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(54) **Case for a rollable screen**

(57) The invention relates to a system comprising a case in which a screen rolled on an axis can be accommodated, the system further comprising a drive which is connected to an inside of the case, the drive being arranged to enable the axis to be rotated for the purpose of unrolling the screen in a downward direction and/or rolling the screen up in an upward direction, characterized in that the system is further provided with an assembly for mounting the drive in the case, the assembly

comprising a first connecting part and a second connecting part, the first connecting part being connected to the drive and the second connecting part being connected to an inside of the case, while the first connecting part and the second connecting part are detachably connected to each other for the purpose of mounting the drive in the case in a simple manner.

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Description

[0001] The invention relates to a system comprising a case in which a screen rolled on an axis can be accommodated, the system further comprising a drive which is connected to an inside of the case, the drive being arranged to enable the axis to be rotated for the purpose of unrolling the screen in a downward direction and/or rolling the screen up in an upward direction.

[0002] Such a system is known per se and, in use, is often utilized as sun screen or rolling blind. In such uses, often, the case is placed against an outer wall over a window.

[0003] With the known system, a problem occurs when the system is being mounted. In particular, this problem becomes apparent when the system is to be mounted against an outer wall. In that case, often, the case is first mounted against the wall or outer wall without a drive and without axis. Next, the drive, with or without the axis already connected thereto, is to be connected to an inside of the case. This operation is relatively hard to carry out and therefore time consuming. The fact is that in such a situation, the mechanic, often standing on a ladder, has to mount the drive with the aid of screws in the case provided against the wall. Not only is this uncomfortable, but it also costs much time and energy and hence relatively much money. Moreover, such labour entails unfavourable labour conditions with regard to safety as, for a relatively long period of time, the mechanic will have to carry out operations while standing on a ladder. Most often, the mechanic will have to use both hands for carrying out the assembly operations, which is not beneficial to safety, since the mechanic has no way of taking a hold. Sometimes, it is even necessary that the operations be carried out above the head so that it is visible where the drive can be connected to the inside of the case with the aid of screws. This adds much to the difficulty of the assembly operations.

[0004] The invention contemplates a system described according to the preamble of claim 1, which meets the above-described problems.

[0005] The invention is characterized in that the system is further provided with a fitting piece with which the drive is mounted in the case, while at least a part of the fitting piece is designed to be connected to the drive outside the case, the fitting piece being designed to be detachably and fittingly connected to the inside of the case by means of sliding the at least one part of the fitting piece into the case in a direction which is substantially horizontal and transverse to a longitudinal direction of the case. This offers the advantage that connecting the drive to an inside of the case which has already been mounted to the wall can take place without additional connecting means such as, for instance, screws. The fact is that the fitting piece, or a part thereof, can be connected to the drive before the drive is mounted in the case. Use can then be made of the conventional mounting screws. However, this is a fairly easy operation be-

cause the fitting piece can be connected to the drive outside the case. Thus, the fitting piece can also be fixed in the case without this requiring mounting screws and the like. The fitting piece can be fittingly arranged in the case so that it can be fixed well at a predetermined position within the case. The fitting piece only needs to be brought to a position in the case destined therefor to fix it in the case. Therefore, mounting the drive in the case can be effected in a simple and rapid manner, so that less time and energy are involved in mounting the system ready for use. In view of the simple and rapid manner of mounting, mounting has become safer as the mechanic needs to stand on the ladder less long. Moreover, an experienced mechanic will be capable of carrying out the mounting operations with one hand so that the other hand can be used to enhance the safety on the ladder, for instance, by gripping a part of the outer wall. Fitting the drive in the case can even be carried out by touch without the mounting operation having to be visually monitored. This means that fitting the drive in the case does not necessarily need to take place above the head. In that case, the mechanic can decide to stand somewhat higher on the ladder and carry out the mounting operations in front of the body, instead of above the body. Should mounting still take place above the head, this can be done in a relatively short period of time.

[0006] In particular, it then holds that the fitting piece abuts against an inside of the case at at least three mutually different positions, so that the fitting piece is connected to the case in a manner secured against rotation. Connecting the fitting piece in the case in a manner secured against rotation can therefore be carried out without the use of mounting screws and the like. The fitting piece only has to be brought into the case at the destined location to obtain a connection secured against rotation. The connection secured against rotation prevents the fitting piece from rotating in the case when the drive drives the axis of the screen.

[0007] In particular, it holds that the fitting piece comprises an assembly, the assembly comprising a first connecting part and a second connecting part, the first connecting part being connected to the drive and the second connecting part being connected to an inside of the case, while the first connecting part and the second connecting part are detachably connected to each other for the purpose of fitting the drive in the case in a simple manner. With this variant, for instance the first connecting part can be connected to the drive before the drive is fitted in the case. When connecting the first connecting part and the drive, use can be made of the conventional mounting screws. This is then carried out outside the case in a simple manner. The second connecting part can be fittingly positioned in the case without mounting screws having to be utilized.

