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Improvements in or relating to envelope assemblies

This invention relates generally to a self-sealed envelope assembly having a free insert therein, and more particularly to such an assembly wherein the insert is immobilized in place by means of self-adhering material at least partially securing the envelope plies together and in contact with the insert.

Various types of stuffed sealed envelopes having free inserts therein are known from the prior art. For example, U.S. Patent Specification No 4,010,889 commonly owned herewith discloses a free insert immobilized in place within the outer envelope plies by means of retention chips bearing against opposed side and end edges of the insert. U.S. Patent Specification No 3,777,971 discloses a free insert being held in place within a stuffed sealed envelope by means of embossments struck from one of the outer envelope plies and presenting shoulders abutting against edges of the insert. Still further, in U.S. Patent Specification No 3,339,827, a free insert is immobilized within a stuffed sealed envelope by means of adhesive used in securing the outer envelope plies together. Furthermore in U.S. Patent Specification No 3,941,308 there is described an insert disposed between the front and back sheets by a longitudinal line and transverse lines of adhesive spaced between adjacent sections of the front and back sheets. The lines of adhesive adhere together to secure and register the insert.

All four of these constructions, however, are to some degree difficult to assemble because of the production accuracy required in assuring that the insert may be extracted without interference. This is a particular problem in the assembly of continuous envelopes in accordance with the aforementioned '827 Patent since even a small portion of the glue used in securing the outer envelope plies together will render the insert difficult to extract if the glue touches any portion of the insert. Hence, extreme care must be taken during the manufacture of the envelope assemblies in assuring that the glue streams are spaced a slight distance away from the peripheral edge of the insert so that such edges are unattached to the glue, as required.

Other prior art relating to the invention may be found in U.S. Patent Nos 3,208,662 and 3,208,663 wherein self-stick adhesive is utilized for retaining fold-flap envelopes onto a support web without the adhesive sticking to the envelopes themselves. Neither Patent, however, discloses a stuffed sealed envelope assembly as in the invention.

In U.S. Patent Specification No 3,208,662 there is described an envelope assembly with a backing sheet, a plurality of envelopes and a pair of longitudinally extending tapes. The

backing sheet and the tapes have adhesive which is of the kind which adheres to itself and the adhesive extends lengthwise of the assembly and is so arranged that the adhesive secures the tape to the backing sheet but not to the envelope.

Summary of the Invention

It is an object of the present invention to provide a stuffed sealed envelope assembly having a free insert maintained in registry therein without shifting relative to the outer plies, the construction of such envelope assembly avoiding the difficulties during production and insert extraction experienced with prior art stuffed sealed envelope assemblies having free inserts.

Another object of the invention is to provide such a stuffed sealed envelope assembly capable of being manufactured quickly and economically as the inserts are placed in contact with the means securing the outer envelope plies together yet remain unattached to such means as to provide a snug peripheral embrace of the insert and at the same time insure easy extraction without interference.

According to the present invention an assembly of stuffed sealed envelopes comprising superimposed upper, intermediate and lower continuous plies 11, 18, 12 respectively defining envelope fronts, inserts and envelope backs delimited by spaced cross lines 13 of weakening in said plies and means in said fronts and backs for opening the sealed envelopes and extracting said insert, said inserts being wholly unsecured to said upper and lower plies, a first opposed pair of free marginal edges lying along opposite sides of each of said cross lines, first and second sealing portions respectively on said upper and lower plies in confronting relationship and lying along said cross lines, said portions adhering only to each other to thereby secure said fronts and backs together along said opposed edges, is characterized in that said portions overlap opposite sides of each said insert at said opposed edges thereby solely to prevent shifting of said inserts parallel to a second opposed pair of free marginal edges, said insert being in contact with said portions but unattached thereto, means along said second edges securing said upper and lower plies together and preventing shifting of said insert parallel to said first edges, there being no means at said first edges other than said sealing portions for preventing the shifting of said inserts parallel to said second edges.

The invention will now be described by way of example with reference to the accompanying drawings wherein:—

FIG 1 is a perspective view of series-connected envelopes constructed according to one embodiment of the invention with a portion

thereof broken away for clarity;

FIG 2 is a plan view of an intermediate web forming insert sheets within the series-connected envelope assemblies of Fig 1.

