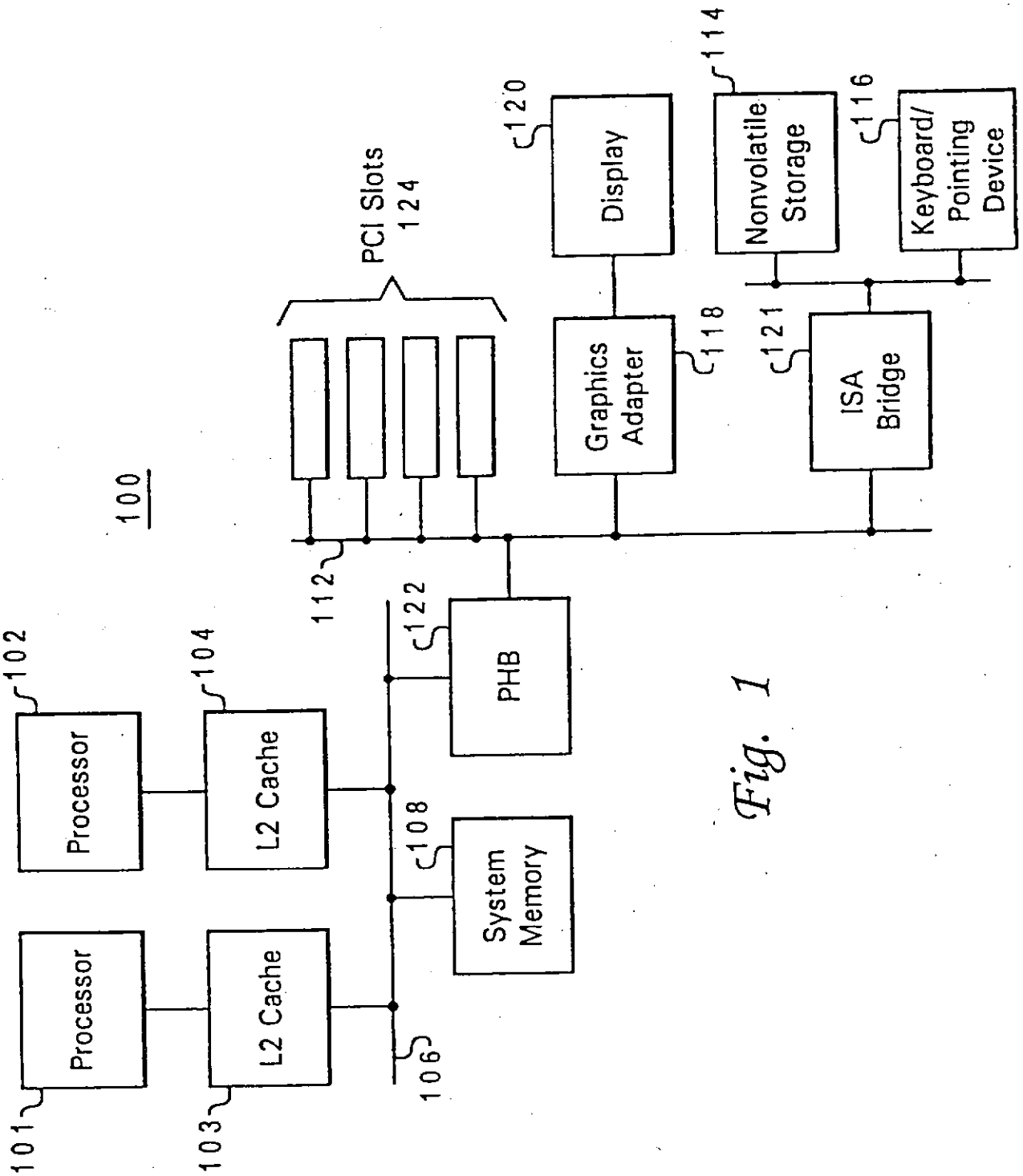

100
Processor
102
L2 Cache
104
Processor
101
L2 Cache
103
106
System Memory
108
PHB
122
112
PCI Slots
124
Graphics Adapter
118
Display
120
ISA Bridge
121
Nonvolatile Storage
114
Keyboard/ Pointing Device
116

