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(54) Intermediate element or signalizing member.

(57) An intermediate element to be used as a signalizing member in a series of objects, carried along by means of a conveyor, said element being adapted for a disengageable mounting upon the conveyor and comprising recognizable means for signalizing purposes concerning the nature of passing groups of said objects.

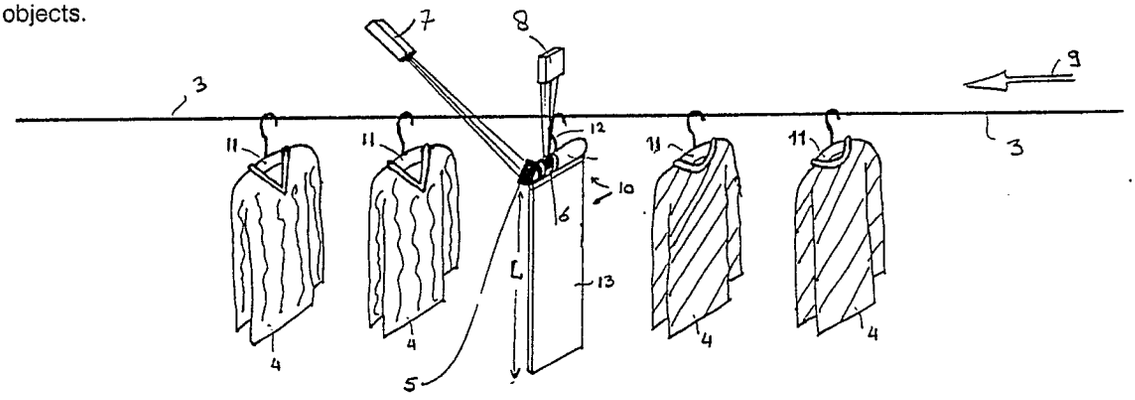

Fig: 6.

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Intermediate element or signalizing member

It frequently arises in industry and also in the wholesale trade (for example in mail-order companies) that certain goods, such as, for example, articles of clothing, are manufactured or purchased in varying numbers, sizes and designs and subsequently have to be stored for some time in such a way that easy and mechanized (automated) further processing is possible. It is possible to use staff for this purpose, who carry out or monitor the further processing, i.e. the sorting and dispatch, by visual means and with the aid of indicators attached to the goods.

In order to be able to separate groupwise objects (goods) differing from each other, which objects are presented in series behind each other to a specific treatment or to a processing machine, so-called separation elements can be positioned between the different series. In this manner a group of objects can be submitted to a specific treatment in a machine or a process. In consequence of the fact that the goods are presented in a specific sequence, the control means are able at the moment of detection of a separation element, to switch to the next recipe belonging to the subsequent series. It is also possible in case the sequence of the goods is not exactly predetermined, to find the concerning recipe in the control means by typing or scanning the correct article code. The use of separation elements has in that case the additional function of determining the exact number of objects.

In connection with the increase in productivity which is strived for on all sides and with a view to a saving in costs, there is a demand in the trade for a facility which simplifies or fully automates the said monitoring operations.

The aim of the invention is to meet this need by providing an intermediate element, to be used as a signalizing member in a series of objects which can be advanced by means of a conveyor and in this manner may be temporarily stored in order to be finally discharged selectively.

The aim for mechanization of the selection and sorting of the goods is achieved with the new intermediate element or signalizing member in that the intermediate element is adapted for a disengageable mounting on the conveyor which element is further provided with visually, magnetically, electronically and/or optically recognizable means capable of cooperation with scanners or senders respectively positioned near the conveyor for producing a signalizing possibility with respect to passing groups of objects.

The inventive concept is situated in the fact that the intermediate element is differing in such a manner from the presented goods, that this element will be automatically detected. This can be obtained by means of colour, shape, degree of reflection, magnetism etc. The detection can be effected upon every feasible manner, provided a signal can be derived therefrom, with which the further processing of the first following group of objects can be controlled.

