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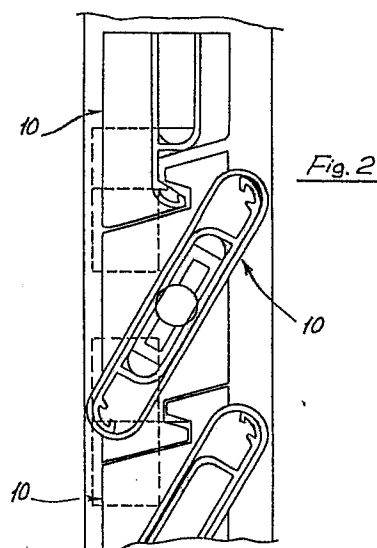
71 Applicant: **METALLURGICA METRA TRAFILATI**  
**ALLUMINIO S.p.A.**  
**Via Provinciale Stacca, 1**  
**I-25050 Rodengo Saiano (Brescia) (IT)**

72 Inventor: **Giacomelli, Mario** **METALLURGICA METRA**  
**TRAFILATI ALL**  
**Via Provinciale Stacca, 1**  
**I-25050 Rodengo Saiano (Brescia) (IT)**

74 Representative: **Cicogna, Franco**  
**Ufficio Internazionale Brevetti Dott. Prof. Franco Cicogna**  
**Via Visconti di Modrone, 14/A**  
**I-20122 Milano (IT)**

64 **Blind structure with wing or sliding or book opening, provided with either fixed or orientable strips.**

57 The blind structure comprises a body (1) for locating the blind strips, which is adapted for coupling to a section member and is arranged on the uprights of the blind frame, the body being provided with grooves (5) for housing blind strip bearing plug members (10), inserted into the longitudinal end portions of the blind strips (15), a rack bar (22) being engaged in the body (1) and meshing with a toothed segment (12) arranged on the inner side of the blind strip bearing plugs, there being moreover provided an operating handle for driving the rack bar (22) in order to rotate the blind strips (15).



## Description

### BLIND STRUCTURE WITH WING OR SLIDING OR BOOK OPENING, PROVIDED WITH EITHER FIXED OR ORIENTABLE STRIPS

#### BACKGROUND OF THE INVENTION

The present invention relates to a blind structure with wing or sliding or book opening, provided with either fixed or orientable strips and a section member set for making it.

As is known, there are presently encountered great difficulties in making blinds starting from aluminium or the like material strips or section members, since a lot of differently shaped members must be available, to be assembled depending on the product to be made.

Also known is the fact that, by using conventional section members, it is necessary to carry out very complex processing operations on said section members both for applying the devices for driving the blind strips and for fitting to the blind the handles required for driving the mentioned devices.

Moreover known approaches do not afford the possibility of easily and quickly assembling, and replacing, the strip members, as the blinds are already installed and, in addition, require the use of a lot of different operating mechanisms to be specifically fitted to different existing section members.

#### SUMMARY OF THE INVENTION

Accordingly, the main object of the present invention is to overcome the above mentioned drawbacks, by providing a modular element blind structure the coupling and driving fittings of which are very simple construction-wise so as to allow for the blind structure to be easily and quickly assembled, without the need of carrying out auxiliary operations.

Another object of the present invention is to provide a modular element blind structure which can be constructed as a wing, sliding or book opening blind and which, if desired, may be provided with Geneva wings, and applied, by means of an inserted section member, on any existing section member system for outwardly opening wings.

Another object of the present invention is to provide a blind structure comprising a fixed band or cross-member, to be used for very high wings, and further comprising a suitable mounting plug member adapted for carrying out, by a single handle, the opening and closing movements of the blind strips arranged both under and above the mentioned band or cross-member.

According to one aspect of the present invention, the above mentioned objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a modular element blind structure characterized in that it comprises a strip locating body, adapted for coupling to section members and arranged on the uprights of a frame, said body being provided with housing grooves for housing strip bearing plugs, to be inserted or housed at the longitudinal end portions of said strips, said body further housing a rack bar, meshing with a

toothed segment arranged on the inner side of said strip bearing plugs, there being moreover provided closure edge members to be snap coupled to said body, and driving means driving said rack bar to rotate said strips, as well as guide section members and guide covering section members.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the blind structure according to the present invention will become more apparent hereinafter from the following detailed description of preferred embodiments thereof, which have been illustrated, by way of an indicative but not limitative example, in the figures of the accompanying drawings, where:

figure 1 is a schematic perspective view illustrating the blind structure according to the present invention;

figure 2 is a detail view of the blind structure according to the present invention, illustrating the detail of the strips and strip bearing plugs;

figure 3 illustrates one of the strip bearing plugs, respectively seen from the two sides thereof;

figure 4 illustrates a portion of the rack bar included in the blind structure according to the present invention;

figure 5 schematically illustrates a detail of the locating body, partially housed in a section member;

figure 6 is a cross-sectional view illustrating the locating body with the closure edge member applied to an upright;

figure 7 illustrates, on an enlarged scale, the coupled relationship between the toothed segment of a strip bearing plug and the rack bar;

figure 8 is a schematic side view illustrating the coupled strips, in their closure condition;

figure 9 schematically illustrates a section member to be inserted inside the mentioned strips;

figure 10 illustrates a brush type of tightness gasket;

figure 11 illustrates a blind strip and the reinforcement section member inserted therein;

figure 12 is a cross-sectional view illustrating some compensation strips and the related closure gaskets; and

figures 13 and 14 show in a more detailed way said compensation strips or blades;

figure 15 illustrates the procedure for coupling a glass arresting device to the blind structure according to the present invention;

figure 16 is a detail view illustrating the detail of a closed fixed strip blind structure;

figure 17 illustrates a transversal band or cross-member to be used with very high blind structures;

figure 18 is a front view illustrating a guide

plug member to be applied to the end portions of the band section member;

figure 19 is an end view illustrating a guide section member;

figures 20 and 21 show two different upright section members which may be applied to existing section members;

figure 22 is a cross-sectional view showing a section member which may be used for making the fixed frame of a wing blind;

figure 23 illustrates a section member for making a fixed frame and a bottom or lower guide of a sliding blind;

figure 24 illustrates a top guide for sliding or book blinds;

figure 25 illustrates a bottom guide for book blinds;

figure 26 illustrates a section member for making fixed uprights of book blind;

figures 27, 28 and 29 illustrate corresponding top guide-covering members for making either book or sliding blinds;

figure 30 illustrates a top guide covering member for book blinds; and

figure 31 is a cross-sectional view of the top portion of a sliding blind, made by using some section members of the section member set according to the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the figures of the accompanying drawings, the modular element blind structure according to the present invention, comprises a strip locating body 1, which is of the symmetrical type, and which, advantageously, is made of members having a length which is twice the length of the blind strips (see figure 5).

The strip locating body can be cut at the middle portion, for an odd strip number, and may be pressure inserted into the base section member 2, as shown in figure 10, or, if desired, it may be pressure inserted into the analogous section members 3 or 4 shown in figures 20 and 21.

The mentioned strip locating body has a substantially U shape and is provided, at its end portion facing the strips, with semicircular grooves 5 for housing the pin members 7 of corresponding strip bearing plugs, indicated generally with 10.

The strip bearing plugs 10, as clearly shown in figure 3, are provided with a plate-like portion 11, therefrom the pin member 7 extends, said pin member ending with a toothed segment 12.

Said plate-like portion 11 is provided, at the ends thereof, with coupling teeth 13 and, on its face turned toward the strips, with bosses 14 for abutment against said strips, indicated at 15.