Fig. 1

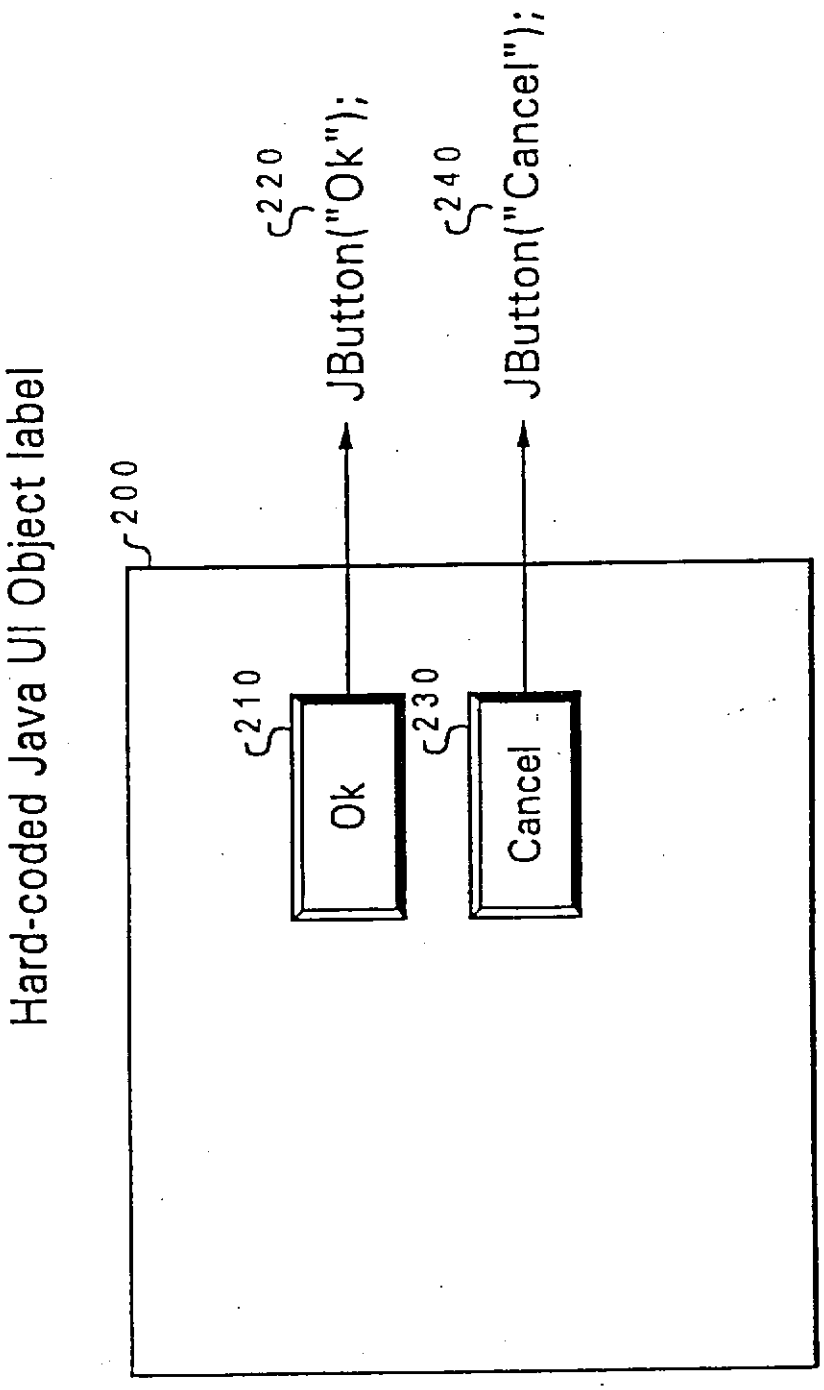

Hard-coded Java UI Object label
200
JButton("Ok");
220
JButton("Cancel");
240
Ok
210
Cancel
230

