

PATENT SPECIFICATION

(11) 1 595 539

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- (21) Application No. 19847/78 (22) Filed 16 May 1978 (19)
 (31) Convention Application No. 52/064325U (32) Filed 19 May 1977 in
 (3) Japan (JP)
 (44) Complete Specification Published 12 Aug. 1981
 (51) INT. CL.³ B65D 5/50 85/672
 (52) Index at Acceptance
 B8P E2G
 B8M 3T 4B B3 B6



(54) DISPENSING BOX FOR DISPENSING ELECTRONIC COMPONENTS

(71) We, TOKYO DENKI KAGAKU KOGYO KABUSHIKI KAISHA, a Japanese Corporation, of 13-1 Nihonbashi 1-chome, Chuo-ku, Tokyo-to, Japan, do hereby declare the invention for which we pray that a Patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention relates to a dispensing box for dispensing electronic component mounted on tape of a predetermined length. The components are typically capacitors or resistors having parallel lead wires and the electronic components are mounted on the tape by means of said wires.

With recent development of automatic machines for production of electronic components, it has become possible to manufacture such electronic components in great numbers, at high speed and to mount them automatically on tape. Using the lead wires as the mounting means, such electronic components are held equidistantly on a paper strip using an adhesive tape as the mounting means.

In general, the strip or tape is spirally-wound on a winding frame or core and transported and stored in this spirally-wound state, i.e. as a coil. It can then be fed to an automatic inserting machine to be used in preparing printed circuits with the electronic components being removed from the tape as required, the electronic components being cut one by one and inserted at the specified positions into printed circuits. The transport and storage of the spirally-wound tape has presented some problems due to the fact that in the normal mounting arrangement electronic components protrude from one or both edges of the tape making them subject to damage. Naturally, coils of spirally-wound tape carrying components can be packaged, but then it becomes necessary to open each individual package

and remove the tape therefrom when the tape is to be delivered to an automatic inserting machine. The manual handling of the packages is expensive and introduces the possibility of mistakes due to human error. Consequently, the dispensing box from which the tape could be fed without opening same is eminently desirable. Such a box should also be designed to protect the tape from dust and accidental contact either manual or with moisture.

For fulfilling this purpose, there has recently been proposed a dispensing box for dispensing a coil of tape carrying electronic components to a feeding assembly of an electronic components-inserting machine, the coil being contained within the dispensing box. This prior dispensing box is shown in Figure 1, in which the coil of tape is rotatably mounted inside the dispensing box, and by folding outwardly or cutting off a part of one of the side surfaces of the box, the tape carrying the electronic components may be pulled from the box to be fed into the inserting machine.

According to this prior dispensing box, the coil of tape carrying the electronic components should be located and retained in the box to an extent such that no damage is caused to the electronic components by shaking the coil of tape in the dispensing box during transport or storage thereof, while, for facilitating the smooth rotation of the coil in the dispensing box when the tape is pulled from the box, an upper peripheral side of the coil of tape should not make contact with a retaining means for the coil.

In order to cope with this shaking during transport and storage, in a conventional dispensing box as shown in Figure 1, the top support flaps 12 and 12a extend by a predetermined amount from each edge of the side faces 8 and 8a towards the centre of the dispensing box so as to support the coil of tape firmly.

In this conventional dispensing box, however, even when a part of side face 8a is folded outwardly and the coil of tape carrying electronic components is fed from the box, the support flaps 12 and 12a still remain in contact with and retain the upper side of the coil of tape, sometimes causing such inconveniences as to prevent the smooth rotational motion of the tape or to damage the electronic components mounted on the tape. If the support flaps 12 and 12a are small enough to keep the contact with the tape at a minimum, it is impossible to protect the coil of tape from shaking which results in the possibility of damage to the electronic components mounted on the tape.

An object of the present invention is to provide a dispensing box which can be assembled from a body member and a separate member and from which a spirally-wound tape having mounted thereon electronic components can be fed without opening the cover of said box.

