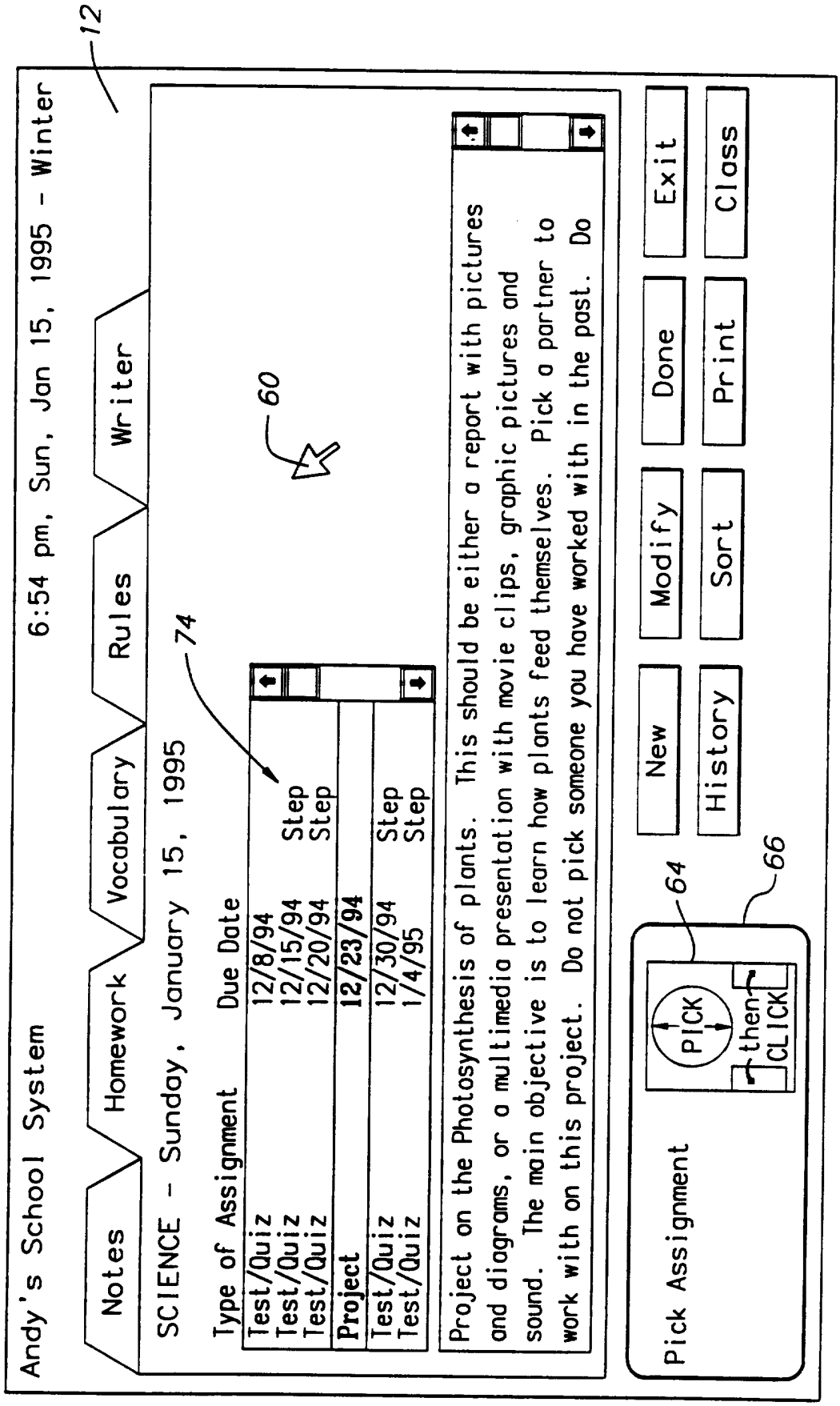

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Notes
Homework
Vocabulary
Rules
Writer
SCIENCE - Sunday, January 15, 1995
60
74
Type of Assignment
Due Date
Test/Quiz 12/8/94 Step
Test/Quiz 12/15/94 Step
Test/Quiz 12/20/94 Step
Project 12/23/94
Test/Quiz 12/30/94 Step
Test/Quiz 1/4/95 Step
Project on the Photosynthesis of plants. This should be either a report with pictures and diagrams, or a multimedia presentation with movie clips, graphic pictures and sound. The main objective is to learn how plants feed themselves. Pick a partner to work with on this project. Do not pick someone you have worked with in the past. Do
New
Modify
Done
Exit
History
Sort
Print
Class
64
66
Pick Assignment
PICK
then CLICK

FIG. 6

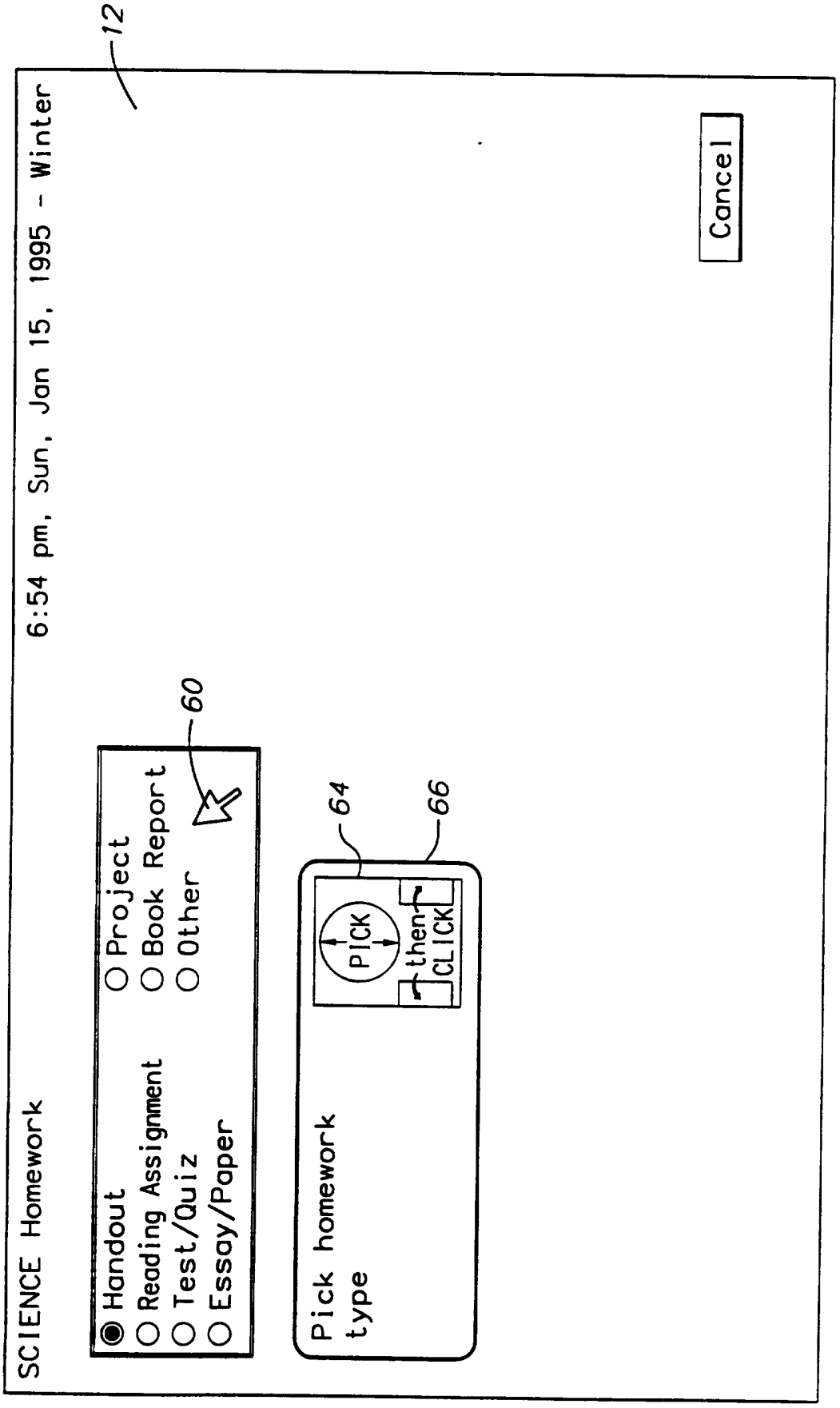

12
SCIENCE Homework
6:54 pm, Sun, Jan 15, 1995 - Winter
Cancel
60
Handout
Reading Assignment
Test/Quiz
Essay/Paper
Project
Book Report
Other
64
66
PICK
then
CLICK
Pick homework type

FIG. 7A

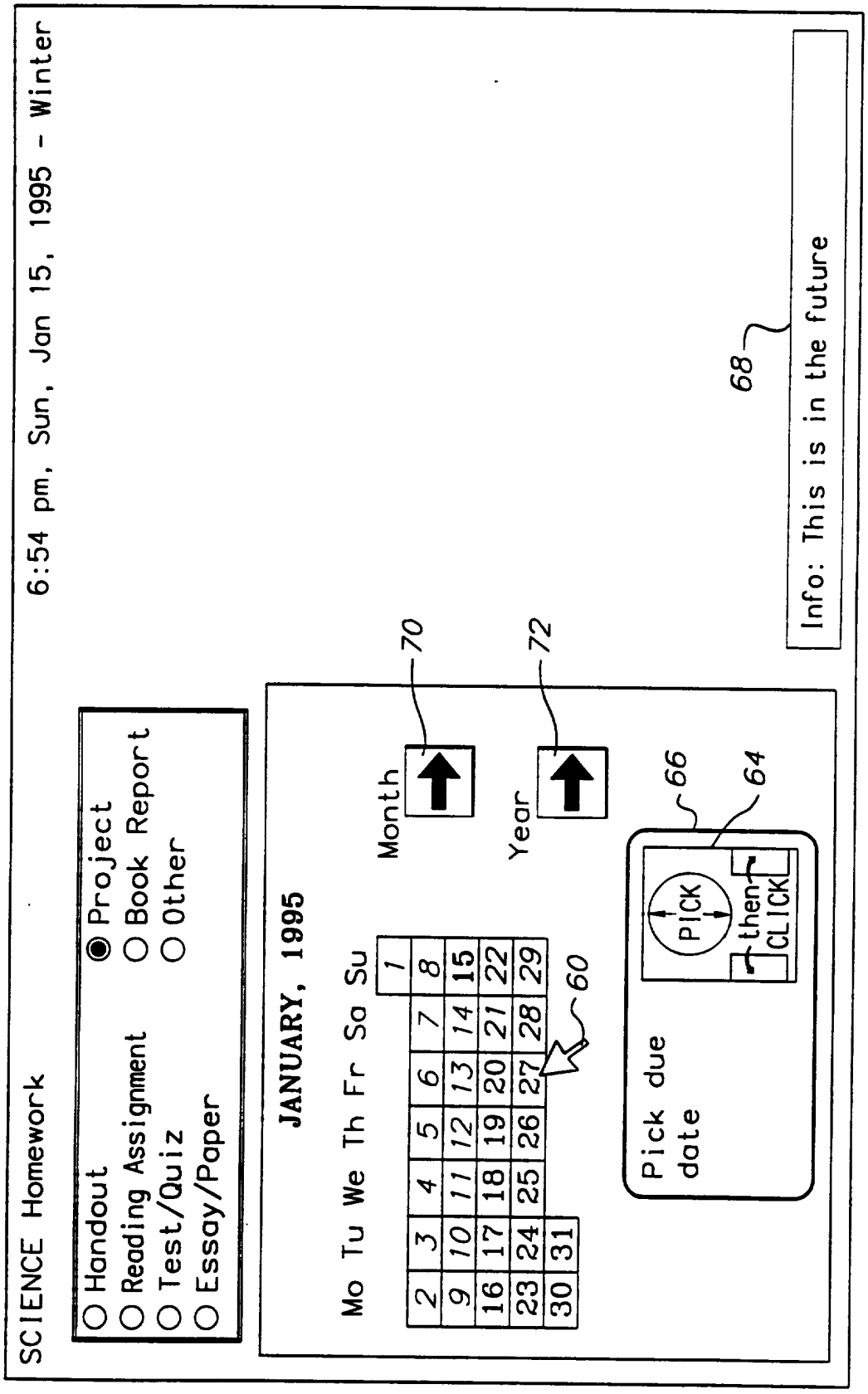

SCIENCE Homework
6:54 pm, Sun, Jan 15, 1995 - Winter
Handout
Reading Assignment
Test/Quiz
Essay/Paper
Project
Book Report
Other
JANUARY, 1995
Mo Tu We Th Fr Sa Su
Month
Year
70
72
60
66
64
PICK
then CLICK
Pick due date
68
Info: This is in the future

FIG. 7B

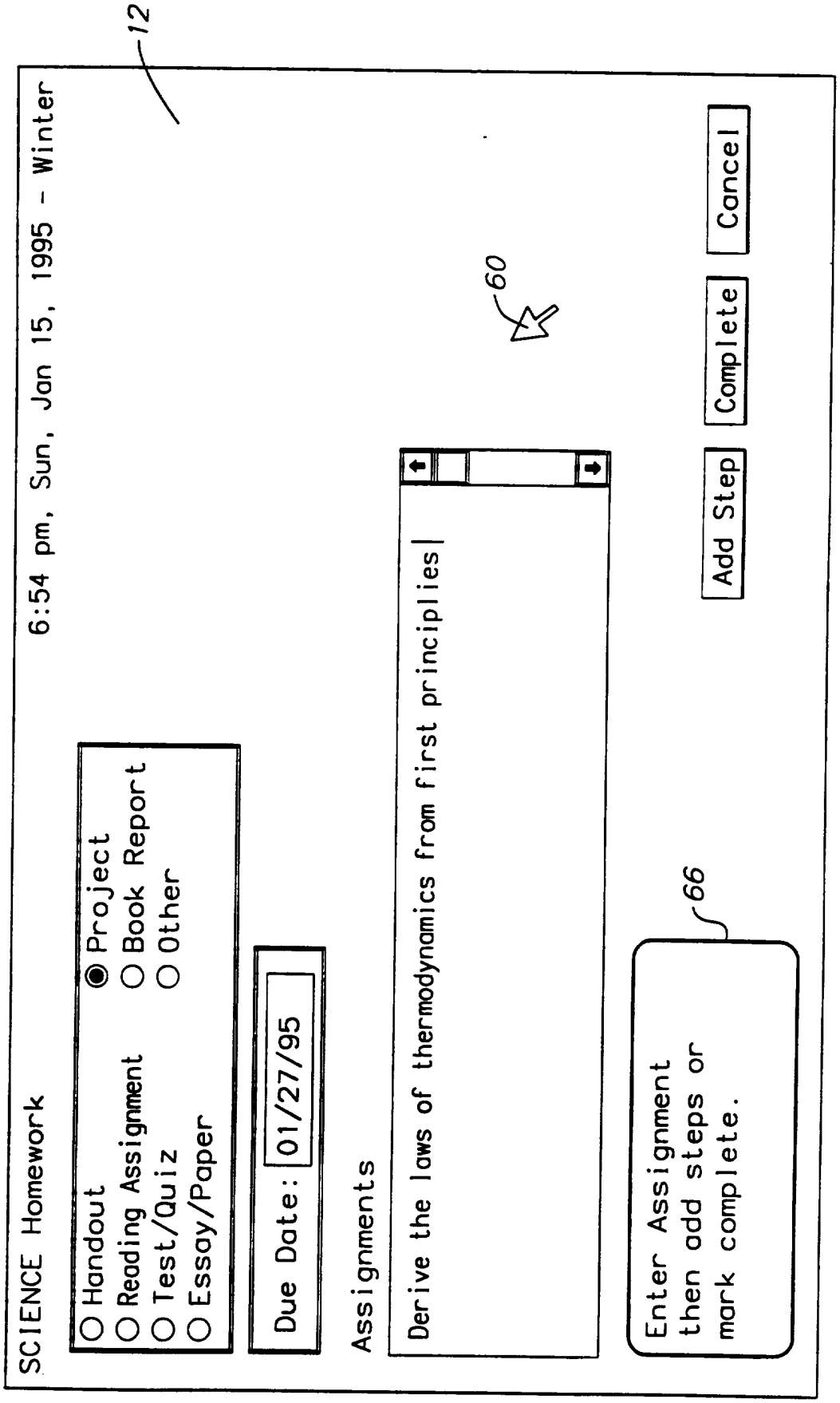

12
SCIENCE Homework
6:54 pm, Sun, Jan 15, 1995 - Winter
Handout
Reading Assignment
Test/Quiz
Essay/Paper
Project
Book Report
Other
Due Date: 01/27/95
Assignments
Derive the laws of thermodynamics from first principles
60
Add Step
Complete
Cancel
66
Enter Assignment then add steps or mark complete.

FIG. 7C

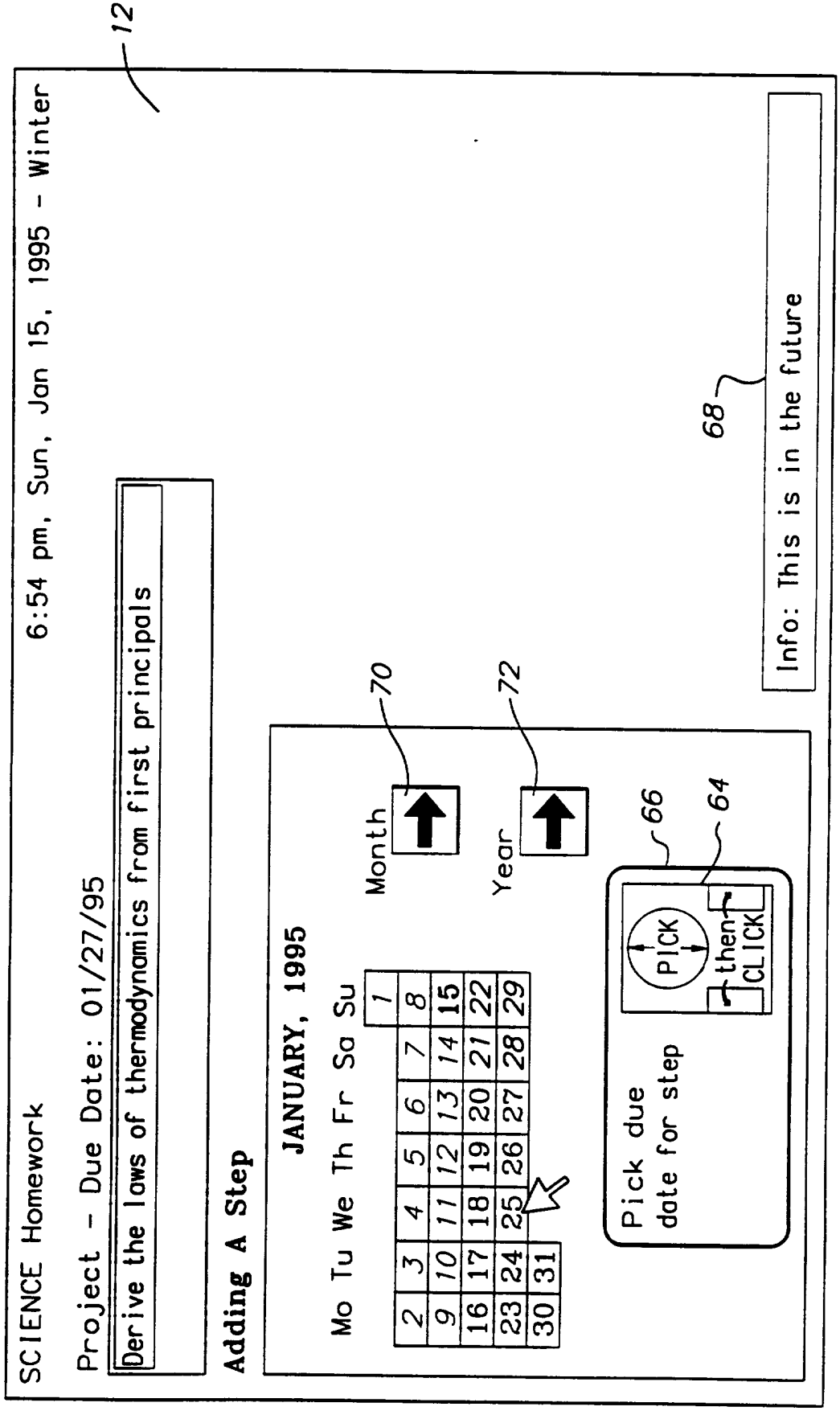

12
SCIENCE Homework
6:54 pm, Sun, Jan 15, 1995 - Winter
Project - Due Date: 01/27/95
Derive the laws of thermodynamics from first principals
Adding A Step
68
Info: This is in the future
70
72
Month
Year
JANUARY, 1995
Mo Tu We Th Fr Sa Su
66
64
PICK
then CLICK
Pick due date for step

FIG. 7D

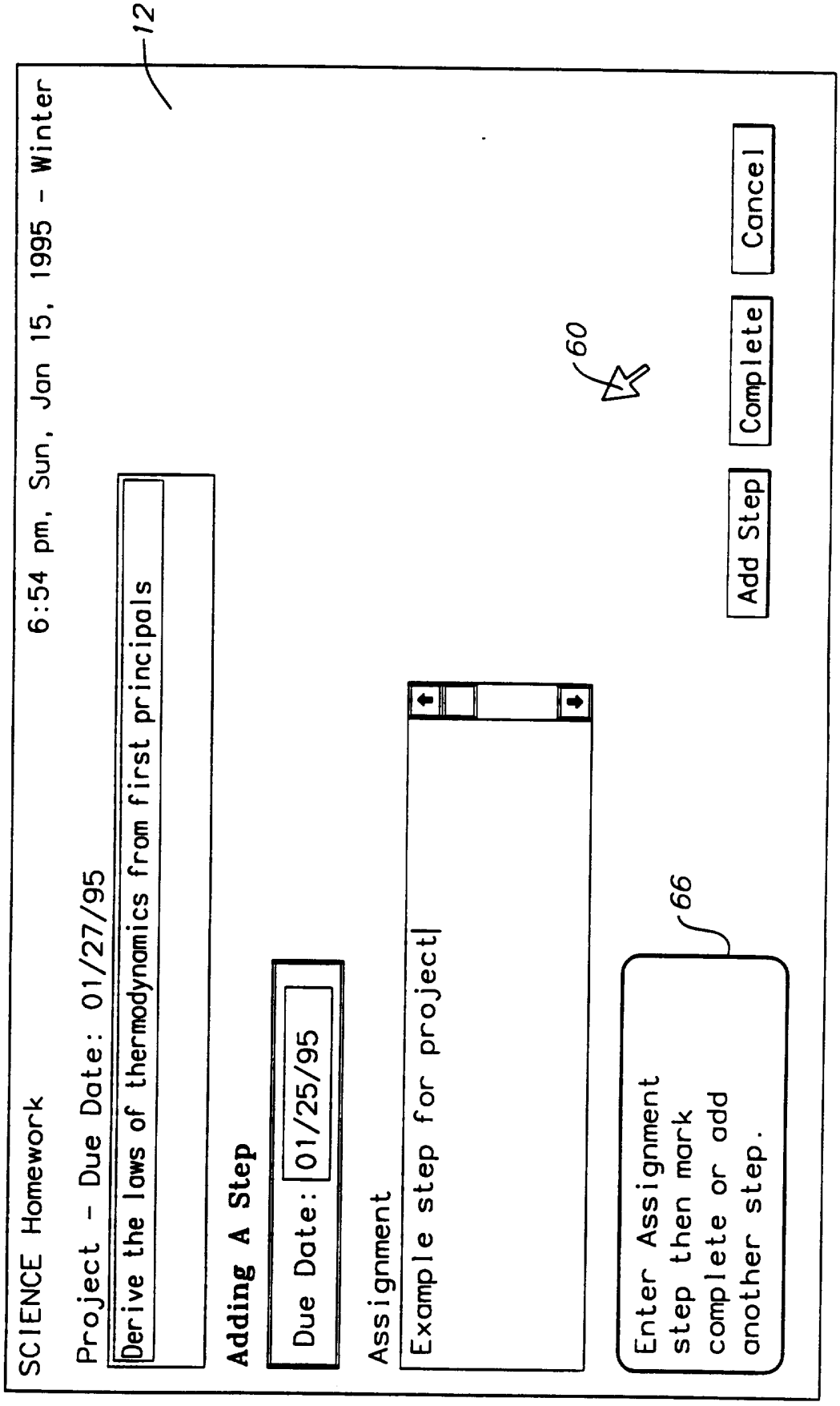

12
SCIENCE Homework
6:54 pm, Sun, Jan 15, 1995 - Winter
Project - Due Date: 01/27/95
Derive the laws of thermodynamics from first principals
Adding A Step
Due Date: 01/25/95
Assignment
Example step for project
60
Add Step
Complete
Cancel
66
Enter Assignment step then mark complete or add another step.

FIG. 7E

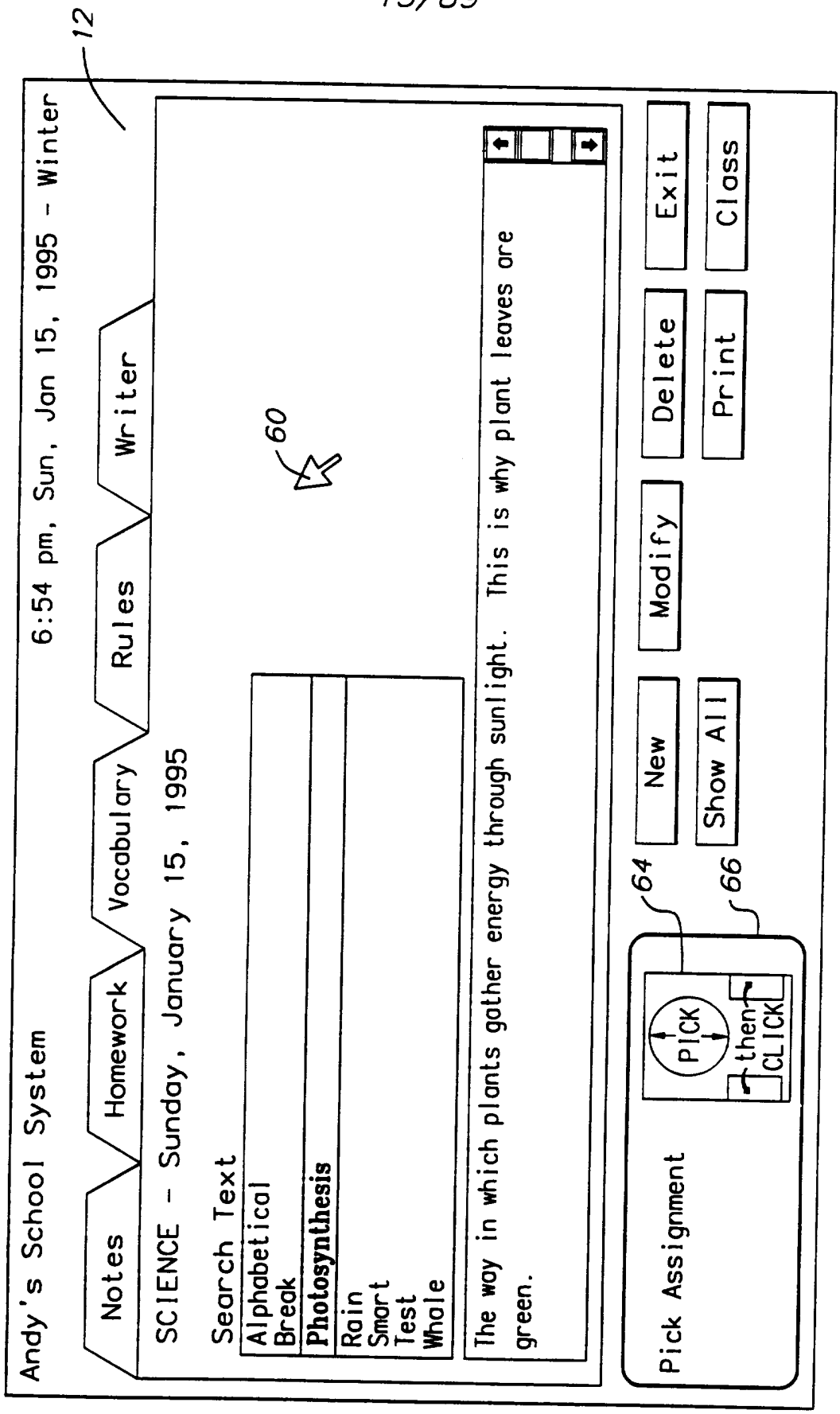

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Notes
Homework
Vocabulary
Rules
Writer
SCIENCE - Sunday, January 15, 1995
Search Text
Alphabetical
Break
Photosynthesis
Rain
Smart
Test
Whole
60
The way in which plants gather energy through sunlight. This is why plant leaves are green.
New
Modify
Delete
Exit
Show All
Print
Class
64
66
Pick Assignment
PICK
then
CLICK

FIG. 8

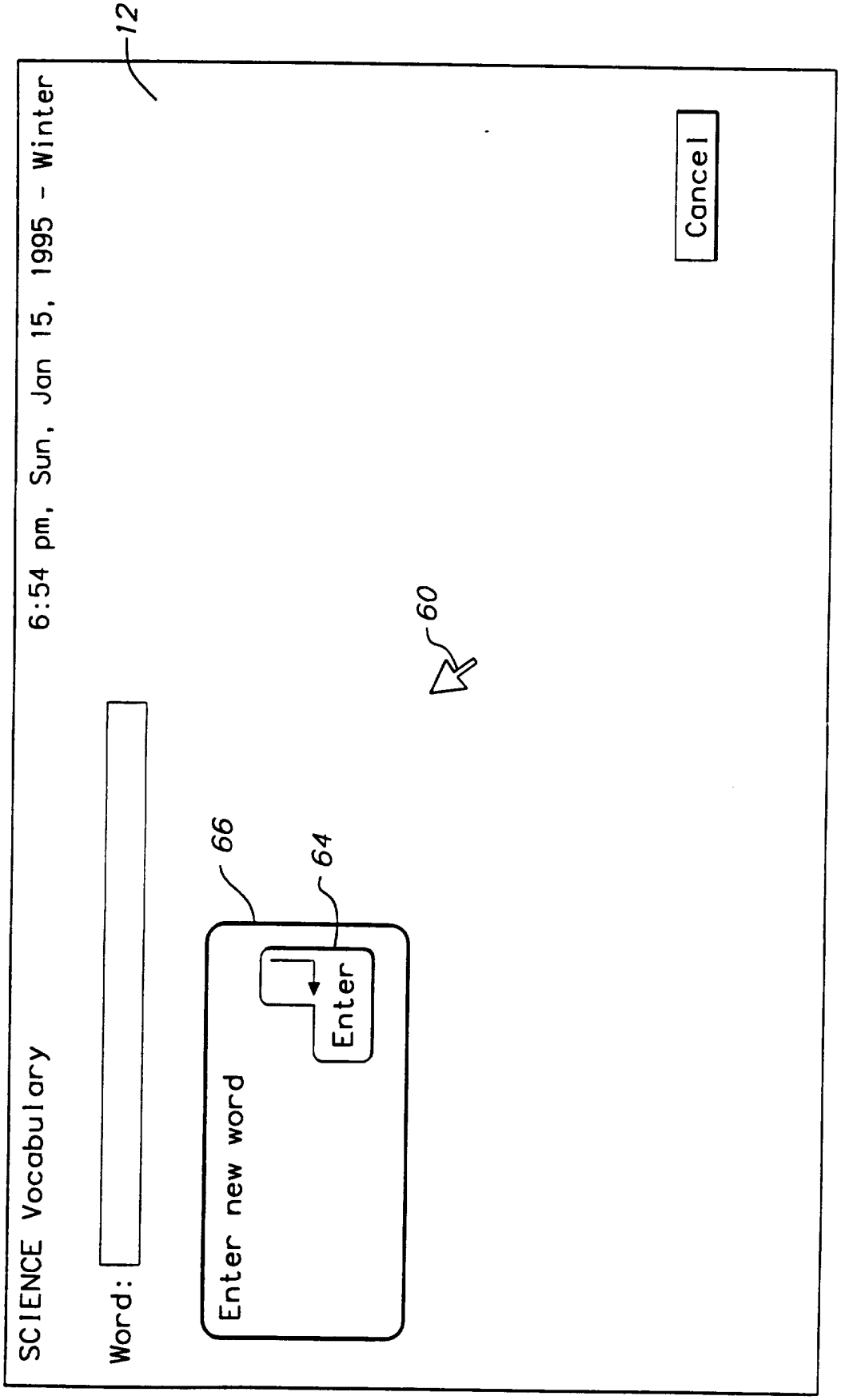

12
6:54 pm, Sun, Jan 15, 1995 - Winter
Cancel
60
SCIENCE Vocabulary
Word:
66
64
Enter new word
Enter

FIG. 9A

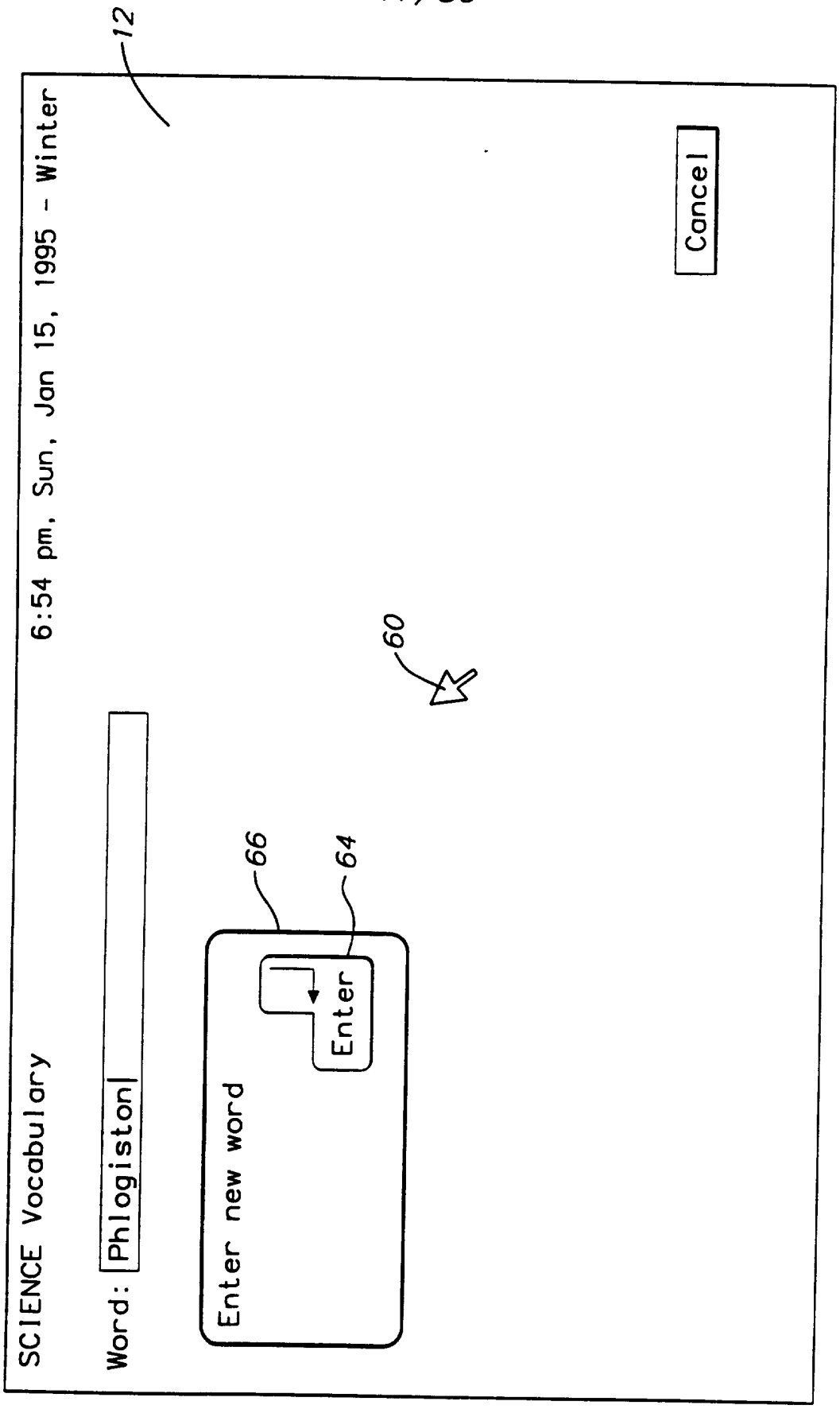

12
6:54 pm, Sun, Jan 15, 1995 - Winter
Cancel
60
SCIENCE Vocabulary
Word: Phlogiston
66
64
Enter new word
Enter

FIG. 9B

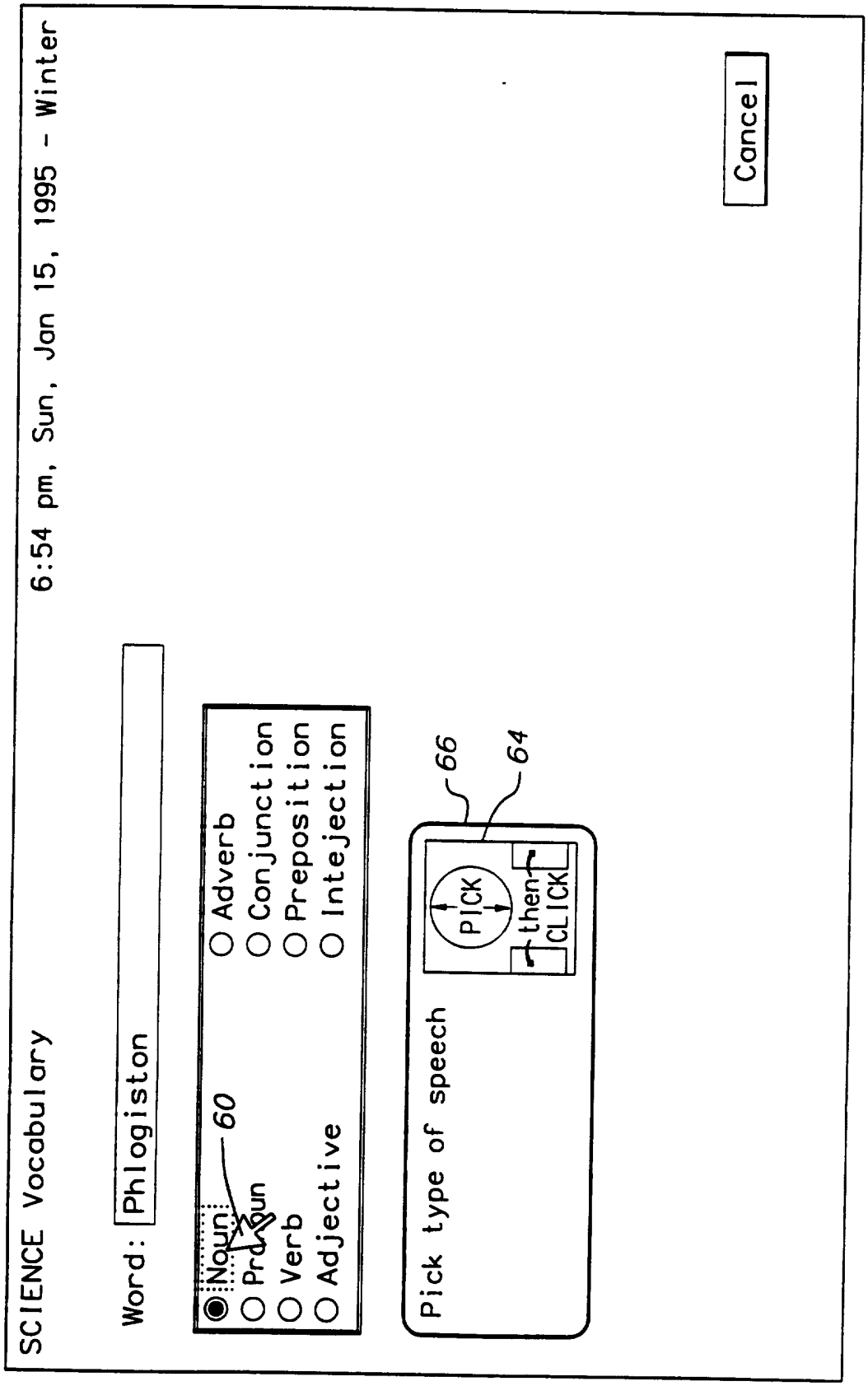

SCIENCE Vocabulary
6:54 pm, Sun, Jan 15, 1995 - Winter
Word: Phlogiston
Noun
Pronoun
Verb
Adjective
Adverb
Conjunction
Preposition
Intejection
60
66
64
Pick type of speech
PICK
then
CLICK
Cancel

