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(54) **Parting surface structure and bulletin suspending mechanism of bulletin device.**

(57) A parting surface structure of a bulletin device having a device frame, includes and open bearing portion in the device frame, a parting surface body formed as a front face of the device frame, the parting surface body including a pivot for pivotally mounting the parting surface body in the open bearing portion, and an abutment member in the open bearing portion for preventing removal of the pivot, the abutment member being rotatable with the pivot in the open bearing portion, and
a bulletin suspending mechanism of a bulletin device having a parting portion which constitutes a front face of a device frame and which is formed for opening and closing motion or removably, a suitable number of retaining means are mounted inside a horizontal mounting portion hidden on a rear side of the parting portion, the retaining means being each mounted with a bolt so as to be adjustable its movement inwards and outwards, and a bulletin is connected to the retaining means and suspended in a tensed state within the device frame by turning the head of each said bolt positioned outside the horizontal mounting portion.

EP 0 531 593 A2

BACKGROUND OF THE INVENTION

The present invention relates to a bulletin device for indication or decoration in station yards, underground passages, buildings, exhibitions, etc. and more particularly to a parting surface structure wherein the width of a parting surface can be freely adjusted by replacing part of a parting portion with one having a desired parting surface width according to a bulletin to be used in a manufacturing factory or at a site where the bulletin device is mounted, and further to a bulletin suspending mechanism of a bulletin device capable of freely adjusting the degree of stretching of a thin film- or sheet-like flexible bulletin and also capable of performing the mounting and replacement of such bulletin rapidly and easily in a suspended and stretched state to desired degree of tension.

Reference related to the parting surface structure is made here to an electric bulletin device proposed in Japanese Patent Application No. 59730/90 by the applicant in the present case (see FIG. 14).

According to the construction of the said proposed device, a parting surface portion which constitutes the front surface of a device frame is formed removably with respect to the device frame so that at the time of replacement of the bulletin a parting surface portion having a parting surface width suitable for the bulletin to be used can be mounted.

The above conventional device is of a construction wherein the parting surface portion constitutes the whole of the front face of the device frame, so at the time of replacement of bulletin, a bulletin to be newly used and a parting surface portion having a parting surface width suitable for that bulletin are carried up to the site where the bulletin device is mounted and then the replacement is performed.

In this case, the larger the bulletin device, the larger in size and weight of the parting surface portion to be transported. Also, the larger in size and weight of the parting surface portion, the more difficult is the replacement operation.

Besides, it is necessary to provide parting surface portions of various widths, and thus there is a problem also in the manufacture of the device.

Further, in some particular place where the bulletin device is mounted, even when there arises the necessity of fine adjustment of the parting surface width in relation to the surroundings, it is impossible to make such fine adjustment.

Also from the standpoint of effective utilization of materials, such conventional device is wasteful and disadvantageous because the whole of the parting surface portion is replaced.

Further, reference related to the bulletin suspending mechanism is here made to the bulletin device proposed in Japanese Utility Model Laid-open No. 25113/77 by the present inventor.

In this bulletin device there are used a large number of springs for suspending the bulletin without looseness. But for adjusting the degree of stretching of the bulletin it is absolutely necessary to either increase or decrease the number of springs or make replacement with a spring having a desired pulling force. Besides, the spring mounting and removing operations are time-consuming troublesome operations because such springs are handled one by one.

Further, since the retaining receptacles of the hook plate are hidden by the rear side of the engaging portion which supports the parting piece for opening and closing motion, the hook plate mounting and removing operations are performed by groping for the retaining receptacles which are hidden by the rear side of the engaging portion and so not seen. Thus, the working efficiency is poor.

SUMMARY OF THE INVENTION

The parting surface structure of the bulletin device of the present invention is characterized in that a fitting slot is formed along the inner peripheral edge of a parting surface body which forms a front face of a device of a device frame, and a second parting surface portion having a suitable parting surface width is fitted in the said fitting slot removably. This construction brings about the following effects.

By mere replacement of the second parting surface portion which forms part of the front face of the device frame, it is possible to make adjustment into a desired parting surface width, whereby there can be attained an optimal parting effect according to the bulletin to be used.

The second parting surface portion, which is light in weight because of division, is portable and easy for replacement. It is possible for one worker to perform all the work required, including transport up to the replacement work.

In the case where the parting surface width of a bulletin to be newly used is smaller than that of the previous bulletin, it is possible to reduce the width of the second parting surface portion and make the re-use thereof. This is useful also in the aspect of effective utilization of materials, in addition to the point that the second parting surface portion is a divided part.

The present invention is also characterized in that connecting pieces are removably fitted in adjacent concave slots formed inside the edge portion of the second parting surface portion. By this construction there is attained the effect that since the

second parting surface portion is mounted without difference in height, adjacent parting surfaces are flush with each other, thereby ensuring a high commercial value.

In the present invention, moreover, the second parting surface portion is made of second parting surface material. The second parting surface material has parting edge portions different in the shape of the edge face along both sides of a plate portion having a thickness equal to the width of the foregoing fitting slots. By cutting the said plate portion suitable there can be formed a second parting surface portion having a desired width.

The construction just mentioned above can afford the following effect. According to the contents of bulletin or the surrounding atmosphere, a second parting surface portion having a selected edge face shape which is desirable designwise and also having a desired parting surface width can be obtained freely from the second parting surface material, whereby the effect of indication and decoration of the bulletin can be maximized.

The present invention is further characterized in that a parting surface body is mounted pivotably with respect to the device frame and it has a magnetic material on the inner surface thereof, while inside the device frame there are provided magnets in opposed relation to the magnetic material, so the magnetic material is attracted by the magnets whereby the second parting surface portion can be locked temporarily in a parting state and it also can be opened in an unparting state.

The construction just mentioned above can afford the following effect. By merely pivoting the parting surface body and further the second parting surface portion through the parting surface body it is possible to make change-over between an unparting state in which it is possible to effect mounting and replacement of the bulletin from the front side of the device frame and a parting state or a temporarily locked state.

The present invention is further characteristic in that magnets are mounted to a horizontal mounting portion inside the device frame with machine screws so as to be movable forward and backward and also oscillatably.

This construction brings about the following effect. Even in the case where there is a slight error in the front-rear positional relation between the magnetic material on the parting surface body side and the magnets on the horizontal mounting side, this error is eliminated by forward or backward movement or oscillation of the magnets, so the parting surface body and the second parting surface portion can be positively locked temporarily in the parted state.

Further, according to the bulletin suspending mechanism in a bulletin device of the present invention, in a bulletin device wherein a parting portion which constitutes the front face of a device frame is formed for opening and closing motion or removably, an appropriate number of retaining means are mounted so as to be movable inwards and outwards using bolts, along the inside of horizontal mounting portion which is hidden by the rear side of the said parting portion, and a bulletin which is in a connected state to the retaining means is suspended in a stretched state within the device frame by turning the heads of the said bolts outside the horizontal mounting portion.

The construction just mentioned above affords the following effects. The stretched state of the bulletin can be adjusted freely by the bolts through the retaining means, so the bulletin can be suspended to an appropriate degree of stretching without losseness according to its weight, tensile strength and size.

In the mounting and replacement of the bulletin, by either opening or removing the parting portion and mounting the retaining means with bolts to the inside of the horizontal mounting portion under direct looking at the horizontal mounting portion which is exposed to the front face of the device frame, it is possible to quickly suspend the bulletin which is in a connected state to the retaining means.

The present invention is also characteristic in that the aforementioned bolts are each mounted removably forwards and backwards with respect to a cutout slot formed in the front edge of the horizontal mounting portion. This construction affords the following effect.

The mounting and replacement of a bulletin can be done from the front side of the device frame in a connected state of the retaining means and the bolts to the bulletin and the retaining means, respectively, whereby the saving of labor can be attained, and this is useful in the case where there is a limit on the working time.

Moreover, the present invention is characterized in that a protuberant portion is formed along the front edge of the outer surface of the horizontal mounting portion. This construction affords the following effect.

Since the forward movement of the bolt head is prevented by the protuberant portion, the bulletin can be held in its suspended state unless the bolts are loosened and caused to get over the protuberant portion artificially.

Further, the present invention is characterized in that the aforementioned bolts can be mounted so that they each can be taken out and put in inwards and outwards with respect to a throughhole formed in the horizontal mounting portion.

The present invention is further characteristic in that the foregoing retaining means each comprise a

retaining member provided on the front side and a retaining plate provided on the front side, the retaining member having a projecting portion along the front edge of its outer surface and retaining holes along the inner edge of its front face, the retaining plate having on its outer edge a semiarcuately projecting, engaging flange capable of getting over and engaging the said projecting portion, the retaining plate also having engaging pawls formed on the inner edge thereof, the retaining pawls projecting through a bulletin engageably with the said retaining holes, whereby the bulletin can be sandwiched removably between the retaining member and the retaining plate. This construction brings about the following effect.

By merely putting the retaining member on a bulletin from the back side of the bulletin and pushing the retaining plate from the front side, the retaining flange comes into engagement with the projecting portion and the retaining pawls pierce the bulletin and come into engagement with the retaining holes. Thus, the bulletin can be mounted in a connected state by such a simple nipping operation, while by merely pulling out the retaining pawls from the retaining holes they can be disengages from the bulletin, and hence the bulletin mounting and removing operations con be done efficiently.

Moreover, the present invention is characterized in that the retaining pawls are a little inclined outwards with respect to a horizontal plane. This brings about the following effect.