Fig. 2

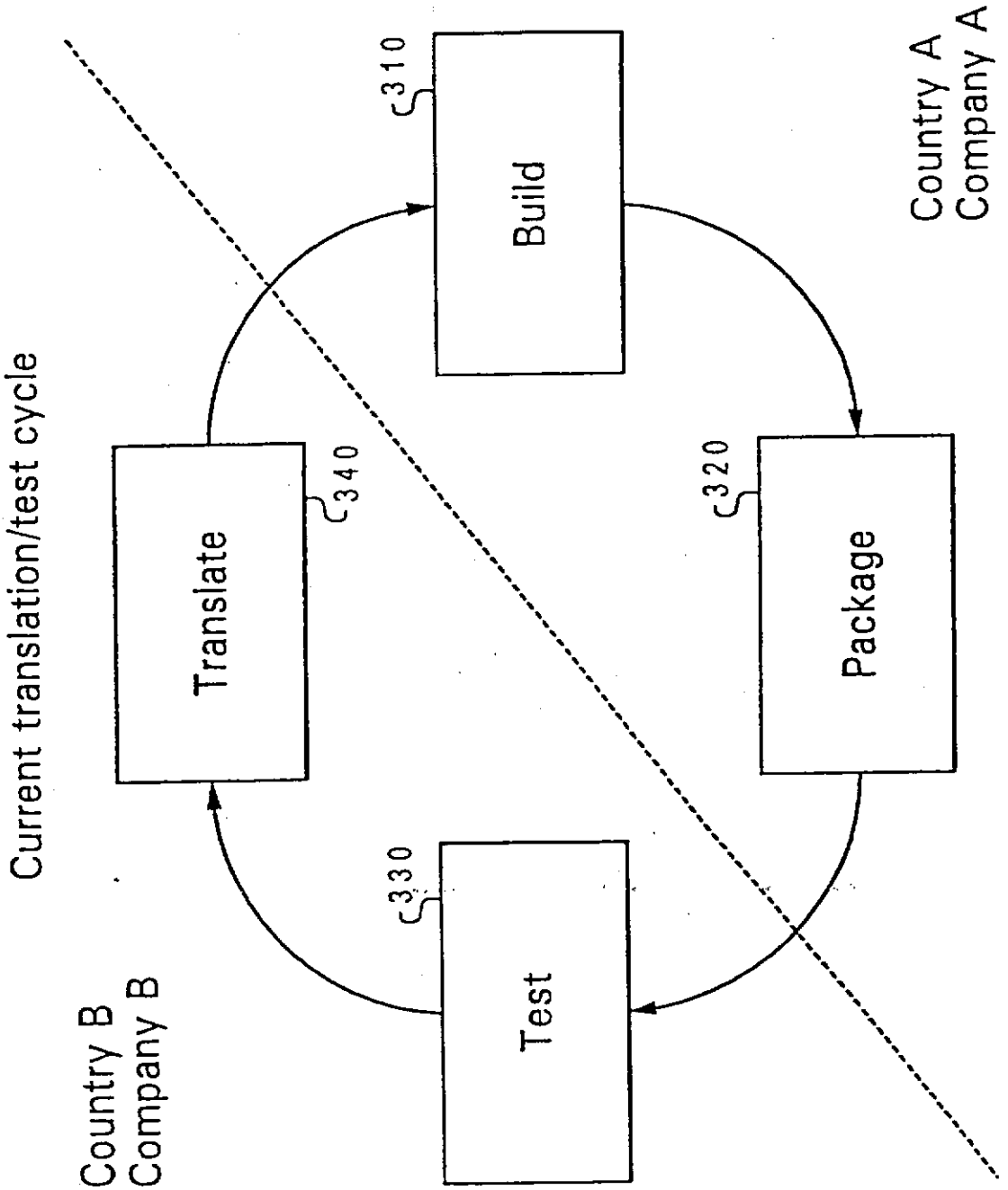

Current translation/test cycle
Country A
Company A
Country B
Company B
Build
310
Package
320
Test
330
Translate
340