According to one aspect of the present invention there is provided a body member and a separate member for assembly into a dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, said separate member being removable from said box body member when said box has been assembled, said body member including a substantially rectangular bottom section, a back face and a front face at respective opposed edges of said bottom section, a side face at the remaining edge of said bottom section, fold lines between each of said faces and said bottom section, opposed extremities of said side face each bearing an end flap; a fold line between each of said end flaps and said side face, a cover section of substantially the same size and shape as said bottom section at an edge of said back face opposite that adjacent the bottom section, a fold line between said cover section and said back face, a first top support flap at an edge of said front face opposite that adjacent the bottom section, a fold line between said front face and said first top support flap, a second top support flap at an edge of said side face opposite that adjacent the bottom section, a fold line between said side face and said second top support flap, all of said fold lines permitting folding in an inward direction, and an axial core attached to the inside of said body member for use in holding a said spirally-wound support tape; and said separate member including a face for forming one of the side faces of the box when assembled, said face having on an outer edge thereof a retainer flap for holding a said spirally-wound support tape in the

box when assembled, a fold line between said face and said retainer flap, a marginal flap at the edge of said face opposite its outer edge, a fold line between said face of the separate member and said marginal flap, and all of said fold lines permitting folding in an inward direction.

According to another aspect of the present invention, there is provided a dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, formed from a body member and a separate member as defined above.

According to a further aspect of the present invention there is provided a dispensing box combination which comprises a dispensing box as defined above and a tape, electronic components having sets of leads, and adhesive tape holding said sets of leads substantially against said tape, said tape being spirally wound on said winding core of said body member.

The tape to be dispensed from the box preferably has punched holes therein at distances corresponding to the distances between electronic components, said punched holes serving for receiving driving means for moving the tape along at a rate corresponding to that at which a machine to which the tape is to be fed is arranged to operate, and for receiving positioning means for positioning the tape at a predetermined position in a said machine.

For a fuller understanding of the invention, reference may be had, by way of example only, to the following description of embodiments of the invention taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a dispensing box of the prior art;

Figure 2 is a perspective view of a coil of tape for use in the box and in the combination of the present invention, having electronic components mounted thereon and including a spacer tape for shaping said coil;

Figure 3 is a perspective view of a box body member and separate member from which the box of Figure 4 can be assembled;

Figure 4 is a perspective view of a dispensing box combination in accordance with the present invention including a coil of tape having capacitors mounted thereon;

Figure 5 is a perspective view of another embodiment of a box blank from which the dispensing box of Figure 6 can be assembled;

Figure 6 is a perspective view of another embodiment of a dispensing box in accordance with the present invention;

Figure 7 is a perspective view of a dispensing box combination from which a removable side face has been removed to

form an opening, showing tape with components mounted thereon being fed from said box through the said opening;

5 *Figure 8* is a perspective view of dispensing boxes mounted on feeding assembly of an automatic inserting machine;

Figure 9 is a plan view of a dispensing box combination, wherefrom a cover section has been omitted for clarity;

10 *Figure 10* is a plan view of another embodiment of a dispensing box combination, wherefrom a cover section has been omitted for clarity; and

15 *Figure 11* is a plan view of another embodiment of a dispensing box combination, wherefrom a cover section has been omitted for clarity.

Referring firstly to *Figure 2*, a predetermined length of tape carrying a number of electronic components is shown generally by the reference numeral 1. Wound around a cylindrical winding core 2 is a support tape 25 on which are mounted electronic components 7 each having a set of parallel lead wires 26, the sets of lead wires being spaced equidistantly and held to the support tape 25 by adhesive tape 27. The support tape 25, holding the electronic components 7, is wound around the winding core 2 in the form of a coil indicated generally by the reference numeral 3.

The term "coil 3" as employed hereinafter refers to the spirally-wound support tape 25 carrying a number of electronic components 7 mounted thereon with the adhesive tape 27.

Holes 28 punched through the adhesive tape 27, and if desired, through the support tape 25 can be used for positioning and drawing the tape incrementally, using a positioning means and a sprocket device of known form.

