



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
03.12.2003 Bulletin 2003/49

(51) Int Cl.7: **E06B 3/66, E06B 9/24**

(21) Application number: **02012045.7**

(22) Date of filing: **31.05.2002**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
 MC NL PT SE TR**
 Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Su, Keng Kuei**
Chien-Chen District, Kaohsiung City (TW)

(74) Representative: **Robba, Pierpaolo et al**
INTERPATENT S.R.L.,
Via Caboto No.35
10129 Torino (IT)

(71) Applicant: **Su, Keng Kuei**
Chien-Chen District, Kaohsiung City (TW)

(54) **Window assembly with fluid between two panes of glass**

(57) A window assembly includes two pieces of glass engaged in the window frame and a base is connected to the window frame. A reservoir and a pump are

received in the base and a liquid with desired color is received in the reservoir. The liquid is pumped in the gap between the two pieces of glass so as to perform as a curtain.

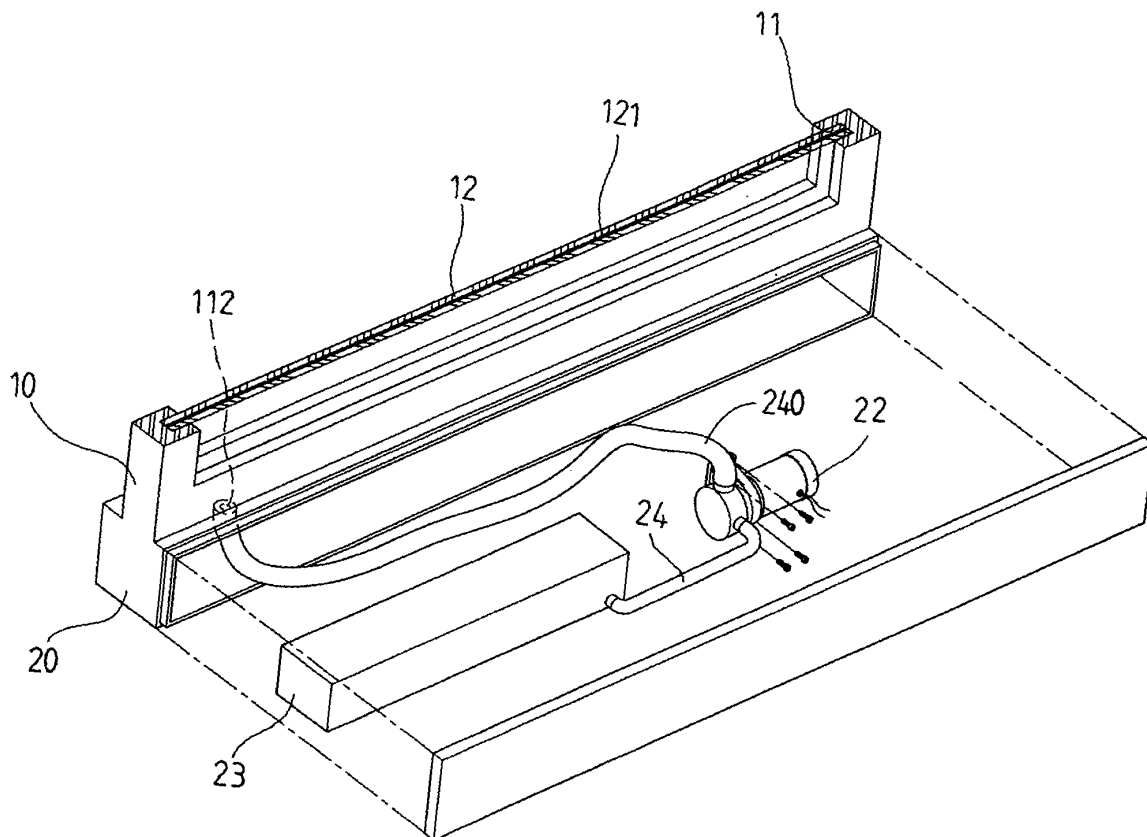


FIG. 1

Description**FIELD OF THE INVENTION**

[0001] The present invention relates to a window assembly comprising two pieces of glass and a fluid being filled between the glasses to perform as a curtain.