FIG. 9C

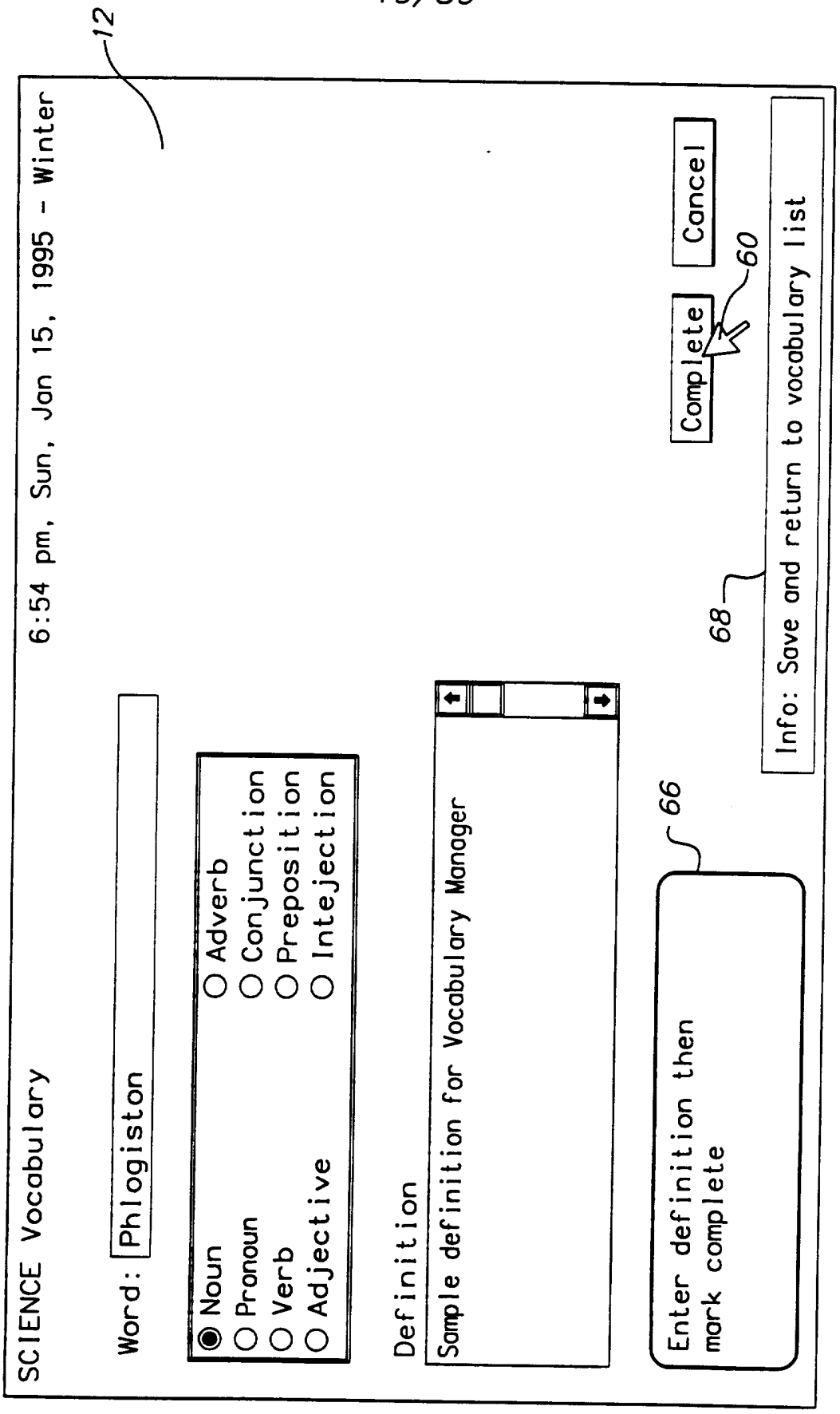

12
SCIENCE Vocabulary
6:54 pm, Sun, Jan 15, 1995 - Winter
Word: Phlogiston
Noun
Pronoun
Verb
Adjective
Adverb
Conjunction
Preposition
Intejection
Definition
Sample definition for Vocabulary Manager
Enter definition then mark complete
66
Info: Save and return to vocabulary list
68
Complete
Cancel
60

FIG. 9D

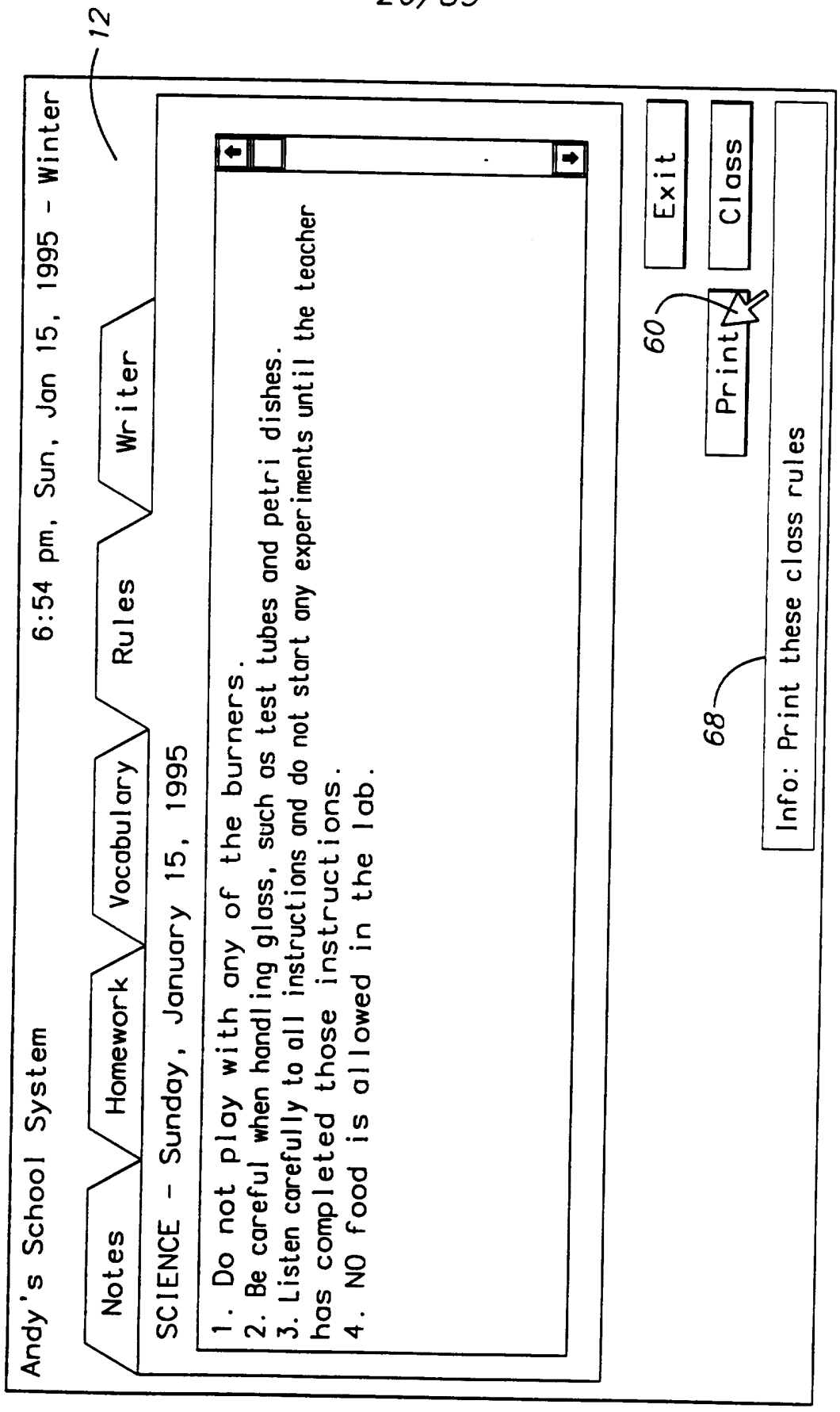

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Notes
Homework
Vocabulary
Rules
Writer
SCIENCE - Sunday, January 15, 1995
1. Do not play with any of the burners.
2. Be careful when handling glass, such as test tubes and petri dishes.
3. Listen carefully to all instructions and do not start any experiments until the teacher has completed those instructions.
4. NO food is allowed in the lab.
Exit
Class
60
Print
68
Info: Print these class rules

FIG. 10

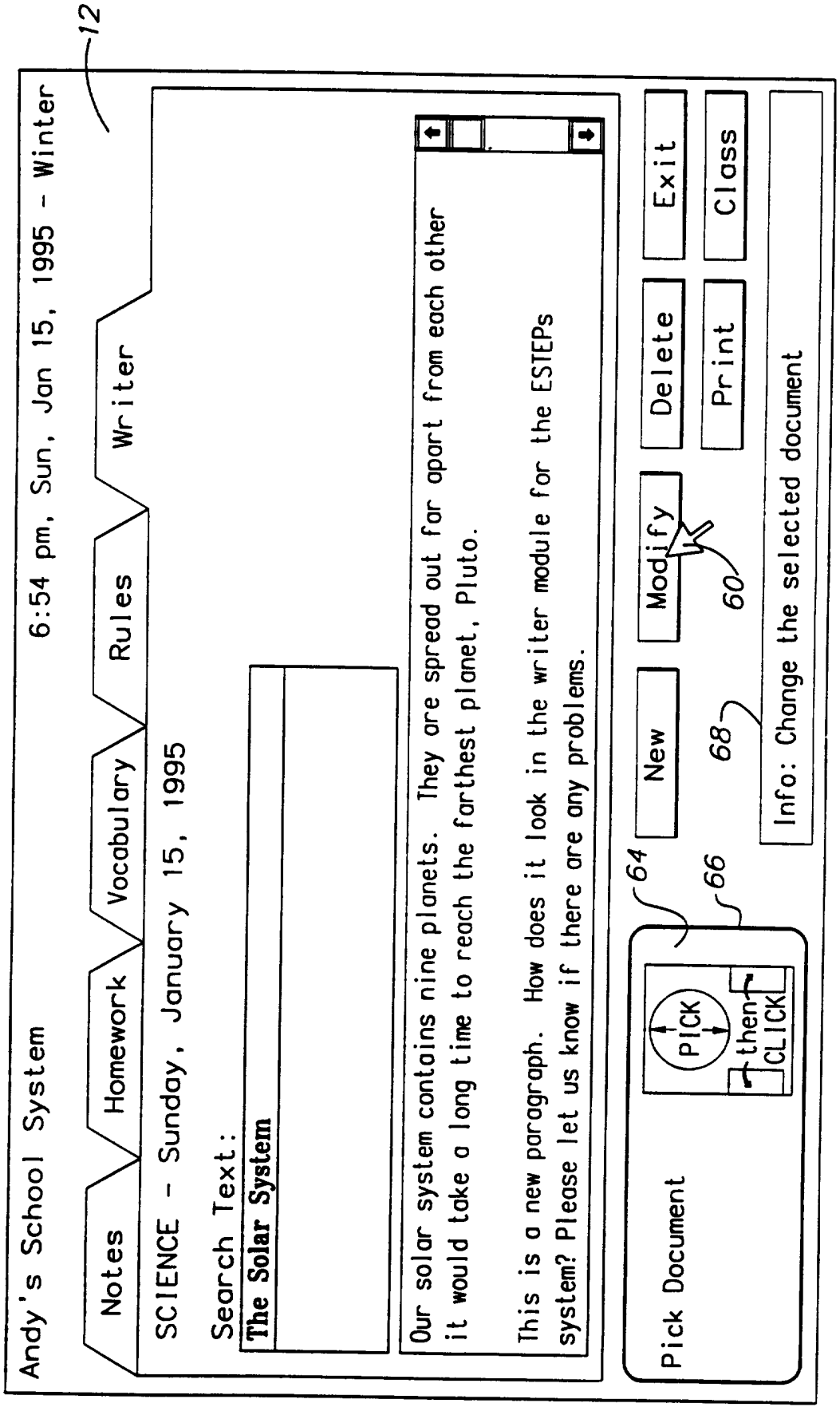

12
Andy's School System
6:54 pm, Sun, Jan 15, 1995 - Winter
Notes
Homework
Vocabulary
Rules
Writer
SCIENCE - Sunday, January 15, 1995
Search Text:
The Solar System
Our solar system contains nine planets. They are spread out far apart from each other
it would take a long time to reach the farthest planet, Pluto.
This is a new paragraph. How does it look in the writer module for the ESTEPs
system? Please let us know if there are any problems.
Exit
Class
Delete
Print
Modify
60
New
64
66
68
Pick Document
PICK
then
CLICK
Info: Change the selected document

FIG. 11

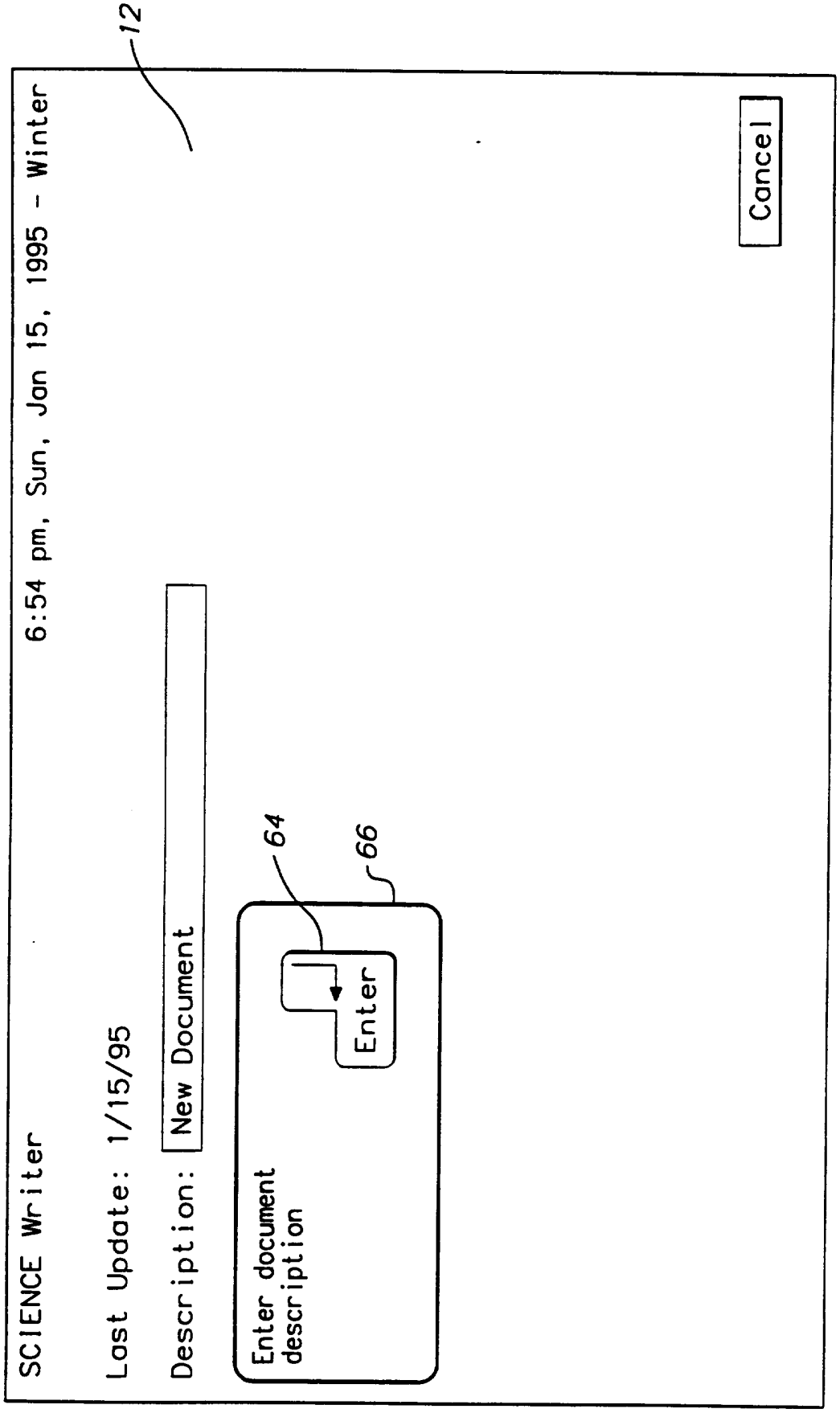

12
SCIENCE Writer
6:54 pm, Sun, Jan 15, 1995 - Winter
Last Update: 1/15/95
Description:
New Document
Cancel
64
66
Enter
Enter document description

FIG. 12

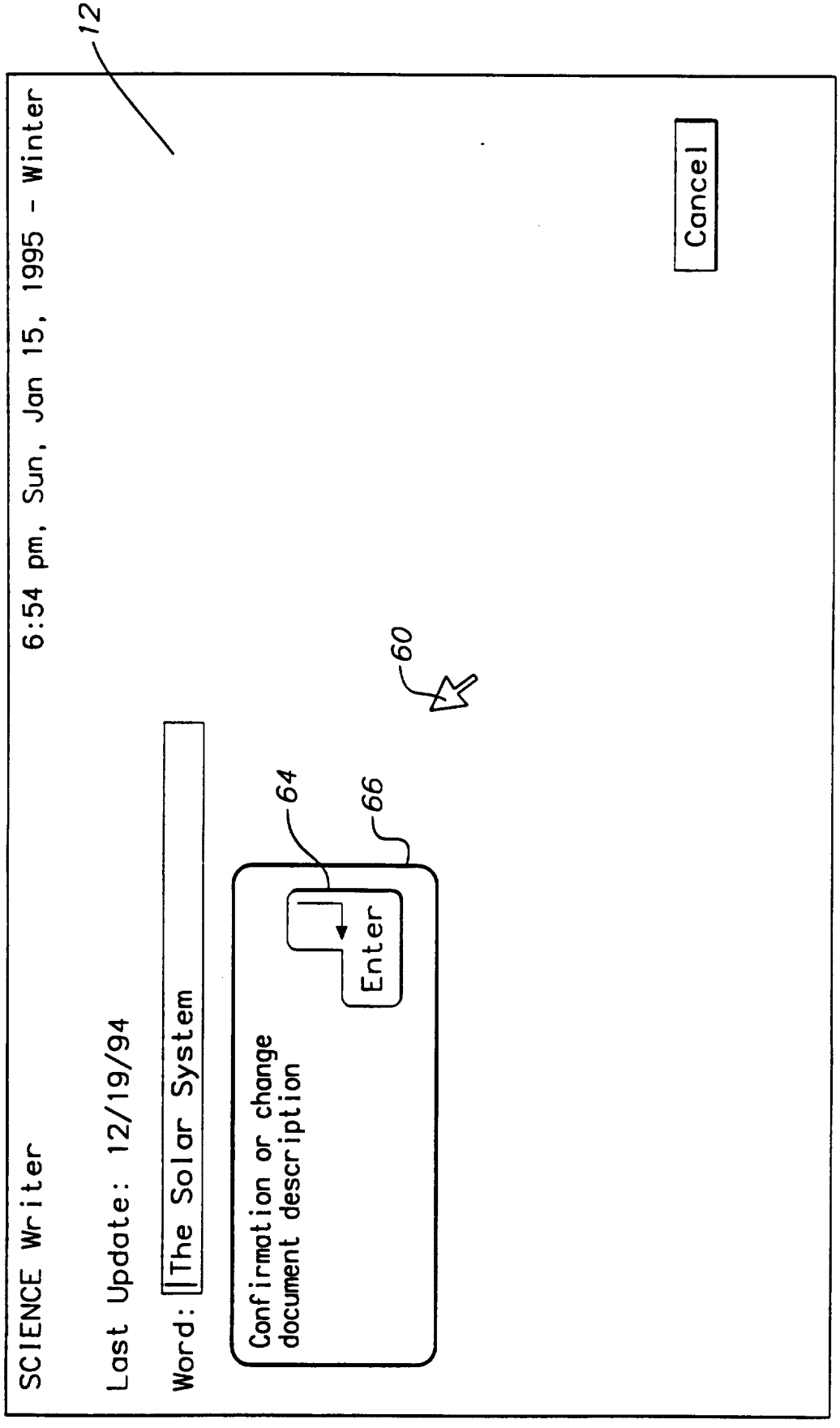

12
SCIENCE Writer
6:54 pm, Sun, Jan 15, 1995 - Winter
Cancel
Last Update: 12/19/94
Word: The Solar System
60
64
66
Confirmation or change document description
Enter

FIG. 13A

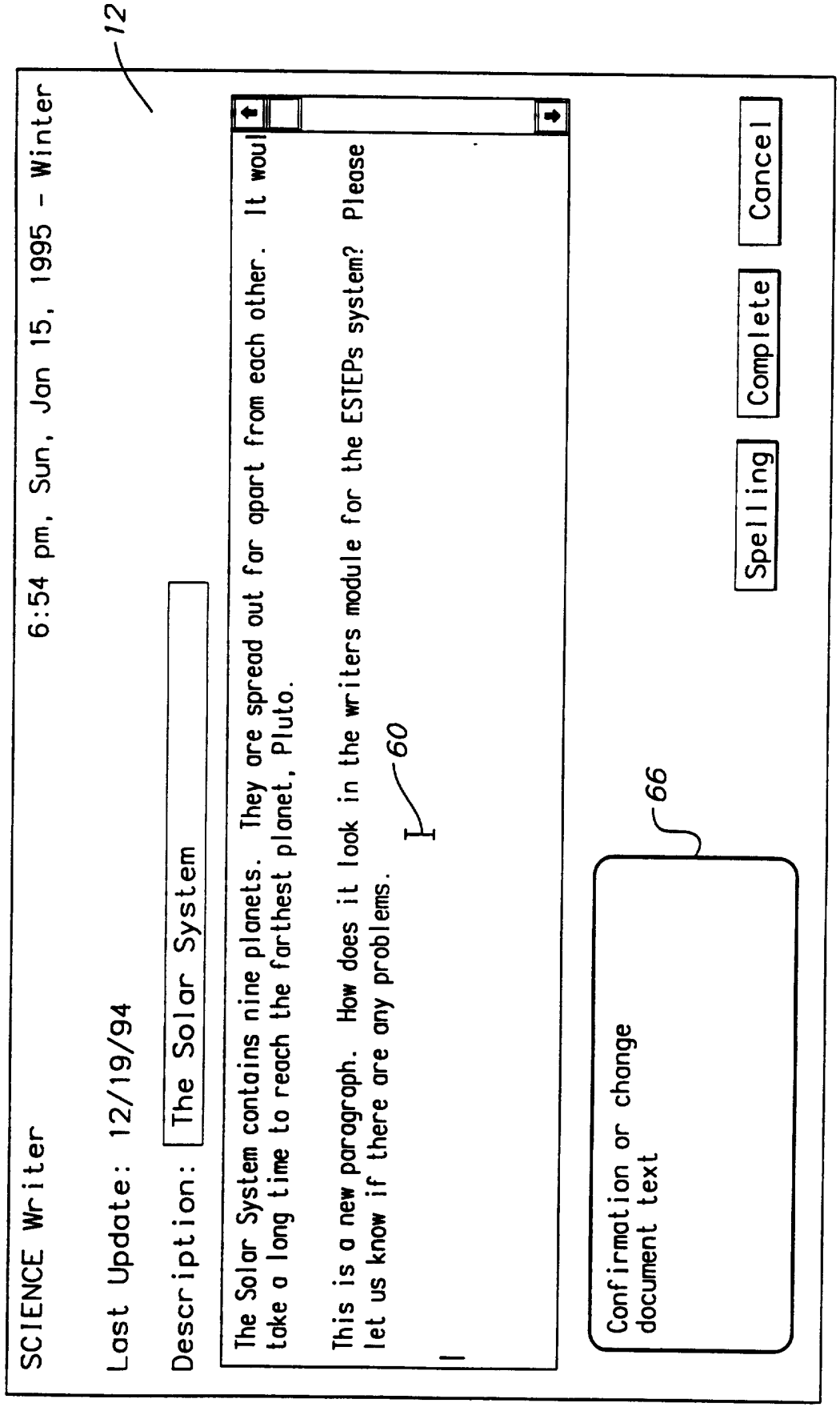

12
SCIENCE Writer
6:54 pm, Sun, Jan 15, 1995 - Winter
Last Update: 12/19/94
Description: The Solar System
The Solar System contains nine planets. They are spread out far apart from each other. It woul
take a long time to reach the farthest planet, Pluto.
This is a new paragraph. How does it look in the writers module for the ESTEPs system? Please
let us know if there are any problems.
60
Spelling
Complete
Cancel
66
Confirmation or change
document text

FIG. 13B

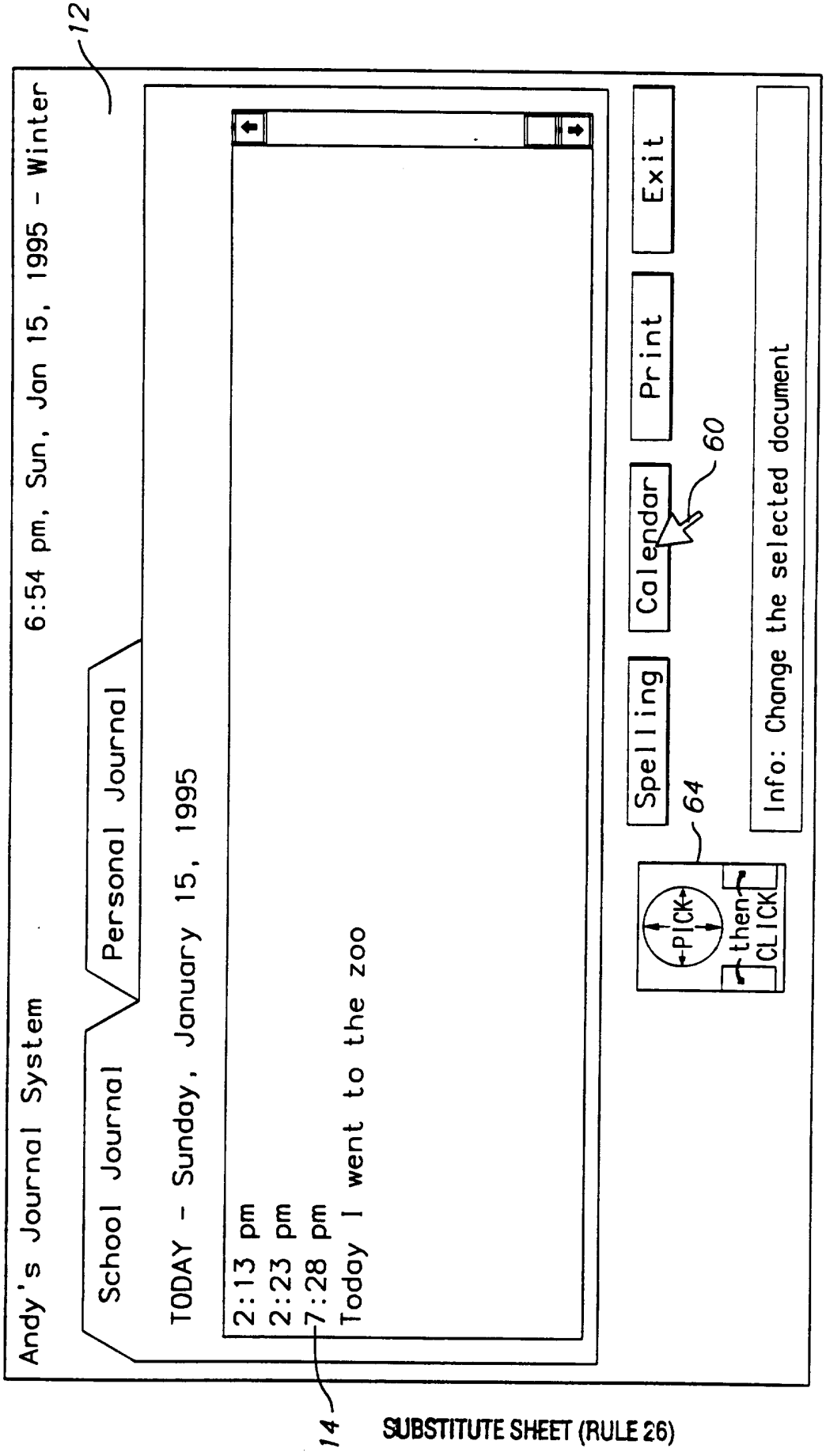

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
School Journal
Personal Journal
TODAY - Sunday, January 15, 1995
2:13 pm
2:23 pm
7:28 pm
Today I went to the zoo
14
Exit
Print
Calendar
60
Spelling
64
PICK
then CLICK
Info: Change the selected document

FIG. 14

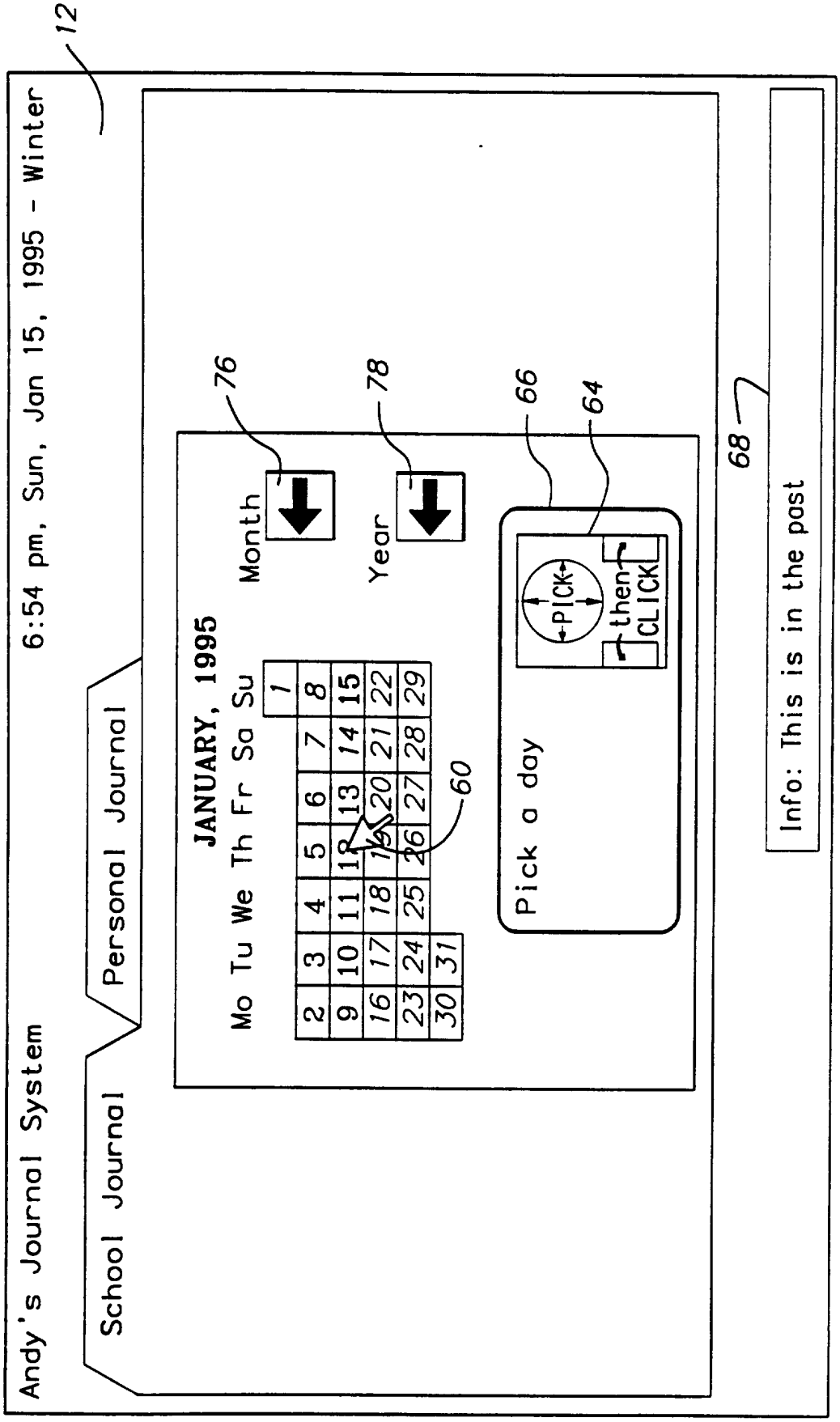

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
Personal Journal
School Journal
76
78
66
64
68
Month
Year
JANUARY, 1995
Mo Tu We Th Fr Sa Su
60
Pick a day
PICK
then CLICK
Info: This is in the past

FIG. 15

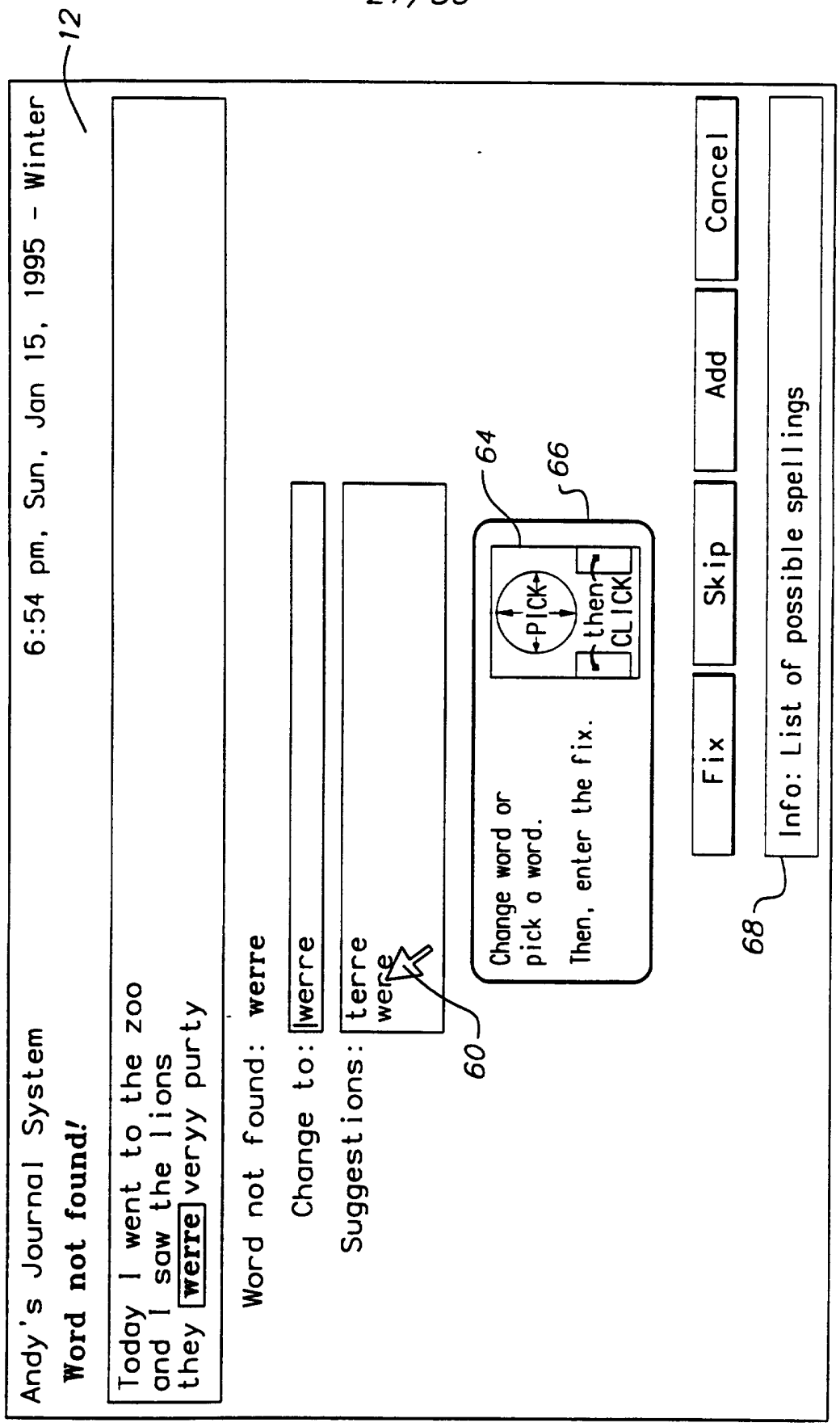

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
Word not found!
Today I went to the zoo
and I saw the lions
they werre veryy purty
Word not found: werre
Change to: werre
Suggestions:
terre
were
60
64
66
Change word or
pick a word.
Then, enter the fix.
PICK
then
CLICK
Fix
Skip
Add
Cancel
Info: List of possible spellings
68

FIG. 16A

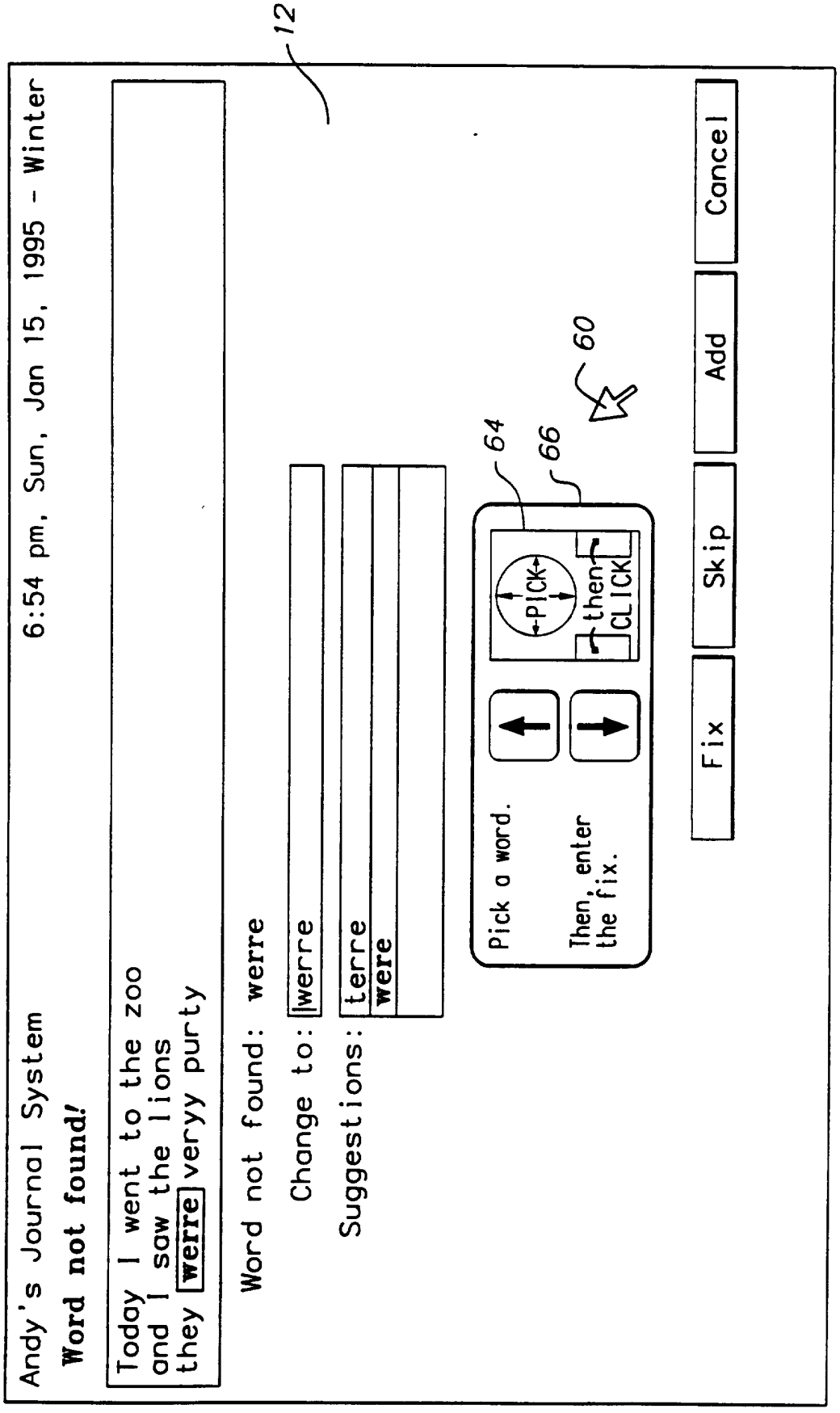

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
Word not found!
Today I went to the zoo
and I saw the lions
they werre veryy purty
Word not found: werre
Change to: werre
Suggestions:
terre
were
64
66
60
Pick a word.
Then, enter the fix.
PICK
then CLICK
Fix
Skip
Add
Cancel

FIG. 16B

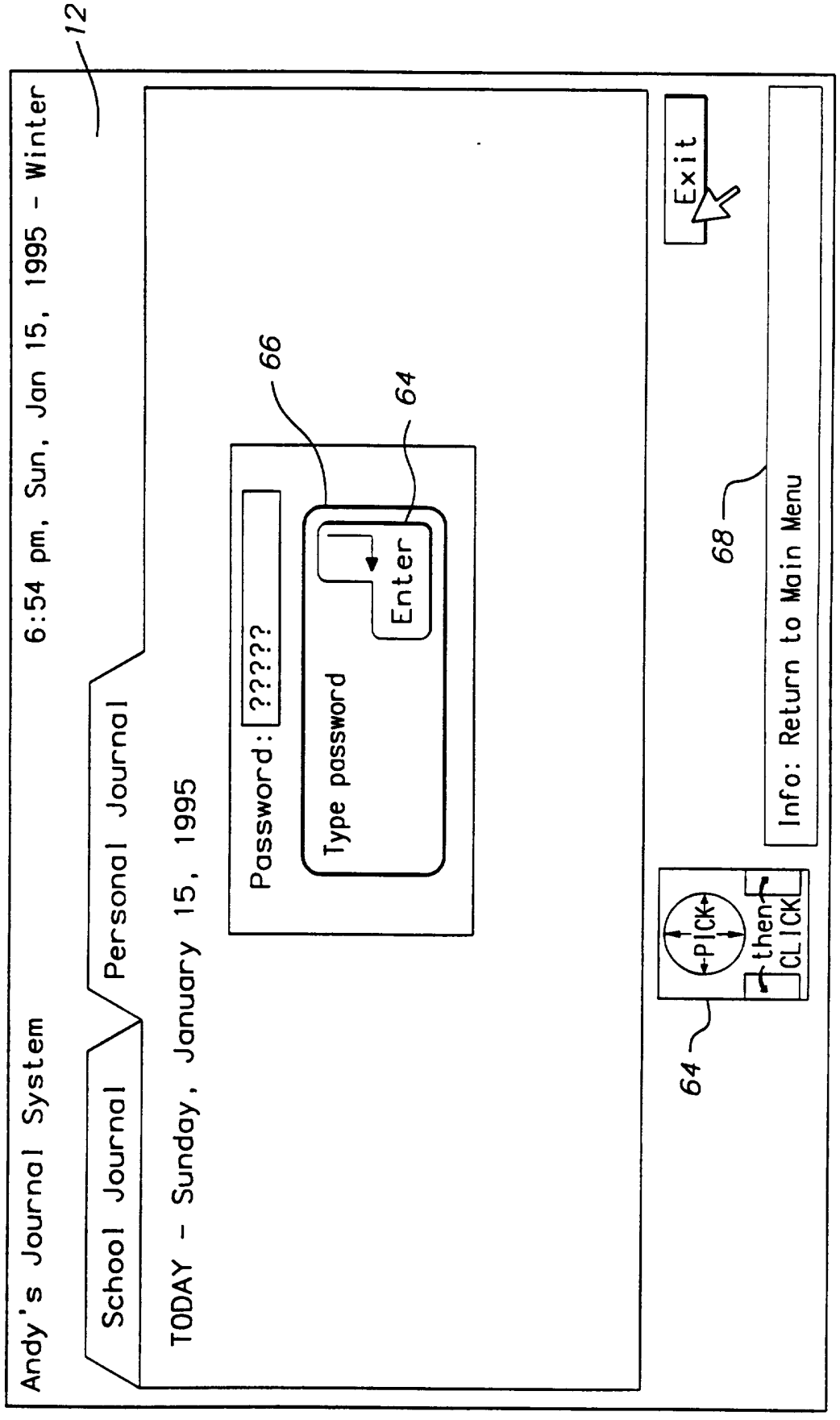

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
School Journal
Personal Journal
TODAY - Sunday, January 15, 1995
Password: ?????
66
64
Type password
Enter
Exit
68
Info: Return to Main Menu
PICK
then
CLICK
64

