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(54) **DUAL SCREEN LAPTOP COMPUTER**

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(57) **ABSTRACT**

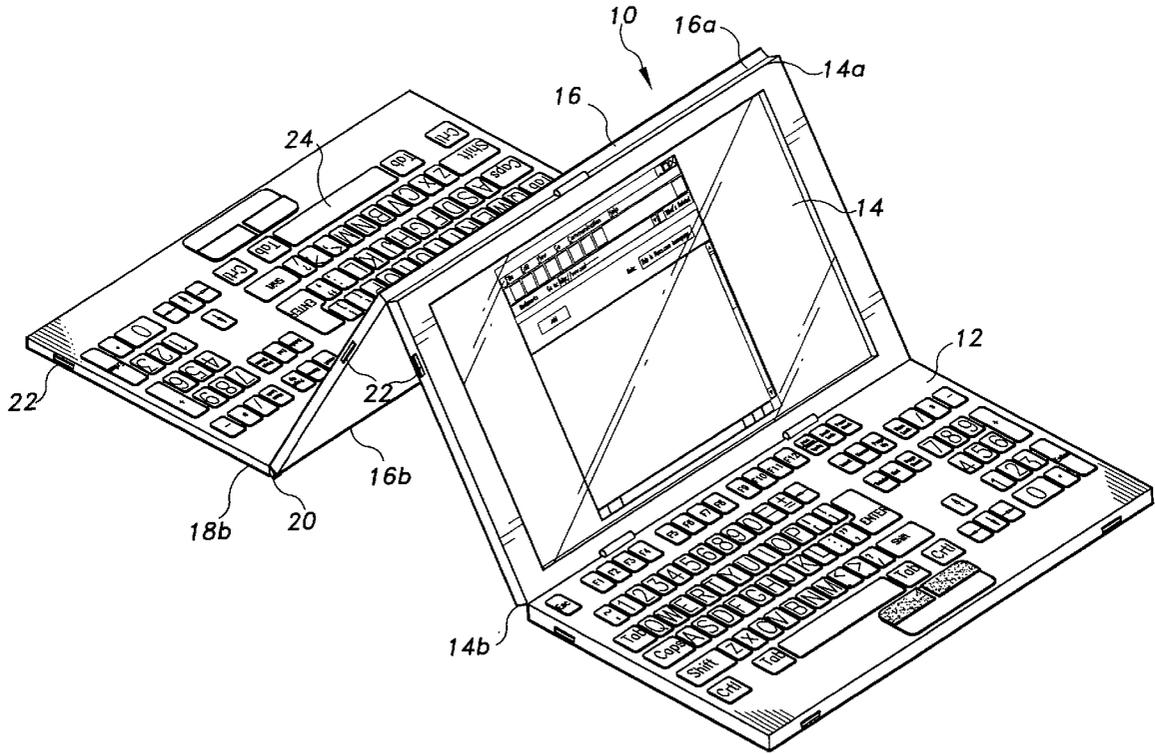