BACKGROUND OF THE INVENTION

[0002] A conventional window comprises one or two pieces of glass and in order to block the strong brightness outside of the window entering the interior of the room, a curtain is used to reduce the affection of the brightness outside of the room to the people in the room. The conventional curtains although include many types such as blinds and fabric curtain, however, both of the two types of curtains are difficult to be detached from the window frame and to be clean. Besides, to replace or change a new curtain is costly and takes a lot of time. Usually, the users cannot easily to install a new curtain by themselves.

SUMMARY OF THE INVENTION

[0003] In accordance with one aspect of the present invention, there is provided a window assembly which comprises a base in which a reservoir for receiving liquid and a pump are received. A first pipe is connected between the reservoir and the pump. A frame has a groove defined in each of four inner sides thereof and two pieces of glass are engaged with the groove of the frame. A gap is defined between the two pieces of glass. An opening is defined in a lower side of the frame and communicates with the gap. A second pipe has an end connected to the pump and the other end of the second pipe is engaged with the opening.

[0004] The primary object of the present invention is to provide a window assembly wherein a liquid with desired color can be filled a gap between two pieces of glass so as to be used as a curtain.

[0005] The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS**[0006]**

Fig. 1 is an exploded view to show a first embodiment of the window assembly of the present invention;

Fig. 2 is a cross sectional view to show the window assembly of the present invention wherein the liquid is not yet pumped into the gap between the two pieces of glass;

Fig. 3 is a cross sectional view to show the window assembly of the present invention wherein the liquid is pumped into the gap between the two pieces of glass;

Fig. 4 is a perspective view to show that the liquid is filled in the gap of the window assembly of the present invention;

Fig. 5 is an exploded view to show a second embodiment of the window assembly of the present invention, and

Fig. 6 is an exploded view to show a third embodiment of the window assembly of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0007] Referring to Figs. 1 and 2, the window assembly of the present invention comprises a base 20 and a frame 10 connected on a top of the base 20. A reservoir 23 for receiving liquid and a pump 22 are received in the base 20. The liquid may have a desired color. A first pipe 24 is connected between the reservoir 23 and the pump 22.

[0008] The frame 10 has four inner sides and a groove 11 is defined in each of the inner sides and two pieces of glass 12 are engaged with the grooves 11 of the frame 10. A gap 121 is defined between the two pieces of glass 12 and sealed between the frame 10. An opening 112 is defined in a lower side of the frame 10 and communicates with the gap 121. A second pipe 240 has an end connected to the pump 22 and the other end of the second pipe 240 is engaged with the opening 112.

[0009] Referring to Figs. 3 and 4, when the pump 20 is activated by a proper switch or control device, the liquid in the reservoir 23 is pumped into the gap 121 via the opening 112 so that the interior is blocked from being seen from outside by the liquid.

[0010] Figure 5 shows a second embodiment of the present invention and is similar to that of the window assembly as shown in Figs. 1-4 except that an inlet 113 and an outlet 114 are respectively defined in the lower side of the frame 10 and communicate with the gap 121 between the two pieces of glass 12.

[0011] A first pipe 25 is connected between the reservoir 23 and the pump 22, and a second pipe 251 has an end connected to the pump 22 and the other end of the second pipe 251 is engaged with the inlet 113. A third pipe 252 has an end connected to the reservoir 23 and the other end of the third pipe 252 is engaged with the outlet 114. By the arrangement. The liquid can be filled into the gap 121 or removed from the gap 121 within a short period of time via the inlet 113 and the outlet 114.

[0012] Figure 6 shows a third embodiment of the window assembly of the present invention, wherein a base 20 is connected to a top of the frame 10 and a motor 26 and a mandrel 27 are received in the base 20. A curtain

piece 28 is wrapped around the mandrel 27. A pulley is connected to an end of the mandrel 27 and a belt 261 reeves through the pulley and an output shaft of the motor 26. A slot 115 defined in a lower side of the frame 10 and communicating with the gap 121. A leading edge of the curtain piece 28 is inserted in the slot 115. When the motor 26 is activated, the mandrel 27 is rotated by the belt 261 and the curtain piece 28 is lowered into the gap 121 so as to perform as a curtain.

[0013] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A window assembly comprising:

a base in which a reservoir for receiving liquid and a pump are received, a first pipe connected between the reservoir and the pump, and a frame having multiple inner sides and a groove defined in each of the inner sides thereof and two pieces of glass engaged with the grooves of the frame, a gap defined between the two pieces of glass, an opening defined in a lower side of the frame and communicating with the gap, a second pipe having an end connected to the pump and the other end of the second pipe engaged with the opening.