FIG 3 is a slightly enlarged plan view of an individual envelope of the Fig 1 assembly with the feed bands removed and being partly broken away for clarity;

FIGS. 4, 5 and 6 are sectional views taken respectively along lines 4-4, 5-5 and 6-6 of Fig 3;

FIG 7 is a view similar to Fig 1 of another embodiment of the present invention;

FIG 8 is a plan view of an intermediate web forming insert sheets within the series — connected envelope assemblies of Fig 7;

FIG 9 is a slightly enlarged plan view of an individual envelope of the Fig 7 assembly with the feed bands removed and being partly broken away for clarity;

FIGS 10 and 11 are sectional views respectively taken along lines 10-10 and 11-11 of Fig. 9.

Detailed Description of the Invention

Turning now to the drawings wherein like reference characters refer to like and corresponding parts throughout the several views, a continuous series of stuffed sealed envelope assemblies generally designated 10 are shown in Fig. 1 as constructed of superimposed continuous upper and lower plies 11 and 12 having spaced cross lines 13 of weakening therein so as to respectively define envelope front and back sheets 14 and 15 (Figs. 3 to 6). Superimposed longitudinal lines 16 of weakening are provided in the upper and lower plies near opposite edges so as to define removable feed bands having spaced feed holes 17 therein.

A continuous intermediate web 18, shown in Fig. 2, is disposed between the upper and lower plies and has die cuts 19 formed therein extending along opposite sides of lines 13 of weakening. The die cuts thereby define a series of insert sheets 21 having connecting portions 22 and 23 between adjoining sheets at opposite ends of the die cuts.

Plies 11 and 12 are respectively provided with confronting strips of securing means 24 and 25, such as self-stick adhesive, along opposing side edges thereof. Strips 26 and 27 are likewise provided on the inner surfaces of the upper and lower plies in confronting relationship along and spaced slightly inwardly of cross lines 13 of weakening. These strips may likewise comprise self-stick adhesive which, together with strips 24 and 25, may be of the conventional latex adhesive which adhere on contact or the heat sealing adhesive variety such that confronting strips will adhere only to each other at elevated temperatures but not to the insert sheets of the intermediate ply as will be hereinafter more fully described. Such adhesive may therefore be active by simple

contact or activated by pressure, by heat, or such self-stick adhesive may be of the type which is activated by remoistening or the type activated by radiation. Moreover, such confronting strips of securing means may include material such as polyethylene which is activated upon application of heat thereto.

Strips 24 and 25 are disposed along opposite side edges 28 and 29 of inserts 21 and are of sufficient width as to lie both inwardly and outwardly of these side edges (Figs. 3 and 4). Likewise, confronting strips 26 and 27 of the securing means lie along opposing end edges 31 and 32 of the inserts and are of sufficient width as to lie both inwardly and outwardly of these end edges, as seen in Figs. 1, 3 and 5. Hence, by the nature of such confronting strips of adhering means, strips 24 and 25 adhere only to each other and not to any portion of the inserts along opposite edges 28 and 29. Likewise, confronting strips 26 and 27 adhere only to each other and to no portion of the inserts along opposing end edges 31 and 32. Each insert 21, as shown for envelope assembly 10 of Fig. 3 is thereby immobilized between the envelope front and back while being in contact with the strips of securing means, but unattached thereto.

As in the aforementioned commonly owned 889 patent, connections 22 and 23 are severed from the inserts during some convenient stage of the web processing operation. Such may be carried out by cutting connections 22 and 23 along lines 33a, shown in dotted outline in Fig. 2, so as to produce clean cuts 33. These cuts may be made through one of the outer plies such as lower ply 12, as shown at 34 in Fig. 6, thereby serving the dual purpose of severing connections 22 and 23 from the insert sheets, and permitting any entrapped air within the sealed envelope assembly to escape. A completely flat envelope assembly is therefore made possible so as to avoid the "pillowed effect" normally occurring during the production of sealed envelopes.

Longitudinal lines 35 and 36 of weakening are respectively provided in the upper and lower plies at one end of the envelope assemblies slightly inwardly of strips 24 and 25 of the securing means. A stub 37 is therefore produced which, upon removal, will serve to open the envelope and extract the insert sheet. Thumb notch 38 may be formed at lines 35 and 36 to facilitate easier grasping of the stub which overlaps an end portion of the insert sheet.