[0008] A special embodiment of a system according to the invention is characterized in that the second connecting part is provided at an outside with supporting parts and the inside of the case is provided with com-

plementary supporting parts, the supporting parts and complementary parts being designed to be detachably connected to each other. This offers the advantage that the second connecting part too can be connected to the inside of the case in a simple and rapid manner. This also saves time and energy, and therefore reduces assembling costs. Moreover, the second connecting part can already be connected to the inside of the case before the case is arranged against the outer wall. It is also possible that the second connecting part is already connected to the first connecting part before the drive is mounted in the case. This alternative method too saves time and energy, and therefore assembling costs.

[0009] An advantageous embodiment of a system according to the invention is characterized in that the first connecting part is provided with various sets of at least two spatially separated openings for connecting the drive and the first connecting part to each other with the aid of at least two screws. This offers the advantage that the first connecting part can be mounted on a suitable drive irrespective of the exact dimensions of the drive. As a result, the first connecting part is relatively universally applicable and the first connecting part can be manufactured in large numbers. This reduces the costs of manufacture of the first connecting part. Moreover, no confusion can arise about which first connecting part is suitable for a drive to be used.

[0010] The invention further relates to an assembly comprising a first connecting part and a second connecting part.

[0011] The invention also relates to a method for mounting a drive in a case.

[0012] Further, the invention is elucidated with reference to a drawing. In the drawing:

Fig. 1 shows a first embodiment of a system according to the invention;

Fig. 2 shows an embodiment of a first connecting part and a drive of the system according to Fig. 1 connected thereto;

Fig. 3 shows an extremity of a case with a second connecting part of the system according to Fig. 1 connected to the case; and

Figs. 4 - 6 show a second embodiment of the system according to the invention.

[0013] In Fig. 1, an embodiment of a system with a fitting piece 1 according to the invention is shown. In this example, the fitting piece 1 consists of an assembly comprising a first connecting part 2 and a second connecting part 3. The first connecting piece 2 is of plate-shape design. The first connecting part 2 can be detachably connected to the second connecting part 3 by sliding the first connecting part 2 between the legs 6 of the substantially U-shaped second connecting part 3. To this end, the projections 4, with which the inner sides 5 of the legs 6 of the U-shaped second connecting part 3 are provided, are slid into the grooves 7 with which the

longitudinal edges 8 of the first connecting part 2 are provided. The first connecting part 2 is also provided with various sets 9 of openings 10, in this example two spatially separated openings, for connecting the first connecting part 2 to the drive 11 with the aid of two screws (not shown) as shown in Fig. 2. Although an embodiment of the first connecting part 2 can be provided with only one set 9 of two spatially separated openings 10 or only one opening 10 for connecting the first connecting part 2 to the drive 11 with the aid of screws (not shown), the embodiment shown is more advantageous since the first connecting part 2 shown can be mounted to a suitable drive 11 irrespective of the exact dimensions of the drive 11. With a much larger drive than the drive 11 shown in Fig 2, in view of the desired rigid connection, it is more favorable to use a set 9 of openings 10 where the distance between the spatially separated openings 10 is relatively large. The drive 11 drives an axis A for winding up and unwinding a screen S around the axis A in the case.

[0014] An alternative embodiment of the second connecting part 3 is shown in Fig. 3. The second connecting part 3 is shown as connected to an inside face 12 of the case 13. The second connecting part 3 is provided with supporting parts 14 which, in this case, comprise circular segmental recesses 24 arranged on the outside corners 25 of the second connecting part 3. The case 13 is provided with complementary supporting parts 15 which have been arranged in the case such that the second connecting part 3 can be detachably connected to the case 13 by resting the supporting parts 14 of the second connecting part 3 between the complementary supporting parts 15 of the case 13. In use, a rear side 16 of the outer wall face 17 of the case 13 is placed against an outer wall (not shown). An upper face 22 protects a screen (not shown) rolled on an axis from, for example, the rain. In the embodiment of the second connecting part 3 shown in Fig. 3, at least one leg 18 of the U-shaped connecting part is provided with a snap connection 19. A longitudinal edge 21 of the first connecting piece 2 shown in Figs 1 and 2 is provided with a shoulder 20. In use, the first connecting part 2 is slid between the legs 18, 23 of the U-shaped second connecting part 3 such that after sliding-in, the snap connection 19 prevents the first connecting part 2 from sliding out by blocking a movement in a slide-out direction at the shoulder 20 of the first connecting part 2. Therefore, the first connecting part 2 can be clampingly locked between the legs 18, 23 of the U-shaped second connecting part 3. A method for mounting a drive 11 in a case 13 comprises at least the following steps: 1) connecting the first connecting part 2 to the drive 11; 2) detachably connecting the first connecting part 2 to a second connecting part 3; and 3) connecting the second connecting part 3 to an inside face 12 of the case 13. Step 1 cannot be the last step in the method. Apart from this limitation, the method can be carried out with any other order of steps. Optionally, step 1 can already be carried out in the factory so

that, for mounting the drive in the case, the mechanics no longer need a screwdriver. This facilitates the operations. As the fitting piece 1 abuts against the inside of the case with straight sides at three mutually different positions (against an inside of the wall 22, against an inside of the wall 17 and against the supporting parts 15) it holds that the fitting piece is connected to the case in a manner so as to be secured against rotation. This means that the fitting piece will not rotate around the axis A relative to the case when the drive 11 rolls the screen S up or unrolls it. In other words, via the fitting piece and the case, the drive 11 is connected to the fixed world so as to be secured against rotation.