As the support tape 25 is wound into a coil 3 in preparation for insertion into the dispensing box, the thickness of the components 7 may distort the winding, changing the form of the coil 3 from the desired near-cylindrical form to an essentially frustoconical form. To prevent this, a spacer tape 29 of appropriate thickness can be wound with the support tape 25 to compensate for the thickness of components 7, thereby keeping the support tape 25 essentially parallel to the axis of the coil 3 and to the axis of the winding core 2.

The support tape 25 is of a relatively flexible material such as paper and the back surface of the tape 25 is flat except for those portions where the feeding and positioning holes 28 are formed, thereby permitting easy and regular winding of the tape 25 on the winding core 2. The width of the adhesive tape 27 should be somewhat smaller than that of the support tape 25 thereby making it possible to measure the electrical

properties of the electronic components 7 by means of exposed portions of the leads 26. The leads 26 generally are in sets of two but may be in sets of three for transistors or various other electronic components. The openings 28 are formed in the tapes 25 and 27 at precisely equidistant spacings and generally at the mid-portion of the tape 25 as measured transversely.

Referring now to *Figure 3*, there are shown two members for assembly into a dispensing box in accordance with the present invention, a body member indicated generally by the reference numeral 30 and a removable member indicated generally by the reference numeral 31.

The body member 30 consists essentially of bottom section 5 having a front face 9, a back face 11 and a side face 8. The bottom section 5 also has a tongue 32 extending sidewise from the edge thereof opposite the side face 8. Fold line 33 between the bottom section 5 and the tongue 32 is preferably provided with dash cuts for removing the tongue 32 easily from the body member 30. Front face 9 continues into a top support flap 13. Similarly, side face 8 continues into a top support flap 12. In the same manner, back face 11 continues into a cover section 6 to which are connected tongues 18 and 18a. As shown in *Figure 3*, side face 8 has end flaps 15 and 15a. The top support flap 13 has slots 17 and 17a therein for receiving respectively tongues 18 and 18a of the cover section 6 to hold the cover section 6 in closed position when is assembled. Part of each edge 21 and 22 of the top support flaps 12 and 13 is shaped into a large arc and of a size so predetermined that clearance is obtained between the edges and the outer peripheral surface of the coil 3 to be dispensed so that the coil 3 can be pulled from the box without coming into contact with the edges 21 and 22.

A disc-like axial core 19 is fixed to the bottom section 5 of the body member 30. While the axial core 19 will suffice to hold the winding core 2 of the spiral 3, a similar axial core 20, as can be seen, may be placed on a corresponding portion of the inside face of the cover section 6 to hold thereby an upper end of the winding core 2. The diameter of the axial cores 19 and 20 should be somewhat smaller than the inner diameter of the aforementioned winding core 2. Axial cores 19 and 20 can be of paper, plastics material or of any other suitable material. Where the dispensing box is made of a plastics material, axial cores 19 and 20 can be moulded as part thereof.

Turning now to the removal member 31, as can be seen from *Figure 3*, the member 31 consists essentially of a face 10 and a retainer flap 34 extending therefrom. The face 10 is adapted to constitute one of the

side faces of the box, as shown in Figure 4, when the box is assembled. The retainer flap 34 folds over onto the coil 3 (Figure 4) for protecting the electronic components from damage during shipping and storage thereof. The face 10 also has a marginal flap 35 for fitting against the inside of the bottom section 5 when the dispensing box is assembled. The face 10 has a slot 37 therein for receiving the tongue 32 of the bottom section 5 of the member 30 to hold the face 10 in a closed position when the box is assembled. The slot 37, of course, may be arranged at the edge of the retainer flap 34 adjacent the face 10, instead of being arranged on the face 10.

As shown in Figure 3, the retainer flap 34 has a notch 36 which consists of an arc portion 34a having a larger radius r than that of the winding core 2 and an opening portion formed by opposed cut edges 34b and 34c, the distance d between the cut edges 34b and 34c being larger than the diameter of the winding core 2, so that the retainer flap 34 together with the face 10 can be removed from the assembled box without lifting the cover section 6 of the box. The cut edges 34b and 34c are opposed in parallel in this embodiment, however the distance d between the cut edges 34b and 34c may become gradually larger toward the open end of the opening portion.