Since the retaining pawls are held while being deformed into a horizontal posture from its original obliquely outward posture, a repulsive force is created at the retaining pawls, which repulsive force strengthens the degree of engagement of the retaining pawls with the retaining holes and ensures the engaged state between the retaining flange and the projecting portion. Consequently, there can be attained satisfactory state of connection with the bulletin.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1 to 9 show a bulletin device according to a first embodiment of the present invention, of which:

FIG. 1 is a front view;

FIG. 2 is an enlarged vertical sectional view taken along line II-II in FIG. 1;

FIG. 3 is a partial enlarged sectional view taking along line III-III in FIG. 1;

FIG. 4 is an enlarged front view of a corner portion, partially broken away;

FIG. 5 is a partial enlarged perspective view with the parting surface body and the second parting surface portion removed from the device frame;

FIG. 6 is an enlarged exploded perspective view of the corner portion;

FIG. 7 is an enlarged sectional view taken along line VII-VII in FIG. 6;

FIG. 8 is an enlarged perspective view showing a stretched state of a bulletin; and

FIG. 9 is an enlarged vertical sectional view showing the material of the second parting surface portion.

FIG. 10 is an enlarged vertical sectional view of a bulletin device according to a second embodiment of the present invention.

FIG. 11 is a partial enlarged sectional view of a bulletin device according to a third embodiment of the present invention.

FIG. 12 is an enlarged vertical sectional view of a bulletin device according to a fourth embodiment of the present invention.

FIG. 13 is an enlarged vertical sectional view of a bulletin device according to a fifth embodiment of the present invention.

FIG. 14 is a partial enlarged sectional view showing a conventional example.

FIG. 15 is a front view of a bulletin device according to another embodiment of the present invention.

FIG. 16 is a partially enlarged cross-sectional view of the bulletin device of FIG. 15, taken along line XVI-XVI thereof.

FIG. 17 is a partially enlarged and broken front view of the corner portion of the bulletin device of FIG. 15;

FIG. 18 is an enlarged cross-sectional view of the bulletin device of FIG. 17, taken along line XVIII-XVIII thereof;

FIG. 19 is an enlarged perspective view of the rear side of the corner portion thereof; and

FIG. 20 is an enlarged exploded perspective view of the front side of the corner portion thereof.

FIGS. 21-24 show a bulletin suspending mechanism according to a sixth embodiment of the present invention:

FIG. 21 is a partial enlarged sectional vied shown embodiment of the bulletin suspending mechanism of the present invention;

FIG. 22 is a partial enlarged perspective view with principal portions shown in an exploded state;

FIG. 23 is an enlarged exploded sectional view of a retaining means; and

FIG. 24 is enlarged cross sectional view of a retaining means.

FIG. 25 is a partial enlarged sectional view of a bulletin device according to another embodiment of the bulletin suspending mechanism of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will be described in detail hereinunder with reference to the accompanying drawings.

Referring to FIGS. 1 to 9, there is illustrated a bulletin device A, according to a first embodiment of the present invention, the bulletin device A, being a laterally long, one-side bulletin type. A device frame 1 is constituted by connecting adjacent ends of the edge rods 2 by a generally L-shaped connector 3, the edge rods 2 being formed by the extrusion of a synthetic resin or a lightweight metal such an aluminum into lengths corresponding to the sides of the device frame.

The edge rods 2 each include in a cross-sectional shape thereof a generally C-shaped bearing portion 4 having an outward opening 4a; a horizontal portion 6 overhanging to the front side and formed inside and opposedly to the bearing portion 4 to define a combination mounting space S and fitting portion 5 between it and the bearing portion 4; and a vertical portion 7 extending inwards from the back side of the horizontal portion 6 while forming a stepped part 8 on the back side and a fitting-space 9 on the front side in cooperation with the horizontal portion 6.

The connector 3, which is an integrally formed product using aluminum or a synthetic resin, has a corner portion 10 formed in conformity with the corner shape of the device frame 1 and plug portions 11, 11 extending at an angle of 90° from the corner portion 10. The edge rods 2 are connected together at an angle of 90° by inserting the plug portions 11, 11 into the fitting portions 5, 5 formed in ends of adjacent rods 2. In this construction, it is sufficient for cut sections of the end portions of the edge rods 2 to be right-angled with respect to the longitudinal direction, so that the corners are arranged without disorder. The plug portions 11, 11 of each connector 3 are fixed with bolts (not shown) within the fitting portions 5, 5 and thereby locked against dislodgement. In each bearing portion 4 formed along the outer periphery of the device frame 1 is pivotaly mounted a shaft portion 13 formed at a base end of a parting surface body 12 so that the parting surface body 12 is pivotable between the parting state and the unparting state.

The parting surface body 12, which is formed by the extrusion of a synthetic resin or aluminum, is composed in its cross-sectional shape of the shaft portion 13 formed on a rear side which is an outer side; a horizontal portion 14 extending in front of the shaft portion 13; and a parting portion 15 extending inwards from the front edge of the horizontal portion 14 so that an inner edge thereof reaches a point inside the horizontal portion of the edge rod 2.

In the inner edge of the parting portion 15 is formed a fitting slot 16, in which is stuck a second parting surface portion 17 removably, the second parting surface portion 17 having an appropriate parting surface width and also having a corner which is cut at an angle of 45° .

The second parting surface portion 17 is formed by cutting a second parting surface material 18 formed by the extrusion of a synthetic resin or aluminum, into an appropriate parting surface width.

In a cross-sectional shape of the second parting surface material 18, a stepped parting end portion 20 is formed on one side of a plate having a thickness equal to the width of the fitting slot 16, while a stepless parting end portion 21 is formed on the other side of the plate. The parting end portion which is considered preferable designwise can be chosen and cut in a desired parting surface width so that either parting end portion 20 or parting end portion 21 is elected.

The mounting and removal of the second parting-surface portion 17 are performed either in a mounted state of the parting surface body 12 to the device frame 1 or in a removed state from the device frame. For the latter, the shaft portion 13 of the parting surface body 12 has substantially a large semicircular section in which a plane portion 13a having a diameter smaller than the width of the opening 4a is formed inside the shaft surface, so that when the parting surface body 12 has been pivotally moved into the unparting state, the plane portion 13a of a smaller diameter is opposed to the opening 4a, thus permitting removal of the parting surface body 12 with respect to the bearing portion 4.

Between adjacent parting end portions 20, 20 there is disposed a generally L-shaped connecting piece 23 which is fitted removably in concave slots 22 formed on the back sides of the end portions 20, 20 so that the end portions are connected together so as to be flush with each other without difference in height.

To and along the back side of the parting portion 15 is attached a magnetic material 24 such as an iron plate for example. The magnetic material 24 is attracted by magnets 25 disposed on the side of the horizontal portion 6, whereby the parting surface body 12 and the second parting surface 17 are locked temporarily in the parting state.

The magnets 25 are mounted with machine screws 26 at several places along the horizontal portion 6 so as to be movable back and forth and oscillatable within the mounting space S. Even when there is a slight error in the positional relation between the magnets 25 and the magnetic material 24, all the magnetics 25 come into attractive contact with the magnetic material 24, thereby afford-

ing a satisfactory temporarily-locked state.

A bulletin 30 is supported in a stretched state through coil springs 29 by means of hooks 28 of hook plates 27 disposed at several places along the horizontal portion. The stretching or replacement of the bulletin which is in the form of film is performed after pivotally moving the parting surface body 12 and the second parting surface portion 17 into the unparting state or after the removal thereof from the device frame 1.

On the back side of the device frame 1, a back plate 31 is mounted with machine screws or the like in such a manner that the peripheral edge of the back plate 31 is fitted in the stepped portion 8. By this construction it is made possible to make replacement with a second parting surface portion 17 having an optimal parting width. Also as to the replacement of the bulletin 30, a desired filmy bulletin 30 can be mounted from the front side of the device frame 1 after opening of the second parting surface portion 17 together with the parting surface body 12 or after the removal thereof from the device frame 1.

Referring now to FIG. 10, there is illustrated a bulletin device A_2 accoring to a second embodiment of the present invention, in which a light box 32 is mounted with machine screws 33 to the back of the device frame 1 in place of the back plate 31. Other constructional points are basically the same as in the first embodiment illustrated in FIG. 1, so will not be explained here.

Also in the case of the bulletin device A_2 which is provided with a light source 34, adjustment can be made into an optimal parting state by mere replacement to a second parting surface portion having a parting width suitable for the filmy bulletin 30, and the replacement of the bulletin 30 can be done from the front side of the device frame 1 after opening the second parting surface portion 17 together with the parting surface body 12 or after removal thereof from the device frame 1.

Referring now to FIG. 11, there is illustrated a bulletin device A_3 accoring to a third embodiment of the present invention, in which an abutment member 35 of a generally small semicircular section is contacted with and along the plane portion 13a of a small diameter of the shaft portion 13 of the parting surface body 12 so that the parting surface 12 cannot be removed from the device frame 1. Other constructional points are basically the same as in the first embodiment illustrated in FIG. 1, so will not be explained here.

According to the bulletin device A_3 , replacement can be made to a second parting surface portion 17 having an optimal parting width in accordance with the degree of parting of the filmy bulletin 30 used. Also, replacement of the bulletin 30 can be done from the front side of the device frame 1 after opening the second parting surface portion 17 together with the parting surface body 12.

Referring now to FIG. 12, there is illustrated a bulletin device A_4 , in which there is used a bulletin 30 provided with a base plate and having a small parting range.

The bulletin 30 provided with the base plate, indicated at 36, is removably fitted in a fitting portion 9, and parting is made by a second parting surface portion 17 having a paper strip-like parting width. In this embodiment, the base plate 36 also serve as the back plate 31, so it is not necessary to use the back plate 31. Other constructional points are basically the same as in the first embodiment illustrated in FIG. 1, so the explanation thereof will be omitted.

According to the bulletin device A_4 , replacement to a second parting surface portion 17 having an optimal parting width can be done in accordance with the degree of parting of the bulletin 30 provided with the base plate 36. Also as to the replacement of the bulletin 30 with the base plate 36, it can be done from the front side of the device frame 1 after opening the second parting surface portion 17 together with the parting surface body 12 or after the removal thereof from the device frame.

