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(54) **Dispensing apparatus**

Abgabevorrichtung

Dispositif de distribution

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Description

[0001] This invention relates to dispensing apparatus according to the preamble of claim 1, see GB-A-1037 805, and a dispensing apparatus kit.

[0002] Gravity feed dispensing apparatuses are well-known for dispensing products. One known apparatus simply comprises an inclined chute in which a line of products is arranged. When the forward-most product is removed from the chute, the remaining products shunt forward due to gravity acting upon them. One problem associated with such known apparatus is that light products, for example packets of crisps or boxes of women's tights, are restricted from moving forward under gravity by the frictional force existing between them and the chute.

[0003] In another known apparatus, a spring-loaded pusher plate may be arranged upstream of the products to be dispensed. On removal of the forward-most item from such a chute, the pusher plate urges the remaining products forward. Problems associated with this apparatus is its relatively complicated design and difficulties in selecting an appropriate spring force which is sufficient to urge products forward but does not damage them.

[0004] It is an object of the present invention to address problems associated with known dispensing apparatus.

[0005] According to a first aspect of the present invention, there is provided dispensing apparatus comprising an inclined guide means for receiving a product to be dispensed and a carriage means movable within the guide means, said carriage means comprising a body, said body comprising at its forward end, product contact means for contacting a product to urge it forward, characterised in that said carriage means includes at least two rollers for aiding movement of the carriage means, one of said rollers is spaced from another said roller and in which the axes of the rollers are substantially parallel, and wherein the rollers have a width which is greater than 50% of the width of the carriage means.

[0006] Said carriage means preferably includes containment means for containing a product.

[0007] Said guide means is preferably of channel cross-section. It is preferably made out of a plastics material.

[0008] Said contact means is preferably inclined, suitably rearwardly, preferably at an angle in the range 30° to 75°. Said product contact means may comprise a substantially planar member for contacting at least a part of the product.

[0009] Said carriage means preferably includes axle support means for supporting axles of said rollers. Said axle support means preferably comprise depending members each of which suitably includes means for retaining an axle. Said means may comprise an opening which is suitably arranged to receive an axle. Said axle support means is preferably resilient for allowing axles

of said rollers to be engaged therewith.

[0010] Said product contact means is preferably a unitary part of a base part of said body which body preferably includes said axle support means which are also preferably a unitary part of said body. Said base part preferably extends across substantially the whole width of said carriage means.

[0011] Said rollers may have a width which is greater than 50% preferably 60%, more preferably 70%, especially 80% of the width of the carriage.

[0012] Said rollers are preferably made out of a plastics material. Said rollers preferably include axles at each end which are suitably arranged in openings in the body of the carriage means. Said body preferably includes at least two, preferably at least three, more preferably at least four openings in which axles of two or more rollers are retained.

[0013] Said rollers are preferably arranged on opposing sides of the centre of gravity of the carriage means.

[0014] Extension means may be provided for increasing the width of a forward end of the carriage means, preferably a product contact means thereof. The width of said forward end may suitably be increased with the width of said body and/or the distance between said axle support members suitably remaining the same. This may suitably allow a carriage of one width to be used in a guide means of a larger width. Said extension means may be releasably securable to the carriage means.

[0015] Said carriage means may include containment means for containing product. For example, said containment means may comprise spaced apart uprights between which product can be placed.

[0016] Preferably, the width of said body and/or the distance between said axle support members is at least 5cm, preferably at least 8cm, more preferably at least 10cm, especially at least 12cm. The width may be less than 40cm, preferably less than 30cm, especially less than 20cm.

[0017] The novel carriage means for a dispensing apparatus as described in any statement herein may be manufactured by forming a member into a channel section and retaining a rotatable member within said section.

[0018] Said member formed into a channel section is preferably made of plastics. Said channel section is preferably downwardly open.

[0019] Manufacture of the carriage may include the step of forming said member into a portion which is inclined relative to said channel section.

[0020] Manufacture may also include the step of providing openings in said channel section and engaging portions of said rotatable member in said openings.

[0021] According to a second aspect of the invention, there is provided a dispensing apparatus kit comprising a guide means for receiving a product and carriage means as described in any statement herein.