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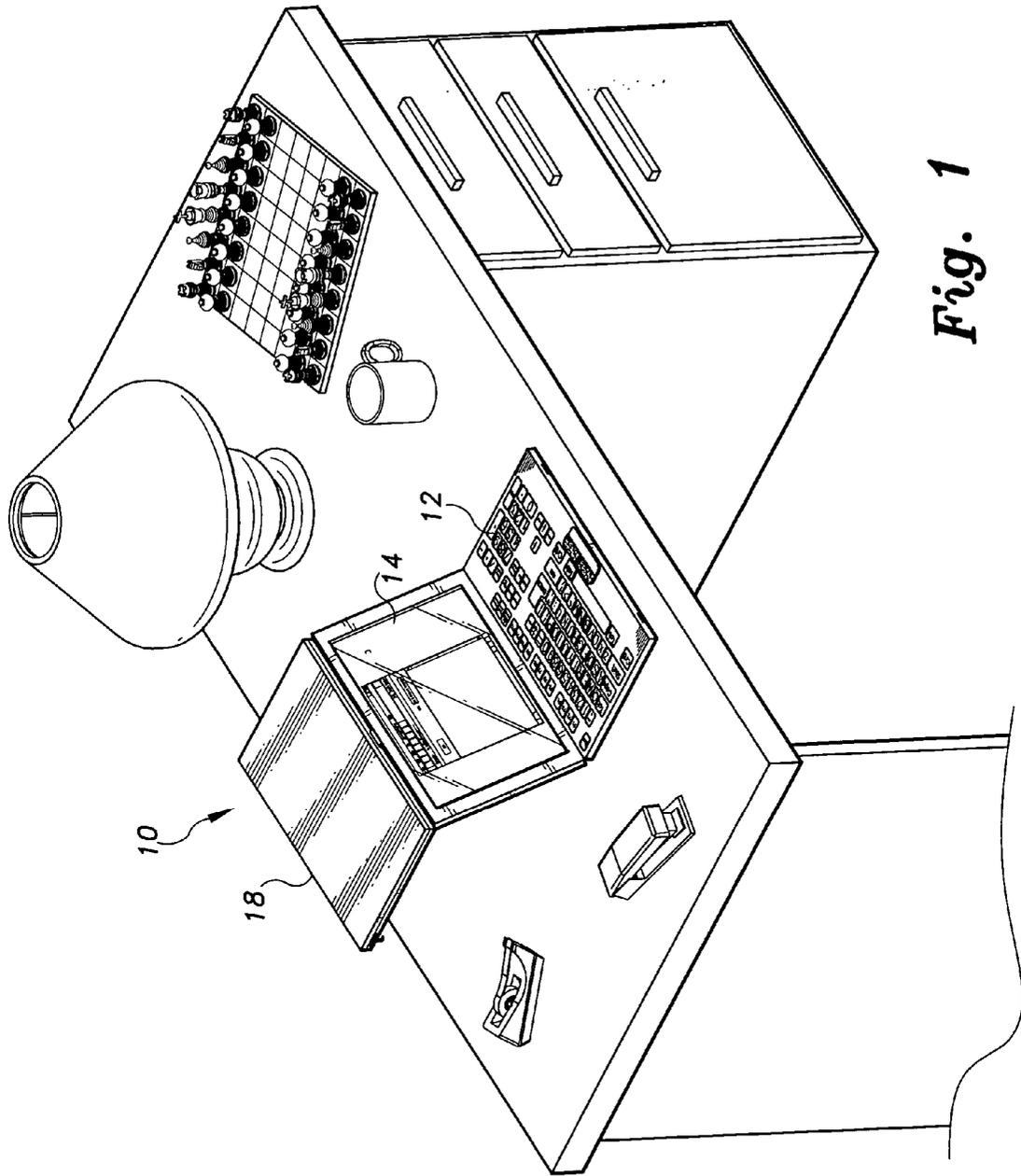
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Related U.S. Application Data

