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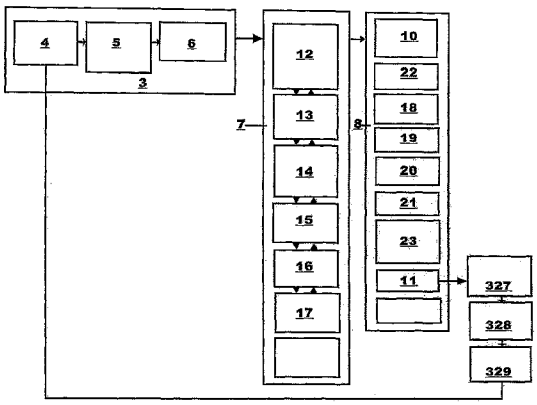
(54) Title: A GRAPHICAL USER INTERFACE



(57) Abstract: This invention provides a graphical user interface which receives a 3-dimensional representation of a first object, provides controls to specify a second object and displays a 3-dimensional representation of the first object in conjunction with the second object. The first object may be a hand of a person and the second object may be a jewellery ring to be made from the specification.

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A GRAPHICAL USER INTERFACE

TECHNICAL FIELD

The present invention relates to a graphical user interface. In particular, the invention relates to an interface which provides graphical representations of goods. Preferably the present invention may provide a graphical interface which provides 3-dimensional representations of goods. In specific embodiments the invention may provide a graphical user interface which provides 3-dimensional graphical representations of rings in association with 3-dimensional graphical representations of a given hand.

BACKGROUND ART

The applicant has observed that 3-dimensional digital representations might be useful in applications involving the retailing of goods. One particular application which has occurred to the applicant is the retailing of jewellery, rings and gems. The applicant has discovered that some customers in the market for an item of jewellery often have difficulty in visualising how an item which they see in a shop display (for example), will look on their person. In the case of a ring, the thickness of a band may sometimes have a surprising impact on the overall appearance of their fingers when a given ring is placed on their own hand. For this reason, retailers attempt to carry as many different sizes and types of band setting and gem as possible. However, this carries an economic cost in the form of additional inventory.

It has occurred to the applicant that displaying a 3-dimensional representation of a customer's hand combined with a 3-dimensional representation of a jewellery ring may assist customers of jewellery rings in making better choices or may allow retailers to carry less inventory.

The applicant has also observed that if a ring is chosen based on a 3-dimensional representation there is considerable flexibility in the choice of components that might be specified for the ring.

Accordingly, it is a further object of the present invention to provide a graphical user interface that facilitates creating of a specification of an object, or at least to provide the public with a useful choice in graphical user interfaces.

It is a further object of the present invention to provide a graphical user interface that allows a specified object to be represented in conjunction with another object, or at least to provide the public with a useful choice in graphical user interfaces.

It is an object of the present invention to address the foregoing problems or at least to provide the public with a useful choice.

As used herein the term 'degrees of zoom' or suchlike refers to how large a representation of an object appears in a given display.

As used herein the term 'textual representation' and suchlike is intended to broadly refer to a representation of characteristics by any text, lettering, wording or other symbols.

All references, including any patents or patent applications cited in this specification are hereby incorporated by reference. No admission is made that any reference constitutes prior art. The discussion of the references states what their authors assert, and the applicants reserve the right to challenge the accuracy and pertinency of the cited documents. It will be clearly understood that, although a number of prior art publications are referred to herein, this reference does not constitute an admission that any of these documents form part of the common general knowledge in the art, in New Zealand or in any other country.

It is acknowledged that the term 'comprise' may, under varying jurisdictions, be attributed with either an exclusive or an inclusive meaning. For the purpose of this

specification, and unless otherwise noted, the term 'comprise' shall have an inclusive meaning - i.e. that it will be taken to mean an inclusion of not only the listed components it directly references, but also other non-specified components or elements. This rationale will also be used when the term 'comprised' or 'comprising' is used in relation to one or more steps in a method or process.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

DISCLOSURE OF INVENTION

An aspect of the present invention comprises a set of computer executable instructions stored on a computer readable medium, said instructions adapted to carry out a method including the steps of:

I. receiving a 3-dimensional representation of a first object;

II. providing a set of controls adapted to allow selections which specify characteristics of a second object to be made;

III. receiving through said set of controls indications of events identifying said selections;

IV. generating a 3-dimensional representation of the first object combined with the second object; and

V. providing a display of said 3-dimensional representation of the first object combined with the second object.

This invention allows a customer or operator to make selections which specify characteristics of the second object and to make those selections in light of a displayed representation of that object in combination with another object. This facilitates visualization of the object being specified in combination with a a first object with which it will be used or worn. This allows better selections to be made in

relation to the specified characteristics of the second object.

Preferably, said generating the 3-dimensional representation of the first object combined with the second object preserves the geometry of the first and second objects.

Preferably, the method includes updating the generated 3-dimensional representation after given events identifying selections made with the controls.

Preferably, the generated 3-dimensional representation includes a geometrical mesh representation comprising mesh elements.

Preferably, mesh elements corresponding to the first object include photographic representations of parts of the first object.

Preferably, said photographic representations are displayed using at least 3 colours.

Preferably, said selections specify characteristics by selecting given components for the second object.

Preferably, said selections specify materials for the second object.

Preferably, said selections specify dimensions for the second object.

Preferably, the controls are adapted to allow a user to adjust the dimensions of the second object.

Preferably, said generated 3-dimensional representation of the first object combined with the second object includes a representation of a given interrelationship between the first and second objects.

Preferably, the second object is a ring.

Preferably, the first object is a hand.

Preferably, said representation of the given interrelationship is the ring shown fitted

onto a finger of the hand.

Preferably, said 3-dimensional representation of a hand combined with a ring shows a ring of a given diameter.

Preferably, the method includes providing controls adapted to allow adjustment of a position of the ring on the finger.

Preferably, said 3-dimensional representation of the hand in conjunction with a ring shows a ring of a given band width.

Preferably, the method includes providing a user control adapted to allow adjustment of the width of a band as it appears on the generated 3-dimensional representation.

Preferably, the generated 3-dimensional representation of the first object combined with the second object is displayed from a given view point.

Preferably, the method includes providing controls adapted to allow said given view point to be reoriented.

Preferably, the generated 3-dimensional representation of the hand in conjunction with a ring is displayed with a given degree of zoom.

Preferably, the method includes providing controls to allow said given degree of zoom to be adjusted.

Preferably, the method includes capturing and storing 2-dimensional displays of said generated 3-dimensional representation of a hand in conjunction with the ring at given view points and degrees of zoom.

Preferably, wherein generating said 3-dimensional representation includes retrieving stored 3-dimensional representations of jewellery ring components.

Preferably, wherein the generated 3-dimensional representation of the hand combined with the ring includes at least one colour assigned to the ring band.

Preferably, the method includes providing a user control adapted to allow the selection of at least one colour assigned to the ring.

Preferably, said control adapted to allow the selection of at least one colour including a textual description of at least one metal.

Preferably, at least one colour assigned to the ring corresponds to at least one metal represented by the control.

Preferably, the method includes displaying a numerical value representing a calculated cost of the ring specified by the selections and/or adjustments.

Preferably, the method includes generating a report, said report, including details specifying any selections and/or adjustments made with said user controls.

Preferably, said report also includes a captured 2-dimensional image of the 3-dimensional representation.

Preferably, wherein the report includes a monetary value calculated with reference to the given specification.

Preferably, wherein the report includes details identifying the person associated with the first object.

Preferably, wherein the user controls are adapted to allow selection of styles of jewellery ring band.

Preferably, the user control is adapted to allow selection of styles of jewellery ring gem setting.

Preferably, the user control is adapted to allow selection of at least one gem for said setting.

Preferably, the user control is adapted to allow selection of gems to be set into the band.

Preferably, the user control is adapted to allow selection of styles of jewellery ring band.

Preferably, the method includes providing a user control adapted to allow the selection of given cuts of gem.

Preferably, the method includes a control adapted to allow the selection of classifications of gems.

Preferably, the generated 3-dimensional representation includes a representation of at least one gem of a given colour.

Preferably, the method includes providing a control adapted to allow a selection of the colour of the at least one gem.

Preferably, the control provides a textual representation of a gem represented by each colour.

Preferably, the generated 3-dimensional representation includes a representation of a gem of a given size.

Preferably, the generated 3-dimensional representation includes a gem of a given cut.

Preferably, wherein the method includes providing a control adapted to allow the selection of a weight for at least one gem.

Preferably, wherein the method includes providing controls adapted to receive contact details of a person associated with the hand.

Preferably, wherein the method includes providing on a screen a combination of controls adapted to:

receive contact information for a person associated with the hand;

allow the selection of a given finger of the hand; and

allow the selection of a ring size.

Preferably, wherein the method includes providing a control adapted to initiate an apparatus to capture 3-dimensional representation of an object.

BRIEF DESCRIPTION OF DRAWINGS

Further aspects of the present invention will become apparent from the ensuing description which is given by way of example only and with reference to the accompanying drawings in which:

Figure 1 depicts processes carried out by a graphical user interface according to a preferred embodiment of the present invention;

Figure 2 shows a first screen presented by a graphical user interface according to the preferred embodiment of the present invention;

Figure 3 depicts information needed to specify a ring and produce a final report (shown later) according to the preferred embodiment of the present invention;

Figure 4 shows another screen presented by a graphical user interface according to the preferred embodiment of the present invention, this screen relating to an indication that a 3-dimensional representation has been captured;

Figure 5 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 6 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 7 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 8 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 9 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 10 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 11 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 12 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 13 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 14 shows a screen presented by a graphical user interface displaying controls which allow a ring to be specified according to the preferred embodiment of the present invention;

Figure 15 shows a final report presented by a graphical user interface according to the preferred embodiment of the present invention;

Figure 16 depicts an overview of a method carried out by the preferred embodiment of the present invention.

BEST MODES FOR CARRYING OUT THE INVENTION

Figure 1 depicts a process carried out by a Graphical User Interface (GUI) according to a preferred embodiment of the present invention.

The graphical user interface is described below in reference to use in specifying and displaying jewellery rings. The jewellery rings are displayed on a 3-dimensional representation of the customer's hand with the specified ring to allow them to make informed choices on aesthetic aspects of the jewellery ring (not shown). It will be apparent to those skilled in the art that alternative embodiments may be readily adapted for use in displaying a variety of other retail goods.

Figure 1 depicts an event driven process so it will be appreciated by those skilled in the art that the order of different processes depicted in the diagram is not necessarily sequential.

The process begins with an initialisation sequence (3). A button (2) is displayed on a screen, shown in figure 2. When the button is clicked, at step 4, a GUI operator is prompted for initialisation information, step 5. This information includes contact information for the customer, the choice of the finger on which the ring is to be displayed, and the size of that finger.

At step 6 the GUI activates a scanning apparatus (not shown), waits for it to provide data and then receives that data. The data defines a captured 3-dimensional representation of the customer's hand. When this 3-dimensional representation is received, still at step (6), the initialisation sequence (3) is completed.

In the preferred embodiment, the GUI is used in conjunction with a scanning apparatus which provides a geometrical mesh. The geometrical mesh has mesh elements which are 'painted' with photographic representations of corresponding portions of the hand. The 3-dimensional representation of the hand therefore is geometrically accurate to the eye and also shows the texture and colouring of the customer's hand.

At the end of the initialisation sequence the GUI has a geometrically accurate and photographically accurate representation of a given hand has contact details of the person associated with the hand. The GUI also has a designated finger of the hand on which a jewellery ring is to be worn. At this stage the GUI also has the size of that finger.

Figure 3, at the top of the page, depicts the details for which prompts are provided in step 5.

Figure 4 shows a typical screen which might be displayed in step 6 while an apparatus (not shown) is capturing and providing a 3-dimensional representation of a given hand.

Referring again to Figure 1, box 7 depicts a set of selection processes available to the operator and the customer once the initialisation sequence (3) has been completed. These processes allow an operator to specify comments, shapes, and materials to provide a specification for the ring which is eventually to be made for

the customer. The various aspects which must be specified for a ring or alternative goods will be apparent to those skilled in the art.