FIG. 17

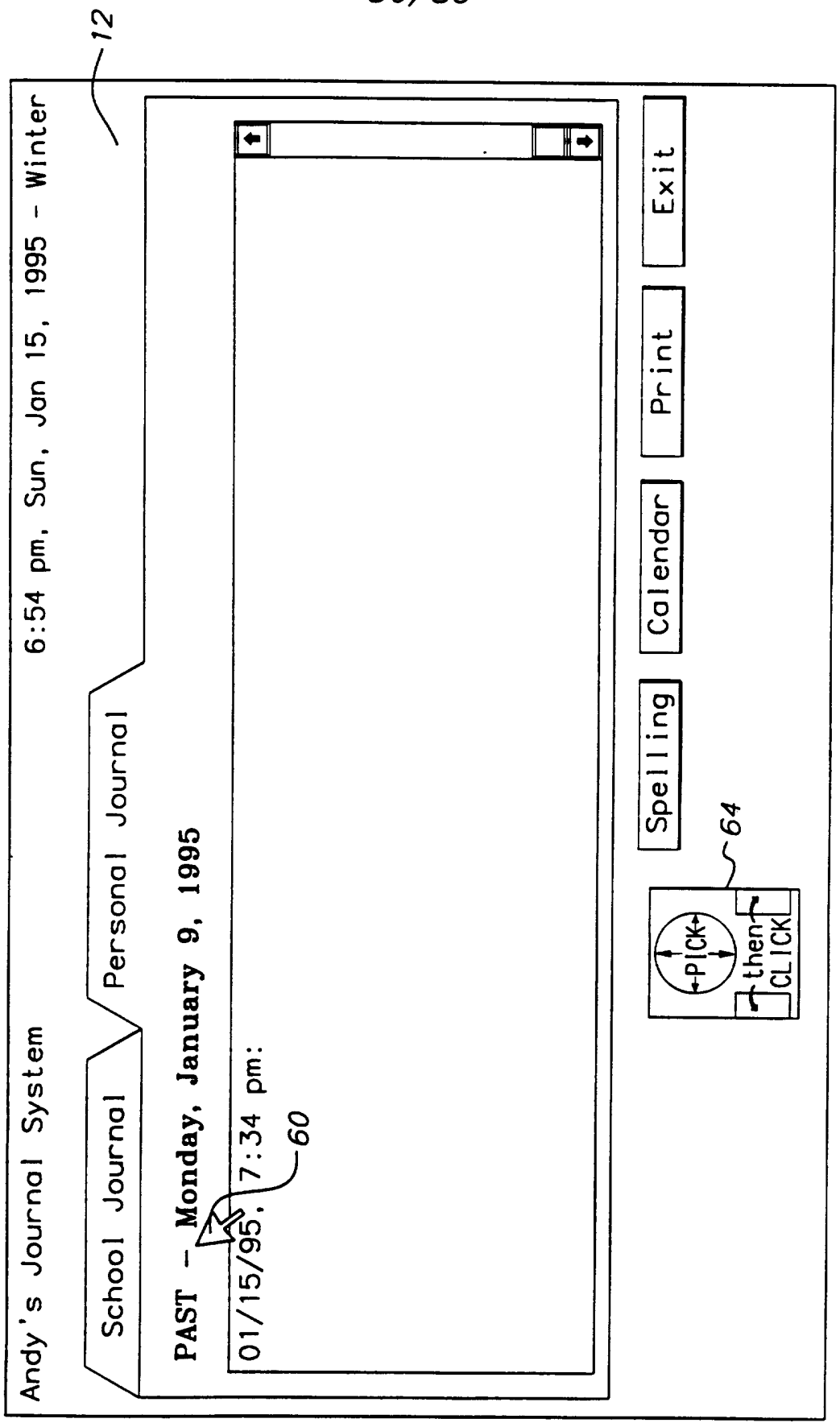

12
Andy's Journal System
6:54 pm, Sun, Jan 15, 1995 - Winter
School Journal
Personal Journal
PAST - Monday, January 9, 1995
01/15/95, 7:34 pm:
60
Exit
Print
Calendar
Spelling
64
PICK
then CLICK

FIG. 18

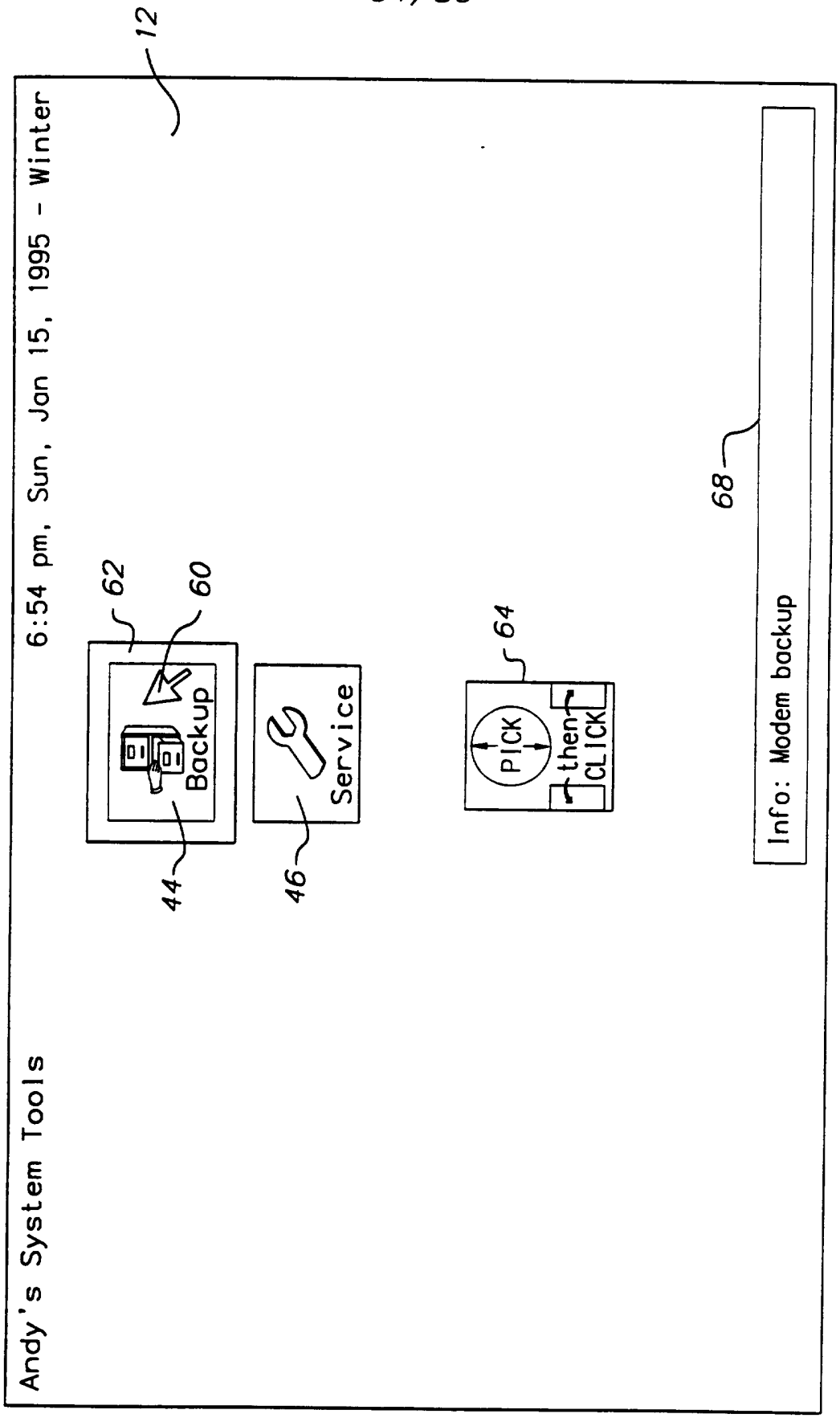

12
Andy's System Tools
6:54 pm, Sun, Jan 15, 1995 - Winter
62
60
Backup
44
Service
46
64
PICK
then
CLICK
68
Info: Modem backup

FIG. 19

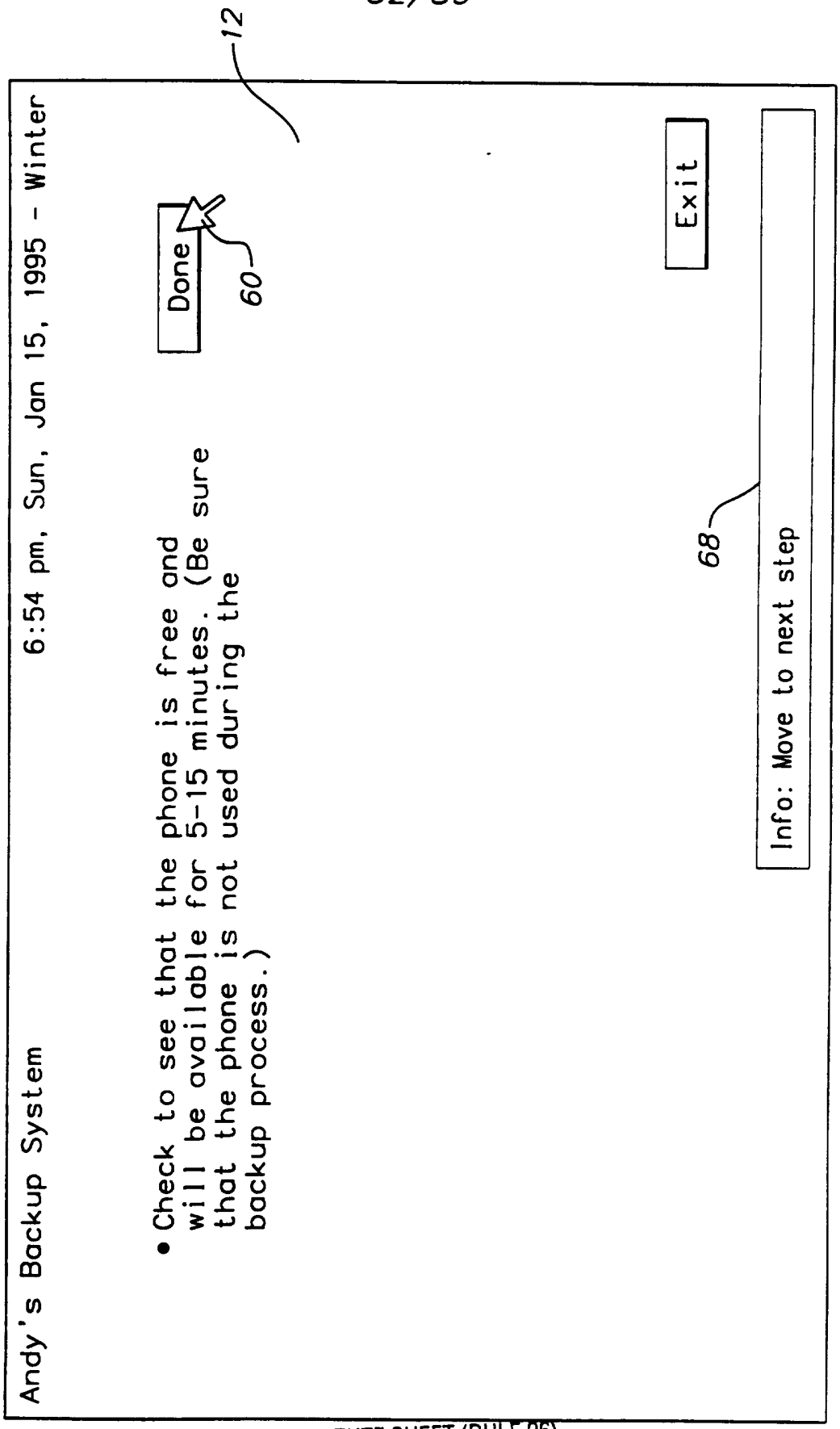

12
Andy's Backup System
6:54 pm, Sun, Jan 15, 1995 - Winter
• Check to see that the phone is free and will be available for 5-15 minutes. (Be sure that the phone is not used during the backup process.)
Done
60
Exit
68
Info: Move to next step

FIG. 20A

SUBSTITUTE SHEET (RULE 26)

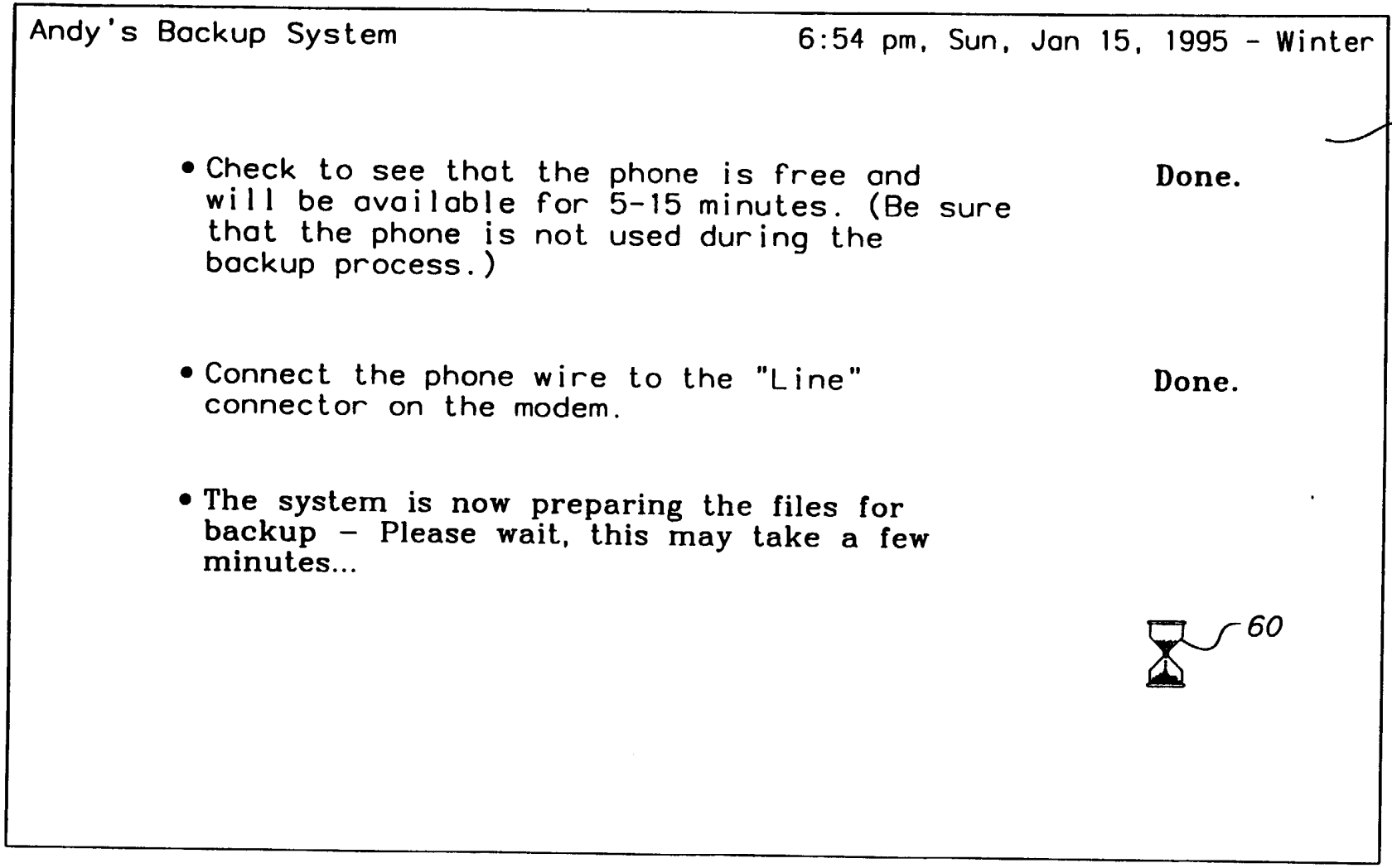


FIG. 20B

SUBSTITUTE SHEET (RULE 26)

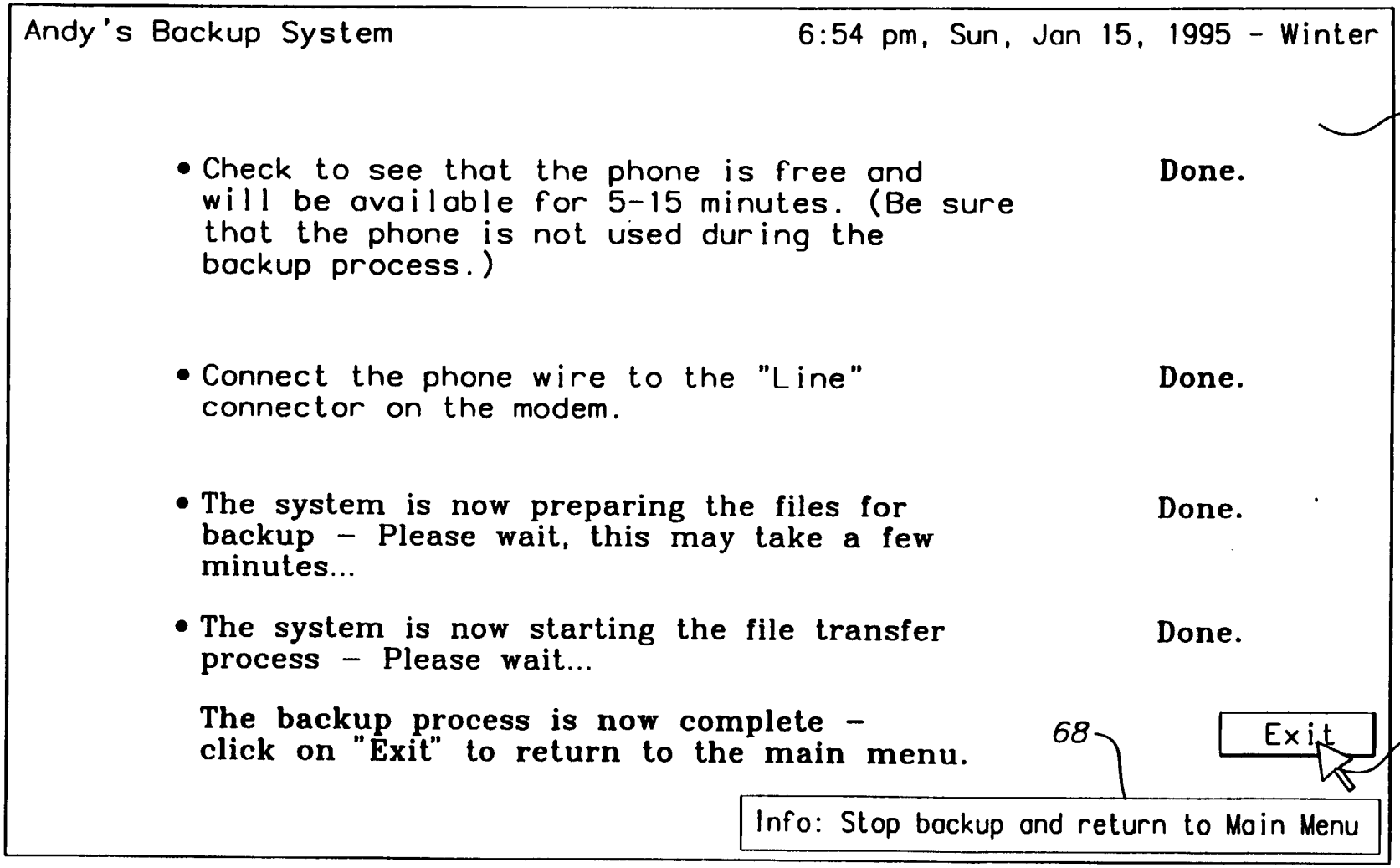


FIG. 20C

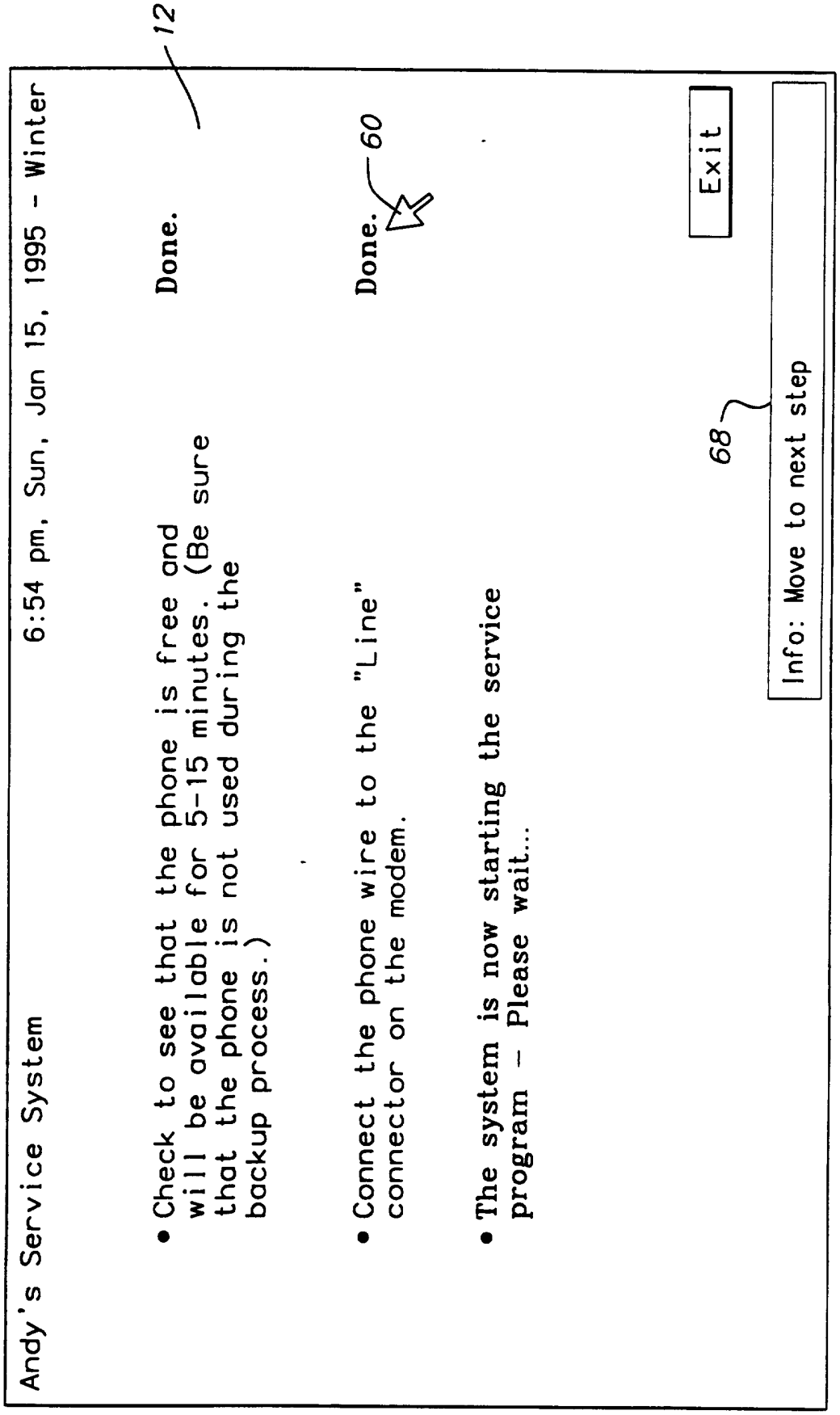

Andy's Service System
6:54 pm, Sun, Jan 15, 1995 - Winter
12
Done.
Done.
60
• Check to see that the phone is free and will be available for 5-15 minutes. (Be sure that the phone is not used during the backup process.)
• Connect the phone wire to the "Line" connector on the modem.
• The system is now starting the service program - Please wait...
Exit
68
Info: Move to next step

FIG. 21

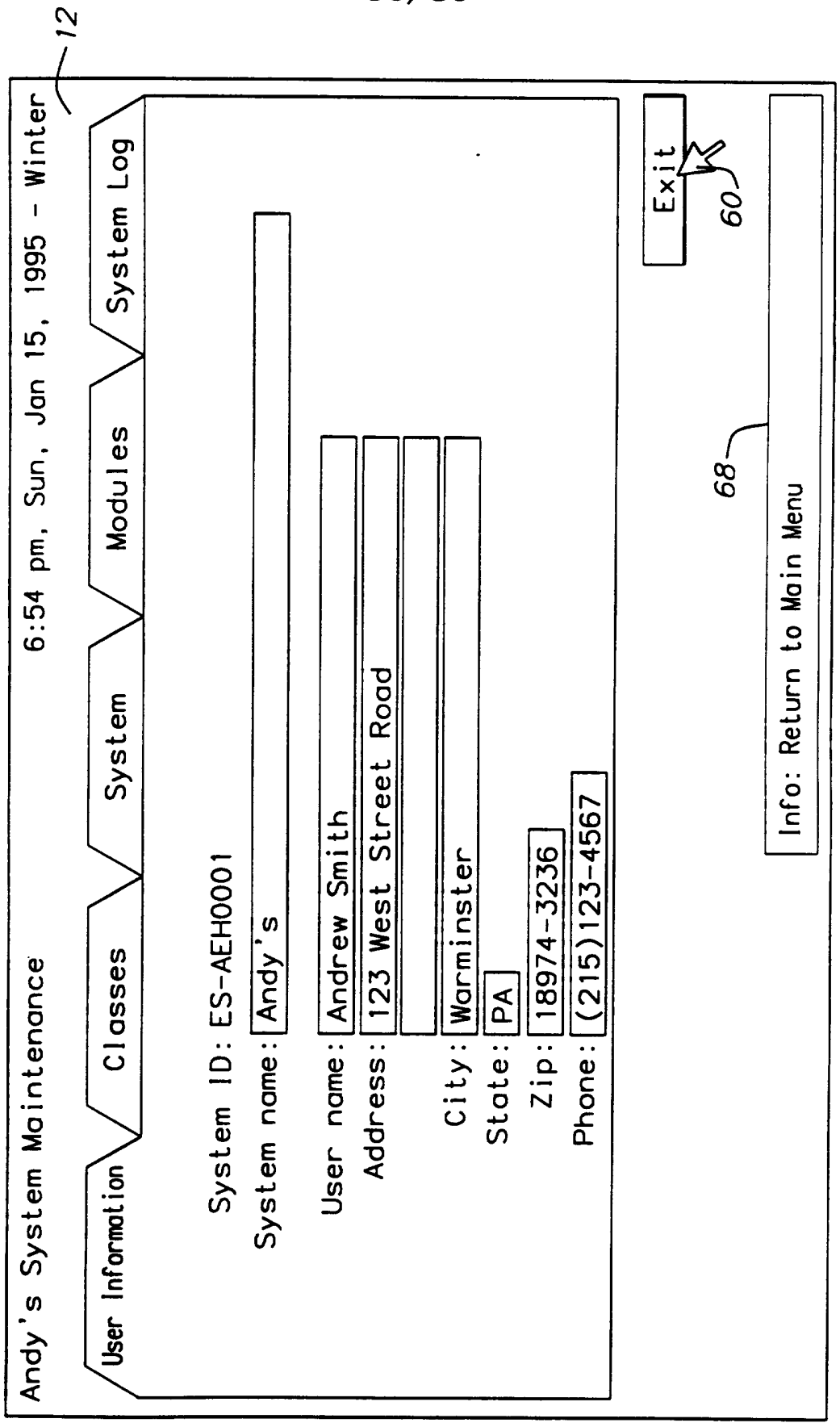

12
Andy's System Maintenance
6:54 pm, Sun, Jan 15, 1995 - Winter
User Information
Classes
System
Modules
System Log
System ID: ES-AEH0001
System name: Andy's
User name: Andrew Smith
Address: 123 West Street Road
City: Warminster
State: PA
Zip: 18974-3236
Phone: (215)123-4567
Exit
60
68
Info: Return to Main Menu

FIG. 22

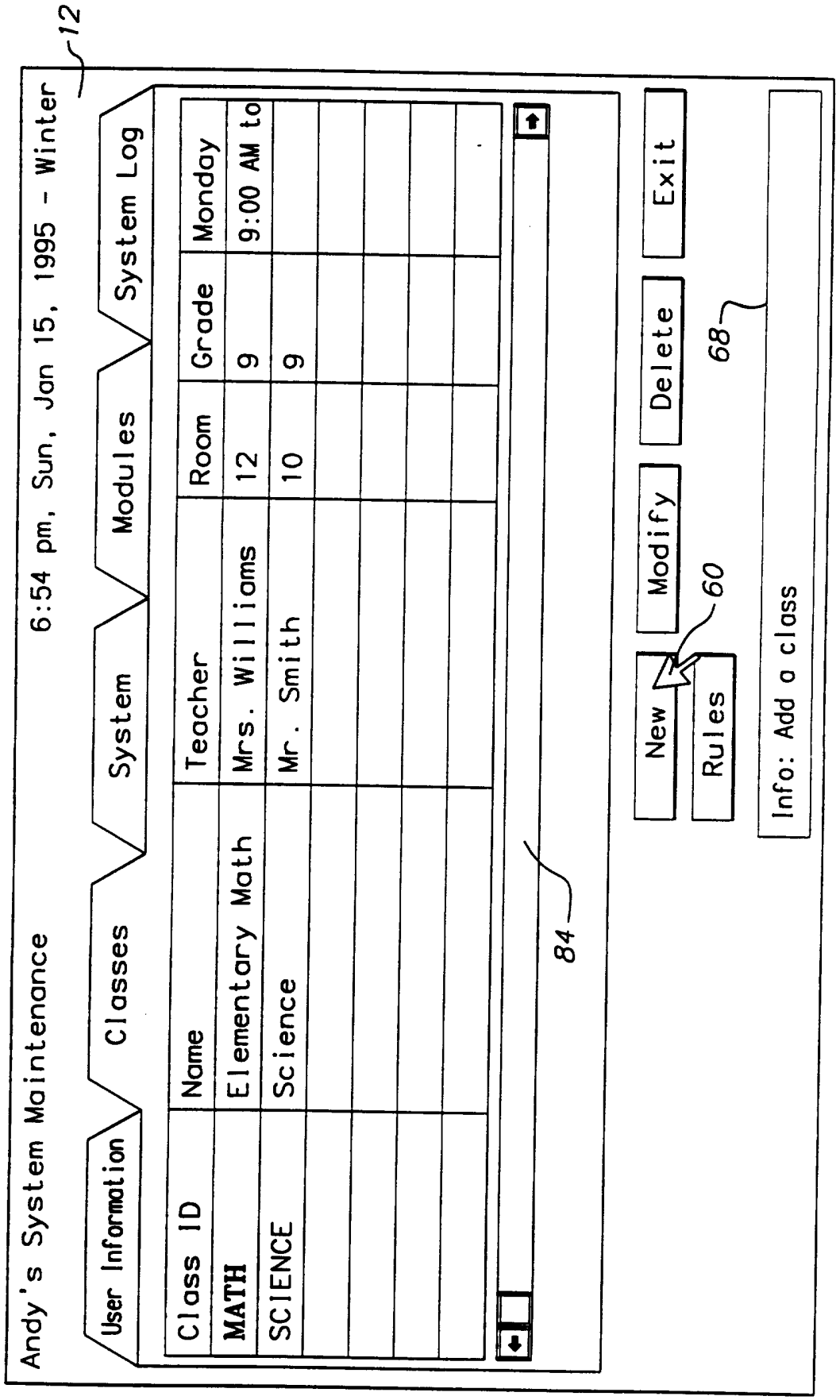

12
Andy's System Maintenance
6:54 pm, Sun, Jan 15, 1995 - Winter
User Information
Classes
System
Modules
System Log
Class ID
Name
Teacher
Room
Grade
Monday
MATH
Elementary Math
Mrs. Williams
12
9
9:00 AM to
SCIENCE
Science
Mr. Smith
10
9
84
New
Modify
Delete
Exit
60
Rules
68
Info: Add o class

FIG. 23

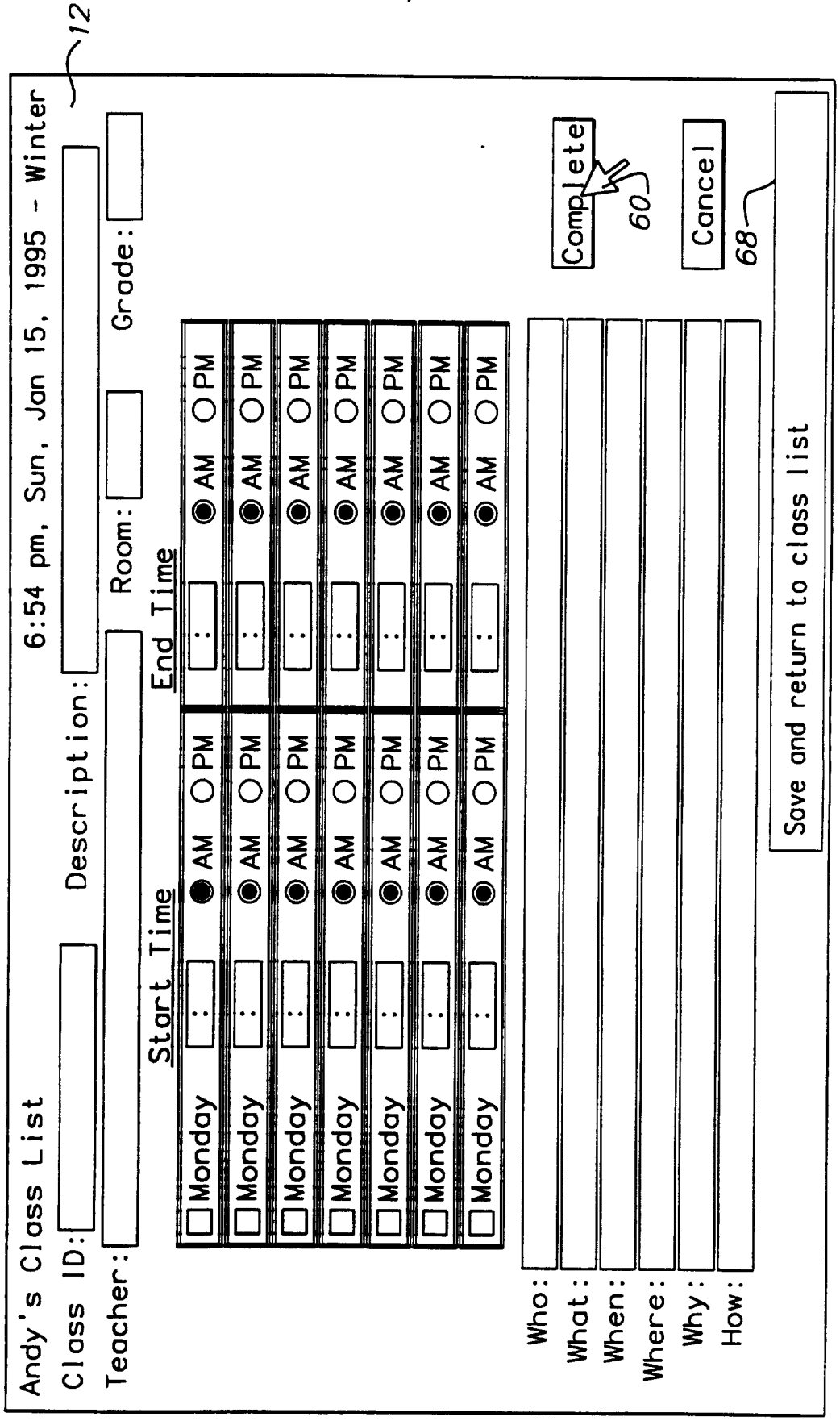

12
Andy's Class List
6:54 pm, Sun, Jan 15, 1995 - Winter
Class ID:
Description:
Teacher:
Room:
Grade:
Start Time
End Time
Monday
AM PM
Complete
60
Cancel
68
Save and return to class list
Who:
What:
When:
Where:
Why:
How:

FIG. 24

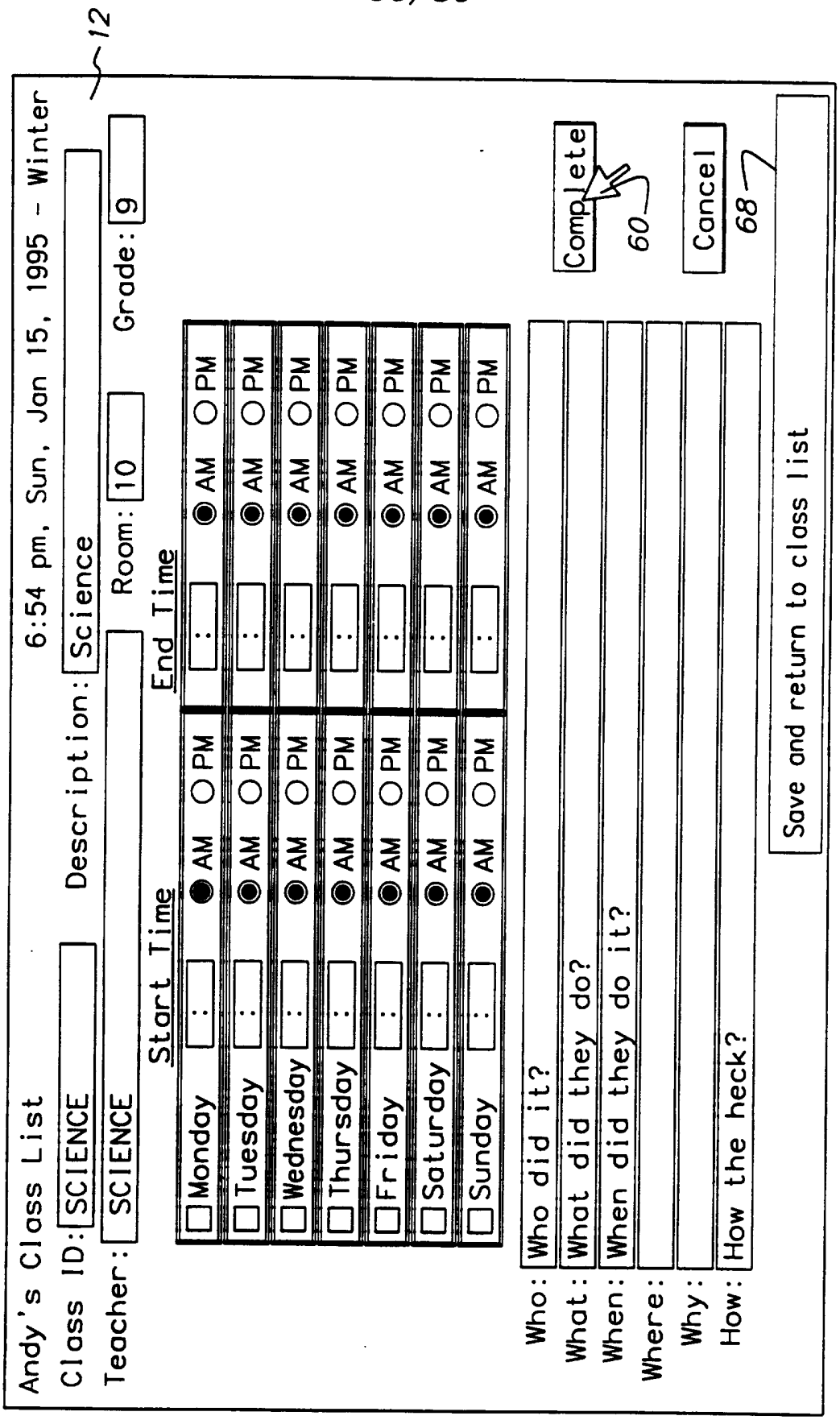

12
Andy's Class List
6:54 pm, Sun, Jan 15, 1995 - Winter
Class ID: SCIENCE
Description: Science
Teacher: SCIENCE
Room: 10
Grade: 9
Start Time
End Time
Monday : AM PM : AM PM
Tuesday : AM PM : AM PM
Wednesday : AM PM : AM PM
Thursday : AM PM : AM PM
Friday : AM PM : AM PM
Saturday : AM PM : AM PM
Sunday : AM PM : AM PM
Who: Who did it?
What: What did they do?
When: When did they do it?
Where:
Why:
How: How the heck?
Complete
60
Cancel
68
Save and return to class list