[0022] The product dispensed may be a food or non-food item. It may have a width in the range 2cm to 40cm,

preferably 5cm to 30cm, more preferably 5cm to 15cm.

[0023] Specific embodiments of the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a schematic side view of a dispensing apparatus comprising a chute in which a carriage is arranged;

Figure 2 is a schematic top view of the apparatus of figure 1;

Figure 3 is a side elevation of a carriage;

Figure 4 is a front view of the carriage;

Figure 5 is a top view of the carriage;

Figure 6 is side perspective view of the carriage;

Figure 7 is a front view of a roller of the carriage;

Figure 8 is a front perspective view of another carriage of a dispensing apparatus, partly in exploded view;

Figure 9 is a side view, in cross-section, of the carriage of figure 8; and

Figure 10 is an exploded perspective view of a roller of a dispensing apparatus.

[0024] In the figures, the same of similar parts are annotated with the same reference numerals.

[0025] Referring to figures 1 and 2, a dispensing apparatus comprises an inclined chute 4 which comprises a channel cross-section plastics member of a suitable size to accommodate a product 6 to be dispensed. A carriage 8 is provided upstream of the product and is arranged to urge the product downwardly towards front end 10 of the chute so that, if the forward-most item 6a is removed from the chute the remaining items 6 are shunted forward so that item 6b becomes the forward-most item.

[0026] Referring to figures 3 to 7, carriage 8 comprises a transparent plastics body having a horizontally extending portion 11, from which side members 12 depend. At their forward ends, the side members define angled nose portions 14. A pusher plate 16 comprising a planar member is inclined upwardly from a forward end of portion 10 at the same angle as that defined by said nose portions.

[0027] Two rollers 20 are mounted between the side members 12 with their axes extending parallel to one another. The rollers include stub axles 19 at opposite ends which are a unitary part of the rollers. For example the rollers may be made from a single cylindrical piece of plastics material by removing annular bands of ma-

terial from each end to define the axles.

[0028] The stub axles 19 are rotatable within openings drilled in the side members 12.

[0029] In use, products are placed in the chute 4 and carriage 8 is placed in the chute upstream of the products. The weight of the carriage (due to a not insignificant degree to the density of the rollers 20) and the low friction between it and the chute is such that the carriage rolls forward under gravity to apply a reasonable force behind the product thereby ensuring that product is always at the front of the chute.

[0030] The arrangement of nose portions 14 and pusher plate 16 may be changed depending on the nature of the product being dispensed. For example, if packets of crisps are being dispensed, the gap defined below the pusher plate 16 may be made narrower to prevent the packets being caught up in the gap.

[0031] The carriage shown in the figures may easily be adapted to fit wider chutes. For example, the pusher plate 16 may be made wider or, alternatively, an extension piece may be secured to an existing pusher plate.

[0032] Manufacture of the carriage can be very straightforward. The body of the carriage may be made out of a single piece of plastics material by bending the material to define the side members 12 and pusher plate 16. Polyester glycol (PETG) material is preferred since it has high impact, low moisture absorption and can withstand temperatures of down to -50°C without becoming appreciable brittle. Rollers 20 may be manufactured as described above and are preferably made from natural acetal which is relatively dense and suitable for use in cold storage applications. The rollers may be secured to the body by slightly urging side members 12 apart and engaging stub axles 19 in openings drilled in the side members.

[0033] Referring now to figures 8 to 10, a carriage 40 comprise a plastics injection moulded body 42 which has downwardly open slots 44 for receiving a pair of rollers 46. A roller 46 is shown in figure 10 and it comprises a tubular body 48 in which steel rods (not shown) are inserted for ballast purposes. A pair of end caps 50 which incorporate stub axles 19 are secured within respective ends of the tubes.

[0034] The body 42 includes a front pair 54 and a rear pair 56 of slots which are arranged to engage respective pairs of projections 58 which depend from respective uprights 60 for securing the uprights to the body 42. When in position, the uprights define a gap into which additional products may be placed, thereby to maximise the amount of product stored in the chute 4 of the apparatus. The front upright 60 includes lugs 62 for retaining merchandising tickets (or the like).

