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Description

Background to the Invention

The conventional flat for use on a carding machine is clothed with flexible foundation type card-clothing, and the strip of flexible foundation type card-clothing which is applied to the flat is called the "top". In recent years, metallic-wire type card-clothing, in which the teeth are formed in one edge of a strip of steel wire, has been used to provide the "top" for flats. When metallic-wire type card-clothing is used for this purpose, it is necessary to arrange short strips of the wire in a side-by-side array and then to secure that array to the flat, so that each metallic-wire strip extends transversely of the flat. This usually entails setting the card-clothing strips in or on a holder, which is itself then secured to the flat by clips, similar to the clips used to hold flexible foundation type "top" to the flat. Thus, the holder can be thought of as a replacement for the flexible foundation type "top".

An arrangement in which metallic-wire type card-clothing is used to form a "top" for use on a carding machine flat is described in United States Patent Specification 4 221 023 (HENDERSON). Short strips of metallic-wire type card-clothing are assembled in a side-by-side array on a base strip and are secured to the base strip by brackets extending along the longitudinal edges of the base strip, the brackets also providing means for attaching the assembly of the base strip and card-clothing array to the flat of a carding machine. The base strip is made as an extrusion in plastics material and is of substantial thickness to give the assembly rigidity. A card-clothing assembly or "top" in accordance with the HENDERSON patent can be considered for practical purposes to be rigid.

The array of card-clothing which is shown in United States Specification 4 221 023 never exists as a product separate from the complete assembly or "top". The individual wire strips have to be assembled on the rigid base strip and secured to it by the longitudinal brackets, so that the card-clothing array only exists when formed into the rigid assembly. Also, because of its rigidity, the HENDERSON product can only be made in limited lengths and in practice, it is made in lengths equivalent to the lengths of standard flats. Hence, the product has to be purchased by the user in preformed lengths, suited to the size of his carding machines.

No matter what method is used for securing the metallic-wire strips to the flat, there are problems in manipulating the strips and holding them in an assembly suitable for use as "top". The present invention provides a card-clothing assembly and a method of assembling card-clothing strips into the assembly, which is suitable for use as "top", the method being extremely simple and providing a card-clothing strip assembly which is readily manipulable. The invention also includes carding machine components fitted with such a card-clothing assembly. Whilst the assembly is

especially useful for the clothing of flats, it is to be understood that it is not restricted to this particular application of the card-clothing.

General Features of the Invention

According to a first aspect of the invention a card-clothing assembly which comprises a plurality of strips of metallic-wire type card-clothing arranged in a side-by-side array, with a longitudinally extending spine applied to at least one surface of the said array is characterised in that the spine comprises a flexible tape which holds the strips in the array and prevents any substantial separation of the strips from each other in the longitudinal direction of the array, or any substantial movement of the strips relatively to each other in the lateral direction parallel to the lengths of the strips, but which is substantially completely compliant in the direction normal to the said lateral direction, so that the array can be coiled.

Preferably, the flexibility of the spine is such that the card-clothing assembly is completely lank and pliable in the longitudinal direction; that is to say, if the assembly is supported at a single point along its length, it will collapse on both sides of that point as would, for example, a wristlet watch chain. This is in complete contrast to the metallic-wire type card-clothing "top" as described in U.S. Specification 4 221 023, which is made as rigid as practicable in the longitudinal direction.

Preferably the spine is capable of being peeled off the array of card-clothing strips. It is further preferred that the width of the spine does not exceed the width of the card-clothing array. It is also preferred that the spine comprises a tape having a self-adhesive surface. The tape may comprise a self-adhesive plastics film such as that used for packaging; but it is preferred to use a tape which is coated with a more powerful adhesive than that supplied for domestic and office use. This tape is well adapted to adhesion to the relatively flat surface formed by the bases of the ribs of the card-clothing strips. The adhesive tape is of course, highly flexible, and if this method of forming the assembly is used, then the assembly has a flexibility in the longitudinal sense similar to that of a wristlet watch chain. In fact, the card-clothing assembly produced by this method will drape.