In a bulletin device A_5 illustrated in FIG. 13, which is provided with a light transmitting-base plate 36, a bulletin 30 having a medium degree of parting range is fitted in a fitting portion 9, and a light box 32 is attached to the back of the device frame 1 with machine screws 33. Other constructional points are basically the same as in the first embodiment illustrated in FIG. 1, so the explanation thereof will be omitted.

According to the bulletin device A_5 , replacement can be made to a second parting surface portion 17 having an optimal parting width in accordance with the degree of parting of the bulletin 30 with the base plate 36. Also as to the replacement of the bulletin 30, it can be done from the front side of the device frame 1 after opening the second parting surface portion 17 together with the parting surface body 12 or after the removal thereof from the device frame 1. Also in this state it is possible to make replacement of the light source 32 in the light box 32.

Referring now to FIGS. 15-20, a bulletin device according to another embodiment of the present invention is shown in which elements corresponding to those of the bulletin device of FIGS. 1-14 are identified by the same reference numerals, and a detailed description thereof will be omitted herein for the sake of brevity.

In the aforementioned embodiments of the invention, it was possible to alternatively select two

modes of operation. In the first mode of operation, an abutment member 35 having a substantially semi-circular sectional view is detachably inserted into the C-shaped bearing portion 4 of device frame 1. When abutment member 35 is inserted into the plane portion 13a of shaft portion 13 in bearing portion 4, first parting surface body 12 cannot be removed from the bearing portion 4. In the second mode of operation, the first parting surface body 12 is removable from bearing portion 4 when abutment member 35 is pulled out from bearing portion 4.

In the bulletin device of FIGS. 15-20, the above alternative modes of operation are possible after completion of installation of device frame 1.

Specifically, the corner of device frame 1 is partially cut off so as to provide an opening 51 in the end of bearing portion 4 at the cut-off portion 50. As a result, it is possible to pull out the abutment member 35 from opening 51 or to insert abutment member 35 into opening 51. A substantially L-shaped cover 52 is fixed on bearing portion 4.

Although the bulletin devices of the above embodiments are a one-sided bulletin type, no limitation is made thereto, and the bulletin device of the invention may be a double-sided bulletin type. Further, the parting surface body 12 may be of a type incapable of being opened and closed; in other words, it may be formed in one piece with the device frame 1 or fixed thereto integrally. These modifications do not alter the gist of the present invention at all.

Further, referring to now to FIGS. 21-25, a bulletin suspending mechanism according to embodiments of the present invention is shown by the different reference numerals from those of the aforementioned parting surface structure of the bulletin device FIGS. 1-20 in order to clarify and explain constructions between the embodiments of FIGS. 1-20 and those of FIGS. 21-25 separately.

Referring to FIGS. 21-24, there is illustrated a bulletin suspending mechanism A_6 , according to a sixth embodiment of the present invention.

The edge rods 62 each include in a cross-sectional shape thereof a generally C-shaped bearing portion 64 having an outward opening 64a; horizontal mounting portion overhanging to the front side from the inside of the bearing portion 64; a vertical portion 66 extending inwards form near the base part of the horizontal mounting portion 65; a fitting portion 67 formed in an intermediate position of the vertical portion 66; and a fitting portion 67 formed behind and in opposed relation to the said fitting portion 67. Above the outer surface of the horizontal mounting portion 65 in front of the bearing portion 64 there is formed an operating space S for a bolt.

The connectors 63, formed in a generally L-shape using aluminium or synthetic resin, are each provided with plug portions 63a, 63a extending at an angle of 90° , the plug portions 63a, 63a being inserted into the fitting portions 67, 67 formed in end portions of the edge rods 62 adjacent to each other, whereby the edge rods 62 are connected together at an angle of 90° . Consequently, the connections of the edge rods 62 are at an angle of 90° without disorder.

A shaft portion 69 formed at the base end of each parting portion 68 is pivotally mounted in the bearing portion 64 formed on the outer periphery of the device frame 1 so that the parting portion 68 is pivotable between a parting state and an unparting state. In the parting state the horizontal mounting portion 65 is hidden and the operating space S is covered by the parting portion 68.

The parting portion 68, which is formed by the extrusion of a synthetic resin or aluminum, comprises in a cross-sectional shape thereof the shaft portion 69 formed on the outer bask side, a horizontal portion 70 formed in front of the shaft portion 69, and a parting surface 71 extending inwards from the front edge of the horizontal portion 70 until its inner edge reaches a position inside the horizontal mounting portion 65 of the edge rod 62. The shaft portion 69 in the parting portion 68 has a generally large semicircular section in which a plane part 69a of a diameter smaller than the width of the opening 64a is formed inside the shaft surface. When the parting portion 68 has been pivotally moved into an unparting state, the plane portion 69a of a smaller diameter is opposed to the opening 64a, thus permitting the parting portion 68 to be removed form the bearing portion 64.

The shaft portion 69 can be fixed in a parting state to the bearing portion 64 with bolts 72. By removing the bolts 72 the parting portion 68 can be pivotally moved into an unparting state and can be removed from the bearing portion 64.

Inside the horizontal mounting portion 65 a suitable number of retaining means 73 are mounted at approximately equal intervals each by inserting a bolt 74 which is threadedly engaged with the retaining means 73 removably from the front side into a nearly cutout slot 75. The retaining means 73 can be moved inwards and outwards by turning a bolt head 14a on the outer surface side of the mounting portion 65 in the operating space S, whereby a bulletin 30 which is in a connected state to the retaining means 73 can be adjusted its stretching degree and also can be removed to the front from the horizontal mounting portion 65. Further, a protuberant portion 77 is projecting from the front edge of the outer surface of the horizontal mounting portion 65, whereby even when the bolt head 74a moves to the front side, this movement is

prevented by the protuberant portion 77 so is not disengaged therefrom. Thus, the bulletin 30 is kept suspended unless the bolt head is caused to get over the protuberant portion 77 artificially.

The retaining means 73 each comprises a retaining member 78 formed of a synthetic resin and a metallic retaining plate 79. The retaining member 78 is integrally provided with a nut 80 for engagement with the bolt 74, the nut 80 being embedded or press-fitted from the window hole 81 formed on the rear side as illustrated. Further, a semicircular protuberant portion 82 is formed along the front edge of the upper surface, while horizontal retaining holes 83 are formed along the lower edge of the front face.

The retaining late 79, which is a metallic plate having a spring force, is provided at the upper edge thereof with an engaging flange 85 projecting semiarcuately beyond the protuberant portion 82 into engagement with the same portion, and is also provided at the lower edge thereof with retaining pawls 84 projecting somewhat outwards (10°) with respect to a horizontal state so as to be engageable with the retaining holes 83.

The engaging flange 85 is brought into engagement with the protuberant portion 82 from the front side of an edge portion of the bulletin 76 with the retaining member 78 put on the rear side of the bulletin. In this state the retaining pawls 84 are pierced through the bulletin 76 and retained by the retaining holes 83, whereby the bulletin 76 is integrally connected with the retaining plate 79 and the retaining member 78. The retaining means 73 can be disengaged from the bulletin 30 by removing the retaining plate 79 and then can be connected to another bulletin 30.

In a connected state of a suitable number of retaining means 73 to the peripheral edge of the bulletin 30, the parting portion 68 is opened or removed and the bolt 74 is inserted from the front side into a nearby cutout slot 75 of the horizontal mounting portion 65 which has appeared to the front side, then by turning the bolt head 74a the bulletin 30 connected to the retaining means 73 can be suspended in a stretched state. Mounting and replacement of the bulletin from the front side of the device frame 1 are possible.

More specifically, the bulletin 76 can be mounted from the front side by merely applying the retaining member 78 to the rear side of the bulletin 30 and pushing the retaining plate 79 against the bulletin from the front side to sandwich the bulletin therebetween. Further, the bulletin 30 can be removed by merely pulling out the retaining pawls 84 of the retaining plate 79 from the bulletin. Thus, the mounting and removing work efficiency is high.

In the connected state of the bulletin 30 and the retaining means 73, moreover, the retaining flange 85 gets over the protuberant portion 82 and retains the same portion resiliently, and the retaining pawls 84 are held in a horizontal posture, not in the original outwardly facing posture thereof, within the retaining holes 83, so that a repulsive force is created at the retaining pawls 84. Under the action of this repulsive force, the retaining pawls 84 are retained in the retaining holes 83 and the engagement of the retaining flange with the protuberant portion 82 is maintained. Consequently, there can be attained a good connection of the retaining means with the bulletin 30.

Other constructional points are basically the same as in a first embodiment illustrated in Fig. 1, so the explanation thereof omitted.

Referring to Fig. 25, there is illustrated a bulletin suspending mechanism, according to another embodiment of the present invention, in which a through-hole 90 is formed in place of the cutout slot 75 and the bolt 74 is inserted through the through-hole 90 for removable threaded engagement with the retaining means 73, further, an abutment member 35 having a generally small semicircular section is contacted with the plane part 9a of a small diameter at the shaft 69 of the parting portion 68, whereby the parting portion 68 cannot be removed from the device frame 1. Other constructional points are basically the same as in the first embodiment illustrated in Fig. 1, so the explanation thereof will be omitted. In this embodiment, the mounting or replacement of the bulletin 30 is performed in an opened state of the parting portion 68.

Although the bulletin devices of the above embodiments are of a one-side bulletin type, the present invention is not limited thereof. The bulletin device to which the present invention is applied may be a double-side bulletin type.

Having described specific preferred embodiments of the invention with reference to the accompanying drawings, it will be appreciated that the present invention is not limited to those precise embodiments, and that various changes and modifications can be effected therein by one of ordinary skill in the art without departing from the scope or spirit of the invention as defined by the appended claims.

