

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 81303875.9

(51) Int. Cl.³: **E 06 B 9/324**

(22) Date of filing: 25.08.81

(30) Priority: 09.03.81 US 242057

(43) Date of publication of application:
15.09.82 Bulletin 82/37

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI NL SE

(71) Applicant: **BEATRICE FOODS CO.**
Two North LaSalle Street
Chicago, Illinois 60602(US)

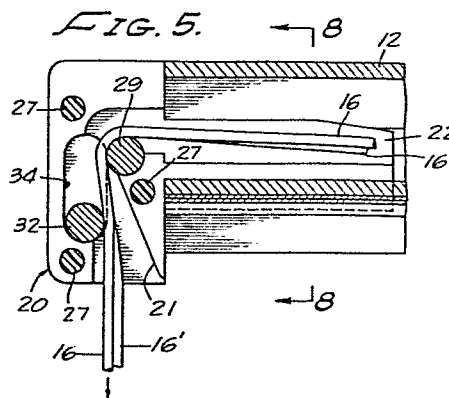
(72) Inventor: **McNiel, Claude M.**
24631 Tarazona
Mission Viejo California 92692(US)

(72) Inventor: **Valle, Louis G.**
18992 Florida Street
Huntington Beach California 92647(US)

(74) Representative: **Smith, Philip Antony et al,**
REDDIE & GROSE 16 Theobalds Road
London WC1X 8PL(GB)

(54) **Window blind with cord-locking device.**

(57) The cords 16, 16' for controlling a pleated fabric blind hanging from a head-rail 12 pass over a fixed pin 29 and hang down at the edge of the blind. In this condition they engage a pin 32 which is slidable in end slots 34. The weight of the blind pulls the cord upwards and the pin 32 is dragged up to grip the cord between the pins 29 and 32, thereby locking the cord. For adjustment of the blind the cords are pulled to one side against the inclined surface 21, allowing the pin 32 to fall and thereby freeing the cord lock.



WINDOW BLIND WITH
CORD-LOCKING DEVICE.

The present invention pertains generally to a window blind and, in particular, to a locking device for use on one or more cords used to adjust the blind height.

5 A well received type of window covering is one referred to as a venetian blind in which a plurality of slats can be adjusted at various relative angles to one another to control the amount of light passing therethrough and also can be raised or lowered to any
10 desired height. A further highly successful form of window covering unit having some features in common with a venetian blind is a window covering consisting of a pleated fabric which can be raised or lowered to a desired height by cords extending
15 through apertures in the pleated fabric. Adjustment of the cords to produce the desired height of the window covering in either a conventional venetian blind or a pleated fabric blind is typically accomplished by manipulation of an extent of the
20 cords which lies outwardly of the blind.

A continuing requirement has been that of securing the cord for fixedly positioning the height of the blind after it has been adjusted to some height. An earlier approach to this problem was to provide a peg or stanchion located immediately adjacent the blind to which the outer end portion of the adjustment cord was tied. This approach although functionally satisfactory, left much to be desired in that occasionally the cord would become loosened and the blind would fall, or in many circumstances there was no convenient place to which the stanchion could be mounted.

In order to overcome the disadvantages of having to tie the cord end, there have been several different types of so-called cord locks which were built into the headrail, for example, of the blind which upon selective angular positioning of the cord allowed vertical adjustment of the blind height, and locking the cord in position so that the blind height will be maintained constant until affirmatively changed. All known prior cord locks have not been completely satisfactory for one or more reasons. For example, certain of the prior locking devices were rather large and bulky destroying the aesthetic appearance of the blind. Other prior known locks were balky in operation requiring much frequent repeated adjustment up and down until the desired height could be obtained. Still others were undependable and broke all too easily during normal use.