Claims

1. Dispensing apparatus comprising an inclined guide means (4) for receiving a product (6) to be dis-

pensed and a carriage means (8) movable within the guide means (4), said carriage means (8) comprising a body (16), said body comprising at its forward end, product contact means (16) for contacting a product (6) to urge it forward, **characterised in that** said carriage means (8) includes at least two rollers (20) for aiding movement of the carriage means, one of said rollers (20) is spaced from another said roller (20) and in which the axes of the rollers (20) are substantially parallel, and wherein the rollers (20) have a width which is greater than 50% of the width of the carriage means (8).

2. Apparatus according to claim 1, wherein said carriage means includes containment means for containing a product (6).
3. Apparatus according to Claim 1 or Claim 2, wherein said guide means (4) is of channel cross-section.
4. Apparatus according to any preceding claim, wherein said carriage means (8) includes axle support means for supporting axles of said rollers.
5. Apparatus according to any preceding claim, wherein said product contact means (16) is a unitary part of a base part of said body which body incorporates axle support means which are also a unitary part thereof.
6. Apparatus according to any preceding claim, wherein said rollers (20) are made out of a plastics material.
7. Apparatus according to any preceding claim, wherein extension means is provided for increasing the width of a forward end of the carriage means (8).
8. A dispensing apparatus kit comprising a guide means (4) for receiving a product (6) and a carriage means (8) as described in any of claims 1 to 7.

Patentansprüche

1. Abgabevorrichtung, die eine geneigte Leiteinrichtung (4), die ein abzugebendes Erzeugnis (6) aufnimmt, sowie eine Wageneinrichtung (8), die in der Leiteinrichtung (4) bewegt werden kann, umfasst, wobei die Wageneinrichtung (8) einen Körper (16) umfasst und der Körper an seinem vorderen Ende eine Erzeugnis-Kontakteinrichtung (16) umfasst, die mit einem Erzeugnis (6) in Kontakt kommt, um es vorwärts zu drücken, **dadurch gekennzeichnet, dass** die Wageneinrichtung (8) wenigstens zwei Rollen (20) enthält, die Bewegung der Wageneinrichtung unterstützen, wobei eine der Rollen (20) von der anderen der Rollen (20) beabstandet ist

und die Achsen der Rollen (20) im Wesentlichen parallel sind und wobei die Rollen (20) eine Breite haben, die größer ist als 50% der Breite der Wageneinrichtung (8).

2. Vorrichtung nach Anspruch 1, wobei die Wageneinrichtung eine Aufnahmeeinrichtung zum Aufnehmen eines Erzeugnisses (6) enthält.
3. Vorrichtung nach Anspruch 1 oder Anspruch 2, wobei die Leiteinrichtung (4) rinnenförmigen Querschnitt hat.
4. Vorrichtung nach einem der vorangehenden Ansprüche, wobei die Wageneinrichtung (8) Achsentrageeinrichtungen zum Tragen von Achsen der Rollen enthält.
5. Vorrichtung nach einem der vorangehenden Ansprüche, wobei die Erzeugnis-Kontakteinrichtung (16) integraler Teil eines Unterteils des Körpers ist, und der Körper Achsentrageeinrichtungen enthält, die ebenfalls integraler Teil desselben sind.
6. Vorrichtung nach einem der vorangehenden Ansprüche, wobei die Rollen (20) aus einem Kunststoffmaterial bestehen.
7. Vorrichtung nach einem der vorangehenden Ansprüche, wobei eine Erweiterungseinrichtung zur Vergrößerung der Breite eines vorderen Endes der Wageneinrichtung (8) vorhanden ist.
8. Abgabevorrichtungs-Bausatz, der eine Leiteinrichtung (4) zum Aufnehmen eines Erzeugnisses (6) und eine Wageneinrichtung (8) nach einem der Ansprüche 1 bis 7 umfasst.

Revendications

1. Distributeur comprenant un moyen de guidage incliné (4) destiné à recevoir un produit (6) à distribuer et un moyen formant chariot (8) mobile dans le moyen de guidage (4), ledit moyen formant chariot (8) comprenant un corps (16), ledit corps comprenant en son extrémité avant un moyen de contact (16) de produit pour toucher un produit (6) afin de le pousser vers l'avant, **caractérisé en ce que** ledit moyen formant chariot (8) comporte au moins deux roulettes (20) pour faciliter le mouvement du moyen formant chariot, l'une desdites roulettes (20) est espacée d'une autre dite roulette (20) et dans lequel les axes des roulettes (20) sont sensiblement parallèles, et où les roulettes (20) ont une largeur qui est supérieure à 50 % de la largeur du moyen formant chariot (8).

