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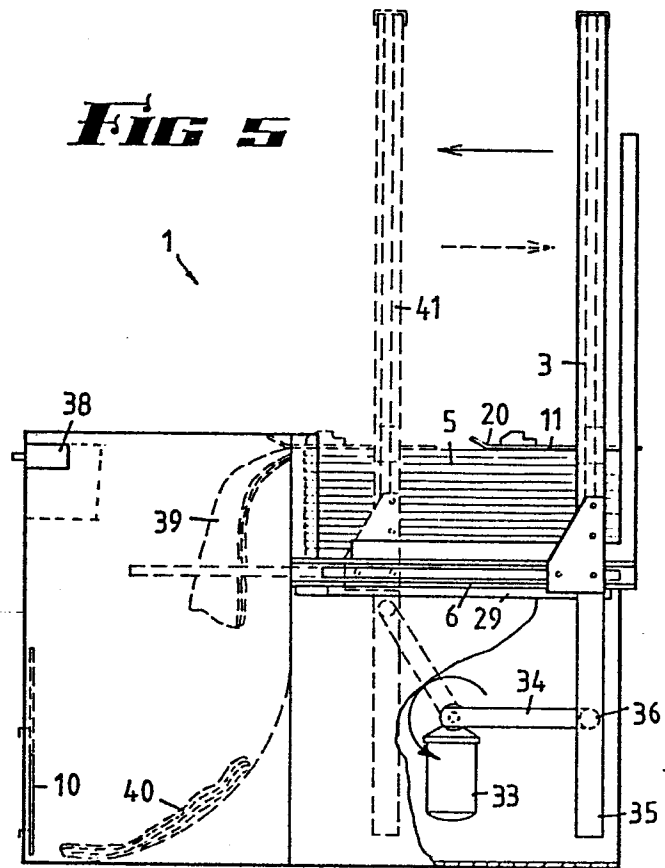
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(54) **Vending apparatus.**

(57) A pair of uprights (3, 4) are arranged on opposite sides of a stack of newspapers (5) and support between them a cross member carrying slides (11, 12) which rest on the top of the stack of newspapers and engage the top newspaper of the stack by means of inclined pins (20). Operation of an electric motor (33) initiated by a coin or token inserted at (38) drives a crank (34) in an anti-clockwise direction to the position shown in dotted lines so as to move the uprights to the position shown in dotted lines at (41). This moves the slides (11, 12) to the left so as to cause the top newspaper of the stack to be moved until it falls off the top of the stack as shown at (39), and thence into a vended position at (40) for access through a door (10). The motor (33) continues to rotate so as to return the crank (34) to the full line position and then automatically stops, with the slides (11, 12) in position for vending the next newspaper.

FIG 5



VENDING APPARATUS

This invention relates to vending apparatus especially suited for vending of newspapers and magazines.

5 The problem to which this invention is directed relates to a difficulty of providing in an economic and reliable way vending apparatus for newspapers and magazines.

10 Accordingly it is an object of this invention to propose means which can provide in a more economic and reliable manner than has hitherto been the case vending apparatus which is useful for directly vending newspapers and magazines from a stack of such newspapers or magazines.

15 According to this invention, there is apparatus for effecting a vending of newspapers or magazines where such newspapers or magazines are located in a stack and a vending action results in an uppermost newspaper or magazine being caused to slide from the top of the stack to effect the vending the apparatus being characterised by including a
20 frame, a member movable at least in a vertical direction and adapted to be located above a stack of magazines or newspapers and to be inter-engageable with the frame such that upon a vending action being initiated the frame will engage the member and move this through a vending action, and means
25 carried by the member and adapted to effect an ensnarement of an uppermost magazine or newspaper on the stack at least during each vending action.