FIG. 25

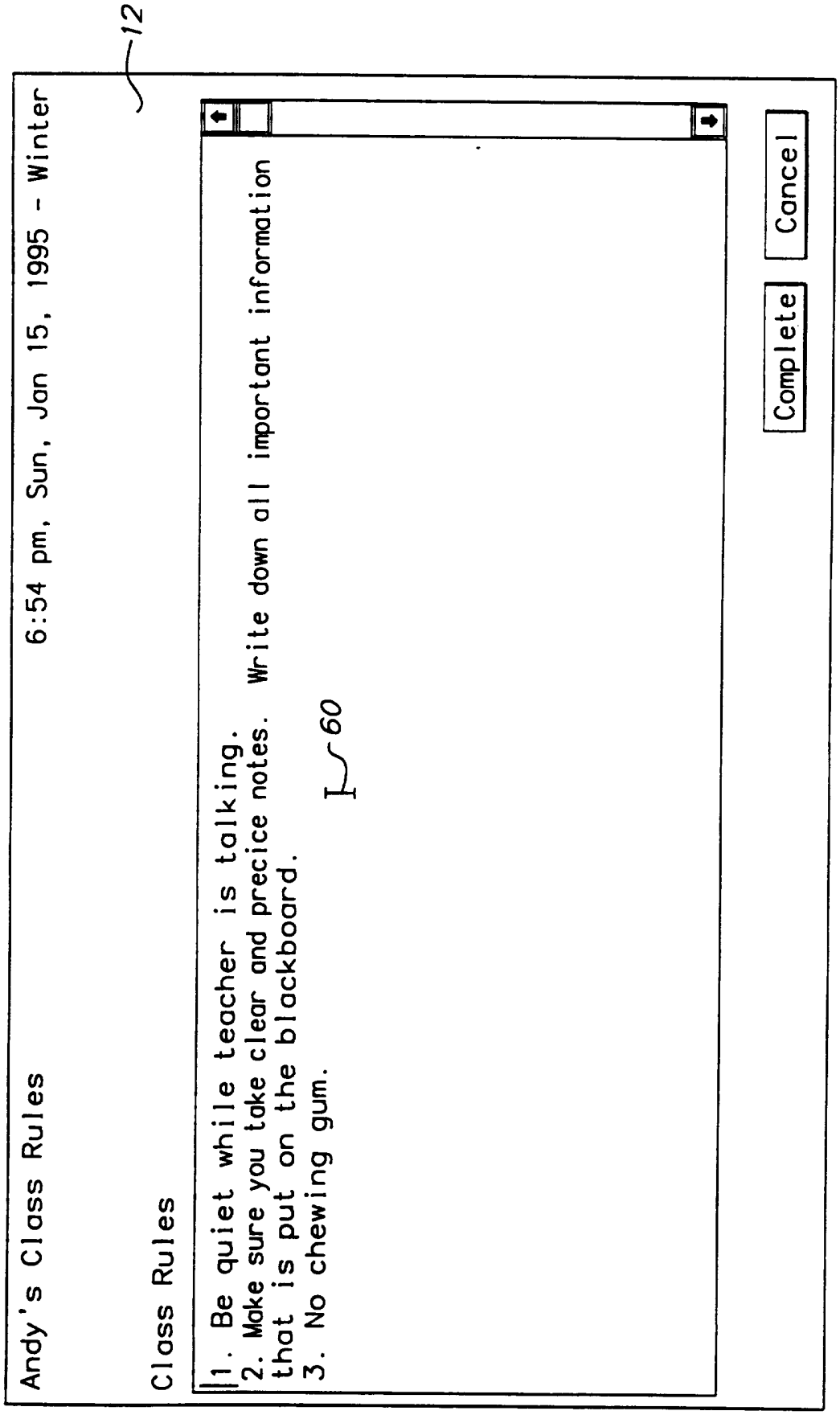

12
Andy's Class Rules
6:54 pm, Sun, Jan 15, 1995 - Winter
Class Rules
1. Be quiet while teacher is talking.
2. Make sure you take clear and precice notes. Write down all important information that is put on the blackboard.
3. No chewing gum.
60
Complete
Cancel

FIG. 26

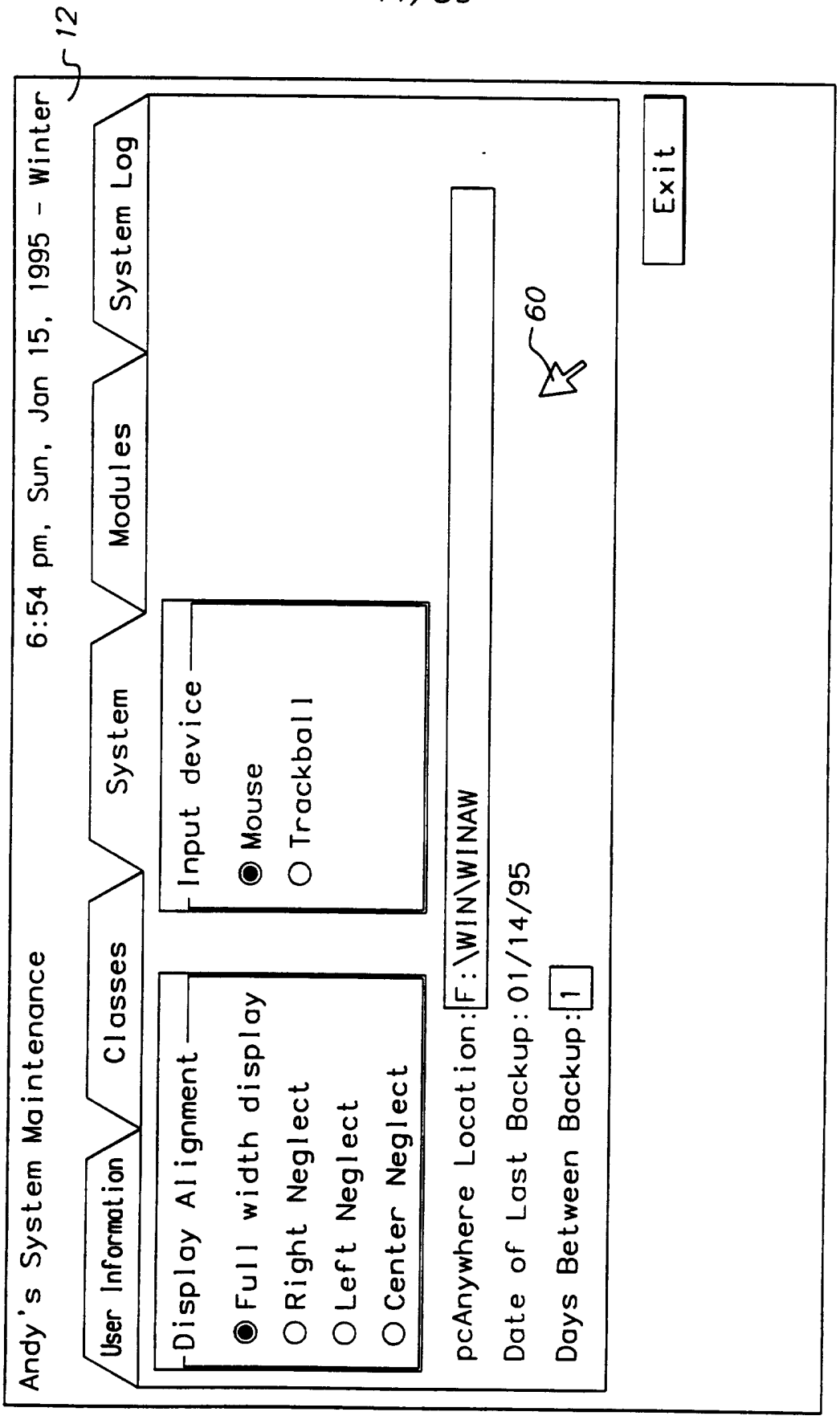

12
Andy's System Maintenance
6:54 pm, Sun, Jan 15, 1995 - Winter
User Information
Classes
System
Modules
System Log
Display Alignment
Full width display
Right Neglect
Left Neglect
Center Neglect
Input device
Mouse
Trackball
pcAnywhere Location: F:\WIN\WINAW
Date of Last Backup: 01/14/95
Days Between Backup: 1
60
Exit

FIG. 27

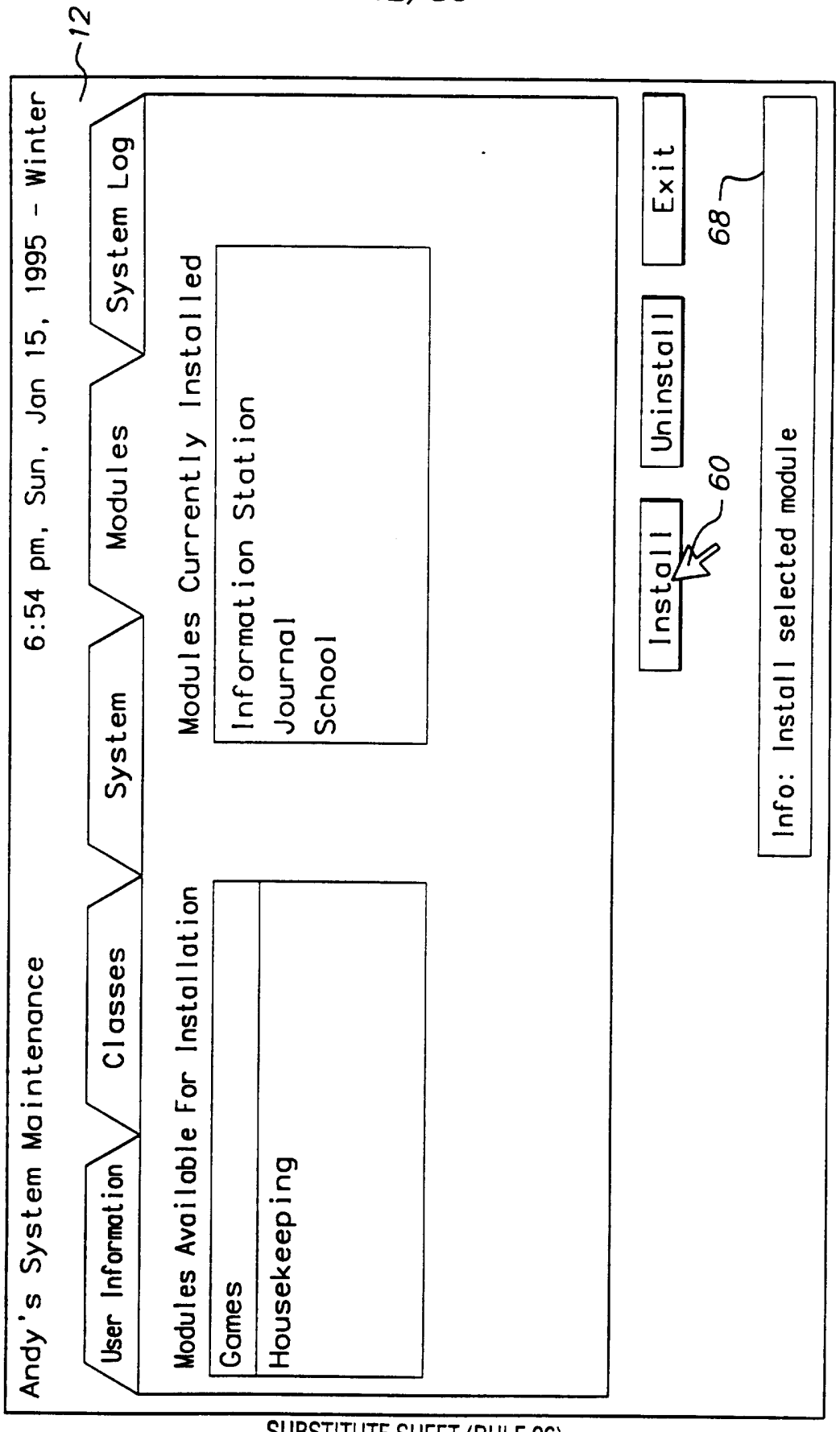

12
Andy's System Maintenance
6:54 pm, Sun, Jan 15, 1995 - Winter
User Information
Classes
System
Modules
System Log
Modules Available For Installation
Games
Housekeeping
Modules Currently Installed
Information Station
Journal
School
Install
Uninstall
Exit
60
68
Info: Install selected module

FIG. 28

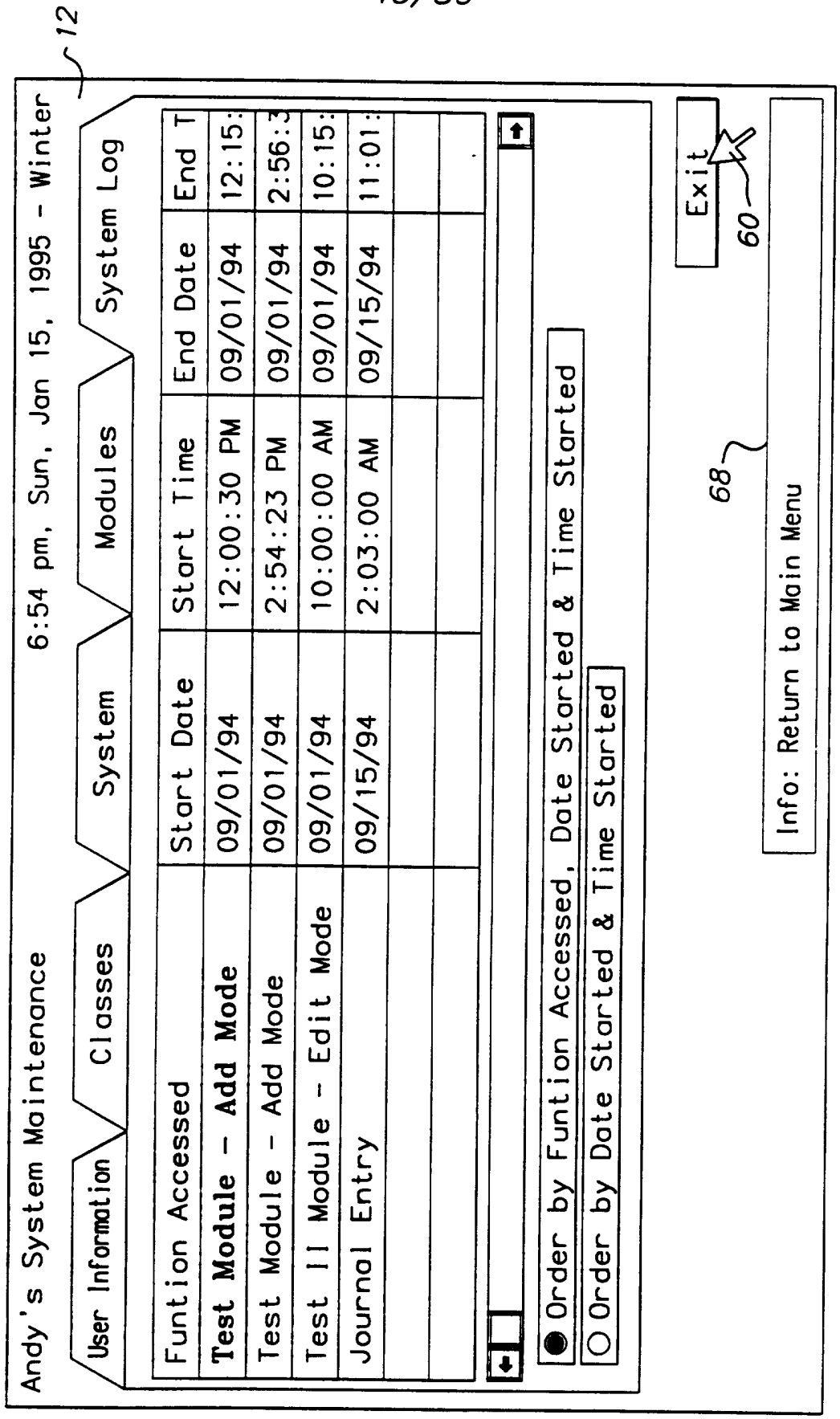

12
Andy's System Maintenance
6:54 pm, Sun, Jan 15, 1995 - Winter
User Information
Classes
System
Modules
System Log
Funtion Accessed
Start Date
Start Time
End Date
End T
Test Module - Add Mode
09/01/94
12:00:30 PM
09/01/94
12:15:
Test Module - Add Mode
09/01/94
2:54:23 PM
09/01/94
2:56:3
Test II Module - Edit Mode
09/01/94
10:00:00 AM
09/01/94
10:15:
Journal Entry
09/15/94
2:03:00 AM
09/15/94
11:01:
Order by Funtion Accessed, Date Started & Time Started
Order by Date Started & Time Started
Exit
60
68
Info: Return to Main Menu

FIG. 29

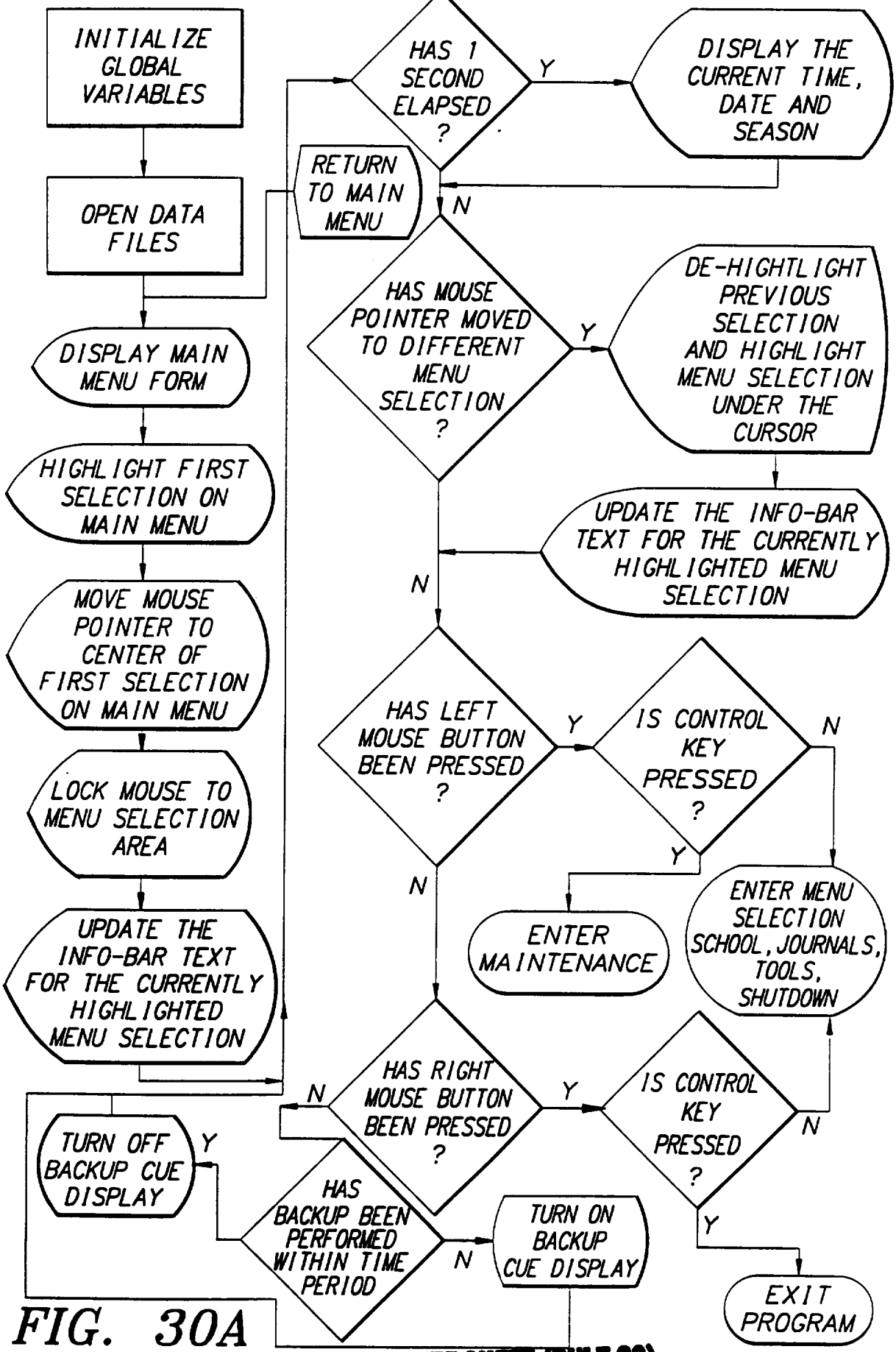

INITIALIZE GLOBAL VARIABLES
OPEN DATA FILES
DISPLAY MAIN MENU FORM
HIGHLIGHT FIRST SELECTION ON MAIN MENU
MOVE MOUSE POINTER TO CENTER OF FIRST SELECTION ON MAIN MENU
LOCK MOUSE TO MENU SELECTION AREA
UPDATE THE INFO-BAR TEXT FOR THE CURRENTLY HIGHLIGHTED MENU SELECTION
HAS 1 SECOND ELAPSED ?
Y
DISPLAY THE CURRENT TIME, DATE AND SEASON
RETURN TO MAIN MENU
N
HAS MOUSE POINTER MOVED TO DIFFERENT MENU SELECTION ?
Y
DE-HIGHTLIGHT PREVIOUS SELECTION AND HIGHLIGHT MENU SELECTION UNDER THE CURSOR
UPDATE THE INFO-BAR TEXT FOR THE CURRENTLY HIGHLIGHTED MENU SELECTION
N
HAS LEFT MOUSE BUTTON BEEN PRESSED ?
Y
IS CONTROL KEY PRESSED ?
N
Y
ENTER MAINTENANCE
ENTER MENU SELECTION SCHOOL, JOURNALS, TOOLS, SHUTDOWN
N
HAS RIGHT MOUSE BUTTON BEEN PRESSED ?
Y
IS CONTROL KEY PRESSED ?
N
Y
EXIT PROGRAM
N
TURN OFF BACKUP CUE DISPLAY
Y
HAS BACKUP BEEN PERFORMED WITHIN TIME PERIOD
N
TURN ON BACKUP CUE DISPLAY

FIG. 30A

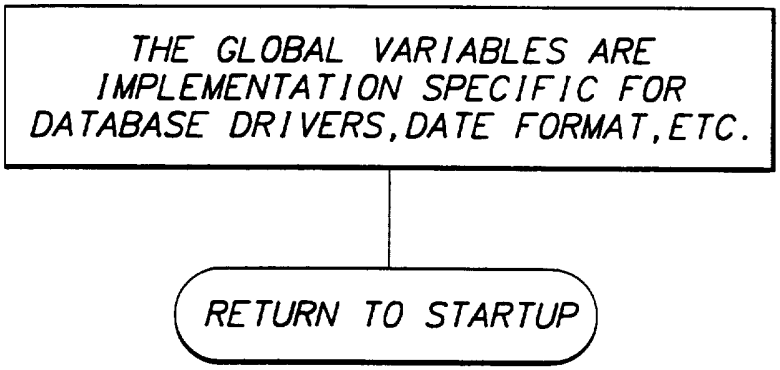

THE GLOBAL VARIABLES ARE IMPLEMENTATION SPECIFIC FOR DATABASE DRIVERS, DATE FORMAT, ETC.
RETURN TO STARTUP

FIG. 30B

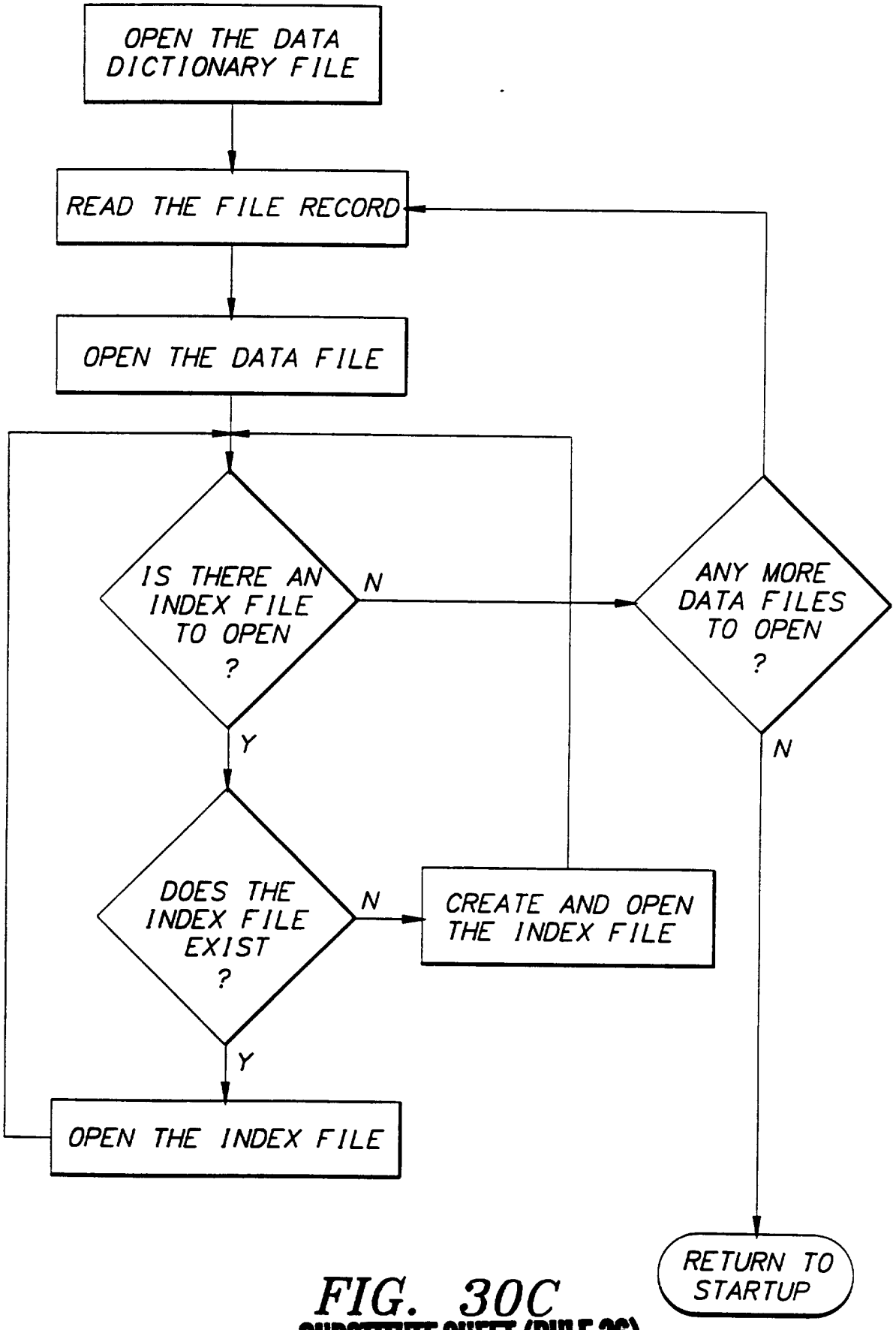

OPEN THE DATA DICTIONARY FILE
READ THE FILE RECORD
OPEN THE DATA FILE
IS THERE AN INDEX FILE TO OPEN ?
N
ANY MORE DATA FILES TO OPEN ?
Y
N
DOES THE INDEX FILE EXIST ?
N
CREATE AND OPEN THE INDEX FILE
Y
OPEN THE INDEX FILE
RETURN TO STARTUP

FIG. 30C

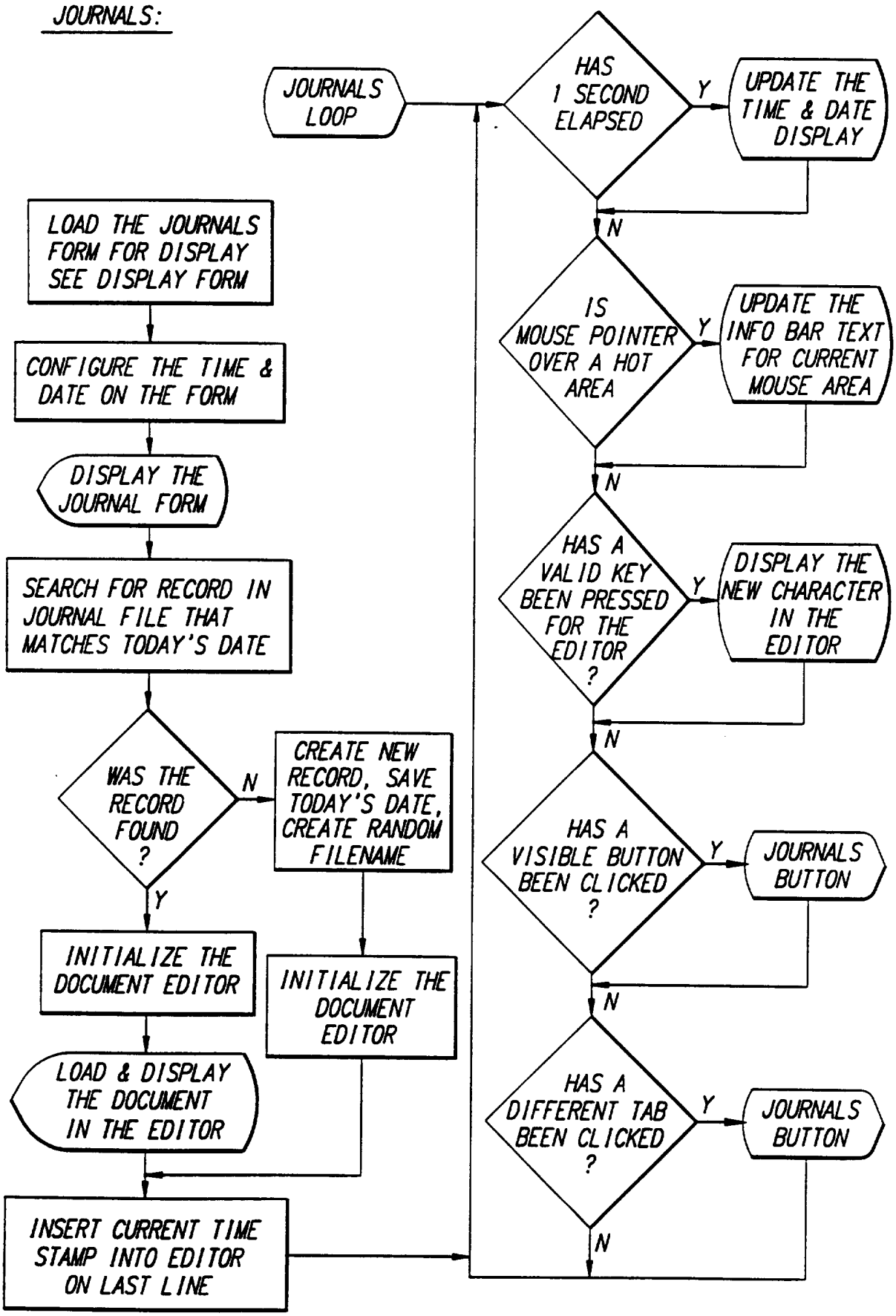

JOURNALS:
JOURNALS LOOP
HAS 1 SECOND ELAPSED
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE AREA
N
HAS A VALID KEY BEEN PRESSED FOR THE EDITOR ?
Y
DISPLAY THE NEW CHARACTER IN THE EDITOR
N
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
JOURNALS BUTTON
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
JOURNALS BUTTON
N
LOAD THE JOURNALS FORM FOR DISPLAY SEE DISPLAY FORM
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE JOURNAL FORM
SEARCH FOR RECORD IN JOURNAL FILE THAT MATCHES TODAY'S DATE
WAS THE RECORD FOUND ?
N
CREATE NEW RECORD, SAVE TODAY'S DATE, CREATE RANDOM FILENAME
Y
INITIALIZE THE DOCUMENT EDITOR
LOAD & DISPLAY THE DOCUMENT IN THE EDITOR
INITIALIZE THE DOCUMENT EDITOR
INSERT CURRENT TIME STAMP INTO EDITOR ON LAST LINE

FIG. 30D

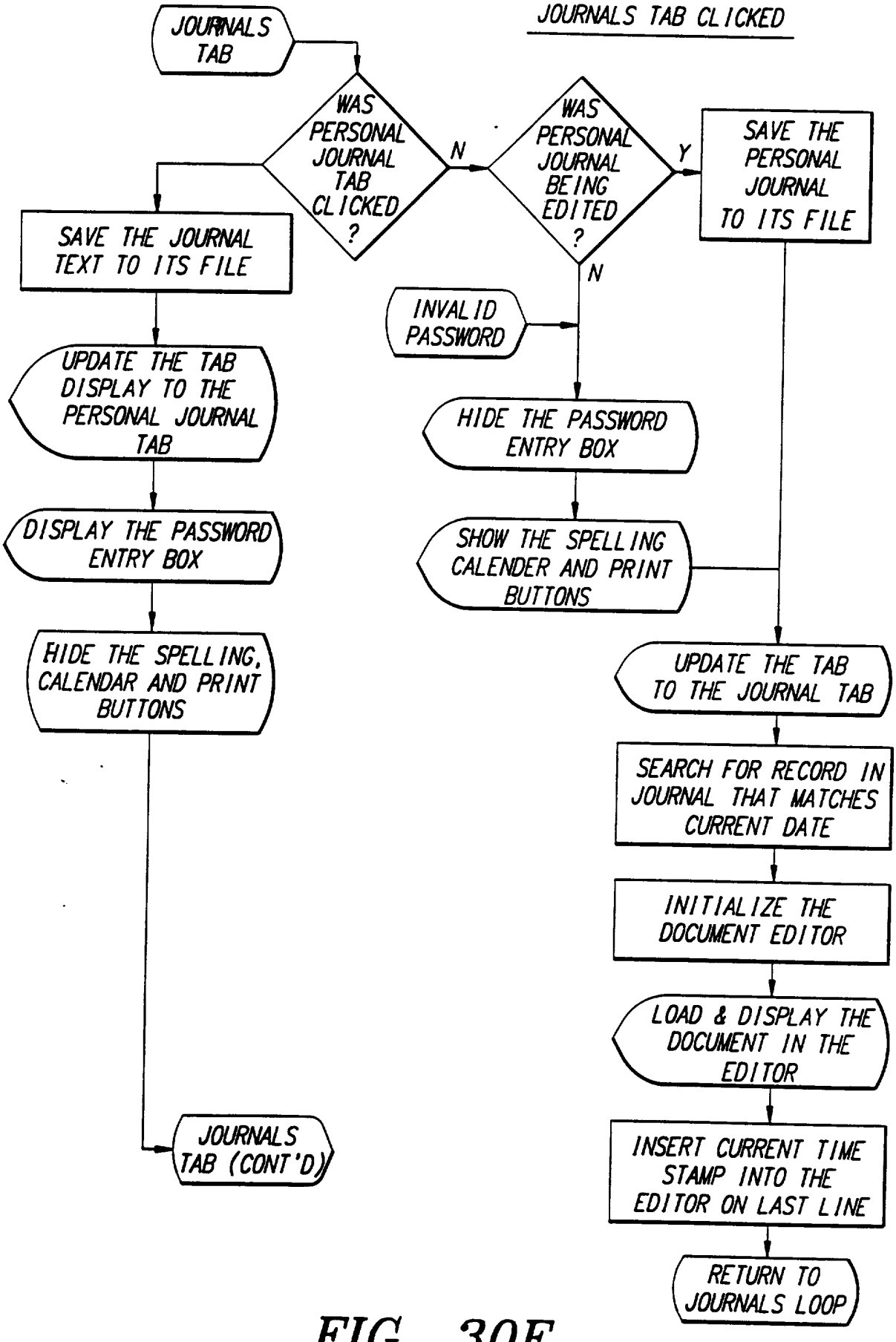

JOURNALS TAB CLICKED
JOURNALS TAB
WAS PERSONAL JOURNAL TAB CLICKED ?
N
WAS PERSONAL JOURNAL BEING EDITED ?
Y
SAVE THE PERSONAL JOURNAL TO ITS FILE
SAVE THE JOURNAL TEXT TO ITS FILE
N
INVALID PASSWORD
UPDATE THE TAB DISPLAY TO THE PERSONAL JOURNAL TAB
HIDE THE PASSWORD ENTRY BOX
DISPLAY THE PASSWORD ENTRY BOX
SHOW THE SPELLING CALENDER AND PRINT BUTTONS
HIDE THE SPELLING, CALENDAR AND PRINT BUTTONS
UPDATE THE TAB TO THE JOURNAL TAB
SEARCH FOR RECORD IN JOURNAL THAT MATCHES CURRENT DATE
INITIALIZE THE DOCUMENT EDITOR
LOAD & DISPLAY THE DOCUMENT IN THE EDITOR
INSERT CURRENT TIME STAMP INTO THE EDITOR ON LAST LINE
RETURN TO JOURNALS LOOP
JOURNALS TAB (CONT'D)

FIG. 30E

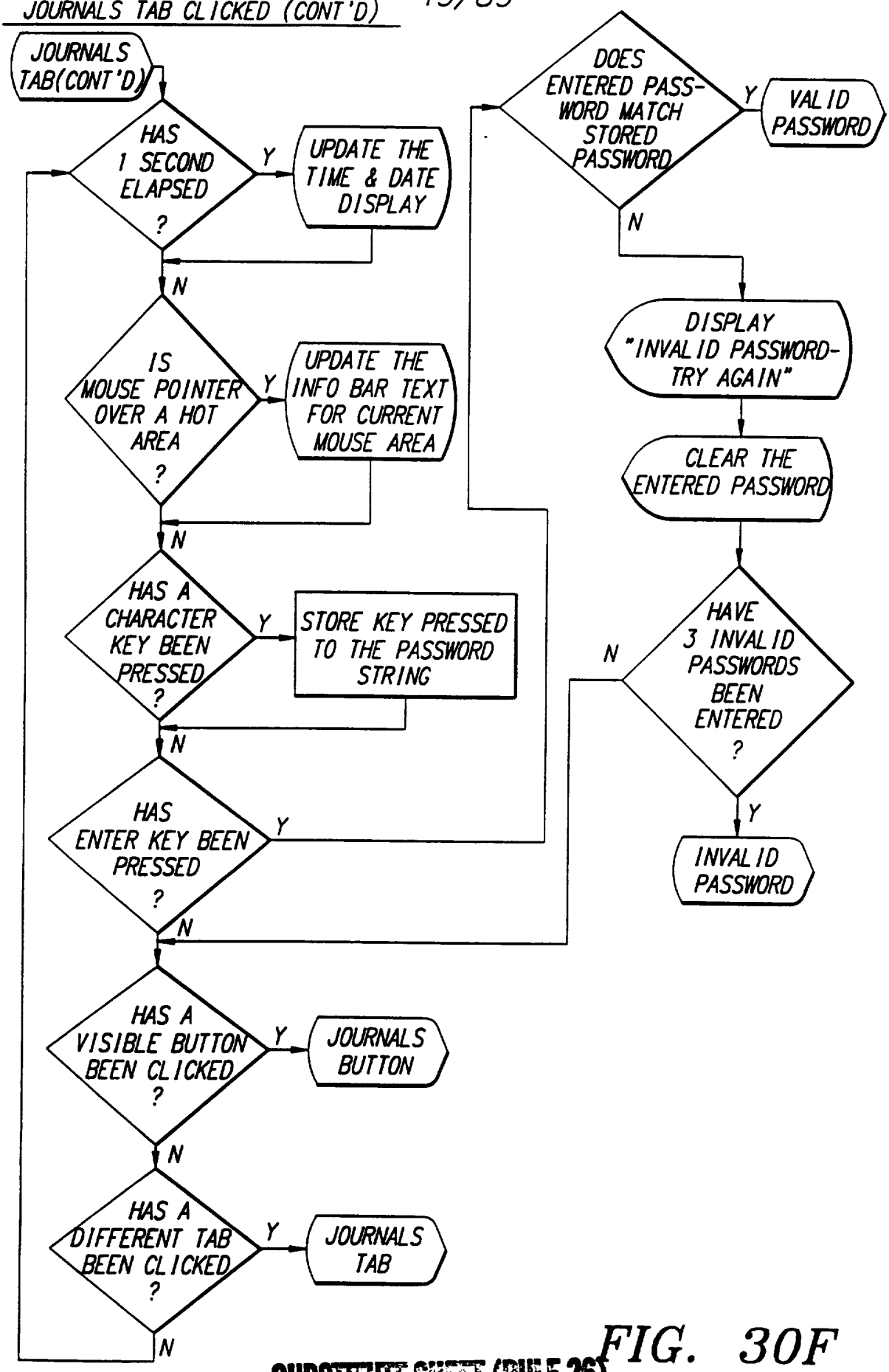

JOURNALS TAB CLICKED (CONT'D)
JOURNALS TAB(CONT'D)
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE AREA
N
HAS A CHARACTER KEY BEEN PRESSED ?
Y
STORE KEY PRESSED TO THE PASSWORD STRING
N
HAS ENTER KEY BEEN PRESSED ?
Y
N
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
JOURNALS BUTTON
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
JOURNALS TAB
N
DOES ENTERED PASS-WORD MATCH STORED PASSWORD
Y
VALID PASSWORD
N
DISPLAY "INVALID PASSWORD-TRY AGAIN"
CLEAR THE ENTERED PASSWORD
HAVE 3 INVALID PASSWORDS BEEN ENTERED ?
N
Y
INVALID PASSWORD