Box 7 depicts selection, or specification processes which are enabled once the initialisation sequence (3) has been completed.

The selection processes (7) are represented by GUI controls displayed concurrently with a display of the ring on the hand. This display is provided by the display process (8). The display of the ring on the hand is shown concurrently with controls unless a GUI control process (9) is activated, by button (118), to close the selection process (7). The GUI controls associated with the selection process (7) can be made visible again by activation of a 'select' GUI control process represented by box (10).

The display processes (8) also provide a purchase GUI control depicted by box 11 which initiates an accounts sequence.

One of the selection processes (7) is a 'ring type' process (6) which allows selection of various types of ring.

Figure 5 shows a GUI screen (1) displayed immediately after the initialisation sequence is completed. The screen has a display pane (200) in which a 3-dimensional representation of a customer's hand is displayed.

Figure 6 shows a GUI screen (1) which is presented when the button (112) is activated. This activates the 'ring type' processes of box (12), Figure 1. Activating the ring type button updates the pane (201) with additional buttons (30 to 33). Each button (30 to 33) represent a different type of ring. In the preferred embodiment the rings displayed are engagement rings (30), women's rings (31), wedding sets (32) and men's rings (33).

Figure 7 depicts the GUI screen (1) after the 'precious metals' button (113) is activated. This activates the 'precious metals' processes represented by box (13) of Figure 1.

The buttons relating to different metals which a customer may choose for the ring are 18 carat white gold (36), 18 carat rose gold (37), 9 carat yellow gold (38), 9 carat white gold (39) and 9 carat rose gold (40).

Activation of any of the buttons (30) initiate the generation of a 3-dimensional representation of the user's hand with a jewellery ring (not shown) specified by the selections made by activating given buttons (30) to (40). The jewellery ring will be displayed on the finger designated in step 5 and will be sized according to the finger size depicted in step 5.

Referring to Figure 6 a box 200 depicts a GUI pane in which the 3-dimensional representation will be displayed. It will be apparent to those skilled in the art that a 3-dimensioanl representation may be displayed in the form of 2-dimensional representations which can be updated. In the preferred embodiment, the 3-dimensional representation takes the form of a display of a hand with a ring which can be manipulated to re-orientate it with respect to the view seen through the pane (200). GUI controls depicted by processes (18 to 21) and buttons (118 to 121) allow the operator to adjust the view of the generated 3-dimensional representation of the hand in conjunction with the ring shown on the hand.

The process (18), activated by button (118), activates controls which allow the hand to be viewed and the ring to be adjusted.

The processes (19) activated by button (119) allow the view to be zoomed in or out to various degrees.

The processes (20), activated by button (120), takes snap shots of the generated 3-dimensional representation of the hand in conjunction with the ring from given view points and 'degrees of zoom'.

In the process (10), represented by the button (110), is always visible and toggles between the selection process pane (201) with buttons (112 to 117), being visible or hidden.

The scan hand process (22), represented by the button (122), allows the GUI to initiate a repeated 3-dimensional scanning process from which a new 3-dimensional representation of the customer's hand can be received by the GUI.

Figure 8 depicts a GUI screen represented when the button (113) is activated and then one of the buttons (30 to 33) is activated. The buttons (41 to 52) represent various designs of jewellery ring band which might be selected by activation of these buttons. The buttons (41 to 52) may show pictorial representations of the jewellery ring bands.

Referring to Figure 8 the process (23) represented by the button (123) provides a display (not shown) of the customer's details taken at step 5.

Referring to Figure 8 the button (111) activates the purchase process (11) which in turn activates an accounts process.

The price process (24) represented by the display field (124) provides a price that has been calculated by the GUI for the jewellery ring as defined by selections made by the selection processes (7). In the preferred embodiment, the price shown in box (124) represents the cost of the goods to a customer. This cost has been generated by the storing the selections made by the selection processes (7) and are calculated in reference to a database of materials and costs (not shown).

Also in the preferred embodiment, the costs are updated each time a new selection is made by one of the selection processes (7).

The GUI screen (1) also has a pane (201) in which GUI controls are provided. The controls shown in figure 5 are a set of buttons (112 to 117) which initiate the various selection processes (12 to 17), depicted in figure 1.

The display of the generated 3-dimensional representation of the hand in conjunction with a jewellery ring as shown in pane 200 is updated with each selection made via the selection processes (7). For example, selection of a new type of jewellery band by all of the buttons (41 to 52) will result in the display shown in pane 200 updating to represent the newly selected jewellery ring band.

Figure 9 depicts GUI screen displayed to allow the selection of different types of gem by the activation of boxes (53 to 62). The pane (201) is updated with the set of boxes (53 to 62) by activation of the box (115).

Figure 10 depicts the GUI screen in which the pane (201) has been updated with boxes (64 to 67) by activation of the button (117). Buttons (64) and (65) allow the width of the jewellery band to be increased or decreased respectively. Also shown in pane (201) are buttons (66) and (67) which allow the operator to adjust the position of the ring upwards or downwards on the finger.

Figure 11 depicts the screen displayed by the GUI when the pane (201) is updated after box (115) is activated, indicating that the customer is ready to select a gem.

Buttons (68) and (69) allow the operator to designate whether it is primary gem or a secondary gem which is to be selected. Those skilled in the art will understand when primary and secondary selections are appropriate. The buttons (70) and (71) allow the operator to designate whether it is the size of that gem, or gems, which is to be selected or whether it is the colour and clarity which is to be selected.

Figure 11 shows an example where the button (70) has been activated so that buttons (72 to 81) are displayed to allow selections of the size of the gem.

Figure 12 shows the GUI screen (1) where the button (71) has been activated and box (201) is updated to show selections in both the colour and clarity of either the primary or secondary ring. The GUI screen (1) as shown in Figure 12 is displayed when the buttons (115), (68) and (71) have all been successively selected. Buttons 82 to 88 depicts available choices in the selection of the colour. Boxes (90 to 96) depict available choices in the selection of the clarity of the gem. The activation of a button such as (82 to 96) will be represented by an updated generated 3-dimensional representation (not shown) appearing in pane (200). The choices made via buttons (82 to 96) will also likely have an impact on the price shown in box (124) which is updated automatically also.

Figure 13 shows a screen displayed by the GUI (1) when pane (201) has been updated to display choices in styles of jewellery ring gem settings when the button (116) is displayed. The boxes (298 to 307) depict various options for the selection of the gem setting in terms of style. These buttons may include pictorial representations of the jewellery ring gem settings. The button (296) allows the operator to indicate that it is the style of the gem setting which is to be selected via buttons (296 to 307). Alternatively, the button (297) allows the operator to indicate that it is the precious metal of the jewellery ring gem setting which is to be selected.

Figure 14 depicts a similar screen in which the pane (201) has been updated to display buttons (308 to 317) representing options in the selection of the type of gem.

The pane (201) as shown in figure 14 is displayed when the button enhancement button (117) is activated and a gems button (318) is activated. Buttons (319) and (320) allow the pane (201) to be updated with buttons representing options in the

selection of whether it is the band or setting, respectively, to which enhancement gems are to be added.

Figure 15 shows a report generated by the GUI when the processes depicted by box (23) of figure 1 is activated via button (123). The report shown in figure 15 shows a set of fields (322) which lists all the selections made by the GUI (1). The field (323) corresponding to the information shown in box (124) corresponds to the price shown in box (124). The check box (324) indicated whether the customer would like a valuation. The fields (325) display the information gathered in the initialisation process depicted by box 3 and relating to the contact details, their selection of the designated finger for the ring and the selection of a size of a ring. Button (326) corresponds to buttons (111) and the process (11). Activation of the button (326) initiates an accounts process. The button (326) allows the operator to return to one of the screens (6 to 14) which allow selection processes depicted by box (7). Also shown on the report of Figure 15 is a snap shot of the ring corresponding to the selections listed in the fields (322). The report shown in Figure 15 can be printed and taken away by a customer to show to their partner for example.

The report shown in figure 15 can also act as a form of written quote.

Referring again to Figure 1, the accounts process includes the steps of (328) where the operator is prompted to confirm the details of the customer initialisation process. Box (329) represents the printing of a receipt once an accounted transaction has occurred. Box (330) represents the GUI returning to its original state for another session which starts with a new initialisation process (3).

Figure 16 depicts an overview process carried out by the preferred embodiment of the present invention.

The process (400) allows a customer to specify the characteristics of an object such as a ring and to view that object in conjunction with another object. In the example illustrated here, the objects are a ring and a hand. The ring is shown in conjunction with the hand by being showing fitted onto a finger.

The process (400) depicted in figure 16 allows the customer or operator to create a specification for the characteristics of the ring. The process also allows the customer or operator to see the ring which corresponds to the specification while the specification is being created. The ring is displayed in conjunction with the customer's hand so the impact of selections of various characteristics can be assessed.

The process (400) begins with step (401) in which the GUI receives a 3-dimensional representation of an object such as a customer's hand.

At step (402) the GUI displays a set of controls in the form of buttons which allow selections to be made to specify characteristics of the ring. Initially, buttons (112 to 117) are displayed although other buttons, are displayed in response to one of buttons (112 to 117) being activated.

At step (403) a control events are received by the GUI. These will typically be activation of buttons such as (23 to 40), to give examples, which identify a metal selected by the customer.

At step (404), a 3-dimensional representation of the customer's hand in conjunction with the ring specified by the selection at step (403) is generated. The 3-dimensional representation can be used to provide views of the ring on the hand from various angles.

At step (405) a display of the 3-dimensional representation of the hand and ring is displayed by the GUI. The display may include an adjustable view point and adjustable zoom.

In the preferred embodiment the steps (402 to 404) are repeated with each selection made with the controls.

In the preferred embodiment the generated 3-dimensional representation and display of that representation are updated with each selection of a characteristic. However, in alternative embodiments these may be updated only after all or some of the selections are made.

In the preferred embodiment also, the user's hand is displayed before any selections are made for characteristics of a ring. However, alternative embodiments may omit displaying the hand at this point.

Step (406) represents the end of the process, where the characteristics of the ring have been specified.

The preferred embodiment of the present invention allows the generated 3-dimensional representation of the customer's hand in conjunction with a jewellery ring allows the user to view via pane (200) a geometrically accurate and photographically accurate representation of their hand in conjunction with an accurate representation of a ring which they have specified with selections made via controls in pane (201).

As the generated 3-dimensional representation is geometrically accurate, the GUI (1) allows a customer to view interactions in the aesthetic of the dimensions of their own hand and fingers and the dimensions of various ring bands, gem setting and gems.

As the generated 3-dimensional representation of the customer's hand in conjunction with a ring they intend to purchase is also accurate in terms of the colour and texture, this allows a customer to view interactions between their skin tone and the colours of metals and gems of the jewellery ring they intend to purchase.

Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions may be made thereto without departing from the scope thereof as defined in the appended claims.

WHAT I/WE CLAIM IS:

1. A set of computer executable instructions stored on a computer readable medium, said instructions adapted to carry out a method including the steps of:

   VI. receiving a 3-dimensional representation of a first object;

   VII. providing a set of controls adapted to allow selections which specify characteristics of a second object to be made;

   VIII. receiving through said set of controls indications of events identifying said selections;

   IX. generating a 3-dimensional representation of the first object combined with the second object; and

   X. providing a display of said 3-dimensional representation of the first object combined with the second object.

2. The set of instructions of claim 1, wherein said generating the 3-dimensional representation of the first object combined with the second object preserves the geometry of the first and second objects.

3. The set of instructions of any one of claim 1 and claim 2, wherein the method includes updating the generated 3-dimensional representation after given events identifying selections made with the controls.

4. The set of instructions of claims 1 to 3, wherein the generated 3-dimensional representation includes a geometrical mesh representation comprising mesh elements.

5. The set of instructions of claim 4, wherein mesh elements corresponding to the first object include photographic representations of parts of the first

object.

6. The set of instructions of claim 5, wherein said photographic representations are displayed using at least 3 colours.

7. The set of instructions of any one of claims 1 to 6, wherein said selections specify characteristics by selecting given components for the second object.