With the blind frame assembled, the body 1 will be inserted on the two uprights of the frame itself.

The remaining space, in the height direction, will be divided into two like portions, at the bottom and at the top, and it will be recovered or filled by compensation strips 18 and 19, shown in figures 13 and 14, applied with related compensation plug members.

These compensation plug members, in particular, will be trimmed, depending on requirements, in order to obtain the desired size.

After having inserted the locating bodies 1 and compensating members, the rack bar, generally indicated at 22, will be formed in a separated way, said rack bar consisting of a plurality of bar lengths 22a provided respectively, at their axial ends, with a male projection or boss 23 and a female socket 24, for mutual coupling, so as to provide a rack bar having the desired length.

The thus made rack bar 22 will be inserted into a single side of the groove or slot defined by the locating body, that is the side thereon the driving handle will be applied.

After having applied said rack bar 22, the strip bearing plugs 10 will be inserted, with the toothed segment 12 meshing on the corresponding portion of said bar.

In this connection it should be pointed out that said plugs are made both in a rightward and leftward embodiment and that the strips 15 must be applied in the closed condition.

After having filled all of the base portions and visually controlled the assembling accuracy, the blind will be locked by pressure inserting locating edge members 30 which will be snap engaged, by means of teeth 31 formed thereon, in grooves 32 formed in the body 1, as clearly shown in figure 8.

The snap section member will be applied exclusively for covering the mechanism and receiving, in a provided recess 33, the tooth member for locking the driving handle.

In order to close, in the horizontal direction, at the bottom and at the top, the space left on the two sides of the compensation strips 18 and 19, a gasket will be applied which, in addition to closing the existing slot, will stiffen the strip.

Between a strip and an adjoining strip, moreover, a further tightness gasket will be inserted, whereas at the two sides, that is in the vertical direction, a brush gasket 35 will be inserted into the slot of the section members 2, 3 or 4, for compensating the making tolerances and preventing light from passing through.

By using the above disclosed strips 15 and compensating strips 18 and 19, and the related compensation plugs, a 30° open fixed strip blind can be constructed.

In this case, all of the driving mechanisms will be omitted and the strips will be affixed by means of plugs 40 pressure inserted into the holding cross-section 2 or 3 or 4.

In addition said plug affords the possibility of inserting a reinforcement section member 41 which, by means of self-threaded screws, will be affixed to the end portions of said plugs 40.

Also in this case on the locating body 1 the mentioned closure edge member will be applied for covering the plugs and, at the top and bottom, the mentioned tightness gasket 34 will be applied.

By the same procedure, a closed fixed strip blind can be made, by using a plug receiving three strips and which is caused to slide, with the applied strips 15, into the guide formed by the frame section

member 2 or 3 or 4 thereto the locating edge member has been applied.

To this end, the frame will be formed at three sides and then the fourth side will be formed after having mounted the strips; with respect to the compensation between the uprights and strips, it will be carried out as disclosed.

The thus made blind may also be directly applied on the wall, without the fixed frame; in this case the same disclosed strips, outer holding section members and strip driving mechanisms will be used.

The fittings for applying the blind to a wall and the opening/closing fittings (such as hinges, pivot pins, brackets, and the like), in particular, will be the same fittings used for conventional wood blinds, so as the blinds according to the present invention will have the same aspect as conventional wood blinds.

Moreover the frame of the subject wing blind may also be used for making sliding blinds and blinds the wings of which are stacked as a book.

In this case too, the same strips, holding frame outer section members and strip driving mechanisms will be used.

To make the mentioned sliding or book blinds, there is provided a guide section member 42 adapted for acting as a top sliding guide member, for both blind types, and there are moreover provided a fixed lower guide frame 43, for sliding blinds, and a lower guide 44 for book blinds.

To make wing blind fixed frames, moreover, the section member 45 may be used whereas, as fixed uprights, both said lower guide section member 43 and the section member 46 may be used.

The system or set according to the present invention further comprises a band section member 50, to be applied by means of self-threading screws to the frame section members, with the insertion, at the sides, of a guide plug 51, adapted to provide a continuous seat for the driving rack 20.

This band, or cross-member, will be properly mounted after having suitably machined its end portions.

In the case of sliding or book blinds, moreover, there are provided specifically designed section members 52, 53 and 54 adapted for frontally covering the exposed portions of the top sliding guide.

For book blinds, moreover, a further guide covering top section member 55 is provided.

From the above disclosure and the figures of the accompanying drawings the great advantages provided by the invention will be self-evident.

While the invention has been disclosed with reference to some preferred embodiments thereof, it should be apparent that the disclosed embodiments are susceptible to several modifications and variations all of which will enter the spirit of the invention as defined in the accompanying claims.

## Claims

1- A modular element blind structure, characterized in that it comprises a blind strip locating

body (1), adapted for coupling to section members and arranged on the uprights of the blind frame, said body (1) being provided with grooves (5) for housing blind strip bearing plugs (10), adapted for insertion into the longitudinal end portions of the blind strips (15), said body (1) further housing a rack bar (22), meshing with a toothed segment (12) arranged on the inner side of said strip bearing plugs (10), there being moreover provided closure edge members (3) to be snap coupled to said body, and driving means for driving said rack bar (22) for rotating said strips (15), as well as guide section members (42), and guide covering section members (52, 53, 54).

2- A modular element blind structure according to the preceding claims, characterized in that said blind strip locating body (1) has a substantially U-shaped cross-section and is adapted for pressure insertion into a socket formed on said uprights.

3- A modular element blind structure according to the preceding claims, characterized in that it comprises top and bottom compensating members and compensating strips (18, 19) to be arranged in a substantially horizontal direction.

4- A modular element blind structure according to one or more of the preceding claims, characterized in that said rack bar (22) comprises a plurality of fixedly coupled rack bar lengths (22a).

5- A modular element blind structure according to one or more of the preceding claims, characterized in that said strip bearing plugs (10) are provided with respective plug members (7) rotatably housed in said grooves (5) of said locating body (1), said pin members (7) extending from a plate like portion (11) provided with bosses (14) for engaging said strips (15) and being further provided with toothed segments (12).

6- A modular element blind structure according to claim 3, characterized in that it comprises tightness gaskets applied to the sides of said compensating strips.

7- A modular element blind structure, according to one or more of the preceding claims, characterized in that it comprises concealing gasket each interposed between a said strip (15) and an adjoining said strip (15).

8- A modular element blind structure, according to one or more of the preceding claims, characterized in that said structure comprises fixed plugs adapted for pressure insertion onto said uprights for making a 30° open fixed strip blind.

9- A modular element blind structure according to one or more of the preceding claims, characterized in that it further comprises a strip bearing plug adapted for supporting a plurality of adjoining strips (15) and for insertion into said uprights for making a closed fixed strip blind.

10- A modular element blind structure ac-

according to one or more of the preceding claims, characterized in that it comprises covering section members (52,53,54) for frontally covering the exposed portions of the top guides provided for forming sliding and book blinds.

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11- A modular element blind structure according to one or more of the preceding claims, characterized in that it further comprises a band section member (50) adapted to be arranged substantially at the middle of said blind, with said band section member (50) engaging with a guide plug (51) for holding continuous said rack bar (22) for driving said strips (15).

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12- A modular element sliding and/or book blind according to one or more of the preceding claims, characterized in that it further comprises a section member defining a sliding top guide (42).

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13- A modular element sliding blind according to one or more of the preceding claims, characterized in that it further comprises a lower guiding frame (43).

14- A modular element book blind according to one or more of the preceding claims, characterized in that it further comprises a lower guiding section member (44).