FIG. 30F

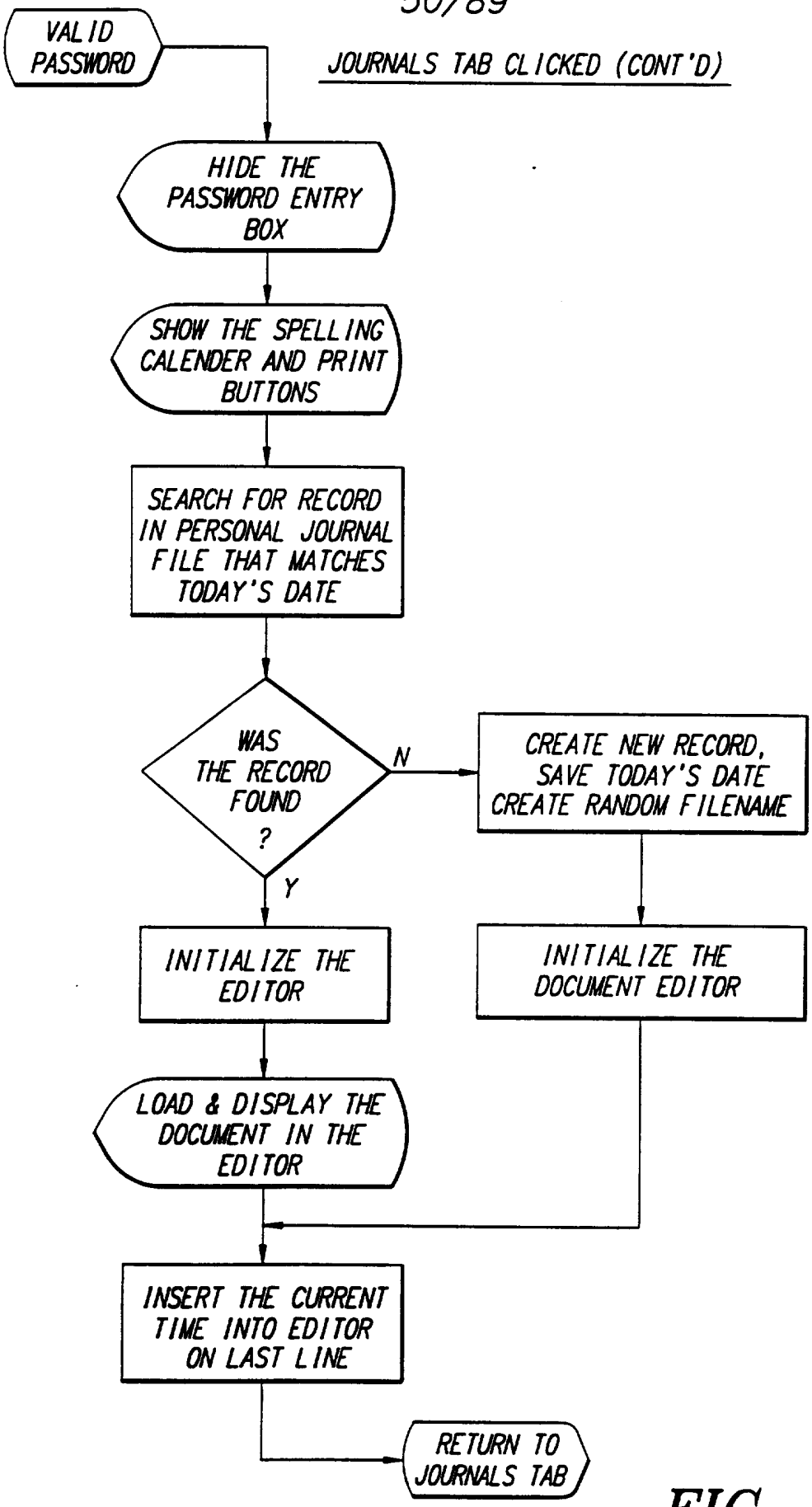

VALID PASSWORD
JOURNALS TAB CLICKED (CONT'D)
HIDE THE PASSWORD ENTRY BOX
SHOW THE SPELLING CALENDER AND PRINT BUTTONS
SEARCH FOR RECORD IN PERSONAL JOURNAL FILE THAT MATCHES TODAY'S DATE
WAS THE RECORD FOUND ?
N
Y
CREATE NEW RECORD, SAVE TODAY'S DATE CREATE RANDOM FILENAME
INITIALIZE THE EDITOR
INITIALIZE THE DOCUMENT EDITOR
LOAD & DISPLAY THE DOCUMENT IN THE EDITOR
INSERT THE CURRENT TIME INTO EDITOR ON LAST LINE
RETURN TO JOURNALS TAB

FIG. 30G

JOURNALS BUTTON CLICKED:

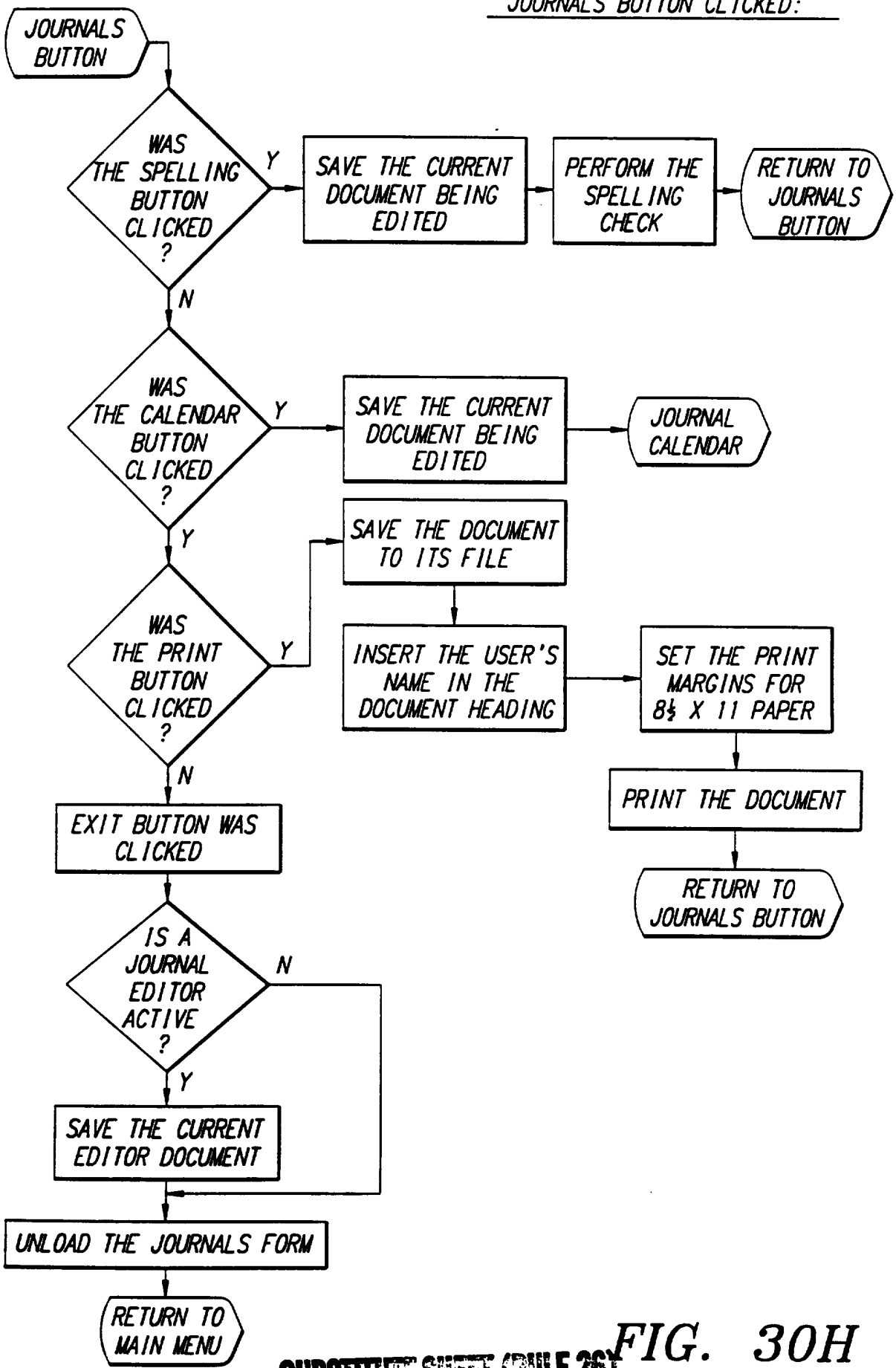


FIG. 30H

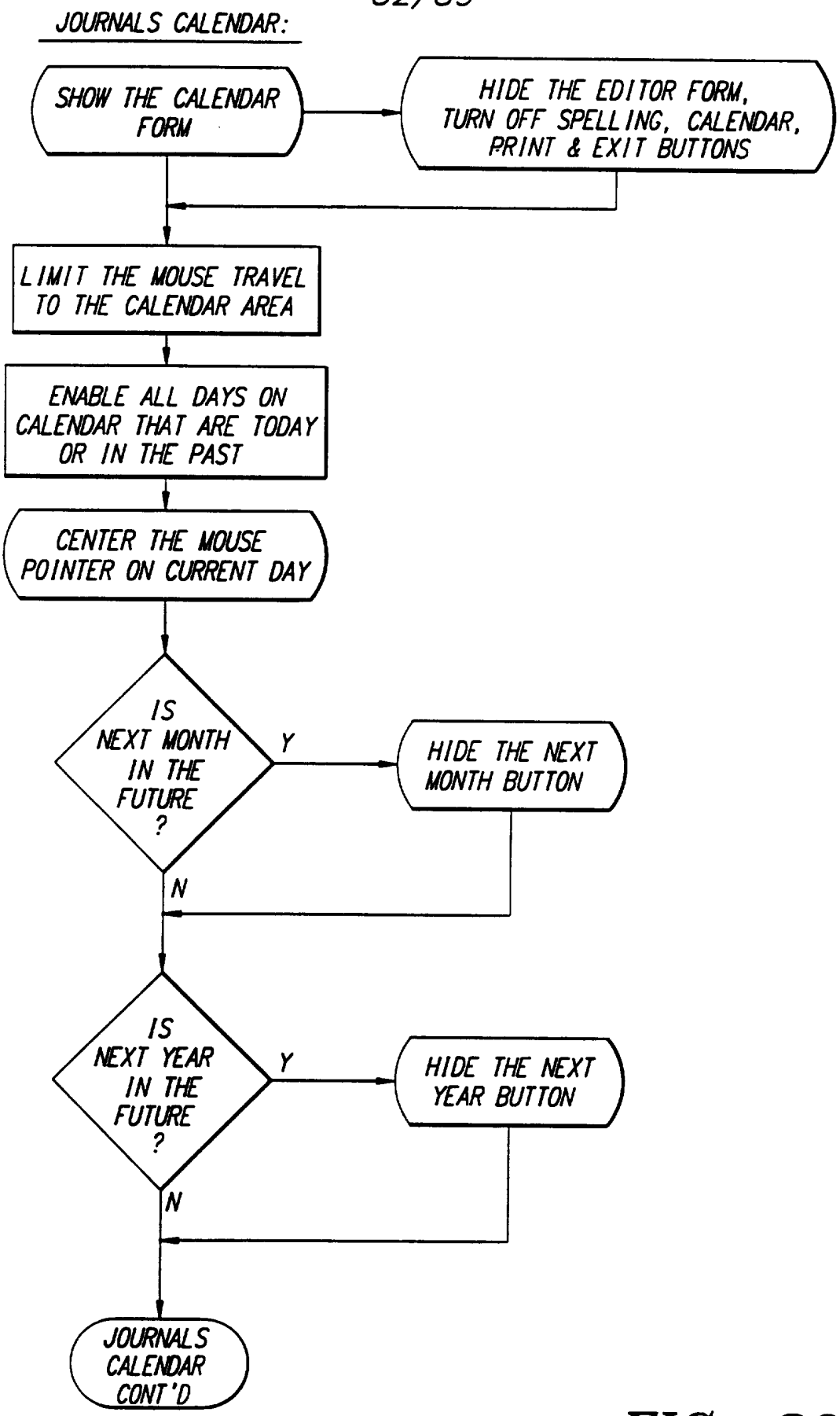

JOURNALS CALENDAR:
SHOW THE CALENDAR FORM
HIDE THE EDITOR FORM, TURN OFF SPELLING, CALENDAR, PRINT & EXIT BUTTONS
LIMIT THE MOUSE TRAVEL TO THE CALENDAR AREA
ENABLE ALL DAYS ON CALENDAR THAT ARE TODAY OR IN THE PAST
CENTER THE MOUSE POINTER ON CURRENT DAY
IS NEXT MONTH IN THE FUTURE ?
Y
HIDE THE NEXT MONTH BUTTON
N
IS NEXT YEAR IN THE FUTURE ?
Y
HIDE THE NEXT YEAR BUTTON
N
JOURNALS CALENDAR CONT'D

FIG. 301

JOURNALS CALENDAR (CONT'D)

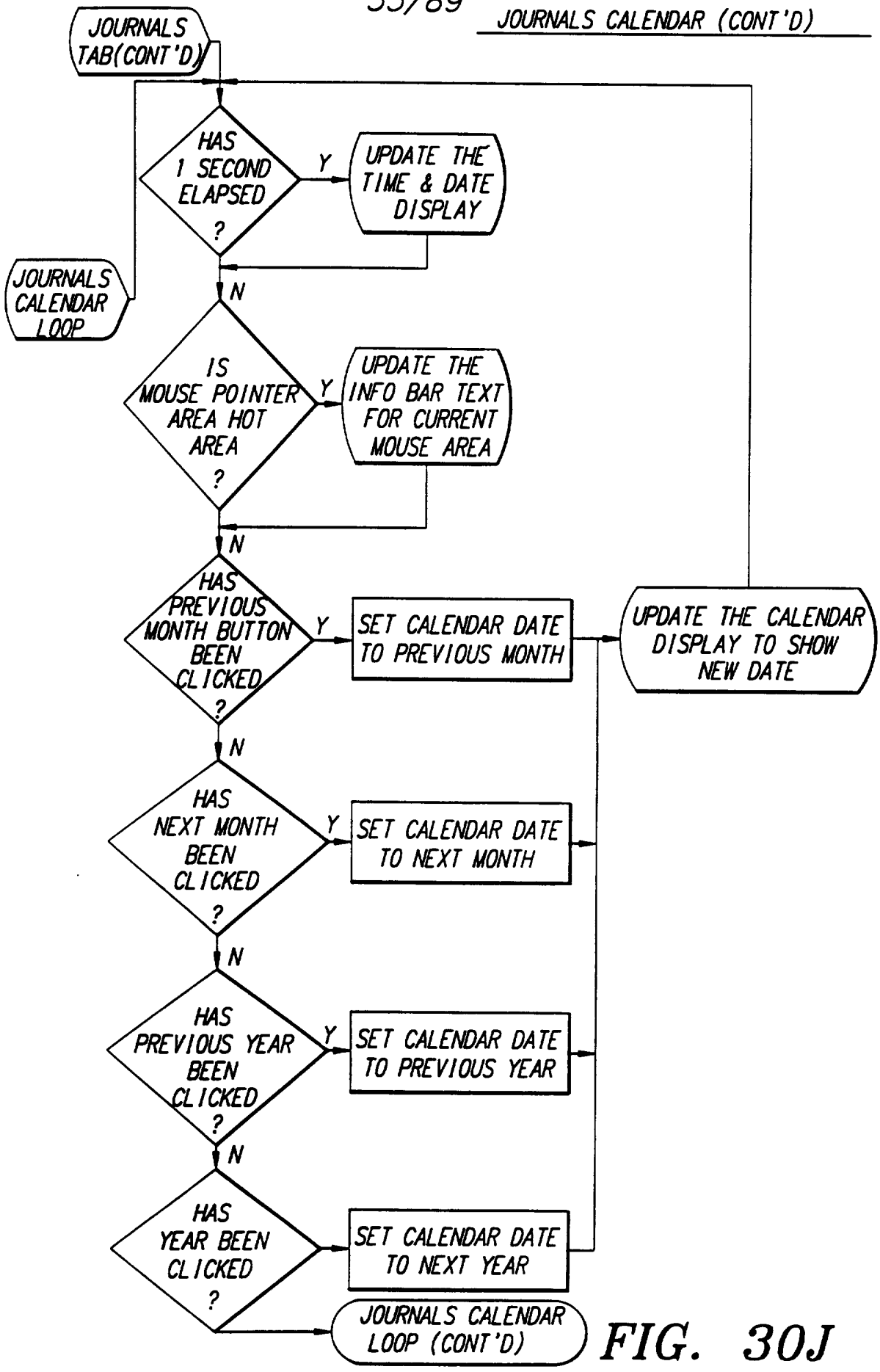


FIG. 30J

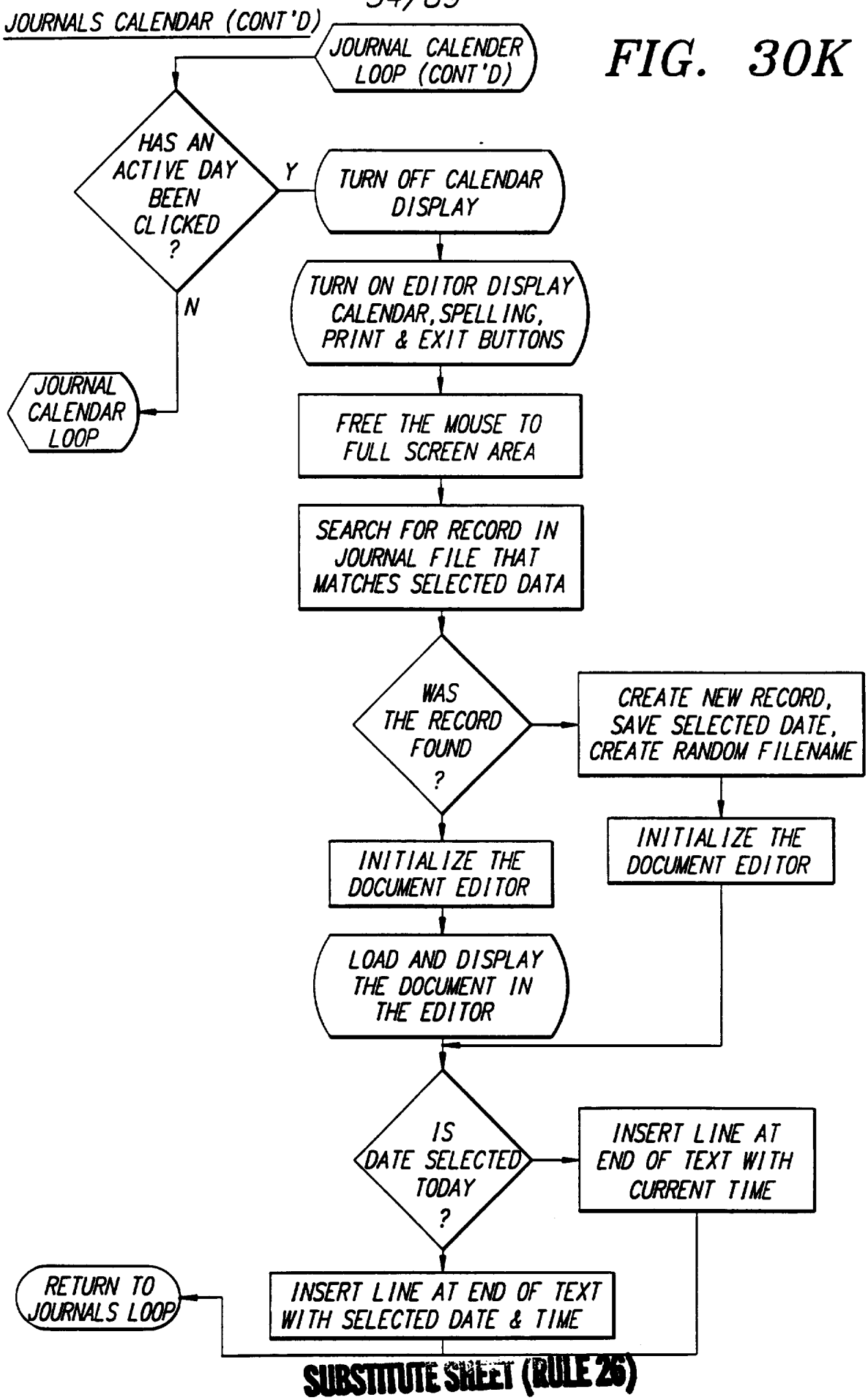
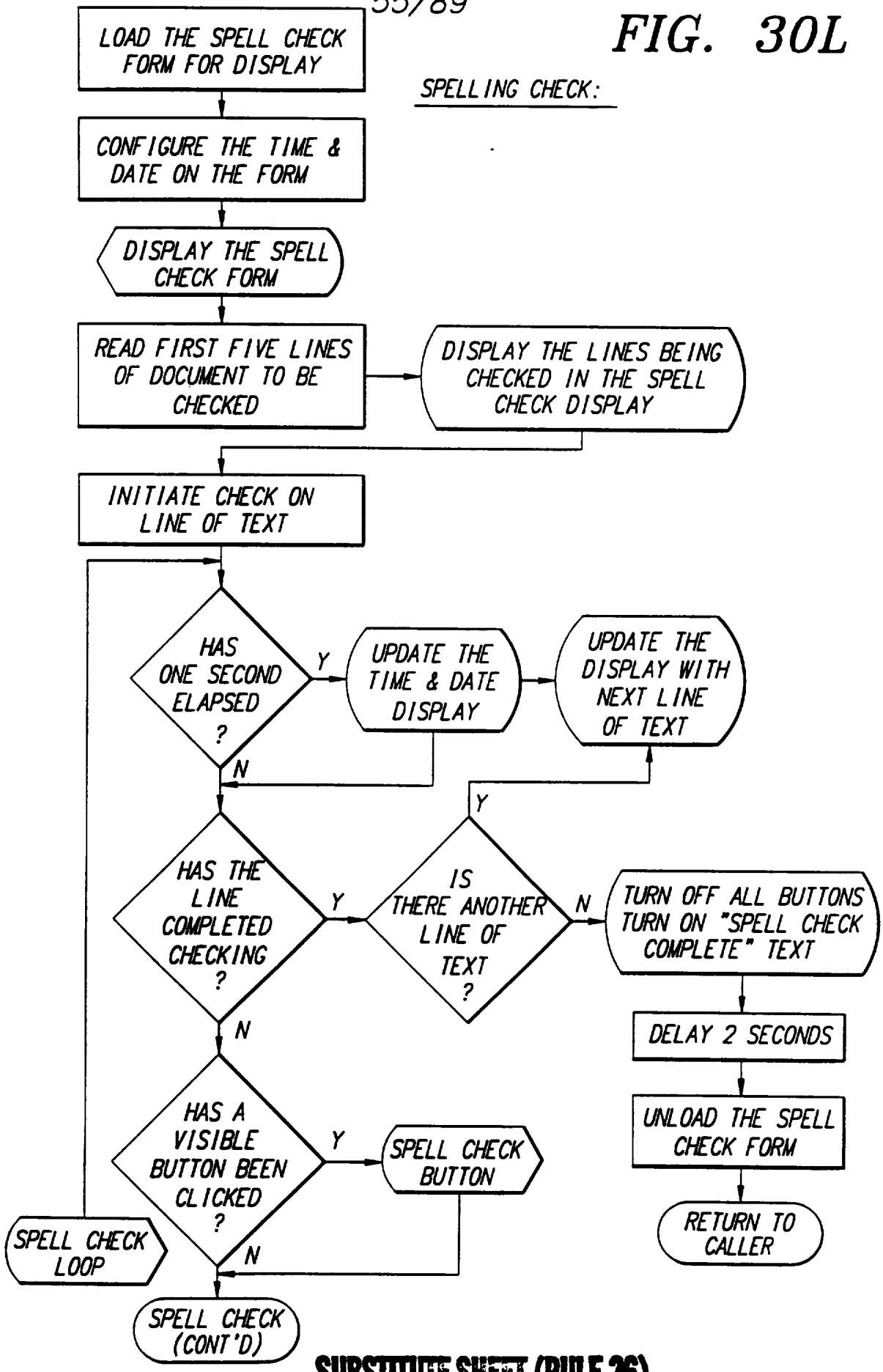

JOURNALS CALENDAR (CONT'D)
JOURNAL CALENDER LOOP (CONT'D)
HAS AN ACTIVE DAY BEEN CLICKED ?
Y
TURN OFF CALENDAR DISPLAY
N
JOURNAL CALENDAR LOOP
TURN ON EDITOR DISPLAY CALENDAR, SPELLING, PRINT & EXIT BUTTONS
FREE THE MOUSE TO FULL SCREEN AREA
SEARCH FOR RECORD IN JOURNAL FILE THAT MATCHES SELECTED DATA
WAS THE RECORD FOUND ?
CREATE NEW RECORD, SAVE SELECTED DATE, CREATE RANDOM FILENAME
INITIALIZE THE DOCUMENT EDITOR
INITIALIZE THE DOCUMENT EDITOR
LOAD AND DISPLAY THE DOCUMENT IN THE EDITOR
IS DATE SELECTED TODAY ?
INSERT LINE AT END OF TEXT WITH CURRENT TIME
RETURN TO JOURNALS LOOP
INSERT LINE AT END OF TEXT WITH SELECTED DATE & TIME

FIG. 30K

FIG. 30L


SPELLING CHECK:
LOAD THE SPELL CHECK FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE SPELL CHECK FORM
READ FIRST FIVE LINES OF DOCUMENT TO BE CHECKED
DISPLAY THE LINES BEING CHECKED IN THE SPELL CHECK DISPLAY
INITIATE CHECK ON LINE OF TEXT
HAS ONE SECOND ELAPSED ?
Y
N
UPDATE THE TIME & DATE DISPLAY
UPDATE THE DISPLAY WITH NEXT LINE OF TEXT
HAS THE LINE COMPLETED CHECKING ?
Y
N
IS THERE ANOTHER LINE OF TEXT ?
Y
N
TURN OFF ALL BUTTONS TURN ON "SPELL CHECK COMPLETE" TEXT
DELAY 2 SECONDS
UNLOAD THE SPELL CHECK FORM
RETURN TO CALLER
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
N
SPELL CHECK BUTTON
SPELL CHECK LOOP
SPELL CHECK (CONT'D)

SPELLING CHECK (CONT'D)

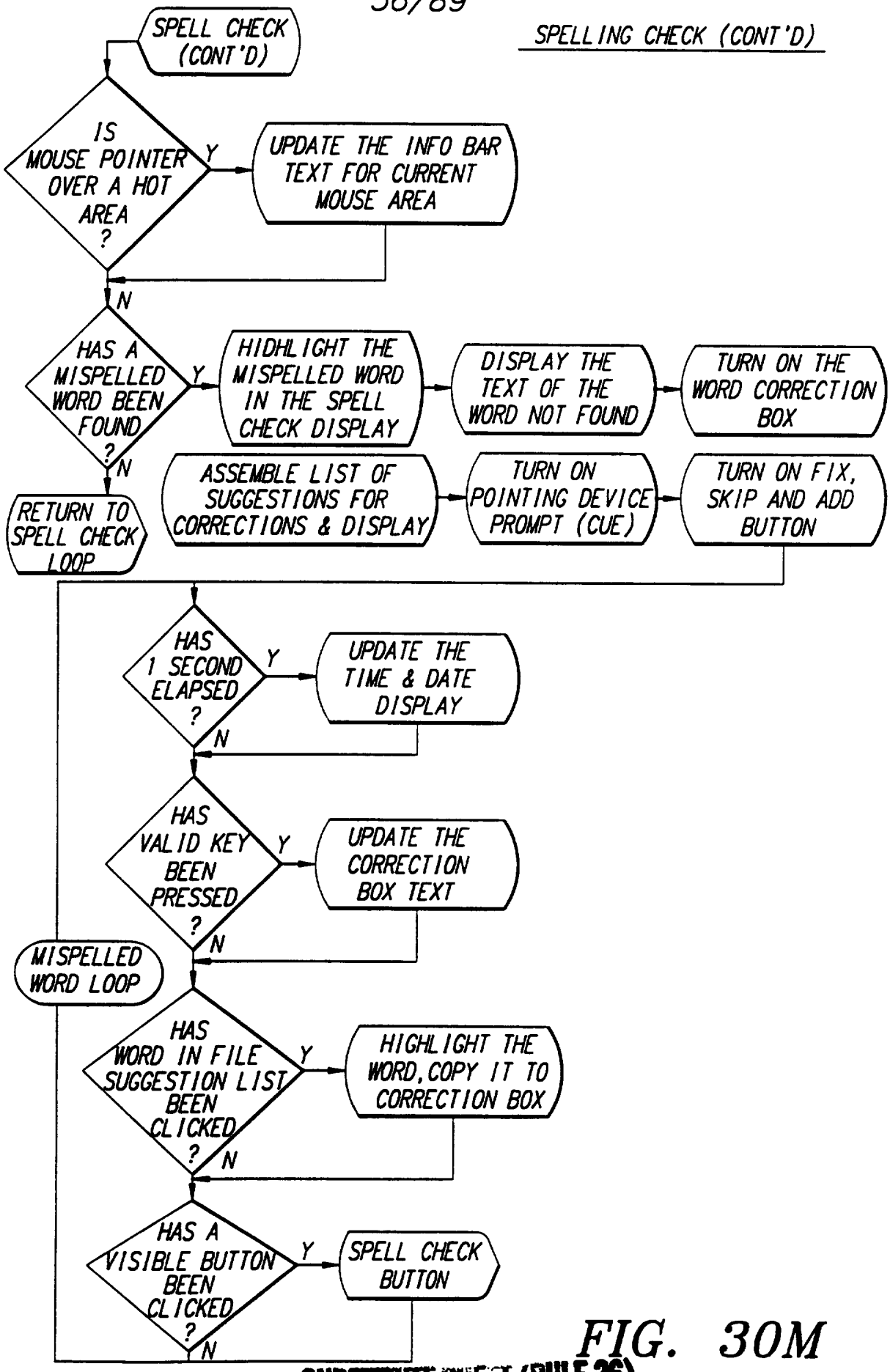
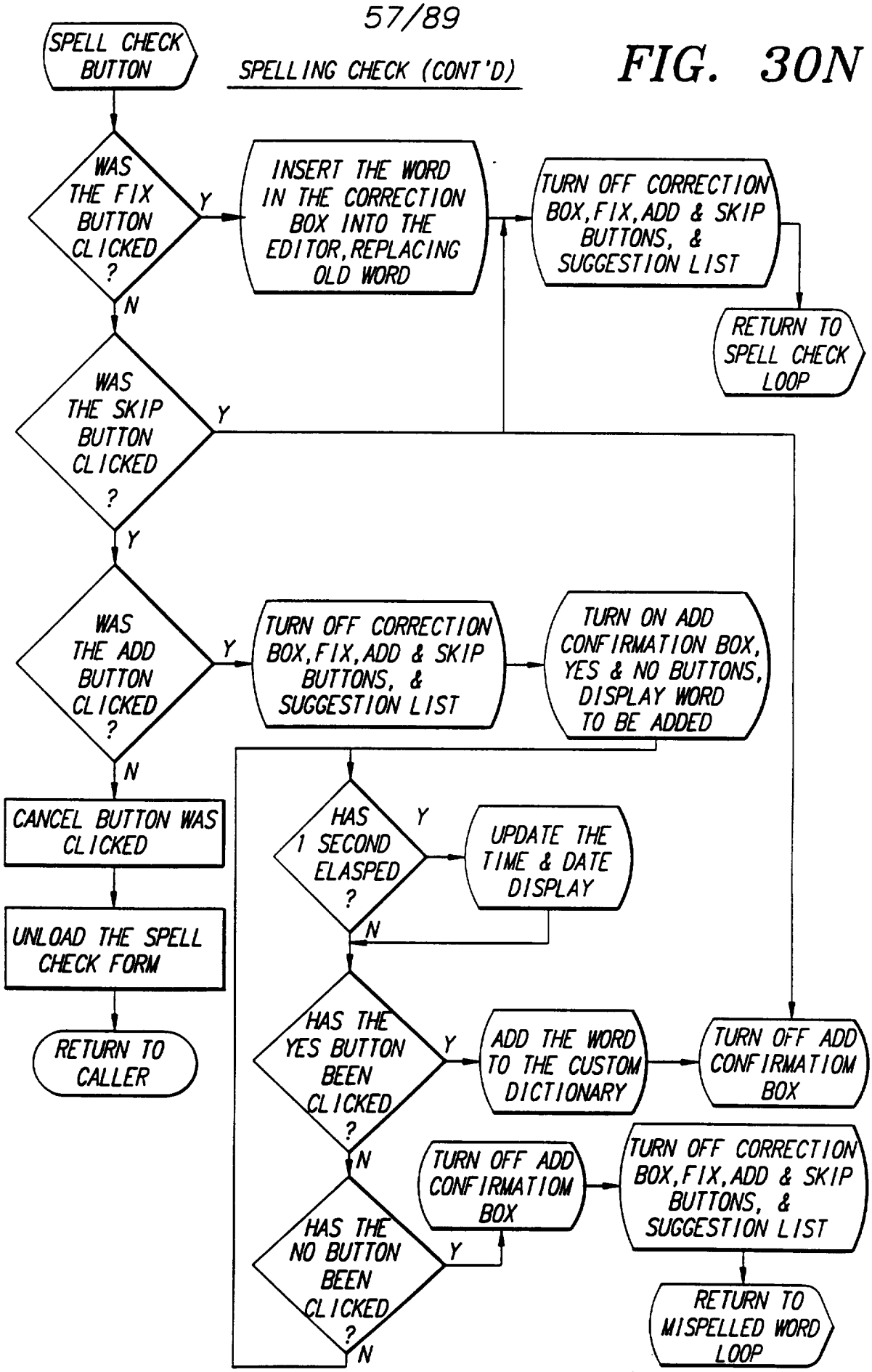


FIG. 30M

SPELLING CHECK (CONT'D)

FIG. 30N



DISPLAY FORM (LOAD FORM FOR DISPLAY)

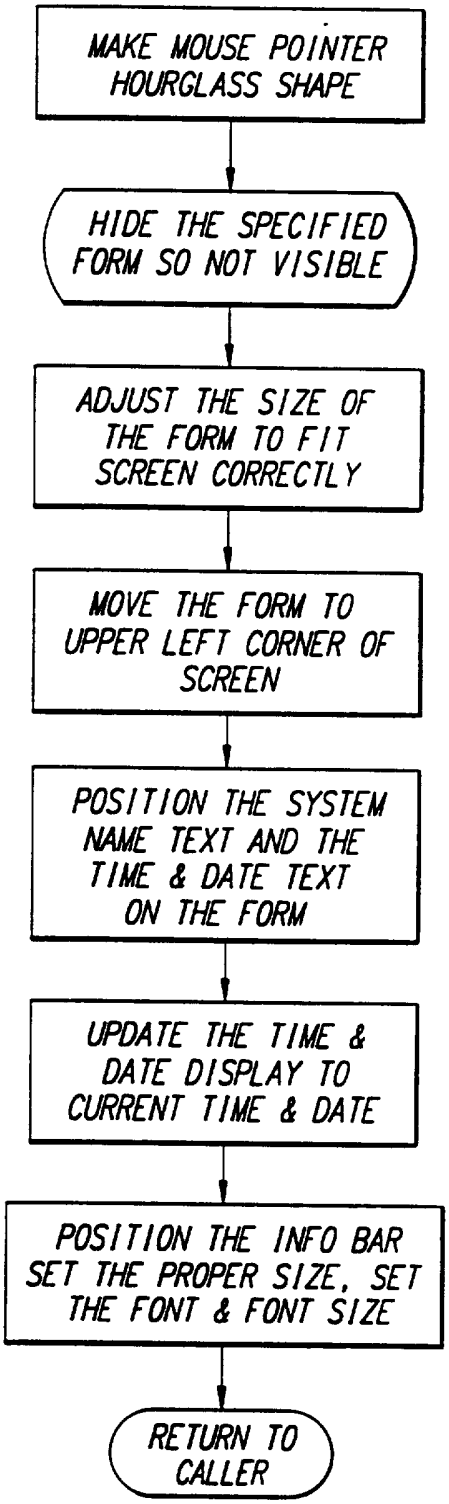


FIG. 30P

TOOLS:

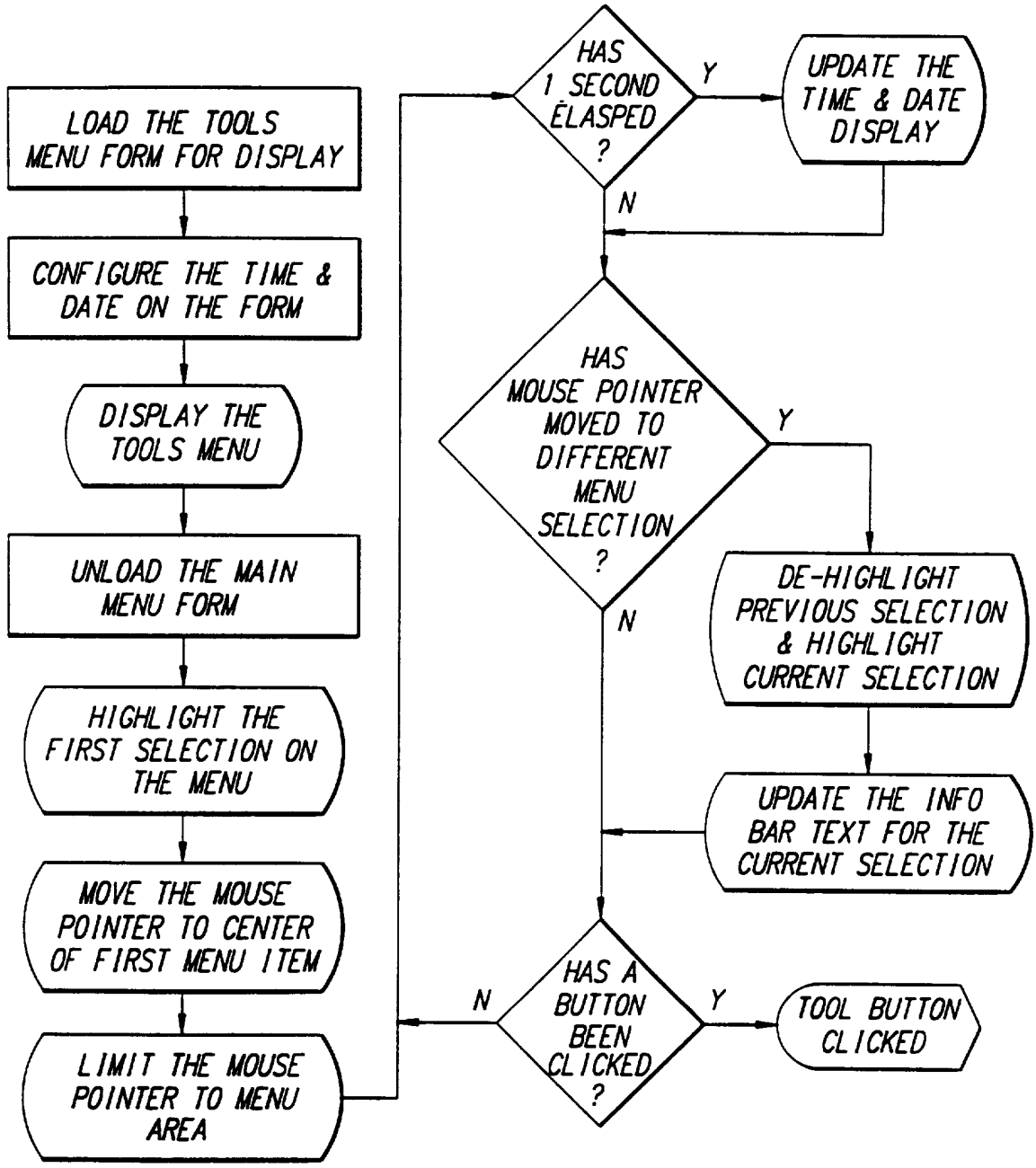
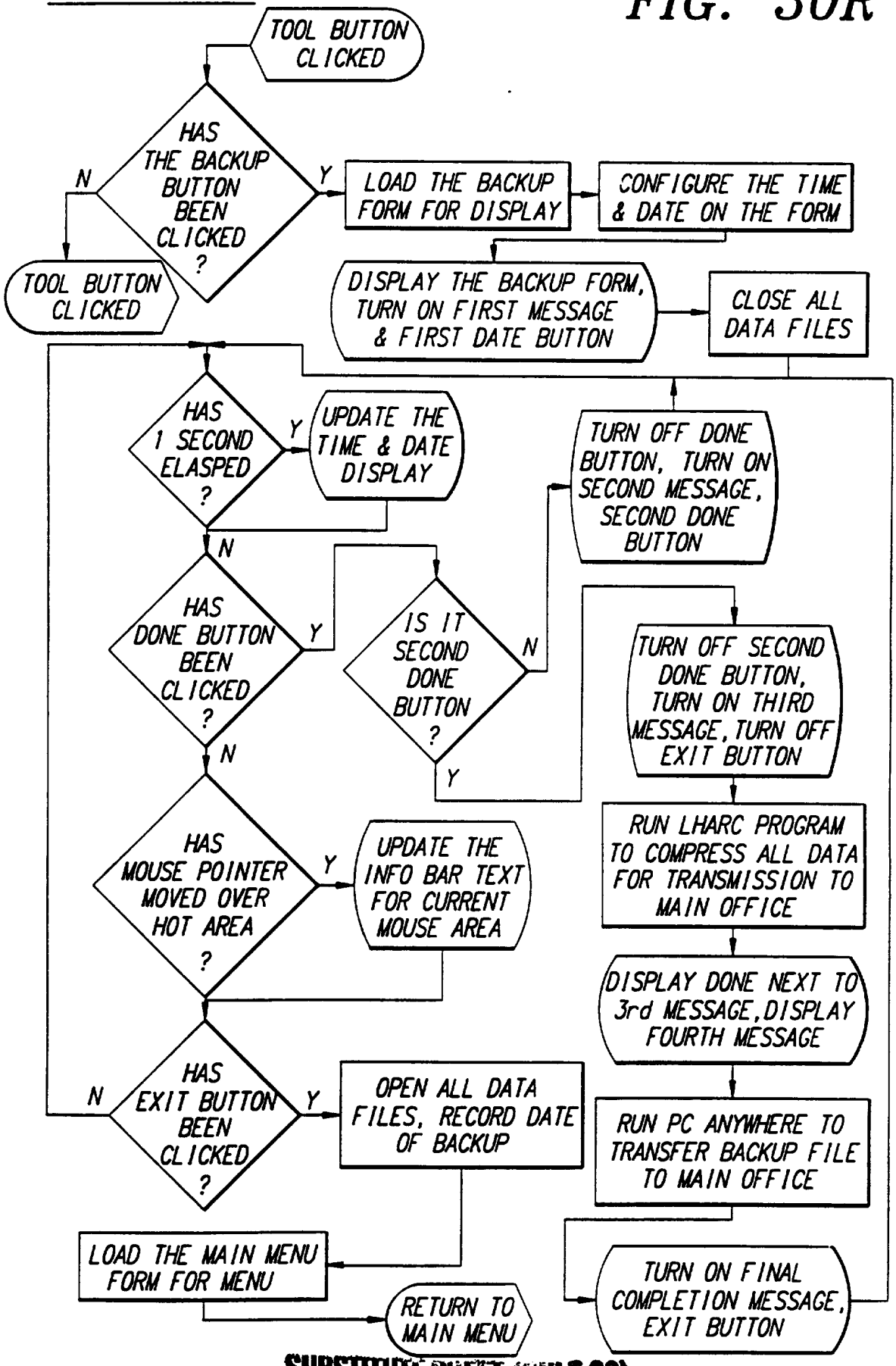


