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(71) Applicant: **CAMAR S.p.A.**
I-22060 Figino Serenza (Como) (IT)

(72) Inventor: **Cattaneo, Carlo**
I-22060 Figino Serenza (Como) (IT)

(74) Representative: **Martegani, Franco et al**
Via Damiano Chiesa, 56
I-20099 Sesto San Giovanni (Milano) (IT)

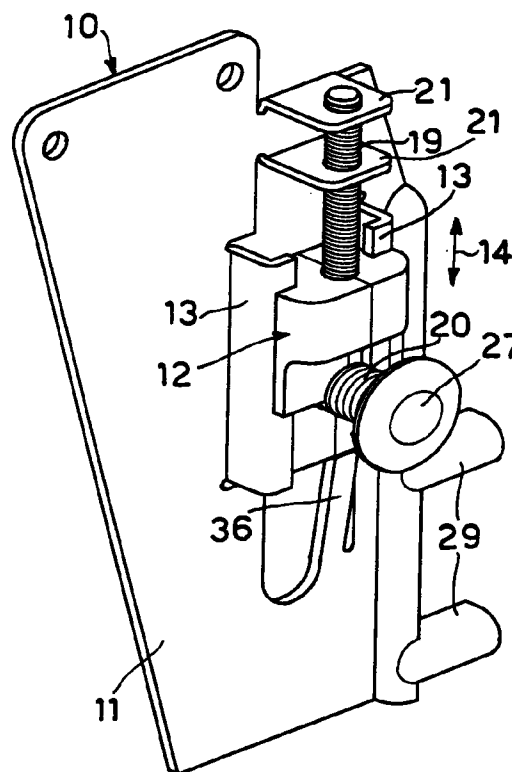
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This application was filed on 02 - 12 - 1995 as a
divisional application to the application mentioned
under INID code 62.

(54) Improved concealed device for wall-mounting an item of wall furniture

(57) A concealed device for wall-mounting an item of wall furniture comprising, in combination: a plate (11) to be fixed to the furniture item, a coupling element (27) secured to said plate (11) and arranged to engage a support member (28) fixed to the wall, a first screw (19) operable by a bevel gear pair (22, 23) acting between said plate (11) and said coupling element (27) to adjust the vertical position of this latter relative to the plate (11), and a second screw (20) carrying at one end said coupling element (27) and at its opposite end a slot (26) for a screwdriver to adjust the distance between the coupling element (27) and the plate (11). According to the invention said screw (19) and said screw (20) lie in the same plane and extend perpendicular to each other from a slide (12) movable along guides (13) provided on and parallel to the plate (11). The screw (19) screwing through a threaded hole (21) in the plate (11) and the screw (20) screwing through a through hole (25) in the slide (12).

Fig. 1



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Description

This invention relates to improvements to concealed devices for wall-mounting an item of wall furniture, preferably but not necessarily a kitchen cabinet.

To wall-mount an item of wall furniture it is known to the expert of the art to use concealed devices in which a coupling element is articulately secured to a frame or plate in such a manner as to be adjustable in position relative to said plate.

The plate is fixed to the side and possibly also to the top panel of the furniture item rearward of the back panel, the coupling element being freely engaged with a bar or hook plugs fixed into the wall, or with some other object suitable for the purpose.

The aforesaid mounting devices are also provided with linkages comprising adjustment screws by which the vertical position of the coupling element relative to the plate, or its length, can be adjusted as can the angle formed between the plate and coupling element by virtue of the degree of opening of this latter.

Said adjustment screws are accessible from the interior of the furniture item through one or more apertures provided in the back panel.

By this means the position of the item of wall furniture can be adjusted within certain limits in terms of its depth and height after it has been mounted on the wall by engaging the coupling elements of the devices fixed to the sides of the furniture item with the bar or hooks fixed to the wall.

Mounting devices of the aforesaid briefly described type are described and illustrated for example in German patents 2,717,167, 3,036,984 and 3,111,357, in EP-A-389,054 and in US-A-4,143,846.

Although mounting devices of the known art operate satisfactorily, they have the drawbacks of a complex bulky structure, and complicated assembly.