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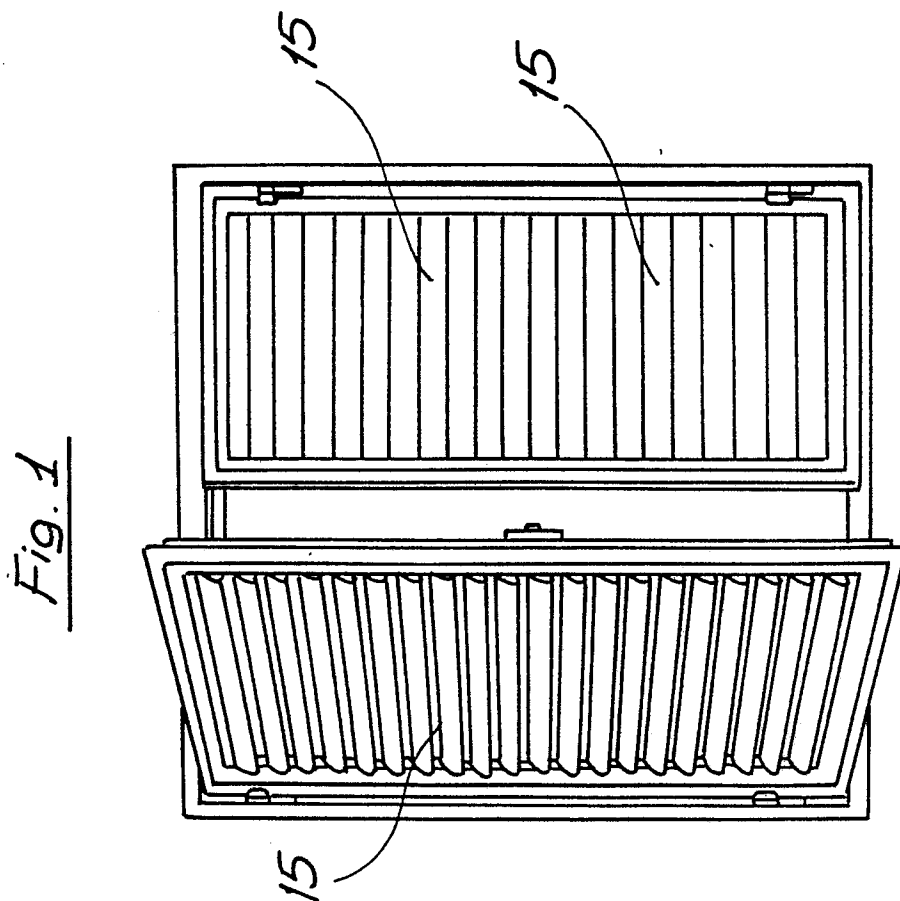
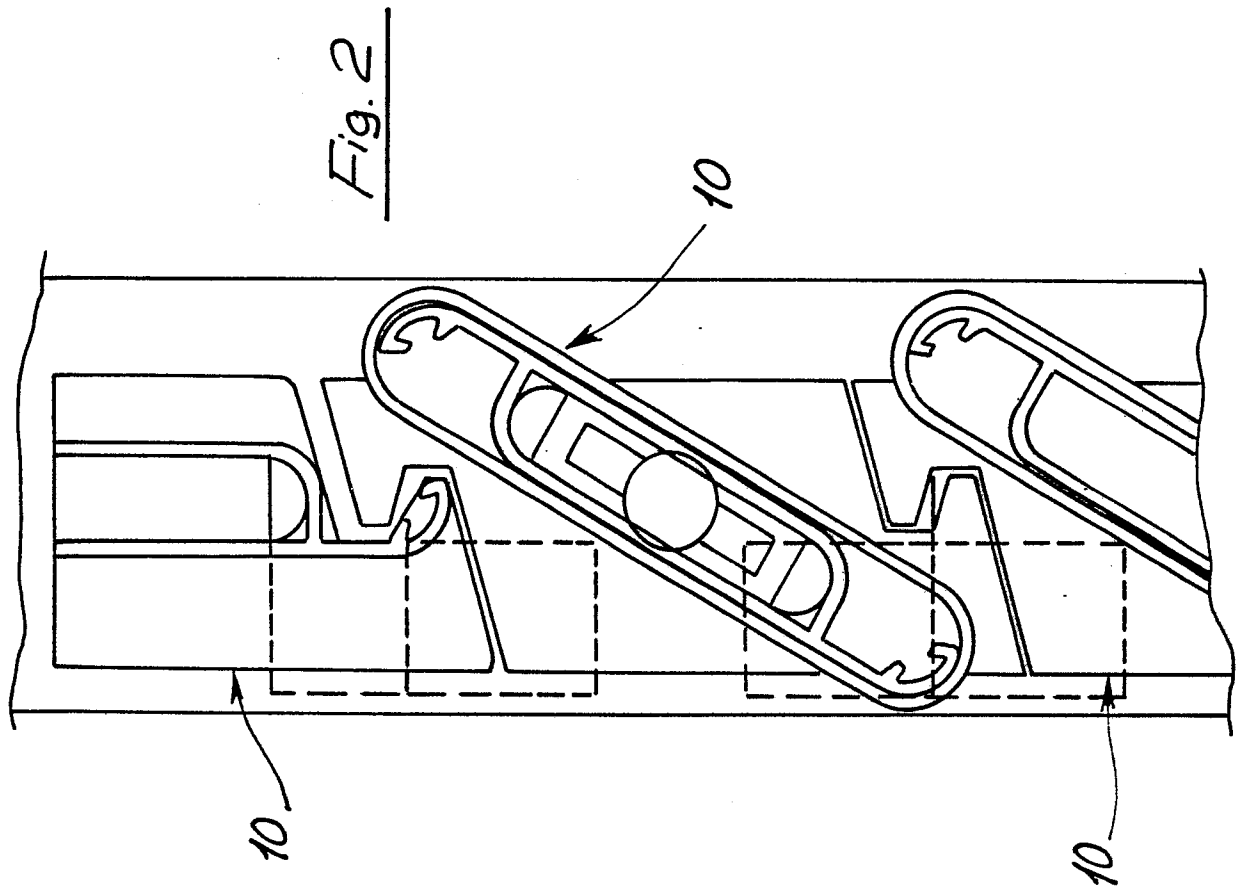
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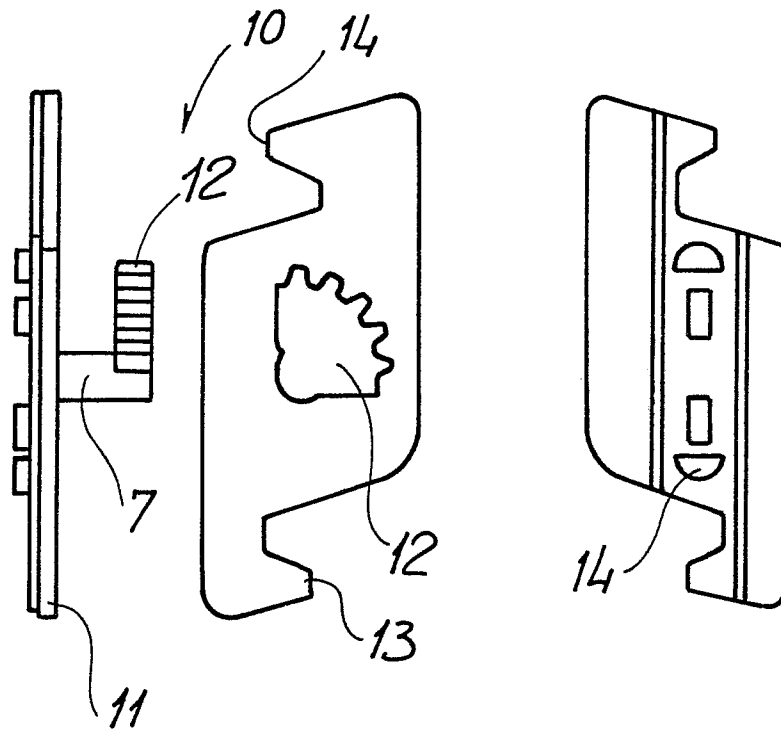