(63) Continuation-in-part of application No. 10/058,754,
filed on Jan. 30, 2002, now Pat. No. 6,667,878.

A laptop or notebook computer which employs first and second display screens coupled electronically to display identical images at the same time. The dual screen capability is ideal for business presentations, instruction and other like uses. The two screens are mechanically coupled to each other and to the computer in a manner that allows the three elements to be collapsed into a compact unit.





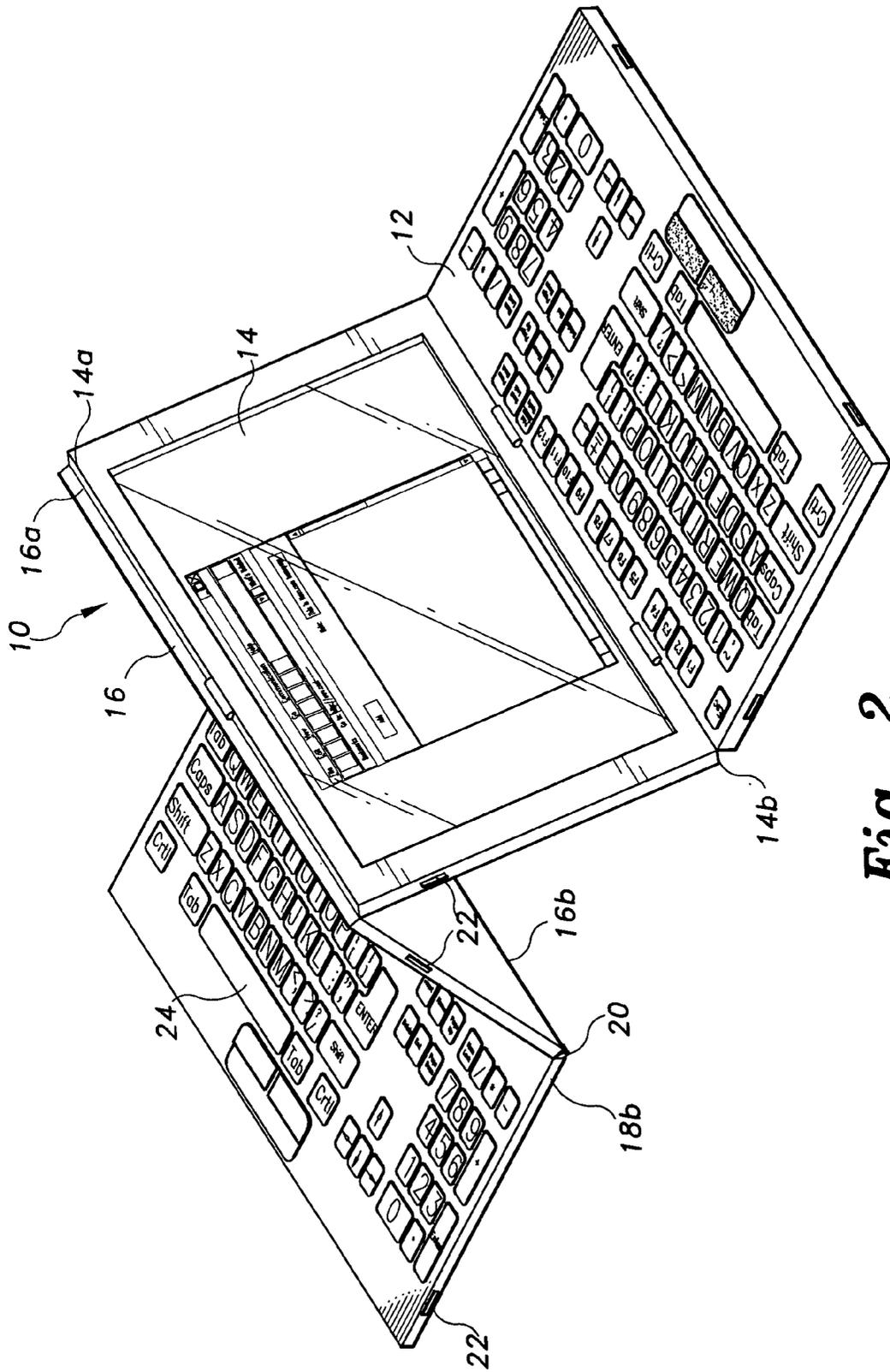


Fig. 2

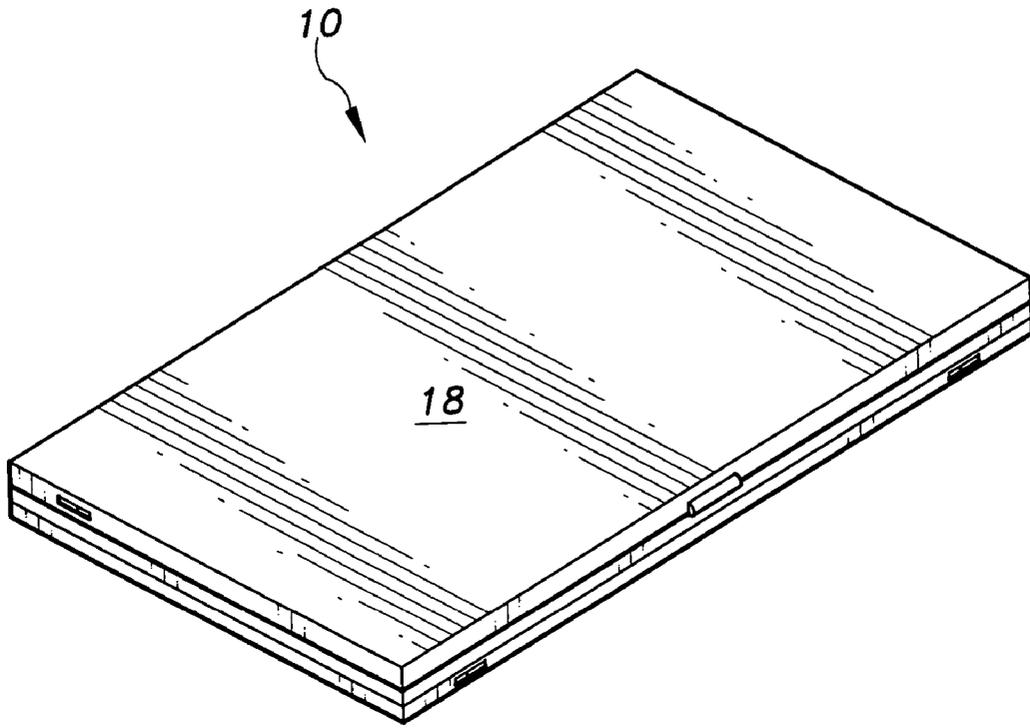


Fig. 3

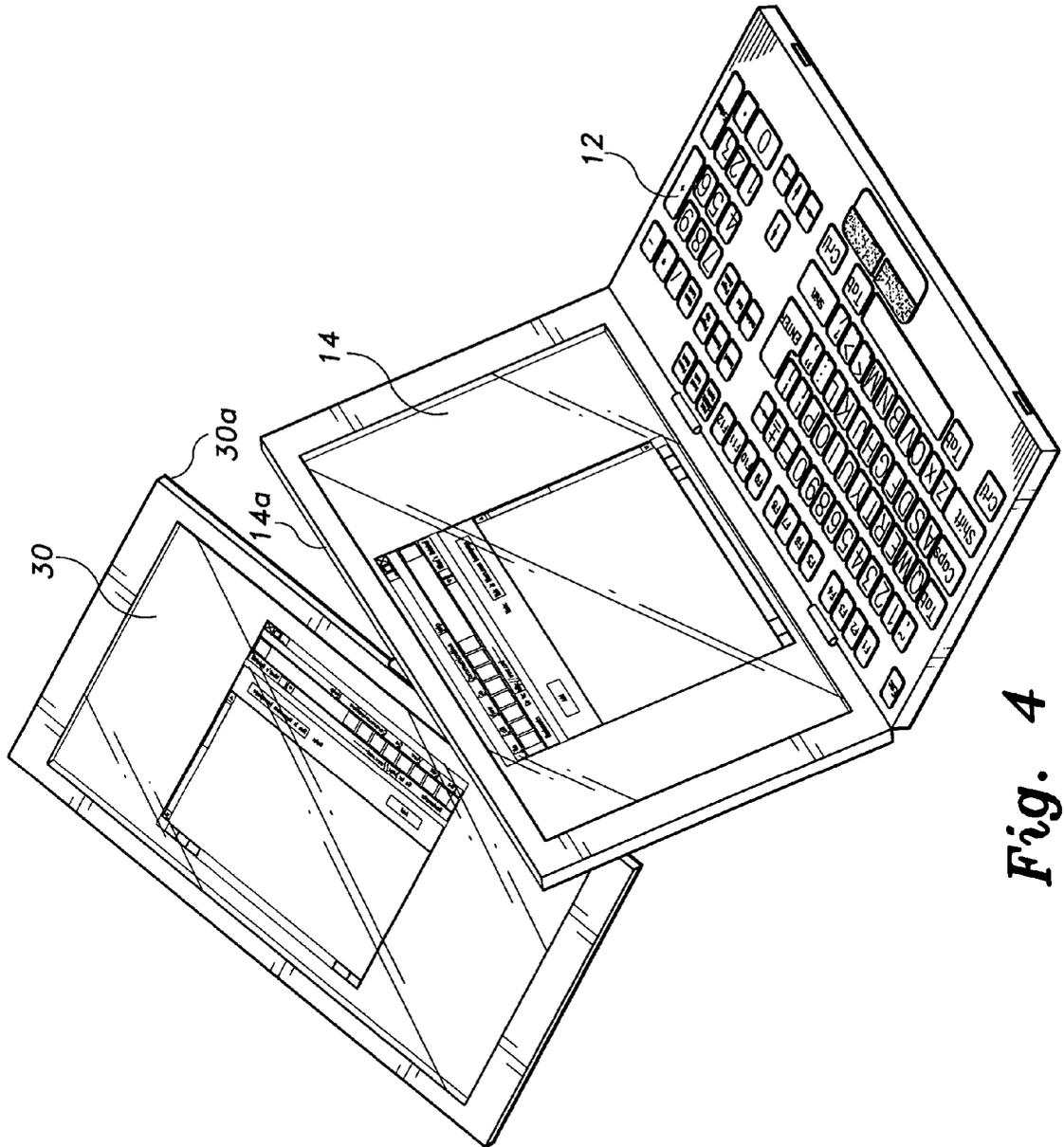