In one method of carrying out the invention, a thermo-plastic (hot melt) material is applied to the surface of the card-clothing array and allowed to set to form a plastics "tape" on the array. Providing the thermo-plastic material is correctly chosen, it will form a "tape" which has flexibility and which can be peeled off the array when required. This method can be used to provide a "tape" on the obverse surface of the array (additional to the flexible spine) and in that case the teeth of the card-clothing become embedded in the thermo-plastic material.

In another method of carrying out the invention, a flexible tape additional to the spine is impaled on the teeth of the card-clothing array to an extent that the individual wire strips are

secured to the tape by frictional engagement of the teeth of each strip with the tape. This method provides a less secure attachment of the tape to the card-clothing array, since the adhesion is provided substantially or entirely by the frictional and hooking engagement between the teeth and the tape.

It will be appreciated that various combinations of the above described methods of carrying out the invention are possible. The preferred combination however is the use of self-adhesive tape on the reverse surface of the array to provide the spine and hot melt plastics on the obverse surface.

According to a second aspect of the invention a method of forming a card-clothing assembly in accordance with the first aspect, which comprises a plurality of strips of metallic-wire type card-clothing arranged in a side-by-side array on a spine, is characterised in that the strips are accumulated in a side-by-side array and a flexible tape spine having an adhesive surface is brought into a longitudinally progressing adhesive contact with the array to effect adhesion of the spine to the array along the length of the array. Preferably, whilst they are being accumulated in the array, the strips are supported and the array is fed in a sideways direction, and at the same time, the array and the flexible spine are brought together, without relative movement between them in the said sideways direction, and caused to adhere to each other.

Preferably the flexible spine is applied to the array in a manner which will allow the spine to be subsequently peeled off the array.

In one method, a thermo-plastic tape is applied to the array in the molten state and allowed to set.

The invention also includes a carding or like machine element (e.g. a flat or a roller) having applied thereto a card-clothing assembly in accordance with the first aspect of the invention or made by the method of the second aspect of the invention.

According to a third aspect of the invention, apparatus for forming a card-clothing assembly by the method of the second aspect of the invention comprises:

means for cutting short strips from a long length of metallic-wire type card-clothing and assembling the short strips in a side-by-side array; means for feeding the array of short strips in a sideways direction; means for feeding a flexible spine in the same sideways direction and at the same linear speed as the array of wire strips, so that there is no relative sideways motion between the array and the flexible spine, and means for bringing the spine into attached engagement with the array during the sideways motion of the array and the spine. Preferably, the means for feeding the spine and for bringing the spine into engagement with the array are both constituted by a roller over which the spine passes, the roller being so disposed relatively to the path of the array of wire strips, that it presses the spine on to the strips.

Methods of manufacturing card-clothing assemblies in accordance with the invention will now be described by way of examples only, with reference to the accompanying drawings, in which:

Figure 1 is a diagram showing a first method of forming a card-clothing assembly,

Figure 2 is an end view of the completed assembly,

Figure 3 is an end view similar to Figure 2, but showing another method of carrying out the invention, and

Figure 4 is an end view similar to Figure 2, but showing a further method of carrying out the invention.

Referring to Figure 1, there is illustrated a method of forming a card-clothing assembly for use as the "top" to be applied to a flat of a revolving flat type carding machine. Since revolving flat type carding machines are very well known, and since the flat itself may be of conventional construction, there is no necessity to describe the carding machine or the flat.

The "top" is constituted by a series of short strips 10a, 10b, 10c, 10d, ... which are cut from a long length of metallic-wire type card-clothing, and assembled on the cutting machine in an abutting side-by-side array as illustrated in Figure 1. Metallic-wire type card-clothing is in itself well known, but it is necessary to mention for present purposes, that the wire has the general cross-section illustrated in Figure 1, providing a tapered and relatively narrow upper portion 12 in which the teeth are formed, and a wider rib portion 14, which ensures the spacing of the rows of teeth provided by the strips 10a, 10b, 10c, The assembly of the metallic-wire type strips 10 is carried out in a jig so that in addition to the abutting relationship, the bases of the ribs of the card-clothing strips together form a continuous flat reverse surface 11. The assembly of the strips continues until the length of the array is sufficient to extend along the effective length of the flat to which the "top" is to be applied. It will be appreciated, that the length of the array is the sum of the thickness of the rib portions 14 of the strips 10, and that the width of the "top" is equal to the length of the individual strips 10. Furthermore, when the strips have been accumulated into an array, the obverse surface indicated at 15 in Figure 1 is constituted by the tips of all the teeth formed in the strips 10 which constitute the array, and there is a flat reverse surface 11 constituted by the bases of the rib portions 14 of the array.

