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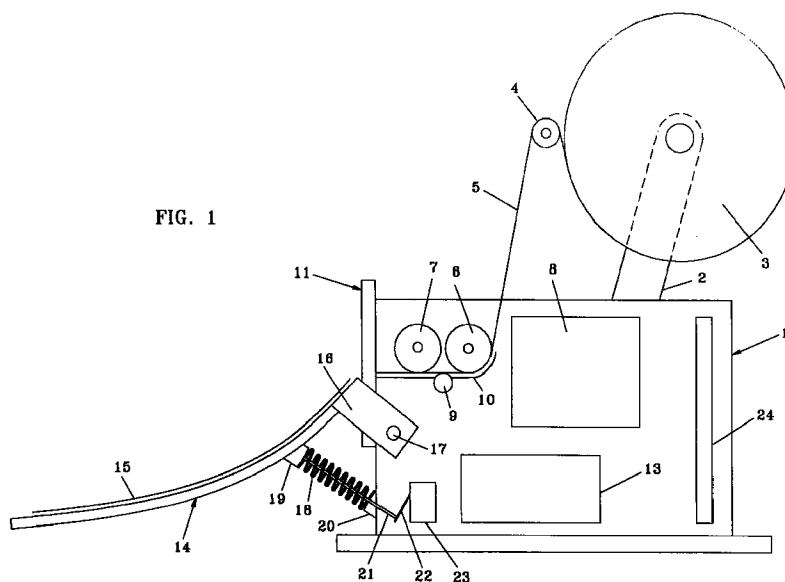
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(54) **Adhesive tape dispensing device**

(57) The invention relates to an adhesive tape dispensing device provided with a holder (2) for a roll of adhesive tape (3), a driving member (8) and driving rolls (6,7) for transportation of the adhesive tape (5) and a cutting member (11) for severing the adhesive tape whereby means are provided to transport the adhesive

tape over a previously determined length and subsequently sever it, and whereby is further provided for a freely protruding support member (14) on which the severed strips (15) come to rest with their adhesive side upwards.



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Description

The invention relates to an adhesive tape dispensing device provided with a holder for a roll of adhesive tape, a driving member for transporting the adhesive tape and a cutting member for severing of the adhesive tape.

Such adhesive tape dispensing devices are known and are used in for instance shops. These known devices have mostly to be operated by hand, in the sense that with a lever the transportation of the adhesive tape is effected, after which the strip of adhesive tape hanging from the device has to be held by hand and to be severed from the adhesive tape on the roll against a cutting member, mostly a milled edge. Thereafter the strip of adhesive tape can be placed on the intended spot, whereby care should be taken that the strip of adhesive tape does not wholly or partially double up and sticks unto itself. In order to as much as possible prevent this from happening a strip of a certain length shall mostly be held with both hands, which has the disadvantage that the adhesive force of the adhesive tape can be partially annihilated, that one's fingers become sticky and that the objects to which the tape should be applied cannot be held.

The invention aims at meeting these disadvantages and at providing an adhesive tape dispensing device whereby it is possible to further handle the strips of adhesive tape without having to hold these by hand.

Accordingly the invention provides that means are provided to transport the adhesive tape over a previously determined length and subsequently to sever it and that is provided for a support member intended to receive the previously determined length of severed adhesive tape and to support it, whereby the adhesive tape is guided in such a way that it comes to rest with the adhesive side away from the support member.

The means provided take care of the actuation of the driving member and the cutting member and are realized in such manner that, after having been actuated, only one strip of adhesive tape is transported over the previously determined length and severed. The severed strip of adhesive tape then comes, the adhesive side turned upwards, to rest on the support member.

This has the clear advantages that the strip of adhesive tape does not need to be held by hand and that therefore one can use one's hands to keep the parts on which the strip of adhesive tape has to be stuck together in place.

The placing of the strip of adhesive tape is then effected by bringing the object to which the strip of adhesive tape has to be applied to against the strip, which depending on the shape of the object, can be done by either pushing the object directly onto the strip, or by guiding the object with a rolling movement over the strip, whereby the support member provides the necessary counter force.