30 In preference, the frame includes two members located one to each side of a support base upon which a stack of newspapers or magazines is to be located. The two upright members are coupled so as to be jointly movable and are supported for such movement by inter-engagement with slide means engaging in runners. Positioned so as to extend between

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the two upright members and to be located above a stack of newspapers or magazines is a cross member which at each end slidably engages with considerable freedom the respective upright member.

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Located somewhat midway between the respective ends of the cross member are two slides each of which is supported so as to be pivotable about a horizontal axis, which axis is aligned in a forward to rearward direction and the
10 respective axes of the pivot support are spaced apart although parallel. Each slide is of elongate proportions with a lowermost face adapted to slide along an uppermost face of any stack of newspapers or magazines and by engaging thereon provide at least to some extent support for the
15 cross member on the top of the stack and therefore this cross member's relationship with the upright members. There are means, namely a sharp pin, downwardly and forwardly directed associated with each slide-so as to engage each uppermost magazine or newspaper, especially when being moved
20 in a vending direction and generally ride over without engaging such uppermost articles when returning to the start position for a next vending action.

Preferably, each of the slides has located so as to
25 extend therebelow and with at least some forwardly inclined inclination, the said sharp pin which is adapted to engage at least one or more of the pages of the uppermost magazine or newspaper and when being pushed through the vending action, ensure secure locking of the paper with the slide until
30 the newspaper or magazine is pushed past a self-supporting position on the stack and thereafter the magazine will be able to move further forward without undue restriction from the pin or slides.

35 Secured at some appropriate location so as to provide movement of the frame through a vending action and a return

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action there is provided a motor, and switches effective with the motor so that upon a first initiation of the motor, the motor will effect a rotation of the crank so as to pull the frame in a forward direction, i.e., such that the several slides together with their forwardly and downwardly projecting pins will engage several uppermost pages of a newspaper and the movement of the frame will be sufficient so as to ensure that the newspaper is then moved sufficiently forward so that it will fall from the stack into an outlet chute for vending purposes.

Upon the frame having reached a predetermined distance, the crank action returns the frame to an initial start position.

A significant feature of the arrangement described is the fact that the arrangement allows for a number of the problems which actually occur in practice to be generally overcome.

The first of these is that newspapers can when in a stack present an uppermost surface which can be substantially inclined. Typical of such a problem is a newspaper sold in the State of South Australia under the title "Sunday Mail". It has been found that using the spaced apart several slides and having these further supported with respect to the cross arm, allows for considerable latitude as to the alignment of the uppermost face of the newspapers when in a big stack.

The two slide members have been found to support the cross member which can assume considerable inclination without losing its effective position with respect to the two upright

members when urged through a vending action, because of the inter-locking relationship, the cross member will follow the newspaper during vending.

5 The vending operation can be initiated by any suitable means and conventional means would be by insertion of coins or tokens into an appropriate discrimination device effecting an initiation signal in a conventional way. The invention in this case is directed toward the arrangement arranged
10 to be responsive to any initiation from the discriminating apparatus in a conventional vending method.

 For a better understanding of this invention it will now be described with reference to a preferred embodiment
15 which shall be described with the assistance of drawings in which,

 Fig. 1 is a perspective view of the elements of the vending apparatus according to the preferred embodiment
20 this being a perspective view from the front and to the side of the unit,

 Fig. 2 is a perspective view of the same unit as in Fig. 1 from above and behind,

 Fig. 3 is a partly cut away perspective view of a portion
25 of the unit as shown in Figs. 1 and 2 showing specifically a cross member and two slide members,

 Fig. 4 is a side elevation of one of the slide members as shown in Fig. 3,

 Fig. 5 is a side elevation with part cut away of the
30 same unit as in the previous Figures showing however in dotted outline a further position of the uprights and the respective shoes and expected position of newspapers being moved through a vending action.

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Referring in detail to the drawings and to the embodiment disclosed therein the vending apparatus 1 includes a frame 2 which includes two uprights 3 and 4 each of which is located to the side of a stack of newspapers 5 and each of which is supported to be movable through a vending action by being supported for sliding forward to rearward freedom 6.