In the practice of the present invention there is provided a blind having window covering parts which are

- 3 -

interconnected with two or more vertically extending cords which are adjustable to raise and lower the blind to any desired height. The cords pass through a common headrail arranged along the upper edge of the blind and pass over
5 a transversely arranged cylindrical pin which guides the cords downwardly and outwardly of the headrail. Adjacent the fixed pin is a second cylindrical pin having its end portions slidably received in slots which provides the second pin with a freedom of movement in a plane closely adjacent
10 the first pin. The sliding pin is located relative to the pull cord such that when the cord is allowed to hang vertically downward the movable pin is contacted and frictionally moved upwardly locking the cord between the two pins. However, when the pull cord is angularly related
15 to the headrail (e.g., directed toward the central parts of the blind) the movable pin is freed from restraining contact with the cord and the pin moves along a gravity path away from the first pin releasing the cord for relative movement about the fixed pin.

20

DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a window blind
25 including the cord lock of this invention and shown in locked position at a given position.

- 4 -

Figure 2 is a perspective view of the blind of Figure 1 showing the cord lock in released position and in the midst of readjusting to another height.

5 Figure 3 is an enlarged, perspective, partially fragmentary, exploded view of the cord lock and headrail.

Figure 4 is an end elevational sectional view taken along the line 4-4 of Figure 3.

10

Figure 5 is a sectional view taken along the line 5-5 of Figure 4 showing the cord unlocked.

15 Figure 6 is a view similar to Figure 5 showing the cord in locked position.

Figure 7 is a view similar to Figure 6 and 5 only showing the cord in released position.

20 Figure 8 is a further sectional view similar to Figure 4 taken along the line 8-8 of Figure 5.

DESCRIPTION OF A PREFERRED EMBODIMENT

25

Turning now to the drawing, and particularly Figures 1 and 2, the blind or window covering unit with which the present invention is most advantageous is identified

- 5 -

generally as at 10, and is seen to include an extent of
pleated material 11 which hangs generally vertically between
a headrail 12 and a bottomrail 13. Adjustments of height
of the blind (i.e., the spacing of bottomrail 13 below the
5 headrail 12) are accomplished by hand manipulation of a
pull-cord 14 which, in a way that will be more particularly
described, passes through the headrail, is threaded through
a plurality of openings 15 in the blind 11 and affixed to the
bottomrail 13. Also, as will be more particularly described, when
10 the cord 14 extends in a generally vertical direction as
shown in Figure 1, the blind is locked fixedly positioning
the blind 11 at a given height and maintaining that height.
On the other hand, when the cord 14 is moved angularly
sideward so as to extend toward the central portion of the
15 blind (Figure 2), this releases the lock and permits vertical
adjustment of the blind by either pulling on the cord to
raise the blind, or releasing tension on the cord allowing
it to go up into the headrail to lower the blind.

20 Turning now to Figure 3, the headrail 12 is seen
to include a hollow substantially rectangular housing within
which two sets of longitudinally extending paired, upstanding,
spaced walls 17 and 18, respectively, are located immediately
adjacent opposite side walls and defining a pair of spaces
25 for cooperating with certain other members to be described.
The lower wall 19 of the inner rail includes at least two
openings (now shown) through which the respective cords 16
and 16' pass prior to being threaded through openings 15 in

- 6 -

the blind fabric 11. These openings in lower wall 19 lie between the two wall sets 17 and 18 of supporting and guide walls.

5 A lock housing 20 has walls defining a hollow interior with an inlet opening 21 through which the pull cord 14 extends and three keying wall members 22 which are fittingly received within the open end of the headrail 12, the outer two each being received within the space of one
10 of the guide wall sets 17 and 18. In assembly, the lock housing walls 22 are fitted into the open end of the headrail such that the housing 20 is unitarily related to the outer end of the headrail. The pull cord 14 moves upwardly through the opening 21 and its component cords 16 turning at right
15 angles to pass along the interior opening of the headrail 12 between the wall sets 17 and 18. The schematic representation of two rollers in Figure 3 depicts certain features of the locking means of the invention, the more detailed aspects of which will be given at this time.

