

above. For example, similar to the operation of window frame style 1 described above and described with reference to FIGS. 3A-3C, FIGS. 8A-8C illustrate how the width and/or the height of window 20 may be controlled utilizing three points of contact (e.g., fingers f1, f2 and f3). As shown in FIG. 8A, finger f1 initially is disposed on one edge of inner frame 22, and fingers f2 and f3 are then disposed on the opposite edge of inner frame 22 in order to trigger 3-point of contact control of the window. The width of window 20 increases (or decreases) with the horizontal movement of finger f1. As particularly shown in FIG. 8A, finger f1 moves from contact point Q1 to contact point Q2, thereby causing the right edge of window 20 to extend to contact point Q2, such as shown in FIG. 8B. Moving fingers f2 and f3 horizontally similarly controls the horizontal position of that edge. Like the embodiment of window style 1, a variation encompasses placing two fingers on the same edge to lock that edge in position, so that only the opposite edge moves horizontally when the finger contacting that edge of the inner frame 22 (e.g., finger f1) moves horizontally. In another variation, the edge on which a single finger is contacting is locked in position, with the horizontal position of the opposite edge being controlled by the other two fingers.

[0104] Height control of the window similarly is achieved, along with the variations mentioned above, by employing three contact points on the inner frame 22 of the upper and lower edges of the window 20.

[0105] In a further variation, spreading of fingers f2 and f3 apart (or moving together) from contact points R1 and S1, respectively, as shown in FIG. 8A, to contact points R2 and S2, as shown in FIG. 8C, controls the window's height to increase (or decrease) in proportion to the proportional increase (or decrease) in the distance between the fingers f2 and f3. Other variations mentioned above also may be employed.

[0106] In each of the embodiments and variations mentioned above, moving the window frame and/or increasing the size of the window frame (vertically and/or horizontally) and/or decreasing the size of the window frame (vertically and/or horizontally) is carried out by the use of one, two, three or four points of contact, where such window movement and/or window change does not cause any movement or change in size of the picture or image displayed within the frame relative to the display device.

[0107] In accordance with the present invention, window frame style 4 further provides user movement and/or size (and rotation) control of the image displayed within the window by employing, that is, contacting, the window's outer frame 24. In particular, in each of the embodiments and variations described herein, initial placement of the contact point or contact points on the window's outer frame 24 locks the window frame and the content displayed therein together so that both window and content position and size are together controlled by the subsequent movement of one or more contact points. For example, FIGS. 9A-9C schematically illustrate controlling window 20 and content 26 therein by initially contacting (e.g., with fingers f1, f2 and f3) the outer frame 24 of window 20. As shown in FIG. 9A, finger f1 contacts one edge of outer frame 24, and fingers f2 and f3 contact the opposite edge of outer frame 24, thus locking the window frame and content therein together. Moving finger f1 from contact point T1 to contact point T2 controls both window 20

and image 26 displayed therein to stretch, thus producing image 26' displayed within the enlarged window, as schematically shown in FIG. 9B.

[0108] Furthermore, spreading of fingers f2 and f3 apart (or moving together) from contact points U1 and V1, respectively, as shown in FIG. 9A, to contact points U2 and V2, as shown in FIG. 9C, stretches (or shrinks) together both the window frame and content therein in proportion to the proportional increase (or decrease) in the distance between the fingers f2 and f3. As shown in FIG. 9C, image 26" corresponds to image 26 but enlarged, or stretched, together with the enlarged window frame 20.

[0109] Each of the other forms of control, whether by one, two, three or four points of contact, as described herein, may be employed in manners consistent with the operation of window frame style 4, including rotational control of a window as previously discussed. Still yet, further variations may be employed. In one variation, the respective operations achieved when the inner and outer frames are contacted are reversed, whereby window control alone (i.e., the image displayed within the window is unaffected) is achieved by contacting the outer frame, and combined control of window and the image therein is achieved by contacting the inner frame.

[0110] In yet another variation, the position of the first point of contact establishes the type of window/image control to be carried out. That is, if the first contact point is on the window's inner frame, only window control is carried out regardless of whether the outer or inner frame is subsequently contacted by additional contact elements. Or, if the first contact point is on the window's outer frame, then the window and content therein are locked together regardless of whether the outer or inner frame is subsequently contacted by additional contact elements. For example, if fingers f1 and f2 initially contact outer window frame 24, and finger f3 subsequently contacts inner window frame 22, as shown in FIG. 10A, then window and content control is actuated. Moving finger f3 thus causes both window 20 and image 26 displayed therein to stretch, as shown in FIG. 10B.

[0111] In yet a further variation, the moving element establishes the type of control to be carried out. For example, FIG. 11A shows finger f1 contacting inner window frame 22 and fingers f1 and f2 contacting outer window frame 24. The particular order in which the fingers contacted the window does not impact the type of window control to be carried out. Instead, moving finger f1 controls the size of window 20, without changing the size of image 26, as shown in FIG. 11B since finger f1 initially contacted inner frame 22. Conversely, moving finger f2 and/or finger f3 controls the size of both window 20 and image 26, as shown in FIG. 11C, since fingers f2 and f3 initially contacted outer frame 24.

[0112] In the embodiments and variations described herein in which content size is controllable, such as when the window frame and the content displayed therein are "locked" together, a preferable feature is to uniformly scale the content along both axes, which is also known as "fixed aspect ratio scaling." In the various embodiments/features described herein, uniform scaling may be implemented by uniformly enlarging/shrinking the content proportional to the increase/decrease in size of only either the width or height of the frame in which the content is displayed. Other known methods to carry out such uniform scaling also may be implemented within the various embodiments described herein.