Claims

1. A parting surface structure of a bulletin device having a device frame, comprising:

a parting surface body which is formed as a front face of said device frame, said parting surface body including an inner peripheral edge having a fitting slot formed therein,

and a second parting surface portion having a parting surface width and which remov-

ably fits in said fitting slot.

2. A parting surface structure according to claim 1, further including:

a further second parting surface portion adjacent to the first-mentioned second parting surface portion, and said second parting surface portions have adjacent ends with inside portions of said adjacent ends having concave slots formed therein, and

a connecting piece fitted in said adjacent concave slots.

3. A parting surface structure according to claim 2, wherein said connecting piece has an L-shaped configuration.

4. A parting surface structure according to claim 1, wherein said second parting surface portion is formed of a second parting surface material, said second parting surface material including a plate having a thickness equal to the width of said fitting slot and parting end portions which have different end face shapes from each other along opposite sides of said plate, said plate being cut to form a second parting surface portion having a desired parting surface width.

5. A parting surface structure according to claim 1, wherein the device frame has an open bearing portion and said parting surface body includes a pivot means for pivotally mounting said parting surface body in said open bearing portion, and further including restrainment means in said open bearing portion for preventing removal of said pivot means.

6. A parting surface structure according to claim 5, wherein said restrainment means includes an abutment member in said open bearing portion, said abutment member being rotatable with said pivot means in said open bearing portion.

7. A parting surface structure according to claim 6, wherein said open bearing portion has a substantially C-shaped cross-sectional configuration, said pivot means has a substantially semi-circular cross-sectional configuration, and said abutment member has a substantially semi-circular cross-sectional configuration.

8. A parting surface structure of a bulletin device according to claim 1, wherein said parting surface body is mounted pivottably with respect to said device frame and has a magnetic material on the inner surface thereof, said magnetic material being attracted by magnets provided inside the device frame in opposed relation to the magnetic material whereby the parting surface body, which can be opened in an unparting state, is held thereby in a parting state by said magnetic material and said magnets.

9. A parting surface structure of a bulletin device according to claim 8, wherein said magnets are mounted with machine screws to a horizontal mounting portion inside said device frame so as to be movable forward and backward and also oscillatable.

10. In a bulletin device having a device frame with a parting portion which constitutes a front face of the device frame and a horizontal mounting portion hidden behind a rear side of said parting portion, said parting portion being formed for opening and closing motion, a bulletin suspending mechanism for suspending a bulletin in a tensed state in the bulletin device, comprising:

a suitable number of retaining means mounted inside the horizontal mounting portion for holding said bulletin, each of said retaining means comprising a retaining member having a front side and a retaining plate positioned on the front side of the respective retaining member, each said retaining member having a protuberant portion along a front edge of an outer surface thereof and also having retaining holes along an inner edge of a front face thereof, each said retaining plate having a semiarcuate engaging flange formed at an outer edge thereof and capable of moving over and engaging said protuberant portion of one said retaining member, each said retaining plate also having retaining pawls formed at an inner edge thereof so that the retaining pawls can pierce the bulletin and come into engagement with said retaining holes, and the bulletin can be sandwiched removably between said retaining member and said retaining plate, and

bolt means for mounting each of said retaining means inside the horizontal mounting portion so that each said retaining means is adjustable for inward and outward movement, the molt means including a bolt head mounted outside of said horizontal mounting portion, and the bulletin being connected to said retaining means and suspended in a tensed state within the device frame by turning the head of said bolt means positioned outside said horizontal mounting portion.

11. A bulletin suspending mechanism in a bulletin device according to claim 8, wherein said bolt

is mounted removably in a front and rear direction with respect to a cutout slot formed in a front edge of said horizontal mounting portion.

12. A bulletin suspending mechanism in a bulletin device according to claim 9, further including a protuberant portion along the front edge of an outer surface of said horizontal mounting portion.

13. A bulletin suspending mechanism in a bulletin device according to claim 8, wherein said bolt can be inserted and removed inwards and outwards with respect to a through-hole formed in said horizontal mounting portion.

14. A bulletin suspending mechanism in a bulletin device according to claim 8, wherein said retaining pawls are somewhat included outwards with respect to a horizontal state.

FIG. 2

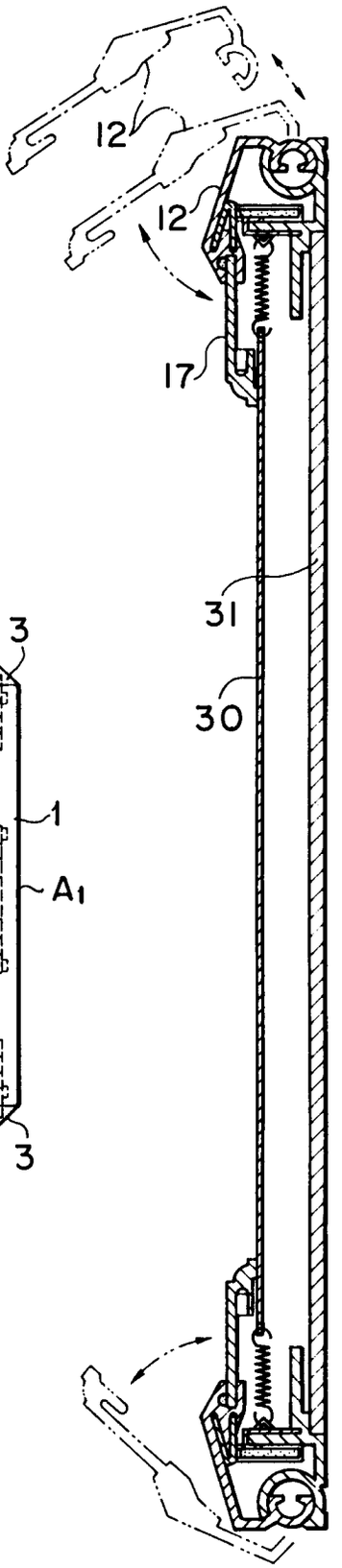

FIG. 1

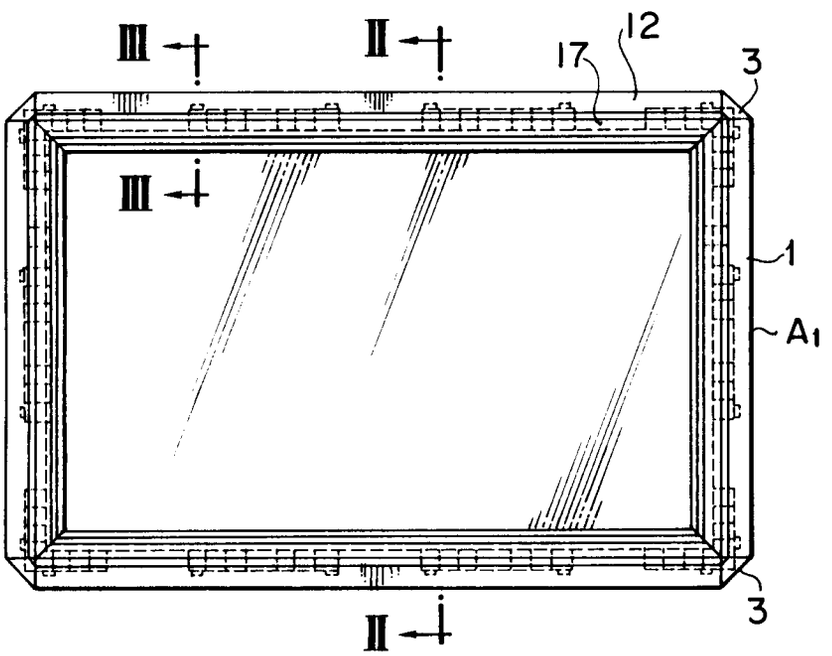

FIG. 3

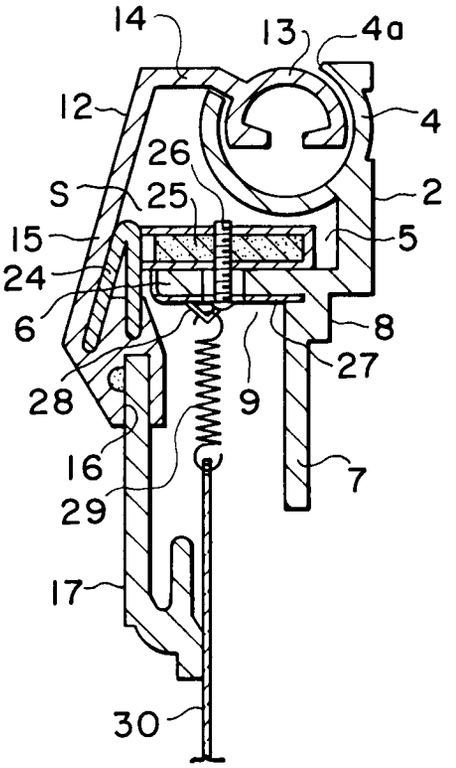
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FIG. 4