Preferably the recognizable means are embodied by a code which during scanning produce a signal which is not only unique for the nature of the first arriving group of objects (so-called identification) which also furnishes information for the further processing, treatment or delivery. This can be realized for instance by means of a so-called bar code or chip with a burned-in unique code. In this manner it is possible by means of additional checks upon the predetermined code, to indicate with certainty which separation element is presented at that moment. The recognizable means which are applied in this manner, have the additional advantage that already in a premature stage, the coherence or relationship between the separation elements and the data belonging to the goods lying downstream of this element, can be incorporated into the control. In this way the necessity for maintaining a specific sequence in the series, can be disposed of.

In an embodiment in which the conveyor is provided with catching members within which the objects such as for instance garments can be collected (vide EP-A-0 234 653) the intermediate element is embodied as a signalizing member fitting upon one of the catching members.

In another embodiment in which the conveyor is adapted for propelling clothes hangers, each carrying a garment (vide EP-A-0 307 045) the intermediate element is composed of a hook-shaped part and a material strip with a vertical dimension mainly corresponding to the average height of the garments carried along, said intermediate element forming a separation hanger, one of the parts of this separation hanger being provided with the recognizable means.

The invention will be illustrated in more detail with the aid of the drawing which shows several embodiments of the new intermediate element.

Fig. 1 is a perspective view of a first embodiment of the intermediate element, applied upon a conveyor of the device according to NL-A-73 05636, vide also EP-A-0 234 653.

Fig. 2 is a plan view of this embodiment.

Fig. 3 shows a variant of the intermediate element adapted for application upon a device according to EP-A-0 307 045.

Figs. 4 and 5 are a longitudinal section and a front view respectively of one of both ends of the tubular-shaped section from fig. 3.

Fig. 6 gives a simplified perspective image of the variant according to figs. 3-5.

The intermediate elements in the embodiment according to figs. 1 and 2 consist of a mounting piece 1 positioned into, or detachably fastened upon a catching member 2 which in this case consists of a splitting tray described in NL-A-73 05636. As shown in fig. 2 there are a plurality of such catching members 2 which are mutually connected by a conveyor 3 for instance a cable or a chain schematically represented, which conveyor together with the members 2 travel in a closed path above a number of discharge stations and the catching members (splitting trays) will contain a quantity of goods 4 which by the opening of the splitting tray will land in a previously determined discharge station.

The mounting piece 1 is provided with a bar code 5 and with a reflecting surface 6 clearly differing from the remaining surface of the mounting piece. These provisions 5 and 6 together form the recognizable means of the intermediate element according to this invention. By means of the addition of this intermediate element to the shown catching member 2, this member distinguishes itself from the adjacent catching members and consequently provides a signilizing possibility with respect to passing members 2 with the goods 4.

Near the conveyor 3 and at the location of a discharge station, there is a scanner 7 directed towards the bar code 5. There is also a optical sender-receiver combination 8 directed upon the surface 6. The conveyor 3 travels in the direction of the arrow 9 and as soon as an intermediate element 1 passes along the scanner 7 and/or the sender-receiver combination 8, a signal will be generated comprising information about the nature of the goods 4 belonging to the first arriving group of catching members 2. This signal can also comprise information concerning the further processing of the goods 4 and of the location of discharge.

The intermediate element 10 shown in the figs. 3-6 can be used as a separation hanger with an installation such as described in EP-A-0 307 045, for conveying, storing and discharging of goods such as a series of objects, for example garments.

Each article of clothing is carried separately by a clothes hanger 11. The intermediate element 10 essentially consists of two parts, that is to say a hook-shaped first part 12 that is intended for cooperation with the schematically shown conveyor 3. The second part of the intermediate elment consists of a strip 13 of material which is attached beneath the hook-shaped first part 12. The strip 13 consists of a rugged plastic web having a length L which is explained in more detail in a further part of this description.

The hook-shaped part 12 of the intermediate element 10 essentialy corresponds to a conventional hanger element (a clothes hanger) for articles of clothing but may differ in that the part 12 has a deviating shape in the height and/or breadth direction (vide Fig. 3). When the intermediate element 10 is hung next to or between a number of clothes hangers 11 located on the same conveyor 3, the said deviating shape of the hook-shaped part 12 makes it possible to detect the position of the separation hanger. In Fig. 3 the hook-shaped part 12 consists, in a conventional manner, of a bent robust wire with a circular cross-section. The convex top of the hook-shaped part 12 has an elevation 14 which in this case consists of a bent strip of rectangular cross-section which is attached to the hook-shaped part 12, for example by welding.