This means that mounting devices of known type are of relatively costly manufacture.

In addition, the adjustment linkages for adjusting the position of the item of wall furniture in terms both of depth and height are interconnected. The result is that any one adjustment also affects the other, even if to a minimum extent, and this is undesirable.

The general object of the present invention is to obviate the drawbacks of the known art by providing a device with an extremely simple and light structure, and comprising components which can be assembled rapidly, leading to considerable overall economy.

The said object is attained by a device with the characteristics defined in the accompanying claims.

The structural and functional characteristics of the invention and its advantages over the known art will be more apparent from the ensuing description given with reference to the accompanying schematic drawings, which show an embodiment of the concealed device incorporating the innovative principles of the invention.

In the drawings:

Figure 1 is a perspective view showing the mounting device of the invention;

Figure 2 is a view similar to Figure 1, but showing the device adjustment linkages in a different operating position;

Figure 3 is a perspective view showing only the plate of the mounting device;

Figure 4 is an exploded perspective view showing only the adjustment linkages of the mounting device of the invention;

Figure 5 is an exploded view showing the arrangement of the adjustment linkages of Figure 4 mounted within one half of the slide;

Figure 6 is a perspective view showing the adjustment linkages of Figures 4 and 5 completely mounted within the slide;

Figure 7 is a view similar to Figure 6, but from the opposite side;

Figure 8 is a perspective view of the mounting device of the invention fixed to the rear of an item of wall furniture;

Figure 9 is a perspective view from the inside of the item of wall furniture to which the device of the invention is applied; and

Figure 10 is a view similar to Figure 8, but showing the mounting device fixed to an item of wall furniture in which the top panel is flush with the side panels of the furniture item.

With reference to Figures 1-3 of the drawings, the mounting device according to the invention is indicated overall by 10 and is structurally formed by combining a plate 11, which can assume various configurations, with a slide 12 which is mounted on opposing parallel guides 13 of the plate 11 in a manner vertically movable in the directions of the arrow 14.

Characteristically (Figures 4-7), the slide 12 is constructed in two halves 15 (Figure 4) connected together by pins 16, 17 and held together by the lateral opposing parallel guides 13, which embrace corresponding lateral sections 18 (Figures 6 and 7) of said halves 15. The pins 16, 17 provide secure interconnection between the two halves 15 during the assembly of the device (Figure 7), so as to form a stable sub-unit which can be fitted automatically to the plate 11.

The slide 12 contains the device adjustment linkages, consisting of two screws 19, 20.

The first screw 19 extends substantially coaxially from the slide 12 and is screwed through a pair of threaded flanges 21 formed integrally with the plate 11. The screws 19 are operated via a bevel gear pair 22, 23 (Figures 4, 5) housed rotatably in complementary seats in the two halves 15 of the slide 12, the gear 22 being integral with the head of the screw 19, the gear 23 comprising a slot 24 for an operating screwdriver.

In Figure 4 the gear 23 is shown from both sides.

The second screw 20 lies in the same plane as the screw 19, but screws perpendicular to it by passing

through a threaded hole 25 formed in the two halves 15 by pressing.

The second screw 20 (shown from both sides in Figure 4) comprises at one end a slot 26 for an operating screwdriver, and at its other end a head 27 which can be coupled in a freely removable manner to an anchoring element fixed to the wall, such as a bar 28 (Figure 8).

In addition as can be clearly seen in Figure 4, the screw 20 comprises a threadless end portion 37 which prevents the screw 20 being completely unscrewed from the threaded hole 25.

The device is completed by two fixing pins 29 (Figures 1-3) extending laterally from and integral with the plate 11.

The operation of the device according to the invention is apparent from the foregoing description with reference to Figures 1-10, and briefly is as follows.

The device assembled as shown in Figures 1, 2 is fixed to the side panel 30 of an item of wall furniture by inserting the pins 29 of the plate 11 therein, and is also preferably fixed by screws 31 to the top panel 32 thereof, on the rear side of the back panel 33 (Figures 8, 9, 10).