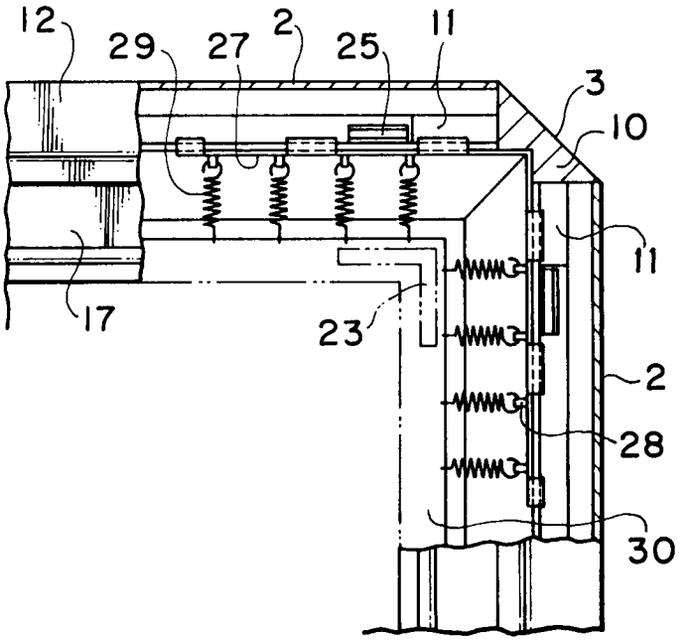
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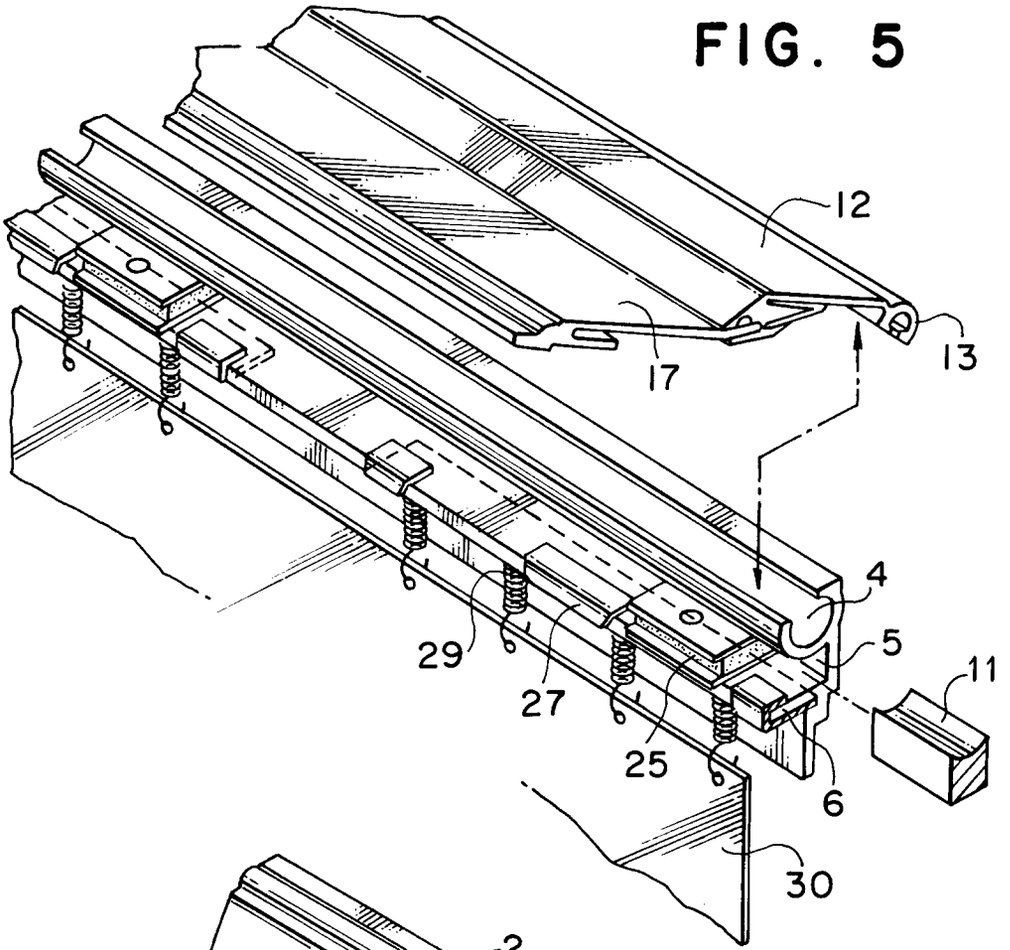
FIG. 5