8. The set of instructions of any one of claims 1 to 7, wherein said selections specify materials for the second object.

9. The set of instructions of any one of claims 1 to 8, wherein said selections specify dimensions for the second object.

10. The set of instructions of claim 9, wherein the controls are adapted to allow a user to adjust the dimensions of the second object.

11. The set of instructions of any one of claims 1 to 10, wherein said generated 3-dimensional representation of the first object combined with the second object includes a representation of a given interrelationship between the first and second objects.

12. The set of instructions of claim 11, wherein the second object is a ring.

13. The set of instructions of claim 12, wherein the first object is a hand.

14. The set of instructions of claim 13, wherein said representation of the given interrelationship is the ring shown fitted onto a finger of the hand.

15. The set of instructions of claim 14, wherein said 3-dimensional representation of a hand combined with a ring shows a ring of a given diameter.

16. The set of instructions of claim 14 or claim 15, wherein the method includes providing controls adapted to allow adjustment of a position of

the ring on the finger.

17. The set of instructions of any one of claims 14 to 16, wherein said 3-dimensional representation of the hand in conjunction with a ring shows a ring of a given band width.

18. The set of instructions of claim 17, wherein the method includes providing a user control adapted to allow adjustment of the width of a band as it appears on the generated 3-dimensional representation.

19. The set of instructions of any one of claims 1 to 18, wherein the generated 3-dimensional representation of the first object combined with the second object is displayed from a given view point.

20. The set of instructions of claim 19, wherein the method includes providing controls adapted to allow said given view point to be reoriented.

21. The set of instructions of claim 20, wherein the generated 3-dimensional representation of the hand in conjunction with a ring is displayed with a given degree of zoom.

22. The set of instructions of claim 21, wherein the method includes providing controls to allow said given degree of zoom to be adjusted.

23. The set of instructions of claim 22 wherein the method includes capturing and storing 2-dimensional displays of said generated 3-dimensional representation of a hand in conjunction with the ring at given view points and degrees of zoom.

24. The set of instructions of any one of claims 12 to 23, wherein generating said 3-dimensional representation includes retrieving stored 3-dimensional representations of jewellery ring components.

25. The set of instructions of any one of claims 13 to 24, wherein the

generated 3-dimensional representation of the hand combined with the ring includes at least one colour assigned to the ring band.

26. The set of instructions of claim 25, wherein the method includes providing a user control adapted to allow the selection of at least one colour assigned to the ring.

27. The set of instructions of claim 26, wherein said control adapted to allow the selection of at least one colour including a textual description of at least one metal.

28. The set of instructions of claim 27, wherein at least one colour assigned to the ring corresponds to at least one metal represented by the control.

29. The set of instructions of any one of claims 13 to 28, wherein the method includes displaying a numerical value representing a calculated cost of the ring specified by the selections and/or adjustments.

30. The set of instructions of any one of claims 13 to 29, wherein the method includes generating a report, said report, including details specifying any selections and/or adjustments made with said user controls.

31. The set of instructions of claim 30, wherein said report also includes a captured 2-dimensional image of the 3-dimensional representation.

32. The set of instructions of claims 30 or claim 31, wherein the report includes a monetary value calculated with reference to the given specification.

33. The set of instructions of any one of claims 30 to 32, wherein the report includes details identifying the person associated with the first object.

34. The set of instructions of any one of claims 13 to 33, wherein the user

controls are adapted to allow selection of styles of jewellery ring band.

35. The set of instructions of any one claims 13 to 34, wherein the user control is adapted to allow selection of styles of jewellery ring gem setting.

36. The set of instructions of claim 35, wherein the user control is adapted to allow selection of at least one gem for said setting.

37. The set of instructions of any one of claims 13 to 36, wherein the user control is adapted to allow selection of gems to be set into the band.

38. The set of instructions of any one of claims 13 to 37, wherein the user control is adapted to allow selection of styles of jewellery ring band.

39. The set of instructions of any one of claims 13 to 38, wherein the method includes providing a user control adapted to allow the selection of given cuts of gem.

40. The set of instructions of any one of claims 13 to 39, wherein the method includes a control adapted to allow the selection of classifications of gems.

41. The set of instructions of any one of claims 13 to 40, wherein the generated 3-dimensional representation includes a representation of at least one gem of a given colour.

42. The set of instructions of claim 41, wherein the method includes providing a control adapted to allow a selection of the colour of the at least one gem.

43. The set of instructions of claim 42, wherein the control provides a textual representation of a gem represented by each colour.

44. The set of instructions of any one of claims 13 to 43, wherein the

generated 3-dimensional representation includes a representation of a gem of a given size.

45. The set of instructions of any one of claims 13 to 44, wherein the generated 3-dimensional representation includes a gem of a given cut.

46. The set of instructions of any one of claims 13 to 45, wherein the method includes providing a control adapted to allow the selection of a weight for at least one gem.

47. The set of instructions of any one of claims 13 to 46, wherein the method includes providing controls adapted to receive contact details of a person associated with the hand.

48. The set of instructions of any one of claims 13 to 47, wherein the method includes providing on a screen a combination of controls adapted to:

receive contact information for a person associated with the hand;

allow the selection of a given finger of the hand; and

allow the selection of a ring size.

49. The set of instructions of any one of claims 1 to 48, wherein the method includes providing a control adapted to initiate an apparatus to capture 3-dimensional representation of an object.

50. A set of computer executable instructions stored on a computer readable medium, said instructions adapted to carry out a method substantially as herein described and illustrated with reference to the accompanying drawings.