Fig. 3

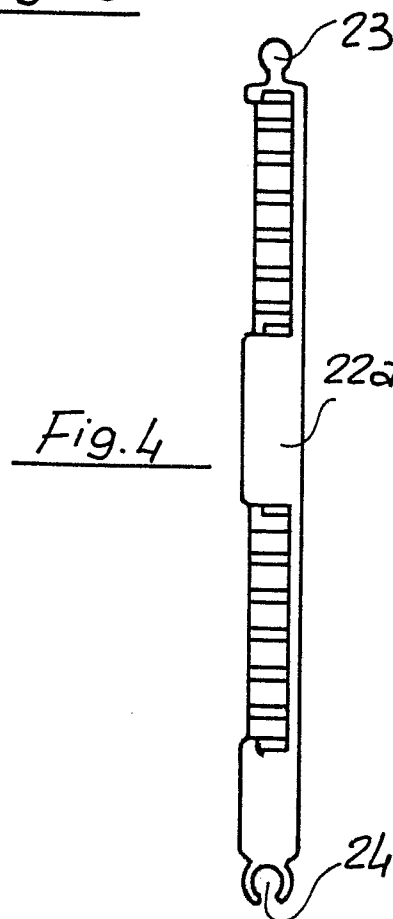


Fig. 4

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Fig. 5

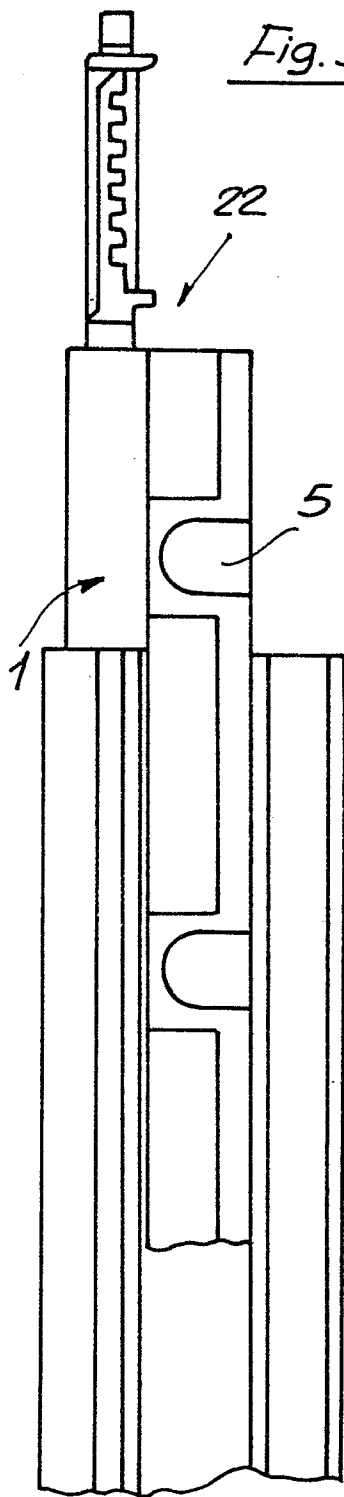
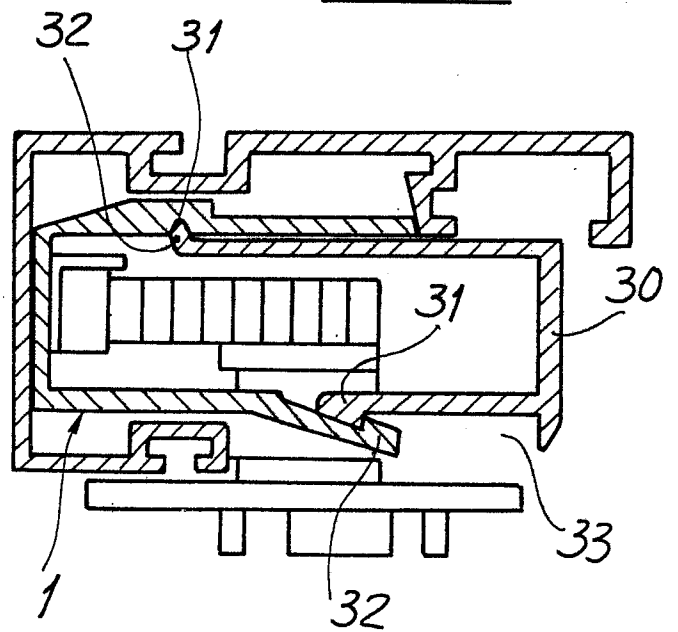


Fig. 6





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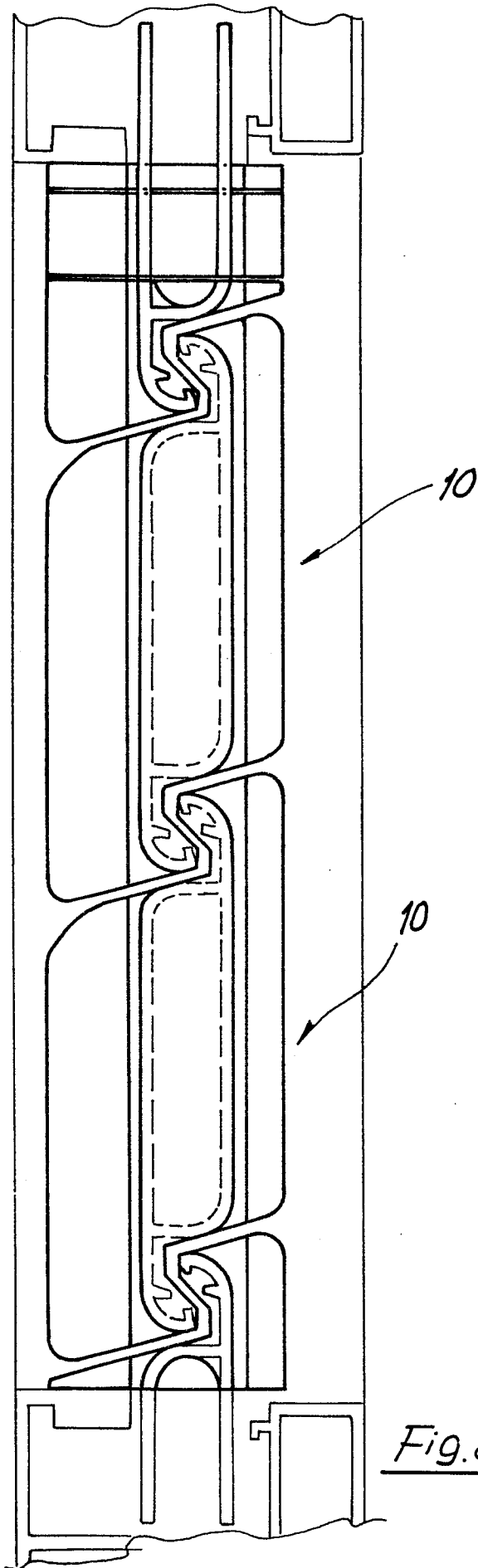


