

[54] **MOUNTING OF SEALED DOUBLE GLAZING UNITS**

[72] Inventor: **Bernard Paul Manfred Schwartz**, 84 King Charles Road, Surbiton, England

[22] Filed: **May 24, 1971**

[21] Appl. No.: **146,289**

[30] **Foreign Application Priority Data**

May 27, 1970 Great Britain.....25,579/70

[52] U.S. Cl. 52/398, 52/401, 52/498, 52/502

[51] Int. Cl. E06b 3/62

[58] Field of Search.....52/395, 397, 398, 401, 476, 52/208, 498-502, 716-718, 616

[56] **References Cited**

UNITED STATES PATENTS

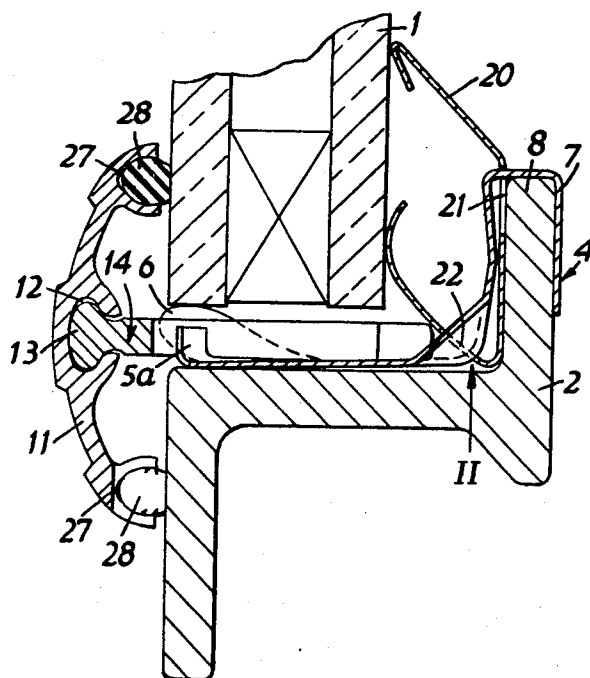
1,164,866	12/1915	Rasmussen	52/502 X
2,411,691	11/1946	Miller	52/502
2,546,384	3/1951	Bosshard	52/501
3,107,939	10/1963	Meyer.....	52/400 X
3,488,906	1/1970	Brooks.....	52/395 X

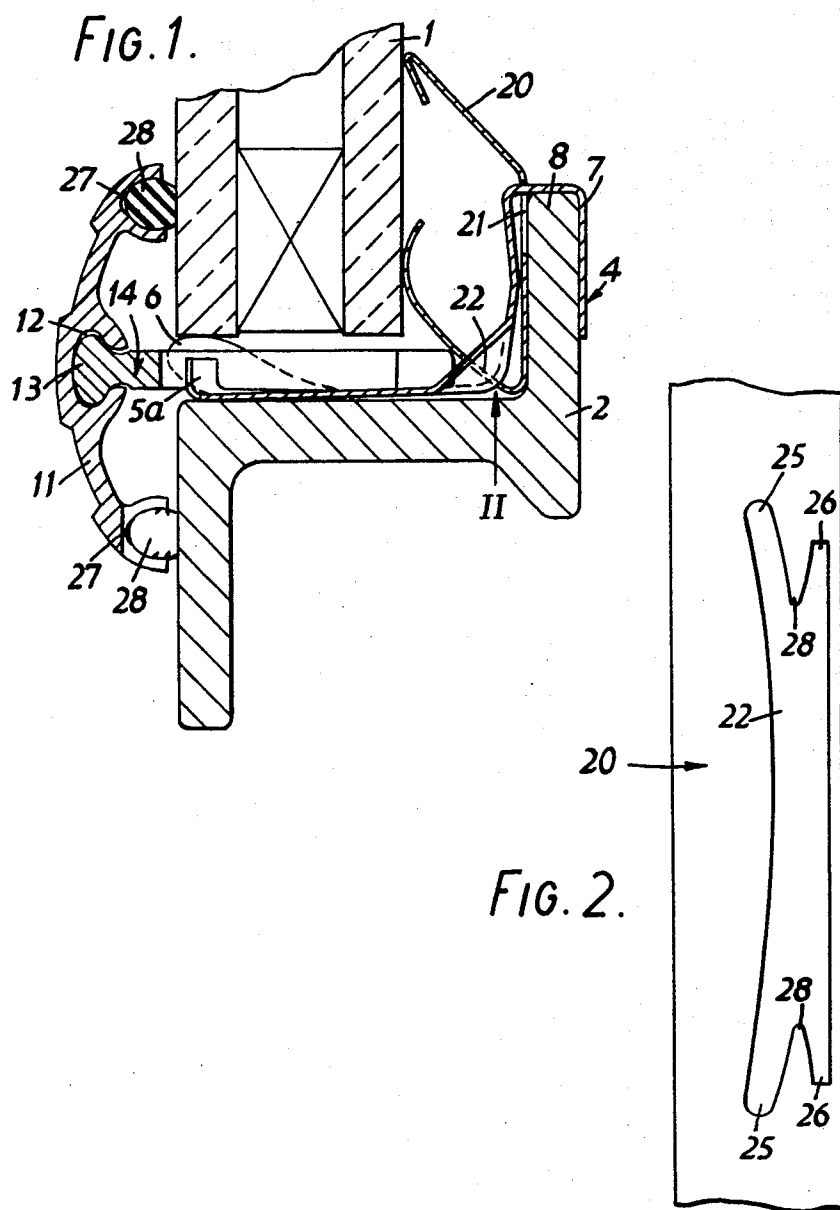
Primary Examiner—Alfred C. Perham
Attorney—Wenderoth, Lind & Ponack