FIG. 30Q

TOOLS (CONT'D)

FIG. 30R



TOOLS (CONT'D)

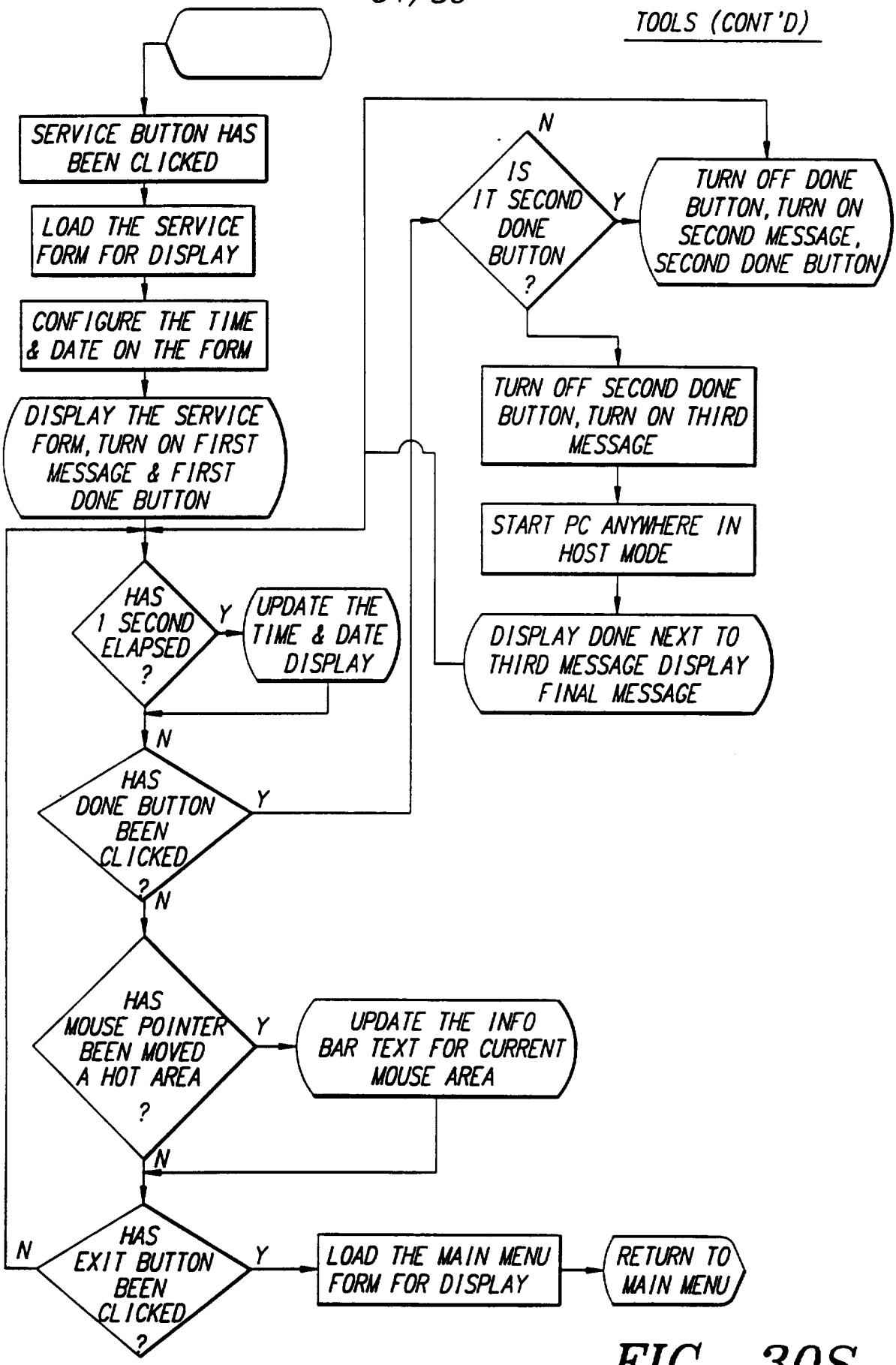


FIG. 30S

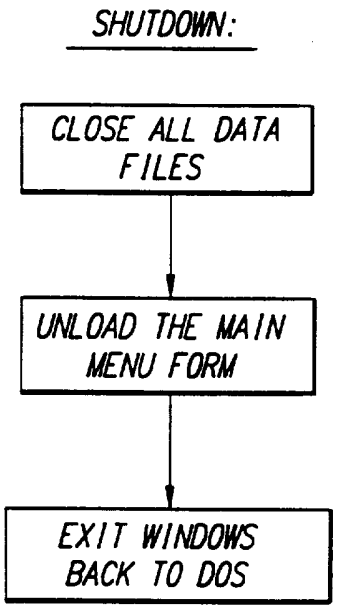

SHUTDOWN:
CLOSE ALL DATA FILES
UNLOAD THE MAIN MENU FORM
EXIT WINDOWS BACK TO DOS

FIG.30T

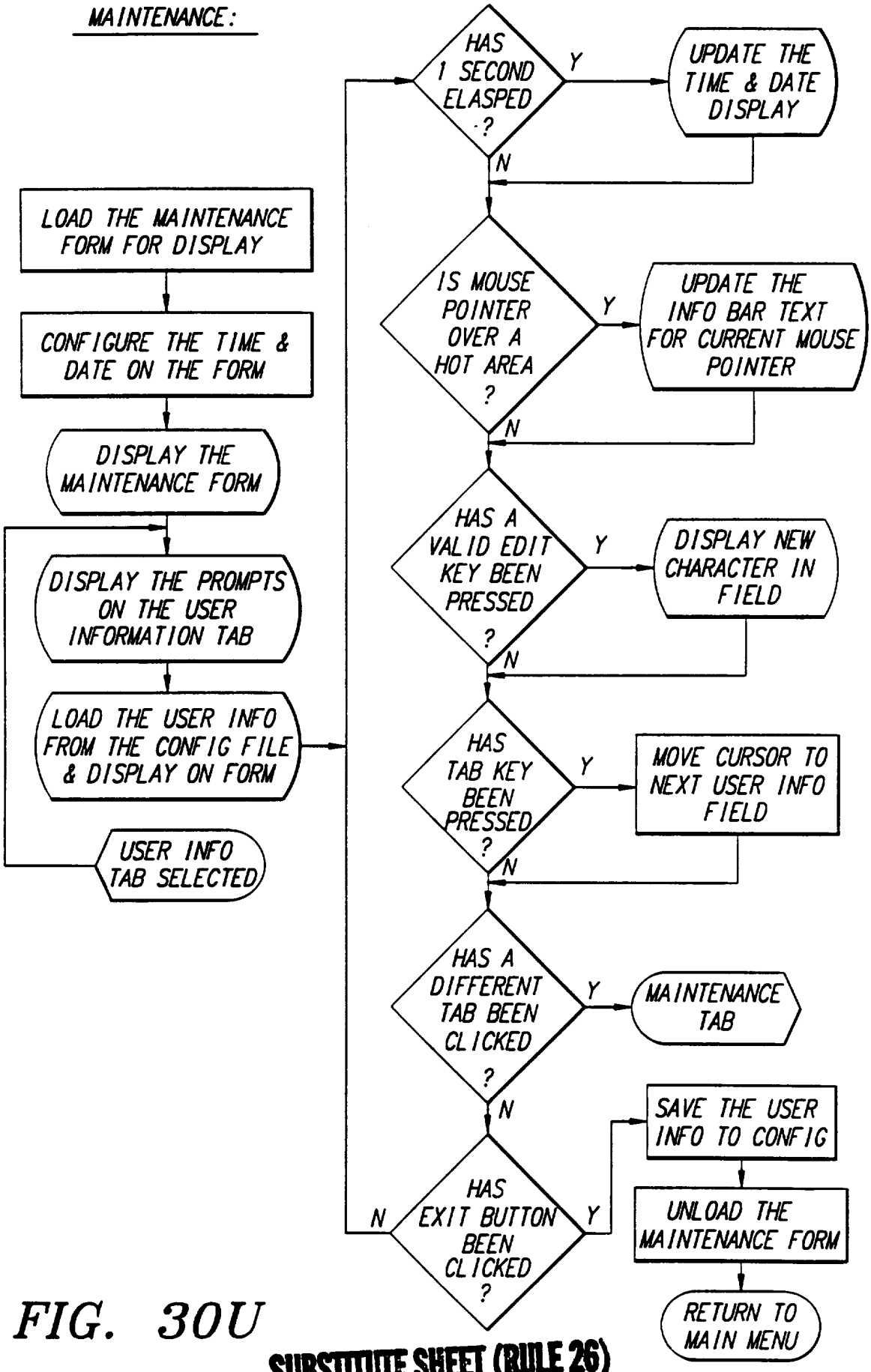

MAINTENANCE:
LOAD THE MAINTENANCE FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE MAINTENANCE FORM
DISPLAY THE PROMPTS ON THE USER INFORMATION TAB
LOAD THE USER INFO FROM THE CONFIG FILE & DISPLAY ON FORM
USER INFO TAB SELECTED
HAS 1 SECOND ELASPED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE POINTER
N
HAS A VALID EDIT KEY BEEN PRESSED ?
Y
DISPLAY NEW CHARACTER IN FIELD
N
HAS TAB KEY BEEN PRESSED ?
Y
MOVE CURSOR TO NEXT USER INFO FIELD
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
MAINTENANCE TAB
N
HAS EXIT BUTTON BEEN CLICKED ?
N
Y
SAVE THE USER INFO TO CONFIG
UNLOAD THE MAINTENANCE FORM
RETURN TO MAIN MENU

FIG. 30U

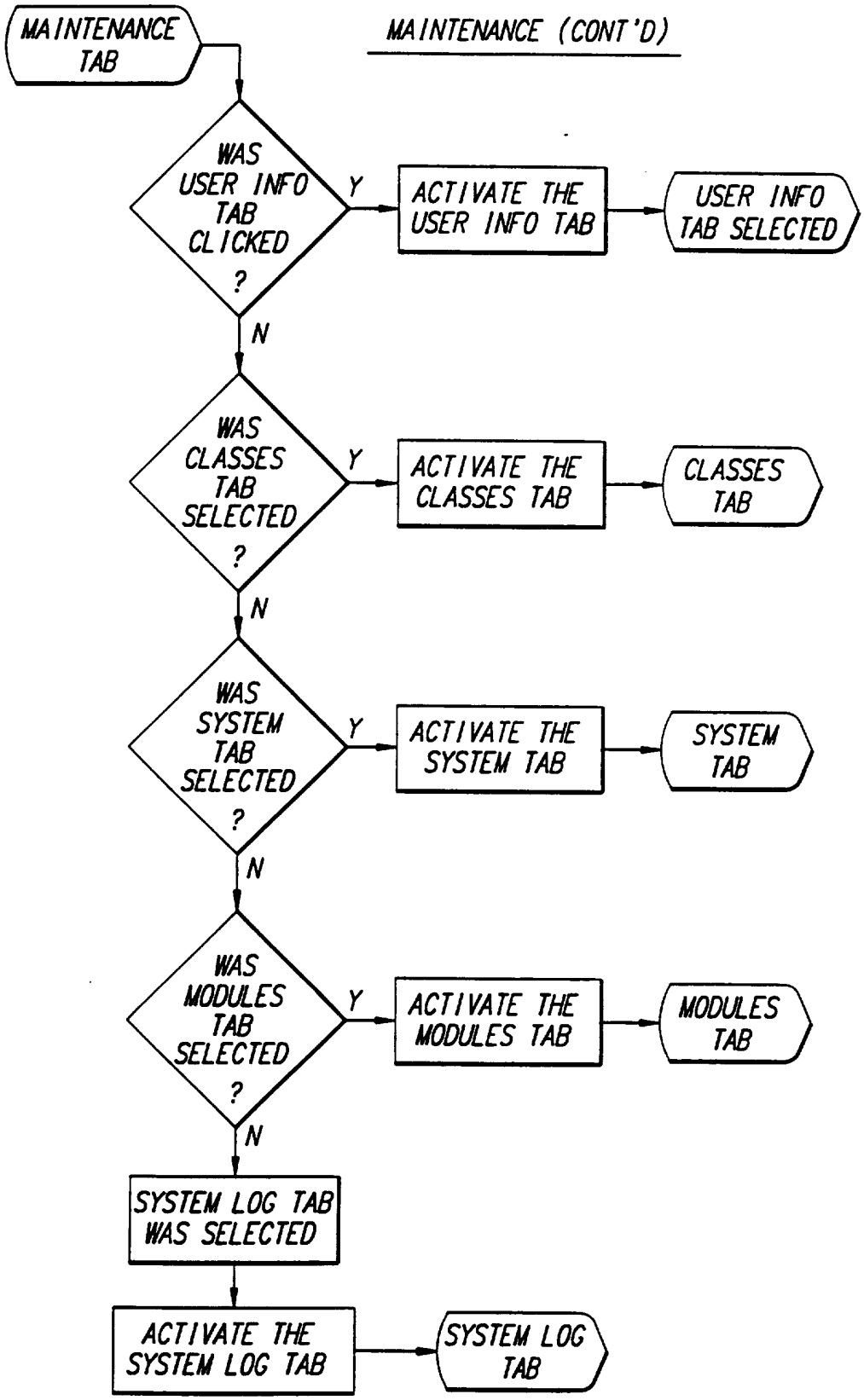

MAINTENANCE TAB
MAINTENANCE (CONT'D)
WAS USER INFO TAB CLICKED ?
Y
ACTIVATE THE USER INFO TAB
USER INFO TAB SELECTED
N
WAS CLASSES TAB SELECTED ?
Y
ACTIVATE THE CLASSES TAB
CLASSES TAB
N
WAS SYSTEM TAB SELECTED ?
Y
ACTIVATE THE SYSTEM TAB
SYSTEM TAB
N
WAS MODULES TAB SELECTED ?
Y
ACTIVATE THE MODULES TAB
MODULES TAB
N
SYSTEM LOG TAB WAS SELECTED
ACTIVATE THE SYSTEM LOG TAB
SYSTEM LOG TAB

FIG. 30V

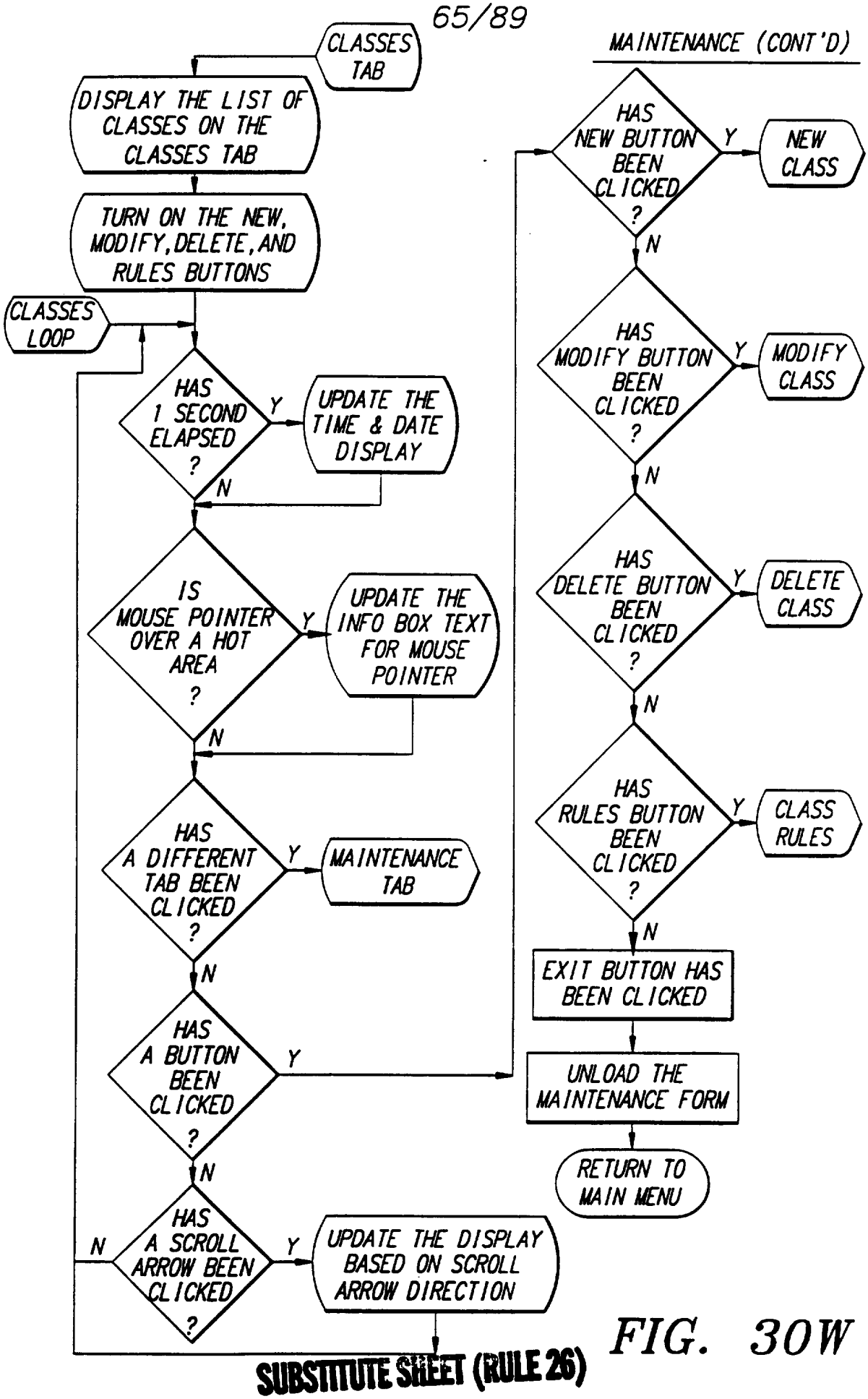

CLASSES TAB
DISPLAY THE LIST OF CLASSES ON THE CLASSES TAB
TURN ON THE NEW, MODIFY, DELETE, AND RULES BUTTONS
CLASSES LOOP
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BOX TEXT FOR MOUSE POINTER
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
MAINTENANCE TAB
N
HAS A BUTTON BEEN CLICKED ?
Y
N
HAS A SCROLL ARROW BEEN CLICKED ?
N
Y
UPDATE THE DISPLAY BASED ON SCROLL ARROW DIRECTION
MAINTENANCE (CONT'D)
HAS NEW BUTTON BEEN CLICKED ?
Y
NEW CLASS
N
HAS MODIFY BUTTON BEEN CLICKED ?
Y
MODIFY CLASS
N
HAS DELETE BUTTON BEEN CLICKED ?
Y
DELETE CLASS
N
HAS RULES BUTTON BEEN CLICKED ?
Y
CLASS RULES
N
EXIT BUTTON HAS BEEN CLICKED
UNLOAD THE MAINTENANCE FORM
RETURN TO MAIN MENU

FIG. 30W

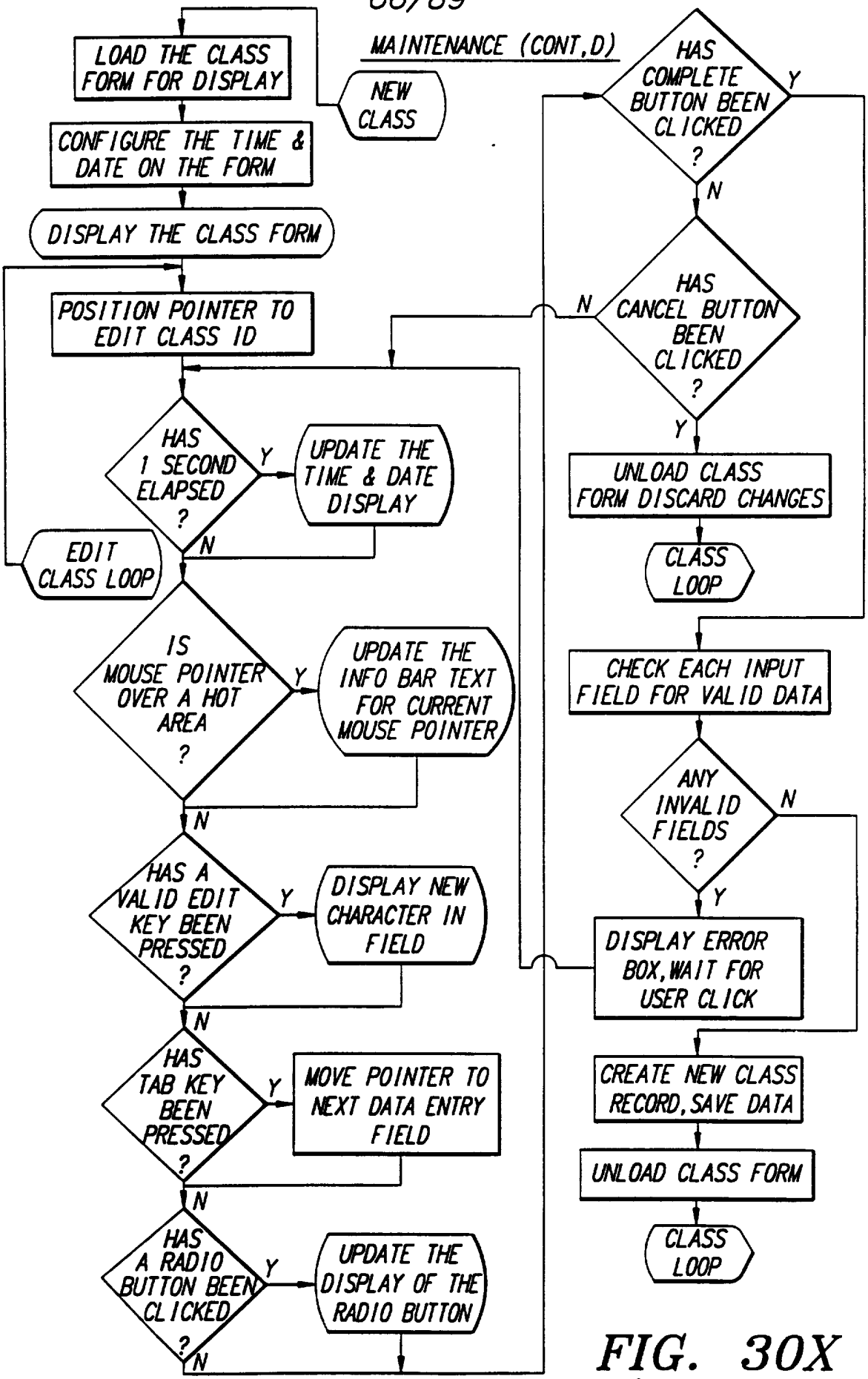

MAINTENANCE (CONT,D)
LOAD THE CLASS FORM FOR DISPLAY
NEW CLASS
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE CLASS FORM
POSITION POINTER TO EDIT CLASS ID
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
EDIT CLASS LOOP
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE POINTER
N
HAS A VALID EDIT KEY BEEN PRESSED ?
Y
DISPLAY NEW CHARACTER IN FIELD
N
HAS TAB KEY BEEN PRESSED ?
Y
MOVE POINTER TO NEXT DATA ENTRY FIELD
N
HAS A RADIO BUTTON BEEN CLICKED ?
Y
UPDATE THE DISPLAY OF THE RADIO BUTTON
N
HAS COMPLETE BUTTON BEEN CLICKED ?
Y
N
HAS CANCEL BUTTON BEEN CLICKED ?
N
Y
UNLOAD CLASS FORM DISCARD CHANGES
CLASS LOOP
CHECK EACH INPUT FIELD FOR VALID DATA
ANY INVALID FIELDS ?
N
Y
DISPLAY ERROR BOX, WAIT FOR USER CLICK
CREATE NEW CLASS RECORD, SAVE DATA
UNLOAD CLASS FORM
CLASS LOOP

FIG. 30X

MAINTENANCE (CONT'D)

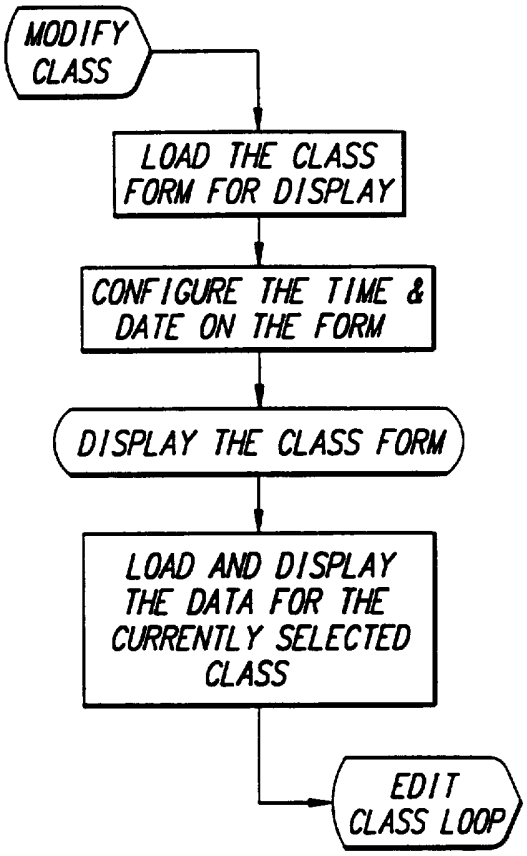


FIG. 30Y

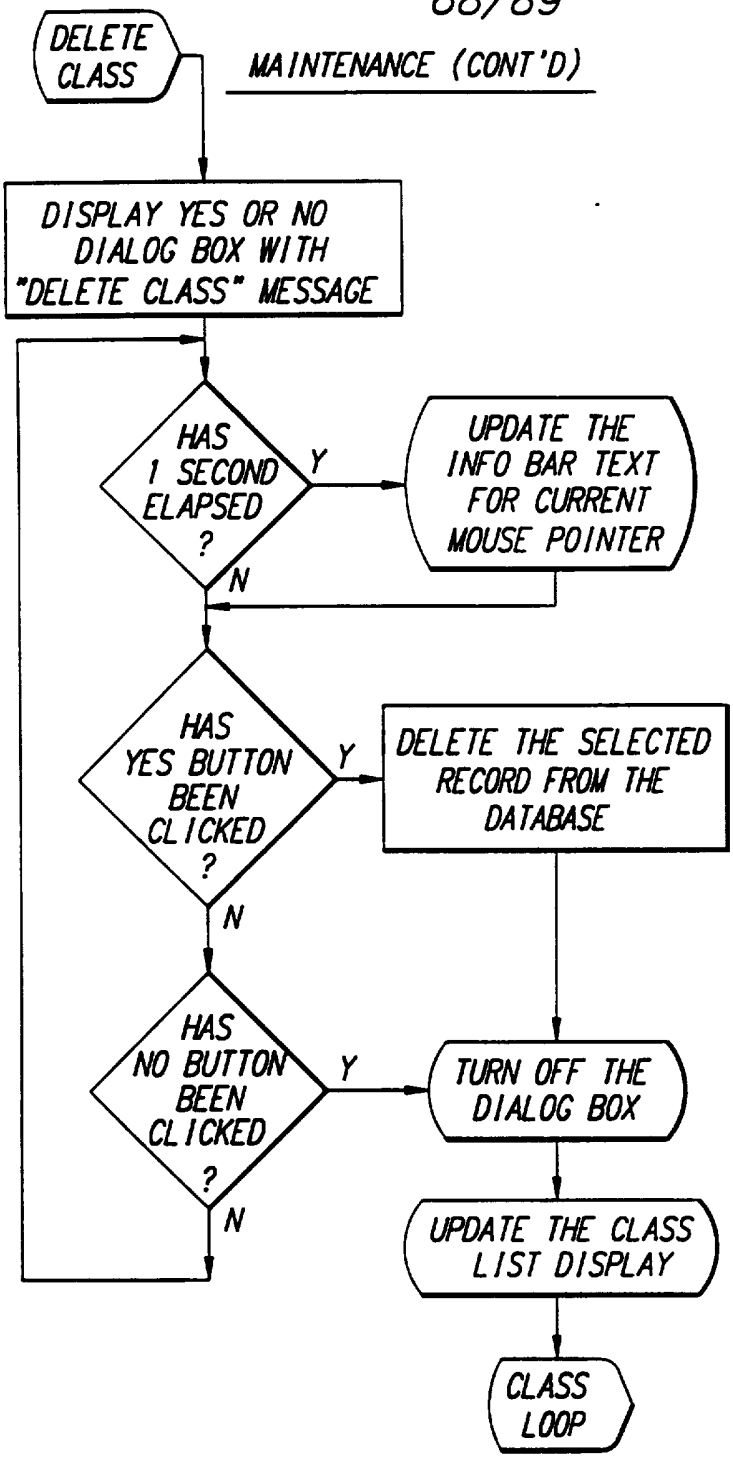

DELETE CLASS
MAINTENANCE (CONT'D)
DISPLAY YES OR NO DIALOG BOX WITH "DELETE CLASS" MESSAGE
HAS 1 SECOND ELAPSED ?
Y
N
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE POINTER
HAS YES BUTTON BEEN CLICKED ?
Y
N
DELETE THE SELECTED RECORD FROM THE DATABASE
HAS NO BUTTON BEEN CLICKED ?
Y
N
TURN OFF THE DIALOG BOX
UPDATE THE CLASS LIST DISPLAY
CLASS LOOP

FIG. 30Z

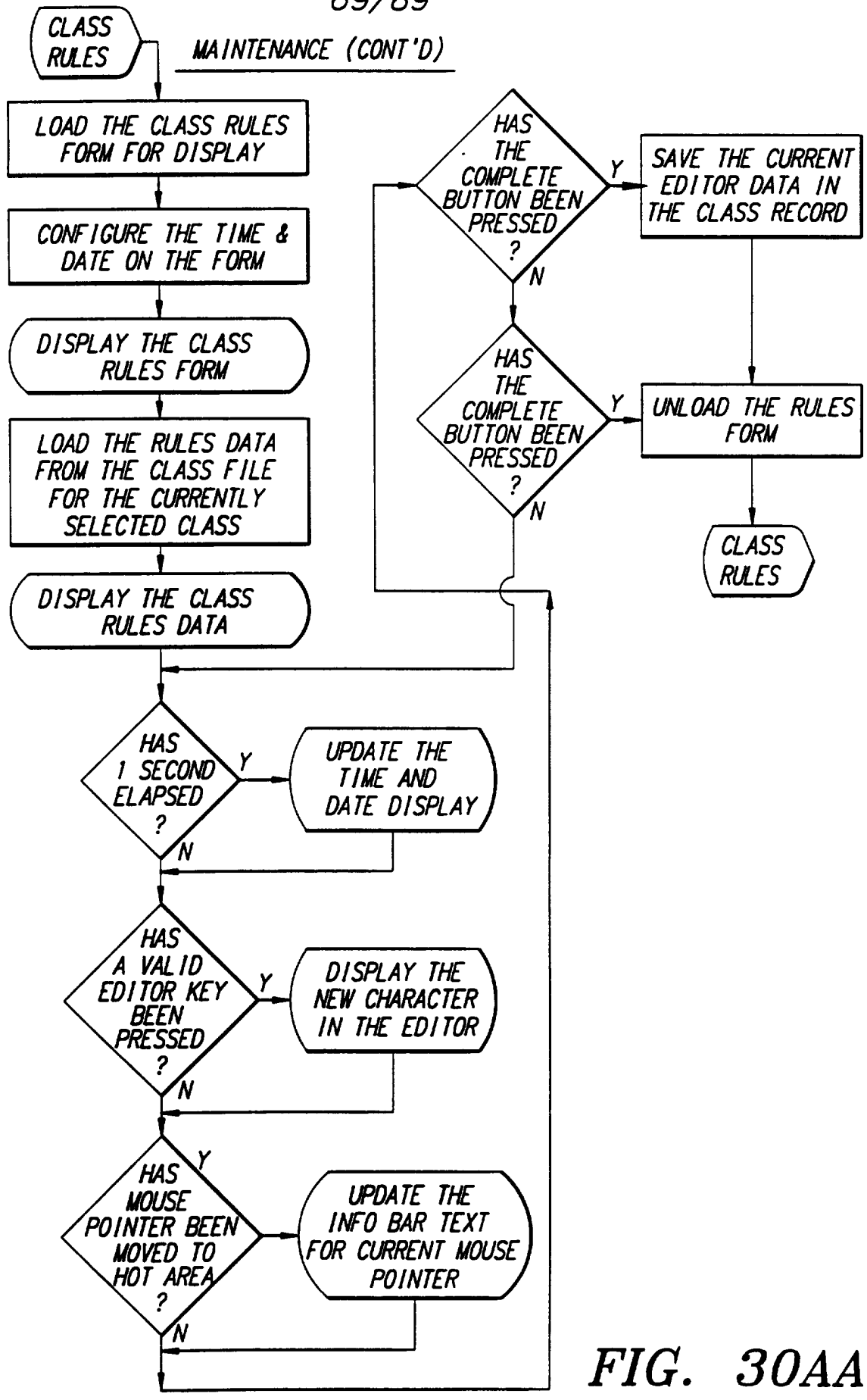

CLASS RULES
MAINTENANCE (CONT'D)
LOAD THE CLASS RULES FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE CLASS RULES FORM
LOAD THE RULES DATA FROM THE CLASS FILE FOR THE CURRENTLY SELECTED CLASS
DISPLAY THE CLASS RULES DATA
HAS 1 SECOND ELAPSED ?
Y
N
UPDATE THE TIME AND DATE DISPLAY
HAS A VALID EDITOR KEY BEEN PRESSED ?
Y
N
DISPLAY THE NEW CHARACTER IN THE EDITOR
HAS MOUSE POINTER BEEN MOVED TO HOT AREA ?
Y
N
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE POINTER
HAS THE COMPLETE BUTTON BEEN PRESSED ?
Y
N
SAVE THE CURRENT EDITOR DATA IN THE CLASS RECORD
HAS THE COMPLETE BUTTON BEEN PRESSED ?
Y
N
UNLOAD THE RULES FORM
CLASS RULES

FIG. 30AA

FIG. 30AB

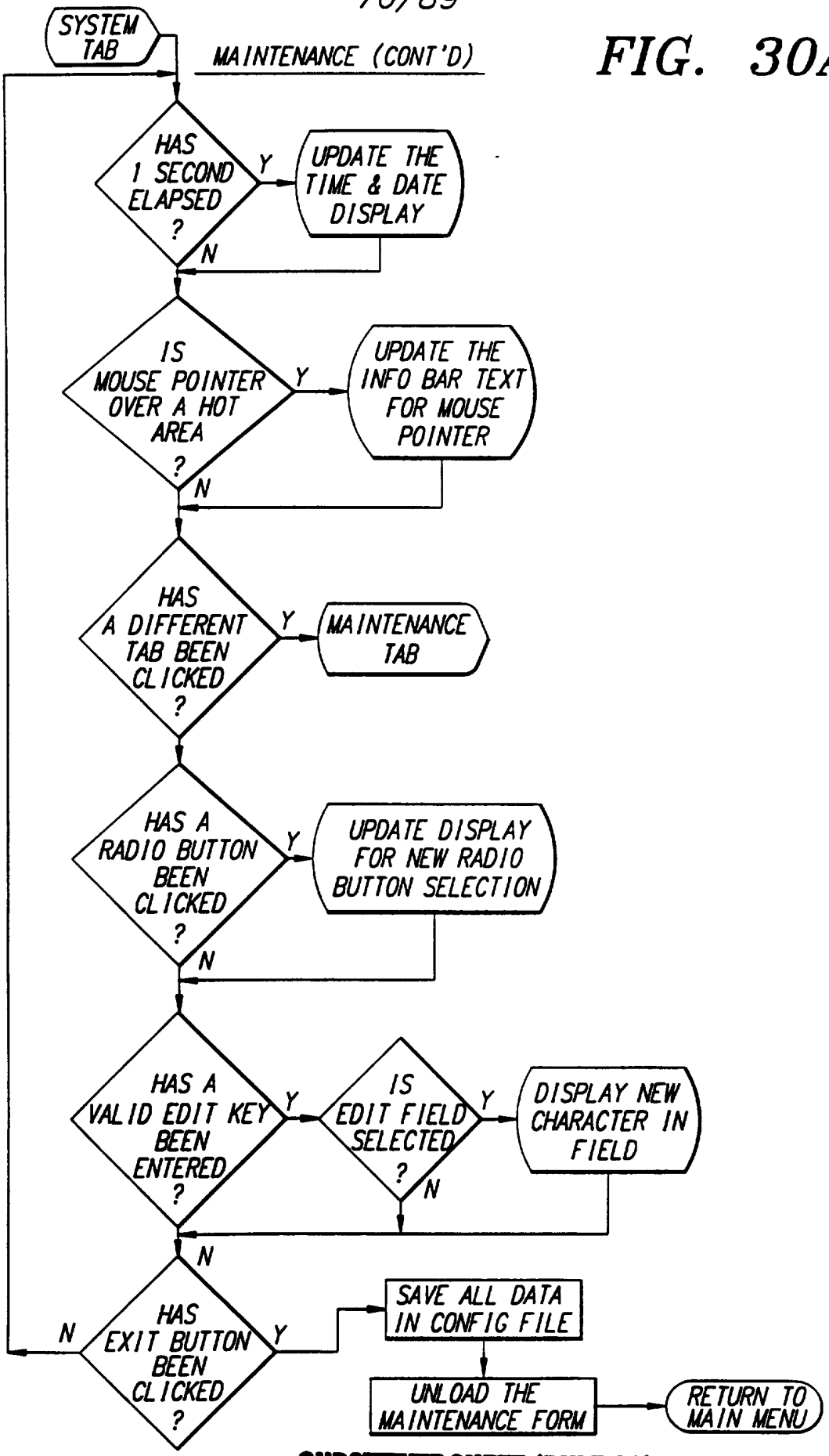

SYSTEM TAB
MAINTENANCE (CONT'D)
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR MOUSE POINTER
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
MAINTENANCE TAB
HAS A RADIO BUTTON BEEN CLICKED ?
Y
UPDATE DISPLAY FOR NEW RADIO BUTTON SELECTION
N
HAS A VALID EDIT KEY BEEN ENTERED ?
Y
IS EDIT FIELD SELECTED ?
Y
DISPLAY NEW CHARACTER IN FIELD
N
N
HAS EXIT BUTTON BEEN CLICKED ?
N
Y
SAVE ALL DATA IN CONFIG FILE
UNLOAD THE MAINTENANCE FORM
RETURN TO MAIN MENU