20

 As can be seen in Figure 4 which is a sectional view looking directly into the lock and toward the end of the headrail, the lock housing consists of a central generally triangular shaped base 23 having a pair of flat faces 24
25 and 25 directed angularly upwardly, the first facing frontward and the second facing backward. The locking means and housing are constructed so that they may be adapted for location at either the left end or the right end of a given blind, but

- 7 -

since the operation and construction of the parts are identical for each case, we shall confine the description herein to the situation where the locking arrangement is located at the right of the blind as it is shown in Figures 1
5 and 2.

A hollow caplike enclosure 26 fits over the forwardly and upwardly facing surface 24 and includes a plurality of projections 27 received in correspondingly
10 dimensioned openings 28 in the base 23 so as to secure and position the cap properly in place. Although other materials may be found useful for this purpose, practical embodiments of the invention made to date have included constructing the base 23 and cap enclosure 26 from a molded synthetic plastic
15 material.

A metal pin 29, preferably cylindrical, has its one end fixedly received within an opening in the base 23 and its opposite end received in a similar opening in the cap 26
20 thereby positioning the pin substantially at right angles to the base face 24. As will be described in greater detail, the fixed roller 29 serves as a bearing surface over which the cords 16, 16' move and changing the cord direction from that in a vertical plane to one in a horizontal plane.
25 Furthermore, the pin 29 serves as one of the active elements of the locking means for securing the cords as will be shown.

- 8 -

A further metal pin 32 is arranged with its end portions received within slightly oversized slots 33 and 34 in the base 23 and the cap 26, respectively, enabling the pin to move in a direction generally transversely of the headrail long dimension. More particularly, and with additional reference to Figure 5, the slots are elongated and lie outwardly of the pin 29 (i.e., towards the outer end of the housing 20) and form a plane generally parallel to the outer end of the headrail. The pin 32 is sufficiently undersized with respect to the slots 33 and 34 within which the pin end portions are received that it will readily rotate about its own longitudinal axis as it slides along the slots. In addition, as the movable pin 32 moves from its lowermost as shown in Figure 5 upward to its uppermost position it continuously closes or reduces the space between the movable pin and the fixed pin 29 and at its substantially uppermost position will reduce the space to a minimum which is less than the thickness of the cord for a purpose that will be shown. It is almost important to note that movement of pin 32 from the uppermost position to the lowermost as is shown in Figures 4 and 5, among other places, is along a gravity path.

The cords 16 coming from the blind extend along the central space in the headrail between the two sets of walls 17 and 13 and pass over the upper surface of the fixed pin 29 as shown in Figure 6, for example. After this, the cords extend downwardly and out the opening 21 where they

- 9 -

will hang vertically downwardly if solely under the influence of gravity (Figure 4). Also while in this vertical hanging condition as is shown in Figure 5, the portion of the cords 16 which are to extend outwardly from the bottom of the lock housing 20 will functionally engage the side of the movable pin 32. Accordingly, at this time, any downward movement of the cords 16 by such as would result on manipulation of the pull cord 14, moves the movable pin toward its greatest opening condition and therefore will not impede movement of the cords. However, as shown in Figure 6, with the cord arranged in vertical condition any release in an upward direction (i.e., lowering of the blind) while the cords are maintained substantially vertical will frictionally engage the movable pin 32 causing it to move upward, and upon reaching a certain predetermined upward position will cause the movable pin to pinch against the cord and lock it against the immovable pin 29. In summary, with the pull cord 14 maintained vertical pulling vertically downward on the pull cord raises the blind, but on cessation of the pulling the cord locks preventing the blind from lowering.

When it is desired to unlock the lock from a position as shown in Figure 6 and lower the blind, the pull cord is moved on an angle such that its lower end points toward the central reaches of the window blind (cf. Figure 2) which releases the movable pin allowing it to fall under the action of gravity to its lowermost position and thereby allowing further movement or adjustment of the cords in a direction lowering the blind.