The item of wall furniture must be provided with at least two of said devices (right and left), one on each side, so as to be able to be mounted on the wall by engaging the head 27 with the profiled bar 28 fixed to the wall (not shown), or with another equivalent element.

When the furniture item has been mounted in this manner, its position can be comfortably adjusted relative to the wall by operating the screw 20 for depth adjustment and operating the gear 23 for height adjustment.

Specifically, by rotating the screw 20 in one direction or the other the furniture item can be shifted further from or closer to the wall by the traction exerted by the head 27.

By rotating the gear 23 the height of the furniture item can be adjusted by the relative sliding between the plate 11 and slide 12 due to the rotation of the screw 20.

A tongue 36 formed integrally with the plate 11 (Figures 1-3) prevents the slide 12 escaping from the guides 13.

The facility for and extent of adjustment of the device of the invention are apparent from Figures 1 and 2 of the drawings.

Access to the screw 20 and gear 23 is available via an aperture 34 (Figure 9) provided in the back panel 33, which aperture can be concealed for reasons of appearance by a cover 35.

Figure 10 shows the mounting device of the invention fixed to an item of wall furniture in which the top panel 32 instead of being inward of the edge of the side panel 30 as shown in Figures 8 and 9 is flush with the side panel 30. In this case the plate 11 comprises a flange 38 screwed to the top panel 32.

be fixed to the furniture item, a coupling element (27) secured to said plate (11) and arranged to engage a support member (28) fixed to the wall, a first screw (19) operable by a bevel gear pair (22, 23) acting between said plate (11) and said coupling element (27) to adjust the vertical position of this latter relative to the plate (11), and a second screw (20) carrying at one end said coupling element (27) and at its opposite end a slot (26) for a screwdriver to adjust the distance between the coupling element (27) and the plate (11), characterised in that said screw (19) and said screw (20) lie in the same plane and extend perpendicular to each other from a slide (12) movable along guides (13) provided on and parallel to the plate (11), the screw (19) screwing through a threaded hole (21) in the plate (11) and the screw (20) screwing through a through hole (25) in the slide (12).

2. A device as claimed in claim 1, characterised in that said slide (12) comprises two halves (15) which partially embrace said screws (19, 20) and in which there are provided the seats for said bevel gear pair (22, 23) and a thread (25) for said screw (20).
3. A device as claimed in claim 2, characterised in that said two halves (15) are held together by the guides (13) provided on the plate (11).
4. A device as claimed in claim 1, characterised in that said second screw (20) comprised a threadless end portion (37).
5. A device as claimed in claim 1, characterised in that a stop tongue (36) for the slide (12) is formed within said plate (11).