Engagement of the newspapers 5 is achieved by a member at 7 engaging the top of the stack of newspapers at 5 and by being moved forwardly, that is in the direction of arrow 8, the uppermost newspaper is engaged and pushed into a vending chute 9 and accessible through door 10.

The member 7 comprises two separate slides 11 and 12 each of which is supported separately by a cross member 13 by a pivot supported at 14 and 15 such that each of the slides 11 and 12 can rotate at least to a modest extent about a forward to rearward orientated axis.

The extent of such freedom is governed by the size of slots 16 and 17 in the lower side of the cross member 13.

Each of the slides 11 and 12 include at a forward end a block respectively 18 and 19 which is used to hold secure a downwardly and forwardly inclined sharp part at 20 comprising a sharp pin.

The depth and inclination of this pin 20 must be determined in practise in accord with the type of newspapers or the type of magazines intended to be vended.

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It has been found however, if the pin is adapted to engage the upper three pages of the magazine, there is sufficient purchase to effect an adequate vending push and further the return action will not tend to stick and thereby
5 hold the newspaper from falling through the vending chute 9.

Very simple experiments will establish a preferred orientation and depth of this pin in respect of any particular
10 magazines or newspapers.

The slides 11 and 12 are each of elongate proportions and having an upturned front at 21 and 22.

15 The slides 11 and 12 are located so that they are each respective sides of a medial line which is in the approximate position and alignment of arrow 8, so that when the several pins 20 engage the upper several pages of a newspaper or magazine, they will be pushing from both sides about a medial
20 line and thereby generally keep the magazine straight as it is pushed over the edge of the stack into the vending chute.

The cross member 13 is supported between the two
25 uprights 3 and 4 in such a way that its transverse orientation with respect to a horizontal alignment can be widely varied in accord with the respective sitting position of the two slides 11 and 12.

30 This is achieved firstly by the cross member 13 having at each end an interlocking portion at 23 and 24 each of generally wedge shape adapted to fit with sliding freedom within the channel shape 25 and 26 of the uprights respectively 3 and 4.

The wedge shape provides freedom for the cross member 13 to rotate about a transverse axis within the limits allowed by the inclination of the edges of the wedge shape members 23 and 24.

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This allows accordingly the slides 11 and 12 to adjust their resting position on the top of the newspapers of a stack about a transverse axis so that these will consistently rest fully on the top of the stack and of course ensuring that in every occasion on a forward vending action, the pins 20 will be adequately located to engage and push the magazine or newspaper off the stack.

The uprights 3 and 4 are constrained as a frame including an uppermost transverse member 27 and a lowermost transverse member 28.

This lowermost transverse member 28 couples with the uprights through slots 29 and 30 passing through side walls 31 and 32 of a lowermost cabinet.

A vending action is achieved by a motor 33 being initiated and causing rotation of crank 34 which engages vertical member 35 the top of which is secured to the lowermost transverse member 28.

The crank 34 is connected through roller connection 36 to slide up and down with relative freedom through the vertical member 35.

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The motor 33 is of a type conventionally used and sold for use as a windscreen wiper motor for motor vehicles and is most commonly available and includes within, although not shown in the drawings, a cam and electrical contactors such that upon each full rotation of the crank 34, about the axis 37, the electrical contactors are disconnected.

A further initiation is achieved by providing an initial parallel circuit closure of the electrical contacts which then moves the cam into a further position to effect a closure of its own contacts until a full circuit is once again completed.

Electrical initiation of the motor 33 is achieved by coin or token operative means 38.

A vending action is accordingly initiated by rotation of the crank 34 which then in turn causes the uprights 3 and 4 carrying with them the cross member 13 and the respective slides 11 and 12 to move forwardly so that the pins 20 will engage the uppermost several pages of the uppermost magazine or newspaper of the stack 5 and cause this to be pushed over the edge of the stack as at 39 and into a vended position at 40 for access through door 10.