Fig. 4

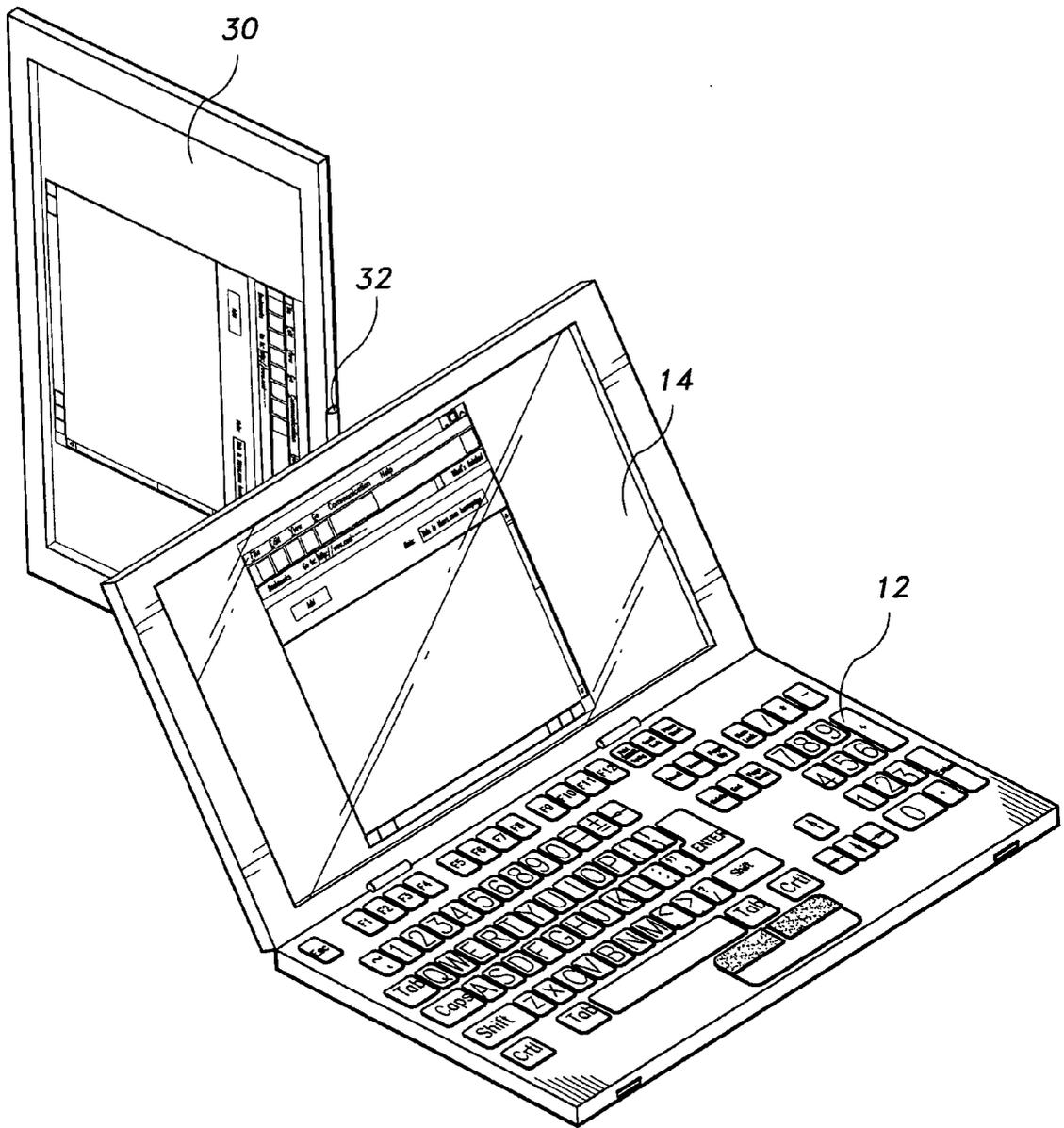


Fig. 5

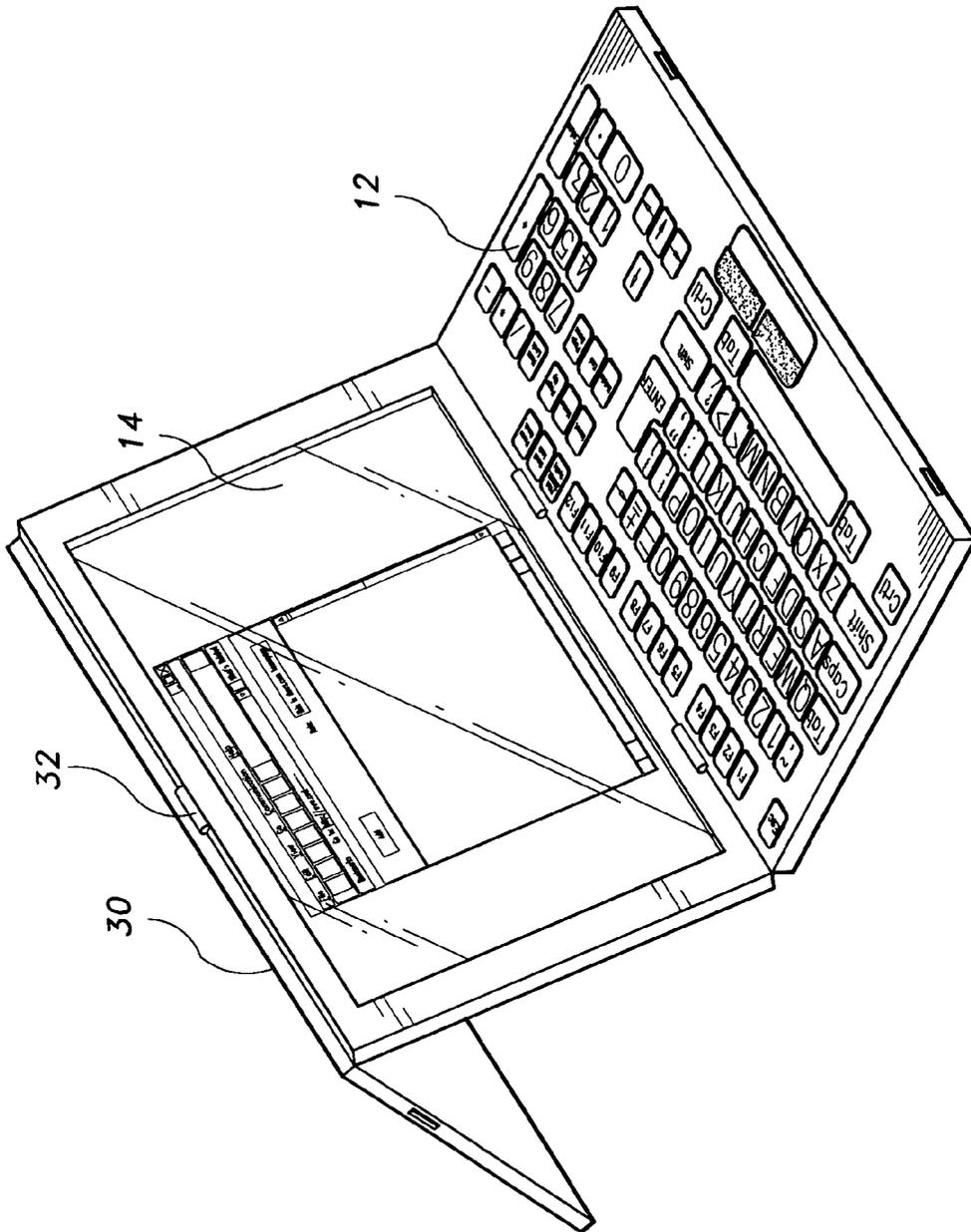


Fig. 6

DUAL SCREEN LAPTOP COMPUTER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of application Ser. No. 10/058,754 filed Jan. 30, 2002 and now pending.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention generally relates to display systems.

[0004] More specifically, the present invention is drawn to a notebook computer having dual display screens.

[0005] 2. Description of the Related Art

[0006] Most personal computers (PCs) of the notebook size employ a single, flat screen to display graphics and/or data thereon.