Claims

1. A concealed device for wall-mounting an item of wall furniture comprising, in combination: a plate (11) to

Fig.1

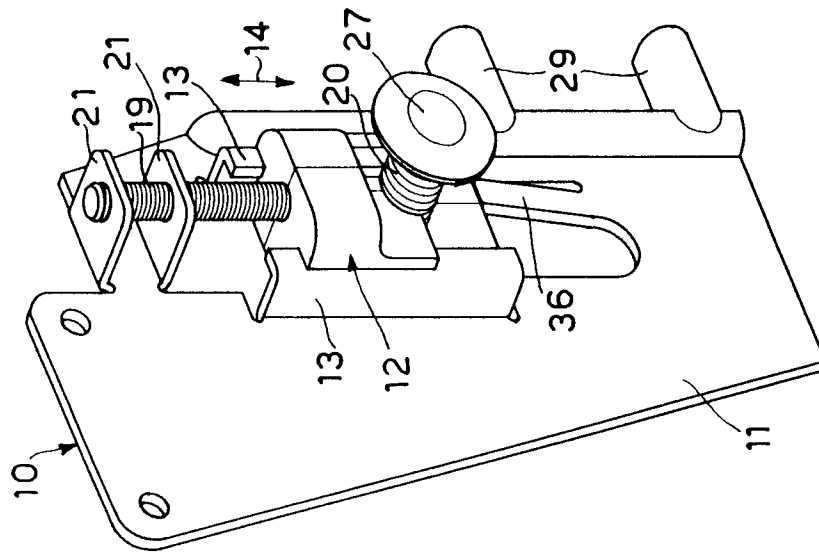


Fig.2

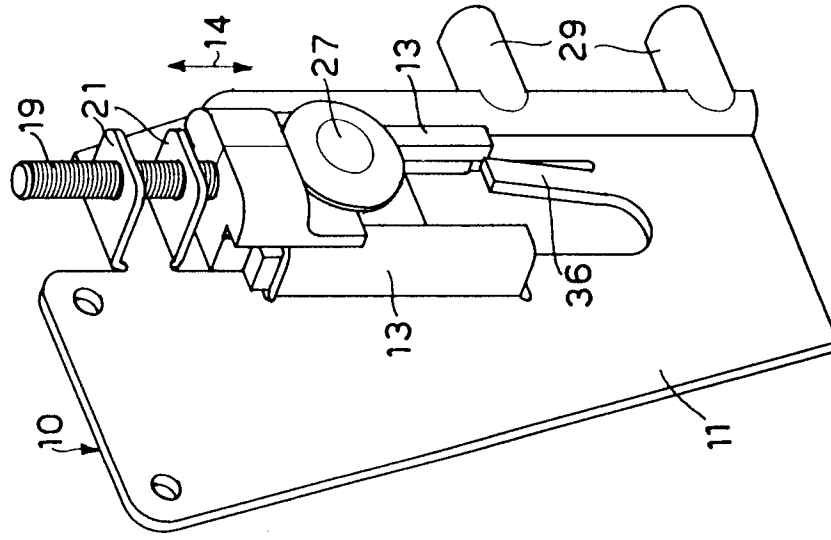