- 10 -

CLAIMS:

1. A locking device for the height adjusting cord of a window blind having a headrail and an adjustable blind interconnected with the cord, said cord having a pull portion extending from said headrail, comprising:

5 a first pin fixedly mounted to said headrail receiving the cord in contacting relationship to the pin circumferential periphery; and

a second pin having its end portions slidably confined enabling said second pin to move along a gravity path in a plane including said second pin from a first position spaced from said first pin a distance less than the cord thickness to a second position spaced from said first pin a distance substantially greater than the cord thickness;

10 said first and second pins being so located relative to each other that at a first angular relation of the cord pull portion to the headrail the cord contacts both the first and second pins circumferential surfaces and at a second angular relation to the headrail the cord only contacts the first pin.

2. A locking device as in claim 1, in which said first and second pins are cylindrical.

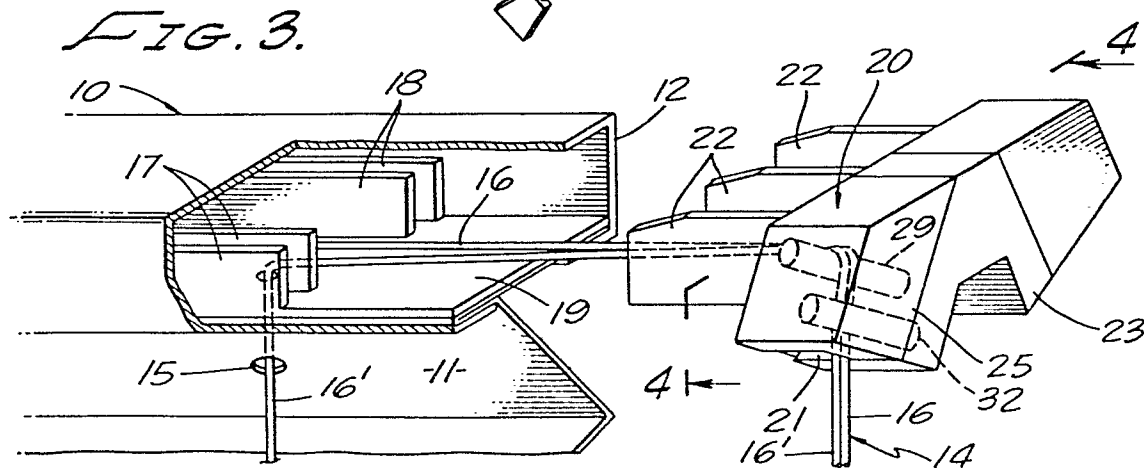
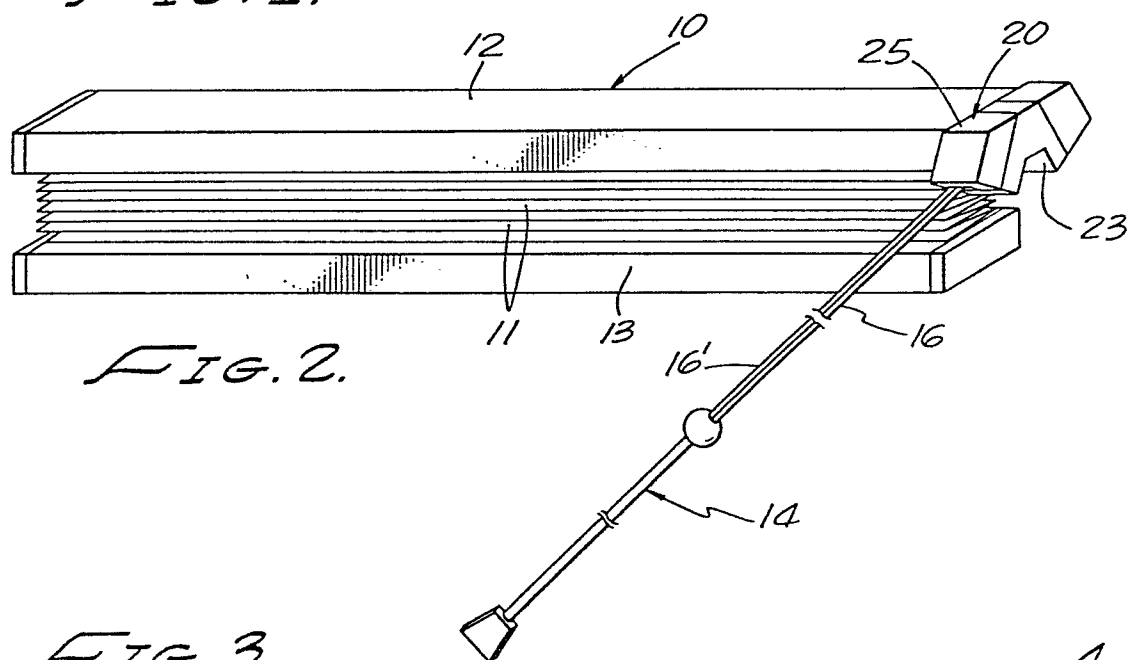
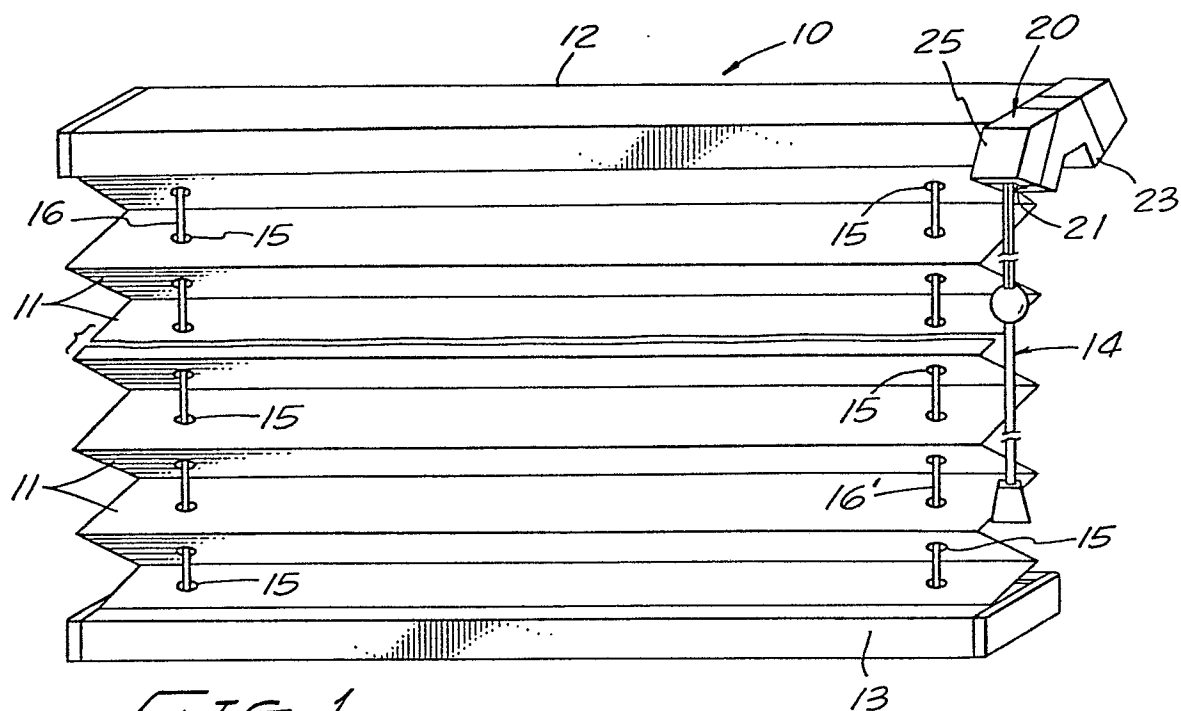
- 11 -