The vending action continues with continuing rotation of crank 34 which then returns the upright 3 from the position as shown at 41 back to the position as shown in the drawings respectively at 1 and 2.

The apparatus as shown would normally be included in appropriate cabinet.

The apparatus as shown provides that loading of a stack of newspapers can be very readily achieved by simple manual lifting of the cross member 13 and then a loading of the stack to be supported on a floor, '

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The vending chute can be any appropriate height and compatible with the uprights 3 and 4 and can have any appropriate diversion wings such as at 42 and 43 to assist in directing newspapers or magazines as being vended into a vending chute area.

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From this description it will be seen that a reliable and economic means for effecting vending of newspapers or magazines has been achieved.

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C L A I M S

1. Vending apparatus for effecting vending newspapers or magazines from a stack the apparatus being characterised in that there is a frame, a member movable at least in a vertical direction and adapted to be located above a stack of magazines or newspapers and to be inter-engageable with the frame such that upon a vending action being initiated the member will be caused by the frame to move through a vending action, and the member including means adapted to effect an ensnarement of the uppermost magazine or newspaper on the stack during each vending action whereby to cause to slide an uppermost magazine or newspaper from off the top of the stack to a vended position.

2. Vending apparatus for effecting vending newspapers or magazines from a stack as in claim 1, the apparatus being further characterised in that the member includes a sharp downwardly and forwardly directed part adapted to provide for the ensnarement.

3. Vending apparatus for effecting vending newspapers or magazines from a stack as in claim 2, the apparatus being further characterised in that the member includes two slides each of which is adapted to engage the slide across the top of newspapers or magazines in the stack and each of which includes at least one of the sharp downwardly and forwardly pointed parts positioned below a lowermost sliding face.

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4. Vending apparatus for effecting vending newspapers or magazines from a stack as in claim 3, the apparatus being further characterised in that the sharp part is a pin.

5 5. Vending apparatus for effecting vending newspapers or magazines from a stack as in any one of claims 2, 3 or 4, the apparatus being further characterised in that the two slides are each separately pivotally supported so as to be rotatable about a forward to rearwardly orientated
10 axis.

6. Vending apparatus for effecting vending newspapers or magazines from a stack as in any one of claims 2, 3, 4 or 5, the apparatus being further characterised in that
15 the two slides are each separately positioned so that one is positioned to one side of a forward to rearward medial alignment and the other is positioned on the other side of the said medial alignment.

20 7. Vending apparatus for effecting vending newspapers or magazines from a stack as in any one of claims 2, 3, 4, 5 or 6, the apparatus being further characterised in that the two slides are each separately pivotally supported by a cross arm each end of which is supported within and guided
25 by an upright located one to each side of a stack position.

8. Vending apparatus for effecting vending newspapers or magazines from a stack as in claim 7, the apparatus being further characterised in that the uprights located at each
30 side of the stack position are supported by support means adapted to effect for each vending action a movement of the uprights to a forwardmost position.

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9. Vending apparatus for effecting vending newspapers or magazines from a stack as in claim 8, the apparatus being further characterised in that the uprights are supported by a slide within a track and there is a drive means secured to the uprights to effect for the vending action a forward and then rearward motion of the uprights and hence the slides.

10. Vending apparatus for effecting vending newspapers or magazines from a stack as in any one of the preceding claims, the apparatus being further characterised in that the cross member is supported by the uprights in such a way as to allow some pivotal freedom about a transverse axis of the cross member with respect to the respective uprights.

11. Vending apparatus for effecting vending newspapers or magazines from a stack substantially as described in the specification with reference to and as illustrated by the accompanying drawings.