[0015] The screen S rolled on the axis A can be accommodated in the case 13 and be attached to the drive 11 in the conventional manner. It is also possible that the axis is already fastened to the drive 11 before the drive 11 is mounted in the case 13. The drive 11 can comprise a motor which is electrically driven for rotating the axis for the purpose of rolling up or unrolling the screen. However, the drive 11 can also comprise a hoisting device with an eyelet with which the rolling-up or unrolling can be effected manually.

[0016] The invention is not limited in any manner to the first preferred embodiment shown. As shown, the first connecting part 2 can be of plate-shape design which offers the advantage that the case 13 does not need to be much longer than the width of the screen. Moreover, by means of a compact, and therefore rigid, connection, the drive 11 can be connected to the inside face 12 of the case 13. The first connecting part 2, and, if necessary, with it also the second connecting part 3, can also have a different shape, however. For instance, an eye and a carbine hook can be considered. With a slide-in projection 4 and a groove 7 connection, the longitudinal edges 21 of the first connecting part 2 too can be provided with a projection 4 and the insides 5 of the legs 6 of the U-shaped second connecting part 3 can be provided with the groove 7. A first longitudinal edge 21 can even be provided with a projection 4 and a second longitudinal edge 21 can be provided with a groove 7, while the second connecting part 3 is of complementary design. The first connecting part 2 can be of transparent design which facilitates finding the suitable openings destined for the screws during placement of the first connecting part 2 against the drive 11. The first connecting part 2 can, as mentioned, be of universal design. As a consequence, at least a part of the second connecting part 3 contiguous to the first connecting part 2 can also be of universal design. In an alternative embodiment, a snap connection 19 can be provided on, for instance, the inside face 12 of the case 13 instead of, or in addition to, the snap connection 19 on the second connecting part 3. The snap connection 19 can, for instance, also be provided on a longitudinal edge 21 of the first connecting part 2. A leg 6 of the U-shaped second connecting part 3, complementary to this longitudinal edge 21, can, in that case, be provided at an inside 5 with a recess

for locking the first connecting part 2 in slid-in condition.

[0017] In the Figs. 4 - 6, a second embodiment of the system according to the invention is shown, while parts corresponding to Figs. 1-3 are provided with the same reference numerals.

[0018] In these variants, the fitting piece 1 consists of one plate-shaped part. The fitting piece is provided with a number of spatially separated openings for connecting the drive and the fitting piece to each other with the aid of at least one screw. Preferably, this fitting piece is of transparent design so that recesses for the fastening screws, optionally provided in the drive, are visible through the fitting piece and the fitting piece can directly be placed against the drive in a correct manner. This connection can be effected outside of the case 13. Next, the fitting piece with the drive 11 connected thereto is slid into the case. All this is shown in Fig. 5, where, for clarity's sake, the drive 11 is omitted. A projection 30 of the fitting piece is then put into abutment with the inside wall 22 of the case. Then, the fitting piece can be slid into the case in the direction of the arrow Q. The projection 30 then slides along the inside of the upper wall 22. Further, an upper side 32, from which the projection projects outwards, slides along the supporting part 15.1 of the case. When the fitting piece is slid further into the case in the direction of the arrow Q, a bottom side 34 of the fitting piece too will start sliding along a supporting part 15.3 of the case. From that moment on, the fitting piece touches the case at three mutually different locations and is thus fastened in the case so as to be secured against rotation. Then, the fitting piece is slid further inwards until an upstanding sidewall 36 of the fitting piece touches the inside of the upstanding wall 17 of the case 13 (see Fig. 6). From the drawing, it appears that the supporting part 15.2 of the case no longer touches the fitting piece and so in this variant does not function as a real supporting part. In this example, it further holds that fitting piece 1 abuts against an inner side of the case not only by way of the projection 30 but also at at least two other positions, in this example against the supporting parts 15.1 and 15.3, so that the fitting piece is connected to the case so as to be secured against rotation. In that case, the fitting piece cannot rotate relative to the case, but can still slide relative to the case. The fitting piece is prevented from, eventually, sliding from the case in that the case is further closed off with a cover (not shown). If the fitting piece were of disc-shaped design, different provisions are conceivable for non-rotatably connecting the fitting piece to the case, such as a pin 40 (see Fig. 5) which fits in an opening in the fitting piece on a side 42 which, in use, abuts against the inside wall 17 of the case..