In the drawings, reference numeral 38 denotes a hole for pulling and removing the removable member 31 from the assembled box by human finger.

In each case, the score lines are so disposed as to facilitate folding the various sections, flaps, etc., inwardly so as to prepare a dispensing box combination as shown in Figure 4.

Referring now to Figure 4, there is shown a dispensing box combination, with the cover section 6 thereof in a raised state, which may be assembled from the box members of Figure 3. The cylindrical winding core 2 is rotatably mounted on the axial core 19. Wound around the cylindrical winding core 2 is the coil 3. For closing the dispensing box, the cover section 6 folds over onto the retainer flap 34, and the tongues 18 and 18a on the cover section 6 are received into the slots 17 and 17a on the top support flap 13. Thus, the upper side of the coil 3 can be held firmly by the retainer flap 34 and the cover section 6 thereon in the box so that shaking of the coil 3 in the axial direction thereof can be prevented in the box during the transport and storage thereof, thereby protecting the electronic components 7 from accidental damage.

On the other hand, the cylindrical winding core 2 of the coil 3 is held by the axial cores 19 and 20 as well as the arc portion 34a of the retainer flap 34 so that the rolling of

the coil 3 in the box can be prevented effectively.

Referring now to the Figure 5, there is shown another embodiment of the box members in accordance with the present invention. In the Figure, the same reference numerals as in Figure 3 show the same members as in the embodiment of Figure 3, and so the detailed description thereof will be omitted.

As shown in Figure 5, the disk-like axial core is fixed only to the bottom section 5. The disk-like axial core 19 is, as can be seen, relatively thick in an axial direction thereof in comparison with that of the embodiment of Figure 3.

Accordingly, the axial core 19 will suffice to hold the winding core 2 and the spiral 3 wound therearound, even if the axial core 20 as in the embodiment of Figure 3 is not provided on the cover section 6.

Since the cover section 6 is not provided with the axial core, the retainer flap 34 of the removable member 31 is flat and is not provided with the notch 36 as provided in the embodiment of Figure 3. The retainer flap 34, therefore, serves to hold all of the upper side of the spiral 3 to be packaged in the box. Each edge 21 and 22 of the top support flaps 12 and 13 is shaped to be straight rather than arcuate as in embodiment of Figure 3.

In assembling the dispensing box, the winding core 2 and the coil 3 wound therearound are mounted on the disk-like axial core 19 on the bottom section 5. End flaps 15 and 15a fit against the inside of back face 11 and the front face 9 respectively and can be glued thereto if desired. Thereafter, the marginal flap 35 of the removable member 31 fits against an edge portion 5a of the bottom section 5 and may be glued thereto by adhesive, if desired. The retainer flap 34 folds over onto the coil 3 and the top support flaps 12 and 13 fold over onto the retainer flap 34, whereby is obtained a dispensing box as shown in Figure 6, the upper side of the coil 3 being covered and held by the retainer flap 34. Thereafter, the edge portion 6a of the cover section 6 is bonded to the top support flap 13 by adhesive. The edge portion 6b of the cover section 6 may be bonded to the top support flap 12 by adhesive, if desired.

When the coil 3 needs to be pulled from the dispensing box obtained in the above mentioned embodiments, removable member 31 including the retainer flap 34 is first removed from the body member 30 by pulling it with human finger, with the cover section 6 closed. After removing the retainer flap 34, a spacing is provided between upper side of the coil 3 and the inner surface of the cover section 6. Besides, the flaps 12 and 13 are so arranged that the edges 21 and

22 will not be in contact with the peripheral surface of the coil 3. (In the case of the Figures 5 and 6 embodiment, flaps 12 and 13 are sufficiently narrow that edges 21 and 22 do not come into contact with the peripheral surface of the coil 3.) Consequently, the coil 3 becomes capable of smoothly rotating in the dispensing box.