Fig. 3

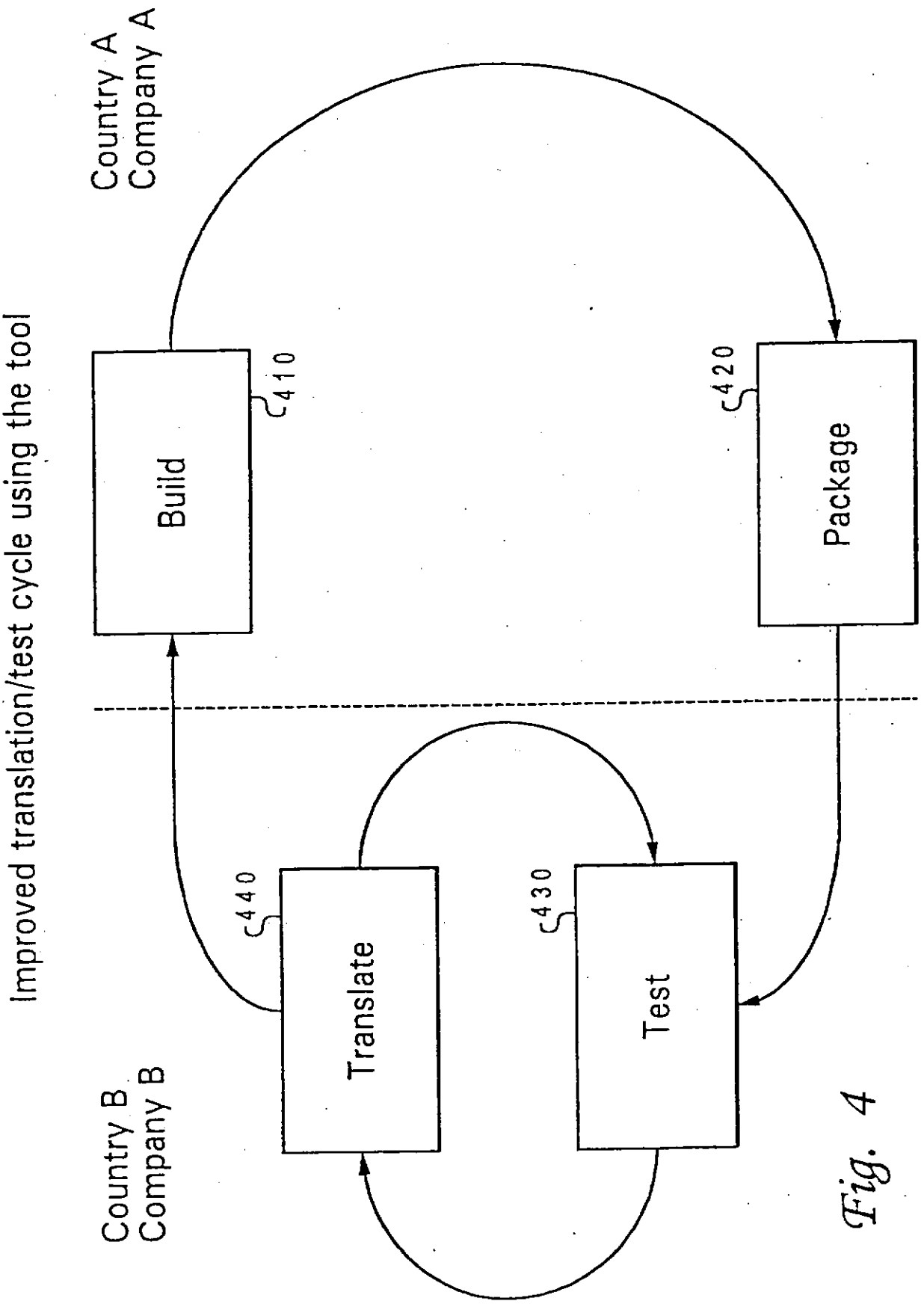

Improved translation/test cycle using the tool
Country A
Company A
Build
410
Package
420
Translate
440
Test
430
Country B
Company B