2. Distributeur selon la revendication 1, dans lequel ledit moyen formant chariot comporte un moyen de retenue destiné à contenir un produit (6).
3. Distributeur selon la revendication 1 ou 2, dans lequel ledit moyen de guidage (4) est de section transversale en U. 5
4. Distributeur selon l'une quelconque des revendications précédentes, dans lequel ledit moyen formant chariot (8) comporte un moyen de support d'axes pour supporter les axes desdites roulettes. 10
5. Distributeur selon l'une quelconque des revendications précédentes, dans lequel ledit moyen de contact (16) de produit est une partie unitaire d'une partie de base dudit corps lequel corps comporte des moyens de support d'axes qui sont aussi une partie unitaire de celui-ci. 15
6. Distributeur selon l'une quelconque des revendications précédentes, dans lequel lesdites roulettes (20) sont en matière plastique. 20
7. Distributeur selon l'une quelconque des revendications précédentes, dans lequel un moyen d'agrandissement est prévu pour augmenter la largeur d'une extrémité avant du moyen formant chariot (8). 25
8. Kit de distributeur comprenant un moyen de guidage (4) destiné à recevoir un produit (6) et un moyen formant chariot (8) tels que décrits dans l'une quelconque des revendications 1 à 7. 30

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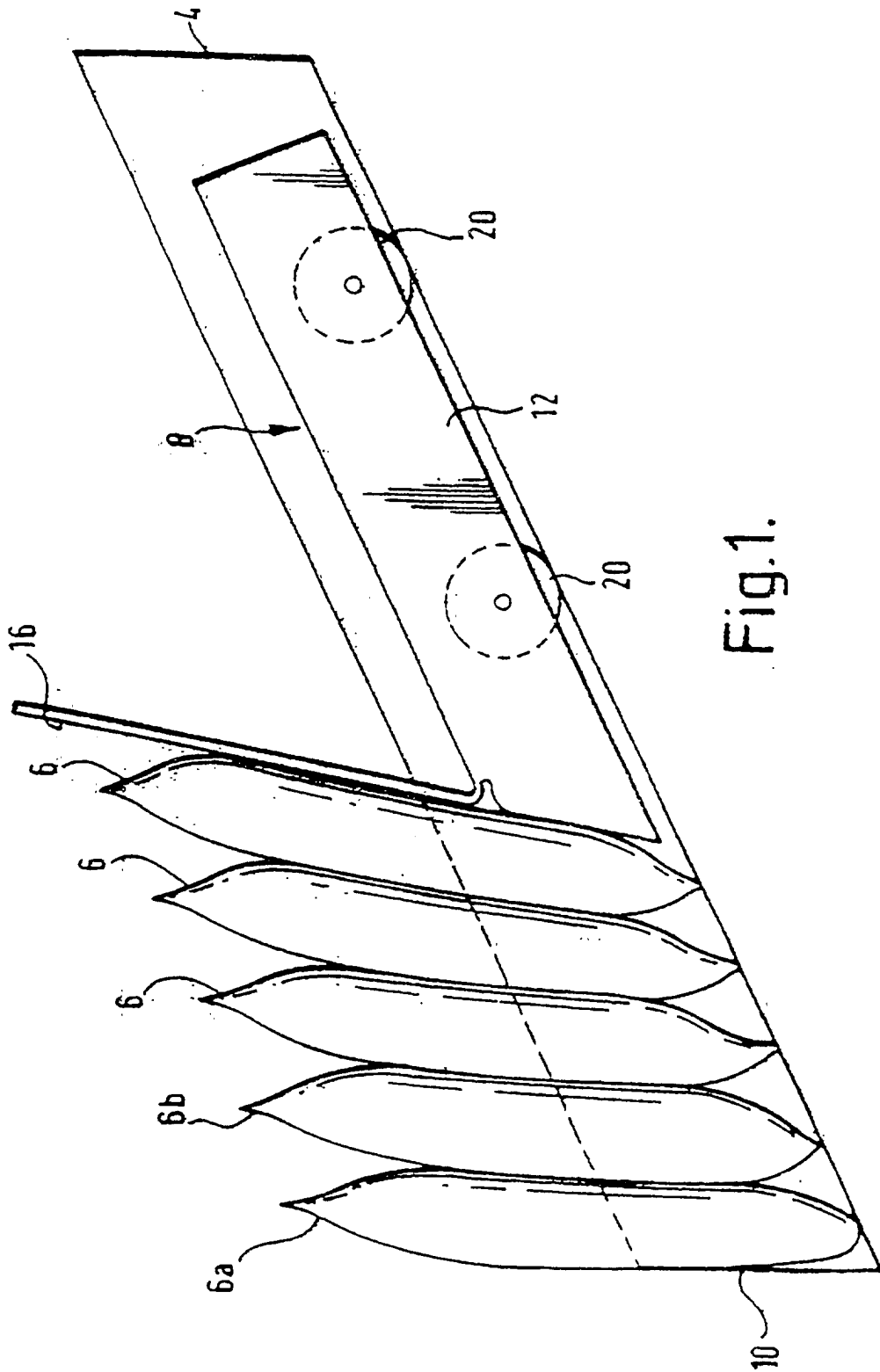
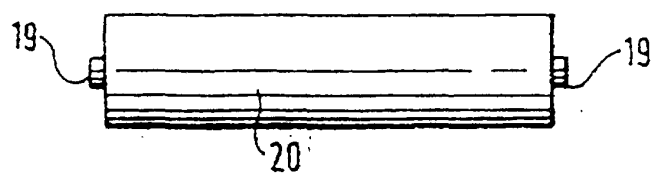
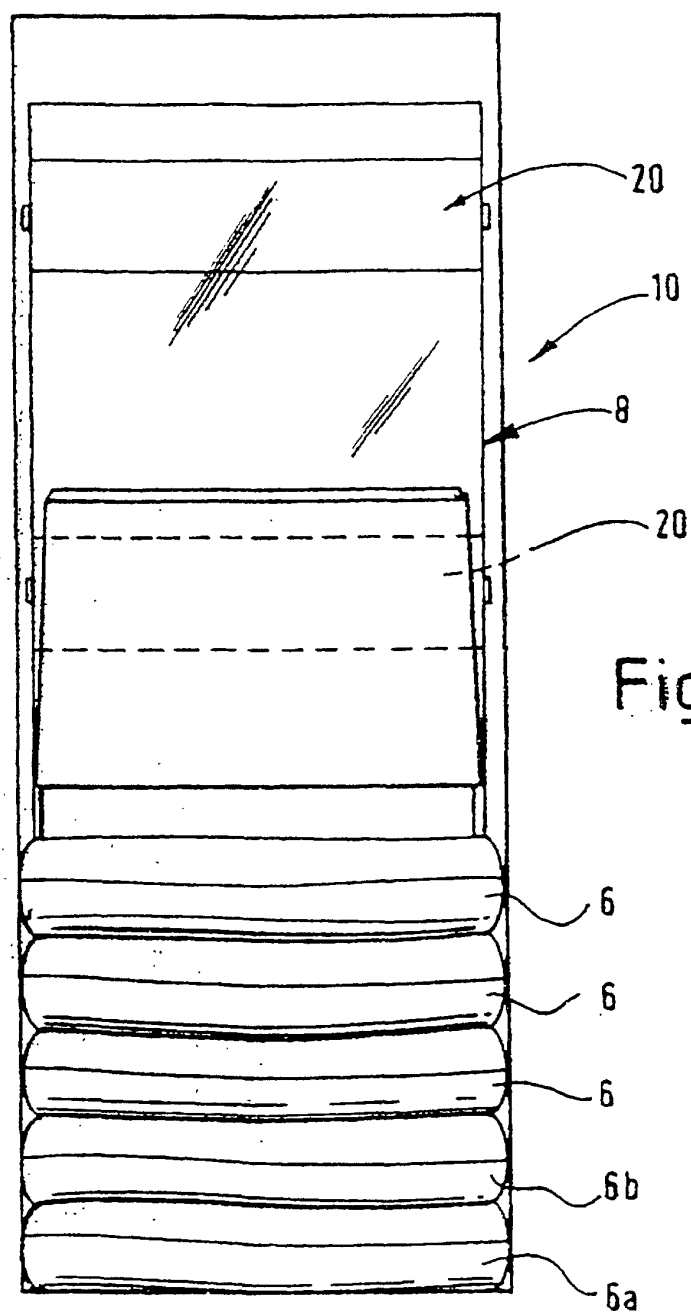


Fig. 1.