2. A window assembly comprising:

a base in which a reservoir for receiving liquid and a pump are received, a first pipe connected between the reservoir and the pump, and a frame having multiple inner sides and a groove defined in each of the inner sides thereof and two pieces of glass engaged with the grooves of the frame, a gap defined between the two pieces of glass, an inlet and an outlet respectively defined in a lower side of the frame and communicating with the gap, a second pipe having an end connected to the pump and the other end of the second pipe engaged with the inlet, a third pipe having an end connected to the reservoir and the other end of the third pipe engaged with the outlet.

3. A window assembly comprising:

a base in which a motor and a mandrel are received, a curtain piece wrapped around the mandrel, a pulley connected to an end of the mandrel and a belt reeving through the pulley and an output shaft of the motor;

a frame connected to a lower side of the base and having multiple inner sides and a groove defined in each of the inner sides thereof and two pieces of glass engaged with the grooves of the frame, a gap defined between the two pieces of glass, a slot defined in a lower side of the frame and communicating with the gap, a leading edge of the curtain piece inserted in the slot.

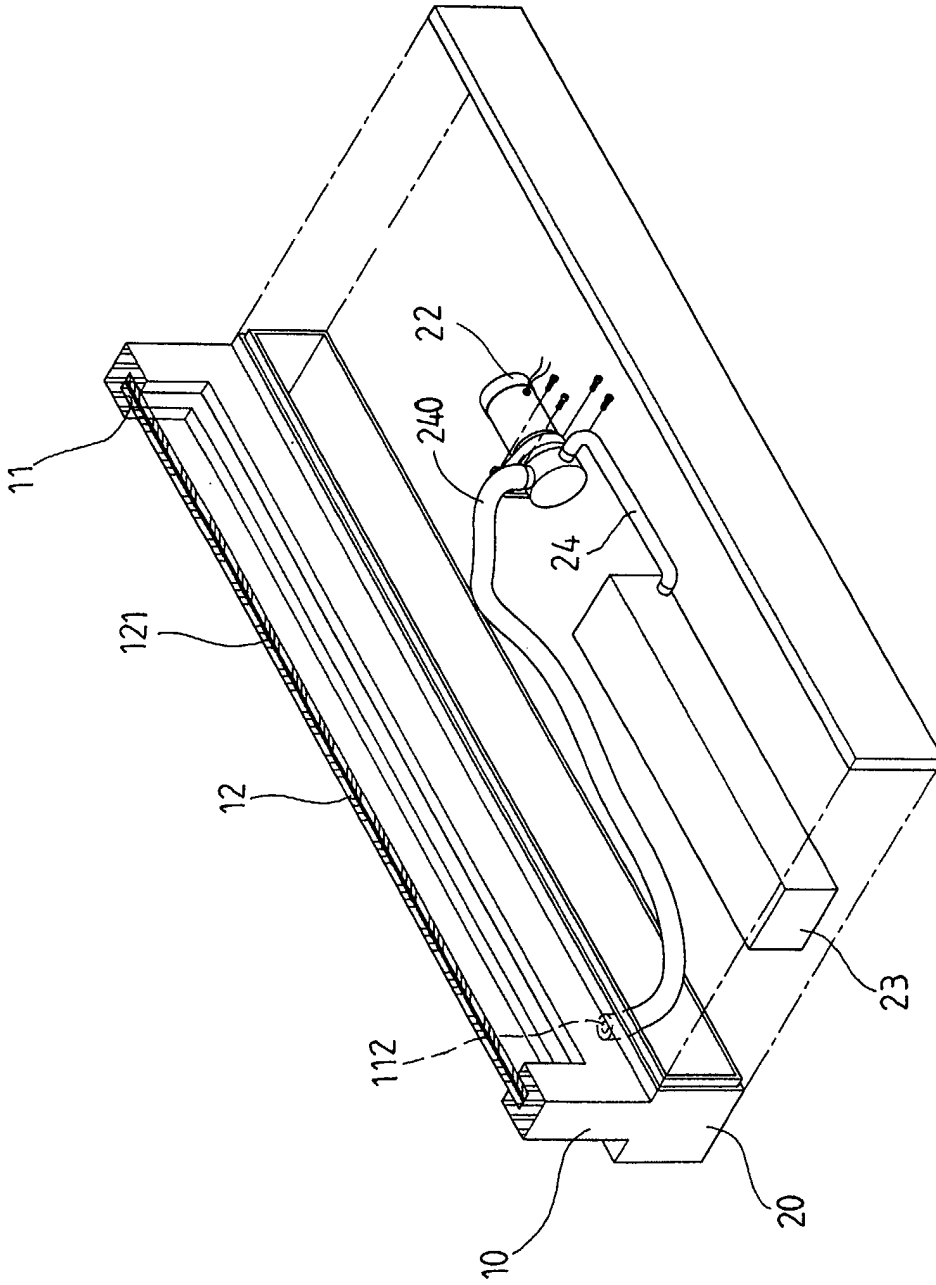


FIG.1

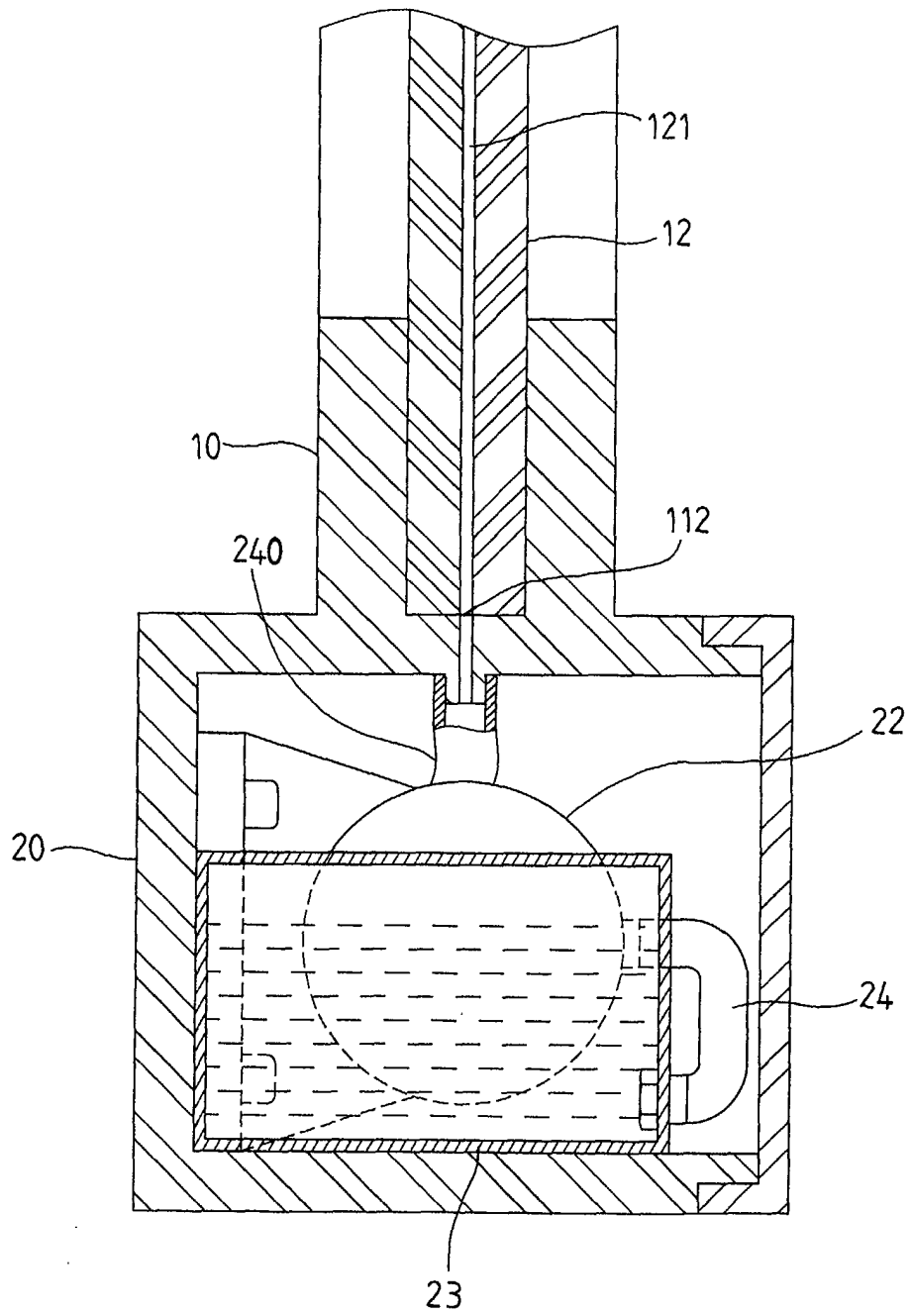


FIG.2

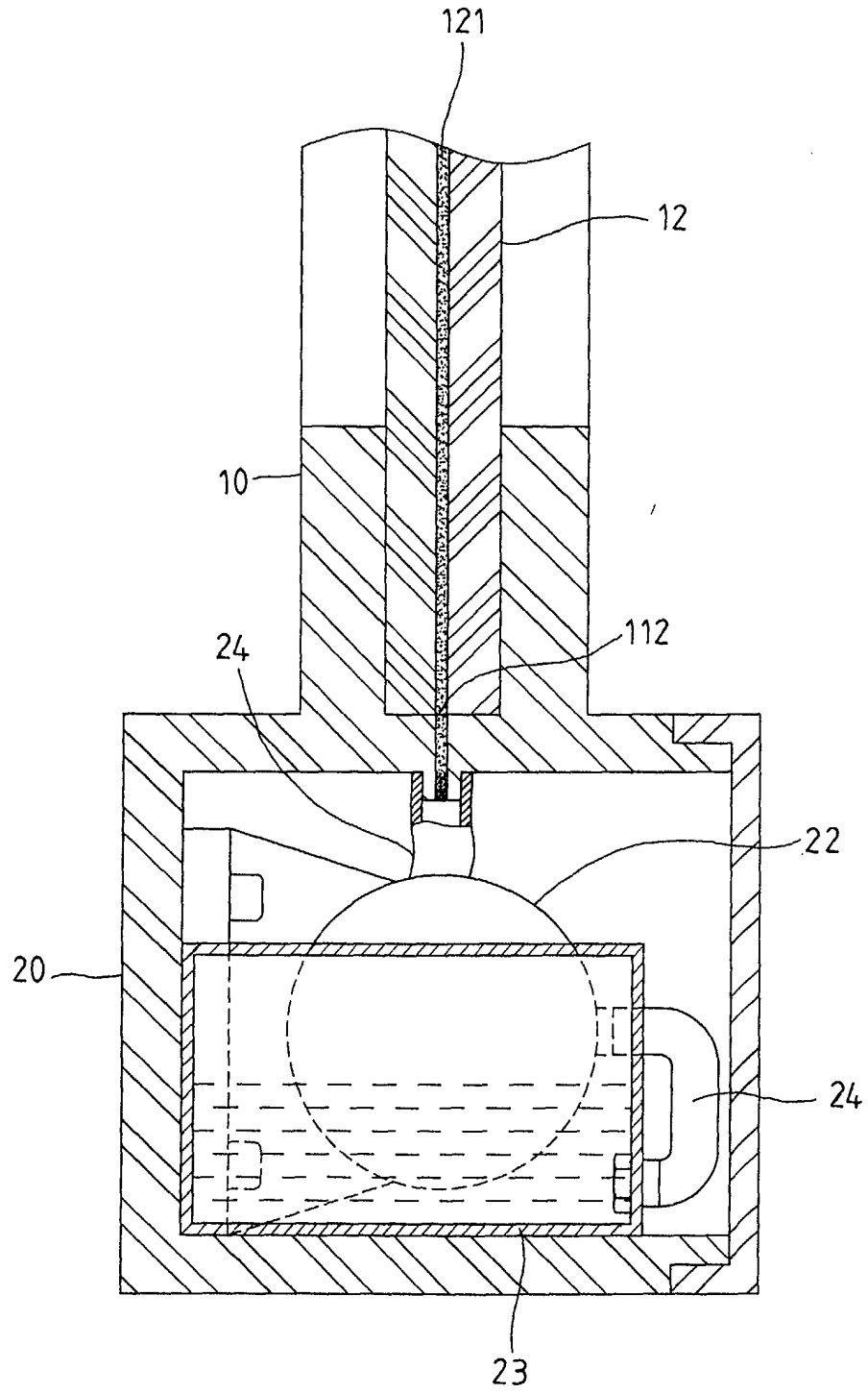


FIG.3

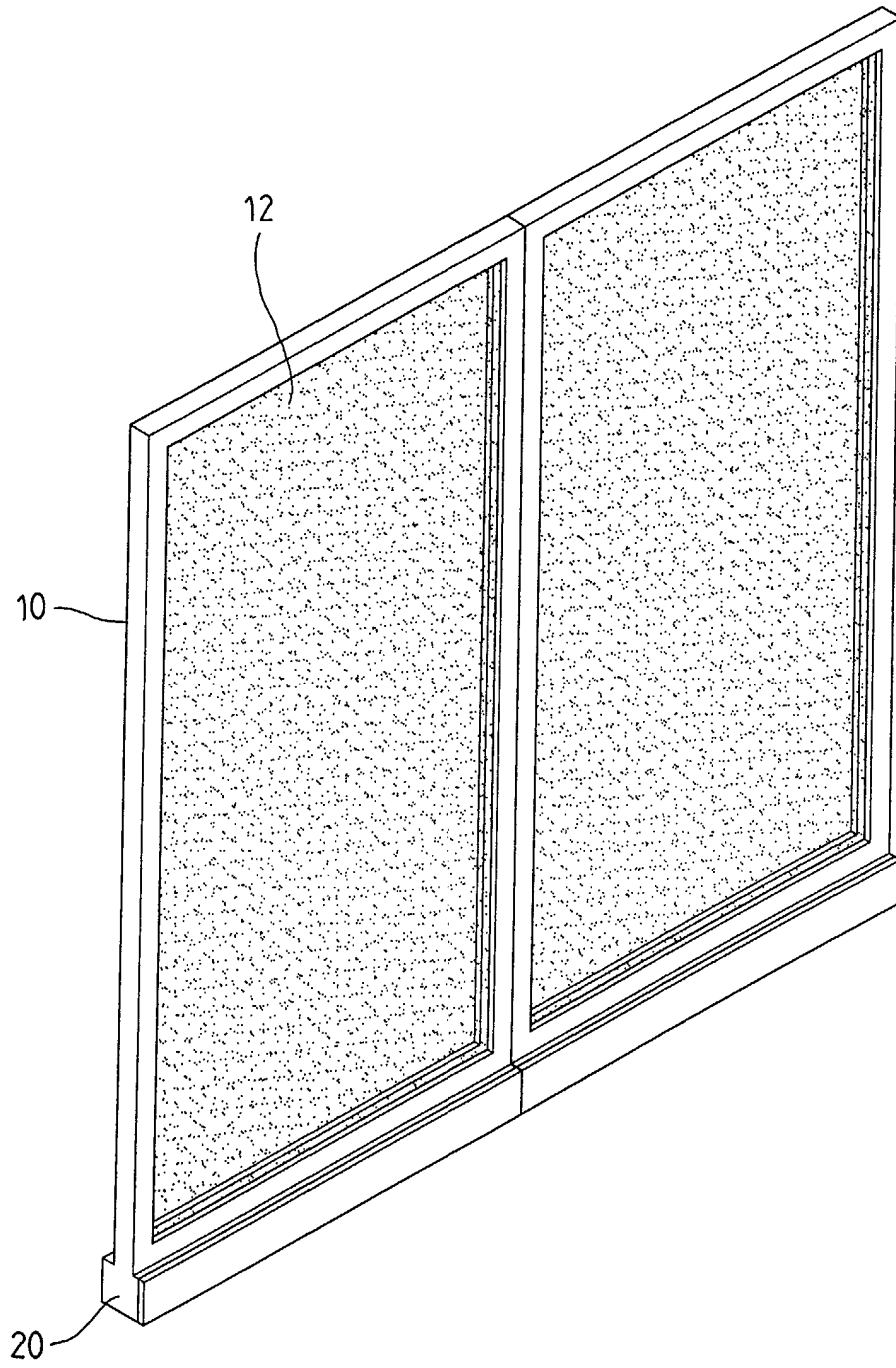


FIG.4

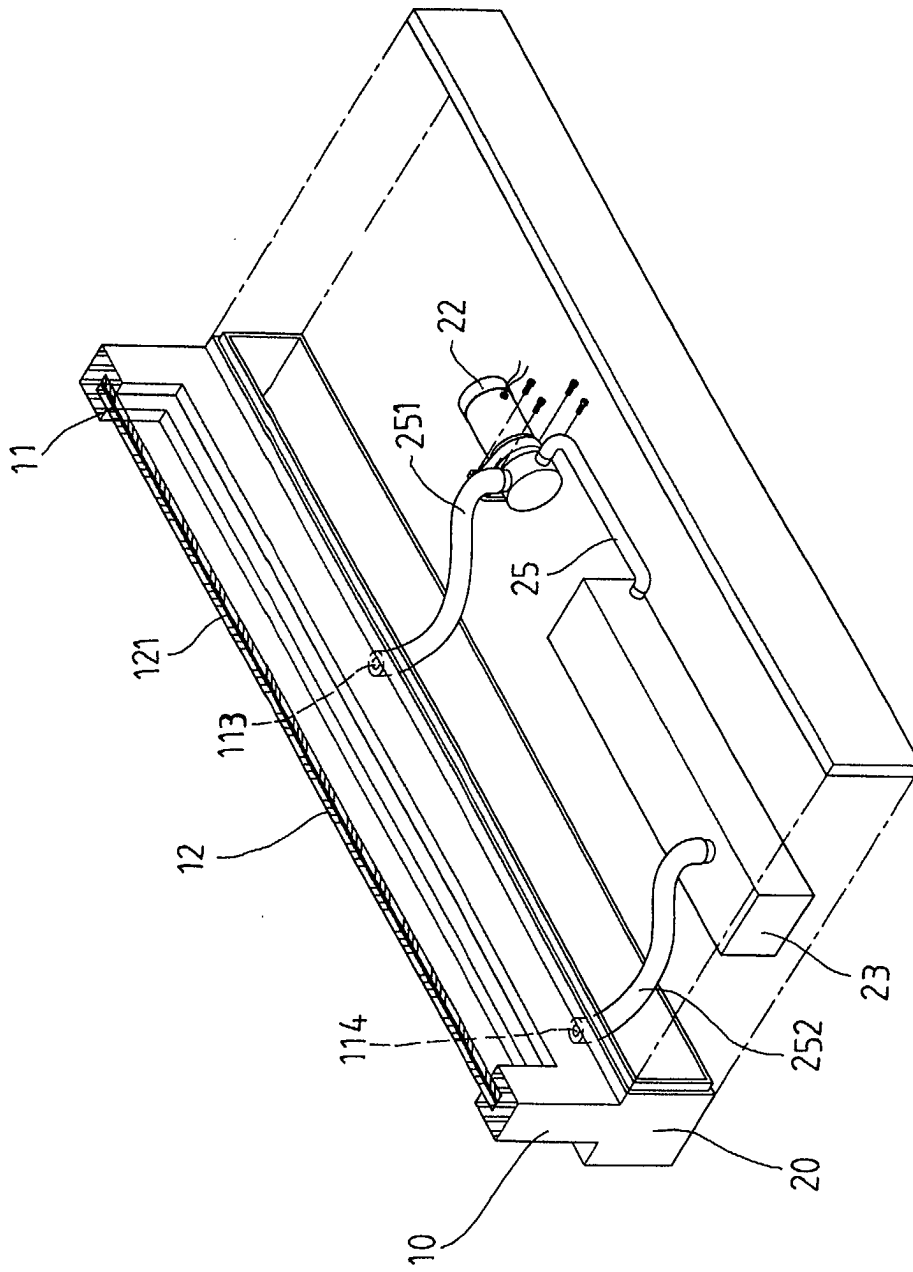


FIG.5

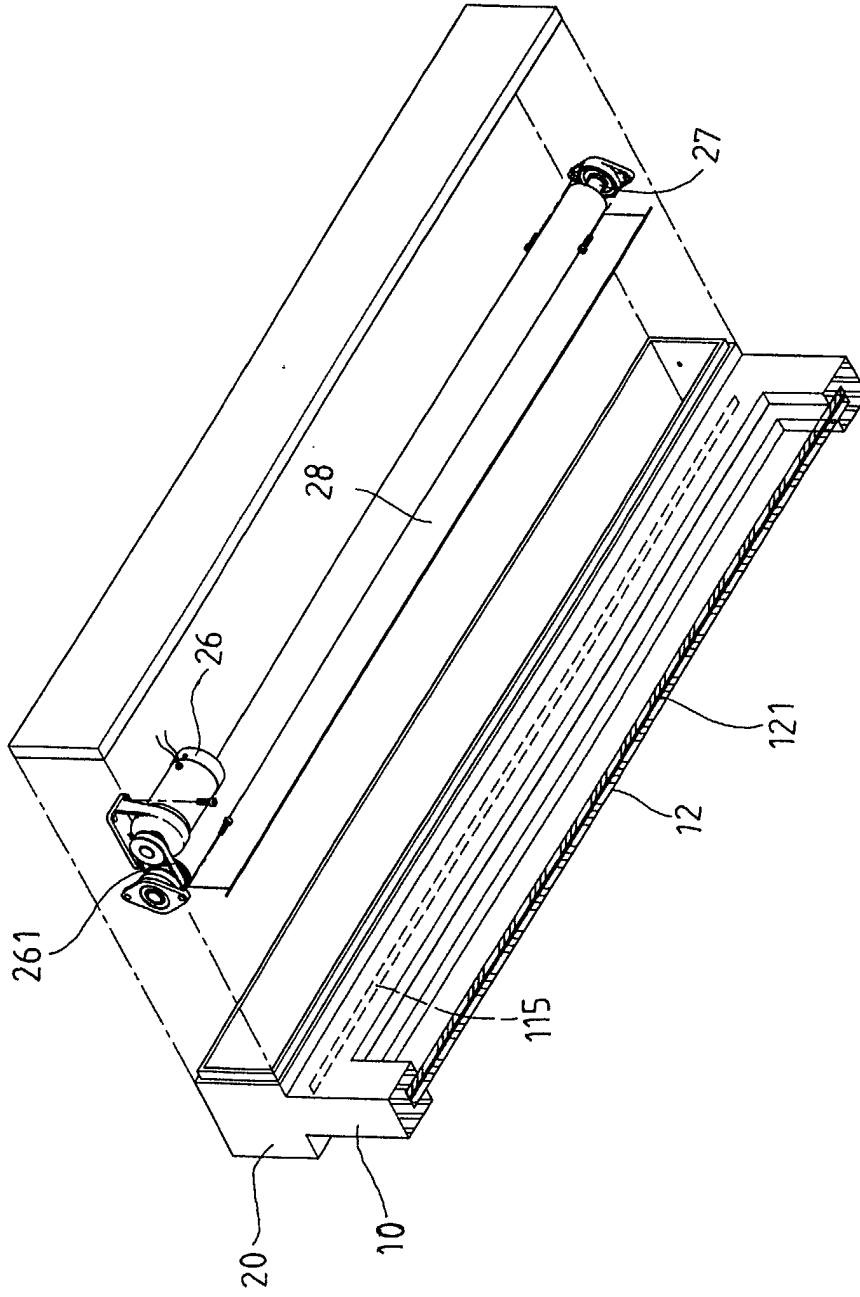


FIG.6