[0019] In use, the case is often mounted without the drive to an outside wall such that a longitudinal direction of the case is horizontally directed. For all embodiments, it holds that in use, at least a part of the fitting piece can be slid into the case in a direction which is substantially horizontal and transverse to a longitudinal direction of

the case. Also, it can apply that, in use, at least a part of the fitting piece can be slid into the case in a direction which is parallel to the upper face 22 and transverse to a longitudinal direction of the case. Further, it can hold that in use, the fitting piece is slid in a direction which is parallel to a normal to the outside wall face 17 and transverse to a longitudinal direction of the case 13. This simplifies fitting the drive in the case, especially when this case is already fastened to the outside wall. The fact is that when the drive with the fitting piece has already been brought to the right height and the proper position, the drive with the fitting piece only needs to be slid in a substantially horizontal direction or in a direction which is parallel to the upper face. This operation can be carried out by touch. A mechanic does not need to so manipulate the fitting piece long. This contributes to the speed and safety.

[0020] Although the example of a sunscreen and a rolling blind has been discussed, the system can also be utilized in a case 13 in which a projection screen rolled on an axis is accommodated. On such projection screens, for instance slides, films and/or transparencies are projected.

[0021] Such variants are all understood to belong to the invention.

Claims

1. A system comprising a case in which a screen rolled on an axis can be accommodated, the system further comprising a drive which is connected to an inside of the case, the drive being arranged to enable the axis to be rotated for the purpose of unrolling the screen in a downward direction and/or rolling up the screen in an upward direction, **characterized in that** the system is further provided with a fitting piece with which the drive is mounted in the case, while at least one part of the fitting piece is designed to be connected to the drive outside of the case, the fitting piece being designed to be detachably and fittingly connected to the inside of the case by means of sliding the at least one part of the fitting piece into the case in a direction which is substantially horizontal and transverse to a longitudinal direction of the case.
2. A system according to claim 1, **characterized in that** the fitting piece abuts against the inside of the case at at least three mutually different locations, so that the fitting piece is connected to the case so as to be secured against rotation.
3. A system according to claim 1 or 2, **characterized in that** the fitting piece comprises an assembly, the assembly comprising a first connecting part and a second connecting part, the first connecting part being connected to the drive and the second connecting part being connected to an inside of the case, while the first connecting part and the second connecting part are detachably connected to each other for the purpose of mounting the drive in the case in a simple manner.
4. A system according to claim 3, **characterized in that** the first connecting part is of plate-shaped design.
5. A system according to claim 4, **characterized in that** the second connecting part is of substantially U-shaped design, while the assembly is provided with a snap connection between an inside of at least one leg of the U-shape and the first connecting part.
6. A system according to any one of the preceding claims 3 - 5, **characterized in that** the assembly is provided with a groove and tongue connection with which the first connecting part can be connected to the second connecting part.
7. A system according to any one of the preceding claims 3 - 6, **characterized in that** for connecting the first and second connecting part to each other, the first connecting part can be slid into the second connecting part.
8. A system according to any one of the preceding claims 3 - 7, **characterized in that** the second connecting part is provided at an outside with supporting parts and the inside of the case is provided with complementary supporting parts, the supporting parts and complementary supporting parts being designed to be detachably connected to each other.
9. A system according to any one of the preceding claims 3 - 8, **characterized in that** the first connecting part is provided with one opening or at least two openings, spatially separated from each other, for connecting the drive and the first connecting part to each other with the aid of at least two screws.
10. A system according to claim 9, **characterized in that** the first connecting part is provided with various sets of at least two spatially separated openings for connecting the drive and the first connecting part to each other with the aid of at least two screws.
11. An assembly of the system according to any one of the preceding claims 3 - 10.
12. A system according to claim 1 or 2, **characterized in that** the fitting piece is provided with one opening or at least two spatially separated openings for connecting the drive and the first connecting part to each other with the aid of at least two screws.