FIG. 30AC

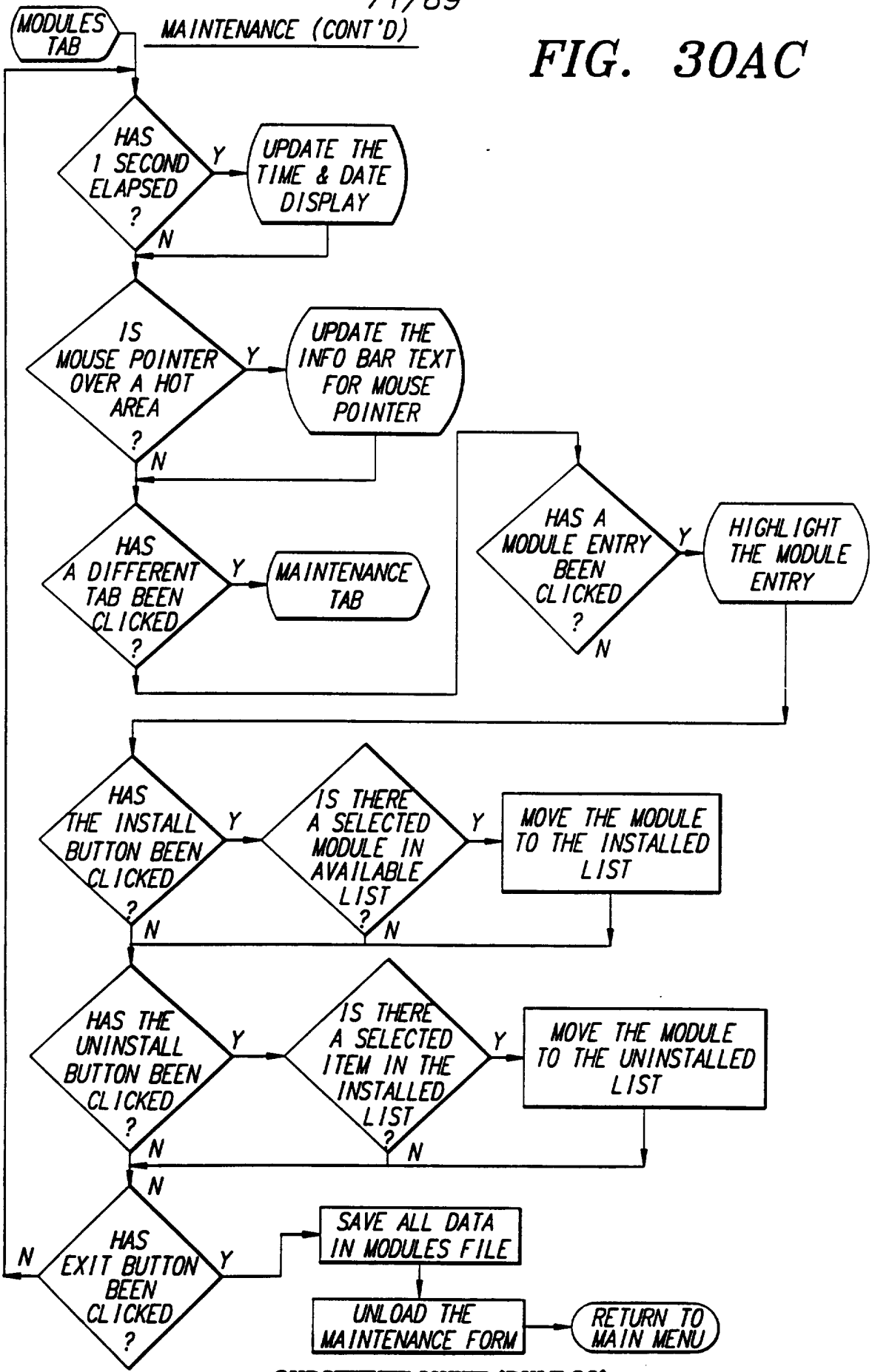
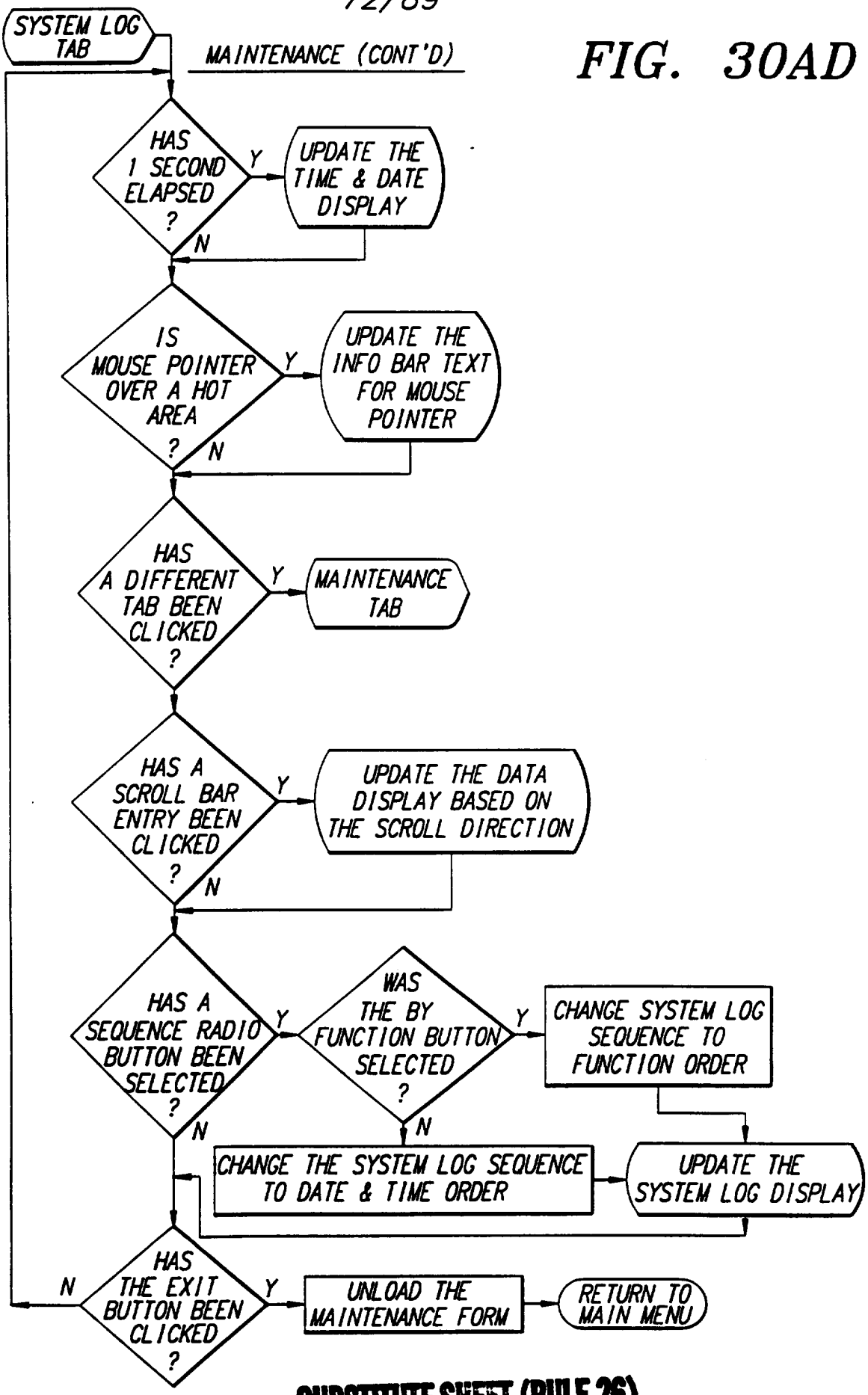

MODULES TAB
MAINTENANCE (CONT'D)
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR MOUSE POINTER
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
MAINTENANCE TAB
N
HAS A MODULE ENTRY BEEN CLICKED ?
Y
HIGHLIGHT THE MODULE ENTRY
N
HAS THE INSTALL BUTTON BEEN CLICKED ?
Y
IS THERE A SELECTED MODULE IN AVAILABLE LIST ?
Y
MOVE THE MODULE TO THE INSTALLED LIST
N
N
HAS THE UNINSTALL BUTTON BEEN CLICKED ?
Y
IS THERE A SELECTED ITEM IN THE INSTALLED LIST ?
Y
MOVE THE MODULE TO THE UNINSTALLED LIST
N
N
N
HAS EXIT BUTTON BEEN CLICKED ?
Y
SAVE ALL DATA IN MODULES FILE
N
UNLOAD THE MAINTENANCE FORM
RETURN TO MAIN MENU

FIG. 30AD


SYSTEM LOG TAB
MAINTENANCE (CONT'D)
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR MOUSE POINTER
N
HAS A DIFFERENT TAB BEEN CLICKED ?
Y
MAINTENANCE TAB
HAS A SCROLL BAR ENTRY BEEN CLICKED ?
Y
UPDATE THE DATA DISPLAY BASED ON THE SCROLL DIRECTION
N
HAS A SEQUENCE RADIO BUTTON BEEN SELECTED ?
Y
WAS THE BY FUNCTION BUTTON SELECTED ?
Y
CHANGE SYSTEM LOG SEQUENCE TO FUNCTION ORDER
N
N
CHANGE THE SYSTEM LOG SEQUENCE TO DATE & TIME ORDER
UPDATE THE SYSTEM LOG DISPLAY
HAS THE EXIT BUTTON BEEN CLICKED ?
N
Y
UNLOAD THE MAINTENANCE FORM
RETURN TO MAIN MENU

SCHOOL

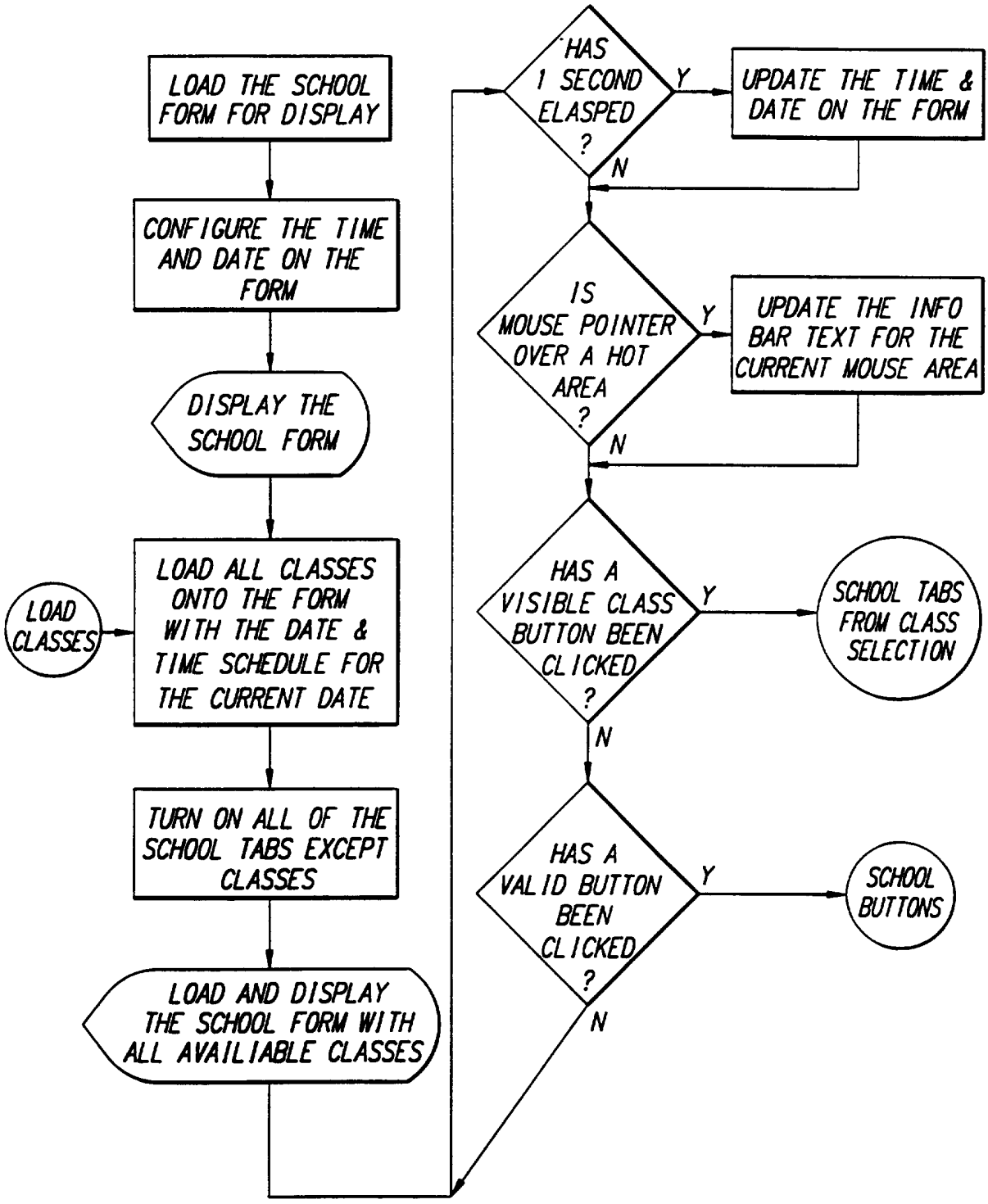


FIG. 30AE

SCHOOL TABS FROM CLASS SELECTION

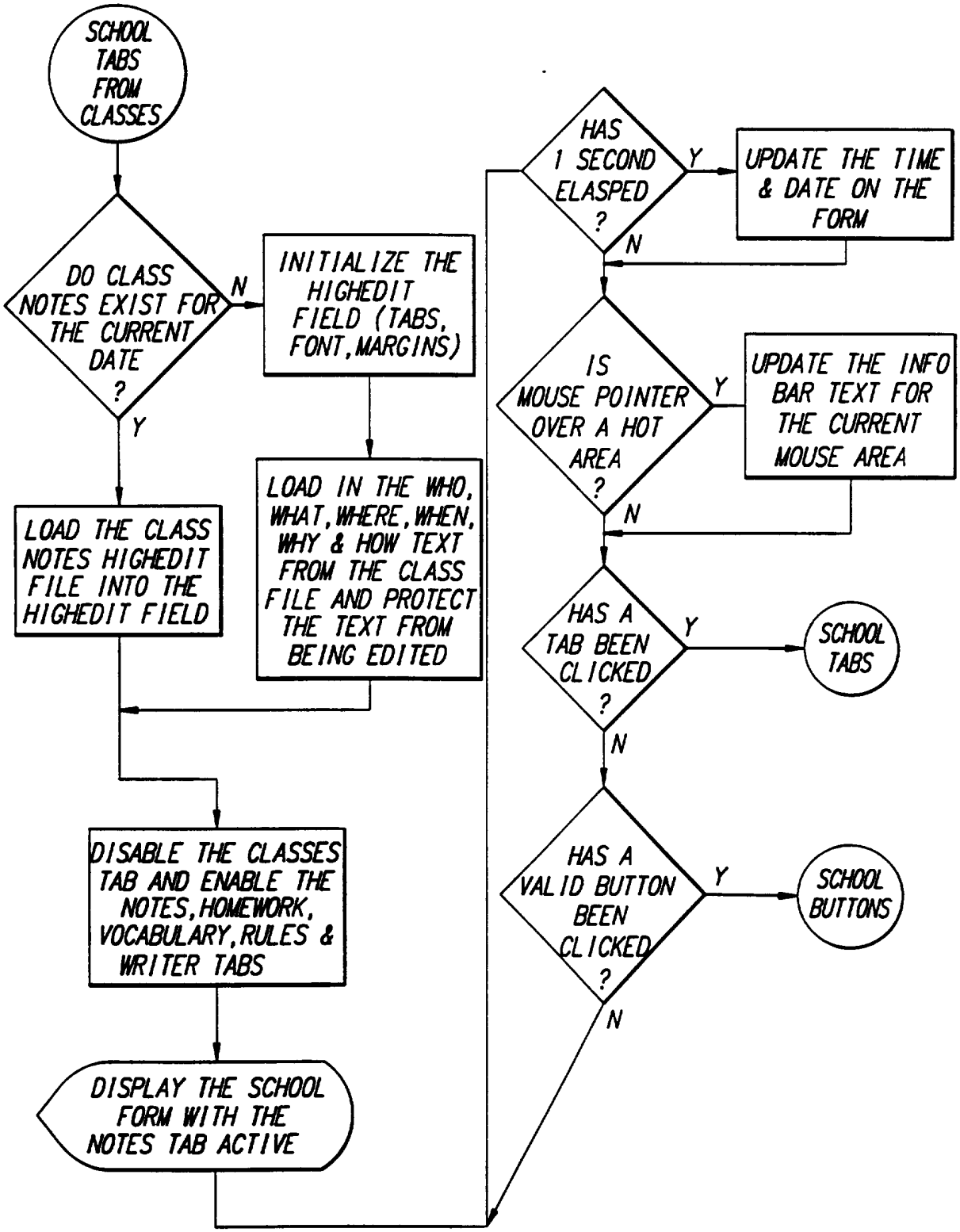
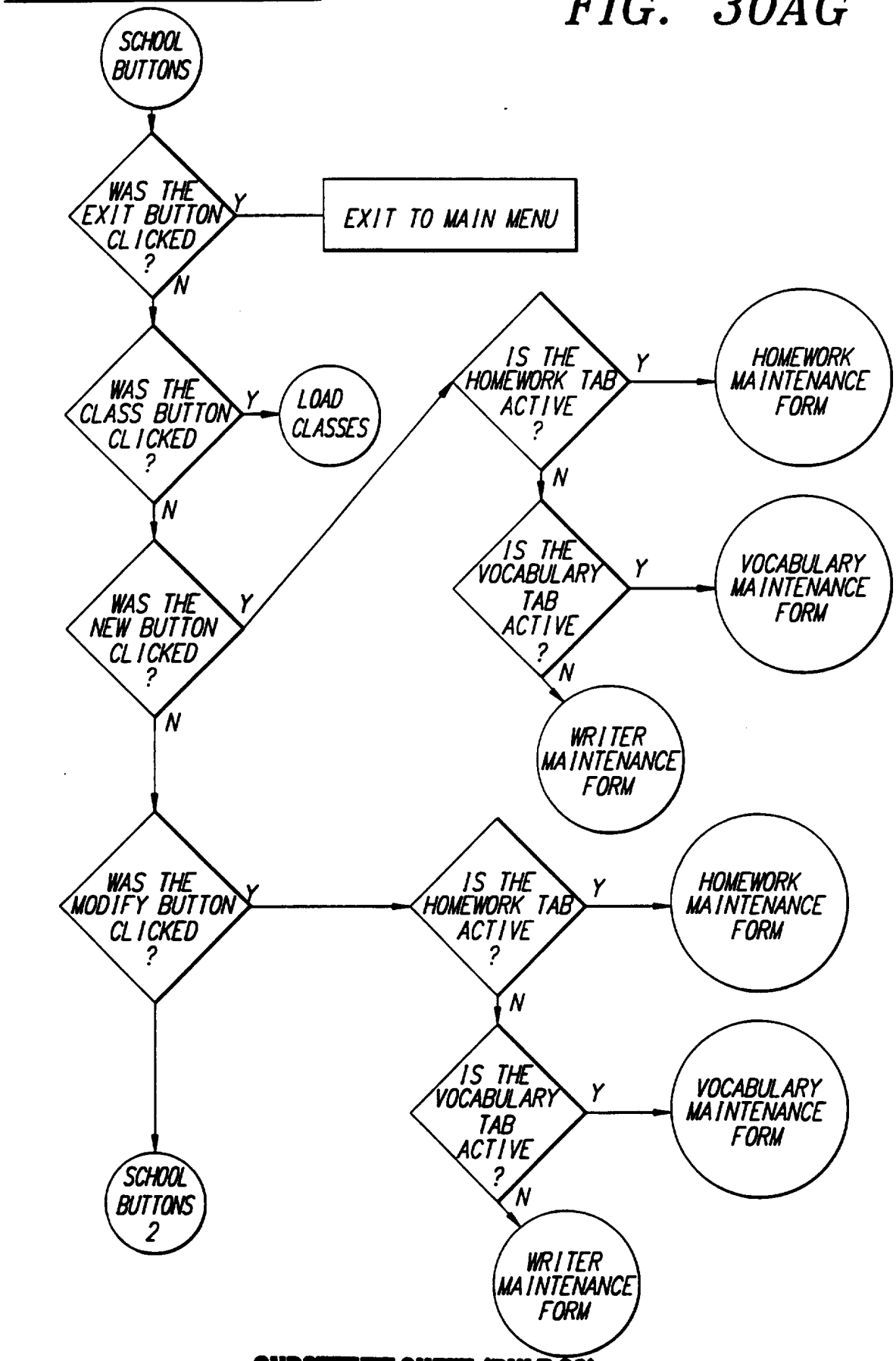


FIG. 30AF

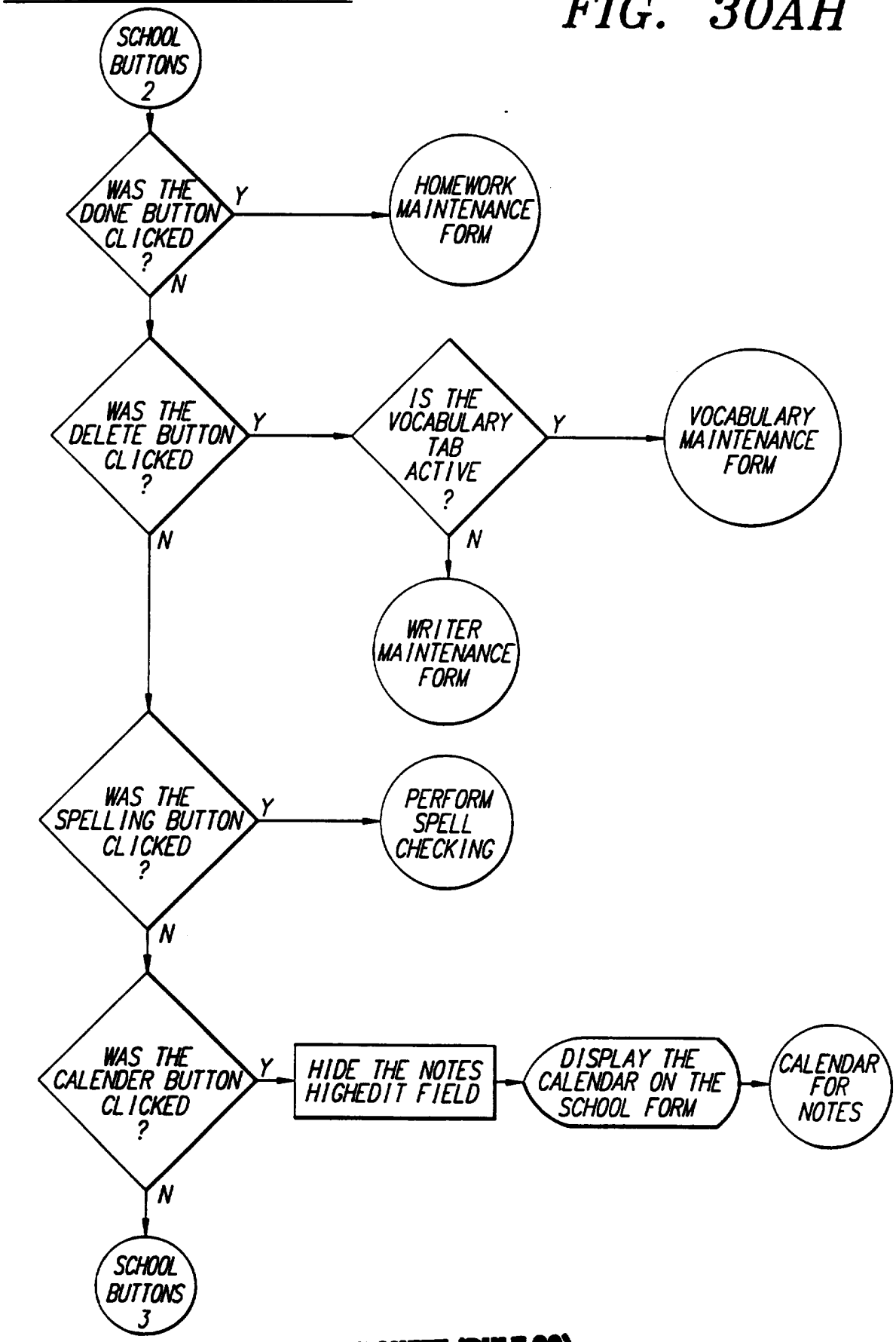
SCHOOL BUTTONS CLICKED

FIG. 30AG



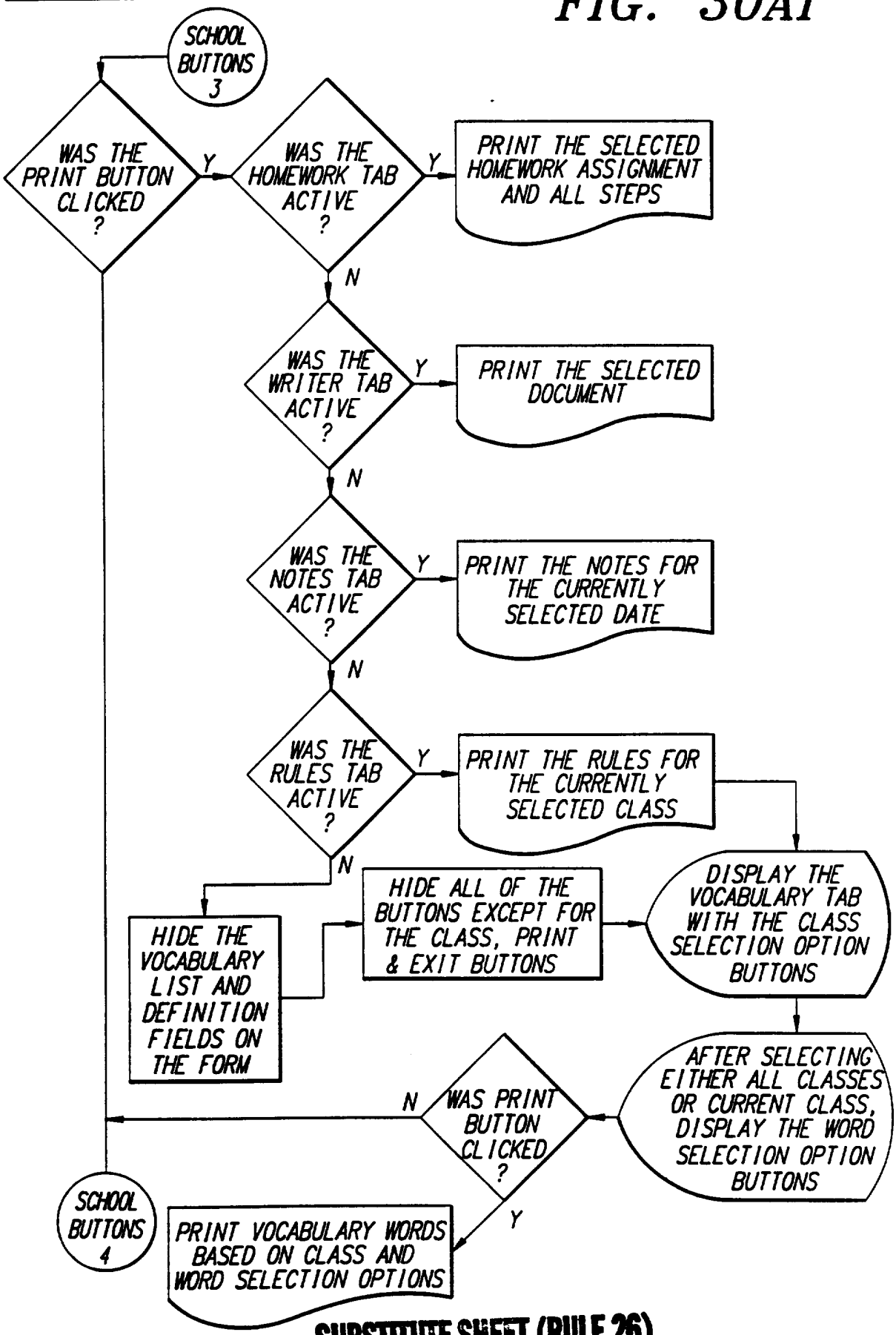
SCHOOL BUTTONS CLICKED-2

FIG. 30AH



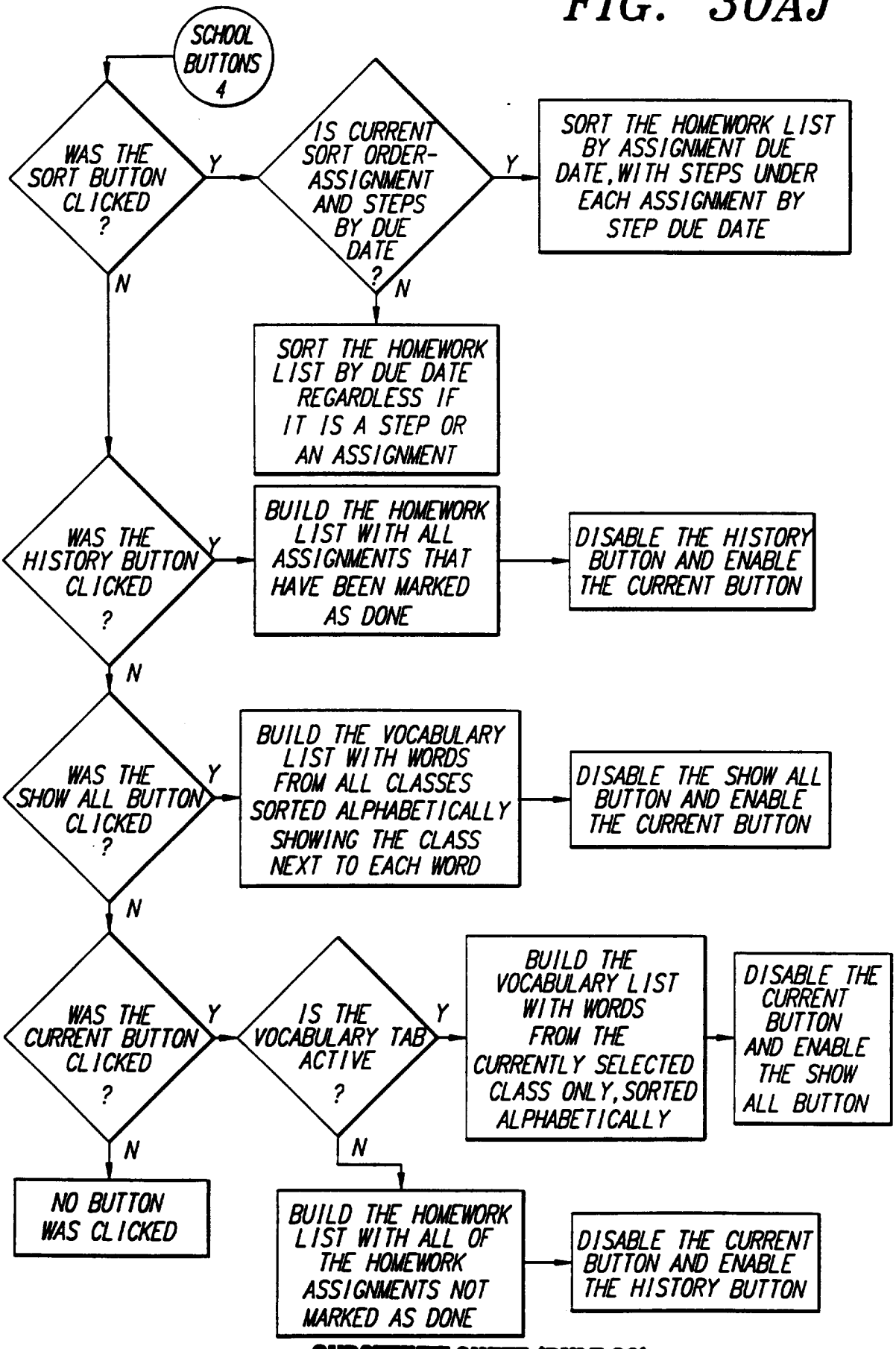
SCHOOL BUTTONS CLICKED -3

FIG. 30AI



SCHOOL BUTTONS CLICKED - 4

FIG. 30AJ



SCHOOL TAB CLICKED

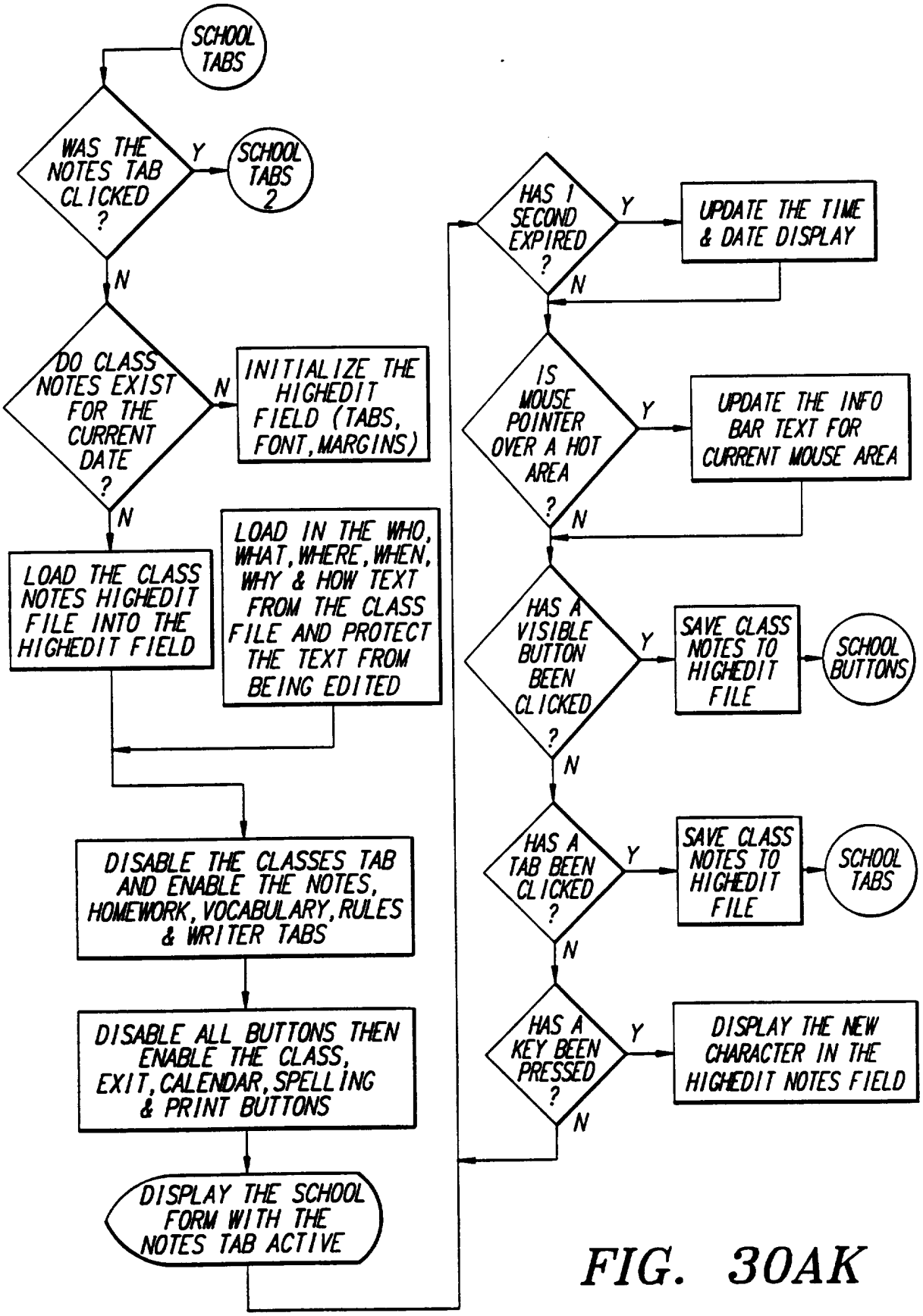


FIG. 30AK

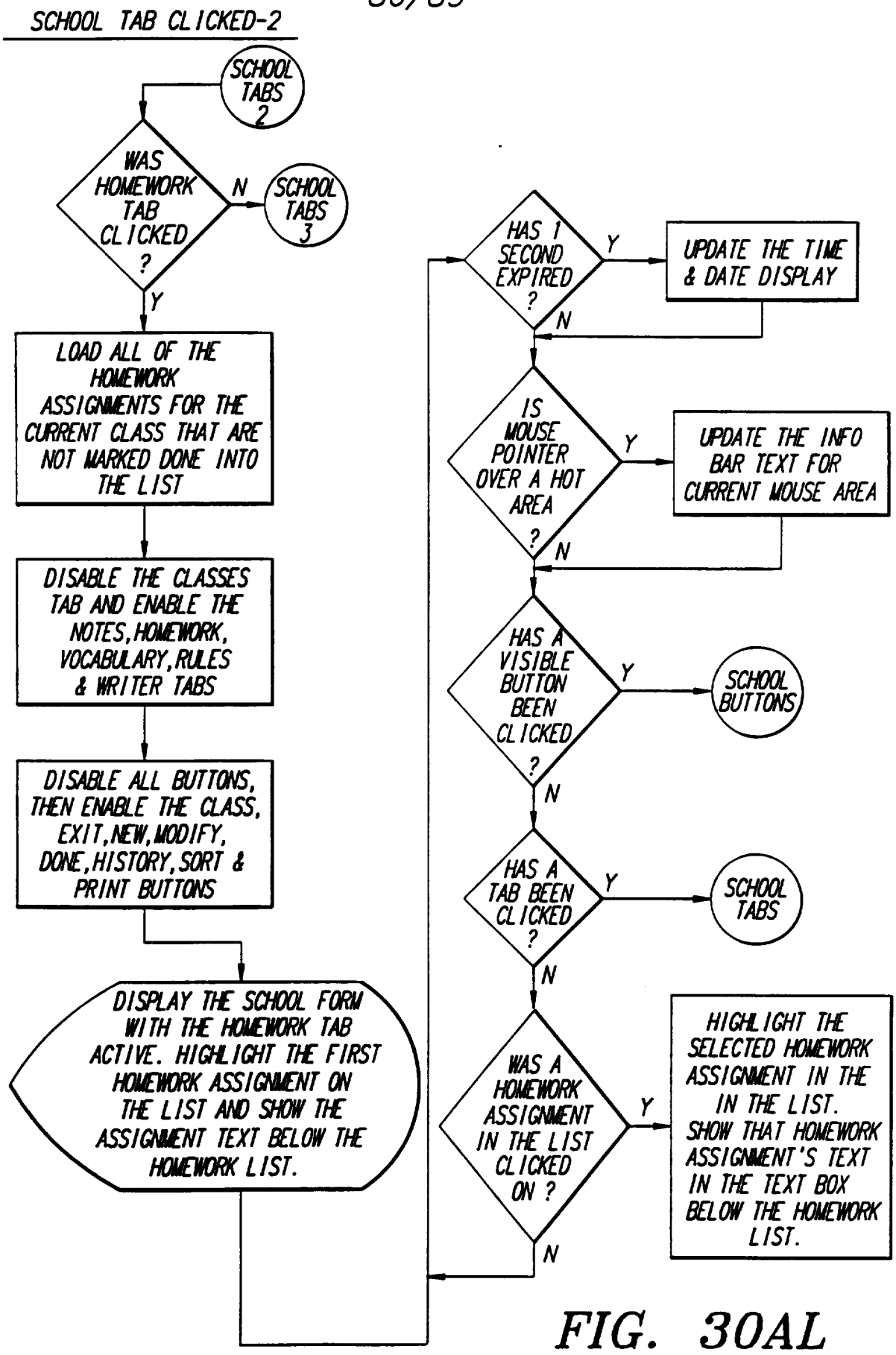

SCHOOL TAB CLICKED-2
SCHOOL TABS 2
WAS HOMEWORK TAB CLICKED ?
N
SCHOOL TABS 3
Y
LOAD ALL OF THE HOMEWORK ASSIGNMENTS FOR THE CURRENT CLASS THAT ARE NOT MARKED DONE INTO THE LIST
DISABLE THE CLASSES TAB AND ENABLE THE NOTES, HOMEWORK, VOCABULARY, RULES & WRITER TABS
DISABLE ALL BUTTONS, THEN ENABLE THE CLASS, EXIT, NEW, MODIFY, DONE, HISTORY, SORT & PRINT BUTTONS
DISPLAY THE SCHOOL FORM WITH THE HOMEWORK TAB ACTIVE. HIGHLIGHT THE FIRST HOMEWORK ASSIGNMENT ON THE LIST AND SHOW THE ASSIGNMENT TEXT BELOW THE HOMEWORK LIST.
HAS 1 SECOND EXPIRED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE AREA
N
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
SCHOOL BUTTONS
N
HAS A TAB BEEN CLICKED ?
Y
SCHOOL TABS
N
WAS A HOMEWORK ASSIGNMENT IN THE LIST CLICKED ON ?
Y
HIGHLIGHT THE SELECTED HOMEWORK ASSIGNMENT IN THE IN THE LIST. SHOW THAT HOMEWORK ASSIGNMENT'S TEXT IN THE TEXT BOX BELOW THE HOMEWORK LIST.
N