In assembling the strips 10 in the side-by-side formation necessary to produce the "top", as each strip is cut from the stock of wire being fed into the machine, it is moved in a longitudinal direction indicated by the arrow A in Figure 1, so that the array is accumulated by moving to the right as seen in Figure 1. The longitudinal direction indicated by the arrow A is of course at right angles to the length of the stock where it is being fed to the cutting station.

Now it will be appreciated, that whilst it may be

possible to hold the strips 10 in an array in a jig on the machine, the whole array would collapse into the individual strips, when removed from the jig, unless some means were provided for holding the strips together. Conventionally, this is done by fitting the array as it is formed into a sheet metal channel, and bending over the edges of the flanges of the channel, to nip on the ends of the strips. The metal channel together with the rib portions 14 of the strips 10, thereby provides an effective "foundation" for the "top". However, this necessitates the provision of a separate metal channel member, and this together with the assembly of the strips into the channel, adds to the cost of producing the "top".

As illustrated in Figure 1, a tape 18 supplied in the direction of the arrow B from a stock (not shown) is applied to the reverse surface of the card-clothing array whilst the array is being constituted by feeding the strips of wire longitudinally of the machine. The tape 18 is made of plastics film, and is similar to the self-adhesive tape which is used for packaging purposes. However, in this method, a tape is used, which is coated with an adhesive more powerful than that normally used for domestic and office purposes.

The end 20 of the tape 18 is secured to the reverse surface at the right hand end of the array by pressing its adhesive surface into engagement with the reverse surface 11, and then, as the array traverses in the direction of the arrow A, further tape 18 is fed from the stock, and is pressed on to the reverse surface of the array by a pressure roller 22. The tape 18 thereby becomes secured to each of the strips on the reverse surface. The tape 18 is of approximately the same width as the card-clothing array as indicated in Figure 2, but this is not essential. However, the tape should preferably not be wider than the card-clothing array.

As a result of the assembly method illustrated in Figures 1 and 2, there is provided an assembly constituted by the array of strips 10 of metallic-wire type card-clothing, held together in side-by-side arrangement, by a spine comprising the tape 18. This assembly can be removed from the machine, and of course, the individual metallic-wire strips are retained in the assembly, which is readily manipulable, and which can be secured by clips or by use of an adhesive to the flat. Furthermore, since the spine comprising the tape 18 is flexible, the assembly itself is flexible, and can in fact be coiled up if required for transporting and fitting. The flexibility of the assembly is similar to that of a wristlet watch chain.

It will be appreciated, that the "top" assembly provided by the method illustrated in Figure 1 and 2, constitutes a new article, since hitherto, there has not existed an assembly of metallic-wire type card-clothing strips, of a flexible nature. This is because all the prior art methods of forming a card-clothing assembly having involved the provision of a relatively rigid "spine". It will also be appreciated that the method of securing the strips together by use of the self-

adhesive tape 18 is extremely economical both as regards the material which is used, and the operation required to apply the tape to the strips of card-clothing wire. However, a distinguishing feature of the assembly is the fact that the adhesive tape can be peeled off the card-clothing array if required.

Turning now to Figure 3, there is illustrated a method of securing an array of strips of card-clothing wire 10 together in side-by-side arrangement which can be used to supplement the method described above with reference to Figures 1 and 2. The card-clothing wire strips are themselves constituted in the same manner as described above with reference to Figure 1, and the cutting off and assembly of the strips into an array and the fitting of the spine is also the same. However, in this method, a "tape" 24 of hot melt plastics material is extruded on the obverse face 16 of the card-clothing array, so that some of the teeth 12 of each card-clothing strip 10 become embedded in the "tape" 24. When the extruded hot melt "tape" becomes sufficiently set, it is secured to each of the strips 10 with which it has engagement, by the fact that the tips of the teeth are embedded in the plastics material.