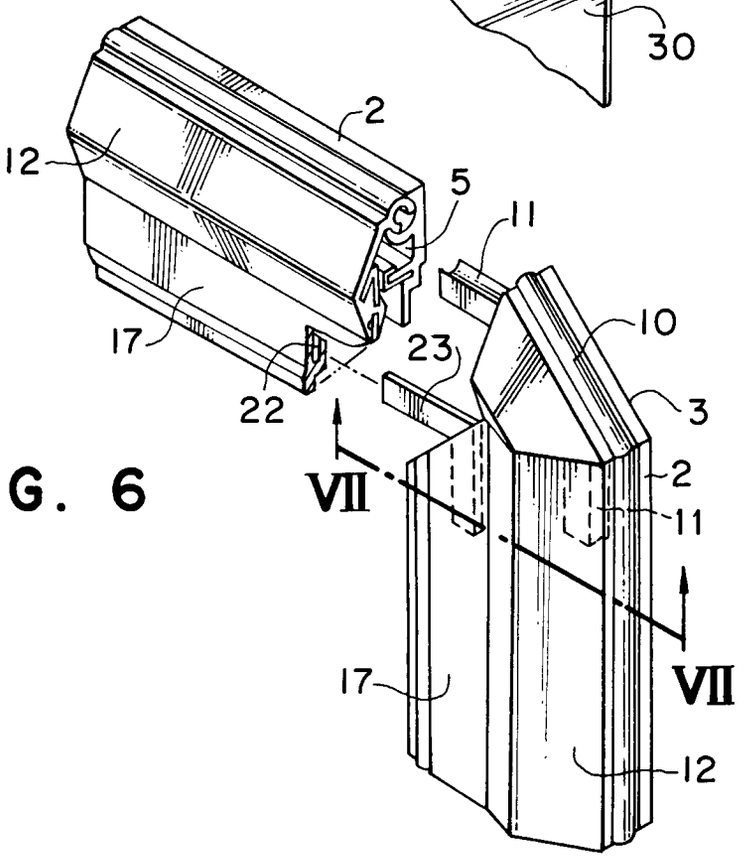


FIG. 6

FIG. 8

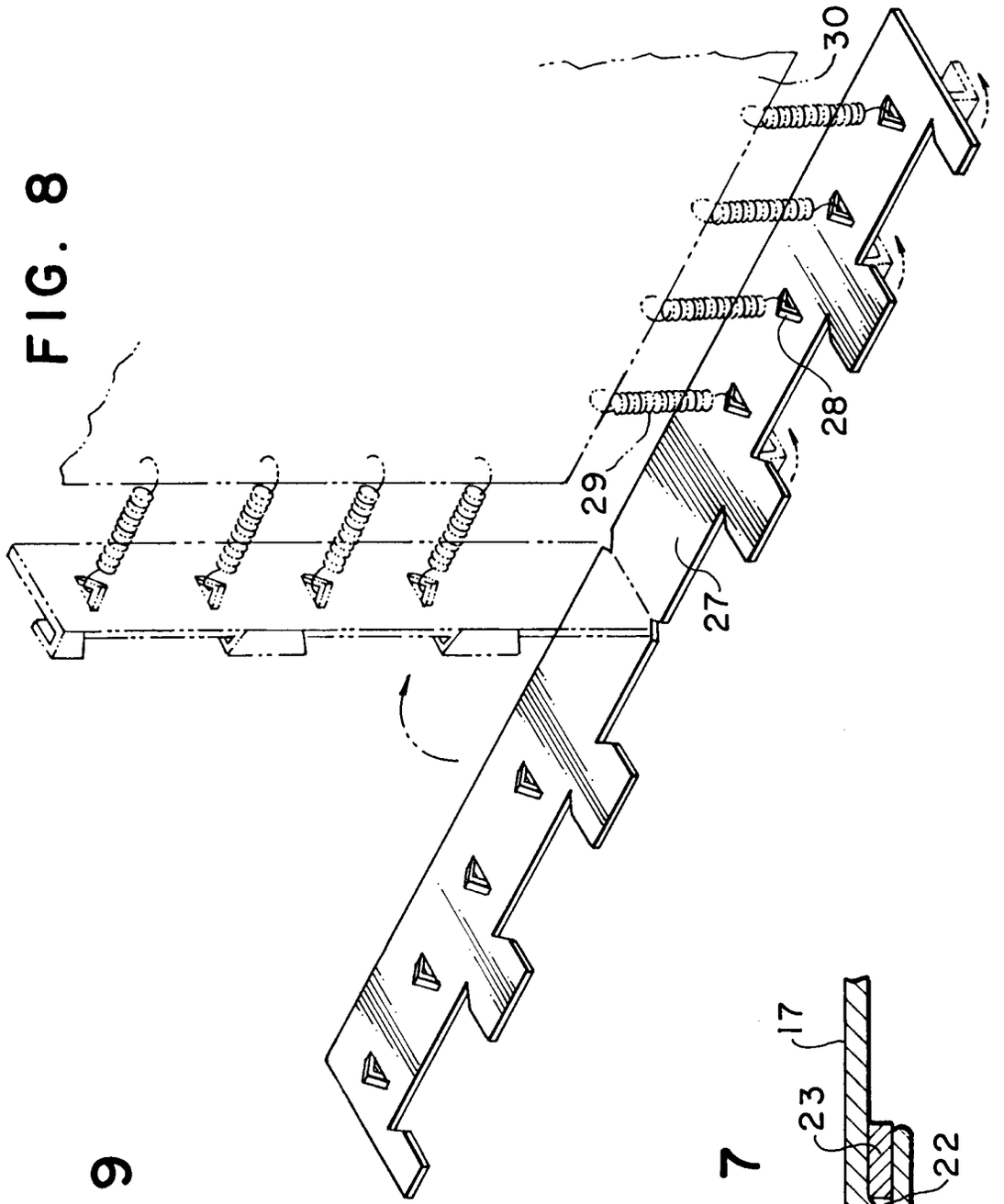


FIG. 9

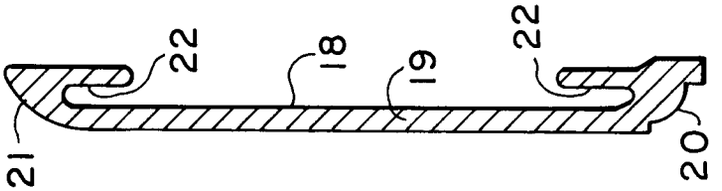


FIG. 7

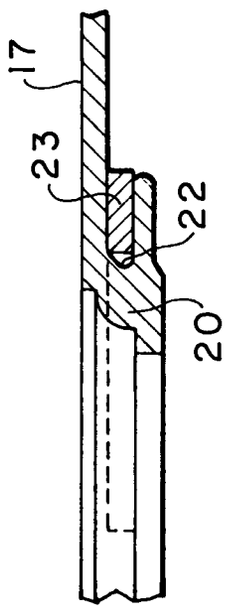


FIG. 11

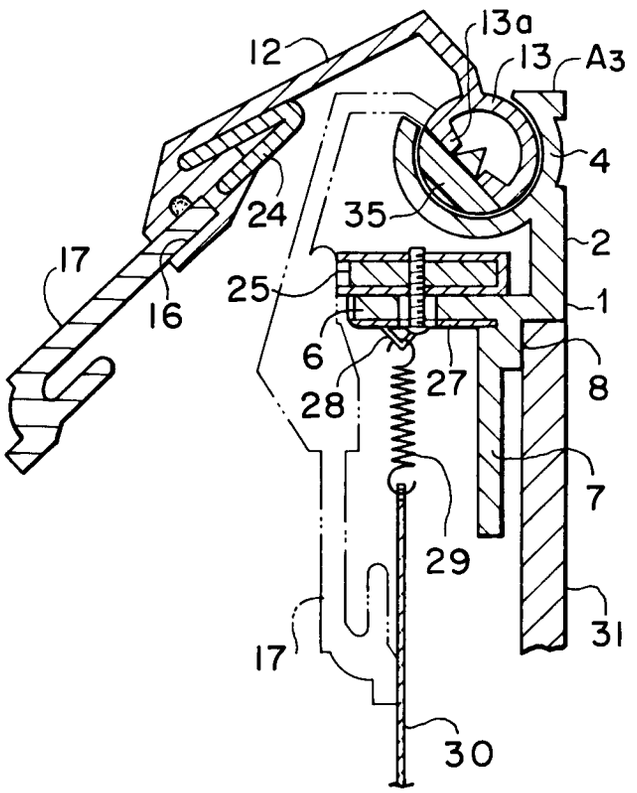


FIG. 10

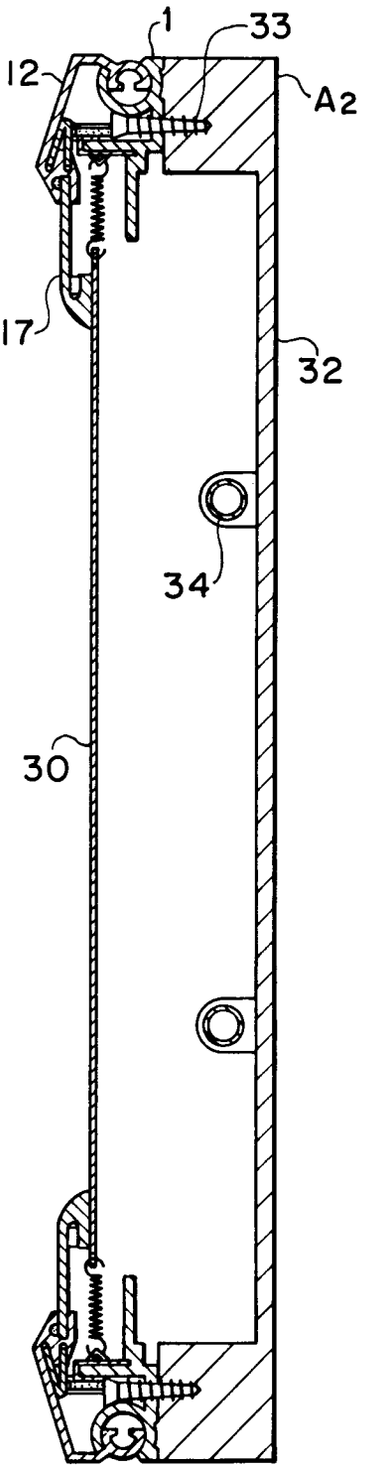


FIG. 14

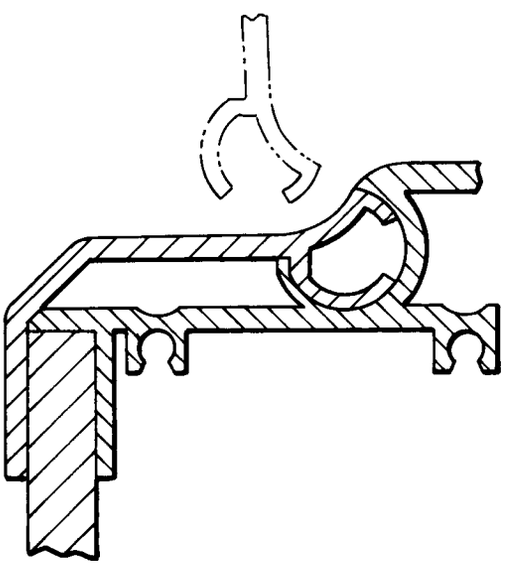