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 01 2045

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 2 198 046 A (ROCHER AUGUSTIN) 29 March 1974 (1974-03-29) * page 1 - page 2; figures 1,2 *	1,2	E06B3/66 E06B9/24
X	DE 43 25 119 A (WANDSCHNEIDER INGEBORG) 2 February 1995 (1995-02-02)	3	
A	* column 1 - column 6; figure 1 *	1,2	
X	DE 23 14 013 A (LUNDBERG THORSTEN) 18 October 1973 (1973-10-18) * page 1 - page 5; figure 2 *	3	
X	WO 02 10844 A (ELIYAHU TUVYA ;MANSHEROV ISRAEL (IL)) 7 February 2002 (2002-02-07)	1	
Y	* the whole document *	2	
X	US 4 521 077 A (CONNELLY DALE L) 4 June 1985 (1985-06-04)	1	
Y	* the whole document *	2	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E06B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
MUNICH		26 September 2002	Baath, S
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1,2

Window assembly comprising a frame, two pieces of glass and a gap therebetween, said gap intended to be filled with a liquid

2. Claim : 3

Window assembly comprising a frame, two pieces of glass and a gap therebetween, said gap intended to be filled with a curtain piece.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 01 2045

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-09-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2198046	A	29-03-1974	FR 2198046 A1	29-03-1974
DE 4325119	A	02-02-1995	DE 4325119 A1	02-02-1995
DE 2314013	A	18-10-1973	SE 384243 B	26-04-1976
			DE 2314013 A1	18-10-1973
			IL 41879 A	30-09-1976
			JP 49013949 A	06-02-1974
WO 0210844	A	07-02-2002	AU 8003901 A	13-02-2002
			WO 0210844 A2	07-02-2002
US 4521077	A	04-06-1985	NONE	