The variant according to Fig. 3 differs further to the extent that there is a tubular section 16 between the hanger element or hook-shaped part 12 and the strip 13 of material. This section 16 can serve, for example, to receive a power source such as a battery 17 (see Fig. 4). The tubular section 16 is attached at one side to the hook-shaped part or hanger element 12, while at the other side a U-shaped mounting 18 is fitted for securing the strip 13 of material therein. Advantageously, the presence of the tubular section 16 can be utilized by fitting therein an insertable plug 19 which on its visually observable outer part is provided with a sloping surface 20 with optically readable means 5, 6 intended for obtaining information with regard to the nature of the separated articles or articles of clothing.

It is conceivable to provide the surface 20 with a bar code and further information, which may or may not be magnetic, in order to fully automate processing during the further handling (transporting and sorting) of the goods. A sorting installation which is particularly suitable for this purpose has been disclosed in NL-A-70 08371. In particular it is the sorting of articles of clothing supplied in large quantities which is concerned here, it being possible to separate these groups from one another in an advantageous manner by means of the intermediate element in question. The length L of the strip 13 of material then essentially corresponds to the mean length of these articles of clothing (vide Fig. 6).

Claims

1. Intermediate element applicable as a signalizing member in a series of objects which are advanced by means of a conveyor and in this

manner may be temporarily stored in order to be finally discharged selectively, characterized in that the intermediate element (1, 10) is adapted for a disengageable mounting on the conveyor (3) which element is further provided with visually, magnetically, electronically and/or optically recognizable means (5, 6) capable of cooperation with scanners (7) or senders (8) respectively positioned near the conveyor for producing a signalizing possibility with respect to passing groups of objects.

2. Intermediate element according to Claim 1, characterized in that the recognizable means (5, 6) are embodied by a code which during scanning produce a signal which is not only unique for the nature of the first arriving group of objects (so-called identification) which also furnishes information for the further processing, treatment or delivery.

3. Intermediate element according to Claim 1 in which the conveyor is provided with catching members within which the objects such as for instance garments can be collected, characterized in that the intermediate element (1) is embodied as a signalizing member fitting upon one of the catching members (2) (fig. 1, 2).

4. Intermediate element according to Claim 1 in which the conveyor is adapted for the propulsion of clothing hangers each carrying a garment, characterized in that the intermediate element (10) is composed of a hook- shaped part (12) and a material strip (13) with a vertical dimension (L) mainly corresponding to the average height of the garments (4) carried along, said intermediate element forming a separation hanger, one of the parts of this separation hanger being provided with recognizable means (5, 6) (fig. 3-6).

5. Separation hanger according to Claim 4, characterized in that the recognizable signalizing means (5, 6) are located in the uppermost part of the strip (13) for obtaining information with regard to the nature of the separated groups of objects.

6. Separation hanger according to the Claims 4 or 5, characterized in that between the hook-shaped part (12) and the material strip (13) a tubular section (16) is provided for receiving the recognizable signalizing means (5, 6) and/or a power source, such as a battery (17) (fig. 4).

7. Separation hanger according to Claim 6, characterized in that the tubular section (16) cooperates at least at one end with an insertable plug (19), which along its visually observable outer part is provided with the recognizable signalizing means (5, 6).