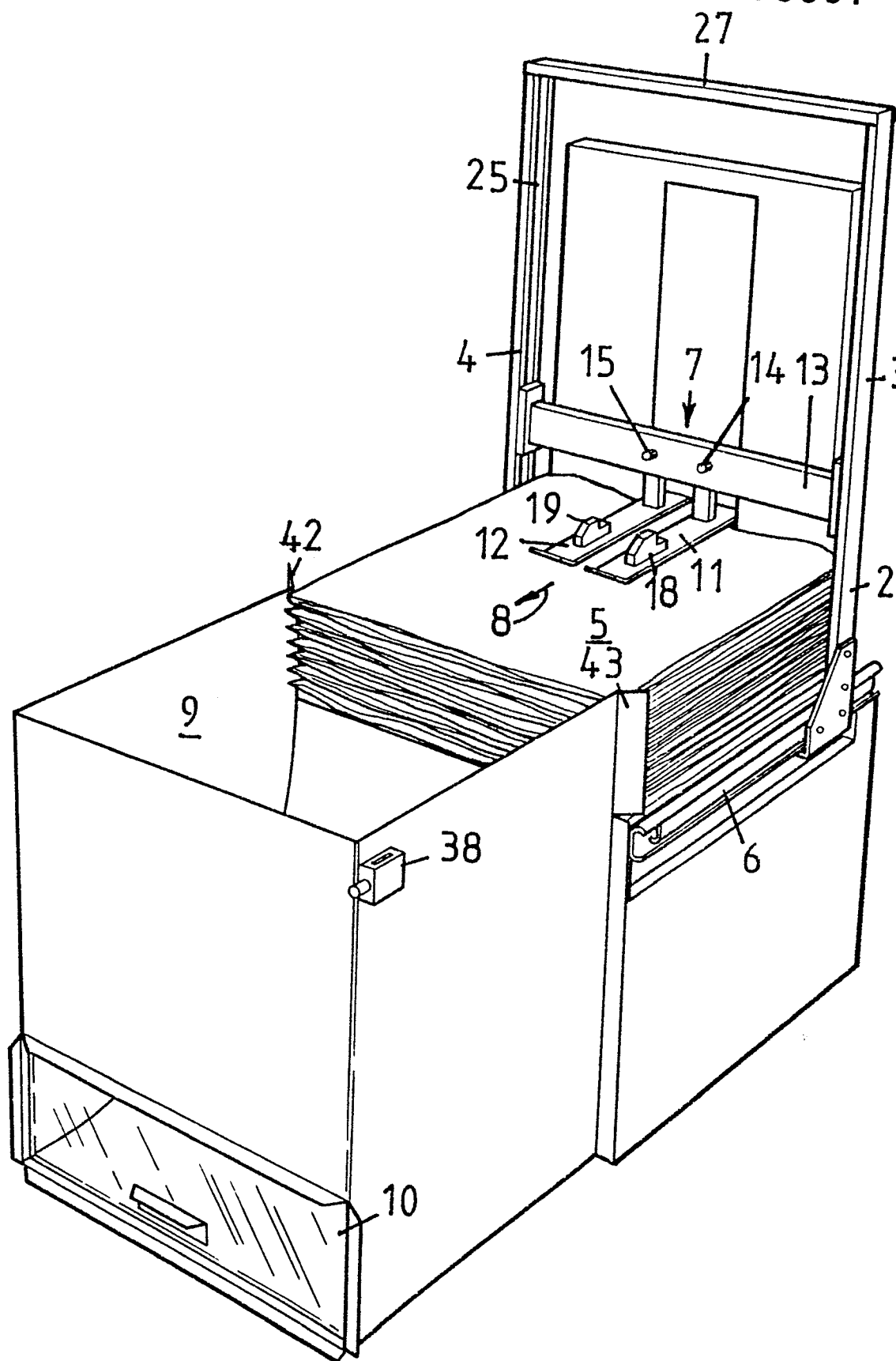