Fig. 7

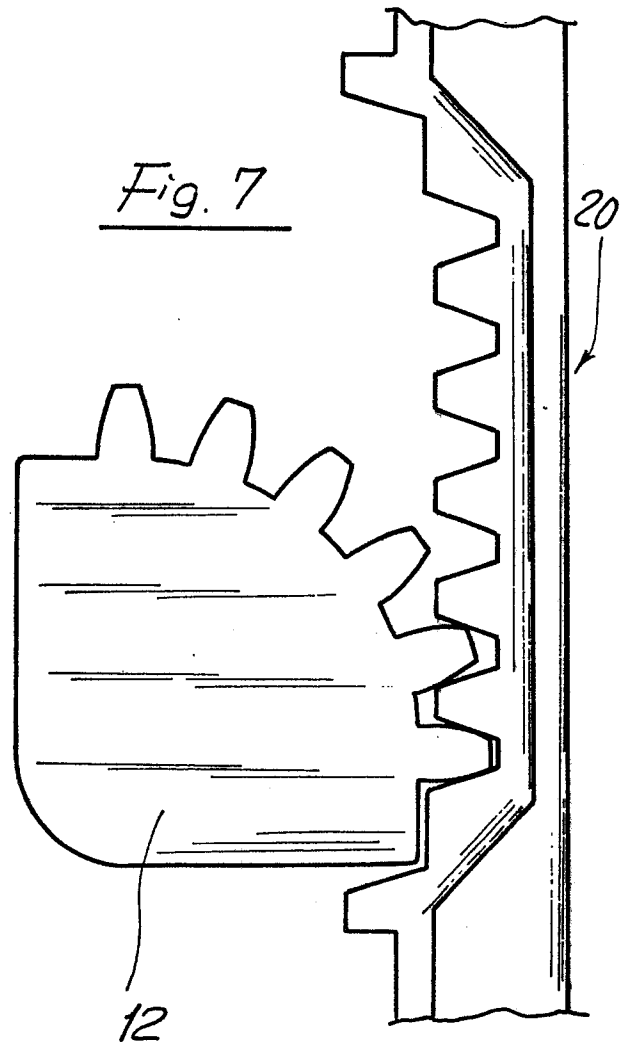
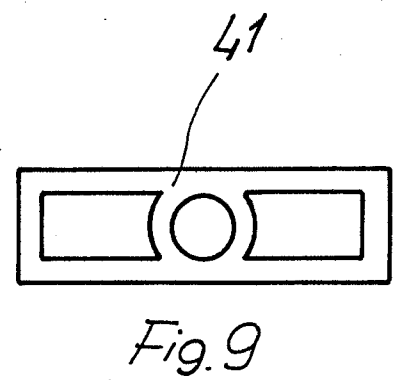
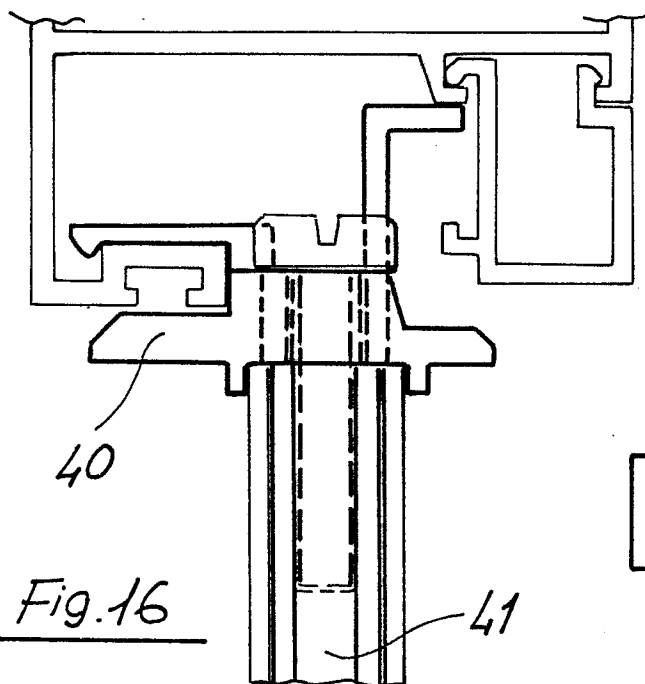
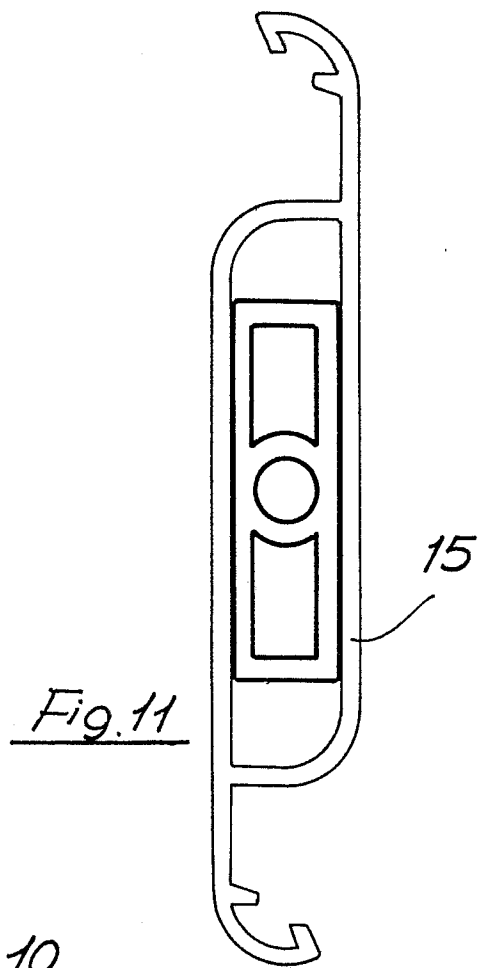
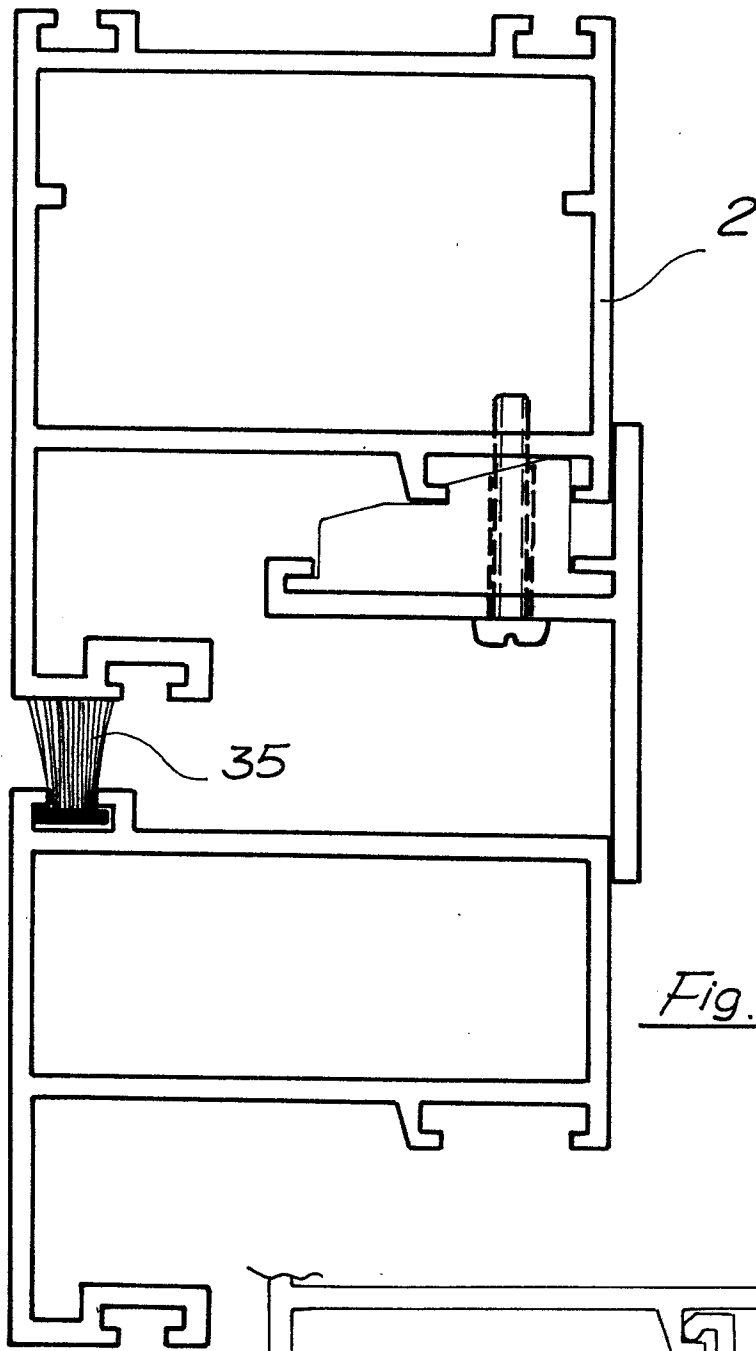