[57] **ABSTRACT**

The invention is directed to a frame and panel assembly. There are spaces between the panel sides and the frame and these spaces are bridged by retaining means which engages the panel and frame on opposite sides of the spaces and holds the panel to the frame. The retaining means is held against the panel and frame by two sets of mutually co-operable catch members. One set of catch members is mounted on the frame and the other set is mounted on the retaining means, and the respective catch members of the two sets co-operate together in the spaces between the panel and frame. When brought into mutual co-operation, the respective catch members of the two sets are held together by virtue of the catch members of one set having a pair of projections which are located on opposite sides of a guide portion and which will be urged to enter a pair of apertures of the catch members of the other set. The apertures are located on opposite sides of a slot for receiving the respective guide portion so that the projections and apertures will be guided towards each other when the two sets of catch members are brought into mutual co-operation.

10 Claims, 11 Drawing Figures





BERNARD PAUL MANFRED SCHWARTZ,
Inventor

By, *Wendroth Lind & Pirock*
Attorneys

FIG. 3.

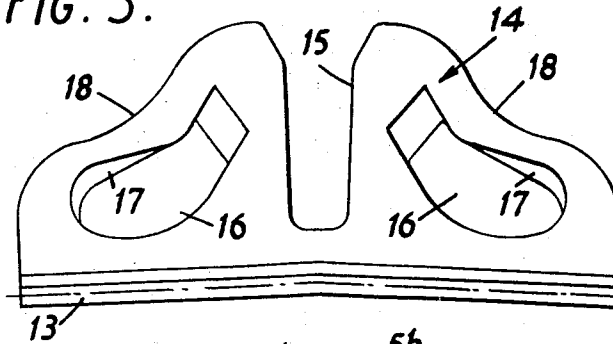


FIG. 4.

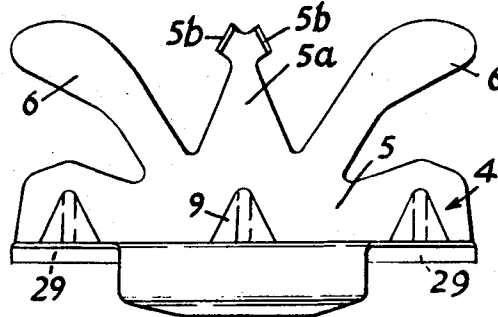
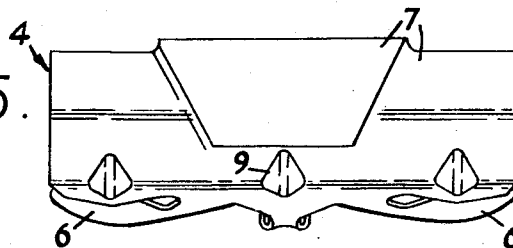


FIG. 5.