The hot melt plastics "tape" 24 may itself be flexible, and in any case, it assists in holding the strips of card-clothing wire in the required side-by-side array. However, the "tape" 24 can be peeled off the teeth of the card-clothing array, once the completed "top" has been secured to the flat on which it is to be used. Thus, in effect, there are two spines, one provided by the self-adhesive tape 18 on the reverse surface 11, and the other provided by the hot melt "tape" 24 on the obverse surface 15, of the card-clothing array. It will be appreciated, that when this combination method is used, the metal strips 10 are more securely fastened to each other, and it is possible to remove either of the two spines, without permitting the array to collapse.

In Figure 4, there is shown a somewhat different method of forming a card-clothing assembly suitable for use for example, as card-clothing "top". Again, there are short strips 10 of metallic-wire type card-clothing assembled on a machine into an array held together by a flexible spine as described with reference to Figures 1 and 2. However, in this construction, each strip 10 is formed with a rectangular notch 26 in each end of its rib portion 14, and these notches form continuous grooves along the front and rear edges of the array of card-clothing wire strips.

A strip of hot melt plastics material 28 is extruded and pressed into each of the grooves formed by the notches 26, and the grooves are substantially filled by these plastics strips. Now since the strips of plastics engage with all the strips 10 and extend throughout the length of the array, they provide additional spines which have a similar effect to the spines provided by the "tapes" described with reference to Figure 3. The hot melt plastics strip 28 can be peeled away from the card-clothing array if required, but in

view of their containment within the contours of the array, this may not be necessary.

As indicated in chain-dotted lines at 30 in Figure 4, there could be notches formed in the ribs 14 from the base or underside and filled with a hot melt plastics strip. In fact, the notches could be replaced or supplemented by holes formed through the ribs 14 and aligned to form a continuous hole, with the plastics material embedded therein. It will also be appreciated, that it is not essential to have two sets of notches forming two longitudinal grooves. In some instances, it might be sufficient to have only a single longitudinal groove, particularly if this is formed in the bases of the ribs of the card-clothing strips.

In the specific examples above, the invention is employed to produce "tops" for the use on the flats of a revolving flat type carding machine. It will be understood however, that the method could be used to provide "top" for stationary flats, and even for stationary flats of the kind which are curved to the curvature of the cylinder of the carding machine. Indeed, the method could be employed to provide metallic-wire type card-clothing strips, which could then be secured to rollers of carding or like machines. A possible application of such strips is on a comb half lap roller of a cotton combing machine.

Claims

1. A card-clothing assembly which comprises a plurality of strips of metallic-wire type card-clothing (10) arranged in a side-by-side array, with a longitudinally extending spine (18) applied to at least one surface of the said array, characterised in that the spine comprises a flexible tape which holds the strips in the array and prevents any substantial separation of the strips from each other in the longitudinal direction of the array, or any substantial movement of the strips relatively to each other in the lateral direction parallel to the length of the strips, but which is substantially completely compliant in the direction normal to the said lateral direction, so that the array can be coiled.

2. A card-clothing assembly according to Claim 1, characterised in that the said spine (18) is capable of being peeled off the array of card-clothing strips.

3. A card-clothing assembly according to either of Claims 1 and 2, characterised in that the width of the said spine (18) does not exceed the width of the card-clothing array.

4. A card-clothing assembly according to any one of Claims 1 to 3, characterised in that the flexible tape (18) has a self-adhesive surface.

5. A card-clothing assembly according to any one of Claims 1 to 4, characterised in that a tape (24) of thermo-plastic material is applied to the card-clothing array.

6. A card-clothing assembly according to any one of Claims 1 to 4, characterised in that there is also a flexible tape (24) impaled on the teeth of the card-clothing array to an extent such that the

individual card-clothing wire strips are secured to the tape by frictional engagement of the teeth of each strip with the tape.