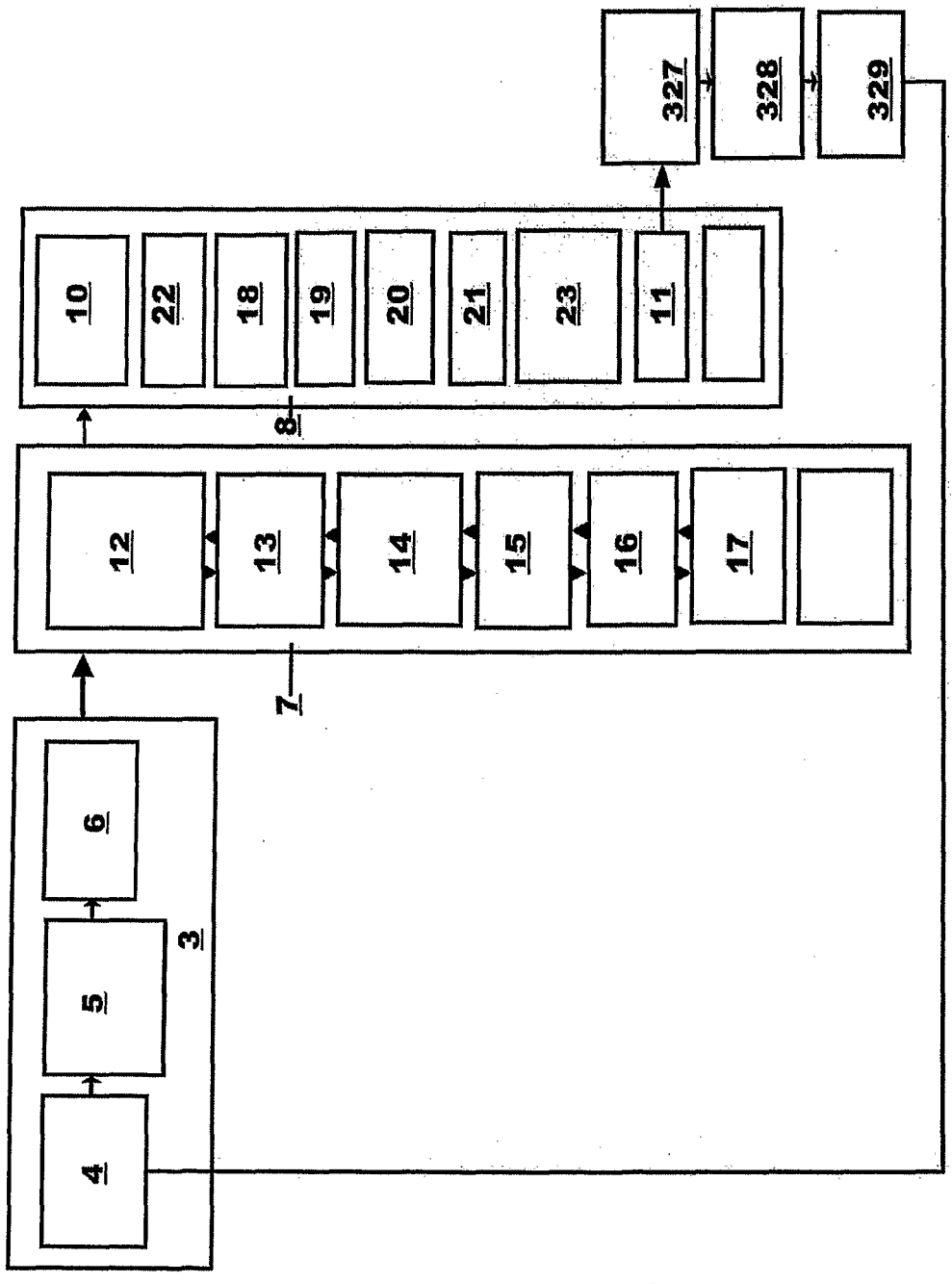

FIGURE 1

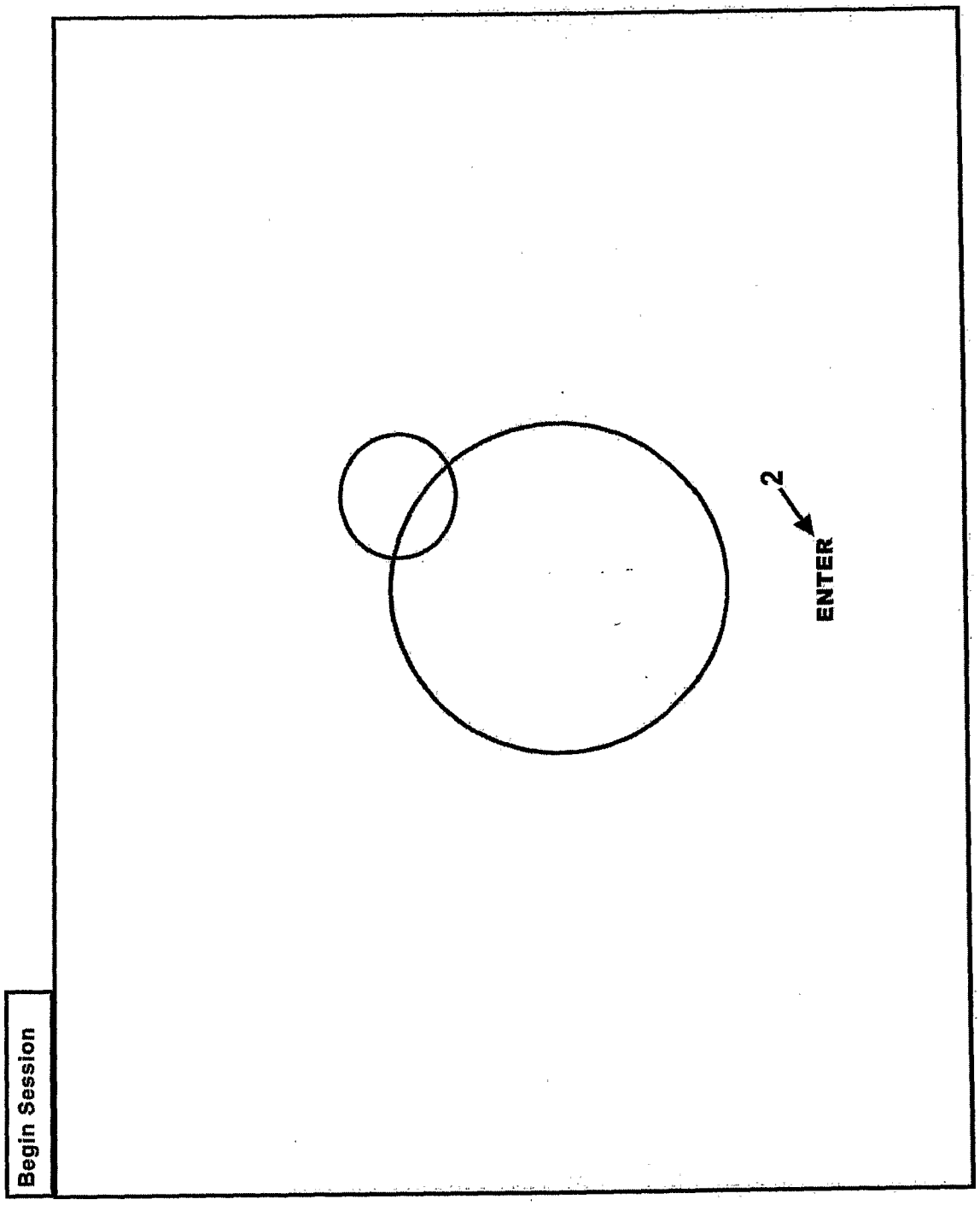

FIGURE 2

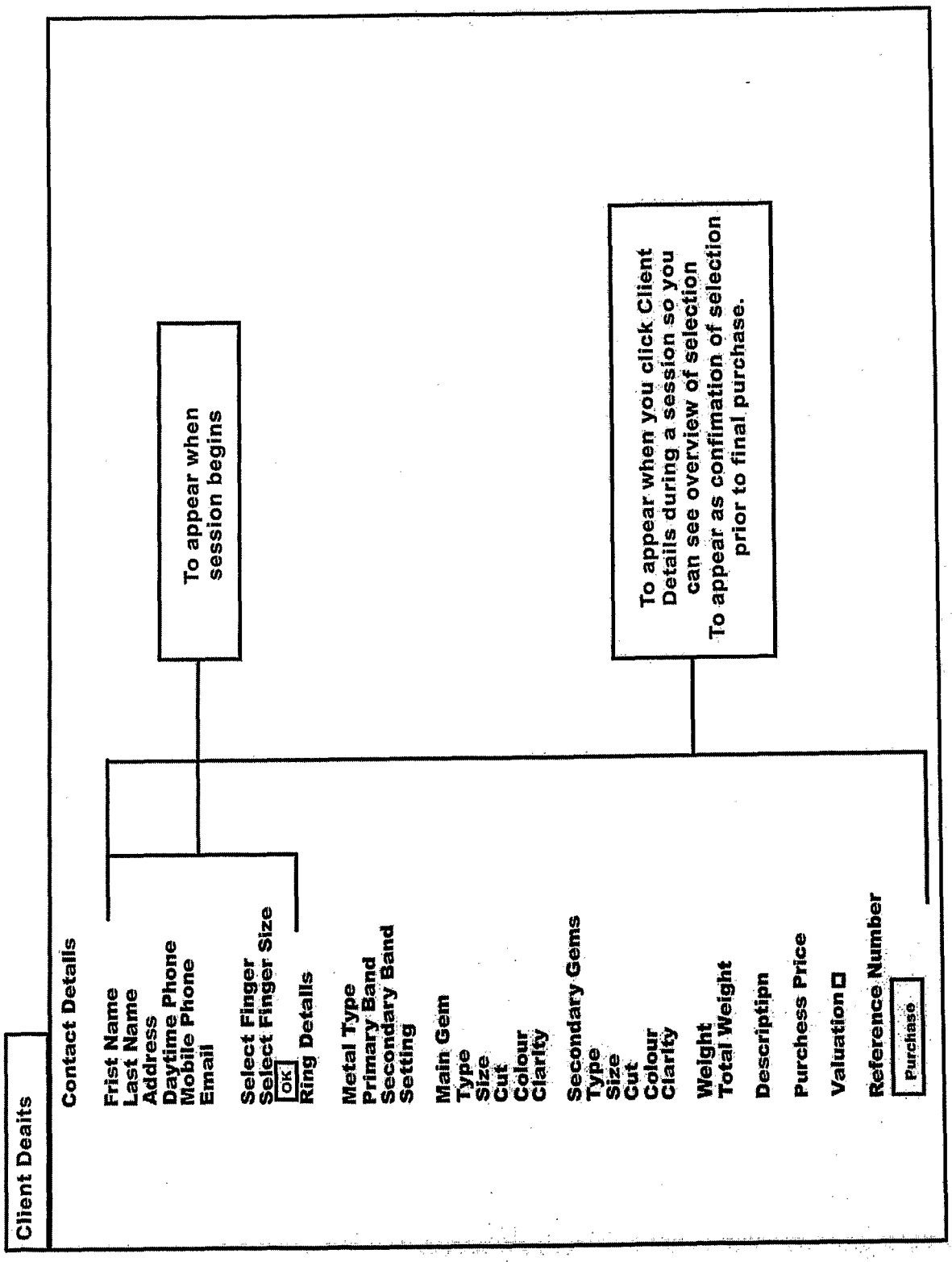
Client Deaits
Contact Details
Frist Name
Last Name
Address
Daytime Phone
Mobile Phone
Email
Select Finger
Select Finger Size
OK
Ring Detalls
Metal Type
Primary Band
Secondary Band
Setting
Main Gem
Type
Size
Cut
Colour
Clarity
Secondary Gems
Type
Size
Cut
Colour
Clarity
Weight
Total Weight
Descriptipn
Purchess Price
Valuation
Reference Number
Purchase
To appear when session begins
To appear when you click Client Details during a session so you can see overview of selection
To appear as confimation of selection prior to final purchase.

FIGURE 3

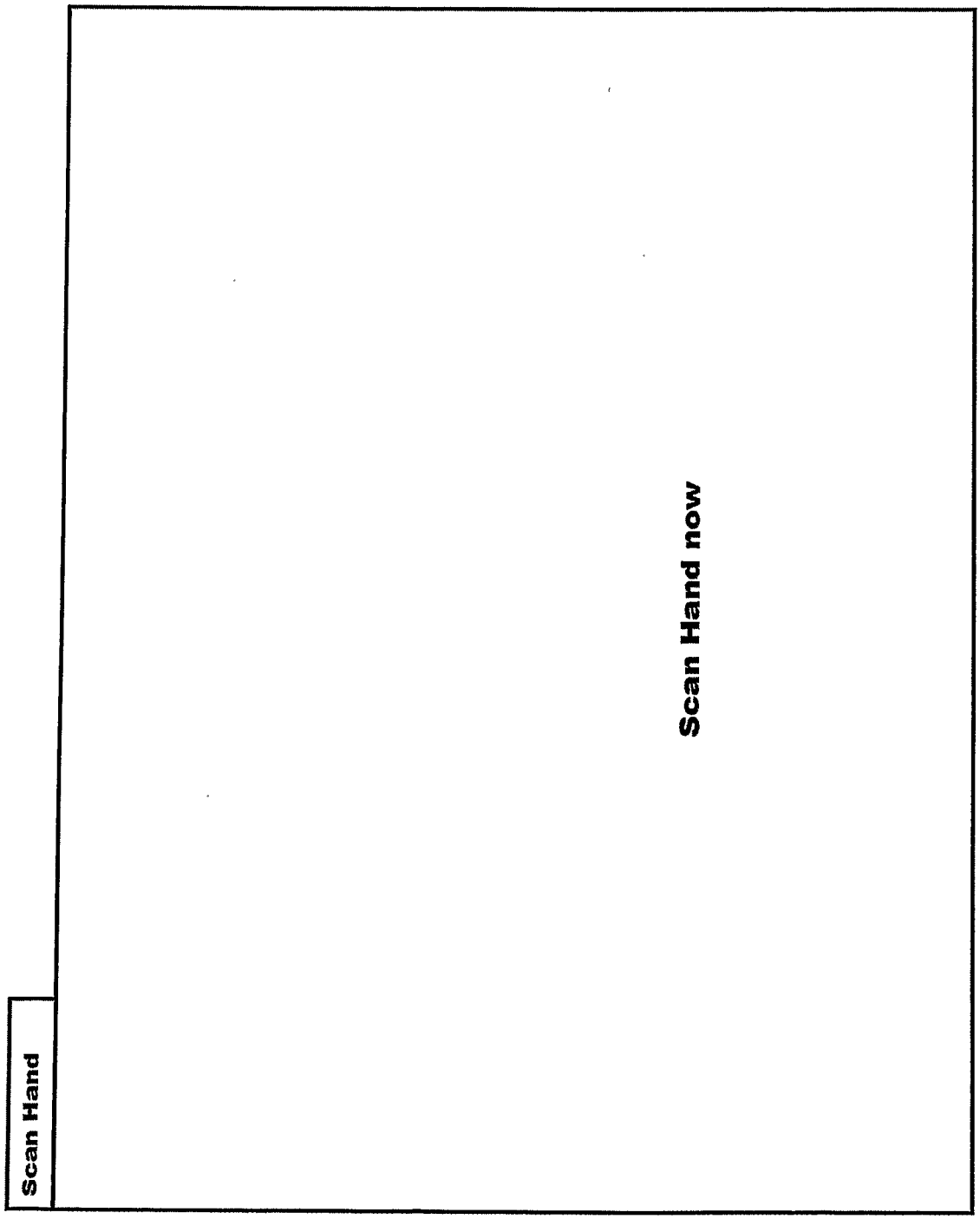

FIGURE 4

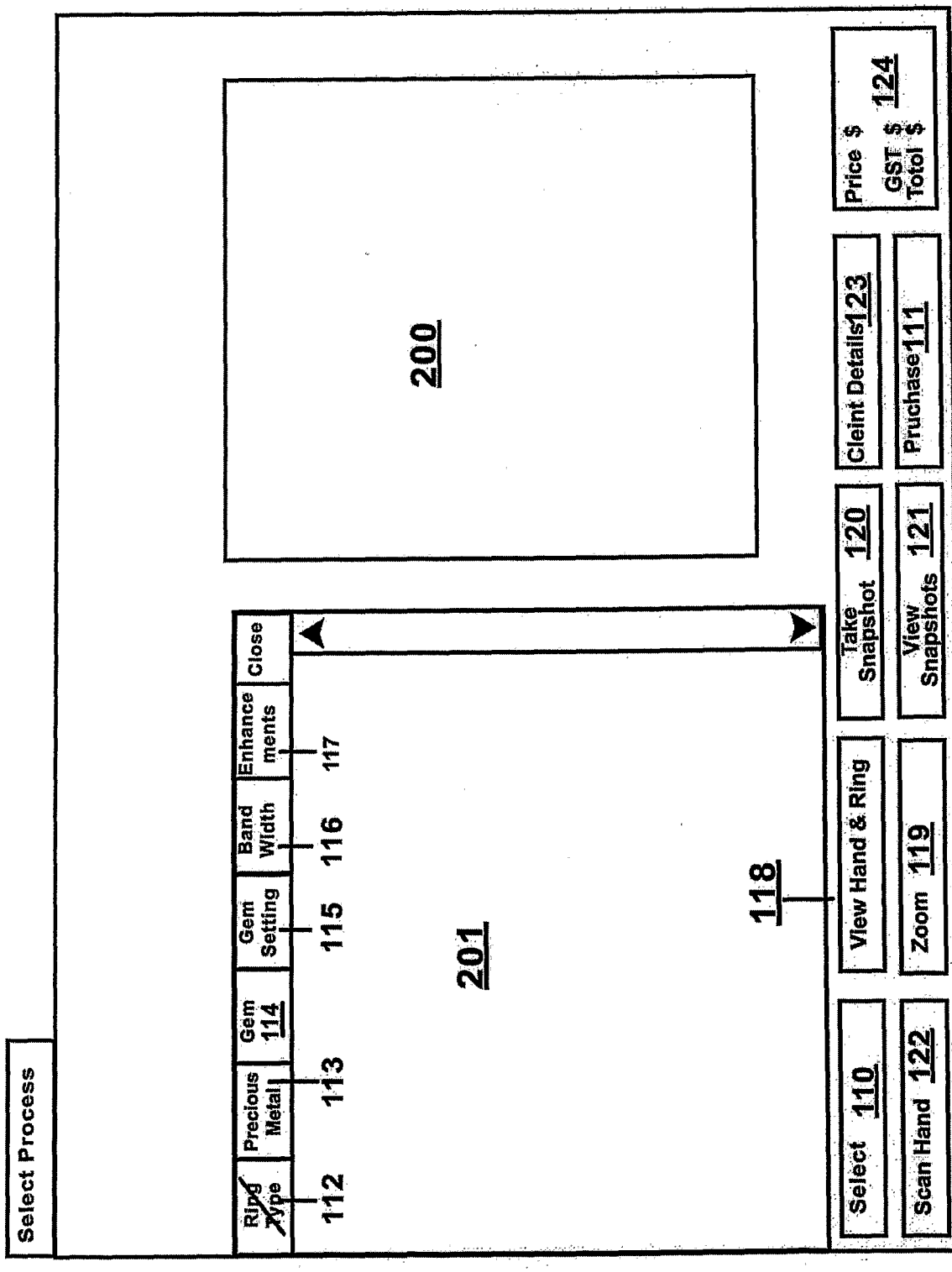
Select Process
Ring Type
Precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
112
113
115
116
117
201
118
200
Select 110
Scan Hand 122
View Hand & Ring
Zoom 119
Take Snapshot 120
View Snapshots 121
Cleint Details 123
Pruchase 111
Price $
GST $
Totol $
124