From the foregoing it can be seen that the envelope assemblies produced according to the aforescribed embodiment include free inserts which are maintained in registry between the envelope front and back without shifting relative thereto since strips 24 and 26 of the securing means respectively confronting strips 25 and 27 of the securing means are activated when brought into contact with one another, although the securing means is such that it will

not adhere to any portion of the insert despite being in contact therewith. The inserts nevertheless remain unattached to the confronting strips of securing means. Such an arrangement is graphically illustrated in Figs. 4 and 5 where, for purposes of the description, the inserts are shown spaced from the strips of securing means when in fact they are in contact therewith but remain nevertheless unattached thereto. The insert is accordingly maintained in a desired registration position within the envelope during processing thereof through the computer printing equipment.

In another embodiment according to the invention, a continuous series of stuffed sealed envelope assemblies generally designated 39 are shown in Fig. 7 as constructed of superimposed continuous upper and lower plies 41 and 42 having spaced transverse lines 43 of weakening therein for delimiting envelope front and back sheets 44 and 45 (Figs. 9 to 11).

A continuous intermediate ply 46 is located between the upper and lower plies and has die cuts 47 formed therein (see Fig. 8) at spaced locations so as to extend along opposite sides of transverse lines 43. These lines are likewise provided in the remainder of intermediate ply 46 in superimposed relationship with such lines provided in the upper and lower plies, so as to thereby define together with the die cuts a series of insert sheets 48 held together by connecting portions 49 at opposite ends of the die cuts. And, superimposed longitudinal lines 51 of weakening are provided in each of the plies along opposite longitudinal edges for delimiting feed bands 52 having spaced feed holes 53 therein for engaging the pins of a tractor pin feed device of web processing equipment.

The upper, intermediate and lower plies are interconnected together by means of longitudinal glue streams 54 and 55 lying inwardly of lines 51 of weakening. As seen in Fig. 10, these glue streams interconnect portions 49 of the intermediate ply with the upper and lower plies. And, the upper and lower plies 41 and 42 are respectively provided with confronting portions 56 and 57 of securing means, such as self-stick adhesive, along transverse lines 43 of weakening and extending between glue streams 54 and 55. These adhesive portions are of the same type of self-stick adhesive as described earlier with reference to securing strips 24 to 27. And, as shown in Figs. 7 and 11, such adhesive portions are of sufficient width as to lie both inwardly and outwardly of opposing side edges 58 and 59 of insert sheets 48. Therefore, due to the particular characterization of confronting adhesive portions 56 and 57, they adhere to each other and not to any portion of the insert sheets along opposing edges 58 and 59. And, it should be pointed out that portions 56 and 57 need not be applied in continuous cross strips to the upper and lower plies as shown in Fig. 7, but may instead be formed as a

plurality of adhesive spots extending both inwardly and outwardly of opposing edges 58 and 59 of the inserts, without departing from the invention. Such portions could likewise be applied to the upper and lower plies respectively as an interrupted longitudinal stream or as several interrupted longitudinal streams between glue streams 54 and 55.

Connecting portions 49 are severed from the inserts during some convenient stage of the web processing operation, similarly as described for connections 22 and 23 shown in the aforescribed embodiment. Connecting portions 49 may be separated from the insert sheets by cutting along lines 61a, shown in phantom outline in Fig. 8, so as to produce clean cuts 61. The severed connecting portions 49 therefore define chip elements abutting opposite ends of the inserts for immobilizing them between the upper and lower plies together with confronting adhesive portions 56 and 57.

Longitudinal lines 62 and 63 of weakening are respectively provided in the upper and lower plies at one end of the envelope assemblies slightly inwardly of one of the feed strips 52 and inwardly of the adjacent end edges defined by cuts 61 of the inserts to thereby define a stub 64 which, upon removal, will serve to open the envelope and extract the insert sheet. A thumb notch 65 may be formed at lines 62 and 63 so as to further overlap the insert sheet of each assembly thereby facilitating easier grasping of the stub.