BERNARD PAUL MANFRED SCHWARTZ,
Inventor

By, *Wenduth Lind & Ponack*
Attorneys

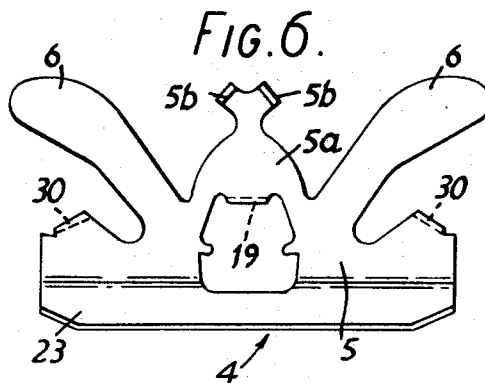
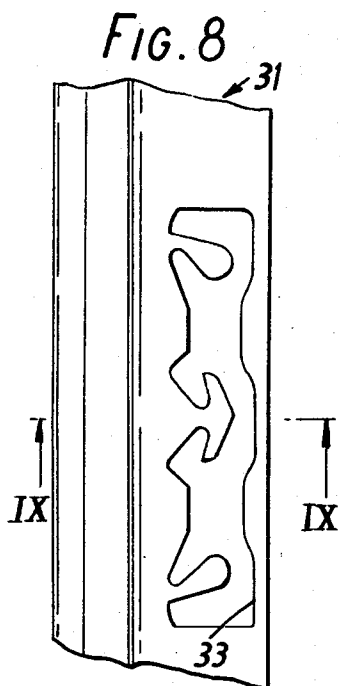


FIG. 7

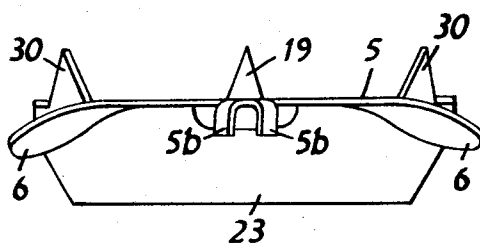
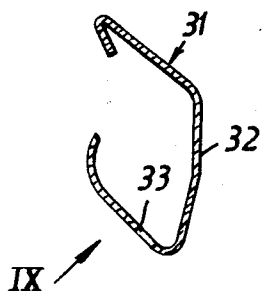
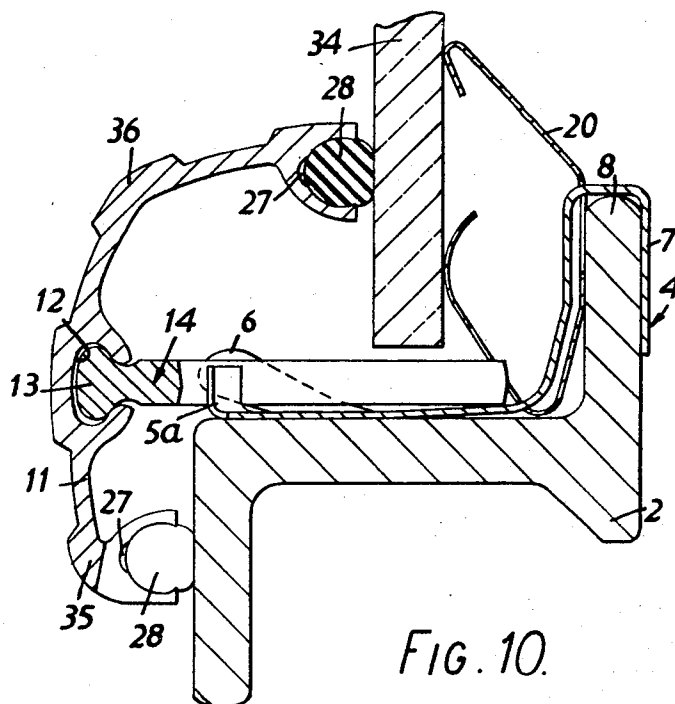
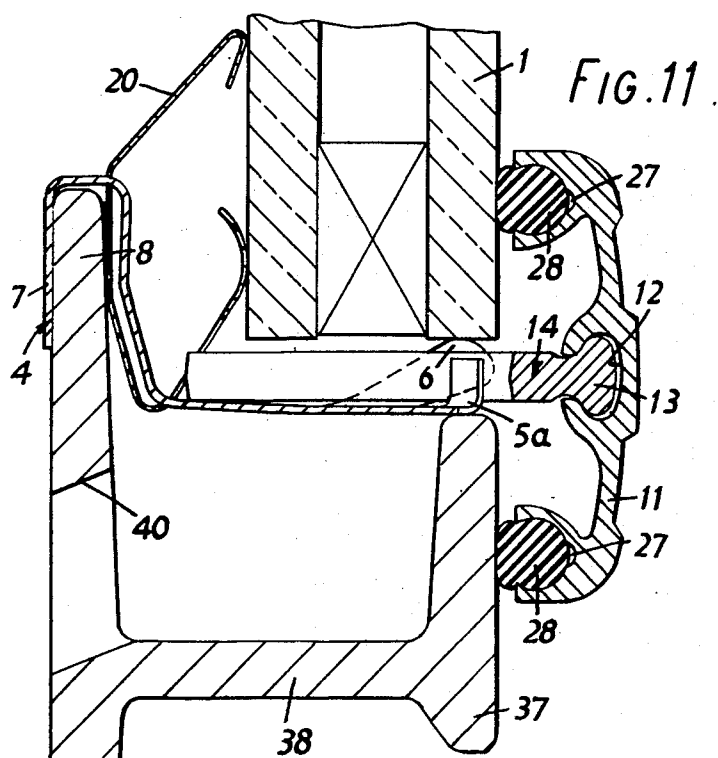