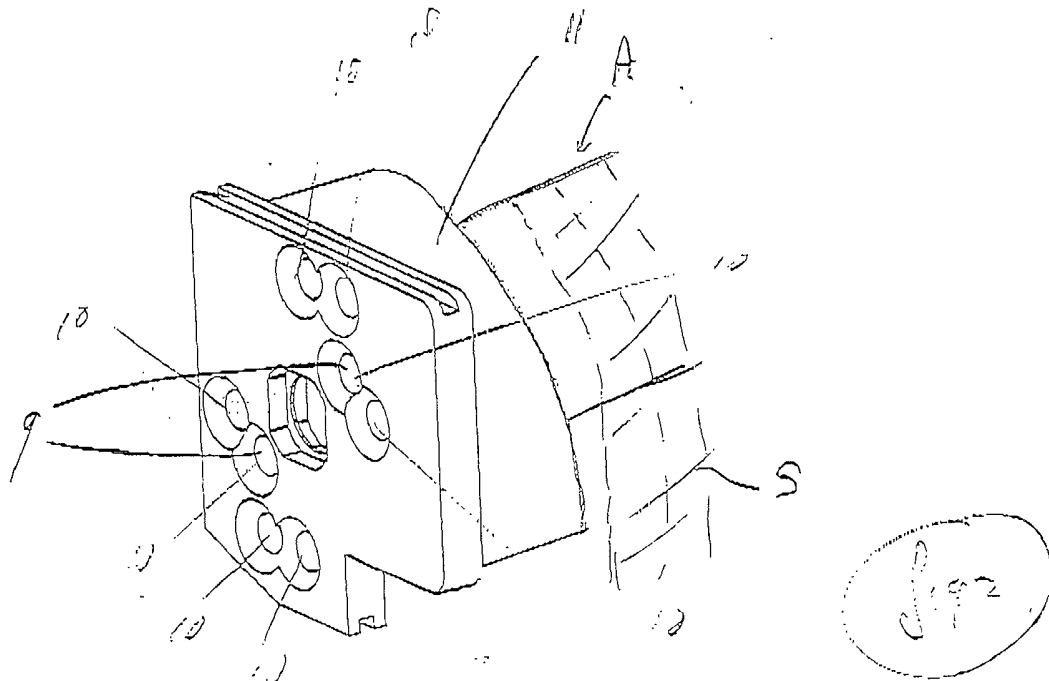
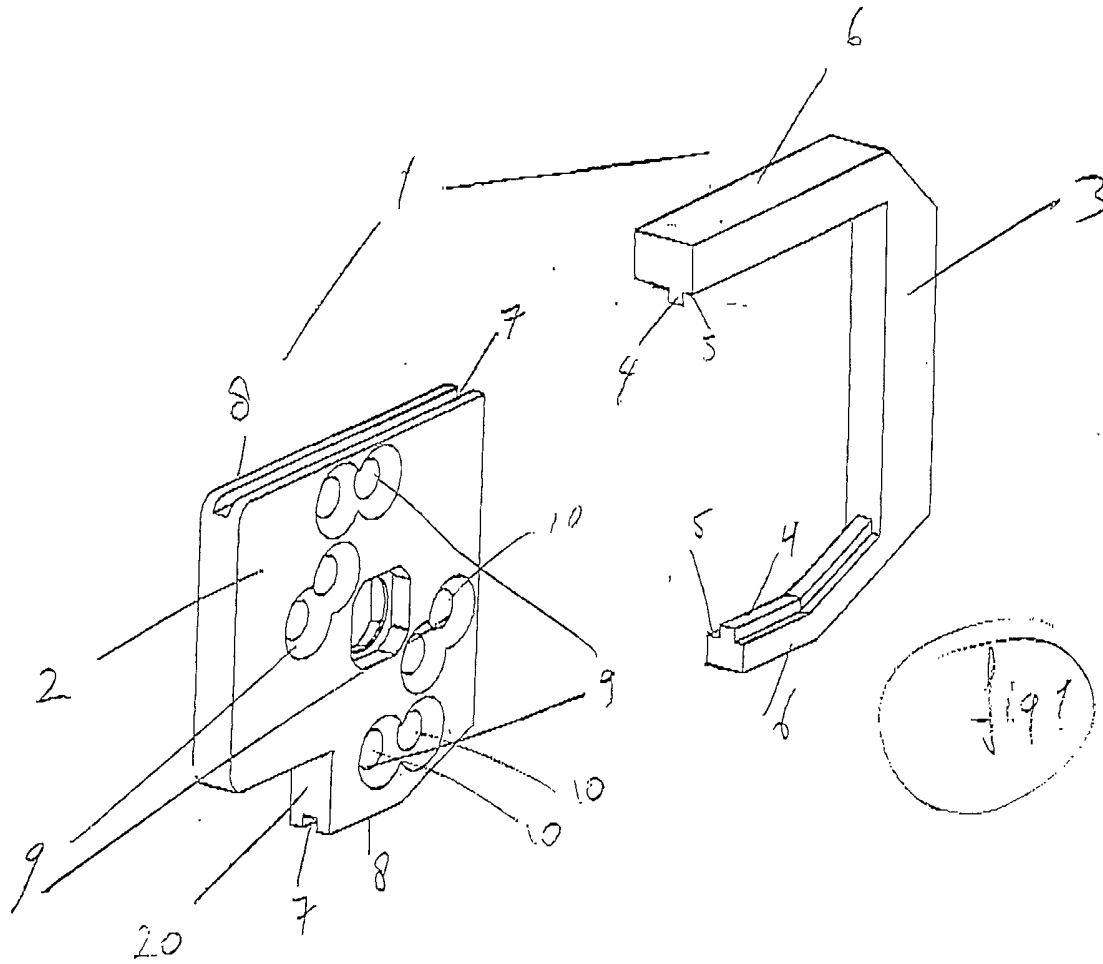
13. A system according to claim 1, 2 or 11, **characterized in that** the fitting piece is provided with a projection which, at an inside of the case, abuts against an upper edge of the case between two upper corner points of the case. 5
14. A system according to claim 13, **characterized in that** the fitting piece further abuts against an inside of the case at at least two other locations at, such that the fitting piece is connected to the case so as to be secured against rotation. 10
15. A method for mounting a drive in a case with an assembly of a system according to any one of claims 3 - 10 in a case according to claim 1, the method comprising the following step a) fastening the drive in the case, **characterized in that** step a) comprises at least the following sub-steps: a1) connecting the first connecting part to the drive; a2) connecting the second connecting part to an inside of the case; and a3) detachably connecting the first connecting part to the second connecting part. 15 20
16. A method according to claim 15, **characterized in that** step a2) takes place before step a3). 25
17. A method according to claim 15, **characterized in that** that step a3) takes place before step a2).
18. A method for mounting a drive in a case with a fitting piece of a system according to any one of the preceding claims 1, 2, 12, 13 or 14, the method comprising the following steps: a) mounting the fitting piece to the drive in the case; and b) fastening the fitting piece to the drive in the case so that it is secured against rotation. 30 35