The tape carrying the electronic components indicated generally by the reference numeral 1 is pulled from the thus prepared dispensing combination as shown in Figure 7. The dispensing box assembled from the body member 30 containing the coil 3 therein is then mounted at a predetermined position in a feeding assembly 100 of an automatic inserting machine, and the pulled tape is led through a roller 50 to a sprocket assembly 51, where the holes 28 of the tape are engaged with the sprocket, as shown in Figure 8.

In operation, the tape carrying the electronic components can be fed from the dispensing box smoothly, due to the fact that the coil of tape can smoothly rotate in the box without any obstacle.

Turning now to Figure 9, there is shown a plan view of the dispensing box combination shown in Figure 4 before removing the removable member 31, in which the cover section 6 has been omitted for clarity. A part of the end portion of the retainer flap 34 overlaps with the top support flaps 12 and 13, making layers with each other. The end portion 39 of the tape carrying the electronic components is fixed to the inside surface of the face 10 by such means as an adhesive, adhesive tape or metal fittings (not shown), so that an end portion 39 of the tape can be pulled simultaneously with the removal of the removable member 31 from the box, thereby greatly facilitating the pulling of tape 1. For this purpose, other methods may be used, such as attaching the end portion of the spacer tape 29 to the inside surface of the face 10 in the manner as explained above. The end portion 39 of those types may, of course, be fixed to the retainer flap 34, or the marginal flap 35, if desired.

Figure 10 shows another embodiment of the present invention, in which the edges 21 and 22 of the top support flaps 12 and 13 have straight edges. Since the top support flaps 12 and 13 need not to retain the upper side of the coil 3 as in a conventional dispensing box, it may have the minimum width necessary to meet the requirement for the strength of the assembled box itself. If the edges 21 and 22 are arranged to be straight edges, as in the embodiment, manufacture and maintenance of a punch therefor become easy.

Figure 11 shows still another embodiment of the present invention, in which the edge portion of the retainer flap 34 does not

overlap with the edges 21 and 22 of each top support flaps 12 and 13, but borders on the edges. Therefore, unnecessary clearance which will be produced by overlapping is prevented, whereby further firmed packaging become possible.

As is evident from the foregoing illustrations, the dispensing box and combination of the present invention are provided with a retainer flap for inserting into the spacing between the upper side of the coil of tape carrying the electronic components and the inside of the cover section of the dispensing box. The retainer flap is made integral with the removable side face so as to be removable with it from the assembled box. As a result, the coil of tape is effectively prevented from rattling or vibrating during transport and storage, thereby preventing the electronic components from being accidentally damaged. Furthermore, when the tape carrying the electronic components is to be fed into the inserting machine for inserting the components into printed circuits, the coil can rotate smoothly in the box without any obstacle, whereby the electronic components mounted on the tape can be smoothly fed to the machine.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and it is to be noted certain changes may be made in the article embodied above without departing from the scope of the invention as defined by the

WHAT WE CLAIM IS:

1. A box body member and a separate member for assembly into a dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, said separate member being removable from said box body member when said box has been assembled, said body member including a substantially rectangular bottom section, a back face and a front face at respective opposed edges of said bottom section, a side face at a remaining edge of said bottom section, fold lines between each of said faces and said bottom section, opposed extremities of said side face each bearing an end flap, a fold line between each of said end flaps and said side face, a cover section of substantially the same size and shape as said bottom section at an edge of said back face opposite that adjacent the bottom section, a fold line between said cover section and said back face, a first top support flap at an edge of said front face opposite that adjacent the bottom section, a fold line between said front face and said first top support flap, a second top support flap at an edge of said side face opposite that



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22 will not be in contact with the peripheral surface of the coil 3. (In the case of the Figures 5 and 6 embodiment, flaps 12 and 13 are sufficiently narrow that edges 21 and 22 do not come into contact with the peripheral surface of the coil 3.) Consequently, the coil 3 becomes capable of smoothly rotating in the dispensing box.