FIGURE 5

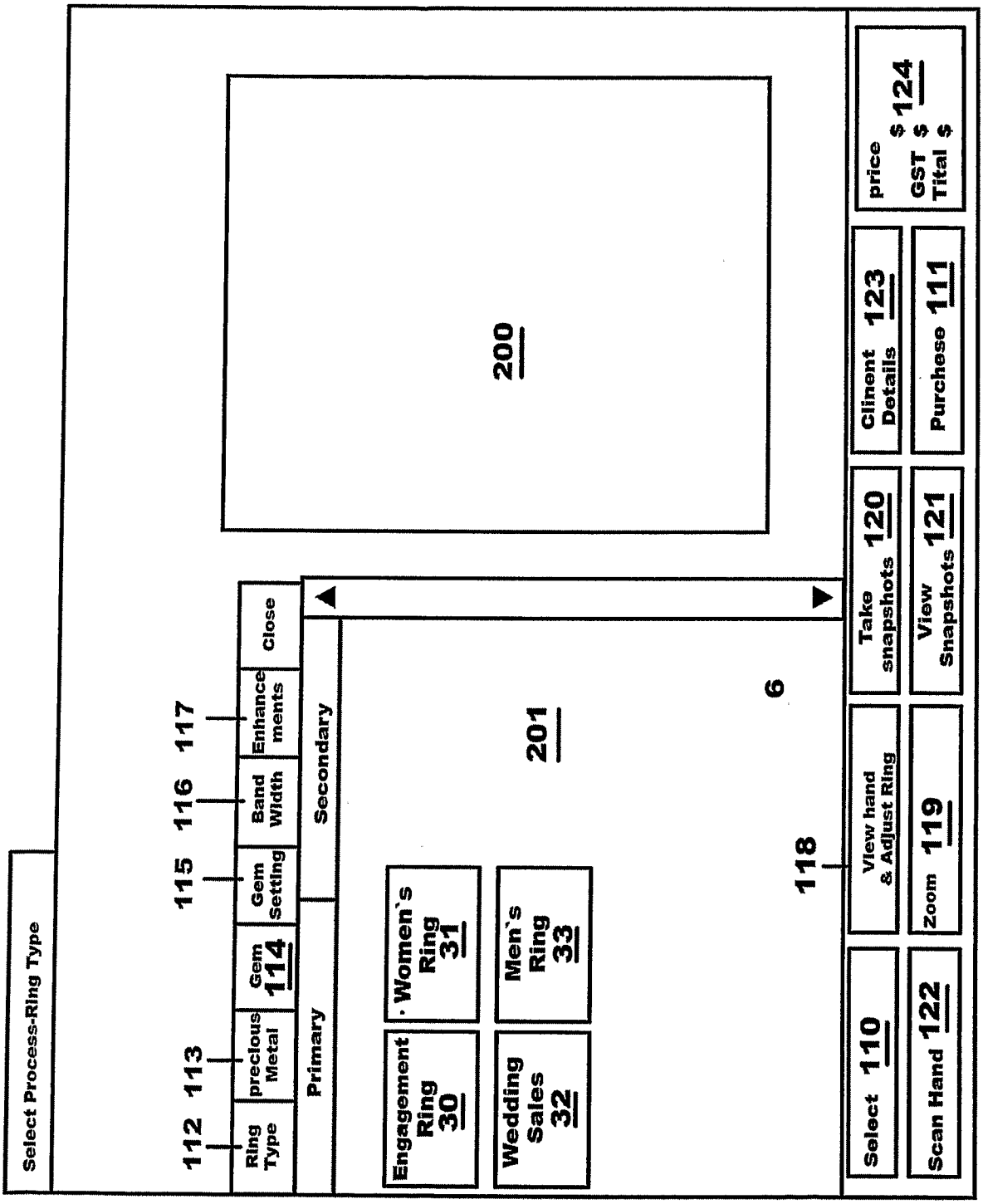
Select Process-Ring Type
Ring Type
precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
112
113
115
116
117
Primary
Secondary
Engagement Ring 30
Women`s Ring 31
Wedding Sales 32
Men`s Ring 33
201
200
6
118
Select 110
Scan Hand 122
View hand & Adjust Ring
Zoom 119
Take snapshots 120
View Snapshots 121
Clinent Details 123
Purchese 111
price $ 124
GST $
Tital $

FIGURE 6

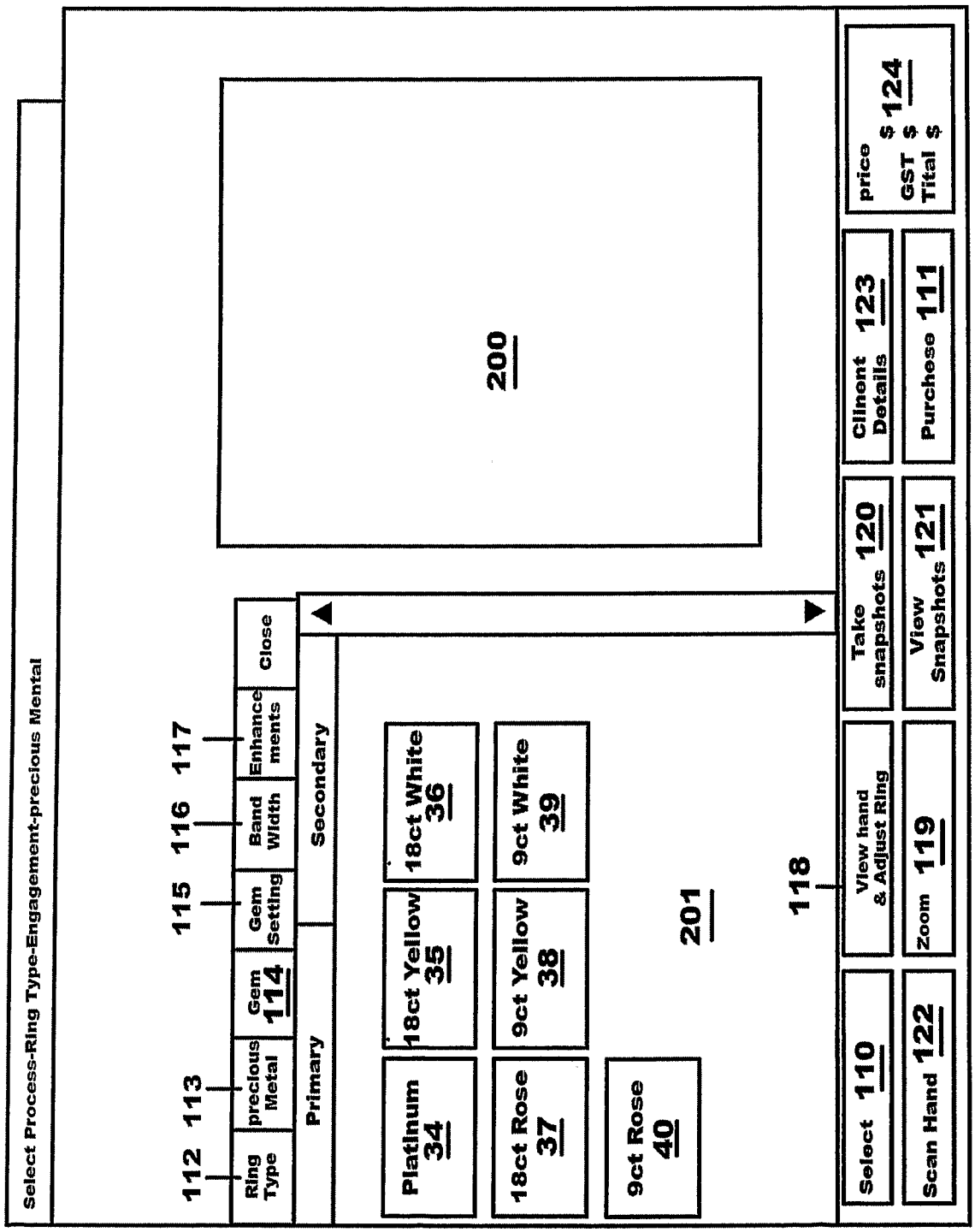
Select Process-Ring Type-Engagement-precious Mental
Ring Type
precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
112 113
115 116 117
Primary
Secondary
Platinum 34
18ct Yellow 35
18ct White 36
18ct Rose 37
9ct Yellow 38
9ct White 39
9ct Rose 40
201
200
118
Select 110
Scan Hand 122
View hand & Adjust Ring
Zoom 119
Take snapshots 120
View Snapshots 121
Clinent Details 123
Purchese 111
price $ 124
GST $
Tital $

FIGURE 7

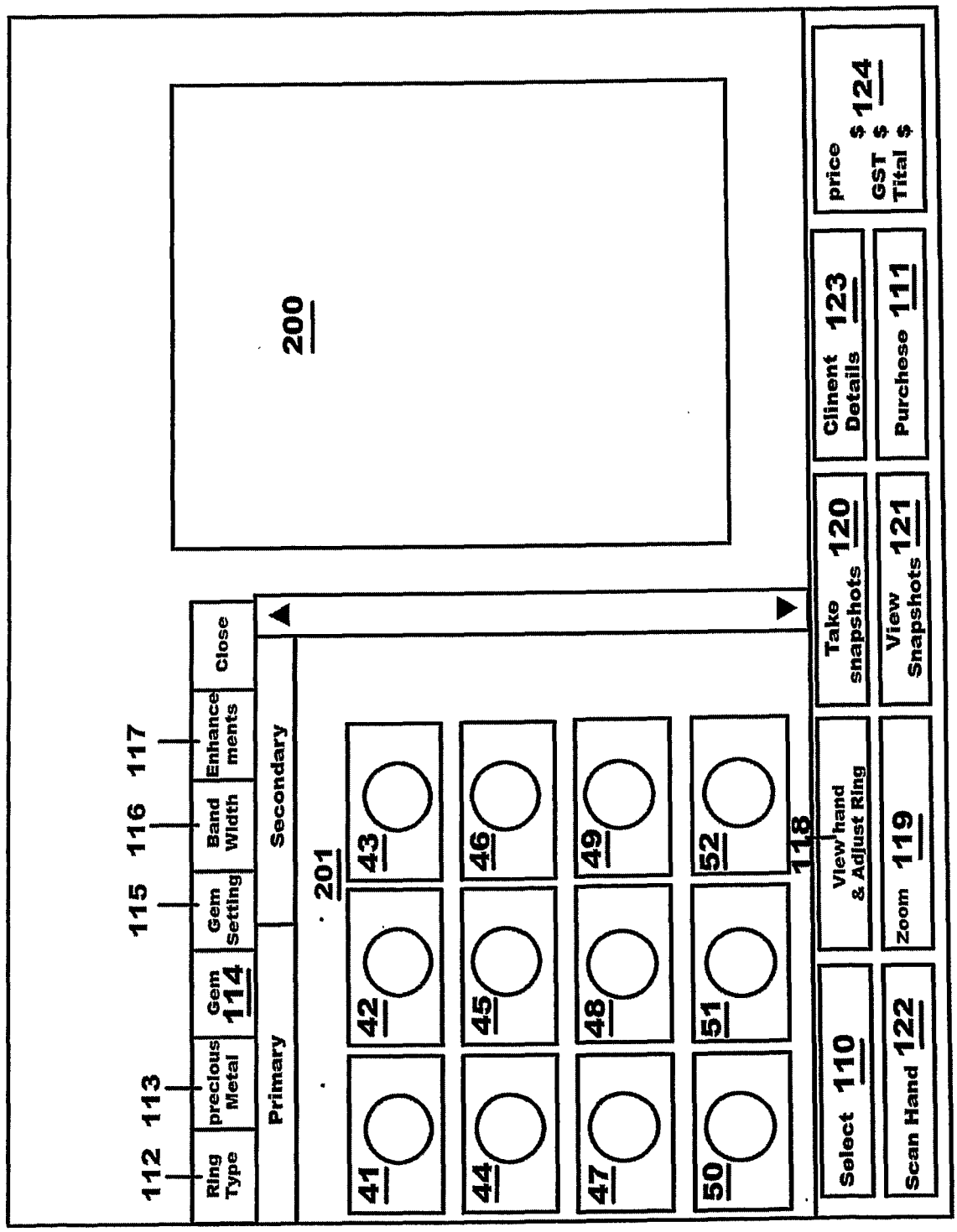
112
113
115
116
117
Ring Type
precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
Primary
Secondary
200
201
41
42
43
44
45
46
47
48
49
50
51
52
118
Select 110
Scan Hand 122
View hand & Adjust Ring
Zoom 119
Take snapshots 120
View Snapshots 121
Clinent Details 123
Purchese 111
price $ 124
GST $
Tital $