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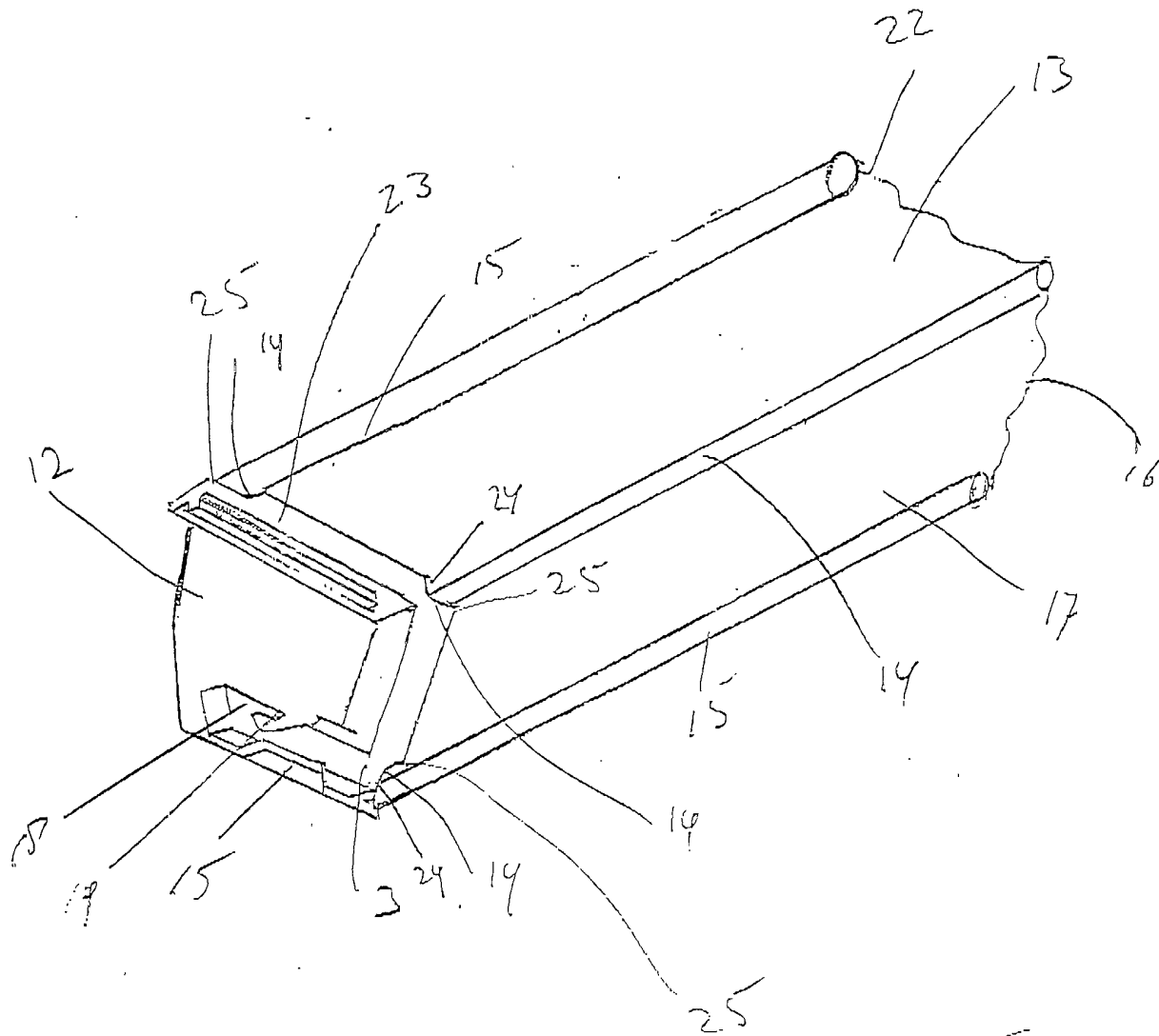