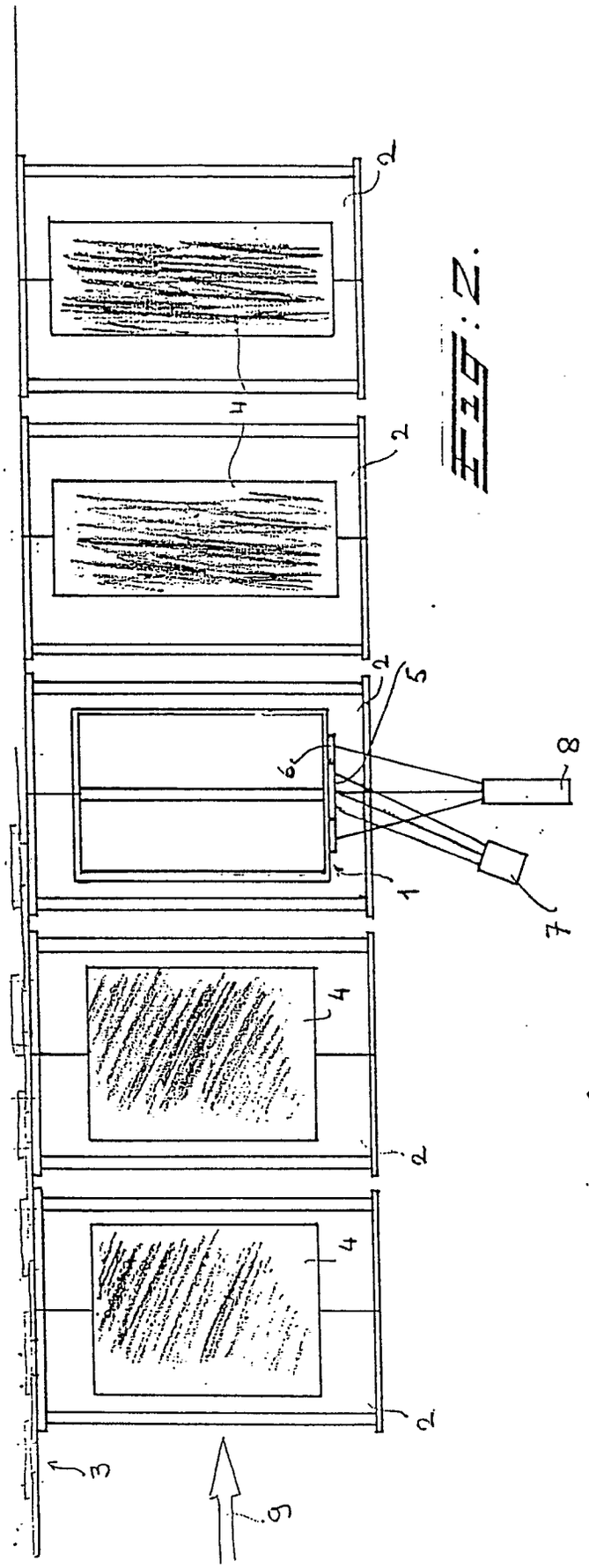

Fig.2.

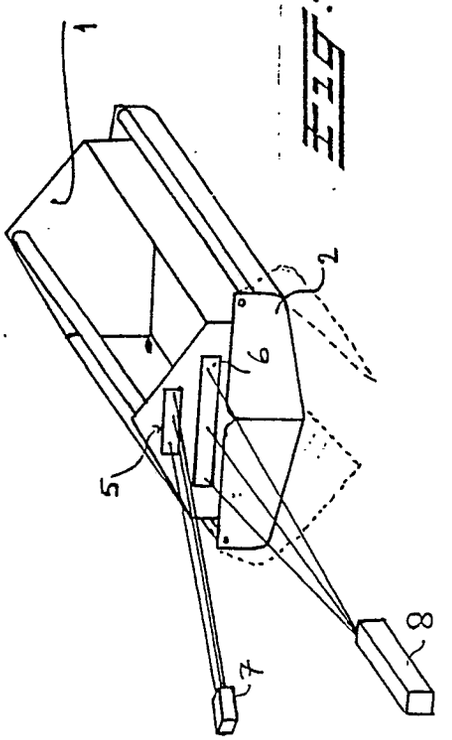

Fig.1.