The means providing the actuation of the driving and cutting member consist primarily in an electronic

control circuit, with which it is possible to accurately adjust the desired length of the severed strip of adhesive tape, to time the moment of cutting immediately after transportation and with which the desired minimal time between transportation and severing of consecutive strips of adhesive tape can be adjusted.

The actuation of the means can be effected through either making or breaking of a contact. For this there exists a whole range of possibilities, like for instance push buttons to be worked either by hand or foot, interruption of optical signalling means and acoustical signalling means.

According to a preferred embodiment of the device according to the invention it is provided that the support member is movable counter to the action of a stopping member, wherewith near the end of the movement a switch member is worked.

With this embodiment the device is extremely well fit to apply strips of adhesive tape in large series in a simple and easy way. With each applying movement the support member is repositioned, the switch worked and therewith the dispensing of a following strip of adhesive tape actuated. Depending on the speed at which each following action can be actuated, the time between the offering of consecutive strips can be optimally adjusted.

Although this last characteristic seems not to be of the greatest importance, it however is really that important. As an example the wrapping in plastic of small piece-goods like salad crops can here be taken. The consumer increasingly expects salad to be offered not only in plastic bags but the plastic bags to be sealed tight. As an average a wrapper has to wrap 12 salad crops per minute, which makes it easy to see that one second of delay between consecutive strips means 1 or 2 crops of salad less per minute, a production loss of approximately 8-16%.

A further feature of the invention is that the support member, or at least that part of the support member that comes into contact with the object to be provided with the adhesive tape, is interchangeable in order for specific objects to dispose of an adapted support member.

The processing of wet products like the aforementioned example of salad crops, contains the risk that the strip of adhesive tape, because of drops of water left on the support member, cannot be guided evenly over the member and potentially curls and doubles.

In order to prevent this from happening it is provided according to a further elaboration of the device according to the invention that the support member consists of two or more narrow, parallel strips. When using a somewhat narrower tape the support member can be replaced by one having a meshlike structure.

Except for consisting of narrow strips or having a meshlike structure, the shape of the support member can also be determinant for the ease with which the action is performed. For use with crops of salad for instance, a slightly curvingly shaped support member, whereby the strip of adhesive tape rests on the concave part of the member, has proven very effective.

In the following the invention is further elucidated upon with the help of the drawing, in which

fig.1 schematically shows a side view of the device according to the invention, and
fig.2 schematically shows a front view of the device according to the invention.

In fig.1 with 1 the housing of the device is indicated, where to a support arm 2 for a roll of adhesive tape 3 is fixed. The roll shown in the picture is of relatively minor length and for tape jobs involving the need for larger lengths of adhesive tape, the support arm can be replaced by a bigger and heavier type in order for so called machine rolls to be used as well. Machine rolls have a length of tape that is approximately ten times bigger than that of the roll represented here.

The tape 5 advances on the roll 4 in such a way that the adhesive side of the tape 5 primarily comes to rest upwards.

The tape then advances on the respective rolls 6, 7 which are both driven, although at different speeds. The driving is effected by a driving member 8, whereby the driving can for instance be transmitted with the help of a driving chain to the first roll 6 and from the first roll 6 with gear wheels to the second roll 7. By way of the choice of gear wheels it is achieved that the gear wheels turn in the same direction and at different speeds.

The second roll 7 turns faster than the first roll 6 in order to attain that the tape gets loose from the first roll 6. This is necessary because the first roll has to provide constant transportation of the tape and therefore is realized in such a way that the tape more or less sticks to it. The second roll 7 has a smaller contact surface that touches the tape, which can be achieved with several narrow rolls next to each other on one axle, whereby moreover the surface can be made to have relief to it.

Below the rolls 6, 7 is placed a support roll 9, which further is provided with a guide 10. The guide 10 expands from the first roll 6 till the cutting member 11 and consists preferably of several parallel wire elements. The mutual distance between and the thickness of these wire elements is such that a sufficient number of elements supports the tape 5.

The cutting member 11 has a knife 12 (see fig.2) and a not further indicated counter knife, such that at moving downward of the knife 12 a scissor like movement is obtained, by way of which the tape 5 can be cut. The movement of the knife 12 is effected with the help of an electromagnet 13 through a not further indicated mechanical transmission. The transmission, because of considerations of safety, is realized in such a way that the greatest force is obtained towards the end of the stroke.