3. A locking device as in claim 1, in which
there is further provided a housing mounted onto the headrail,
and wall members of said housing holding the end portions
of said first pin such that said first pin is arranged
5 transversely of the headrail longitudinal axis and angularly
disposed to a horizontal plane with the back pin end being
lower than the front pin end, said housing wall members also
defining an opening in communication with said first and
second pins angling generally forward and downward to exit
10 at a lower housing surface whereby said cord passes over
said first pin contacting the wall members defining the
forwardly and downward angled opening portion and exiting
generally vertically downward when at rest.

4. A locking device as in claim 1, in which the
second pin end portions are rounded enabling said second pin
to rotate as well as slide.

5. A window blind having a headrail and an adjusting cord for the blind hanging from one end of the headrail characterized in that the cord passes over a fixed pin and when hanging freely engages a slidably-mounted locking pin such that the locking pin is dragged upwards by the weight of the blind pulling on the cord and the cord is clamped between the locking pin and the fixed pin, the clamp being releasable by moving the cord to one side to allow the locking pin to fall out of engagement with the cord.

1/2



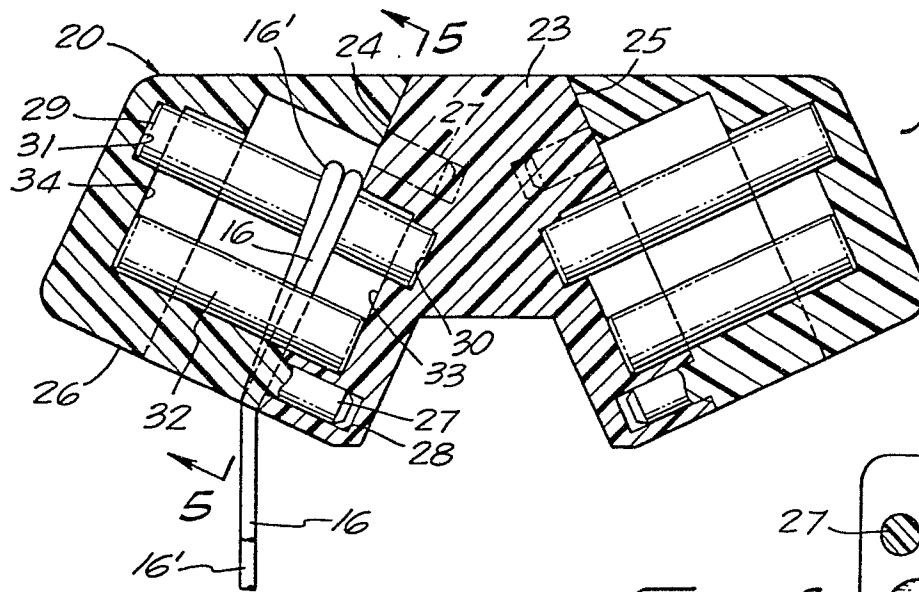


FIG. 4.

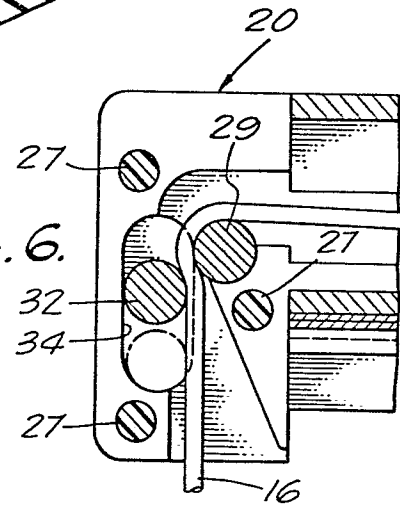


FIG. 6.