The envelope assemblies produced in accordance with the Figs. 7 to 11 construction include free and unattached inserts held in a desired registration position between the fronts and backs of the envelopes by means of contacting securing portions 56 and 57 preventing the inserts from shifting longitudinally during web processing. And, any side shifting tendency is prevented by chip elements 49, although it should be pointed out that such side shifting is not likely to occur even without the provision of chips 49 since the snug embrace between the inserts and securing means 56 and 57 is sufficient to maintain the insert sheets in accurate registry within the envelope pockets of the assemblies.

Claims

1. An assembly of stuffed sealed envelopes, comprising superimposed upper, intermediate and lower continuous plies (11, 18, 12, 41, 48, 42) respectively defining envelope fronts, inserts and envelope backs delimited by spaced cross lines (13, 43) of weakening in said plies and means in said fronts and backs for opening the sealed envelopes and extracting said insert, said inserts being wholly unsecured to said upper and lower plies, a first opposed pair of free marginal edges (31, 32, 58, 59) lying along opposite sides of each of said cross lines, first

and second sealing portions (26, 27, 56, 57) respectively on said upper and lower plies (11, 12, 41, 42) in confronting relationship and lying along said cross lines (13, 43) said portions (26, 27, 56, 57) adhering only to each other to thereby secure said fronts and backs together along said opposed edges, characterised in that said portions (26, 27, 56, 57) overlap opposite sides of each said insert at said opposed edges thereby solely to prevent shifting of said inserts parallel to a second opposed pair of free marginal edges, said insert being in contact with said portions but unattached thereto, means (24, 25, 54, 55) along said second edges securing said upper and lower plies together and preventing shifting of said insert parallel to said first edges, there being no means at said first edges other than said sealing portions for preventing the shifting of said inserts parallel to said second edges.

2. The assembly according to claim 1 wherein said first and second portions (24, 25, 54, 55) comprise self-stick adhesive.

3. The assembly according to claim 1 wherein said means at said second opposed pair of edges (24, 25, 54, 55) of each said insert comprise first glue streams spaced from said second edges.

4. The assembly according to claim 3 wherein said means further comprises chip elements (49) abutting said second opposed pair of edges of each said insert, said chip elements being initially a part of said intermediate ply but severed therefrom.

Revendications

1. Ensemble d'enveloppes fermées rembourrées, comprenant des plis supérieur, intermédiaire et inférieur continus superposés (11, 18, 12, 41, 48, 42) définissant respectivement des avants d'enveloppe, des encarts et des arrières d'enveloppe délimités par des lignes transversales espacées (13, 43) d'affaiblissement dans les plis et des moyens dans les avants et les arrières pour ouvrir les enveloppes fermées et extraire l'encart, lesdits encarts étant entièrement non fixés auxdits plis supérieur et inférieur, une première paire de bords marginaux libres opposés (31, 32, 58, 59) situés le long de côtés opposés de chacune desdites lignes transversales, une première et une deuxième parties de fermeture (26, 27, 56, 57) respectivement sur lesdits plis supérieur et inférieur (11, 12, 41, 42), placées face à face et situées le long desdites lignes transversales (13, 43), lesdites parties (26, 27, 56, 57) adhérant seulement entre elles de manière à fixer ensemble les avants et les arrières le long desdits bords opposés, caractérisé par le fait que lesdites parties (26, 27, 56, 57) chevauchent des côtés opposés de chacun desdits encarts auxdits bords opposés de manière à empêcher seulement le déplacement des encarts parallèlement à une deuxième paire

de bords marginaux libres opposés, ledit encart étant en contact avec lesdites parties mais non fixé à celle-ci, des moyens (24, 25, 54, 55) prévus le long desdits deuxième bords fixant ensemble lesdits plis supérieur et inférieur et empêchant le déplacement dudit encart parallèlement aux premiers bords, aucun moyen n'étant prévu auxdits premiers bords, à part lesdites parties de fermeture, pour empêcher le déplacement des encarts parallèlement auxdits deuxième bords.

2. Ensemble selon la revendication 1, dans lequel lesdites première et deuxième parties (24, 25, 54, 55) comprennent un autoadhésif.

3. Ensemble selon la revendication 1, dans lequel lesdits moyens prévus à ladite deuxième paire de bords opposés (24, 25, 54, 55) de chacun desdits encarts comprennent des premiers filets de colle espacés desdits deuxième bords.