Fig 3

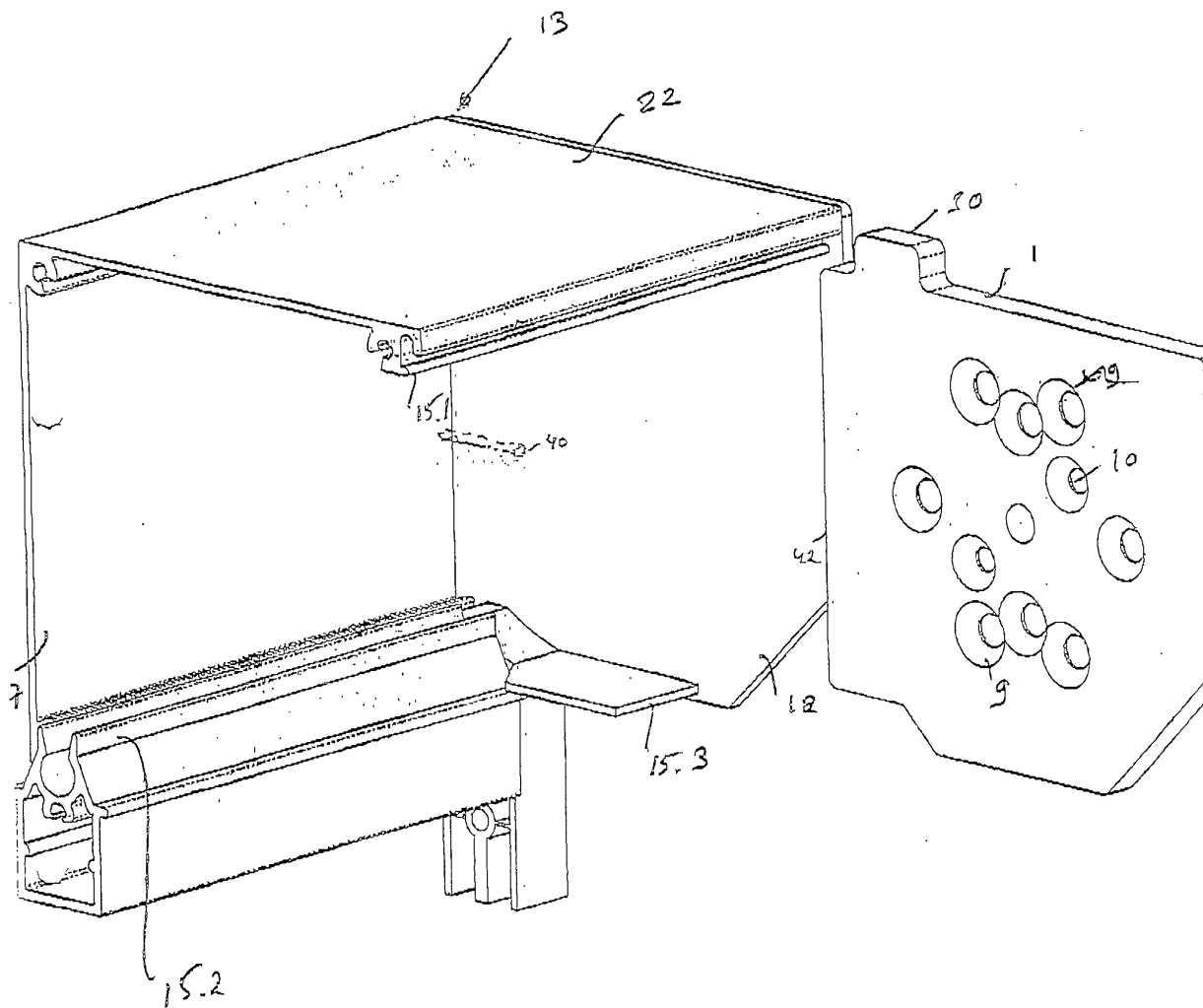
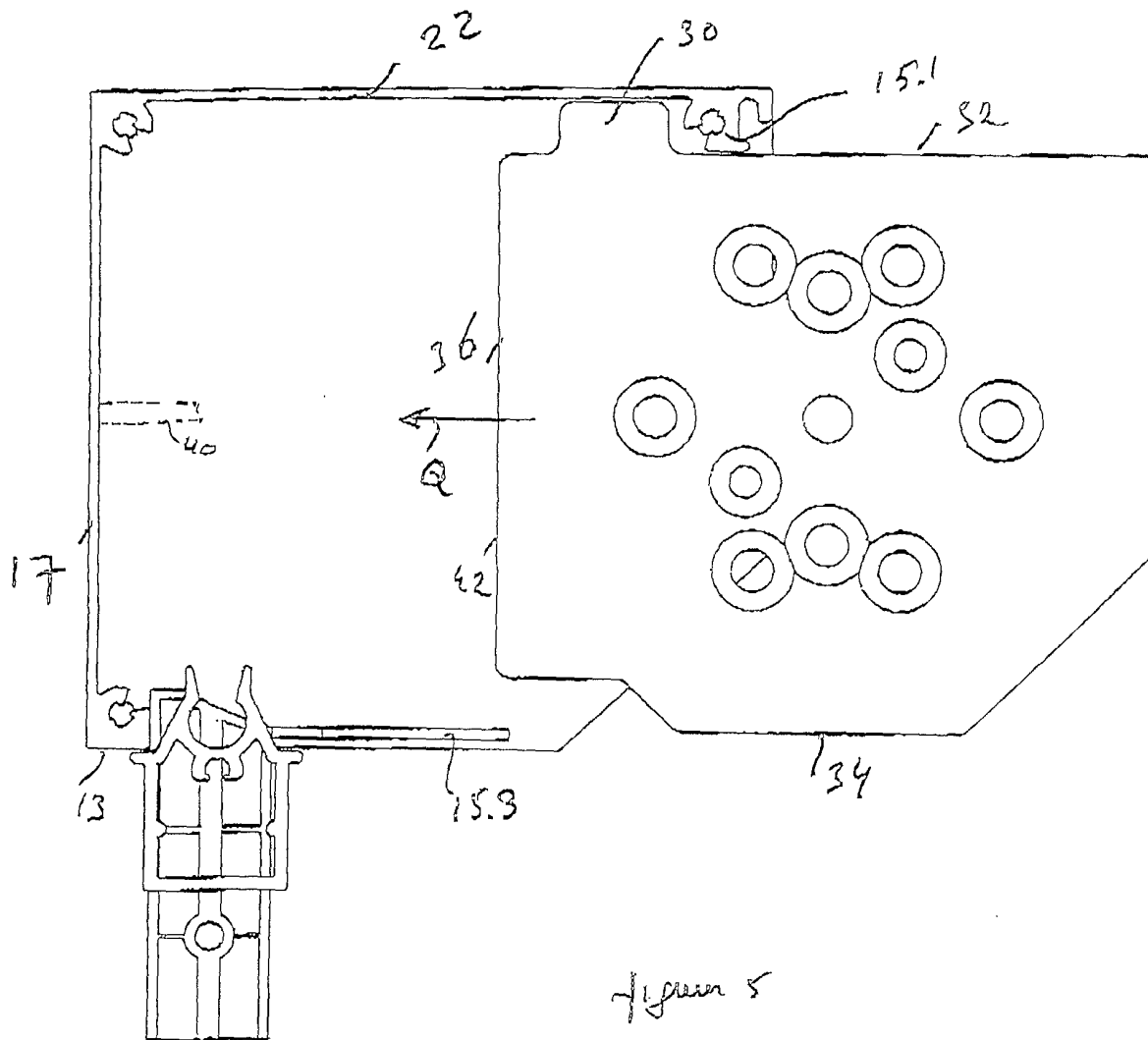