FIG. 9



Bernard Paul Manfred Schwartz,
Inventor

By, *Wenduth, Lind & Ponack*
Attorneys



BERNARD PAUL MANFRED SCHWARTZ,
Inventor

By, *Wenduth, Lind & Ponack*
Attorneys

MOUNTING OF SEALED DOUBLE GLAZING UNITS

The invention relates to a frame and panel assembly, and is directed to such an assembly which has means for mounting a panel, for example a sealed double glazing unit, in a frame without the use of glazing compounds.

According to the invention there is provided a frame and panel assembly comprising a first set of mutually spaced catch members mounted on the frame with each catch member having a portion disposed in a space between the frame and an edge portion of the panel, retaining means bridging said spaces with portions of the retaining means engaging portions of the panel and frame on opposite sides of the spaces, the panel being held between the retaining means and the frame, and a second set of catch members mounted on the retaining means and movable into said spaces into holding engagement with the first set of catch members to hold the retaining means in engagement with the panel and frame, each catch member of one of the first and second sets of catch members having projection means which will be urged to enter aperture means of a respective catch member of the other set of catch members when the two sets of catch members are brought into mutual co-operation to hold the catch members together.

A number of exemplary embodiments of this invention will now be described with reference to the accompanying drawings in which:

FIG. 1 is a fragmentary section of a frame and panel assembly according to the invention of which the panel is a sealed double glazing unit;

FIG. 2 is a detail on the arrow II of FIG. 1 illustrating spring member which is located between the double glazing unit and the frame;

FIG. 3 is a plan view of a component of the assembly of FIG. 1;

FIG. 4 is a plan view of another component of the assembly of FIG. 1;

FIG. 5 is a rear elevation of the component of FIG. 4;

FIGS. 6 and 7 are respectively plan and end views of a component like that of FIGS. 4 and 5 but modified for use when the glazing unit is to be mounted in a wooden frame;

FIG. 8 is a detail on the arrow IX of FIG. 9 illustrating a modified form of spring member for receiving the component of FIGS. 6 and 7;

FIG. 9 is a section on line IX—IX of FIG. 8;

FIG. 10 is a fragmentary section of a frame and panel assembly according to the invention of which the panel is a single sheet of glass, and

FIG. 11 is a view like that of FIG. 1 but showing a reversed arrangement.

Referring to FIGS. 1 to 5, a sealed double glazing unit 1 is shown mounted in a standard steel frame 2. The unit is supported on setting blocks (not shown) arranged at intervals between its lower edge and the inner surface of the frame so that the lower edge of the unit will be spaced from the frame. The unit will also be spaced from the frame along its side and upper edges. At intervals in the spaces between the unit and frame are arranged catch members 4 (see FIGS. 4 and 5). The catch members 4 are resilient and each comprises a base portion 5 having a pair of divergent leaf spring camming projections 6 which extend upwardly and for-

wardly from the base portion. Between the projections 6 a guide in the form of a pilot spur 5a extends and is provided with leading faces 5b formed by upwardly bending parts of the base portion 5. At its rear, each catch member 4 has an inverted U-shaped portion 7 which clips onto the flange 8 of the frame 2 to retain the catch member in position. Stiffening buttresses 9 are formed between the U-shaped portion 7 and the base 5 to give added rigidity.