4. Ensemble selon la revendication 3, dans lequel lesdits moyens comprennent en outre des éléments en patte (49) butant contre ladite deuxième paire de bords opposés de chaque encart, lesdits éléments en patte étant initialement une partie dudit pli intermédiaire mais séparés de celui-ci.

Patentansprüche

1. Verband aus gefüllten, verschlossenen Briefumschlägen mit in Deckung miteinander angeordneten oberen, mittleren und unteren endlosen Schichten (11, 18, 12; 41, 48, 42), die Briefumschlag-Vorderseiten, Einlagen und Briefumschlag-Rückseiten bilden, welche durch in Abständen verteilte Querlinien (13; 43) abgegrenzt sind, an denen die Schichten geschwächt sind, sowie mit an den Vorder- und Rückseiten ausgebildeten Einrichtungen zum Öffnen der verschlossenen Briefumschläge und zur Ermöglichung des Entnehmens der Einlagen, wobei die Einlagen an den oberen und unteren Schichten an keiner Stelle befestigt sind, sowie einem ersten Paar von einander gegenüberliegenden freien Rändern (31, 32; 58, 59), die auf entgegengesetzten Seiten jeder der Querlinien angeordnet sind, und ersten und zweiten Verschlußabschnitten (26, 27; 56, 57) an den oberen bzw. unteren Schichten (11, 12; 41, 42) gegenüber den Querlinien (13, 43) und längs dieser Querlinien verlaufend, wobei die Verschlußabschnitte (26, 27; 56, 57) nur an sich selbst haften, um hierdurch die Vorder- und Rückseiten an einander gegenüberliegenden Rändern aneinander zu befestigen, dadurch gekennzeichnet, daß die genannten Abschnitte (26, 27; 56, 57) einander gegenüberliegende Ränder jeder Einlage an den einander gegenüberliegenden Rändern überlappen, um hierdurch lediglich eine Verlagerung der Einlagen parallel zu einem zweiten Paar von einander gegenüberliegenden freien Rändern zu verhindern, wobei jede Einlage in Berührung mit den genannten Abschnitten steht, jedoch nicht

darán befestigt ist, sowie Einrichtungen (24, 25; 54, 55), die sich längs der genannten zweiten Ränder erstrecken, um die oberen und unteren Schichten aneinander zu befestigen und eine Verlagerung der Einlagen parallel zu den zuerst genannten Rändern zu verhindern, wobei an den genannten ersten Rändern außer den Verschlußabschnitten keine weiteren Einrichtungen vorhanden sind, die eine Verlagerung der Einlagen parallel zu den genannten zweiten Rändern verhindern.

2. Verband nach Anspruch 1, dadurch gekennzeichnet, daß die ersten und zweiten Verschlußabschnitte (24, 25; 54, 55) mit einem selbstklebenden Klebstoff versehen sind.

3. Verband nach Anspruch 1, dadurch gekennzeichnet, daß die genannten Einrichtungen an den einander gegenüberliegenden Rändern des zweiten Paares (24, 25; 54, 55) jeder Einlage mit ersten Leimstreifen versehen sind, die von den zweiten Rändern jeweils durch einen Abstand getrennt sind.

4. Verband nach Anspruch 3, dadurch gekennzeichnet, daß zu den genannten Einrichtungen ferner Flächenelemente (49) gehören, die mit den beiden einander gegenüberliegenden Rändern jeder Einlage stumpfe Stoßstellen bilden, anfänglich mit der mittleren Schicht zusammenhängen, jedoch davon getrennt sind.