Fig. 4

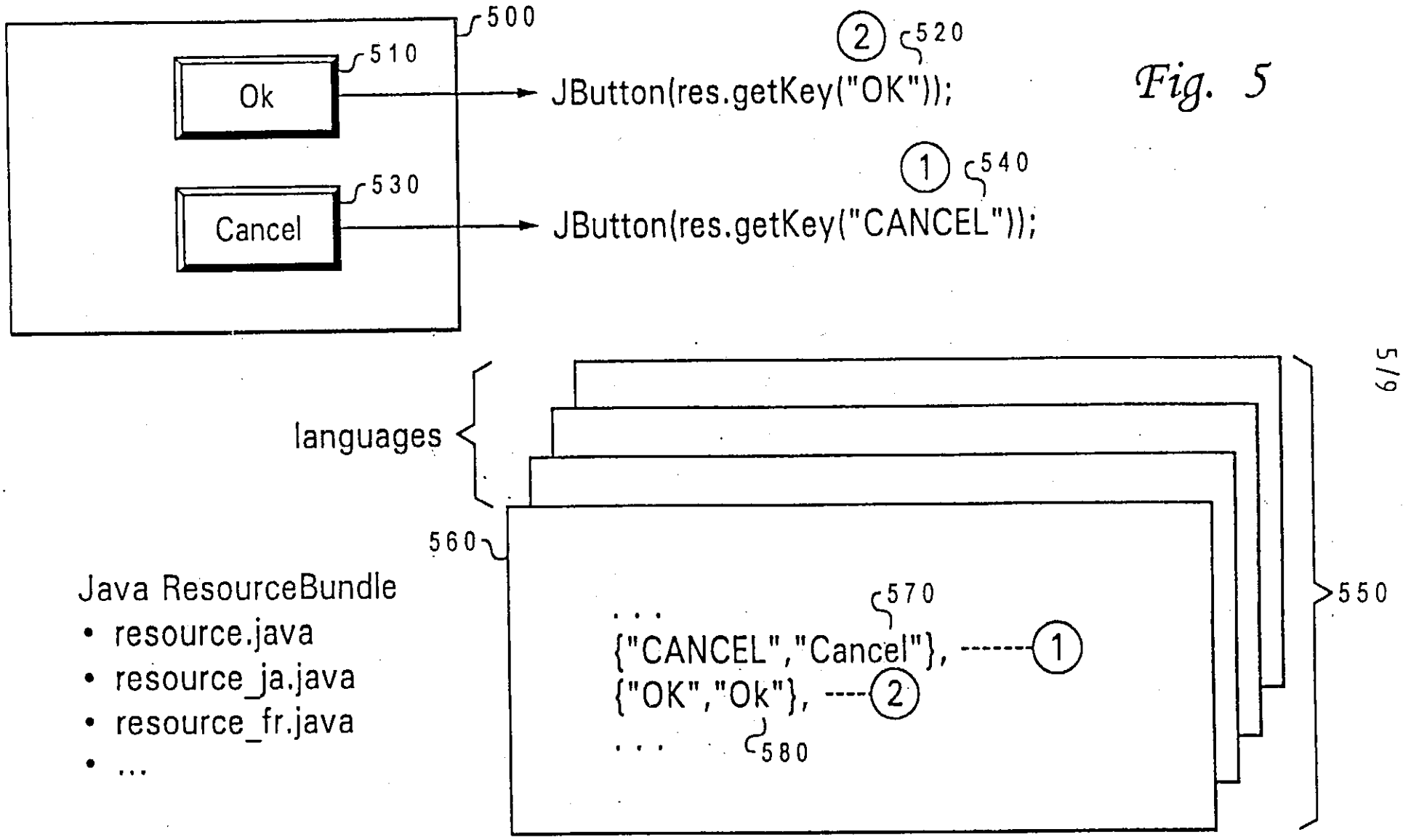

Java UI Object label using ResourceBundle
500
510
Ok
520
2
JButton(res.getKey("OK"));
530
Cancel
540
1
JButton(res.getKey("CANCEL"));
languages
560
550
570
. . .
{"CANCEL","Cancel"}, ------1
{"OK","Ok"}, ----2
. . .
580
Java ResourceBundle
• resource.java
• resource_ja.java
• resource_fr.java
• ...