The cutting movement is executed after the tape has been transported for the adjusted distance and therefore has come to rest on the support member 14. In the figure a severed strip of adhesive tape is indicated by 15. The strip 15 rests at a certain distance of the cut-

ting member 11, although in reality the tape end may be closer to the cutting member 11 than shown in the figure.

The support member 14 is, by way of a brace 16 and an axle 17 pivotable with respect to the housing of the device. Below the support member at some distance from the pivot point 17 a stopping member 18 is placed, which in the example given consists of a pusher spring. At both sides of the pusher spring 18 are placed respectively adjoining surfaces 19, 20 on support member 14 and the housing of the device, whereby adjoining surface 19 has a throughgoing pin fixed to it that projects until inside the housing of the device.

The pin 21 is in touch with an arm 22 of a switch 23. Whenever now an object is brought against the severed strip of adhesive tape, simultaneously the support member 14, counter the action of the spring 18, is moved downwards and makes or interrupts switch 23 a contact. This signal is further processed in the signal processing unit 24, and a following strip of adhesive tape is transported and severed.

In the signal processing unit 24 it can be adjusted in a way not further indicated, over what length the tape is transported, the moment of severing and the time between reception of the signal of switch 23 and the starting of the transportation of the tape.

In fig.2 it is shown that the support member is wider than the severed strip of adhesive tape 15, which of course is not absolutely necessary. The member shown is a closed surface, but other forms are also possible and depending on the circumstances also better. A support member consisting of several parallel narrow elements which extend lengthways the support member, is to be preferred in wet circumstances, because herewith it can be prevented that the severed strip of adhesive tape occasionally does not slide over the member and doubles up.

In order for the device according to the invention to be made fit for divers objects to be taped, the invention provides for different support members. A simple form of attachment could consist of the support surface of the member to be attached in a simple way to the unit formed by the brace 16, adjoining surfaces 19, 20 and stopping member 18 with pin 21.

Furthermore it can be provided that the stopping member is interchangeable as well, resulting in obtaining different effective counter actions. In order not to let the amount of travel of the support member be too big, which might cause damage to the switch 23, a stop shoulder can be provided, whereby it is possible as well to have the spring 18 itself function as stop shoulder.

Claims

1. Adhesive tape dispensing device provided with a holder for a roll of adhesive tape, a driving member for transportation of the adhesive tape and a cutting member for severing of the adhesive tape, **characterized in that** means are provided to transport the

adhesive tape over a previously determined length and subsequently to sever it and that a support member is provided for, destined to receive and support the previously determined length of severed tape, whereby the adhesive tape is guided in such a way that it comes to rest with the adhesive side away from the support member.

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2. Adhesive tape dispensing device according to claim 1, **characterized in that** the means take care of the actuation of the driving member and the cutting member and are realized in such a manner on that after actuating one previously determined length of adhesive is being transported and severed.

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3. Adhesive tape dispensing device according to claims 1-2, **characterized in that** the device is provided with a switch member for actuation of the means.

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4. Adhesive tape dispensing device according to claims 1-3, **characterized in that** the support member is movable counter the action of the stopping member, whereby near the end of the movement the switch member is operated..

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5. Adhesive tape dispensing device according to one or more of the preceding claims, **characterized in that** the support member is interchangeable in order to be able for each application to attach a specific support member.

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6. Adhesive tape dispensing device according to one or more of the preceding claims, **characterized in that** the support member protrudes freely from the device.

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7. Adhesive tape dispensing device according to claims 5-6, **characterized in that** the support member consists of two or more narrow parallel strips, which extend lengthways the member.

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8. Adhesive tape dispensing device according to claims 5-6, **characterized in that** the support member has a mesh-shaped structure.

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9. Adhesive tape dispensing device according to one or more of the claims 5-8, **characterized in that** the support member is curved, whereby the lengths of adhesive tape come to rest on the concave side of the support member.

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10. Adhesive tape dispensing device according to one or more of the claims 5-9, **characterized in that** the support member consists in a pivot part and a support part, whereby the support part is in detachable fashion attached to the pivot part.

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11. Adhesive tape dispensing device according to one

or more of the claims 5-10, **characterized in that** the length and width of the support member are larger than the previously determined length and width of the adhesive tape.