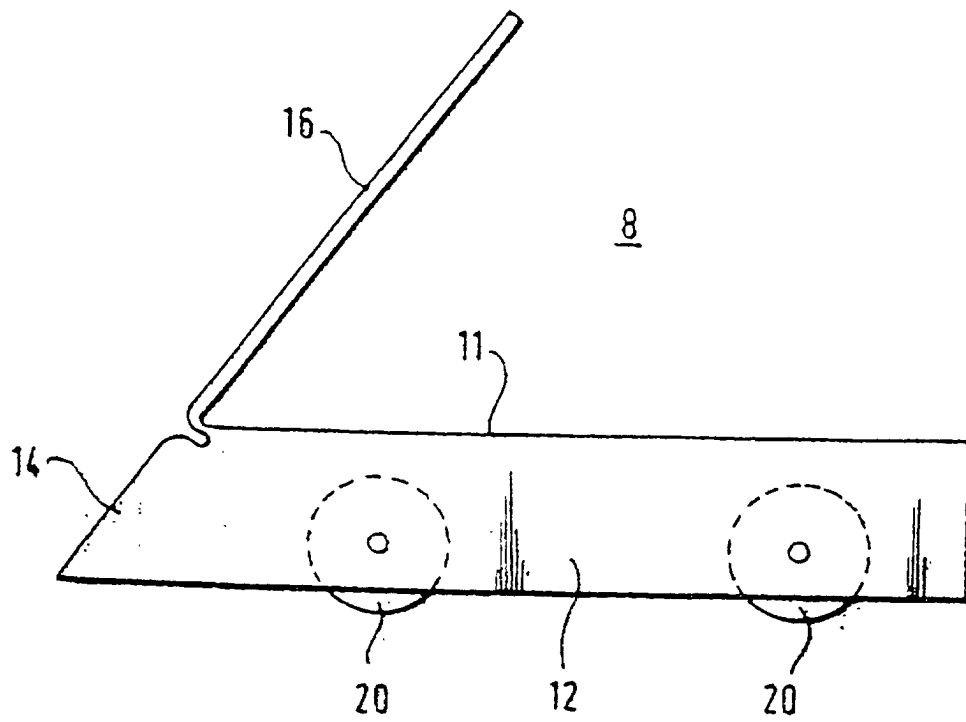


Fig. 3.

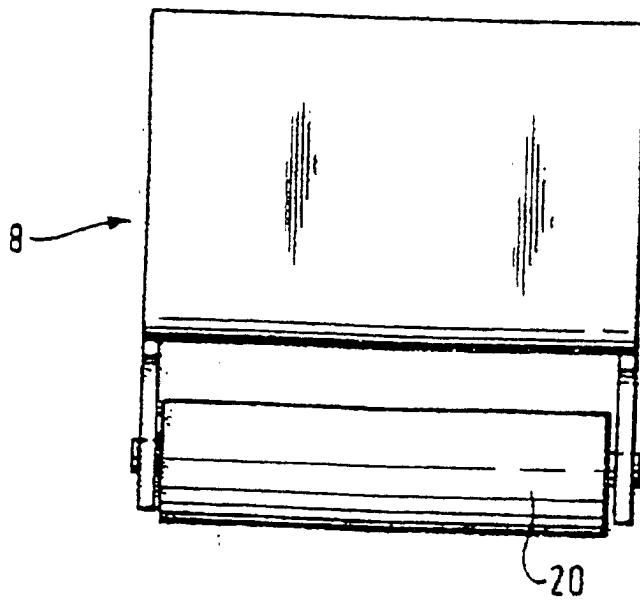


Fig. 4.