Fig. 5

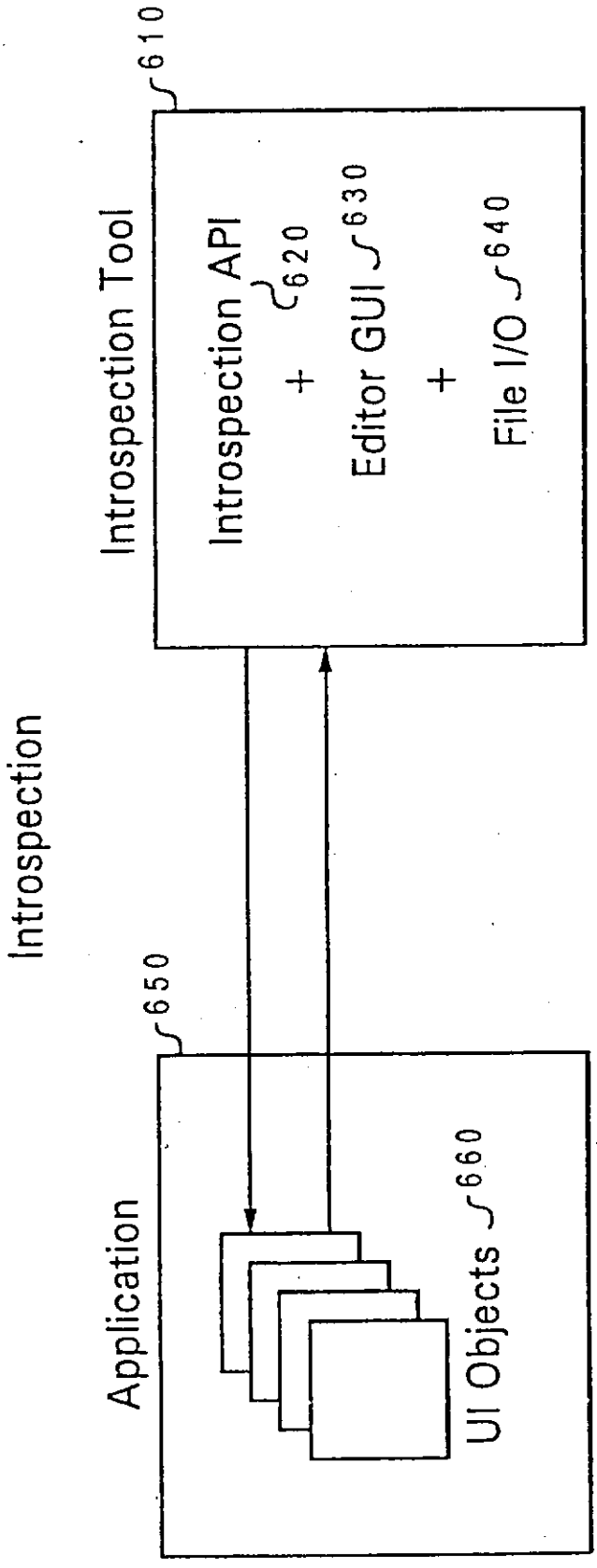

Introspection
Introspection Tool
610
Introspection API
620
+
Editor GUI
630
+
File I/O
640
Application
650
UI Objects
660