[0007] The single screen is adequate if only the person at the computer keyboard is viewing. However, there are many instances (business conferences, instruction, etc.) where it is necessary that the screen must be viewed by more than one person. In such instances the additional person(s) must watch the single screen from behind and over the head of the person at the keyboard or must assume a position at the side and view the screen from an angle. Either scenario would prevent the additional person(s) from having a clear, undistorted view of the screen. A reliable, compact, protected, multi-screen notebook computer would certainly be a welcome addition to the art.

[0008] There are computers in the related art that employ dual screens. For example, U.S. Pat. No. 5,796,577 (Ouchi et al.), U.S. Pat. No. 5,900,848 (Haneda et al.), U.S. Pat. No. 6,094,341 (Lin), U.S. Pat. No. 6,295,038 B1 (Rebeske), U.S. Pat. No. 6,532,146 B1 (Duquette) and Application Publication 2002/0109662 A1 (Miller) disclose notebook computers with dual screens. It is noted that none of the patentees contemplate providing dual keyboards and a unique protective cover for the secondary screen except for the protection which might be afforded by the lid of a cumbersome carrying case.

[0009] U.S. Pat. No. 5,768,096 (Williams et al.) shows display panels which move into and out of a viewing position. The panels of the patent form a concatenated display screen when in the viewing position rather than an opposed display as contemplated in the instant invention.

[0010] U.S. Pat. No. 5,687,939 (Moscovitch) discloses a dual display system supported on an arm, which arm functions to move the displays in vertical or horizontal registration. There is no provision for incorporating the dual displays in a notebook computer or in providing a protective cover for one of the display screens.

[0011] U.S. Pat. No. 5,673,170 (Register) is drawn to a secondary display adapted to be mounted to the monitor of a desktop computer. The patentee does not contemplate a protective cover for the secondary display.

[0012] U.S. Patent Publication No. 2002/0173965 (Curry et al.) is drawn to a dual screen communicator system having dual keyboards. There appears to be no protective cover for the screens.

[0013] None of the above inventions and patents, taken either singly or in combination, is seen to disclose a double screen notebook computer having a protective cover for the secondary screen and unique unfolding and collapsing means as will subsequently be described and claimed in the instant invention.

SUMMARY OF THE INVENTION

[0014] The instant invention, to be dubbed the "A-Screen", is a laptop or notebook computer which employs first and second display screens coupled electronically to display identical images at the same time. The dual screen capability is ideal for business presentations, instruction and other like uses.

[0015] The two screens are mechanically coupled to each other and to the computer in a manner that allows the three elements to be uniquely collapsed into a compact unit. The secondary screen is arranged in a manner to be protected when the computer is closed.

[0016] Accordingly, it is a principal object of the invention to provide a notebook or laptop computer having a dual display, which dual display is arranged to be viewed from opposite directions.

[0017] It is a further object of the invention to provide a notebook or laptop computer having a dual display, wherein the screens of the dual display are connected for unique and easy collapsing.

[0018] It is an object of the invention to provide improved elements and arrangements thereof for the purposes described which are inexpensive, dependable and fully effective in accomplishing their intended purposes.

[0019] These and other objects of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] FIG. 1 is an environmental, perspective view of a first embodiment of a dual screen notebook computer in a partial open position according to the present invention.

[0021] FIG. 2 is a perspective view of a first embodiment of a dual screen laptop computer in a fully open position according to the present invention.

[0022] FIG. 3 is a perspective view of a dual screen laptop computer in a completely closed position according to the present invention.

[0023] FIG. 4 is a perspective view of a second embodiment of a dual screen laptop computer in an intermediate open position according to the present invention.

[0024] FIG. 5 is a perspective view of a second embodiment of a dual screen laptop computer in an open intermediate position according to the present invention.

[0025] FIG. 6 is a perspective view of a second embodiment of a dual screen laptop computer in a fully open position according to the present invention.

[0026] Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE
PREFERRED EMBODIMENTS

[0027] Attention is first directed to FIGS. 1-3 wherein a first embodiment of the notebook or laptop computer of the instant invention is indicated generally at 10. The computer comprises a standard keyboard 12 and a primary viewing screen 14, which screen is hinged at its bottom 14b to the top of keyboard 12 in a conventional manner. A secondary screen 16 has a top edge 16a hinged to the top edge 14a of screen 14. A secondary screen cover member 18 is hinged at a bottom edge 18b to the bottom edge 16b of secondary screen 16. The hinged arrangement is such that the keyboard, two screens and cover may be collapsed from the fully open position as shown in FIG. 2 to a completely closed position as shown in FIG. 3.