Fig. 8



18 Fig. 13



Fig. 14

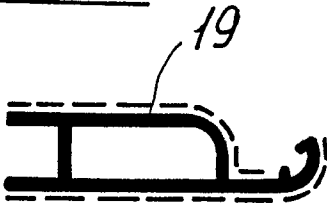


Fig. 15

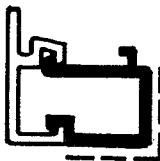
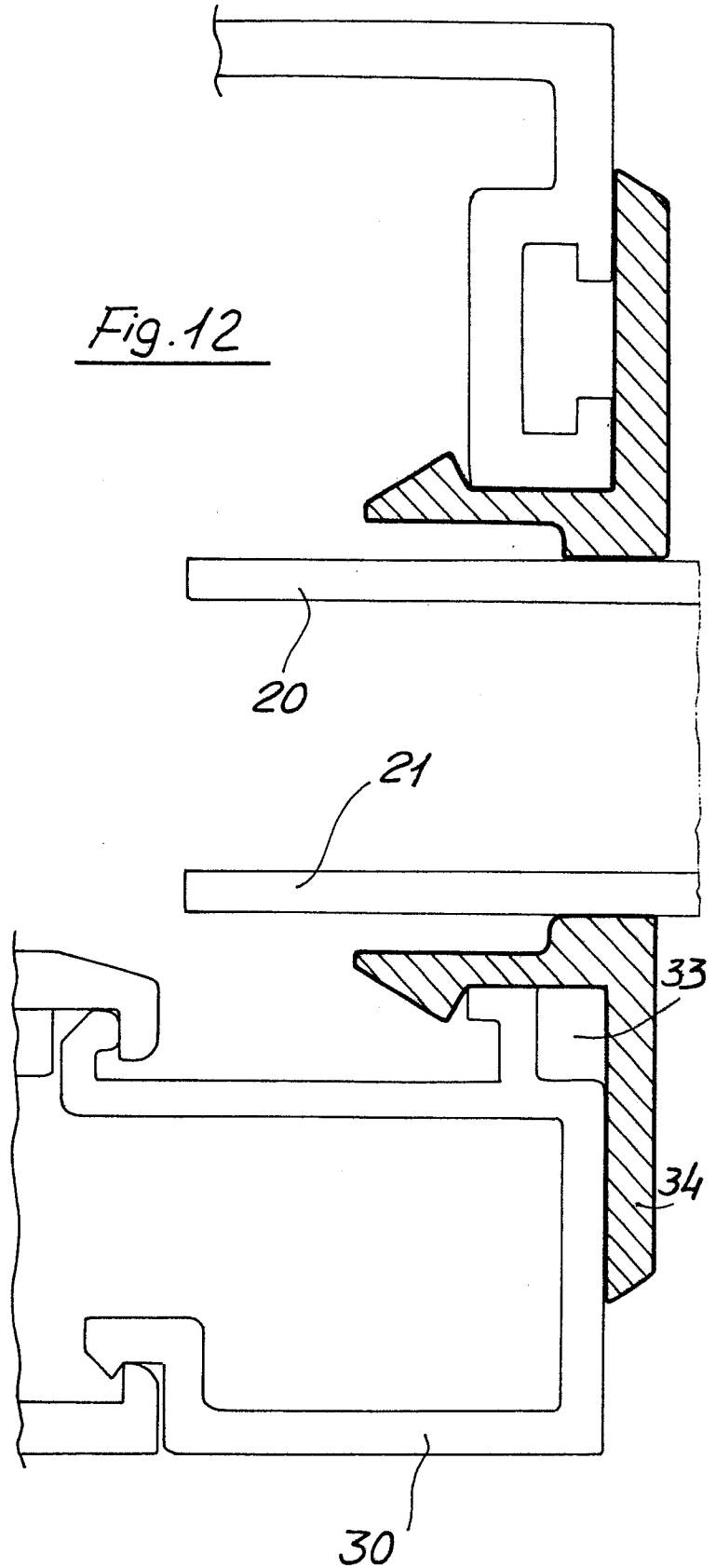
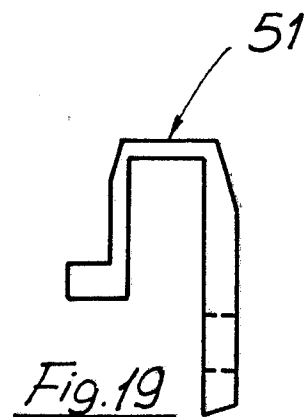
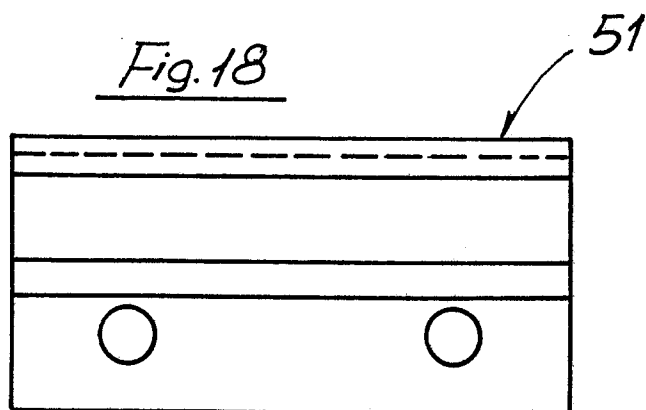
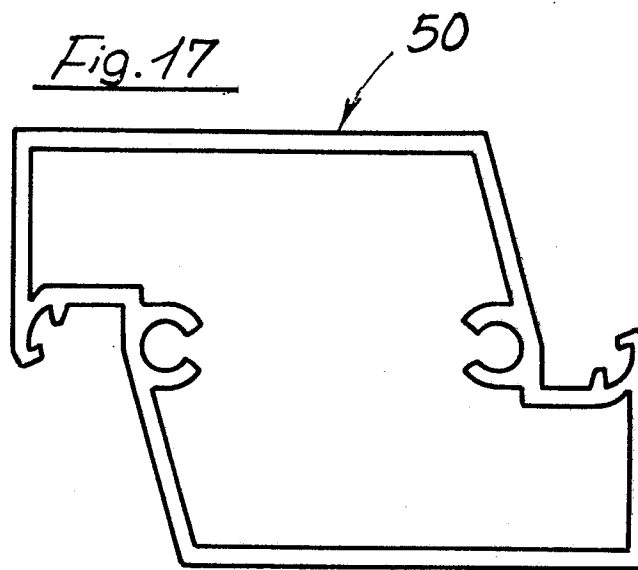
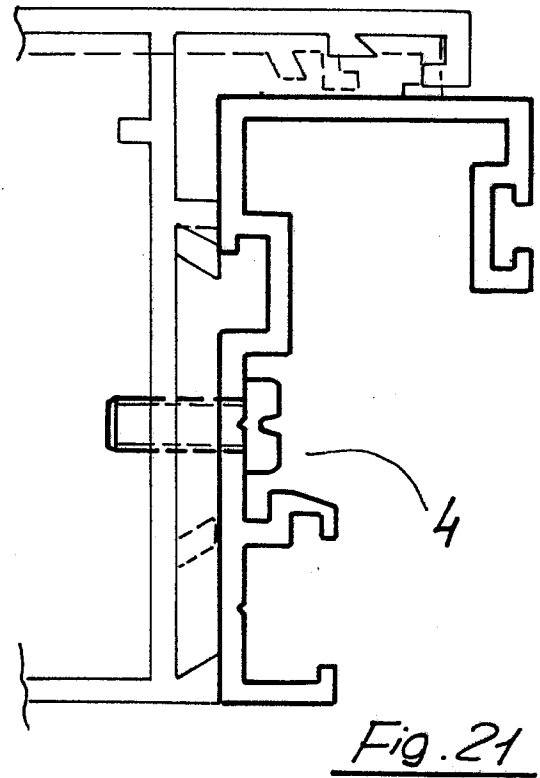
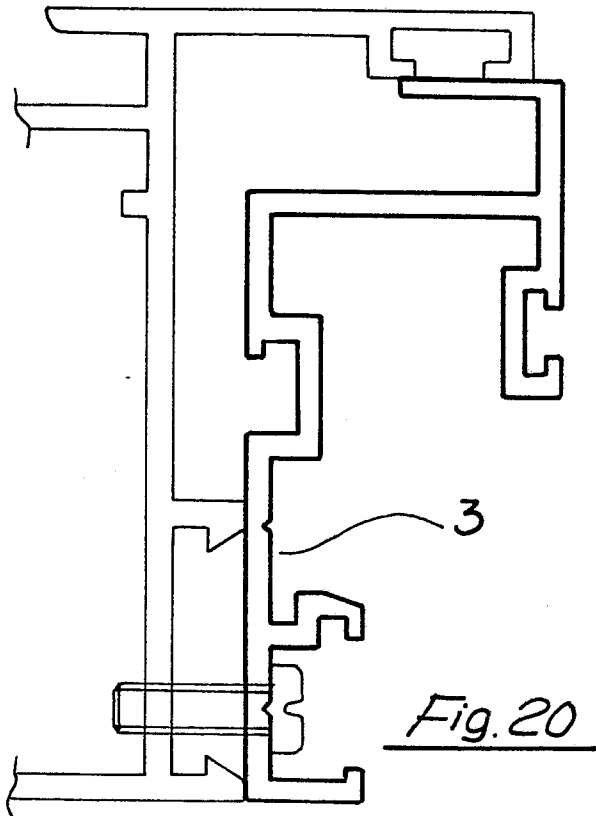