Prior to the catch members 4 being mounted on the frame, they are fitted to spring members 20 (one only shown) which will be located between the flanges 8 of the frame and the inner marginal surface of the unit 1. Each spring member 20 is conveniently formed of stainless steel and, apart from providing a decorative finish on the inside of the window, assists in sealing the assembly. Apertures 21 and 22 are formed at intervals in each spring member 20, the shape of the aperture 22 being best seen in FIG. 2. The aperture 22 has end portions 25 and 26 defined by inwardly directed tongues 28 which, when the U-shaped clip portion 7 and base portion 5 of the catch members 4 are passed through the apertures as seen in FIG. 1, engage the inside corners 29 of the catch members 4 and hold the catch members in position. When the catch members 4 have been fitted to the spring members 20 in the manner described, the catch member portions 7 are clipped onto the frame to bring the spring members into abutment with the frame flanges 8. The double glazing unit 1 is then placed in position on its setting blocks with the inner marginal surface of the unit abutting the spring members 20.

The unit 1 is held in position by retaining means 11 which engage the outer marginal surface of the unit and the outer marginal surface of the frame. The retaining means 11 may be comprised of extruded members of metal or plastics. As shown, the retaining means 11 is formed with a channel 12 in which is slidable the beaded edge 13 of a further catch member 14 (shown in plan in FIG. 3) for co-operation with a respective catch member 4. As is seen, the bead 13 is slightly kinked to provide a certain amount of friction so that the catch member 14 is firmly retained in the channel 12. With an appropriate number of catch members 14 assembled on the retaining means 11 and suitably spaced, the assembly is presented to the glazing unit 1 and frame 2 such that the catch members 14 pass between the respective edge of the unit and the frame. Each catch member 14 is provided with a central slot 15 and a pair of apertures 16 located on opposite sides of the slot 15. The slot 15 receives the pilot spur 5a of the respective catch member 4 so that the projections 6 of member 4 will be guided towards the apertures 16. The resilient projections 6 will be initially bent downwardly as the catch member 14 passes over the catch member 4 but when they reach the apertures 16 they will spring up to enter those apertures. When inter-engaged, the projections 6 of the catch members 4 locate against the vertical portions of the chamfered rearward edges 17 of the apertures 16 of the catch members 14 to prevent retraction of the catch members 14. The leading edges 18 of the catch members 14 are preferably tapered in cross section to provide a smooth lead-in for the projections 6.

The retaining means 11 may be formed at either or each margin with a longitudinally extending recess 27 for the reception of a sealing member 28 which may be made, for example, of neoprene. As seen in FIG. 1, the lower margin of the retaining means 11 is apertured, and a gap is left in the lower sealing member 28, to allow for the escape of any water which may penetrate the assembly.

If the double glazing unit 1 is to be mounted in a wooden frame, the catch member 4 shown in FIGS. 6 and 7 is used in lieu of that of FIGS. 4 and 5. The catch member of FIGS. 6 and 7 is similar to that of FIGS. 4 and 5 in respect of the base 5, leaf spring camming projections 6, and pilot spur 5a but, in lieu of the U-shaped portion 7, it is provided with a central spike 19 and side spikes 30. The spikes 19 and 30 are struck downwardly from the base portion and can be driven into the timber frame to secure the catch member to the frame. Catch members such as that shown in FIGS. 6 and 7 are used with spring members such as that identified by reference 31 in FIGS. 8 and 9. The spring members 31 are like the spring members 20 and are mounted in the frame with their walls 32 (see FIG. 9) abutting the frame flanges 8. Although spring members 31, like spring members 20, have apertures (33) in their bottom wall, they are without apertures corresponding to the apertures 21 of the spring members 20. The catch members 4 of FIGS. 6 and 7 are fitted to the spring members 31 by passing their rear portions 23 through the apertures 33 and into abutment with the interior of the spring member walls 32. Like the spring members 20, the spring members 31 assist in sealing of the assembly. The shape of the apertures 33 is designed to retain the catch members 4 in position on the spring members 31 prior to pressing the spikes of the catch members into the timber frame.