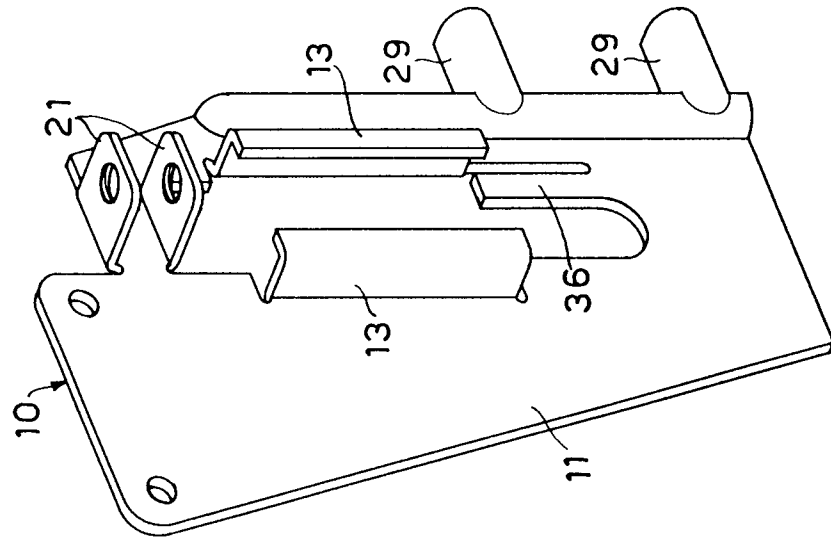
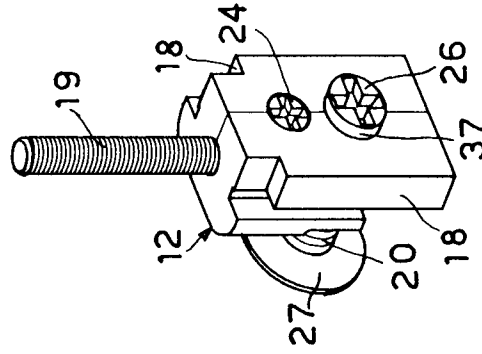
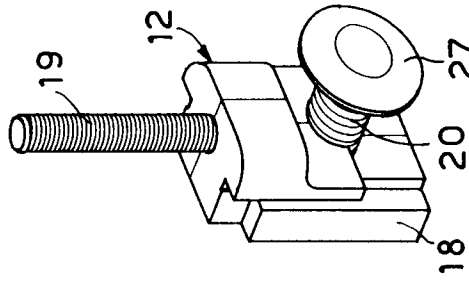
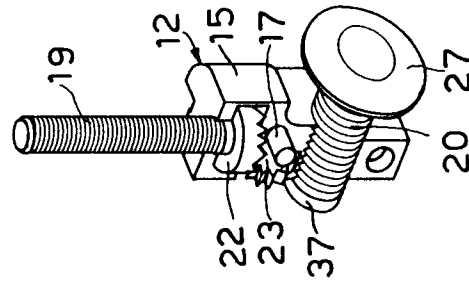
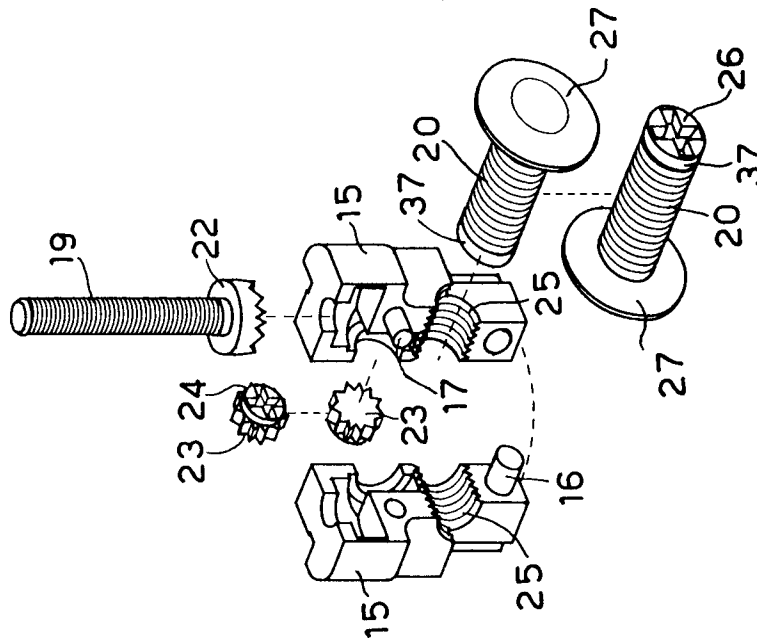