7. A method of forming a card-clothing assembly as claimed in Claim 1, which comprises a plurality of strips of metallic-wire type card-clothing (10) arranged in a side-by-side array on a spine (18) characterised in that the strips (10) are accumulated in a side-side array and a flexible tape spine having an adhesive surface is brought into a longitudinally progressing adhesive contact with the array to effect adhesion of the spine to the array along the length of the array.

8. A method of forming a card-clothing assembly as claimed in Claim 7, characterised in that whilst they are being accumulated in the array, the strips (10) are supported and the array is fed in a sideways direction, and at the same time, the array and the flexible spine are brought together, without relative movement between them in the said sideways direction, and caused to adhere to each other.

9. A method of forming a card-clothing assembly according to Claim 7 or Claim 8, characterised in that the flexible spine is applied to the array in a manner which will allow the spine to be subsequently peeled off the array.

10. A method of forming a card-clothing assembly according to any one of Claims 7 to 9, characterised in that a thermo-plastic tape (24, 28) is applied to the array in the molten state and allowed to set.

11. A carding or like machine element having applied thereto a card-clothing assembly in accordance with any one of Claims 1 to 6.

12. Apparatus for forming a card-clothing assembly by the method of Claim 7, comprising: means for cutting short strips (10a, 10b, 10c ...) from a long length of metallic-wire type card-clothing and assembling the short strips in a side-by-side array; means for feeding the array of short strips in a sideways direction; means (22) for feeding a flexible spine (18) in the same sideways direction and at the same linear speed as the array of wire strips, so that there is no relative sideways motion between the array and flexible spine, and means (22) for bringing the spine into attached engagement with the array during the sideways motion of the array and the spine.

13. Apparatus according to Claim 12, characterised in that the means for feeding the spine and for bringing the spine into engagement with the array are both constituted by a roller (22) over which the spine passes, the roller being so disposed relatively to the path of array of wire strips, that it presses the spine on to the strips.

Patentansprüche

1. Kardenbeschlaganordnung mit mehreren, reihenmäßig nebeneinander angeordneten Streifen von Metalldrahtkardenbeschlägen (10), mit einem sich in Längsrichtung erstreckenden und an wenigstens einer Fläche der Reihe angebrach-

ten Rücken (18), dadurch gekennzeichnet, daß der Rücken (18) ein biegsames Band enthält, das die Streifen in Stellung hält und jede wesentliche gegenseitige Trennung der Streifen in Längsrichtung der Reihe oder jede wesentliche gegenseitige Relativbewegung der Streifen in Seitenrichtung parallel zur Streifenlänge verhindert und das jedoch senkrecht zu dieser Seitenrichtung im wesentlichen völlig nachgiebig ist, so daß die Streifenreihe aufgerollt werden kann.

2. Kardenbeschlaganordnung nach Anspruch 1, dadurch gekennzeichnet, daß der Rücken (18) von der Reihenanordnung der Kardenbeschlagstreifen abgezogen werden kann.

3. Kardenbeschlaganordnung nach einem der Ansprüche 1 oder 2, dadurch gekennzeichnet, daß die Breite des Rückens (18) die Breite der Kardenbeschlagreihe nicht übertrifft.

4. Kardenbeschlaganordnung nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß das biegsame Band (18) eine selbstklebende Oberfläche aufweist.

5. Kardenbeschlaganordnung nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß ein Thermoplastband (24) an der Kardenbeschlagreihe angebracht ist.

6. Kardenbeschlaganordnung nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß auch ein flexibles Band (24) auf den Zähnen der Kardenbeschlagreihe so weit aufgenommen ist, daß die einzelnen Drahtstreifen des Kardenbeschlags an dem Band (24) durch Reibungseingriff der Zähne eines jeden Streifens festgelegt sind.