figure 4



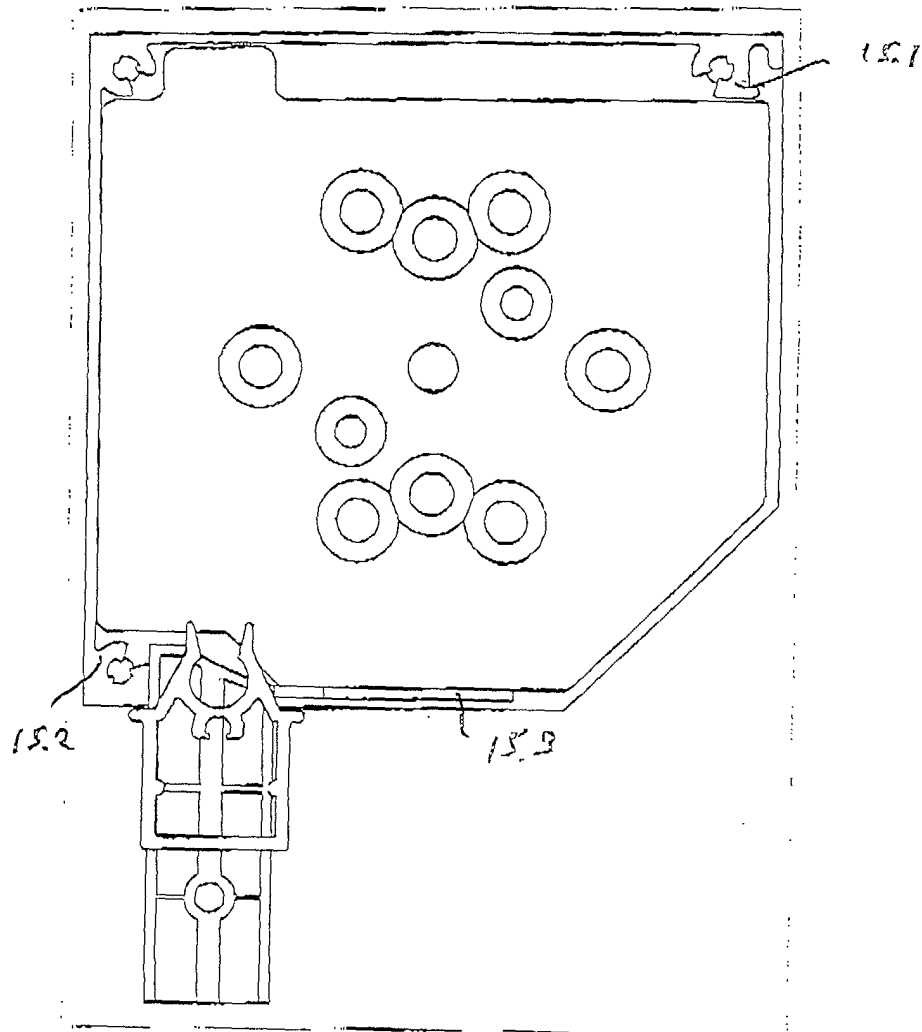


Figure 6