FIG. 12

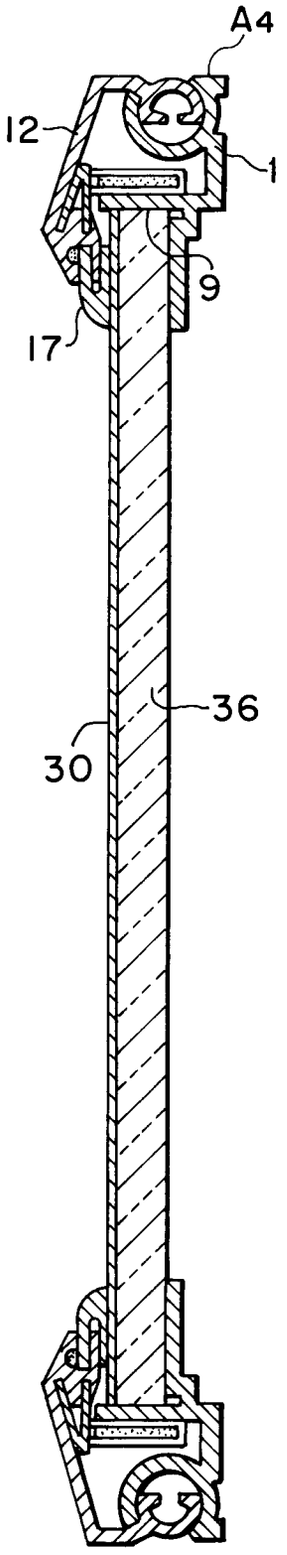


FIG. 13

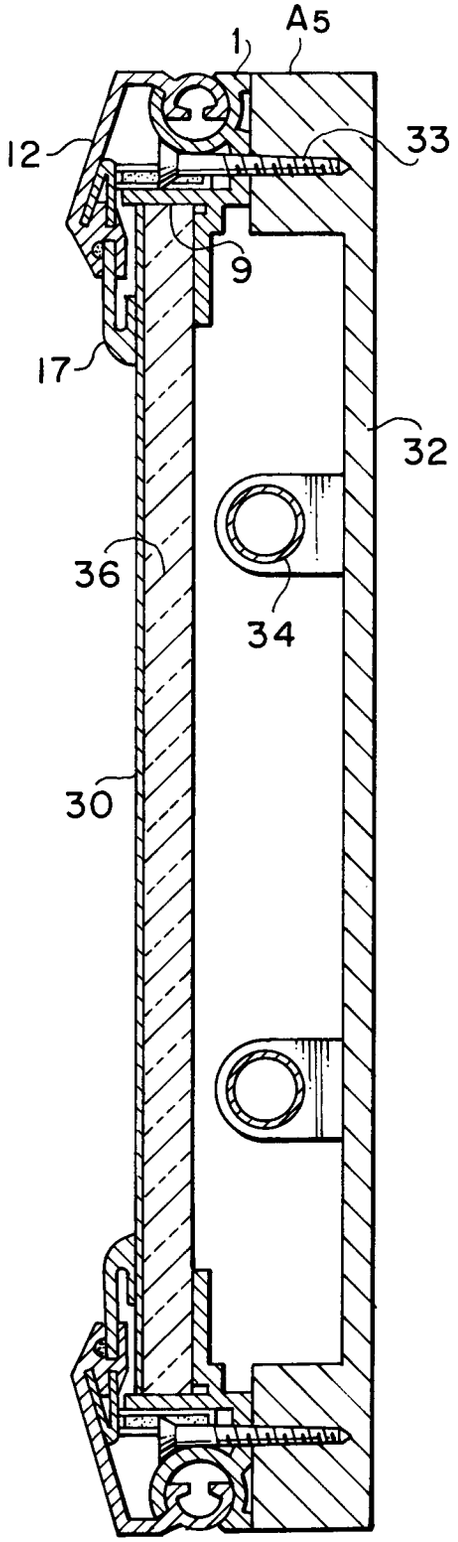


FIG. 15

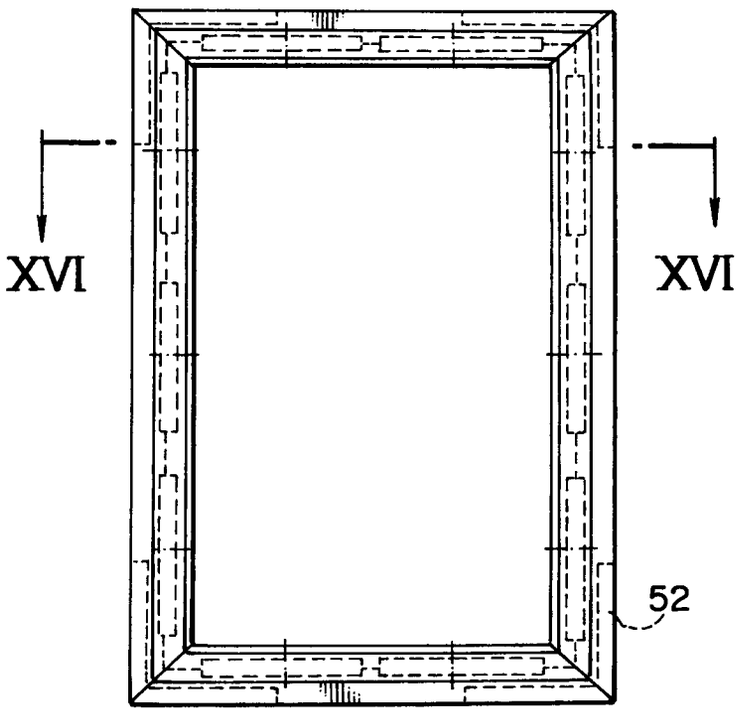


FIG. 16

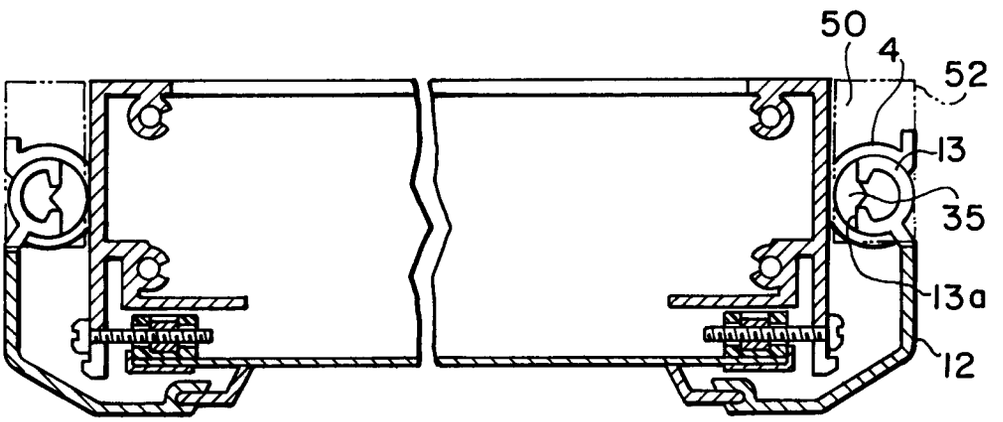


FIG. 17

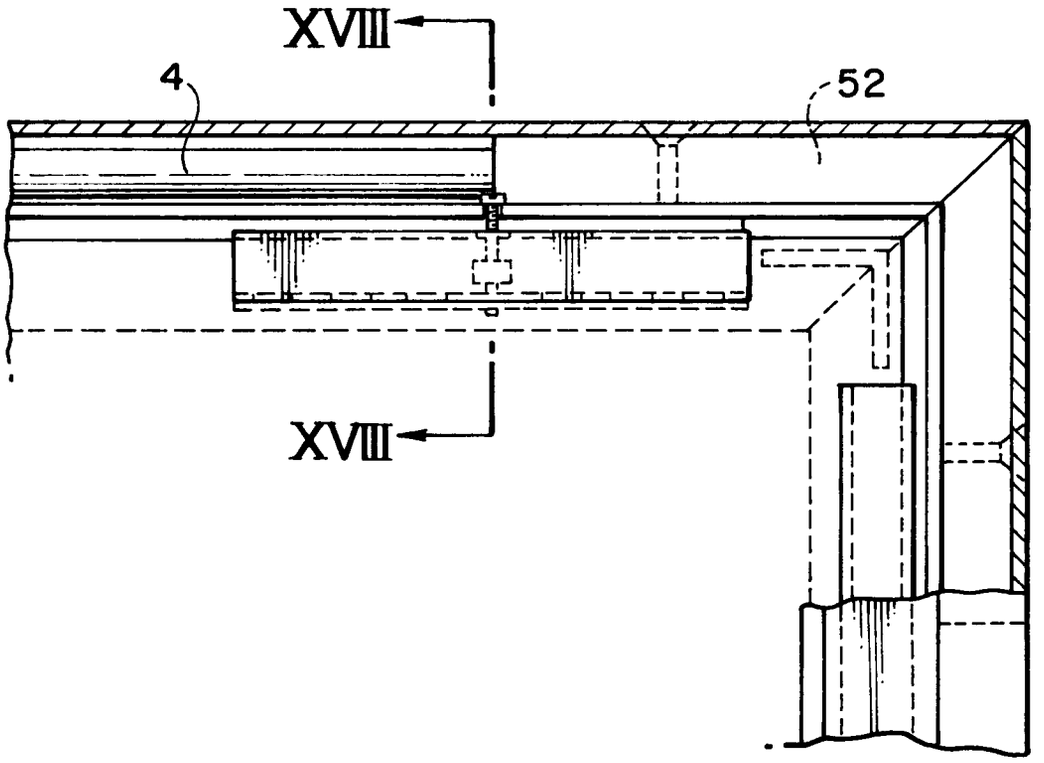


FIG. 18

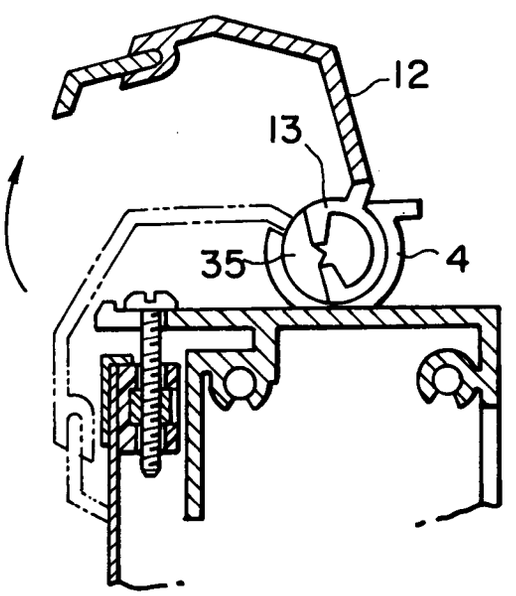


FIG. 19