12. Adhesive tape dispensing device according to one or more of the preceding claims, **characterized in that** the device is provided with a set of driving rolls, whereby the roll adjoining the cutting member turns faster than the preceding roll.

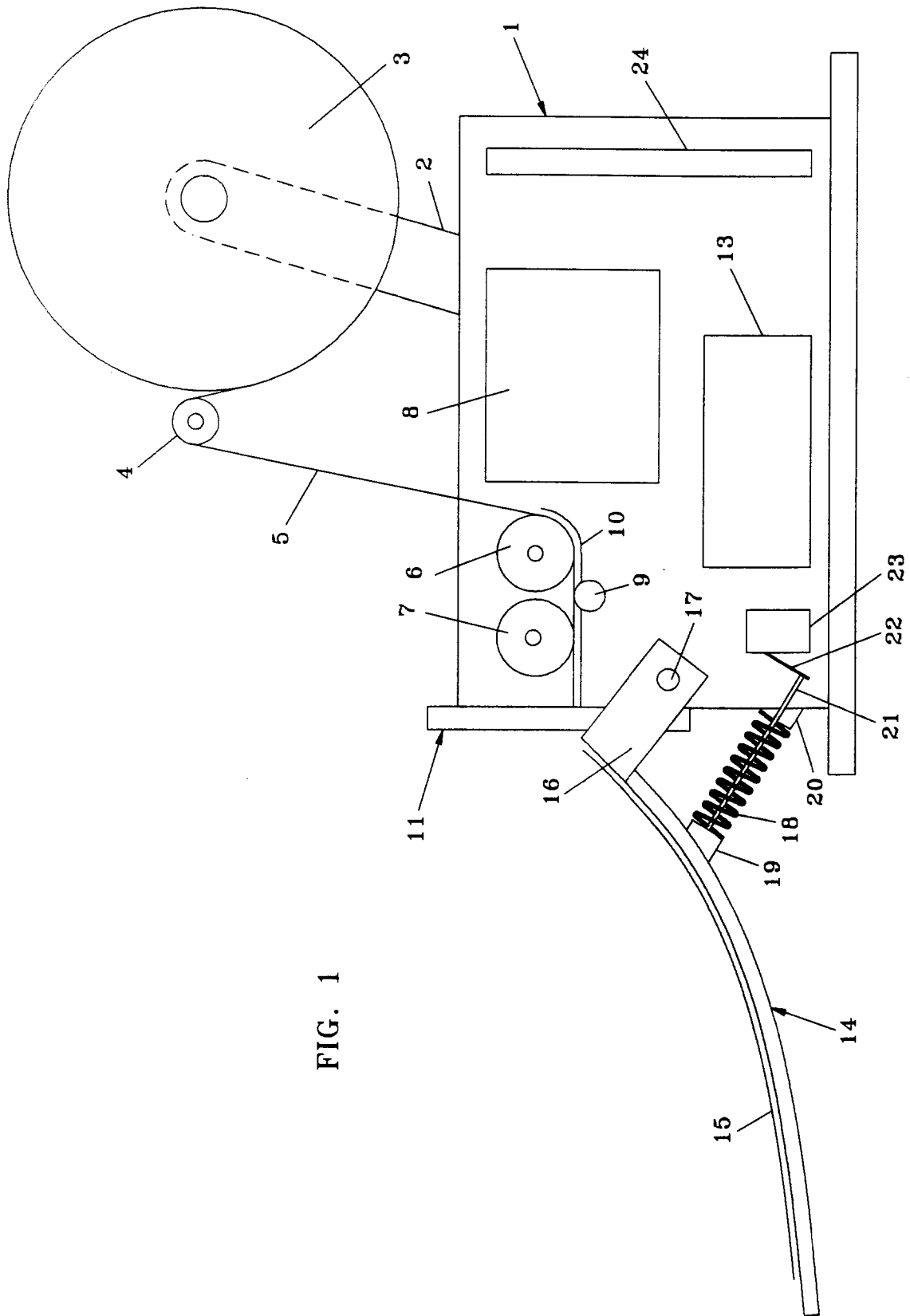


FIG. 1

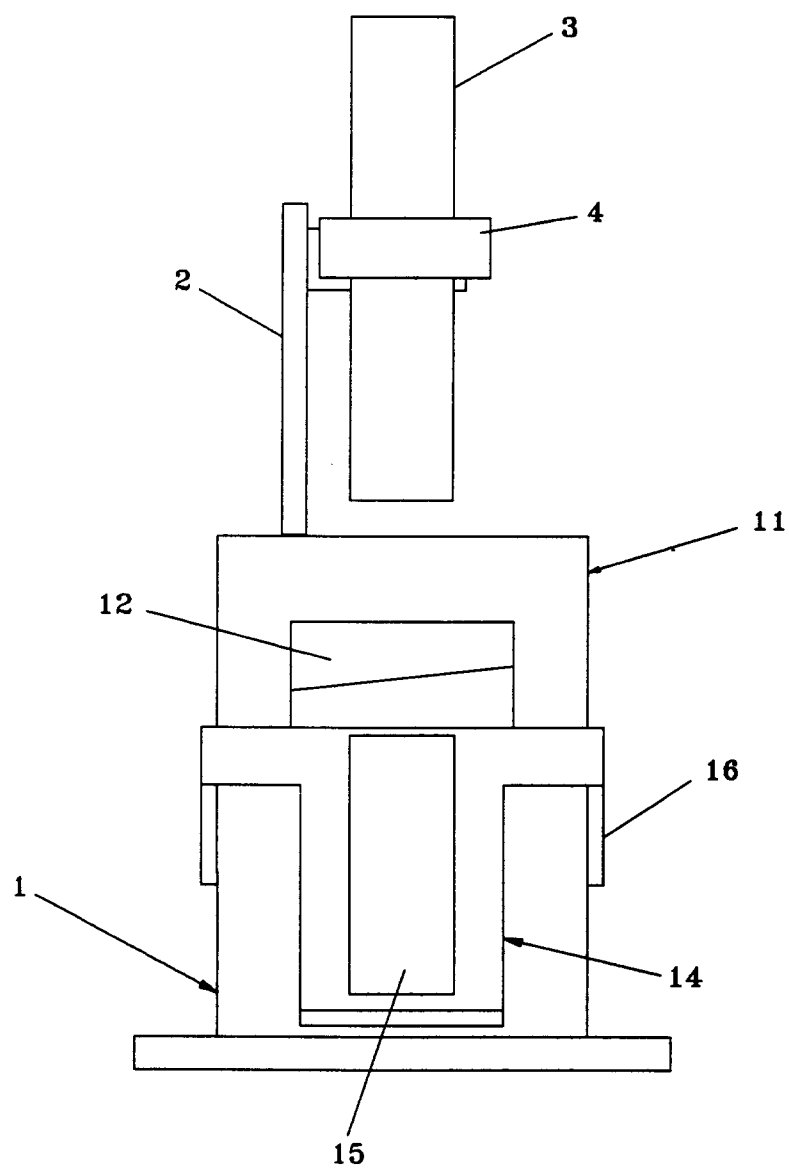


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 96 20 1625

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.6)
X	US-A-2 326 917 (A. A. ANDERSON) * page 2, left-hand column, line 11 - page 4, right-hand column, line 43; figures *	1-3	B65H35/00
X	US-A-3 353 432 (G. J. PHILIPPI) * column 1, line 25 - column 8, line 49; figures 1-7 *	1,12 2,3	
Y	PATENT ABSTRACTS OF JAPAN vol. 8, no. 116 (M-299), 30 May 1984 & JP-A-59 022852 (SANYO DENKI KK), 6 February 1984, * abstract *	2,3	
X	US-A-4 461 197 (G. G. SEAMAN) * column 2, line 20 - column 6, line 47; figures *	1	
A	US-A-3 587 376 (I. HIRANO) * the whole document *	1-4	
A	US-A-2 652 115 (K. J. MYSELS) * the whole document *	1-3	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	GB-A-1 195 971 (MINESOTA MINING AND MANUFACTURING CO. LTD) * the whole document *	1	B65H
A	US-A-5 350 099 (T. KIENZLE) * column 6, line 27 - column 7, line 43; figures *	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 September 1996	Examiner Raven, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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