Fig. 12



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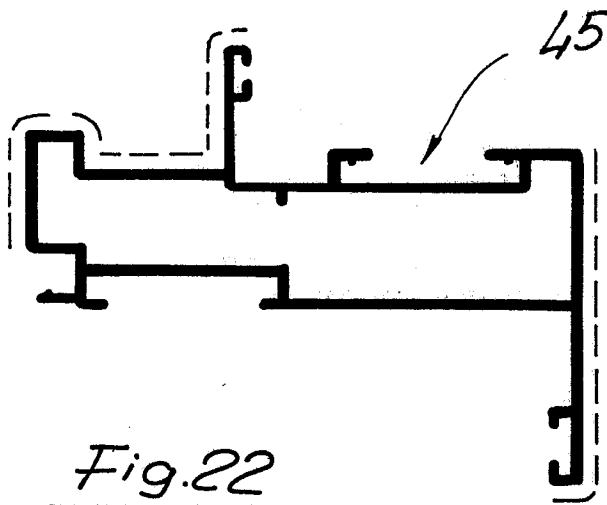


Fig. 23

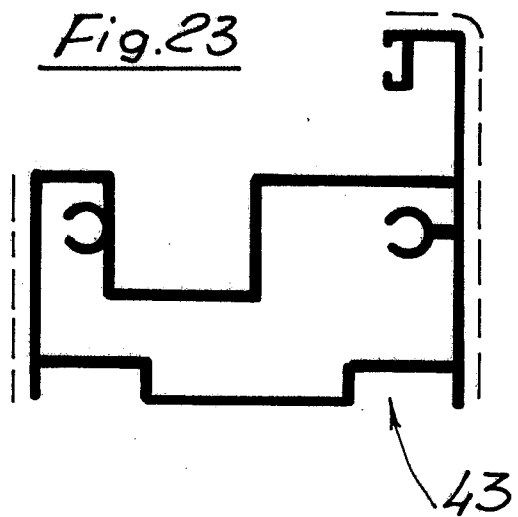


Fig. 24

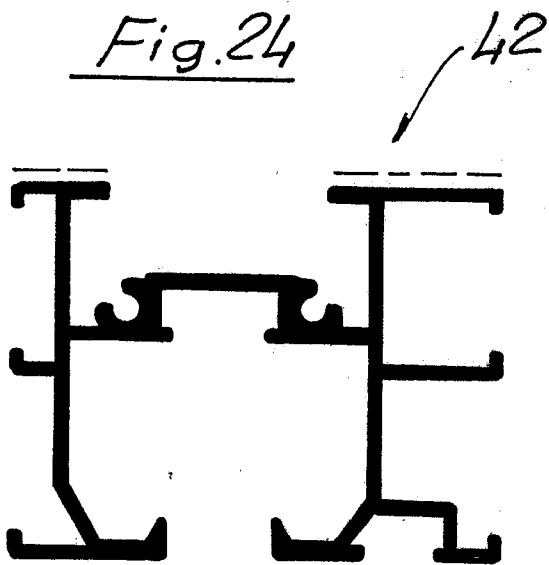
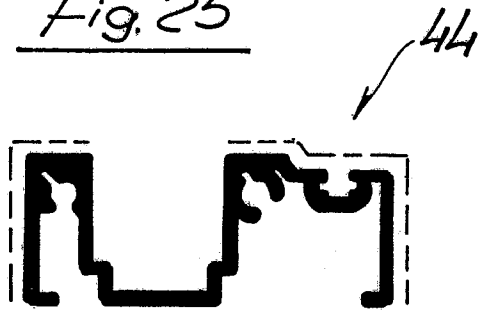