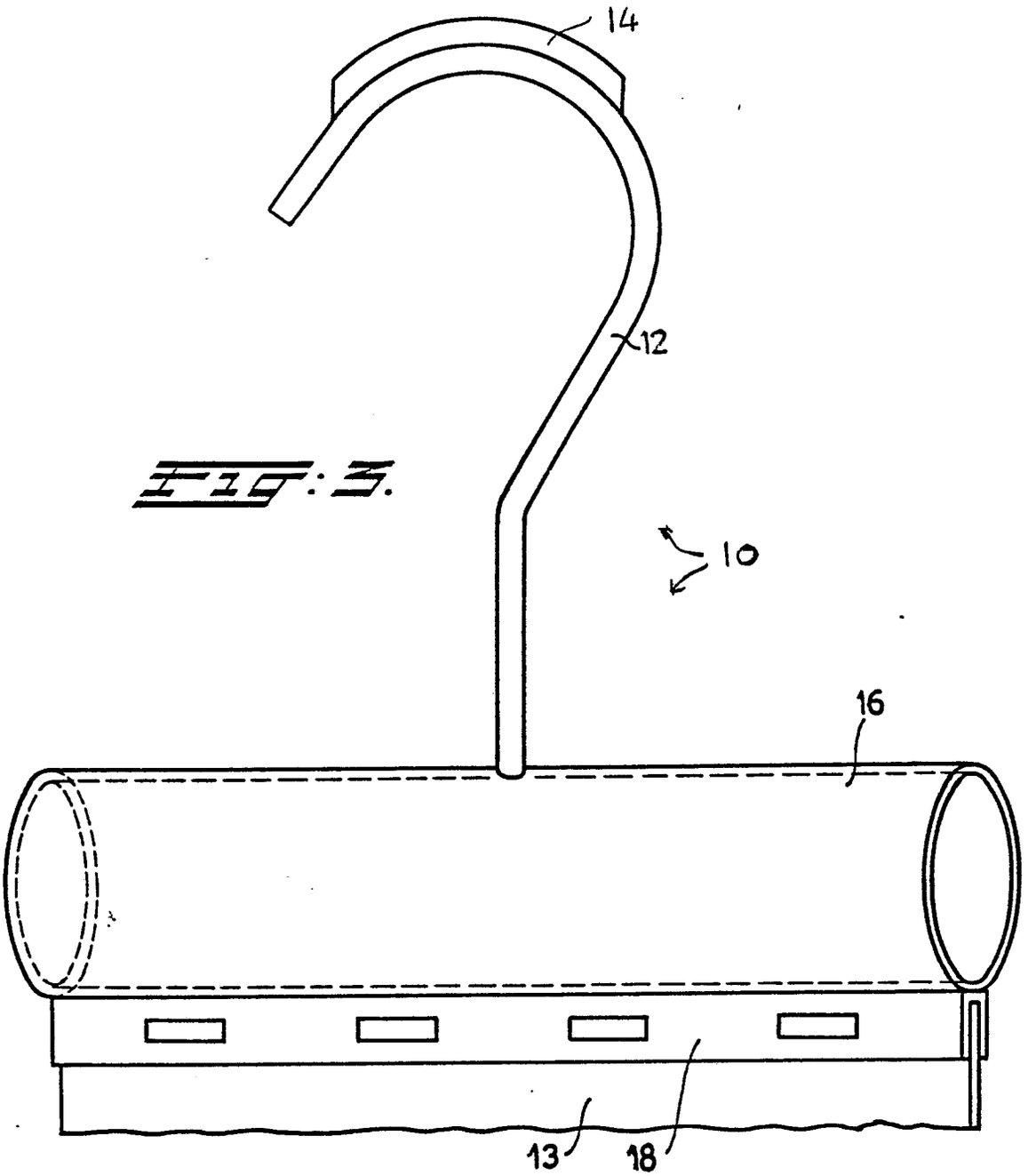

Fig: 3.

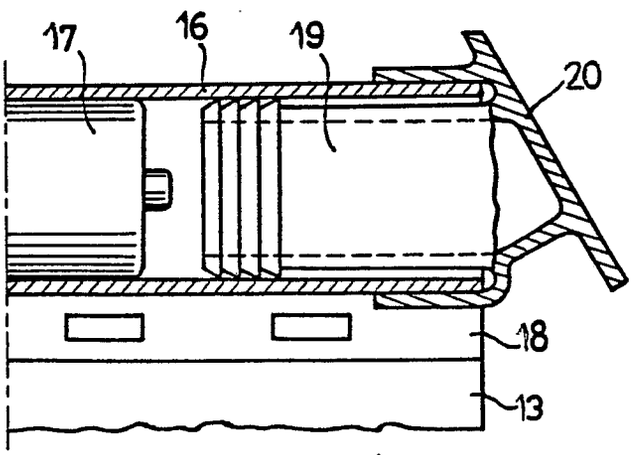

Fig: 4.