FIG. 30AL

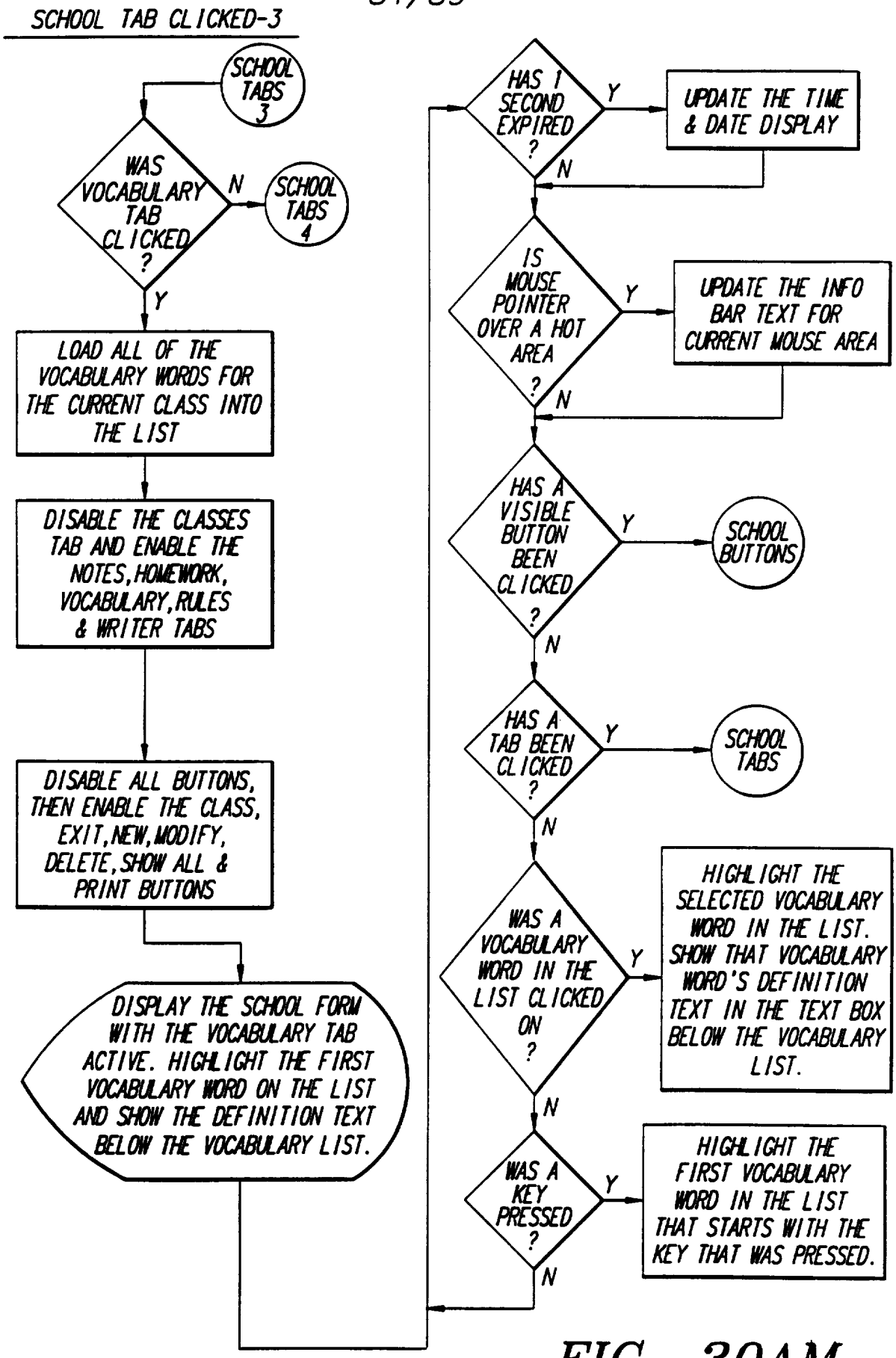

SCHOOL TAB CLICKED-3
SCHOOL TABS 3
WAS VOCABULARY TAB CLICKED ?
N
SCHOOL TABS 4
Y
LOAD ALL OF THE VOCABULARY WORDS FOR THE CURRENT CLASS INTO THE LIST
DISABLE THE CLASSES TAB AND ENABLE THE NOTES, HOMEWORK, VOCABULARY, RULES & WRITER TABS
DISABLE ALL BUTTONS, THEN ENABLE THE CLASS, EXIT, NEW, MODIFY, DELETE, SHOW ALL & PRINT BUTTONS
DISPLAY THE SCHOOL FORM WITH THE VOCABULARY TAB ACTIVE. HIGHLIGHT THE FIRST VOCABULARY WORD ON THE LIST AND SHOW THE DEFINITION TEXT BELOW THE VOCABULARY LIST.
HAS 1 SECOND EXPIRED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE AREA
N
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
SCHOOL BUTTONS
N
HAS A TAB BEEN CLICKED ?
Y
SCHOOL TABS
N
WAS A VOCABULARY WORD IN THE LIST CLICKED ON ?
Y
HIGHLIGHT THE SELECTED VOCABULARY WORD IN THE LIST. SHOW THAT VOCABULARY WORD'S DEFINITION TEXT IN THE TEXT BOX BELOW THE VOCABULARY LIST.
N
WAS A KEY PRESSED ?
Y
HIGHLIGHT THE FIRST VOCABULARY WORD IN THE LIST THAT STARTS WITH THE KEY THAT WAS PRESSED.
N

FIG. 30AM

SCHOOL TAB CLICKED-4

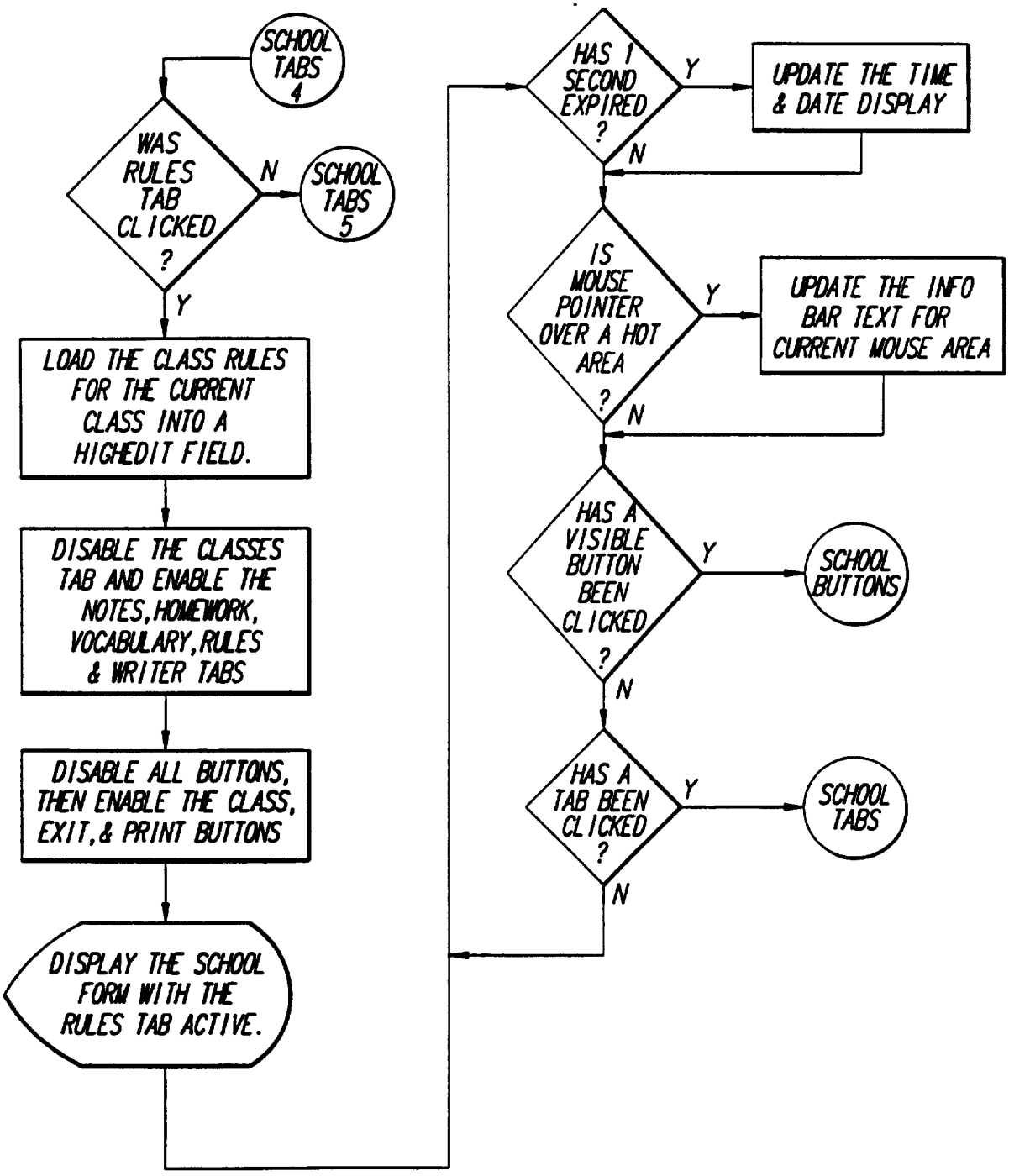


FIG. 30AN

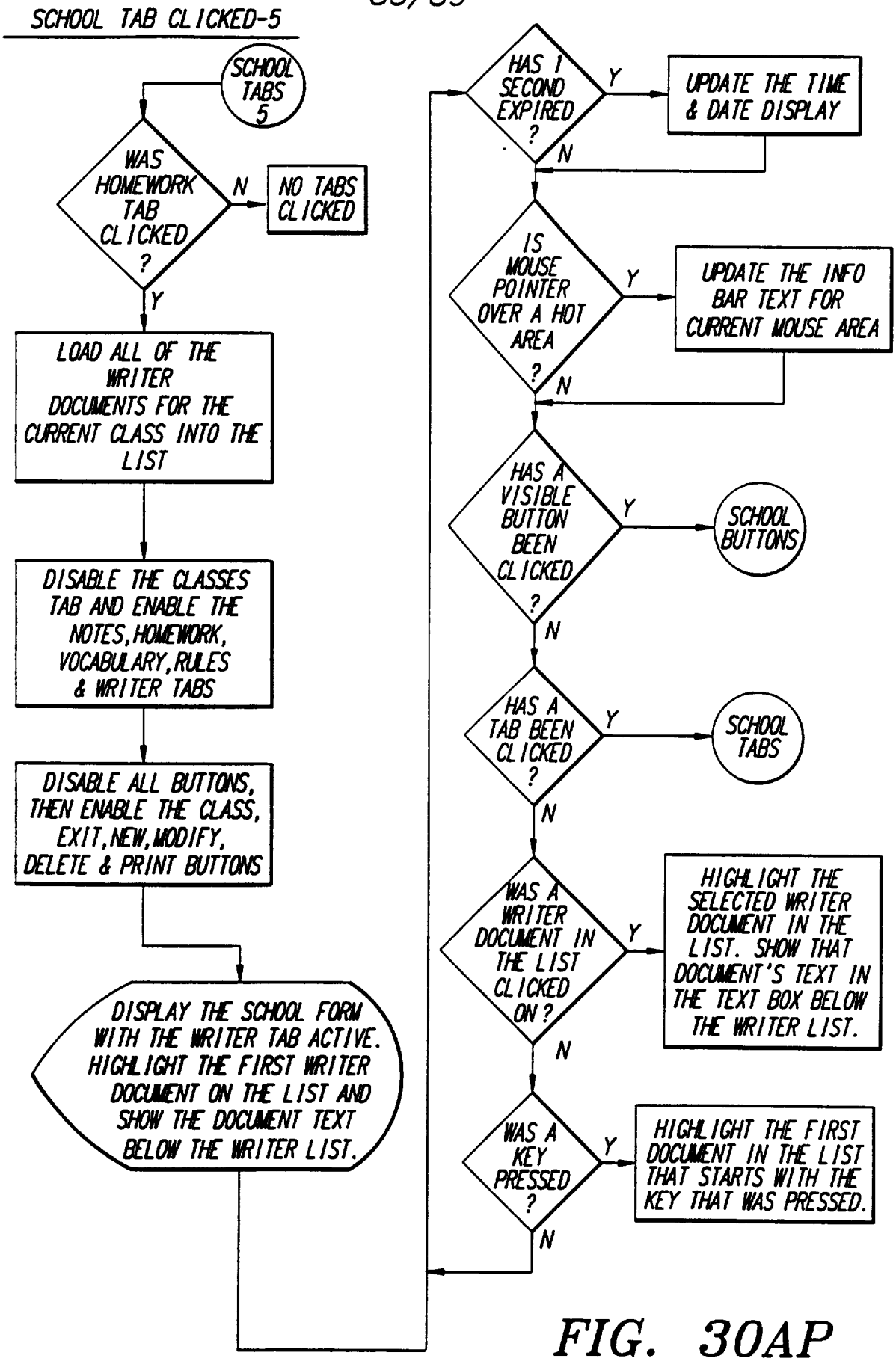

SCHOOL TAB CLICKED-5
SCHOOL TABS 5
WAS HOMEWORK TAB CLICKED ?
N
NO TABS CLICKED
Y
LOAD ALL OF THE WRITER DOCUMENTS FOR THE CURRENT CLASS INTO THE LIST
DISABLE THE CLASSES TAB AND ENABLE THE NOTES, HOMEWORK, VOCABULARY, RULES & WRITER TABS
DISABLE ALL BUTTONS, THEN ENABLE THE CLASS, EXIT, NEW, MODIFY, DELETE & PRINT BUTTONS
DISPLAY THE SCHOOL FORM WITH THE WRITER TAB ACTIVE. HIGHLIGHT THE FIRST WRITER DOCUMENT ON THE LIST AND SHOW THE DOCUMENT TEXT BELOW THE WRITER LIST.
HAS 1 SECOND EXPIRED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE AREA
N
HAS A VISIBLE BUTTON BEEN CLICKED ?
Y
SCHOOL BUTTONS
N
HAS A TAB BEEN CLICKED ?
Y
SCHOOL TABS
N
WAS A WRITER DOCUMENT IN THE LIST CLICKED ON ?
Y
HIGHLIGHT THE SELECTED WRITER DOCUMENT IN THE LIST. SHOW THAT DOCUMENT'S TEXT IN THE TEXT BOX BELOW THE WRITER LIST.
N
WAS A KEY PRESSED ?
Y
HIGHLIGHT THE FIRST DOCUMENT IN THE LIST THAT STARTS WITH THE KEY THAT WAS PRESSED.
N

FIG. 30AP

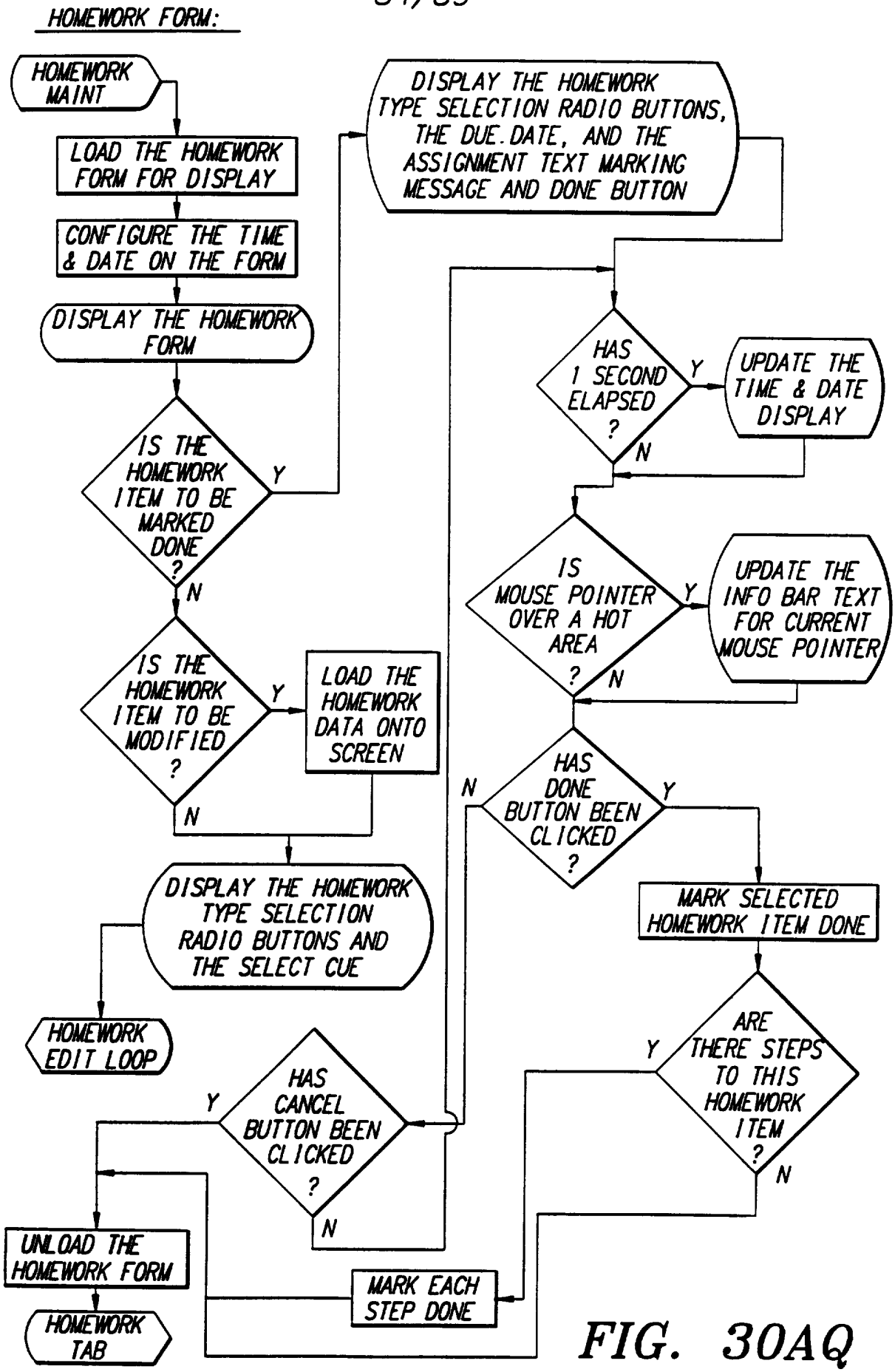

HOMEWORK FORM:
HOMEWORK MAINT
LOAD THE HOMEWORK FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE HOMEWORK FORM
IS THE HOMEWORK ITEM TO BE MARKED DONE ?
Y
N
DISPLAY THE HOMEWORK TYPE SELECTION RADIO BUTTONS, THE DUE.DATE, AND THE ASSIGNMENT TEXT MARKING MESSAGE AND DONE BUTTON
IS THE HOMEWORK ITEM TO BE MODIFIED ?
Y
N
LOAD THE HOMEWORK DATA ONTO SCREEN
DISPLAY THE HOMEWORK TYPE SELECTION RADIO BUTTONS AND THE SELECT CUE
HOMEWORK EDIT LOOP
HAS 1 SECOND ELAPSED ?
Y
N
UPDATE THE TIME & DATE DISPLAY
IS MOUSE POINTER OVER A HOT AREA ?
Y
N
UPDATE THE INFO BAR TEXT FOR CURRENT MOUSE POINTER
HAS DONE BUTTON BEEN CLICKED ?
N
Y
MARK SELECTED HOMEWORK ITEM DONE
ARE THERE STEPS TO THIS HOMEWORK ITEM ?
Y
N
HAS CANCEL BUTTON BEEN CLICKED ?
Y
N
MARK EACH STEP DONE
UNLOAD THE HOMEWORK FORM
HOMEWORK TAB

FIG. 30AQ

HOMEWORK FORM (CONT'D)

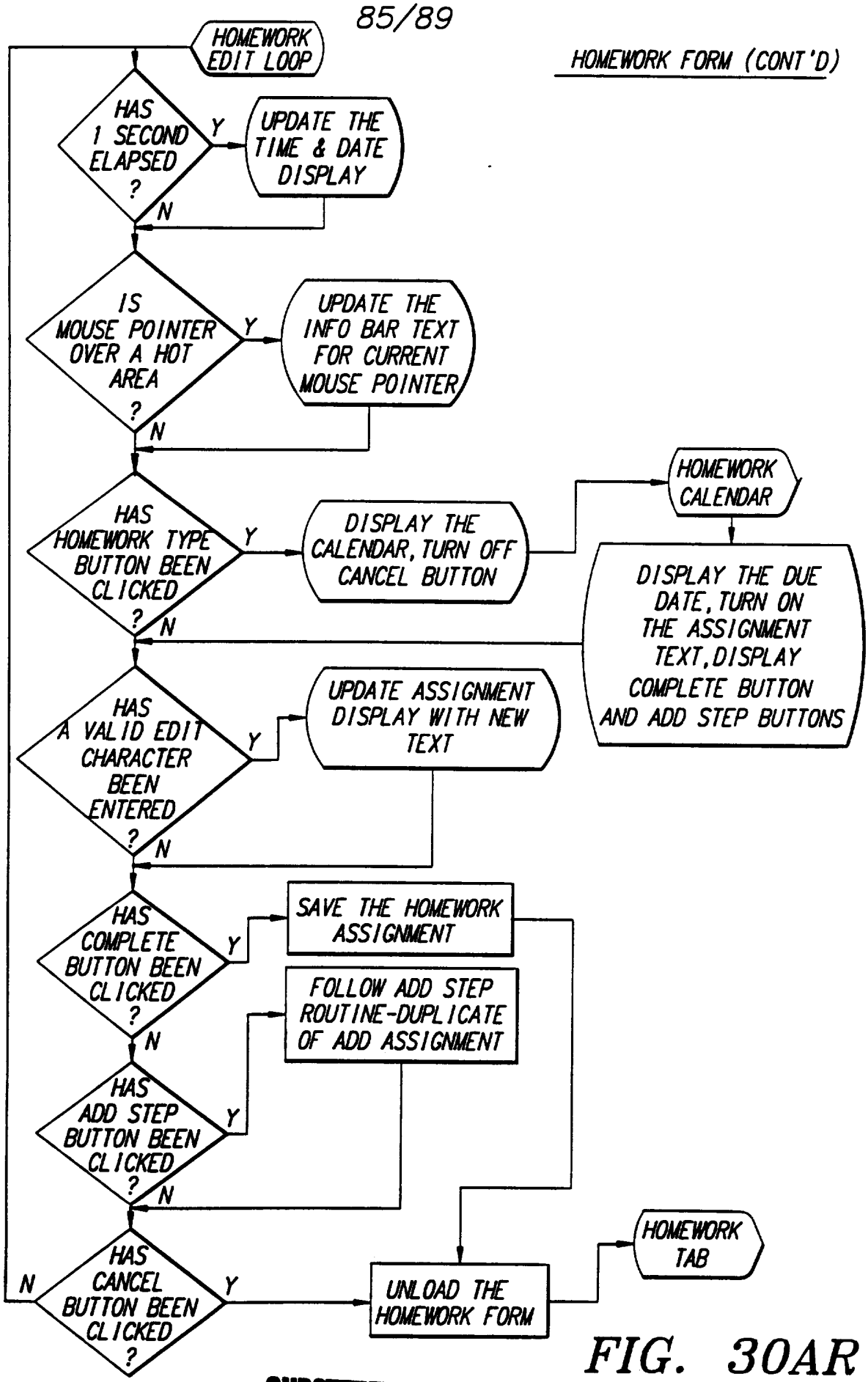


FIG. 30AR

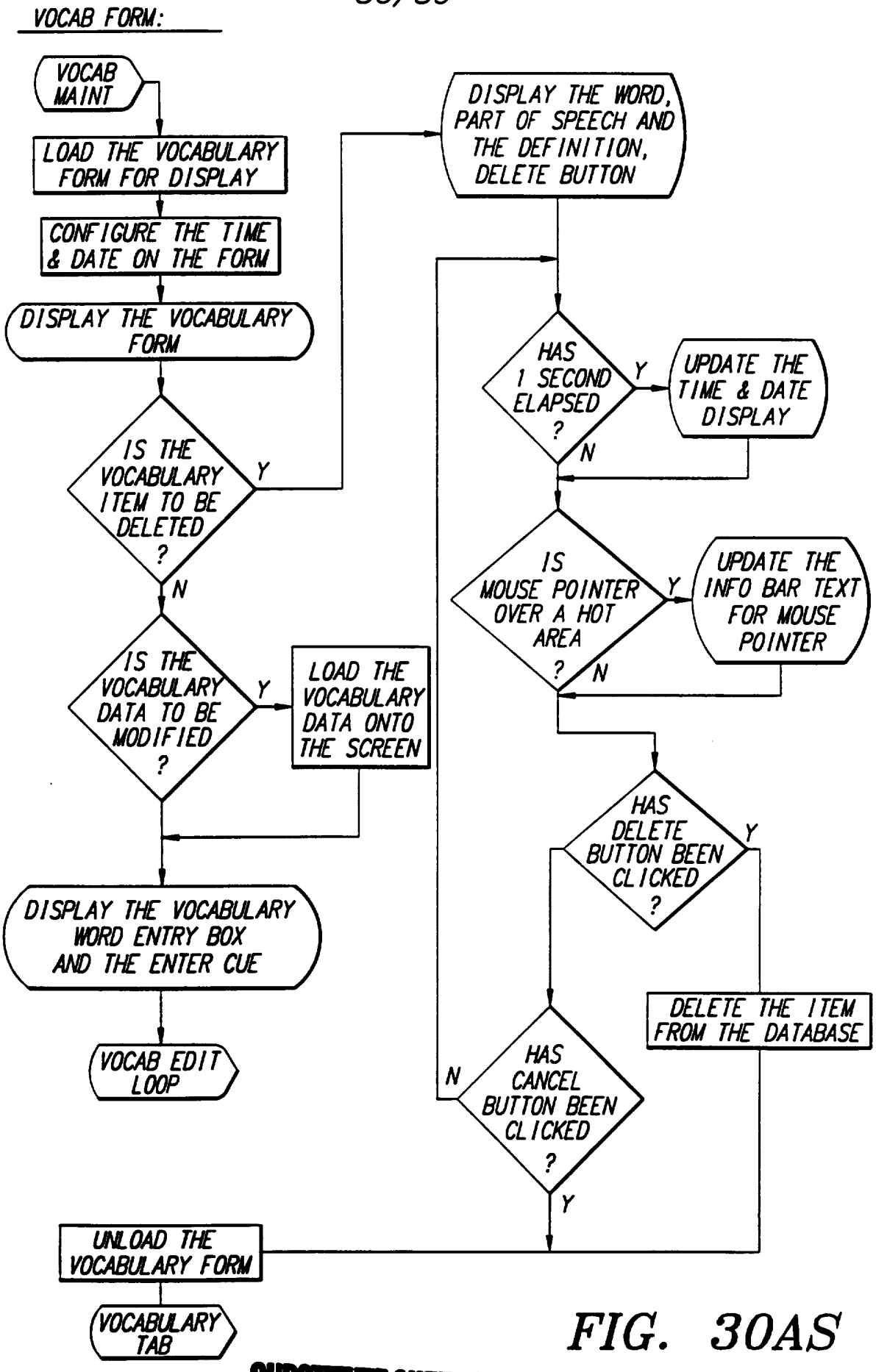

VOCAB FORM:
VOCAB MAINT
LOAD THE VOCABULARY FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE VOCABULARY FORM
IS THE VOCABULARY ITEM TO BE DELETED ?
Y
N
IS THE VOCABULARY DATA TO BE MODIFIED ?
Y
LOAD THE VOCABULARY DATA ONTO THE SCREEN
DISPLAY THE VOCABULARY WORD ENTRY BOX AND THE ENTER CUE
VOCAB EDIT LOOP
DISPLAY THE WORD, PART OF SPEECH AND THE DEFINITION, DELETE BUTTON
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR MOUSE POINTER
N
HAS DELETE BUTTON BEEN CLICKED ?
Y
DELETE THE ITEM FROM THE DATABASE
HAS CANCEL BUTTON BEEN CLICKED ?
N
Y
UNLOAD THE VOCABULARY FORM
VOCABULARY TAB

FIG. 30AS

VOCABULARY FORM (CONT'D)

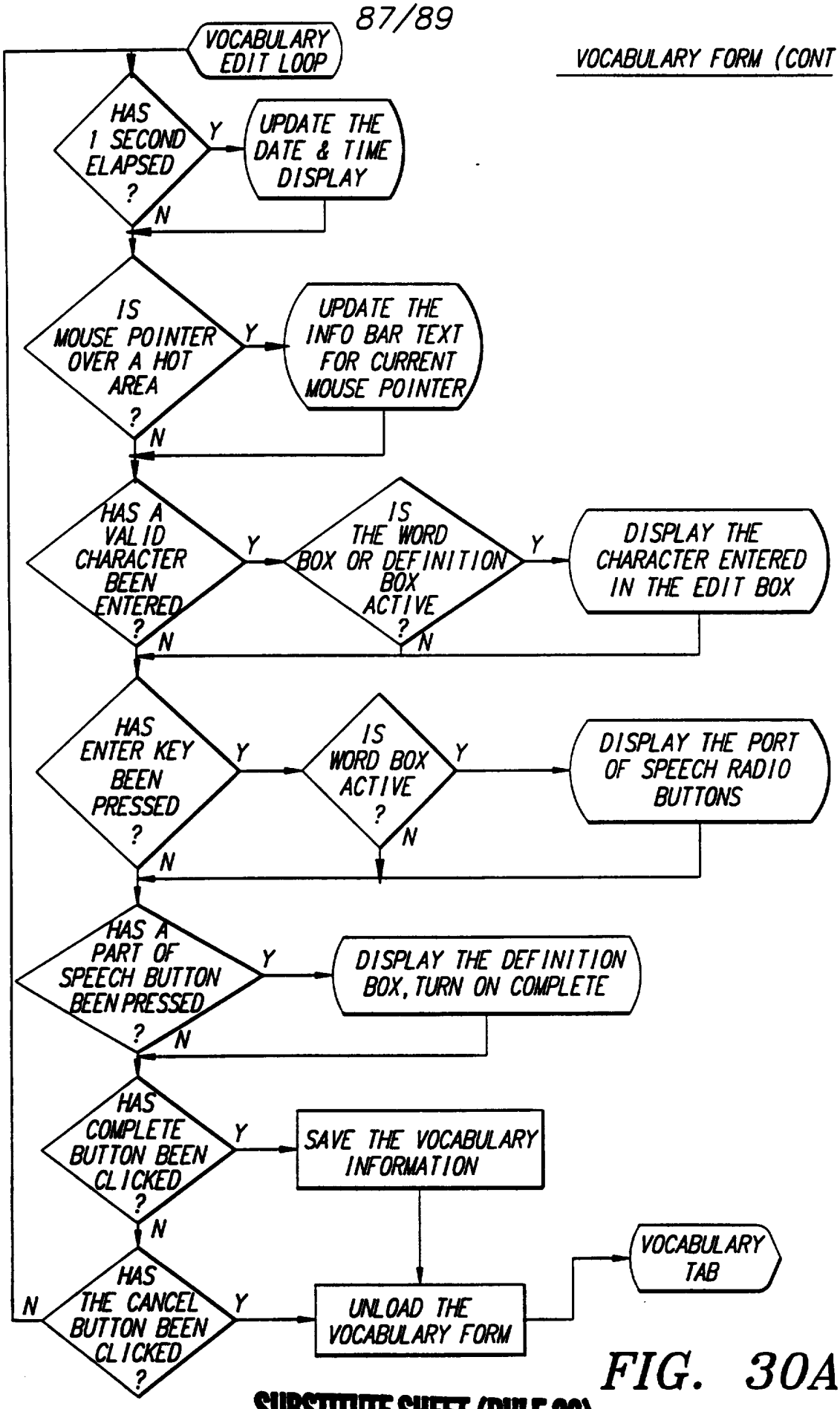


FIG. 30AT

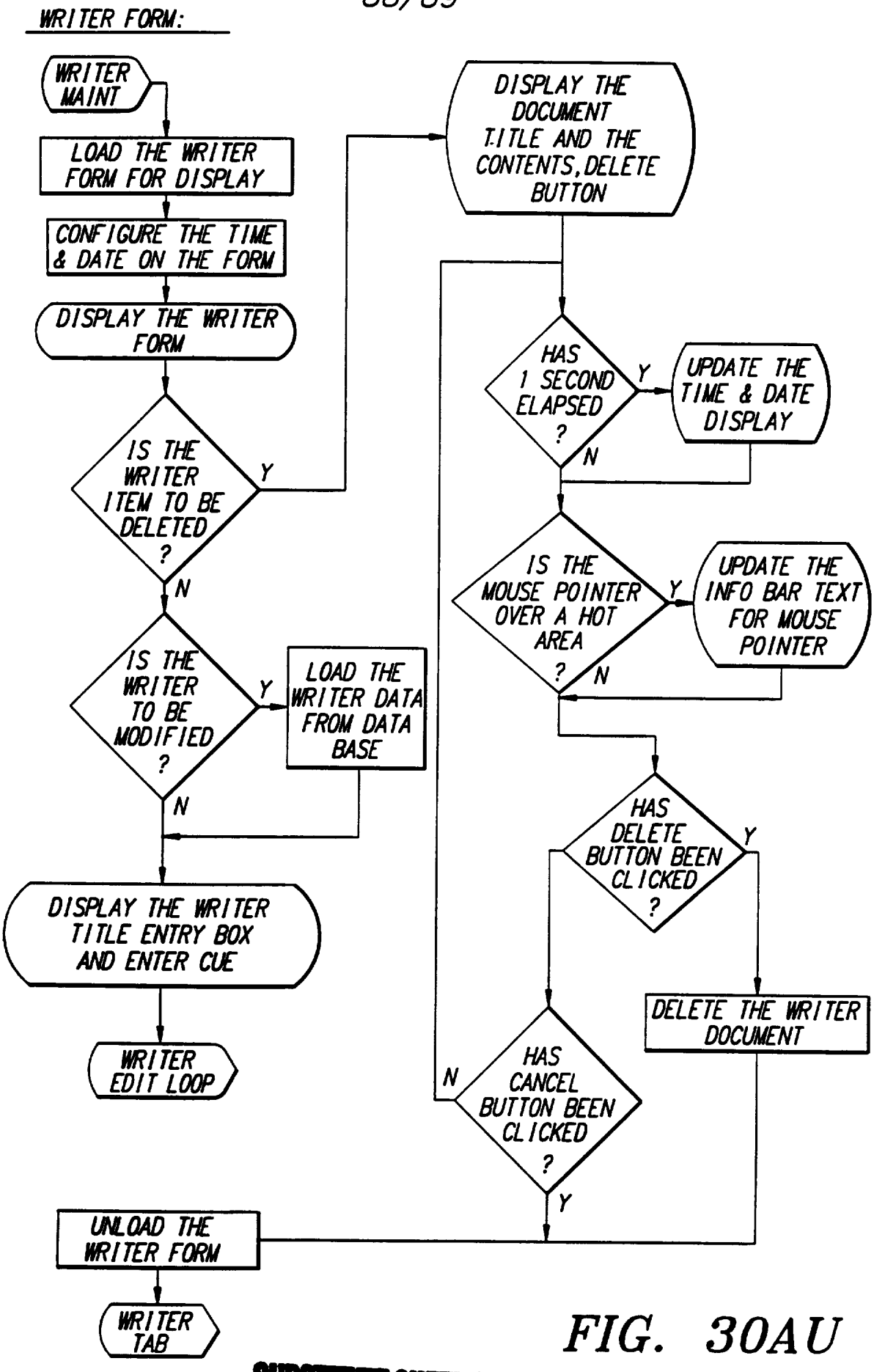

WRITER FORM:
WRITER MAINT
LOAD THE WRITER FORM FOR DISPLAY
CONFIGURE THE TIME & DATE ON THE FORM
DISPLAY THE WRITER FORM
IS THE WRITER ITEM TO BE DELETED ?
Y
N
IS THE WRITER TO BE MODIFIED ?
Y
LOAD THE WRITER DATA FROM DATA BASE
N
DISPLAY THE WRITER TITLE ENTRY BOX AND ENTER CUE
WRITER EDIT LOOP
DISPLAY THE DOCUMENT TITLE AND THE CONTENTS, DELETE BUTTON
HAS 1 SECOND ELAPSED ?
Y
UPDATE THE TIME & DATE DISPLAY
N
IS THE MOUSE POINTER OVER A HOT AREA ?
Y
UPDATE THE INFO BAR TEXT FOR MOUSE POINTER
N
HAS DELETE BUTTON BEEN CLICKED ?
Y
DELETE THE WRITER DOCUMENT
HAS CANCEL BUTTON BEEN CLICKED ?
N
Y
UNLOAD THE WRITER FORM
WRITER TAB

FIG. 30AU

WRITER FORM(CONT'D)

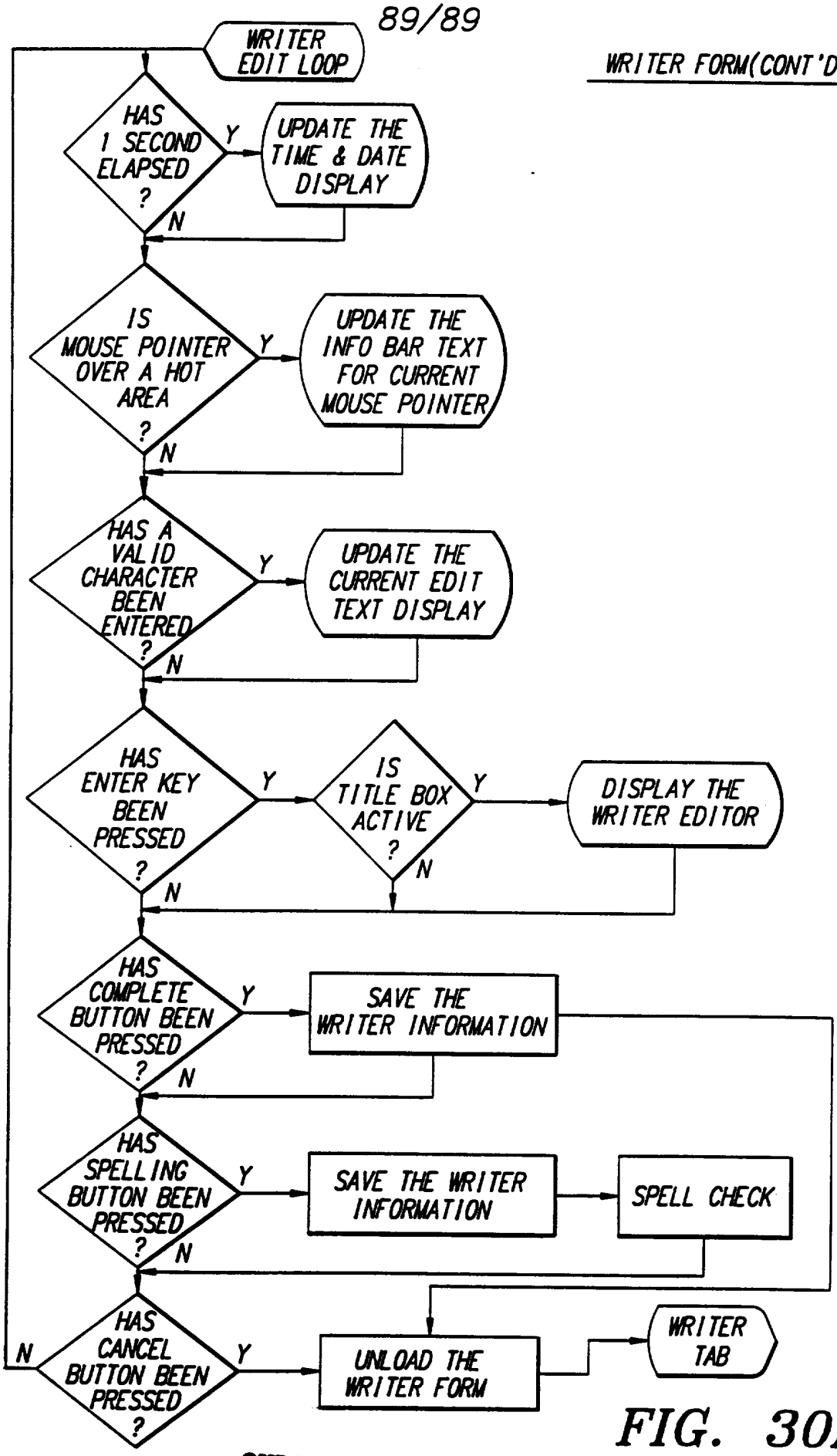


FIG. 30AV

INTERNATIONAL SEARCH REPORT

Internatio: .pplication No
PCT/US 96/00549

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G09B7/04 G09B5/14 G06F3/033 G06F17/60 A61F4/00

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G09B G06F A61F

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,5 302 132 (CORDER PAUL R) 12 April 1994 see the whole document	1,2
A		9,14,15, 19

Y	US,A,5 349 658 (O'ROURKE THOMAS C ET AL) 20 September 1994 see the whole document	1,2

P,Y	US,A,5 393 236 (BLACKMER ELIZABETH R ET AL) 28 February 1995 see the whole document	1,2
A		9,14,15, 19

	-/--	

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

1

Date of the actual completion of the international search	Date of mailing of the international search report
8 May 1996	24. 05. 96

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Gorun, M

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y	US,A,5 421 730 (LASKER III HARRY M ET AL) 6 June 1995 see the whole document	1,2
A		10,15, 18,19

Y	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 36, no. 4, 1 April 1993, NY;US, pages 433-435, XP000364571 "AUTOMATED MOUSE POINTER MOVEMENT FUNCTION" see page 434, paragraph 2 - page 434, column 3; figure 1	1,2
A		6,9

A	US,A,5 169 342 (STEELE RICHARD D ET AL) 8 December 1992 see the whole document	1

A	EP,A,0 542 660 (IBM) 19 May 1993 see the whole document	1,31

A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 11, 1 November 1994, NY;US, page 515 XP000487321 "SPACE/TIME SAVING REFERENCE MONTH"	1,31

A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 04a, April 1994, NY;US, pages 299-300, XP000446677 "REPULSIVE POINTER GRAB WITH HIDE AND LOWER CHARACTERISTICS" see figure 1	1

1

INTERNATIONAL SEARCH REPORT

Internati· Application No
PCT/US 96/00549

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-5302132	12-04-94	US-A- 5387104	07-02-95
US-A-5349658	20-09-94	NONE	
US-A-5393236	28-02-95	NONE	
US-A-5421730	06-06-95	NONE	
US-A-5169342	08-12-92	NONE	
EP-A-0542660	19-05-93	US-A- 5365360	15-11-94
		CA-A- 2071299	16-05-93
		CN-B- 1030804	24-01-96
		JP-A- 5224870	03-09-93
		JP-B- 7117890	18-12-95