Fig. 25



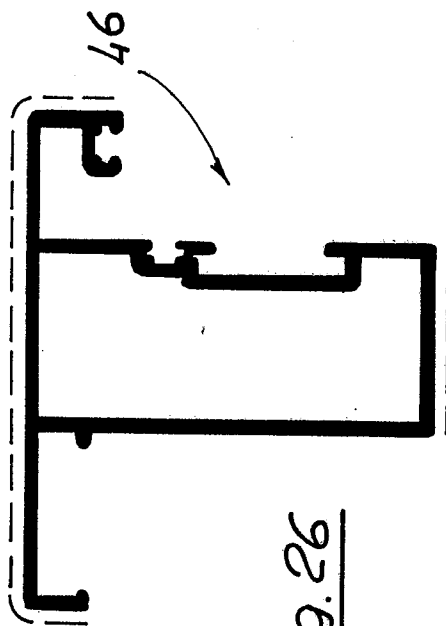


Fig. 26

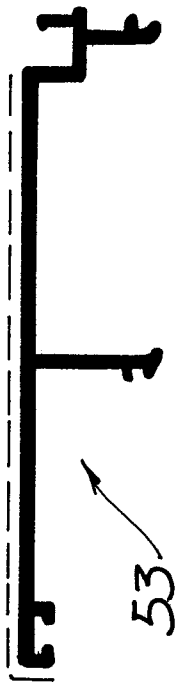


Fig. 28

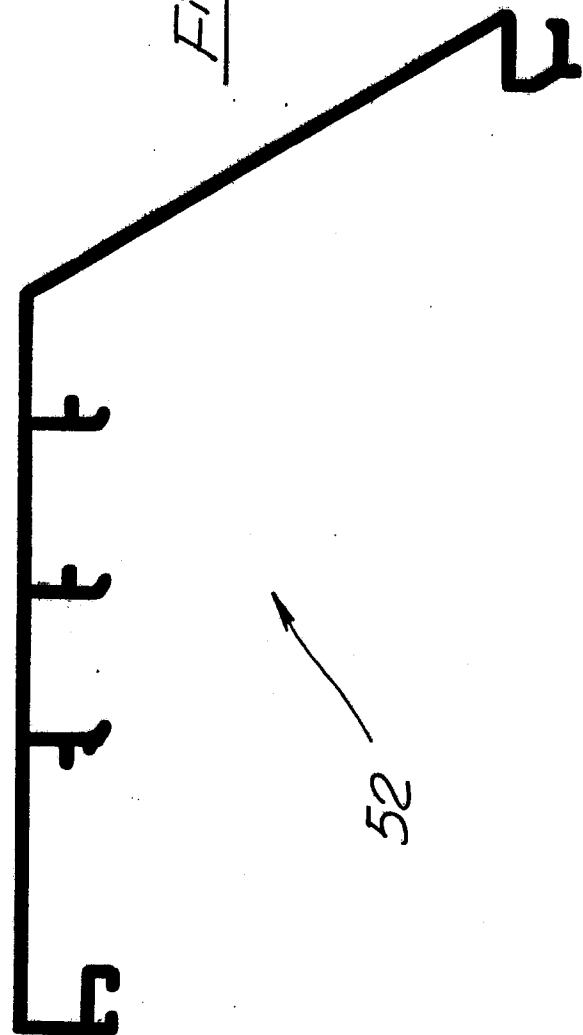


Fig. 27

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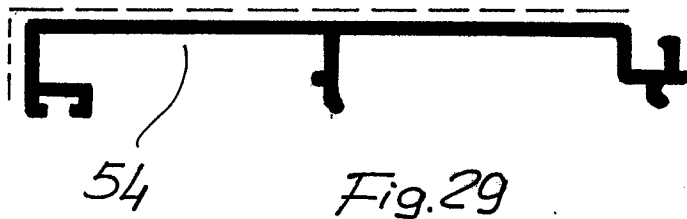


Fig. 29

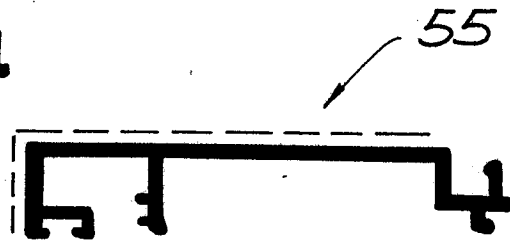


Fig. 30

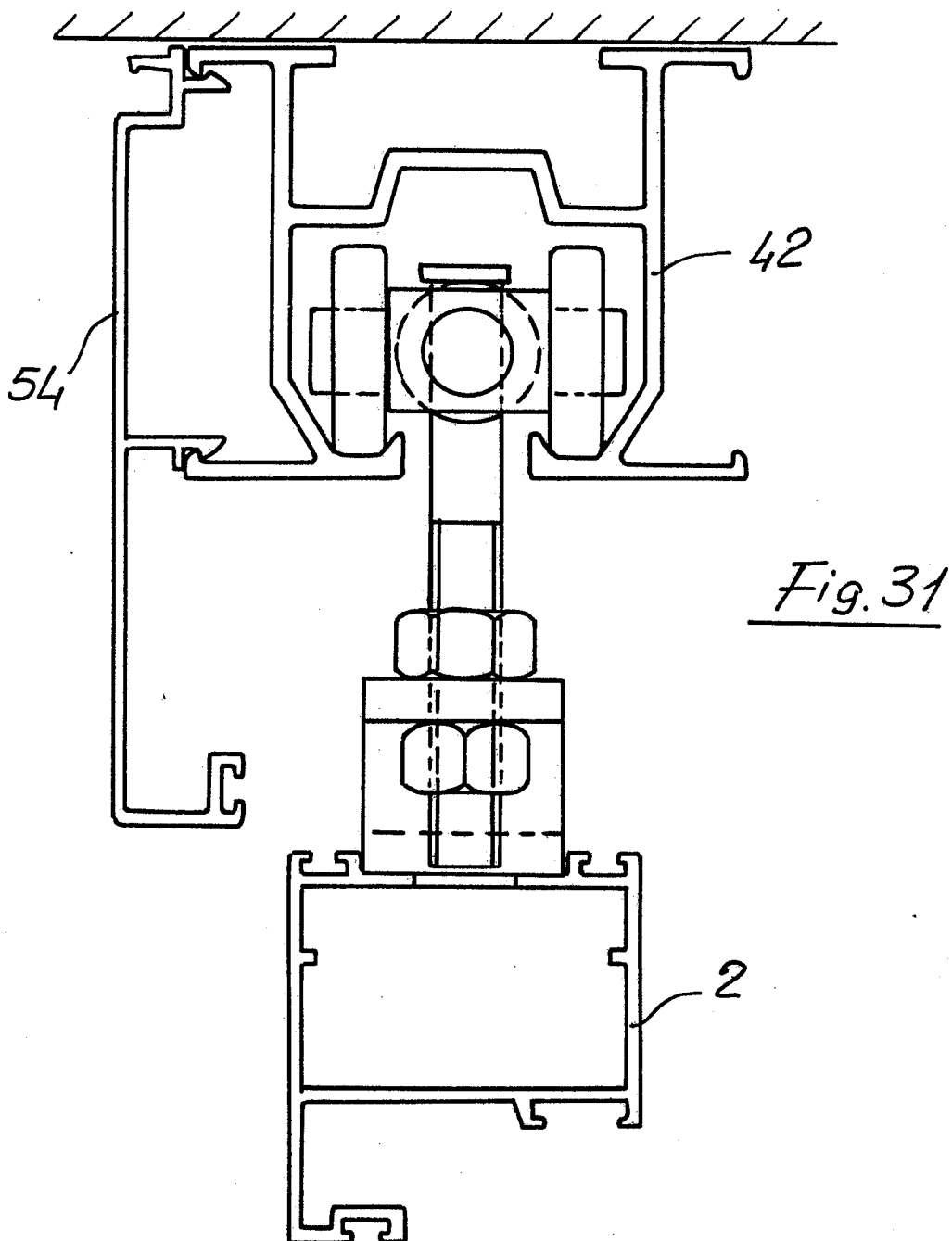


Fig. 31