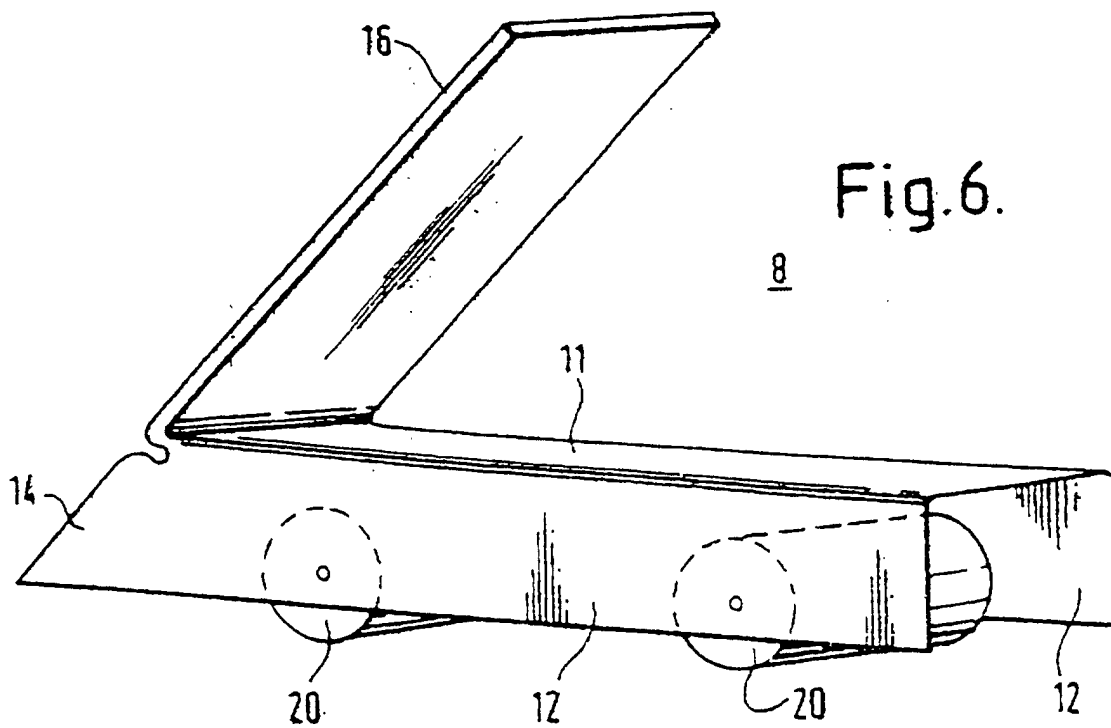
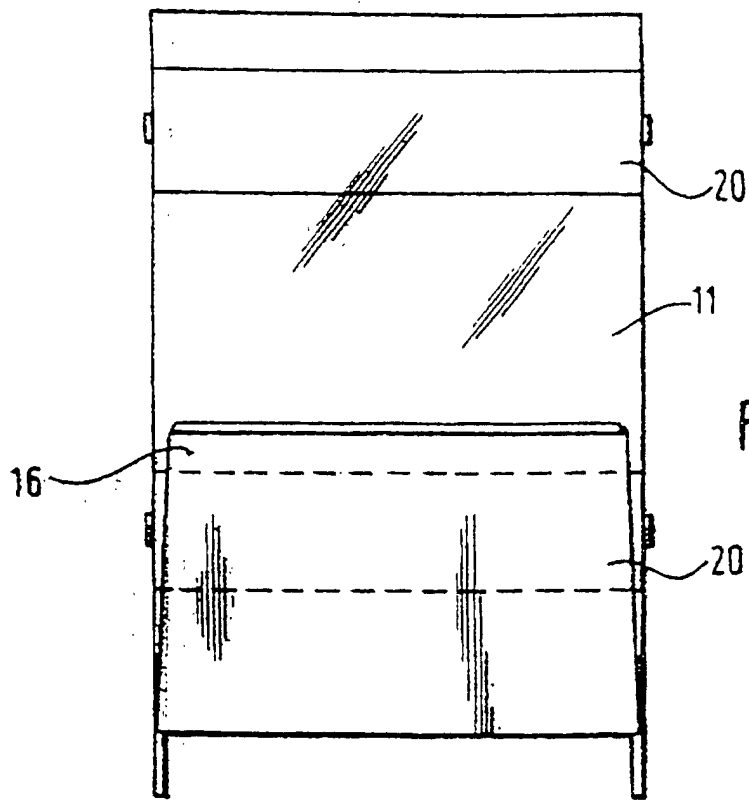