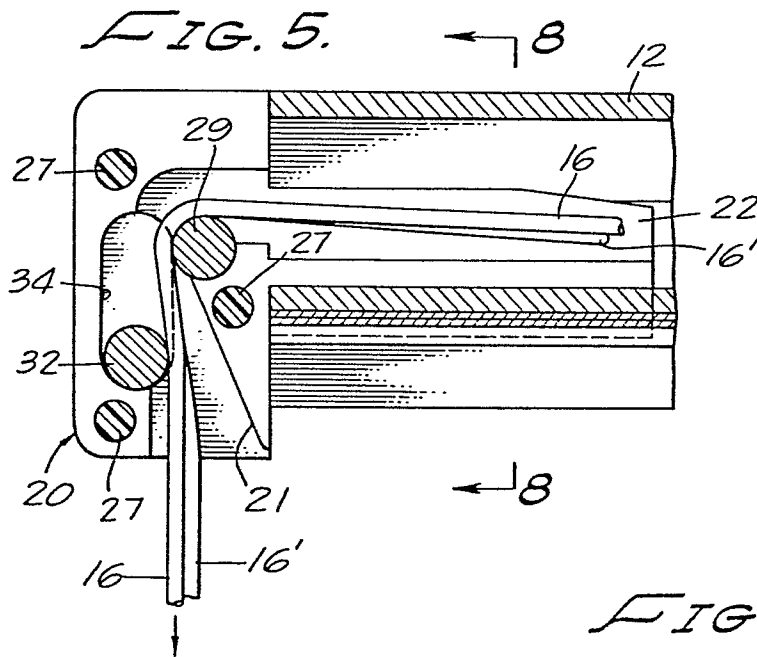


FIG. 5.

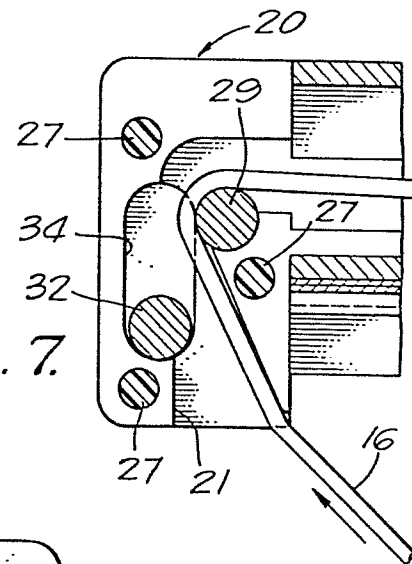


FIG. 7.

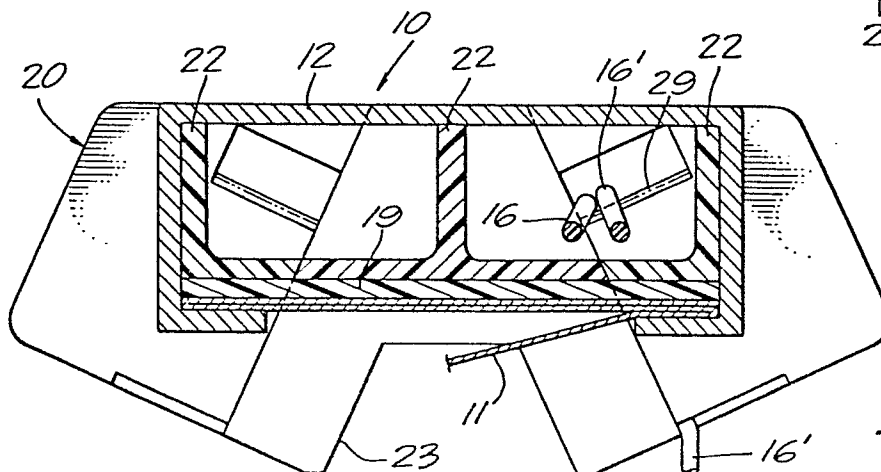


FIG. 8.