Fig.3





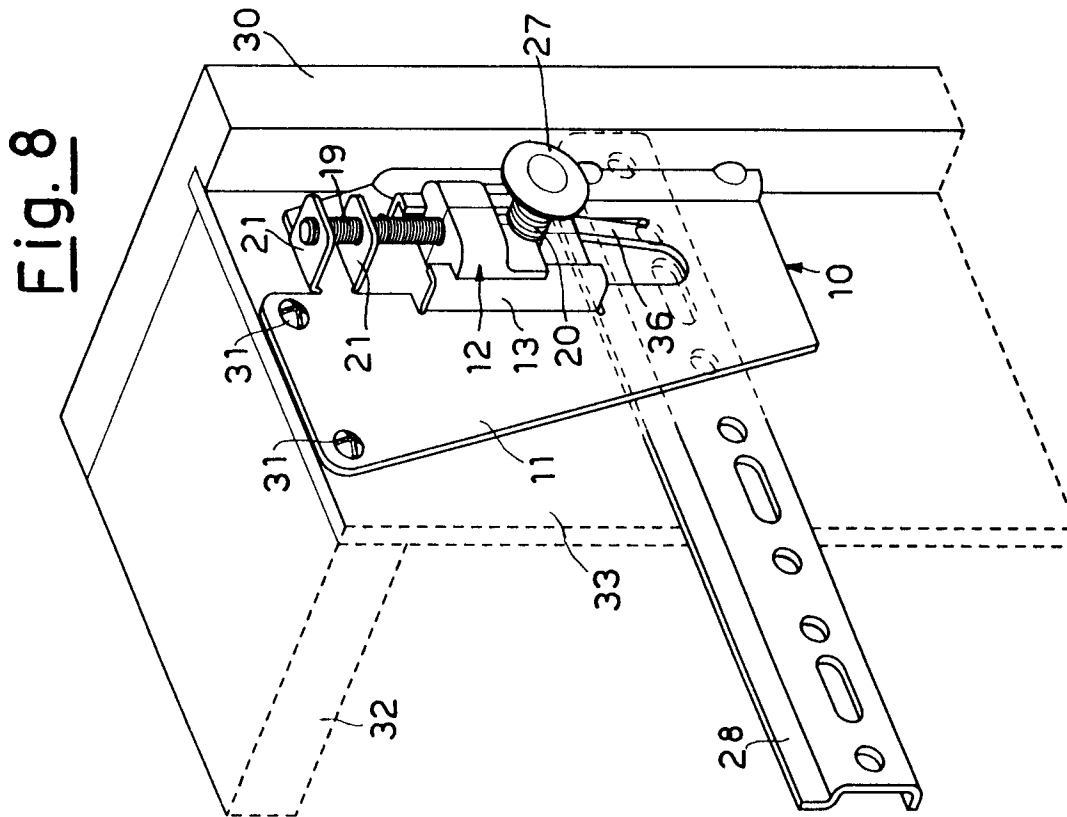
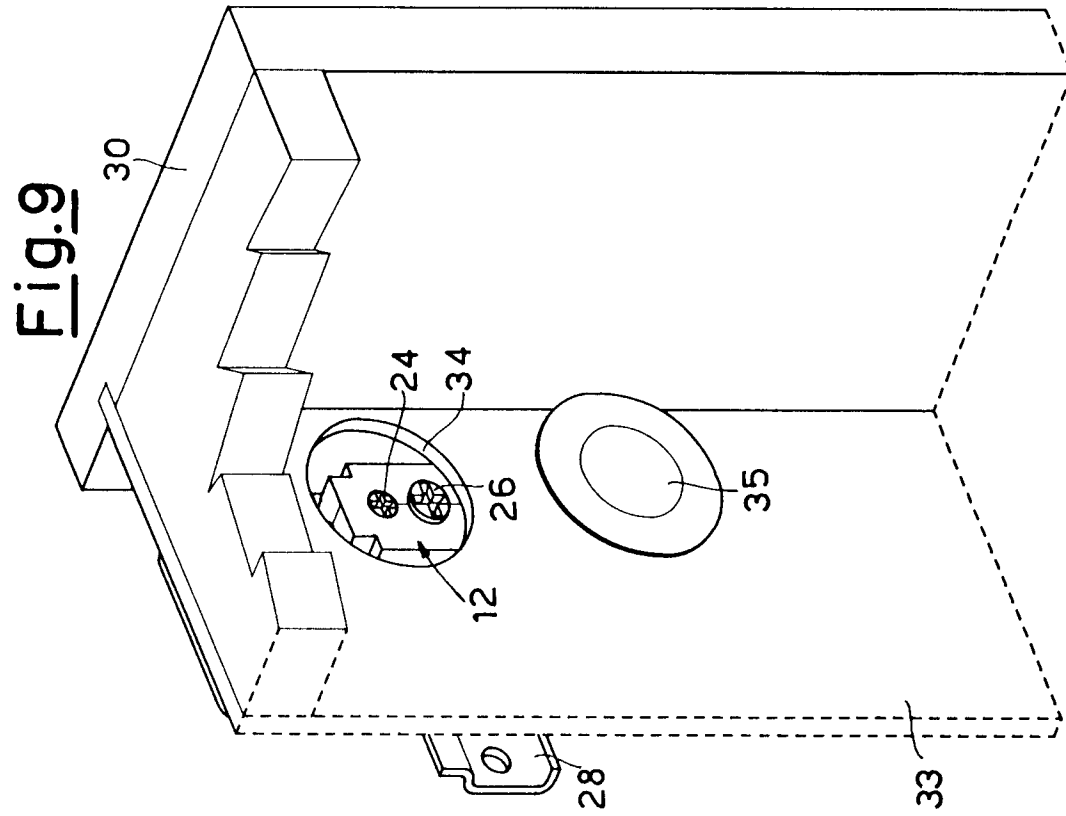


Fig.10