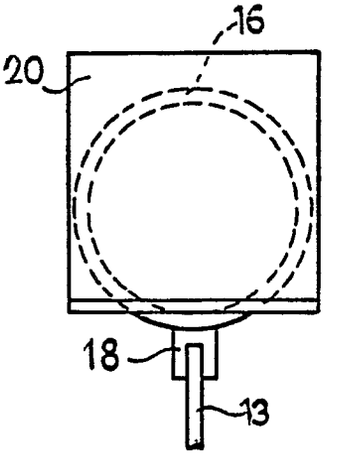

Fig: 5.

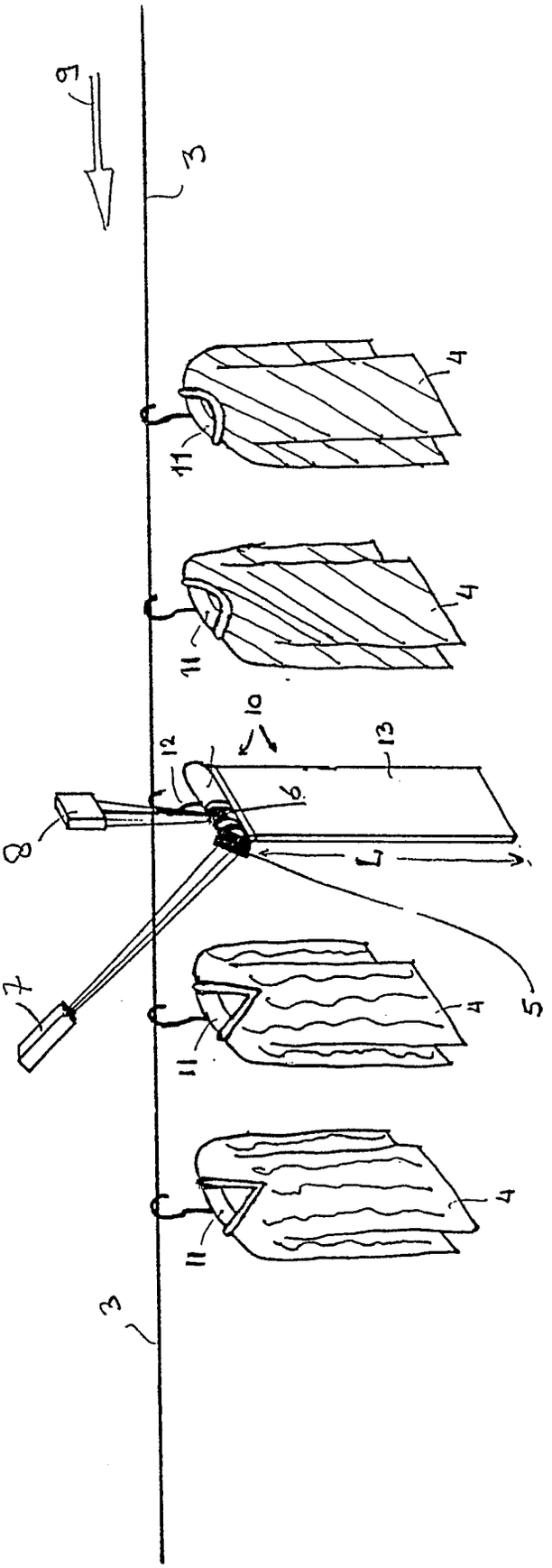

FIG. 6.

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EUROPEAN SEARCH REPORT

Application Number

EP 89 20 3304

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-3401816 (MAWA-METALLWARENFABRIK WAGNER) * figures 1, 4 *	1-3	A47G25/14 B65G47/50
X	GB-A-2203033 (PENDY PLASTIC PRODUCTS) * page 3, lines 4 - 9; figure 1 *	1, 4, 5	
X	US-A-4756104 (BAILEY) * figures 1, 2 *	1, 6	
A	DE-A-3523554 (ORTLOFF)		
A	EP-A-0255353 (WILLETT INTERNATIONAL)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A47G
B65G
B61B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06 APRIL 1990	BEUGELING G.L.H.

CATEGORY OF CITED DOCUMENTS

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