FIGURE 8

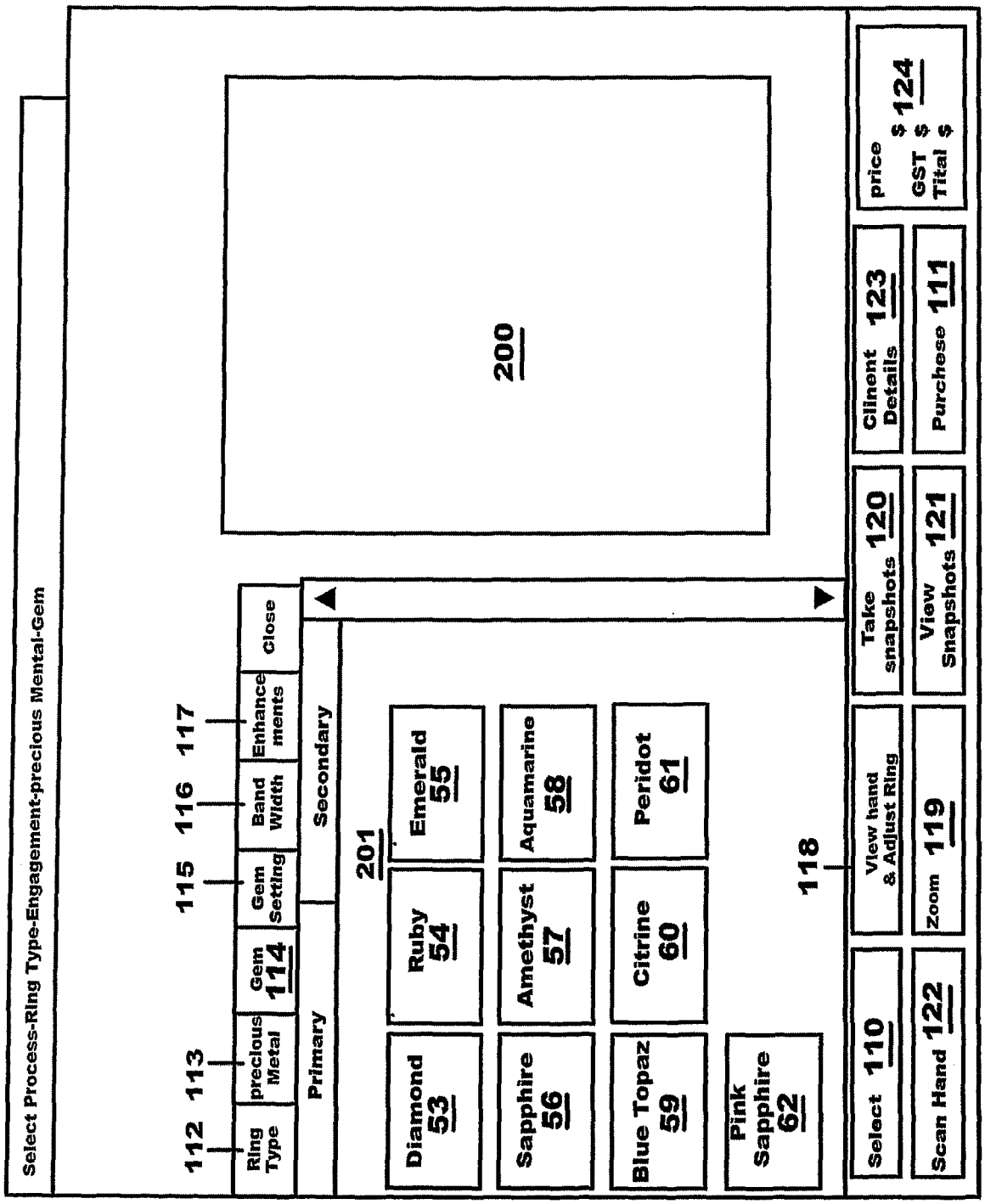
Select Process-Ring Type-Engagement-precious Mental-Gem
112
113
115
116
117
Ring Type
precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
Primary
Secondary
201
200
Diamond 53
Ruby 54
Emerald 55
Sapphire 56
Amethyst 57
Aquamarine 58
Blue Topaz 59
Citrine 60
Peridot 61
Pink Sapphire 62
118
Select 110
View hand & Adjust Ring
Take snapshots 120
Clinent Details 123
price $ 124
GST $
Tital $
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 9

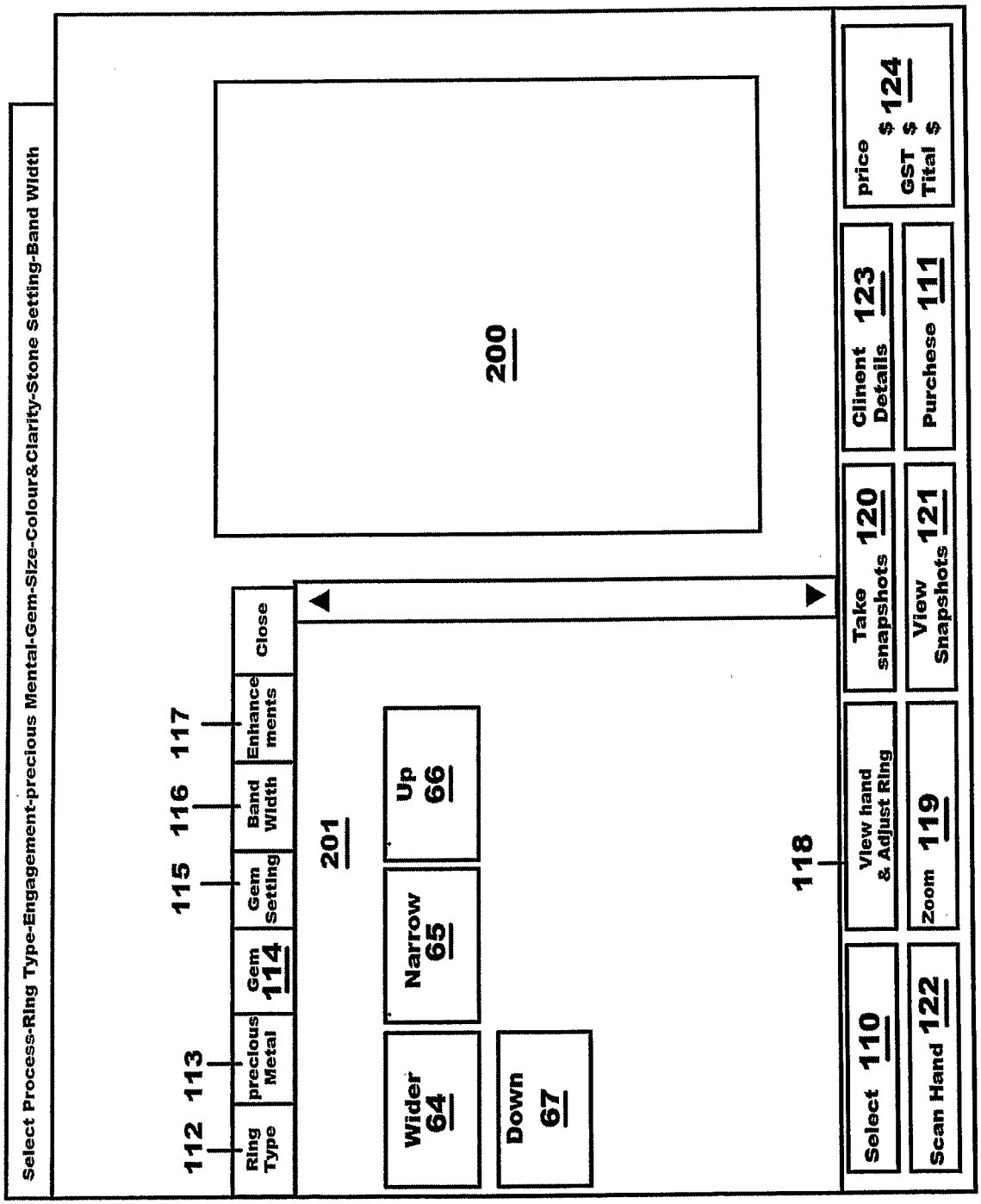
Select Process-Ring Type-Engagement-precious Mental-Gem-Size-Colour&Clarity-Stone Setting-Band Width
Ring Type
precious Metal
Gem 114
Gem Setting
Band Width
Enhance ments
Close
112 113 115 116 117
200
201
Wider 64
Narrow 65
Up 66
Down 67
118
Select 110
View hand & Adjust Ring
Take snapshots 120
Clinent Details 123
price $ 124
GST $
Tital $
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 10