7. Verfahren zur Herstellung einer Kardenbeschlaganordnung nach Anspruch 1 mit mehreren, nebeneinander an einem Rücken (18) angeordneten Streifen von Metalldrahtkardenbeschlägen (10), dadurch gekennzeichnet, daß die Streifen (10) in einer Reihe nebeneinander angesammelt werden und ein biegsames Rückenband mit Kleboberfläche mit der Reihe in Längsrichtung fortschreitend klebend verbunden wird, um eine Haftung des Rückens mit der Reihe über ihrer Länge zu bewirken.

8. Verfahren zur Herstellung einer Kardenbeschlaganordnung nach Anspruch 7, dadurch gekennzeichnet, daß die Streifen (10) während ihrer Ansammlung in der Reihe gestützt werden, die Reihe in seitlicher Richtung beaufschlagt wird und gleichzeitig die Reihe und der biegsame Rücken ohne gegenseitige Bewegung in der seitlichen Richtung zusammengebracht und aneinander kleben gelassen werden.

9. Verfahren zur Herstellung einer Kardenbeschlaganordnung nach einem der Ansprüche 7 oder 8, dadurch gekennzeichnet, daß der biegsame Rücken so an die Reihe angebracht wird, daß er anschließend von ihr abgezogen werden kann.

10. Verfahren zur Herstellung einer Kardenbeschlaganordnung nach einem der Ansprüche 7 bis 9, dadurch gekennzeichnet, daß ein Thermoplastband (24, 28) in geschmolzenem Zustand an der Reihe angebracht wird und zum Erstarren kommt.

11. Teil einer Kardiermaschine oder dergleichen mit daran befestigter Kardenbeschlaganordnung nach einem der Ansprüche 1 bis 6.

12. Vorrichtung zur Herstellung einer Kardenbeschlaganordnung nach dem Verfahren in Anspruch 7 mit einer Einrichtung zum Schneiden kurzer Streifen (10a, 10b, 10c ...) von einem langen Stück eines Metalldrahtkardenbeschlags und Anordnen dieser Streifen in einer Reihe mit nebeneinander sich befindenden Streifen, mit einer Einrichtung zum Transport dieser Streifenreihe in seitlicher Richtung, mit einer Einrichtung (22) zum Transport eines biegsamen Rückens (18) in der gleichen seitlichen Richtung und mit der gleichen Lineargeschwindigkeit wie die Drahtstreifenreihe, so daß keine gegenseitige Steitenbewegung zwischen der Reihe und dem biegsamen Rücken auftritt, und mit einer Einrichtung (22), die den Rücken und die Reihe während ihrer seitlichen Bewegung in festen Eingriff miteinander bringt.

13. Vorrichtung nach Anspruch 12, dadurch gekennzeichnet, daß die Einrichtung zum Transport des Rückens und die Einrichtung, die den Rücken mit der Reihe in Eingriff bringt, von einer Walze (22) gebildet werden, über die der Rücken läuft und die bezüglich der Drahtstreifenreihe so angeordnet ist, daß sie den Rücken an die Streifen drückt.

Revendications

1. Ensemble pour garniture de carte comprenant plusieurs bandes (10) découpées dans une lame métallique et disposées côte-à-côte, ainsi qu'une "épine dorsale" longitudinale (18) appliquée contre au moins une surface (11) de l'ensemble de bandes, lequel est caractérisé par le fait que l'épine dorsale (18) se compose d'un ruban flexible capable de maintenir les bandes formant l'ensemble et d'empêcher toute séparation appréciable des bandes par rapport les unes aux autres, ou tout mouvement appréciable de ces bandes par rapport les unes aux autres dans une direction latérale, parallèle à longueur de ces bandes, tout en permettant leur flexion à peu près totale dans une direction perpendiculaire à ladite direction latérale, ce qui permet d'enrouler l'ensemble des bandes en spirale.

2. Ensemble pour garniture de carte selon la Revendication 1, caractérisé par le fait ladite épine dorsale (18) peut être enlevée par simple arrachement de l'ensemble de bandes pour garniture de carte.

3. Ensemble pour garniture de carte selon l'une ou l'autre des Revendications 1 ou 2, caractérisé par le fait que la largeur de ladite épine dorsale (18) n'excède pas la largeur de l'ensemble pour garniture de carte.