The tape carrying the electronic components indicated generally by the reference numeral 1 is pulled from the thus prepared dispensing combination as shown in Figure 7. The dispensing box assembled from the body member 30 containing the coil 3 therein is then mounted at a predetermined position in a feeding assembly 100 of an automatic inserting machine, and the pulled tape is led through a roller 50 to a sprocket assembly 51, where the holes 28 of the tape are engaged with the sprocket, as shown in Figure 8.

In operation, the tape carrying the electronic components can be fed from the dispensing box smoothly, due to the fact that the coil of tape can smoothly rotate in the box without any obstacle.

Turning now to Figure 9, there is shown a plan view of the dispensing box combination shown in Figure 4 before removing the removable member 31, in which the cover section 6 has been omitted for clarity. A part of the end portion of the retainer flap 34 overlaps with the top support flaps 12 and 13, making layers with each other. The end portion 39 of the tape carrying the electronic components is fixed to the inside surface of the face 10 by such means as an adhesive, adhesive tape or metal fittings (not shown), so that an end portion 39 of the tape can be pulled simultaneously with the removal of the removable member 31 from the box, thereby greatly facilitating the pulling of tape 1. For this purpose, other methods may be used, such as attaching the end portion of the spacer tape 29 to the inside surface of the face 10 in the manner as explained above. The end portion 39 of those types may, of course, be fixed to the retainer flap 34, or the marginal flap 35, if desired.

Figure 10 shows another embodiment of the present invention, in which the edges 21 and 22 of the top support flaps 12 and 13 have straight edges. Since the top support flaps 12 and 13 need not to retain the upper side of the coil 3 as in a conventional dispensing box, it may have the minimum width necessary to meet the requirement for the strength of the assembled box itself. If the edges 21 and 22 are arranged to be straight edges, as in the embodiment, manufacture and maintenance of a punch therefor become easy.

Figure 11 shows still another embodiment of the present invention, in which the edge portion of the retainer flap 34 does not

overlap with the edges 21 and 22 of each top support flaps 12 and 13, but borders on the edges. Therefore, unnecessary clearance which will be produced by overlapping is prevented, whereby further firmed packaging become possible.

As is evident from the foregoing illustrations, the dispensing box and combination of the present invention are provided with a retainer flap for inserting into the spacing between the upper side of the coil of tape carrying the electronic components and the inside of the cover section of the dispensing box. The retainer flap is made integral with the removable side face so as to be removable with it from the assembled box. As a result, the coil of tape is effectively prevented from rattling or vibrating during transport and storage, thereby preventing the electronic components from being accidentally damaged. Furthermore, when the tape carrying the electronic components is to be fed into the inserting machine for inserting the components into printed circuits, the coil can rotate smoothly in the box without any obstacle, whereby the electronic components mounted on the tape can be smoothly fed to the machine.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and it is to be noted certain changes may be made in the article embodied above without departing from the scope of the invention as defined by the appendant claims.

WHAT WE CLAIM IS:

1. A box body member and a separate member for assembly into a dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, said separate member being removable from said box body member when said box has been assembled, said body member including a substantially rectangular bottom section, a back face and a front face at respective opposed edges of said bottom section, a side face at a remaining edge of said bottom section, fold lines between each of said faces and said bottom section, opposed extremities of said side face each bearing an end flap, a fold line between each of said end flaps and said side face, a cover section of substantially the same size and shape as said bottom section at an edge of said back face opposite that adjacent the bottom section, a fold line between said cover section and said back face, a first top support flap at an edge of said front face opposite that adjacent the bottom section, a fold line between said front face and said first top support flap, a second top support flap at an edge of said side face opposite that

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adjacent the bottom section, a fold line between said side face and said second top support flap, all of said fold lines permitting folding in an inward direction, and an axial core attached to the inside of said body member for use in holding a said spirally-wound support tape; and said separate member including a face for forming one of the side faces of the box when assembled, said face having on an outer edge thereof a retainer flap for holding a said spirally-wound support tape in the box when assembled, a fold line between said face and said retainer flap, a marginal flap at the edge of said face opposite its outer edge, a fold line between said face of the separate member and said marginal flap, and all of said fold lines permitting folding in an inward direction.