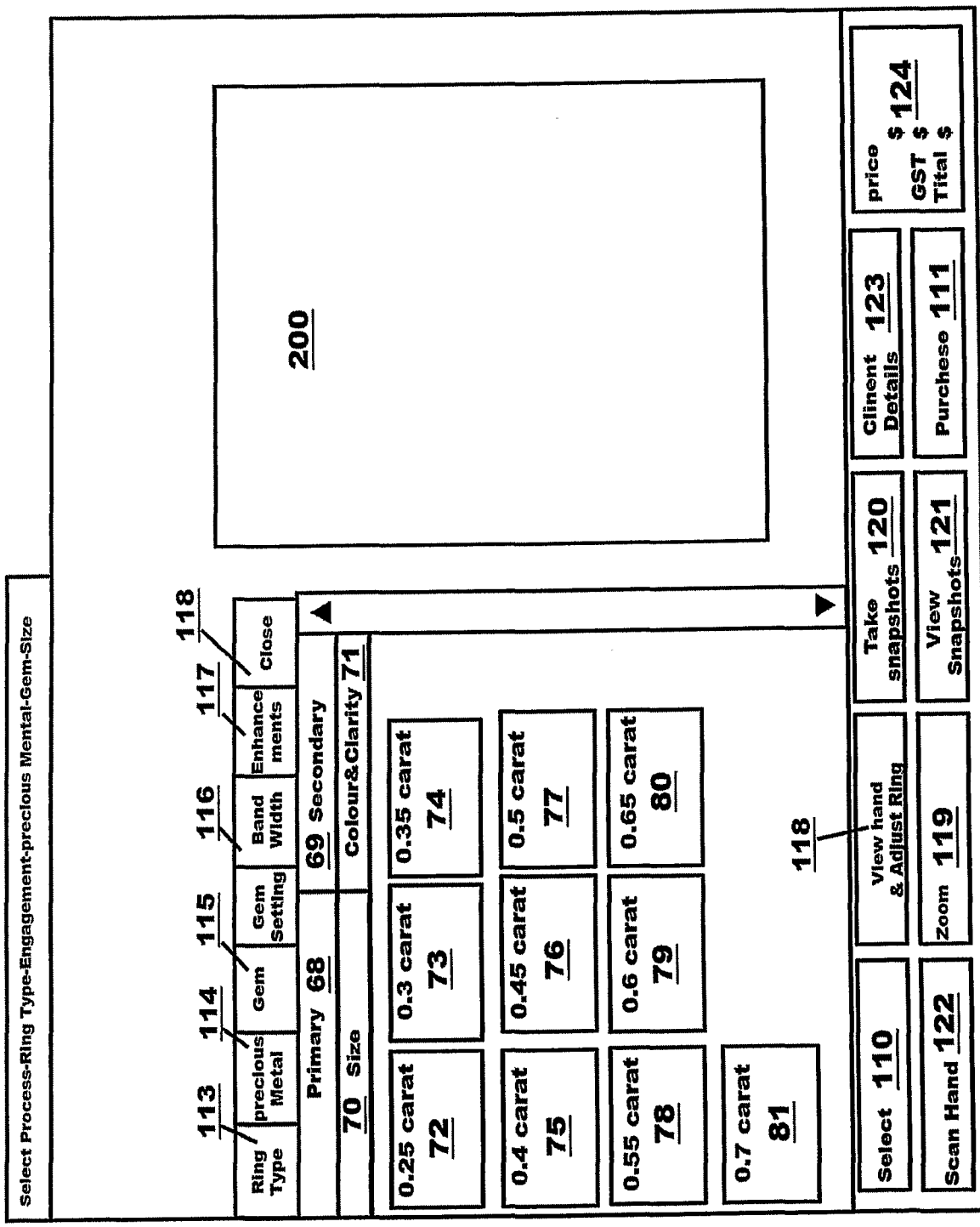
Select Process-Ring Type-Engagement-precious Mental-Gem-Size
113
114
115
116
117
118
Ring Type
precious Metal
Gem
Gem Setting
Band Width
Enhance ments
Close
Primary 68
69 Secondary
70 Size
Colour&Clarity 71
0.25 carat 72
0.3 carat 73
0.35 carat 74
0.4 carat 75
0.45 carat 76
0.5 carat 77
0.55 carat 78
0.6 carat 79
0.65 carat 80
0.7 carat 81
200
118
Select 110
View hand & Adjust Ring
Take snapshots 120
Clinent Details 123
price $ 124
GST $
Tital $
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 11

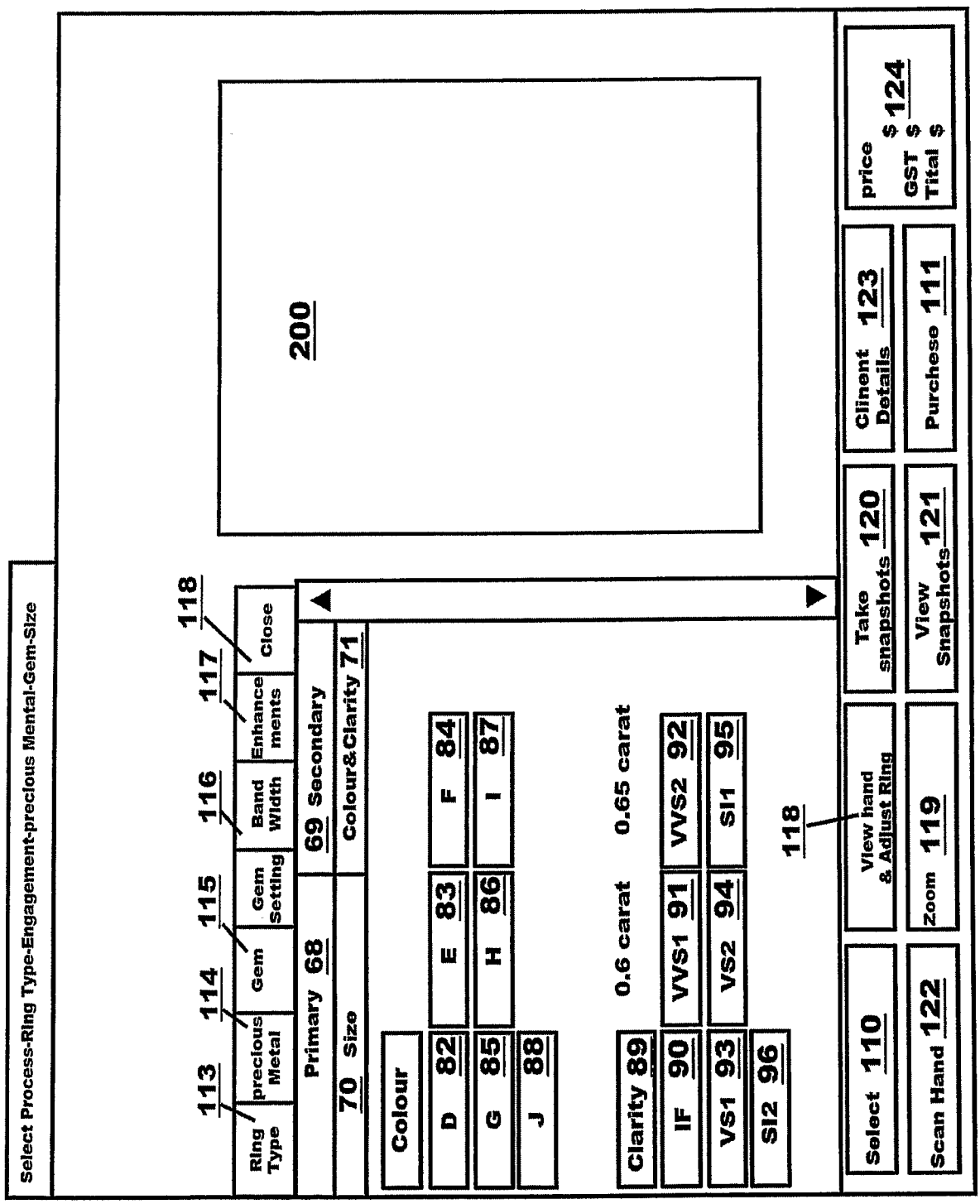
Select Process-Ring Type-Engagement-precious Mental-Gem-Size
113
114
115
116
117
118
Ring Type
precious Metal
Gem
Gem Setting
Band Width
Enhance ments
Close
Primary 68
69 Secondary
70 Size
Colour&Clarity 71
Colour
D 82
E 83
F 84
G 85
H 86
I 87
J 88
Clarity 89
IF 90
VVS1 91
VVS2 92
VS1 93
VS2 94
SI1 95
SI2 96
0.6 carat
0.65 carat
118
200
Select 110
View hand & Adjust Ring
Take snapshots 120
Clinent Details 123
price $ 124
GST $
Tital $
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 12

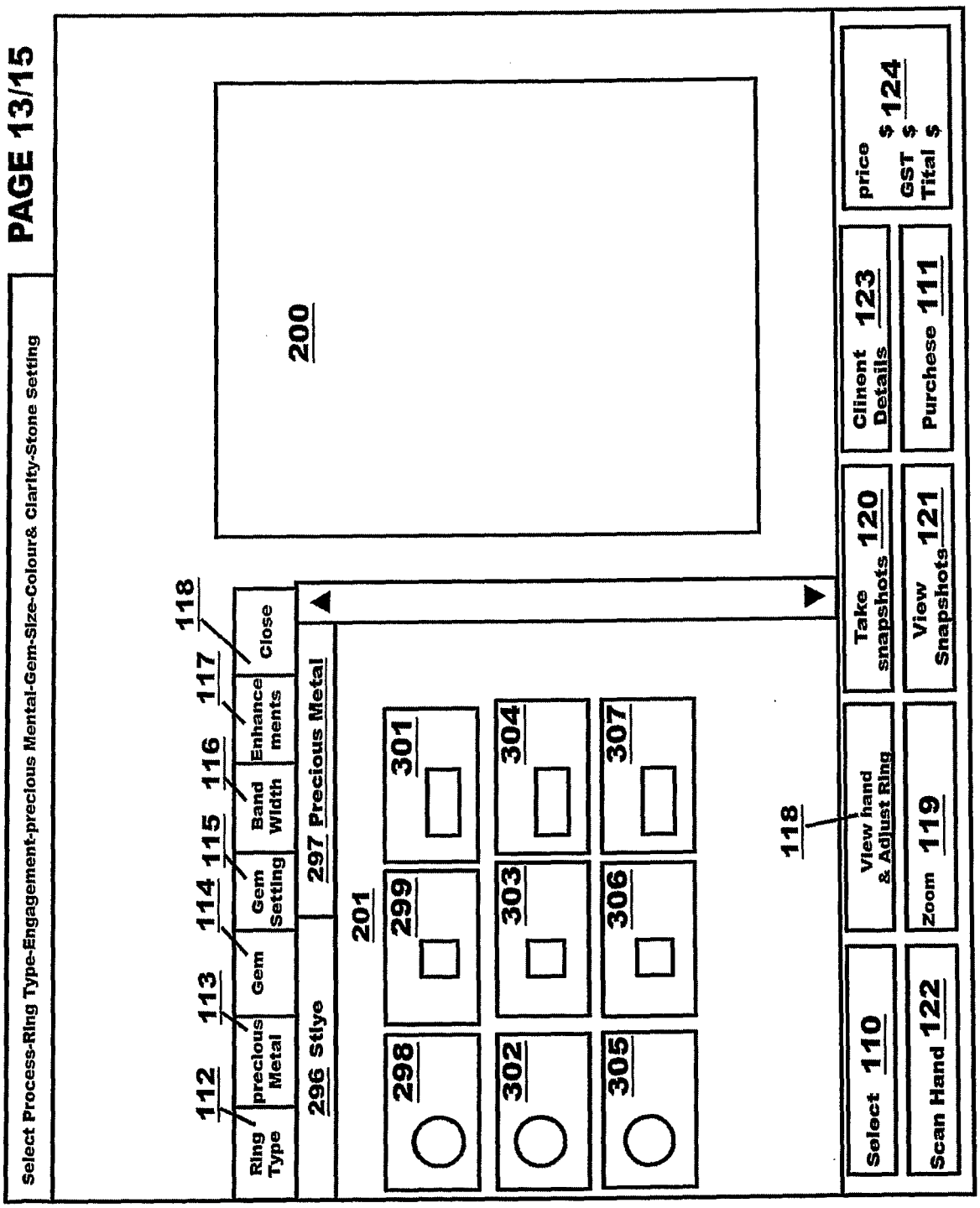
Select Process-Ring Type-Engagement-precious Mental-Gem-Size-Colour& Clarity-Stone Setting
PAGE 13/15
Ring Type
precious Metal
Gem
Gem Setting
Band Width
Enhance ments
Close
112
113
114
115
116
117
118
296 Stlye
297 Precious Metal
201
298
299
301
302
303
304
305
306
307
200
118
Select 110
View hand & Adjust Ring
Take snapshots 120
Clinent Details 123
price
GST $
Tital $
$ 124
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 13