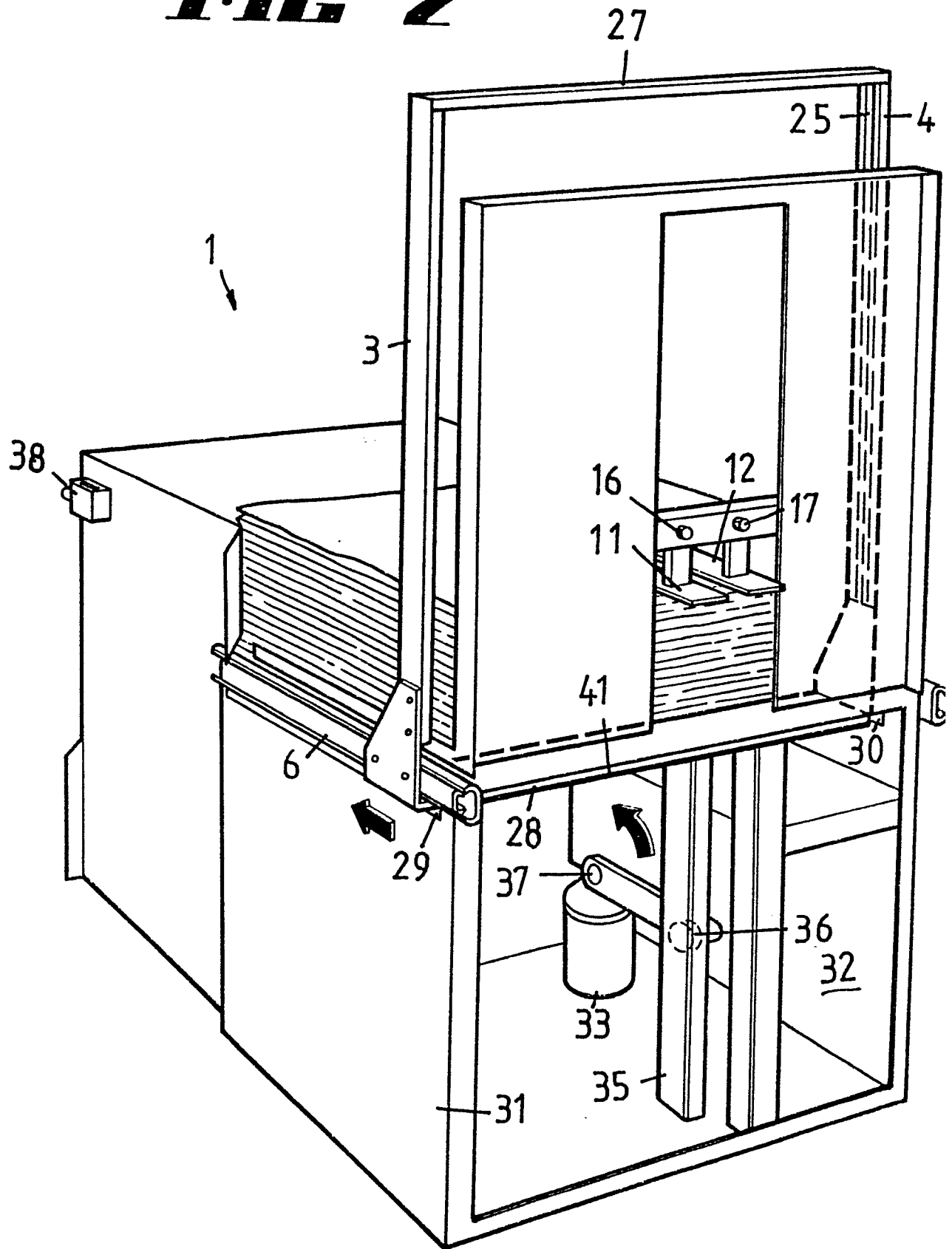
**FIG 1**