2. A box body member and a separate member, as claimed in claim 1 and further comprising a winding core rotatably mounted on said axial core.

3. A box body member and a separate member as claimed in claim 1 or 2 and wherein said axial core is attached to one of said cover section and said bottom section.

4. A box body member and a separate member as claimed in claim 3 and further comprising a second axial core mounted on the other one of said cover section and said bottom section for cooperating with said axial core for rotatably mounted said spirally-wound support tape.

5. A box body member and a separate member, as claimed in claim 4 and further comprising at least one tongue at the edge of said cover section opposite that adjacent to said back face, a fold line between said tongue and said cover section, said first top support flap having at least one slot therein for receiving said tongue on said cover section to hold said cover section in closed position when assembled.

6. A box body member and a separate member, as claimed in any preceding claim and wherein said retainer flap has a notch for receiving said winding core of said spirally-wound support tape.

7. A box body member and a separate member, as claimed in any preceding claim and further comprising a tongue at the edge of said bottom section of the body member opposite that adjacent to said side face, a fold line between said tongue and said bottom section, said face of the separate member having a slot therein for receiving said tongue on said bottom section to hold said face in a closed position when assembled.

8. A box body member and a separate member, as claimed in any preceding claim and wherein said fold lines are constituted by dash cuts in the surfaces of said members.

9. A box body member and separate members, as claimed in any preceding claim and wherein each of said first and second top support flaps is of a predetermined width relative to the outer peripheral surface of a said spirally-wound support tape such that electronic components of a said tape will not contact said flaps when the tape is fed from the assembled box containing a said tape.

10. A box body member and separate member, as claimed in any preceding claim and wherein each edge of said first and second top support flaps is straight.

11. A box body member and a separate member as claimed in any preceding claim and wherein said each edge of said first and second top support flaps are arranged in use to border said retainer flap.

12. A box body member and a separate member for assembly into a dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, as claimed in claim 1 and substantially as hereinbefore described with reference to any one of Figures 3, 5, 9, 10 or 11 of the accompanying drawings.

13. A dispensing box suitable for feeding a spirally-wound support tape carrying electronic components held to said support tape with lead wires disposed transversely to said support tape, formed from a box body member and a separate member according to any preceding claim.

14. A dispensing box for feeding a spirally-wound support tape carrying electronic components held to said support tape with the lead wires disposed transversely to said support tape, substantially as hereinbefore described with reference to any one of Figures 4, 6, 7, 9, 10 or 11 or the accompanying drawings.

15. A dispensing box combination which comprises a dispensing box according to claim 13 and a tape, electronic components having sets of leads, and adhesive tape holding said sets of leads substantially against said tape, said tape being spirally-wound on said winding core of said body member.

16. A dispensing box combination as claimed in claim 15, wherein the leads of each electronic component are parallel and the adhesive tape is arranged to hold the sets of parallel leads spaced apart equidistantly against said tape thereby uniformly to space the electronic components on the tape.

17. A dispensing box combination as claimed in claim 16, which further includes a spacer tape spirally-wound with said tape and components, the thickness of said spacer tape being such as to compensate for the



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thickness of said components so as to form a coil which is substantially cylindrical rather than substantially frustoconical.

5 18. A dispensing box combination as claimed in claim 15, wherein said tape has punched openings therein at regular intervals equivalent to the distance between sets of parallel leads for use in transporting and positioning said tape.

10 19. A dispensing box combination as claimed in any of claims 16 to 18, wherein one end of said spirally-wound support tape is fixed to the inside surface of said face on said separate member.

15 20. A dispensing box combination as claimed in any of claims 16 to 19, wherein one end of said spacer tape is fixed to the inside surface of said face on said separate member.

20 21. A dispensing box combination, substantially as hereinbefore described with reference to any one of Figures 4 to 11 of the accompanying drawings.

25 Agents for the Applicants,
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