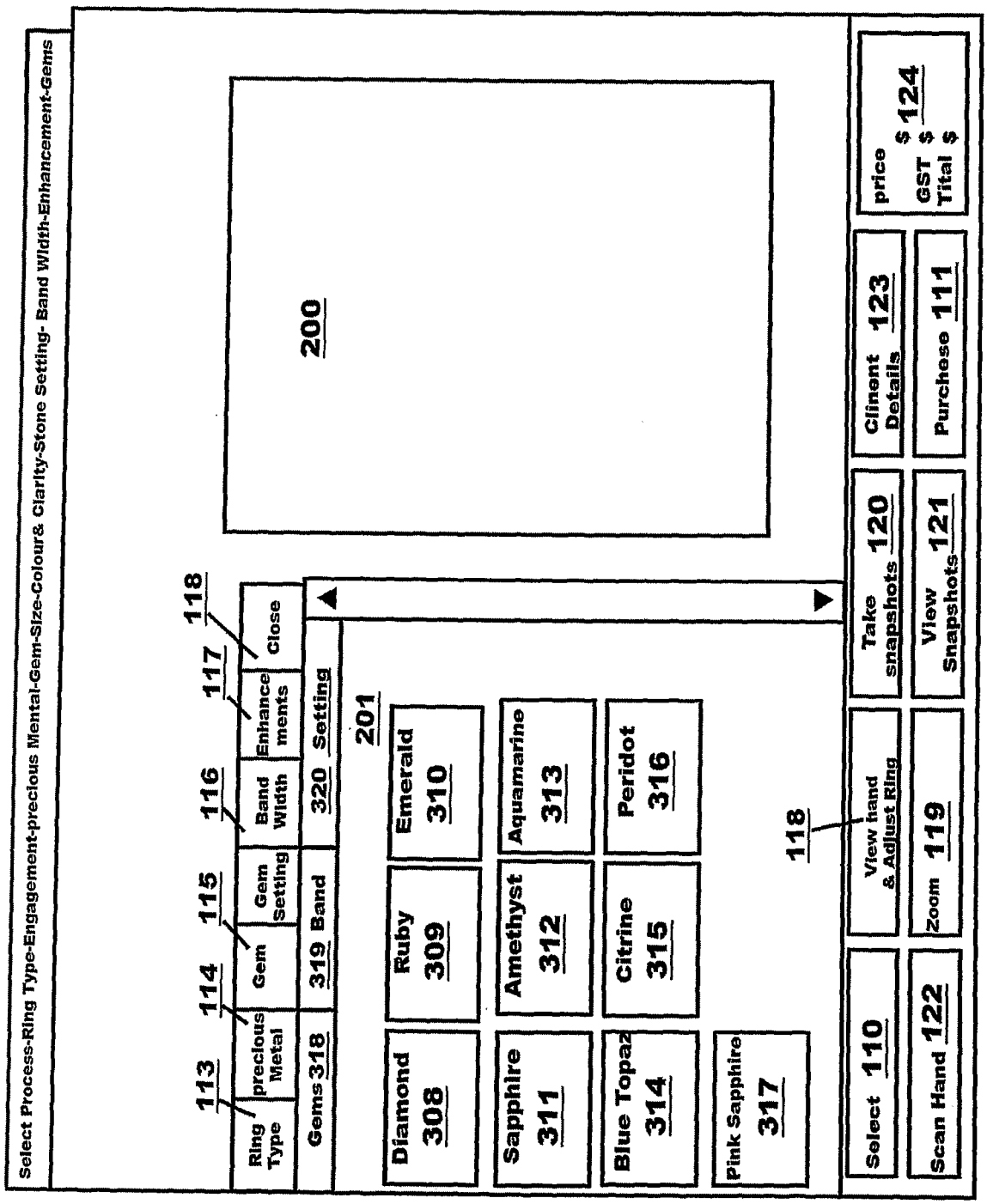
Select Process-Ring Type-Engagement-precious Mental-Gem-Size-Colour& Clarity-Stone Setting- Band Width-Enhancement-Gems
113
114
115
116
117
118
Ring Type
precious Metal
Gem
Gem Setting
Band Width
Enhance ments
Close
Gems 318
319 Band
320 Setting
201
200
Diamond 308
Ruby 309
Emerald 310
Sapphire 311
Amethyst 312
Aquamarine 313
Blue Topaz 314
Citrine 315
Peridot 316
Pink Sapphire 317
118
Select 110
View hand & Adjust Ring
Take snapshots 120
Client Details 123
price $ 124
GST $
Tital $
Scan Hand 122
Zoom 119
View Snapshots 121
Purchese 111

FIGURE 14

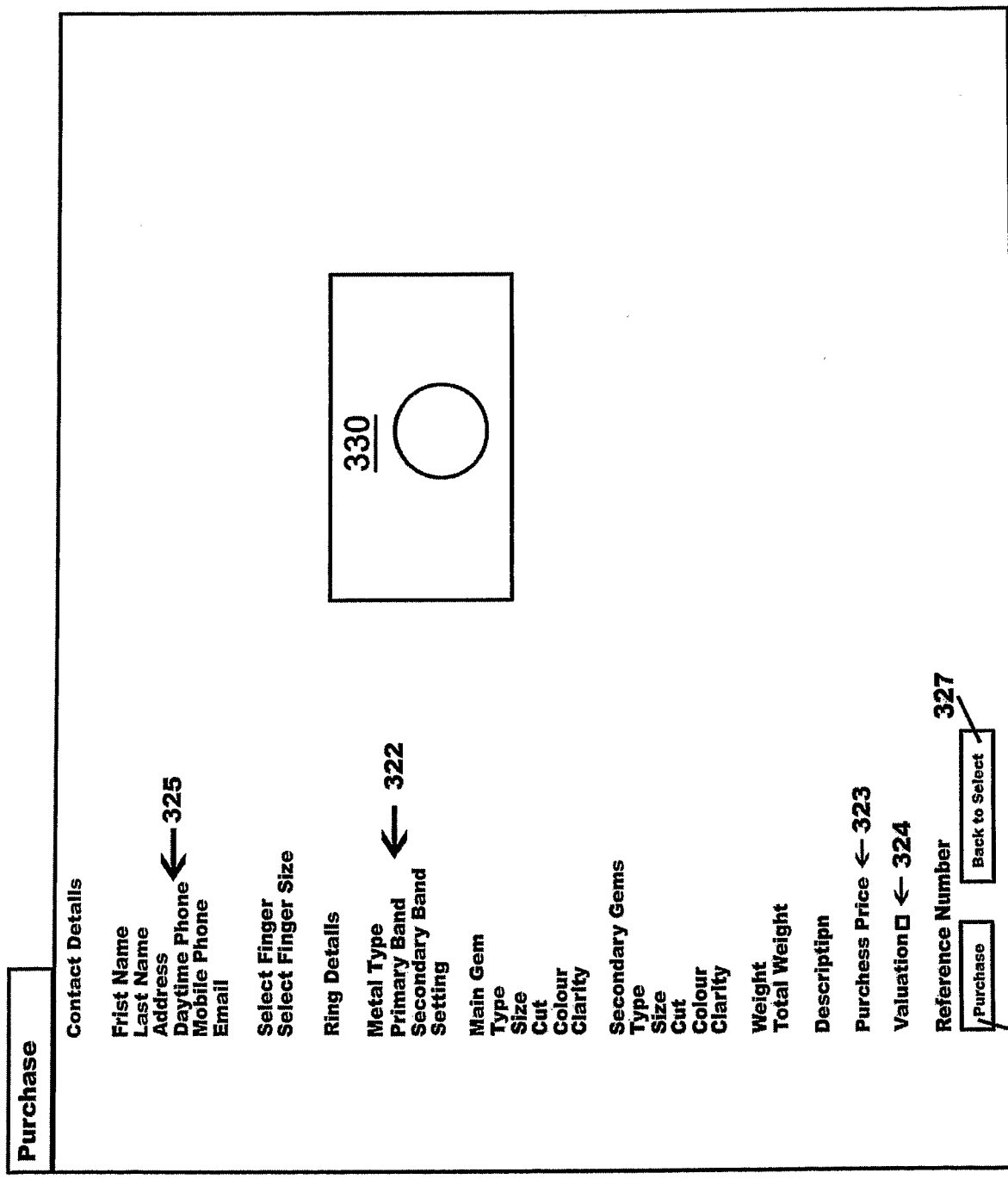
Purchase
Contact Details
Frist Name
Last Name
Address
Daytime Phone
Mobile Phone
Email
325
Select Finger
Select Finger Size
Ring Details
330
Metal Type
Primary Band
Secondary Band
Setting
322
Main Gem
Type
Size
Cut
Colour
Clarity
Secondary Gems
Type
Size
Cut
Colour
Clarity
Weight
Total Weight
Description
Purchess Price
323
Valuation
324
Reference Number
327
Purchase
Back to Select
326

FIGURE 15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2006/000264

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

G06T 17/40 (2006.01)

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)

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 practicable, search terms used)
Internet, USPTO, DWPI using keywords: GUI, interface, controls, 3D, 3 dimensional, manipulat+, configur+, adjust+, scan+, capture, mesh, wireframe. model+, virtual, design, CAD, CAM

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7079134 B2 (Kung et al.) 18 July 2006 See whole document, in particular: Abstract; Column1, Line 51 – Column 2, Line 9; Column 8, Lines 54 – 67; Column 4, Lines 3 – 6; Fig 16	1 – 50
X	US 7056115 B2 (Phan et al.) 6 June 2006 See whole document, in particular: Abstract; Column 3, Lines 51 – 59; Column 4, Lines 7 – 42	1 – 50
X	US 20040227752 A1 (McCartha et al.) 18 November 2004 See whole document, in particular: Abstract; Para 0012, Para 0074, Para 0075	1 – 50

[X] Further documents are listed in the continuation of Box C [X] See patent family 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 application or patent 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

Date of the actual completion of the international search	Date of mailing of the international search report
23 February 2007	- 1 MAR 2007
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **JYOTI SHAMDASANI** Telephone No : (02) 6283 2836

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2006/000264

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0015934 A1 (Rubbert et al.) 7 February 2002 See whole document, in particular: Abstract; Para 0002, Para 0017, Para 0025, Fig 78	1 – 50
A	US 20050285844 A1 (Morita et al.) 29 December 2005 See whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/NZ2006/000264

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	7079134	AU	60397/01	CN	1419681	EP	1281136
		FR	2808908	HK	1052771	US	2003011590
		WO	0186512				
US	7056115	CN	1663540	EP	1570803	JP	2005246035
		US	2004166462	US	2004229185	US	2004253562
		US	2005042569	US	2006084030		
US	2004227752	NONE					
US	2002015934	AU	51605/01	AU	51606/01	AU	55308/01
		AU	55340/01	AU	2003223375	AU	2003224790
		AU	2003226345	CN	1436362	EP	1168571
		EP	1276433	EP	1279187	EP	1287482
		EP	1301140	EP	1500034	EP	1624823
		JP	2002008596	JP	2002010554	JP	2005201896
		JP	2005214965	JP	2005230530	US	6250918
		US	6315553	US	6318995	US	6350120
		US	6413084	US	6431870	US	6464496
		US	6471512	US	6512994	US	6532299
		US	6540512	US	6554613	US	6587828
		US	6628079	US	6632089	US	6648640
		US	6688885	US	6728423	US	6736638
		US	6738508	US	6744914	US	6744932
		US	6771809	US	6851949	US	6897615
		US	6918761	US	6971873	US	7003472
		US	7013191	US	7027642	US	7029275
		US	7058213	US	7068825	US	7068836
		US	7156655	US	7160110	US	7172417
		US	2001038705	US	2002006217	US	2002010568
		US	2002135308	US	2002140381	US	2002150859
		US	2002156652	US	2003021453	US	2003096210
		US	2003105611	US	2003194677	US	2004002873
		US	2004015327	US	2004029068	US	2004073417
		US	2004197727	US	2004214128	US	2004214129

US	2005043837	US	2005069188	US	2005089214
US	2005095552	US	2005095562	US	2005118555
US	2005153255	US	2005208450	US	2005271996
US	2006078842	US	2006079981	US	2006093206
US	2006129430	US	2006190301	US	2006228010
US	2006263739	US	2006263740	US	2006263741
WO	0180761	WO	0182332	WO	0184479
WO	0185047	WO	03092529	WO	03092536
WO	03094102	WO	2004098378	WO	2004098379
WO	2005004738	WO	2005008441		

US 2005285844 NON E

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX