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(11)

EP 1 300 102 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
09.04.2003 Bulletin 2003/15

(51) Int Cl.7: **A47C 7/42**

(21) Application number: **02017567.5**

(22) Date of filing: **07.08.2002**

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

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(30) Priority: **05.10.2001 IT MI20010539 U**

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(54) **Chair with foldable back-rest**

(57) The chair comprises a back-rest, a seat and a device (10) for connecting the back-rest to the seat. The connection device (10) comprises an articulated joint (16) which enables the back-rest to be folded onto the seat.

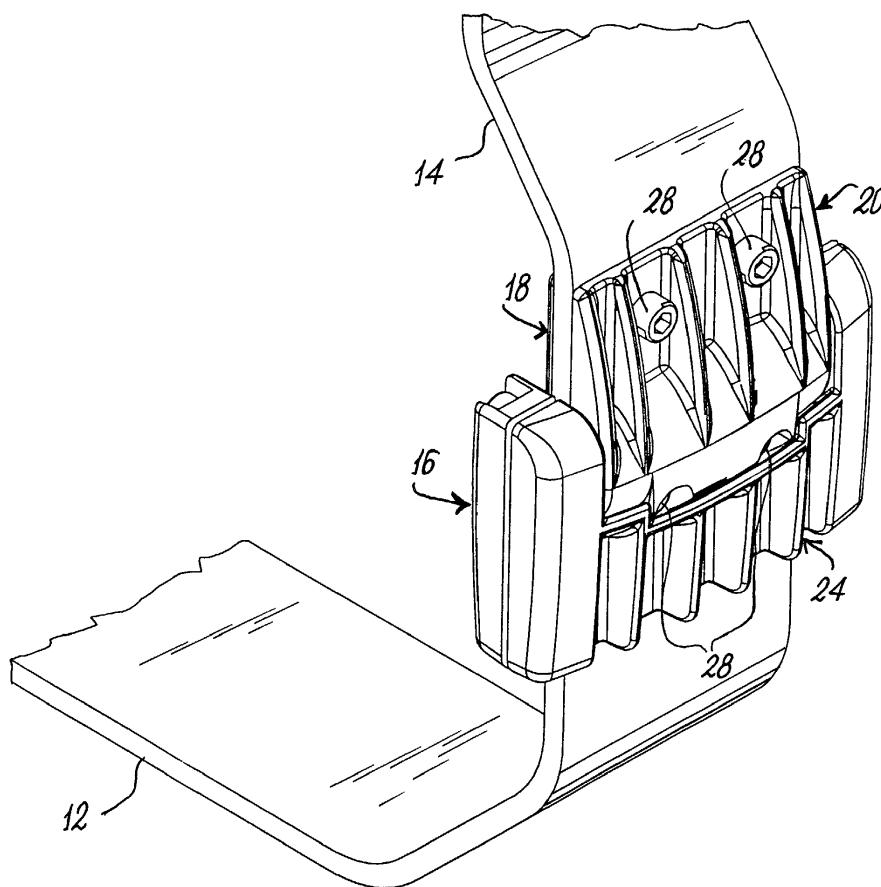


FIG. 1

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Description

[0001] The present invention relates to chairs, and in particular to office chairs.

[0002] In office chairs the back-rest is known to be connected to the seat by a connection device by which the back-rest is supported.

[0003] These chairs are of considerable bulk and can hence, when not in use, represent in an office a somewhat annoying hindrance, in addition to requiring the availability of adequate storage space prior to sale, the availability of adequate space in the transport vehicle which delivers the chair to the client, and the provision of suitable packaging containers or wrappings.

[0004] The object of the present invention is to obviate the aforesaid drawbacks by providing a chair, in particular an office chair, which when not in use or when having to be stored or otherwise placed out of service, has a decidedly smaller bulk and consequently requires packaging containers or wrappings of smaller size than similar known chairs.

[0005] This object is attained by the chair of the present invention, characterised in that the connection device between the back-rest and seat comprises an articulated joint which enables the back-rest to be folded onto the seat.

[0006] In this manner, when not in use, the chair can be made to assume a configuration having an overall size considerably less than that of the chair during use. In particular, when in its reduced-size configuration, the chair can be inserted under a desk, so that in practice the chair no longer exists in terms of the spatial utilization of the room in which the desk under which the chair is inserted is located.

[0007] The invention will be more apparent from the following description of one embodiment thereof given by way of example. In the said description reference is made to the accompanying drawings, in which:

Figure 1 is a rear perspective view of the back-rest/seat connection device of an office chair, in its normal utilization position;

Figure 2 is a front perspective view thereof;

Figure 3 is an elevation of the rear part of the articulated joint of the connection device;

Figure 4 is an elevation of the front part of this articulated joint;

Figure 5 is a cross-section therethrough taken on the line 5-5 of Figure 4;

Figure 6 is similar to Figure 5 but with the difference that the articulated joint is shown in the condition in which the back-rest has been folded down onto the seat;

Figure 7 is a cross-section therethrough taken on the line 7-7 of Figure 4;

Figure 8 is similar to Figure 7 but with the articulated joint shown in the condition in which the back-rest has been folded down onto the seat;

Figure 9 is an elevation of the upper front part of the articulated joint, seen from the front;

Figure 10 is an elevation thereof from behind;

Figure 11 is a cross-section therethrough taken on the line 11-11 of Figure 10;

Figure 12 is a cross-section therethrough taken on the line 12-12 of Figure 10;

Figure 13 is a cross-section therethrough taken on the line 13-13 of Figure 10;

Figure 14 is a horizontal cross-section therethrough taken on the line 14-14 of Figure 10;

Figure 15 is an elevation of the upper rear part of the articulated joint, seen from behind;

Figure 16 is an elevation thereof seen from the front;

Figure 17 is a vertical cross-section therethrough taken on the line 17-17 of Figure 16;

Figure 18 is a cross-section therethrough taken on the line 18-18 of Figure 16;

Figure 19 is a cross-section therethrough taken on the line 19-19 of Figure 16;

Figure 20 is a plan view thereof from above;

Figure 21 is an elevation of the lower rear part of the articulated joint, seen from behind;

Figure 22 is an elevation thereof seen from the front;

Figure 23 is a vertical cross-section therethrough taken on the line 23-23 of Figure 22;

Figure 24 is a vertical cross-section therethrough taken on the line 24-24 of Figure 22;

Figure 25 is a vertical cross-section therethrough taken on the line 25-25 of Figure 22;

Figure 26 is a plan view thereof from above;

Figure 27 is an elevation of the lower front part of the articulated joint, seen from the front;

Figure 28 is an elevation thereof seen from behind;

Figure 29 is a vertical cross-section therethrough taken on the line 29-29 of Figure 27;

Figure 30 is a vertical cross-section therethrough taken on the line 30-30 of Figure 27;

Figure 31 is a vertical cross-section therethrough taken on the line 31-31 of Figure 27;

Figure 32 is a plan view thereof from above;

Figure 33 is an elevation of the articulated joint pin;

Figure 34 is a plan view thereof from below;

Figure 35 is a plan view thereof from above;

Figure 36 is a cross-section therethrough taken on the line 36-36 of Figure 33;

Figure 37 is a cross-section therethrough taken on the line 37-37 of Figure 33.

[0008] The connection device 10 of Figures 1 and 2 enables the back-rest of an office chair (such a chair could however also have other uses) to be connected to the relative seat. Specifically, the device 10 presents a lower arm 12 which enables it to be connected (for example by screws) to the lower face of the chair seat (not shown).

[0009] The device 10 also presents an upperly extending upper arm 14 to which the chair back-rest is

fixed (for example by screws).

[0010] The two arms 12 and 14 are connected together by an articulated joint 16 which, as can be seen from Figures 5, 6, 7 and 8, enables the upper arm 14 of the device 10 to be rotated from its position shown in Figures 1 and 2 (chair utilization position), corresponding to the condition of the articulated joint shown in Figures 5 and 7, into its folded position shown for simplicity only in Figure 6 but in any event also easily deducible from the condition of the articulated joint 16 shown in Figure 8.

[0011] Before proceeding with the description, it should be noted that the expressions "front" or "facing forward" referred to a part of the articulated joint 16 means that that part is facing or is located close to the person seated on the chair, and "rear" or "facing rearward" means that the part is facing in the opposite direction or is located far from said person.

[0012] The articulated joint 16 is composed of various parts and specifically a front upper part 18, shown alone in Figures 9-14, a rear upper part 20, shown alone in Figures 15-20, a front lower part 22, shown alone in Figures 21-26, and a rear lower part 24, shown alone in Figures 27-32, a pin 26, shown alone in Figures 33-37. All these pieces are assembled in this specific case by socket head screws 28, as shown in Figures 3-8.

[0013] It should be noted that the lower end of the upper arm 14 is inserted into the longitudinal slot 30 provided in the pin 26, this latter presenting in the vicinity of each of its two ends a radially projecting peg 32. As can be seen in Figures 7 and 8, the two pegs 32 act as limit stops for the folding of the chair back-rest, the pegs 32 coming to rest against a step provided in the lower rear part 24 of the articulated joint 16. A limit stop is likewise provided to maintain the back-rest in the chair utilization position, and is in the form of a step 34 provided in the lower front part 22 of the articulated joint 16, to interfere with a step 36 provided in the upper front part 18 of the articulated joint.

[0014] As will be apparent from the figures, the connection device 10 is extremely simple and rapid to mount.

Claims

1. A chair comprising a back-rest, a seat and a device (10) for connecting the back-rest to the seat, **characterised in that** the connection device (10) comprises an articulated joint (16) which enables the back-rest to be folded onto the seat.
2. A chair as claimed in claim 1, wherein the connection device (10) comprises a lower arm (12) fixable to the seat and an upper arm (14) to which the back-rest is fixable, the two arms (12 and 14) being connected together by the articulated joint (16).

3. A chair as claimed in claim 2, wherein the articulated joint (16) comprises an upper portion (17) fixable to the lower part of the upper arm (14), a lower portion (19) fixable to the upper part of the lower arm (12), and a pin (26) which enables the two portions (17 and 19) to undergo relative rotation.

4. A chair as claimed in claim 3, wherein the upper portion (17) of the articulated joint (16) comprises a front part (18) and a rear part (20), said two parts (18, 20) of the upper portion (17) being fixable to the lower part of the upper arm (14), said lower part being locked between said two parts (18, 20) of the upper portion (17) by screws (28), the lower portion (19) of the articulated joint (16) also comprising a front part (22) and a rear part (24), these two parts (22, 24) of the lower portion (19) being fixable to the upper part of the lower arm (12), which is interposed between them (22, 24), said upper part being locked between said two parts (22, 24) of the lower portion (19) by screws (28).

5. A chair as claimed in claim 4, wherein the lower edge of the upper arm (14) is flat and is insertable into a relative longitudinal slot (30) provided in the pin (26).

6. A chair as claimed in claim 1, wherein the articulated joint (16) comprises a limit stop (34, 36) defining the position assumed by the back-rest when the chair is utilized.

7. A chair as claimed in claim 1, wherein the articulated joint (16) comprises a limit stop (32, 38) defining the folded position of the chair back-rest.

8. A chair as claimed in claims 4 and 5, wherein the limit stop for the utilization position comprises a step (34) provided in the front part (22) of the lower portion (19) of the articulated joint (16) to interfere, when the chair is in its utilization condition, with another step (36) provided in the front part (18) of the upper portion (17) of the articulated joint (16).

9. A chair as claimed in claims 4 and 6, wherein the limit stop for the folded position of the back-rest comprises a radial peg (32) provided in the vicinity of each of the two ends of the pin (26), the two pegs (32) interfering, when the back-rest is in its folded position, with a step (38) provided in the rear part (24) of the lower portion (19) of the articulated joint (16).

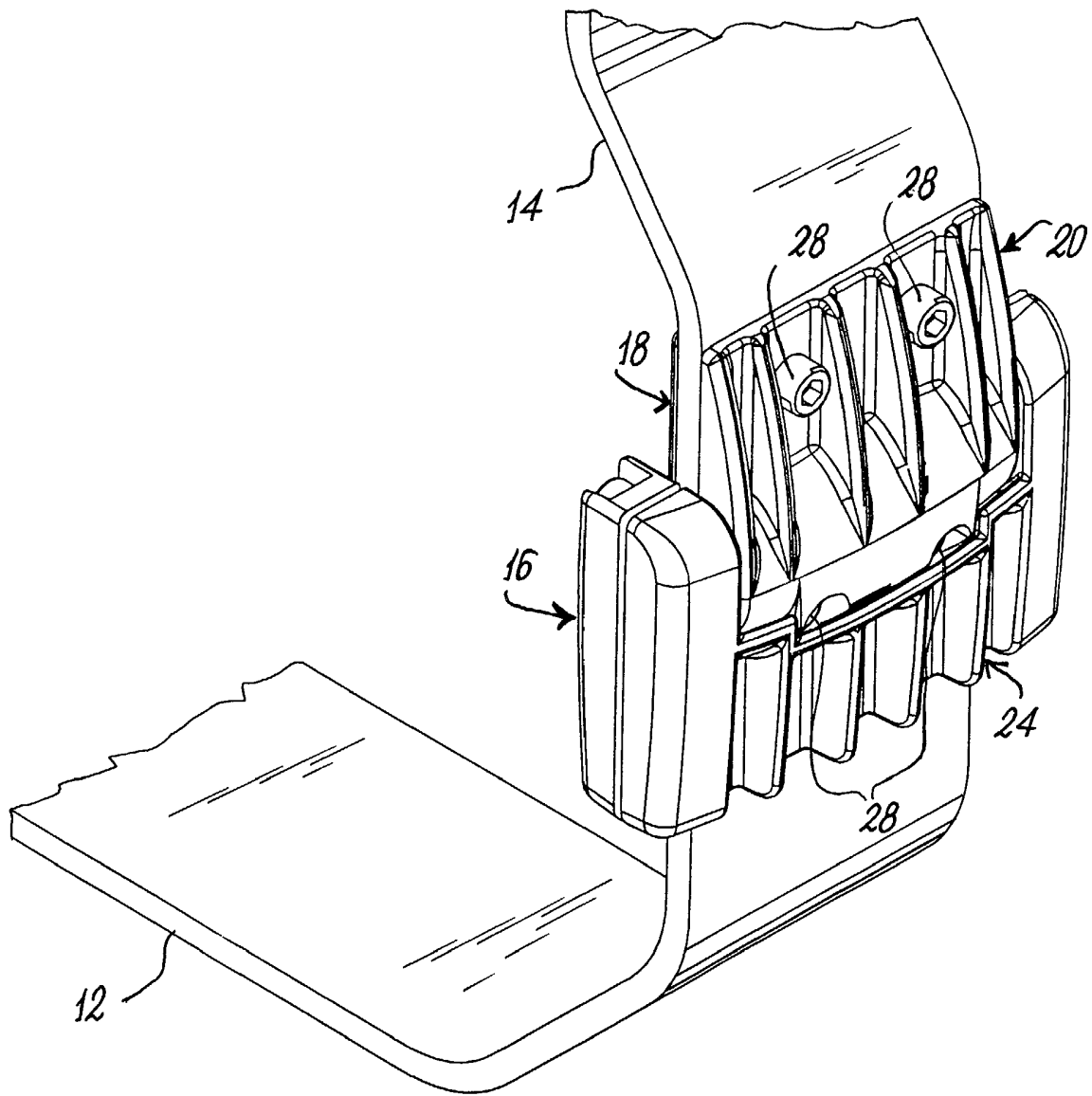


FIG. 1

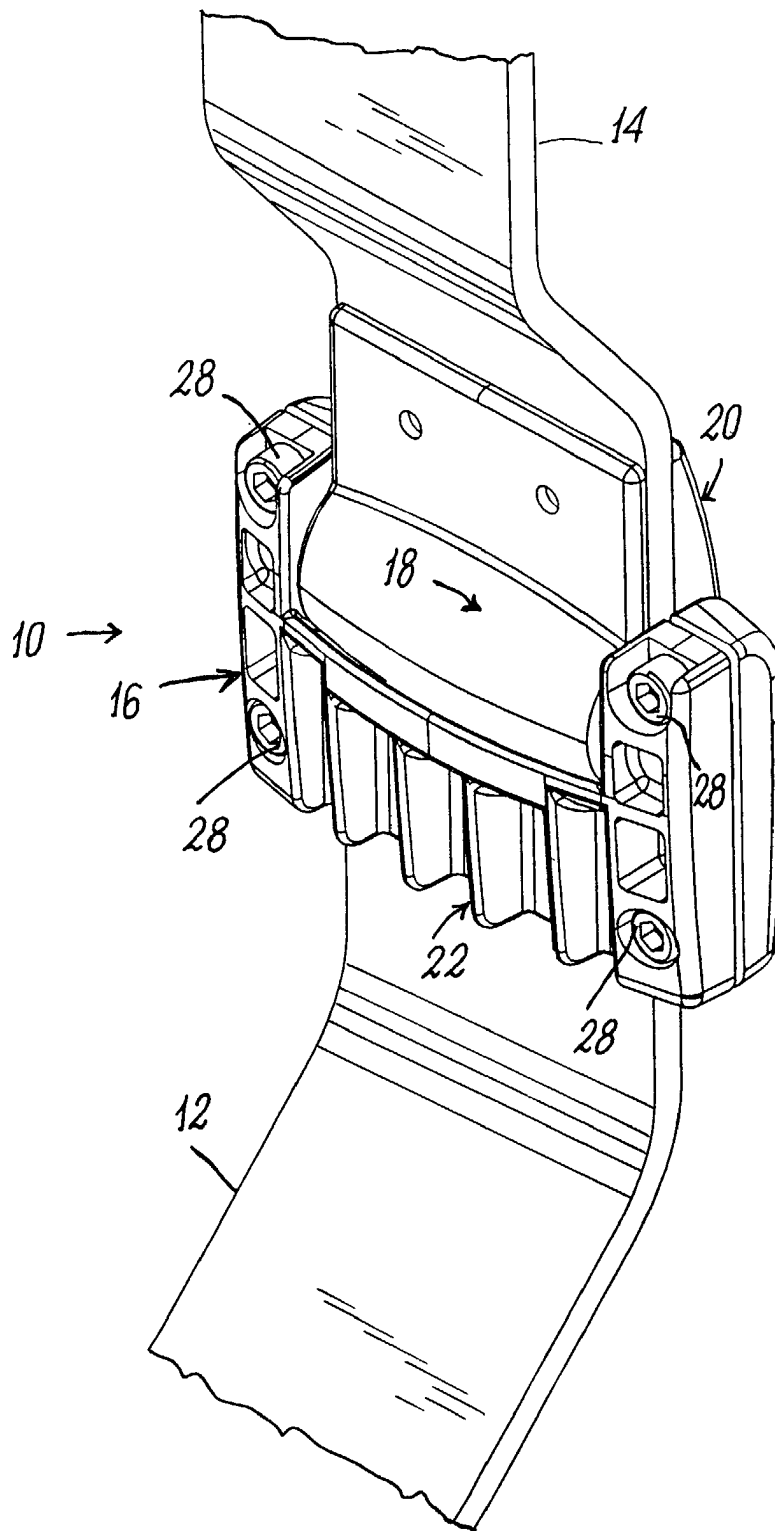


FIG. 2

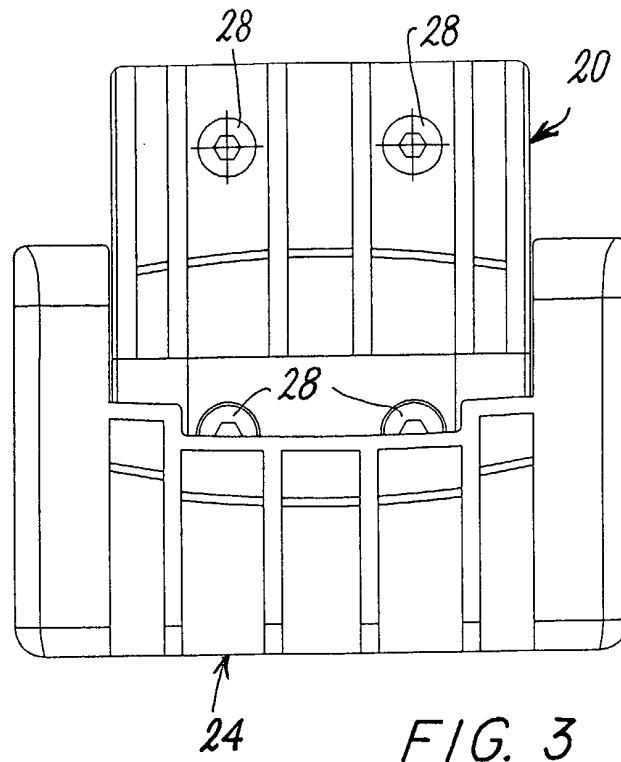


FIG. 3

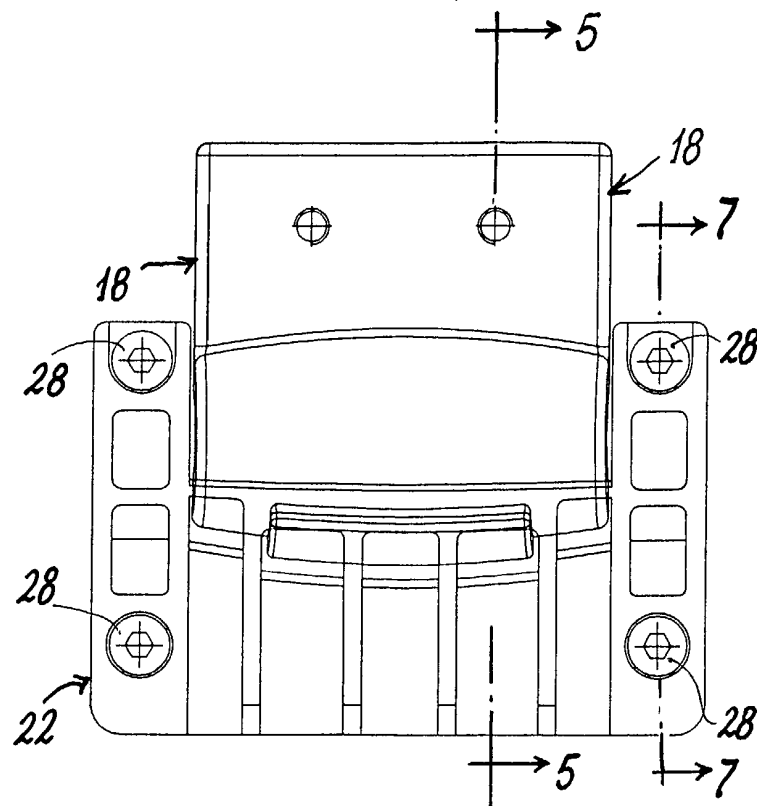


FIG. 4

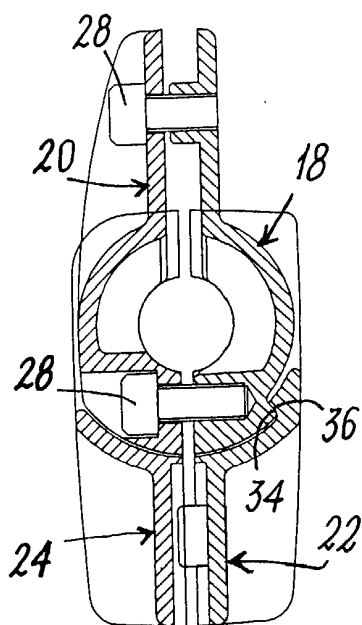


FIG. 5

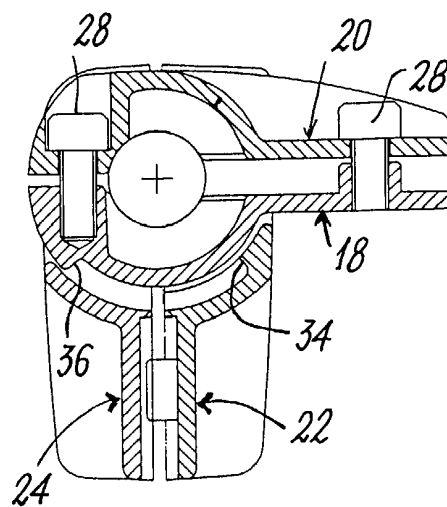


FIG. 6

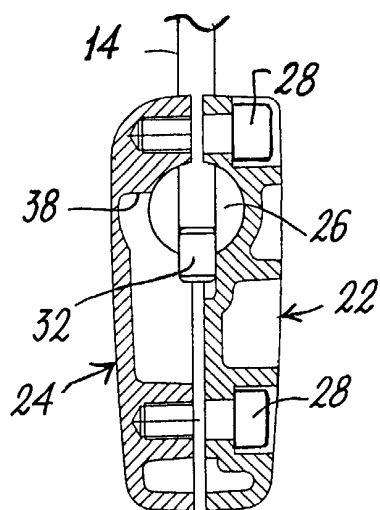


FIG. 7

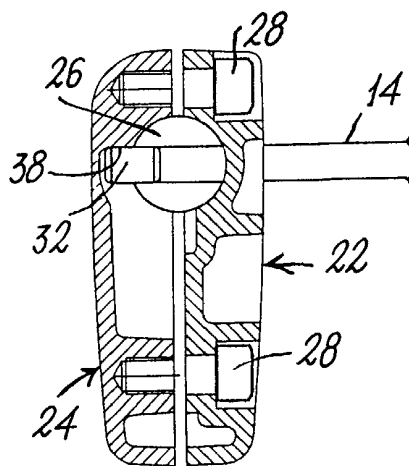


FIG. 8

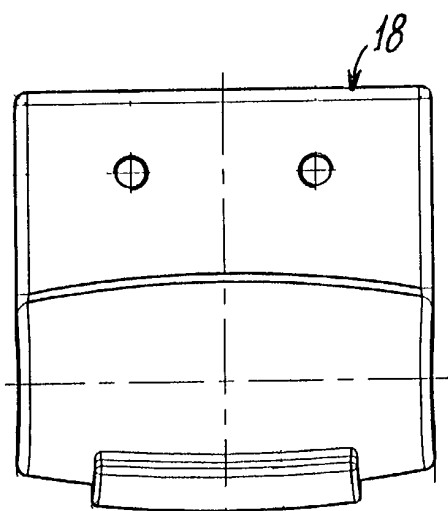


FIG. 9

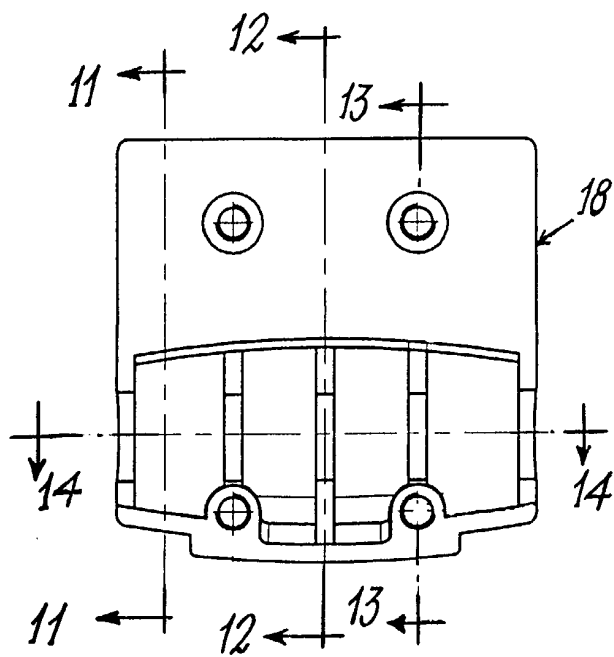


FIG. 10

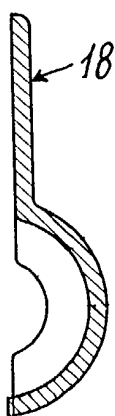


FIG. 11

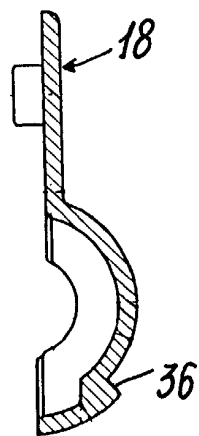


FIG. 12

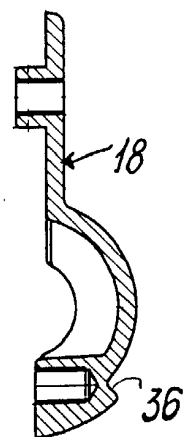


FIG. 13

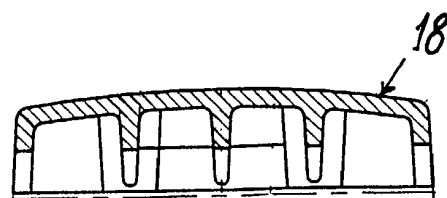


FIG. 14

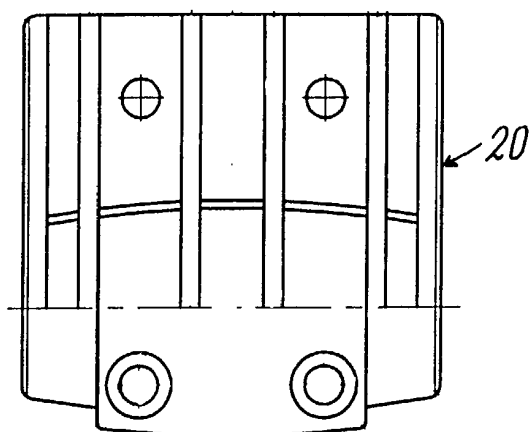


FIG. 15

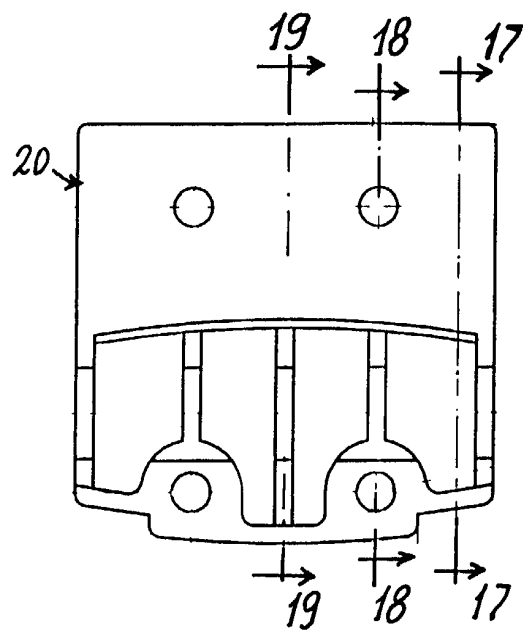


FIG. 16

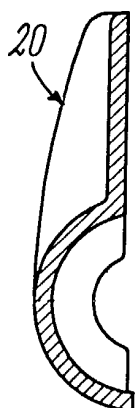


FIG. 17

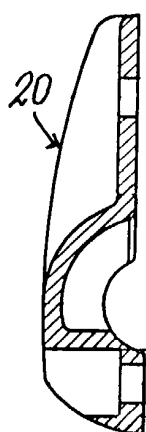


FIG. 18

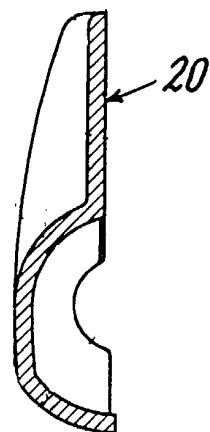


FIG. 19

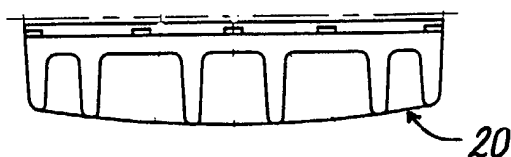


FIG. 20

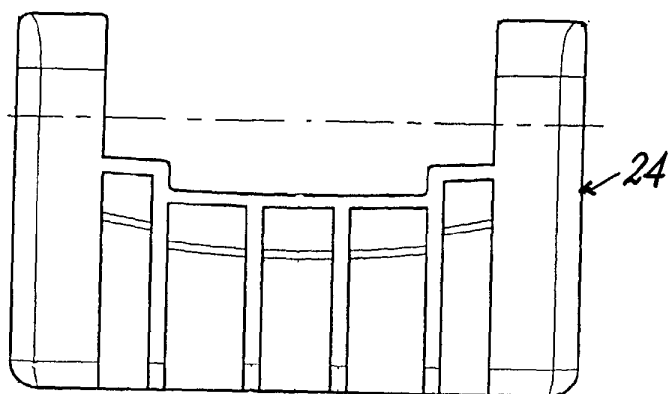


FIG. 21

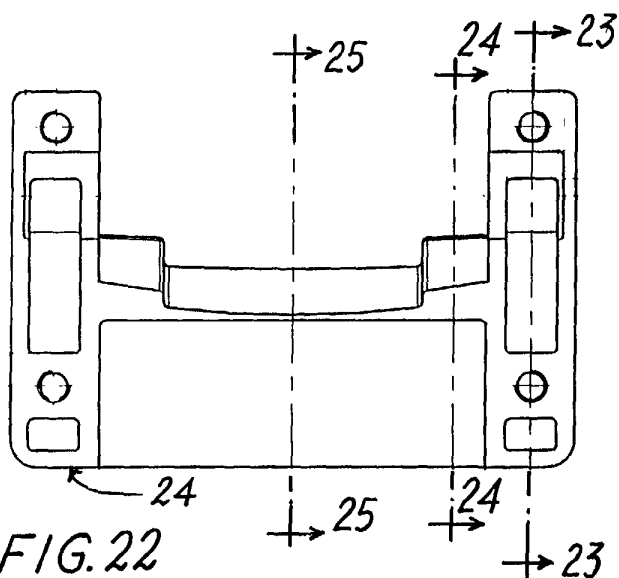


FIG. 22

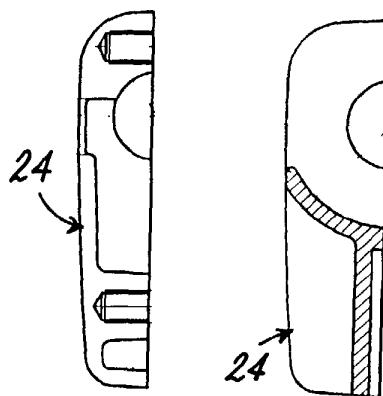


FIG. 23

FIG. 24

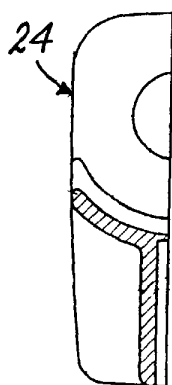


FIG. 25

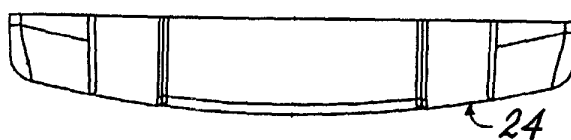
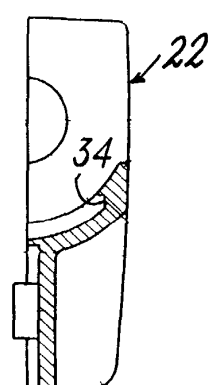
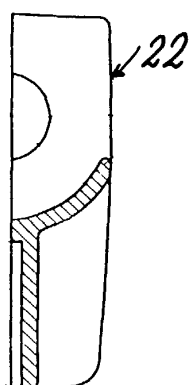
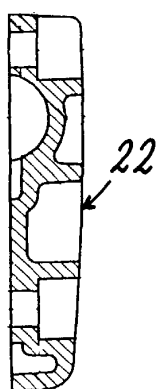
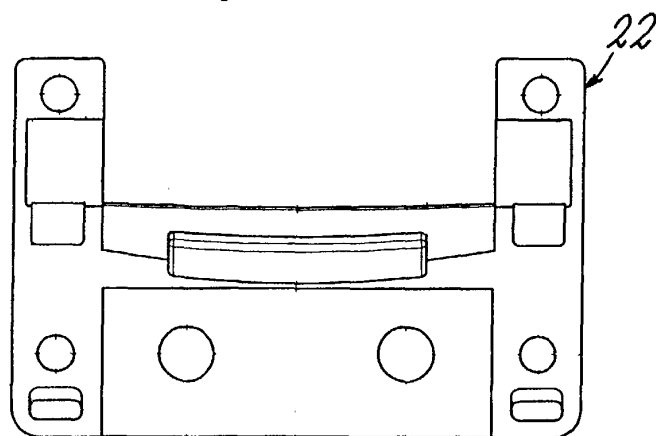
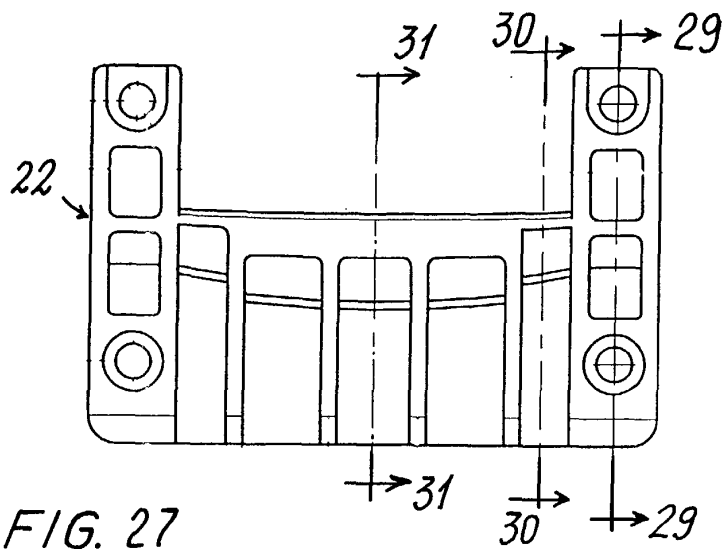


FIG. 26



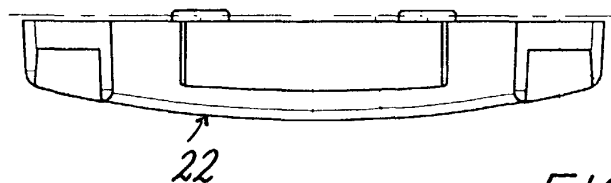


FIG. 32

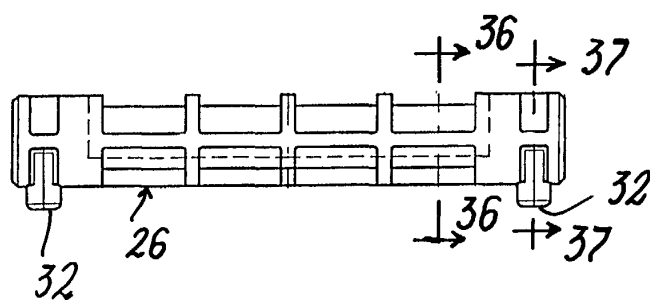


FIG. 33

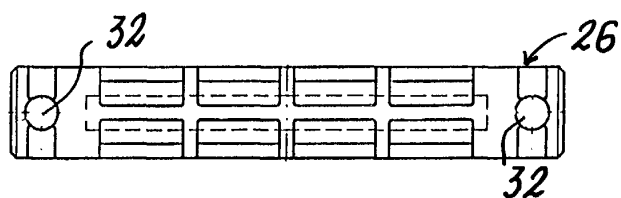


FIG. 34

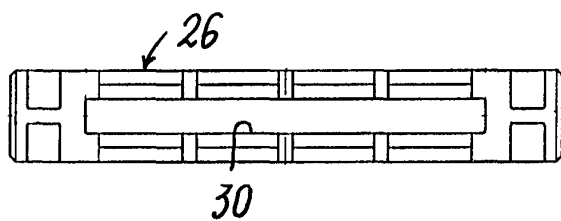


FIG. 35

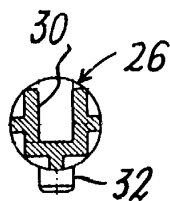


FIG. 36



FIG. 37