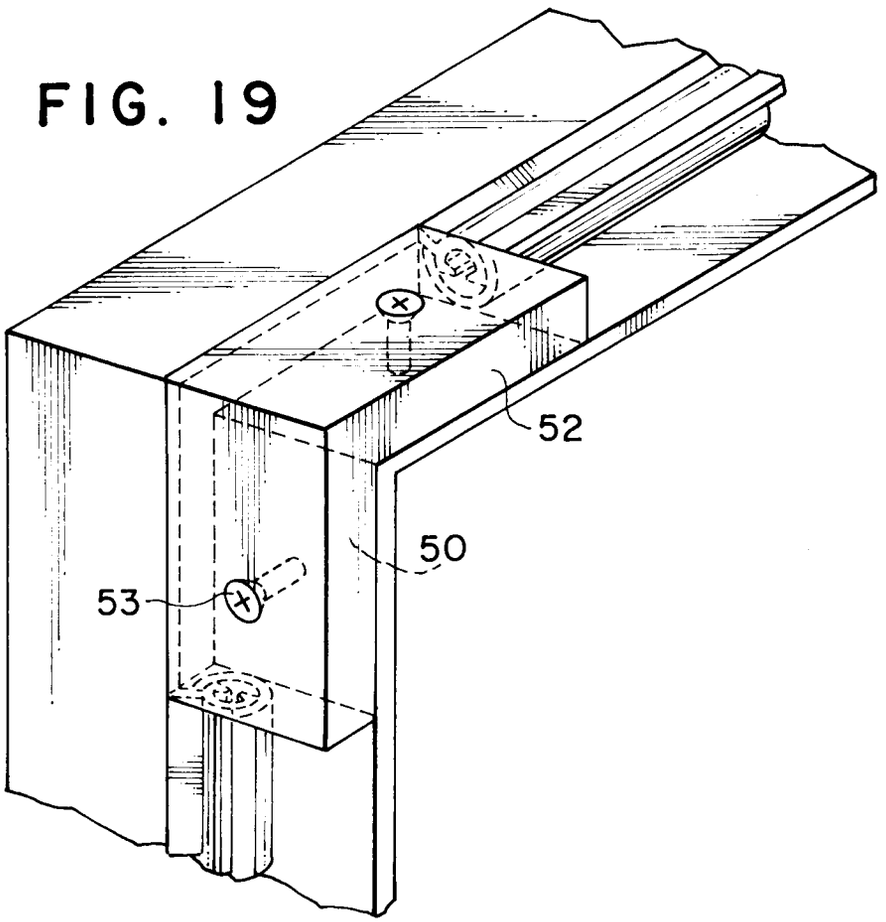


FIG. 21

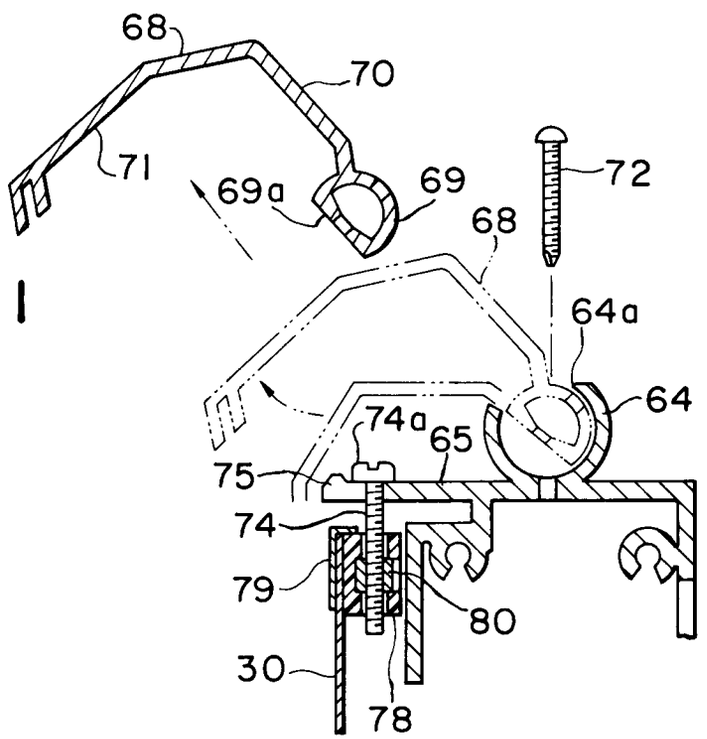


FIG. 20

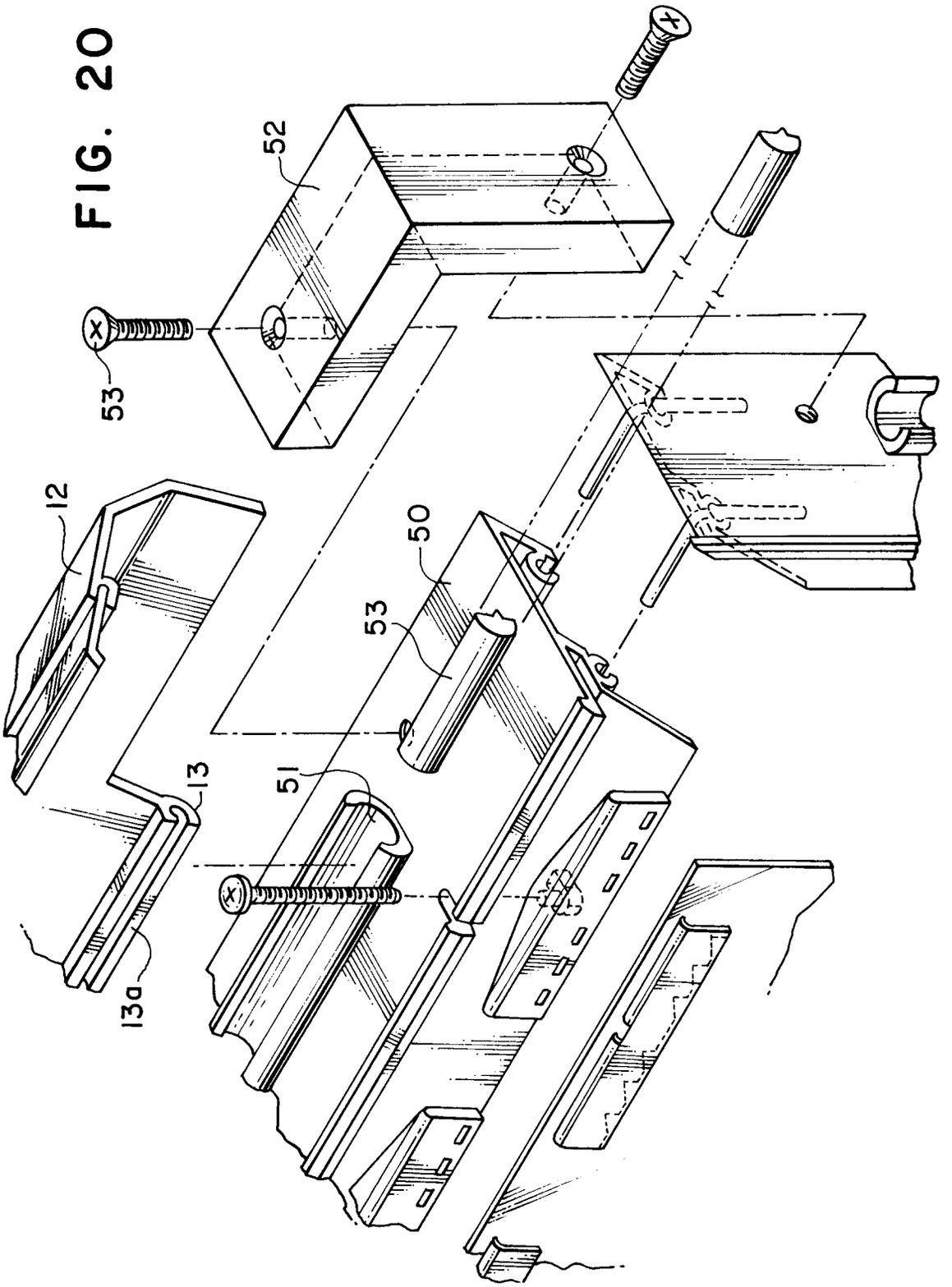


FIG. 22

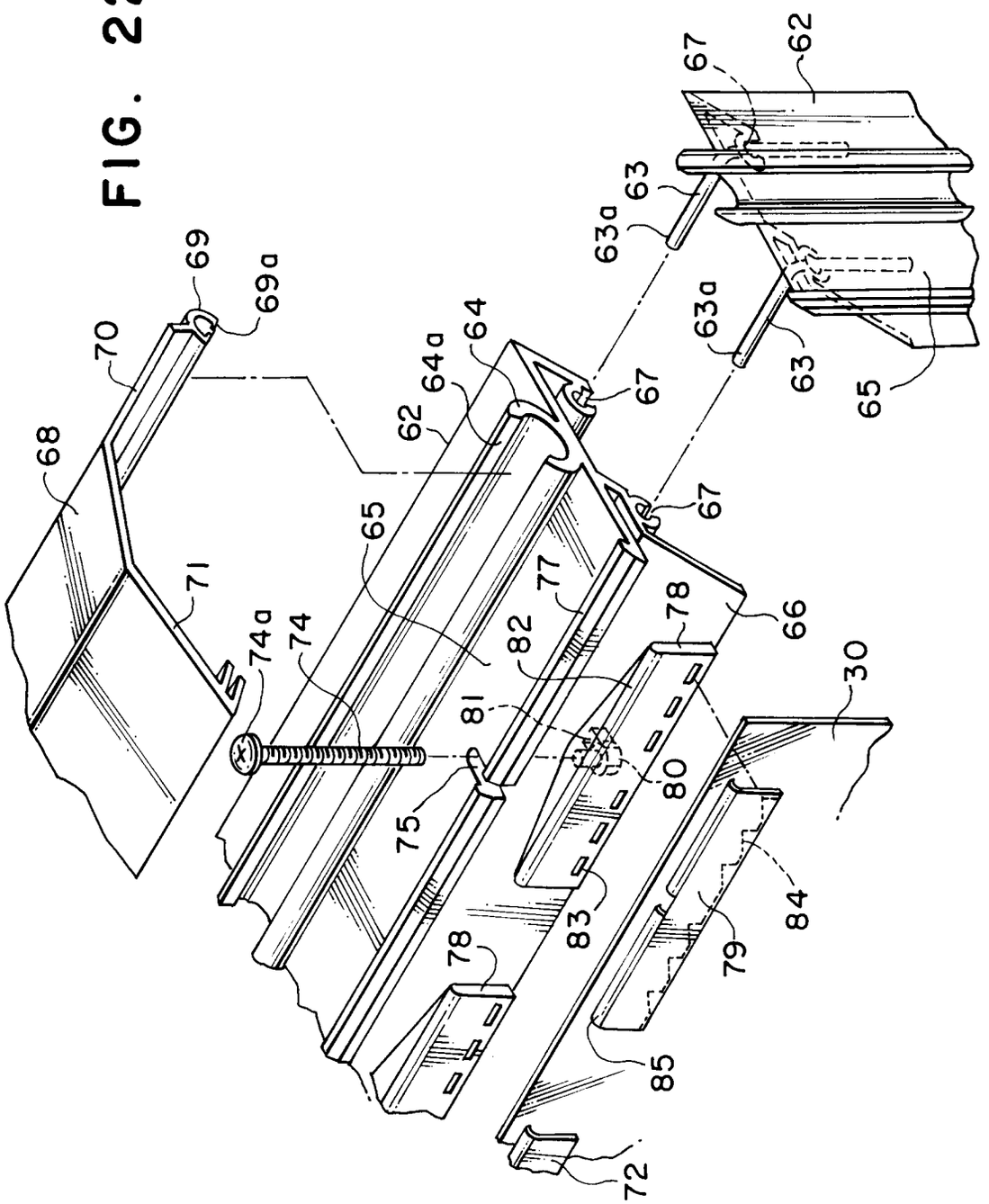

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FIG. 23

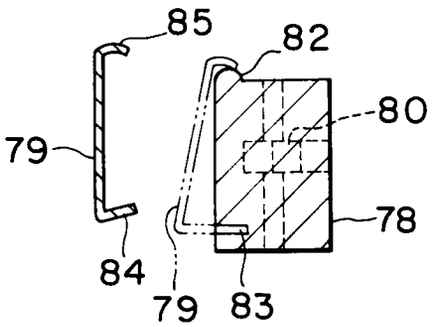

FIG. 24

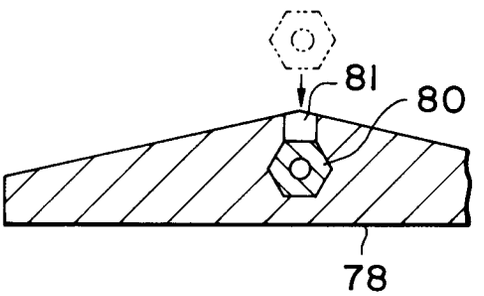

FIG. 25