FIG 2



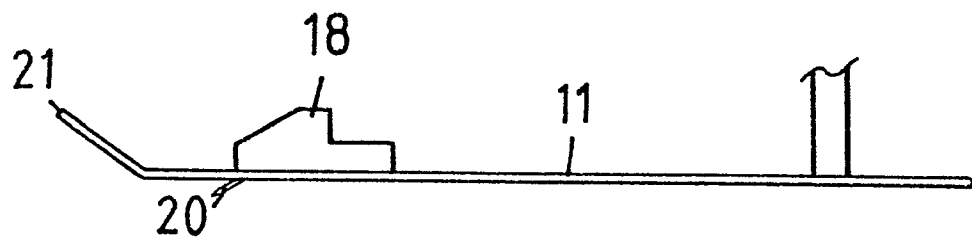
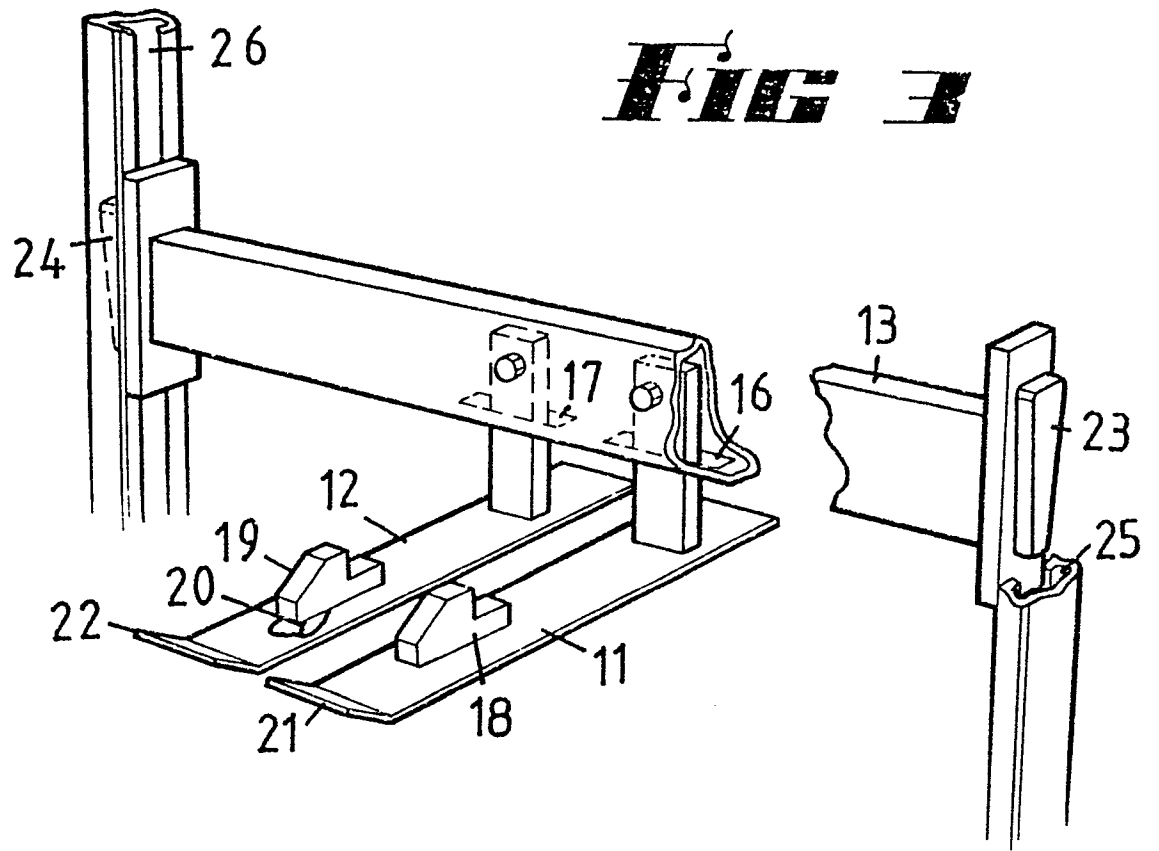


FIG 4

FIG 5