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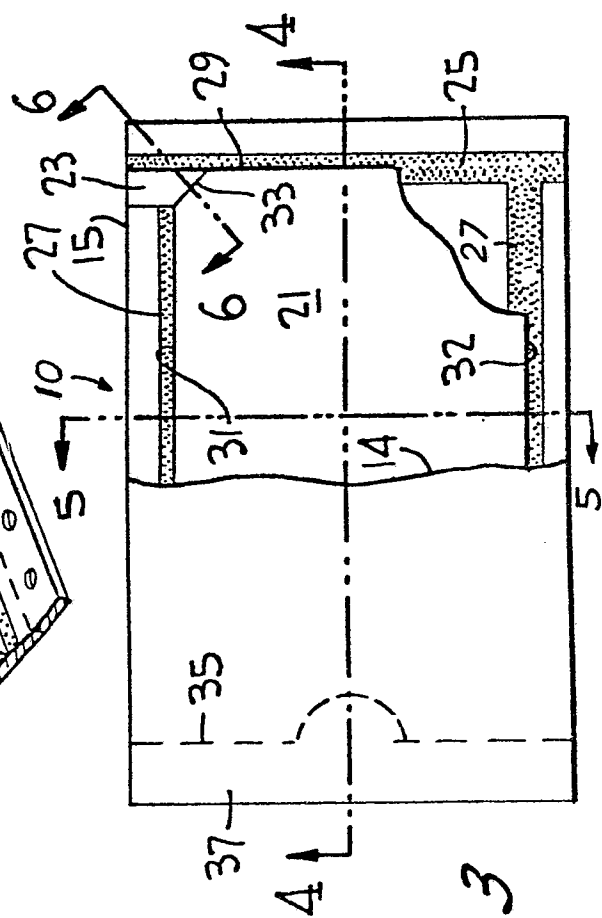
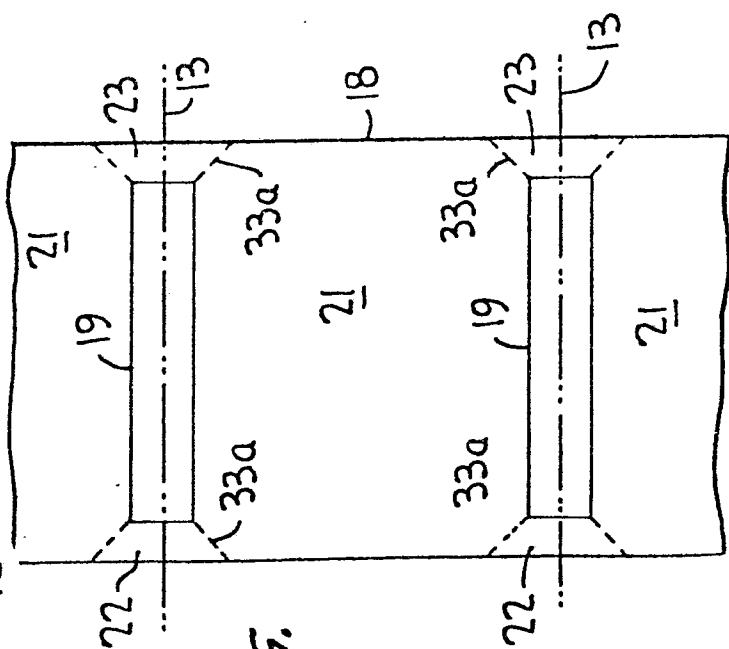
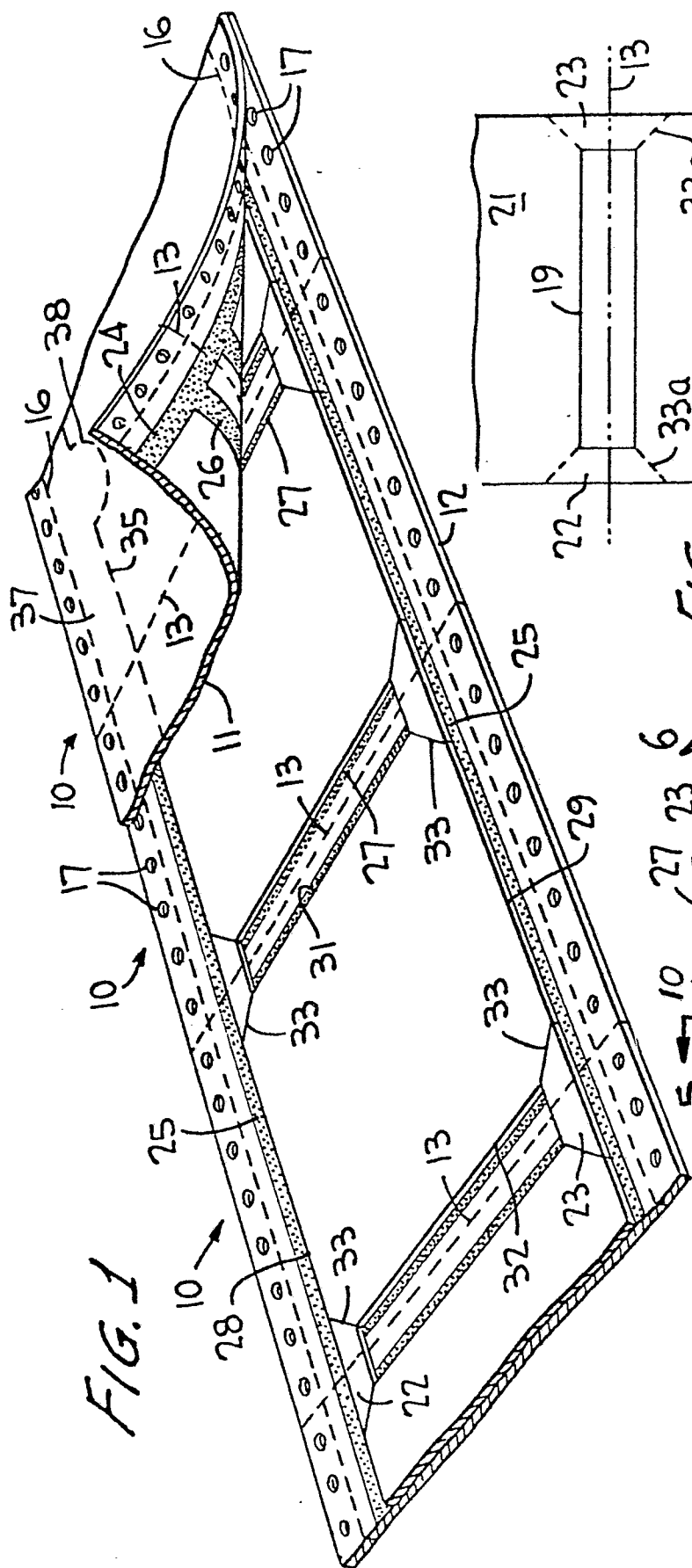