[0028] FIG. 1 is illustrative of a partially open position before cover member 18 is unfolded. The hinges are not part of the invention, per se, and may be chosen from a variety of suitable, conventional hinge structure available in the marketplace. Lockable rubber legs 20 are disposed at edge 16b to provide support for secondary screen 16 and cover 18. A touch pad keyboard 24 is disposed on the inner surface of cover 18. This arrangement allows users to have full computer capability at both the primary and secondary screens. Screens 14 and 16 are of the liquid crystal type and as indicated above, will allow simultaneous displays on each screen. Quick-release locks 22 may be disposed on both sides of the two screens so that the two screens may be easily locked and unlocked.

[0029] Attention is now directed to FIGS. 4-6 wherein a second embodiment of the invention is generally illustrated. A secondary screen 30 is attached at its top edge 30a to the top edge 14a of primary screen 14. The means for attachment is in the form of a rotating and pivoting mechanism 32 positioned at the center of edges 14a and 30a, which mechanism 32 is capable of both pivoting and three hundred sixty degree rotational motion. In a closed or collapsed position secondary screen 30 is disposed so that it abuts the rear surface of primary screen 14.

[0030] Intermediate stages are illustrated in FIGS. 4 and 5 as the secondary screen 30 is unfolded and rotated. FIG. 6 shows the positioning after the screens have been fully opened. This unique arrangement permits a quick and easy setup while affording maximum protection for both screens when the computer is collapsed. Secondary screen 30 is of the liquid crystal type. Cords (not shown) are provided to electronically connect screens of both embodiments the computer keyboard(s).

[0031] It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

I claim:

1. A notebook computer, comprising:

- a computer keyboard, said keyboard having a top end;
- a primary screen, said primary screen having a top edge, a bottom edge and a pair of side edges;
- first hinges for pivotally attaching the bottom edge of said primary screen to the top end of said keyboard;

a secondary screen, said secondary screen having a top edge, bottom edge and a pair of side edges;

second hinges for attaching said top edge of said secondary screen to said top edge of said primary screen;

a cover member for removably covering said secondary screen, said cover member having an outer face and an inner face; and

a touch keypad disposed on said inner face of said cover member.

2. The notebook computer as recited in claim 1, wherein said cover member has a first edge and wherein said first edge is hinged to the bottom edge of said secondary screen.

3. The notebook computer as recited in claim 1, further including quick-release locks positioned on the side edges of said primary screen and said secondary screen, whereby said primary and secondary screens may be fastened together.

4. The notebook computer as recited in claim 1, further including rubber legs disposed on said bottom edge of said secondary screen whereby the edge of said secondary screen can be supported on a planar surface.

5. A notebook computer comprising:

a computer keyboard, said keyboard having a top end;

a primary screen, said primary screen having a top edge, a bottom edge and a pair of side edges;

first hinges for pivotally attaching the bottom edge of said primary screen to the top end of said keyboard;

a secondary screen, said secondary screen having a top edge, a bottom edge and a pair of side edges;

second hinges for attaching said top edge of said secondary screen to said top edge of said primary screen;

a cover member for removably covering said secondary screen, said cover member having an outer face and an inner face; and a first edge and wherein said first edge is hinged to the bottom edge of said secondary screen;

quick-release locks positioned on the side edges of said primary screen and said secondary screen, whereby said primary and secondary screens may be fastened together;

rubber legs disposed on said bottom edge of said secondary screen whereby the edge of said secondary screen can be supported on a planar surface; and

a touch keypad disposed on said inner face of said cover member.

6. A notebook computer comprising:

a computer keyboard, said keyboard having a top end;

a primary screen, said primary screen having a top edge, a bottom edge and a pair of side edges;

hinges for pivotally attaching the bottom edge of said primary screen to the top end of said keyboard;

a secondary screen, said secondary screen having a top edge, a bottom edge and a pair of side edges;

means for attaching said top edge of said secondary screen to said top edge of said primary screen whereby said secondary screen is pivotally and rotationally movable relative to said primary screen.

7. The notebook computer as recited in claim 6, wherein said top edge of said primary screen and said top edge of said secondary screen have central areas and wherein said means

is attached to said primary screen and said secondary screen at said central areas.

8. The notebook computer as recited in claim 7, wherein said means is a combination pivoting and rotating mechanism.

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