Instead of being a double glazing unit, the panel may be a single sheet of glass; an assembly comprising a single sheet of glass 34 is shown in FIG. 10. The assembly of FIG. 10 is similar to that of FIG. 1 and like parts have been given the same reference numerals. Unlike the assembly of FIG. 1, the marginal surfaces of the frame and panel engaged by the retaining means 11 do not lie in the same vertical plane. To accommodate this offset, the retaining means 11 has different length arms 35, 36.

The panel may be a single sheet of non-transparent material, for example metal, if it is desired to "blank off" the space defined by the frame. If the panel is a sealed double glazing unit, the mutually spaced side walls and the end walls of the unit may be of single glass construction rather than comprising, as shown in FIG. 1, two separately made side sheets interconnected by an intermediate sealing member running round the inner marginal surfaces of the sheets.

Instead of the retaining means 11 facing outwardly (of a building of which the assembly forms a part), such an outward arrangement being shown in FIGS. 1 and 10, the arrangement of components may be reversed so that the retaining means 11 faces inwardly. Such an inward arrangement is shown in FIG. 11 in which like parts as between this figure and FIGS. 1 and 10 have been given the same reference numerals. Unlike the catch member 4 of the assembly of FIGS. 1 and 10, the catch member 4 of the assembly of FIG. 11 rests on the end flanges 8, 37 of frame 2 and is spaced from the

frame web 38. The assembly of FIG. 11 has an aperture 40 in the (outer) flange 8 to allow for the escape of any water which may penetrate the assembly. In the assembly of FIG. 11, the lower margin of the retaining means 11 is not apertured nor is any gap left in the lower sealing member 28; a complete seal is thus provided. In such a construction, no air flow can take place and, in the absence of such air flow, a complete absence of leakage is assured under all conditions.

The frame and panel assemblies of the invention can be assembled entirely from one side of a building, i.e., from the outside in the case of the assemblies of FIGS. 1 and 10 and from the inside in the case of the assembly of FIG. 11; this is a significant advantage.

We claim:

1. A frame and panel assembly comprising a first set of mutually spaced catch members mounted on the frame with each catch member having a portion disposed in a space between the frame and an edge portion of the panel, retaining means bridging said spaces with portions of the retaining means engaging portions of the panel and frame on opposite sides of the spaces, the panel being held between the retaining means and the frame, and a second set of catch members mounted on the retaining means and moveable into said spaces into holding engagement with the first set of catch members to hold the retaining means in engagement with the panel and frame, each catch member of one of the first and second sets of catch members having projection means which will be urged to enter aperture means of a respective catch member of the other set of catch members when the two sets of catch members are brought into mutual co-operation to hold the catch members together, the projection means comprising a pair of projections located on opposite sides of a guide portion, and the aperture means comprising a pair of apertures which are adapted to receive the projections and are located on opposite sides of a slot for receiving the guide portion so that the projections and apertures will be guided towards each other when the two sets of catch members are brought into mutual co-operation.

2. An assembly according to claim 1, wherein the catch members of the first set have the projection means and the catch members of the second set have the aperture means.

3. An assembly according to claim 2, wherein each catch member of the first set has a U-shaped portion for mounting the catch member on the frame.

4. An assembly according to claim 2, wherein the frame is made of wood, and wherein each catch member of the first set has spike means which can be driven into the frame to mount the catch member on the frame.

5. An assembly according to claim 2, wherein the retaining means has a channel in which a beaded edge of each of the catch members of the second set is slidably retained.

6. An assembly according to claim 1 including spring means between the panel and the frame.

7. An assembly according to claim 6, wherein the spring means comprises a shaped metal strip.

8. An assembly according to claim 1, wherein the catch members of the first set have the projection means and the catch members of the second set have the aperture means, wherein spring means comprising a

shaped metal strip is between the panel and the frame, and wherein the metal strip is apertured to receive the catch members of the first set.

9. An assembly according to claim 1, wherein the panel is a double glazing unit.

10. An assembly according to claim 1, wherein the panel is a single sheet of transparent or non-transparent material.

* * * * *

5

10

15

20

25

30

35

40

45

50

55

60

65