4. Ensemble pour garniture de carte selon l'une quelconque des Revendications 1 à 3, caractérisé par le fait que le ruban flexible (18) présente une surface autocollante.

5. Ensemble pour garniture de carte selon l'une quelconque des Revendications 1 à 4, caractérisé

par le fait que l'on applique un ruban (24) en matière thermoplastique sur l'ensemble de bandes pour garniture de carte.

6. Ensemble pour garniture de carte selon l'une quelconque des Revendications 1 à 4, caractérisé par le fait qu'il est également prévu un ruban flexible (24) appliqué contre les dents de l'ensemble de bandes métalliques (10) de façon que les bandes individuelles qui constituent cette garniture deviennent solidaire de ce ruban flexible (24) par enfoncement des dents de chacune de ces bandes dans la matière du ruban flexible (24).

7. Procédé pour obtenir l'ensemble pour garniture de carte selon la Revendication 1, lequel comprend plusieurs bandes de garniture (10) réalisées à partir d'une lame métallique et disposées côte-à-côte sur une épine dorsale (18), ce procédé étant caractérisé par le fait que les bandes (10) sont réunies côte-à-côte pour former ledit ensemble et qu'une épine dorsale sous forme d'un ruban flexible ayant une surface adhésive est amenée à entrer progressivement en contact dans le sens longitudinal avec l'ensemble, afin que l'épine dorsale adhère à la totalité de la surface de l'ensemble.

8. Procédé pour obtenir l'ensemble pour garniture de carte selon la Revendication 7, caractérisé par le fait que, pendant que lesdites bandes métalliques (10) sont réunies pour former ledit ensemble, elles sont supportées et l'ensemble compact ainsi formé est déplacé dans des directions latérales, et qu'en même temps l'ensemble de ces bandes métalliques et l'épine dorsale sont rapprochés entre elles, sans produire de déplacement relatif entre les bandes et l'épine dorsale dans lesdites directions latérales, afin qu'elles puissent adhérer entre elles.

9. Procédé pour obtenir un ensemble de garniture de carte selon l'une ou l'autre des Revendications 7 ou 8, caractérisé par le fait que l'on applique l'épine dorsale flexible audit ensemble

de façon à permettre d'enlever ultérieurement cette épine dorsale de l'ensemble par simple arrachement.

10. Procédé pour obtenir un ensemble pour garniture de carte selon l'une quelconque des Revendications 7 à 9, caractérisé par le fait qu'on applique un ruban thermoplastique (24, 28) sur l'ensemble alors que ce ruban thermoplastique est à l'état fondu, après quoi on le laisse durcir.

11. Machine telle que carte ou analogue, équipée d'un ensemble pour garniture de carte selon l'une quelconque des Revendications 1 à 6.

12. Appareil pour obtenir un ensemble pour garniture de carte par le procédé de la Revendication 7, caractérisé par le fait qu'il comprend un moyen pour découper de courtes bandes (10a, 10b, 10c, ...) dans une garniture de carte du genre constitué par de courtes bandes métalliques découpées dans un profilé relativement long, et pour assembler ces courtes bandes de façon à former un ensemble de bandes disposées côte-à-côte; un moyen pour faire avancer cet ensemble de courtes bandes dans une direction latérale; un autre moyen (22) pour délivrer une "épine dorsale" flexible (18) dans la même direction latérale et à la même vitesse linéaire que celles de l'ensemble de bandes précité, afin qu'il ne se produise aucun déplacement relatif latéral entre l'ensemble et l'épine dorsale flexible, et un moyen (22) pour faire en sorte que l'épine dorsale adhère audit ensemble pendant le déplacement latéral de l'ensemble et de l'épine dorsale.

13. Appareil selon la Revendication 13, caractérisé par le fait que le moyen prévu pour mettre en contact l'épine dorsale et l'ensemble comprend un galet (22) autour duquel l'épine dorsale est amenée à passer, ce galet étant disposé de telle sorte, par rapport au trajet de l'ensemble de bandes métalliques, qu'il applique avec une certaine pression ladite épine dorsale contre lesdites bandes métalliques.

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