Fig. 6

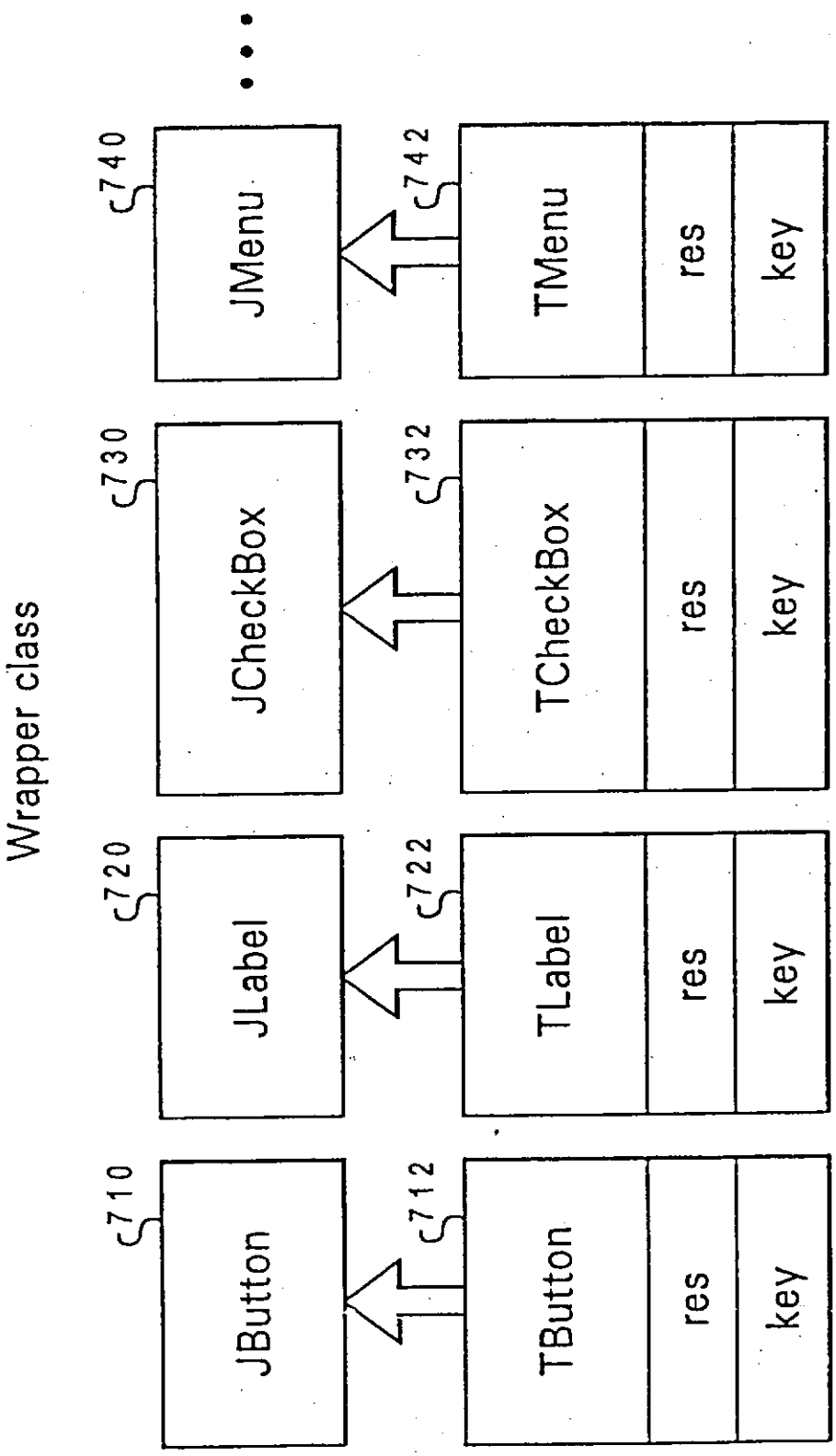
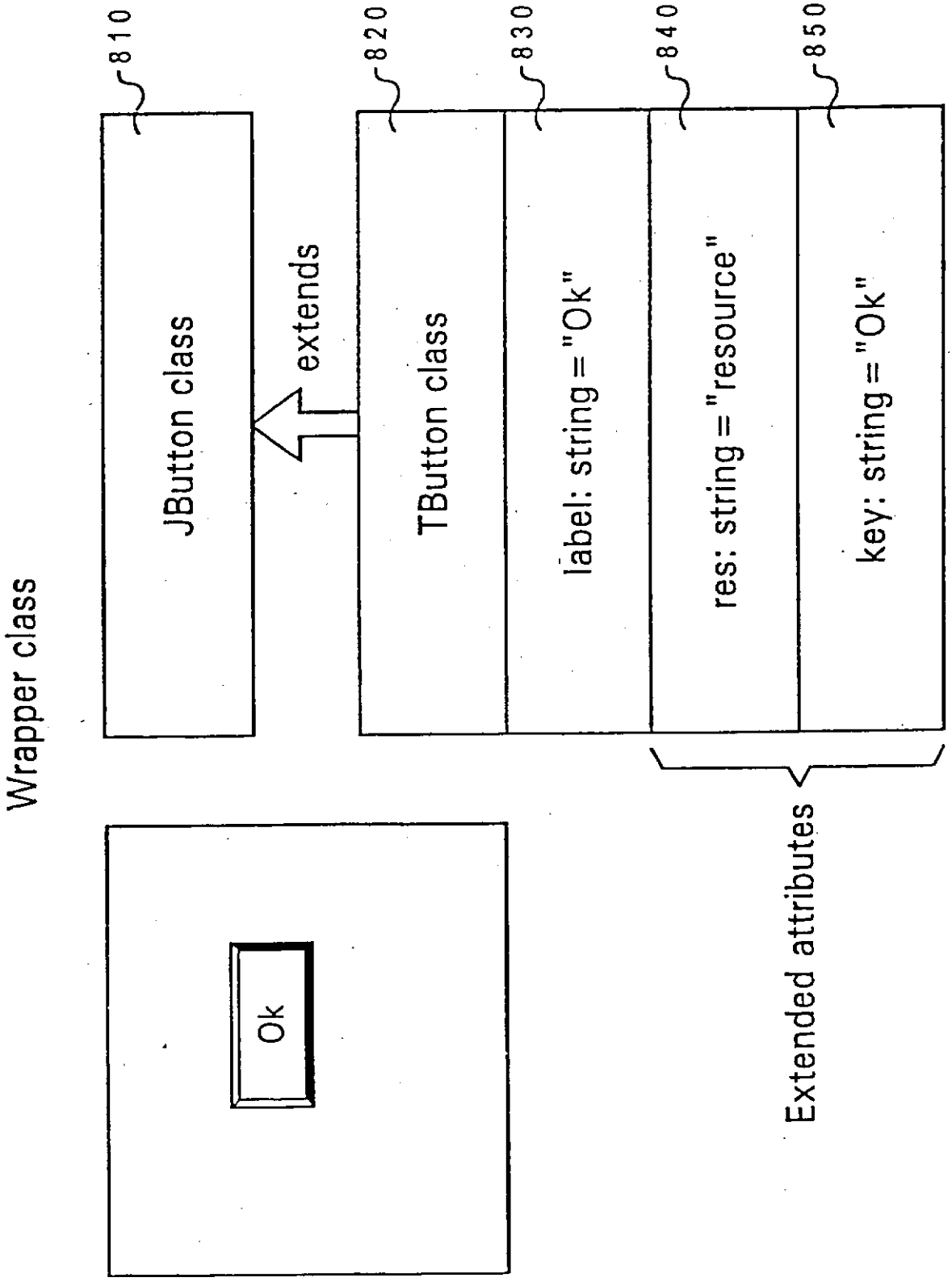