Fig.8

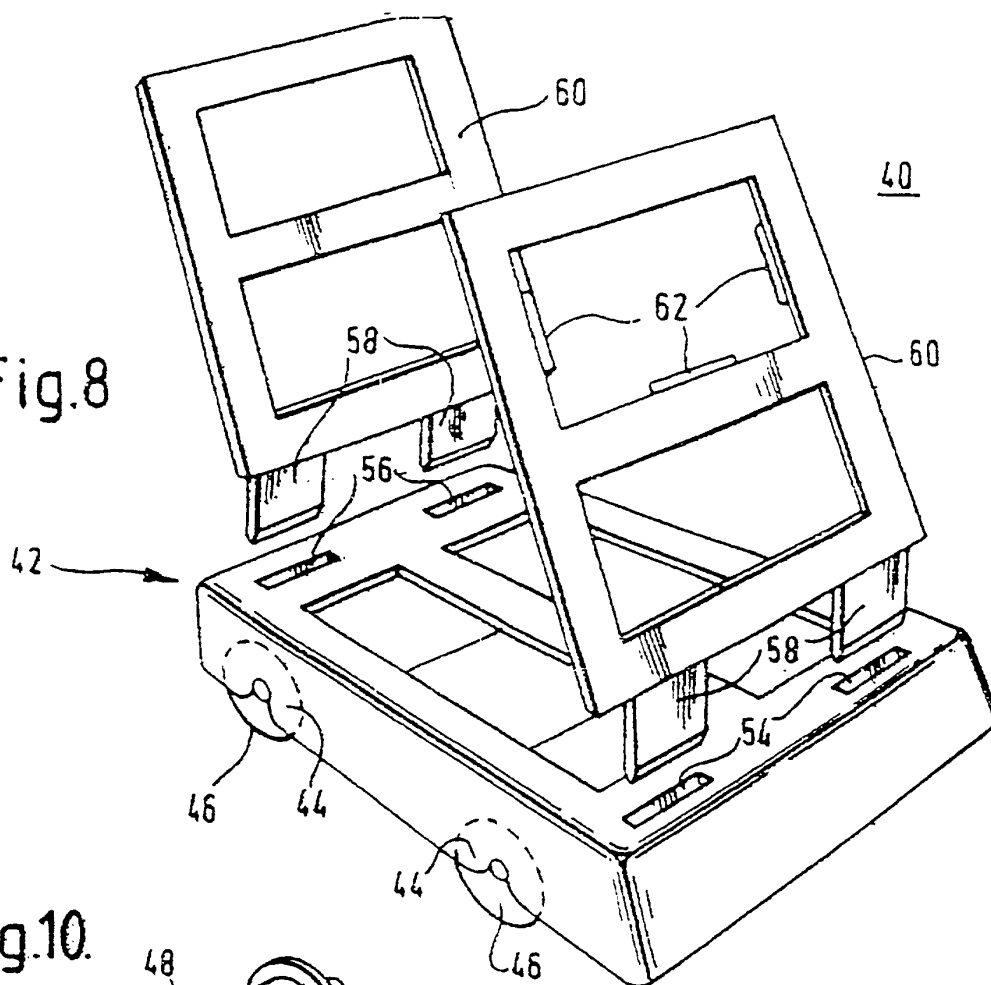


Fig.10.

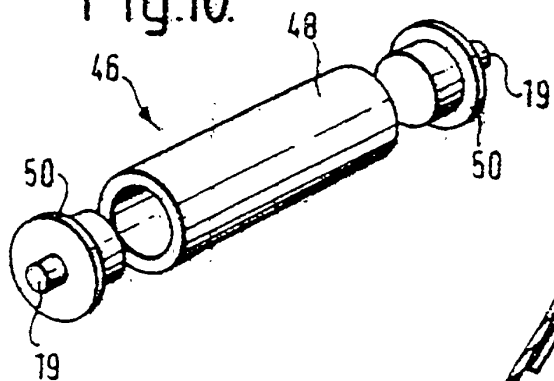


Fig.9.