Wrapper class
JButton
710
TButton
712
res
key
JLabel
720
TLabel
722
res
key
JCheckBox
730
TCheckBox
732
res
key
JMenu
740
TMenu
742
res
key

Fig. 7

Fig. 8


Wrapper class
JButton class
extends
TButton class
label: string = "Ok"
res: string = "resource"
key: string = "Ok"
Extended attributes
Ok
810
820
830
840
850

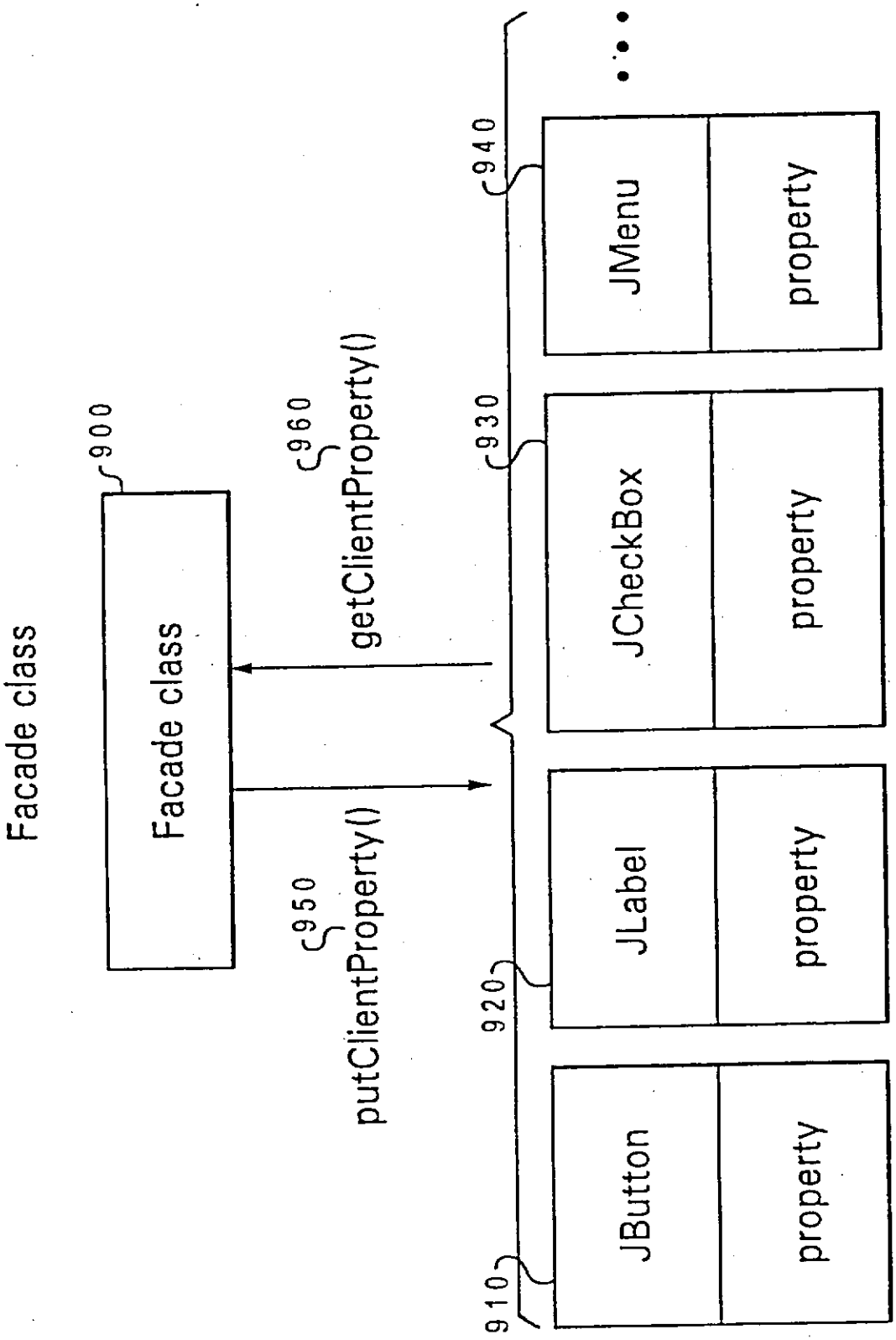

Facade class
900
Facade class
960
getClientProperty()
950
putClientProperty()
910
JButton
property
920
JLabel
property
930
JCheckBox
property
940
JMenu
property

Fig. 9