FIG. 4

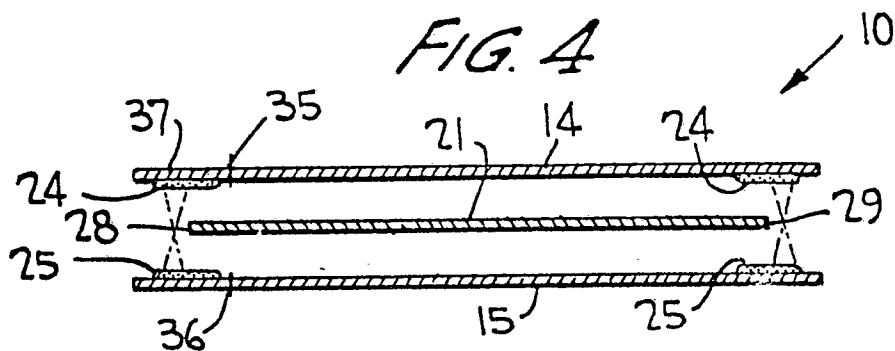


FIG. 5

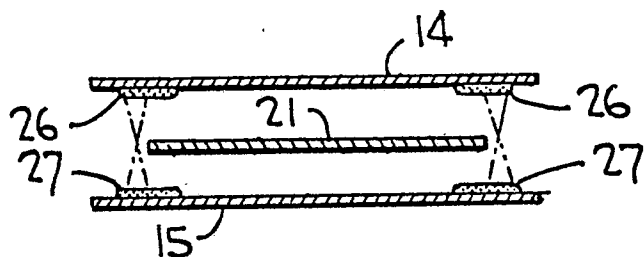


FIG. 6

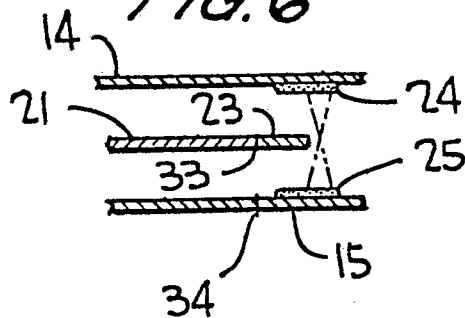
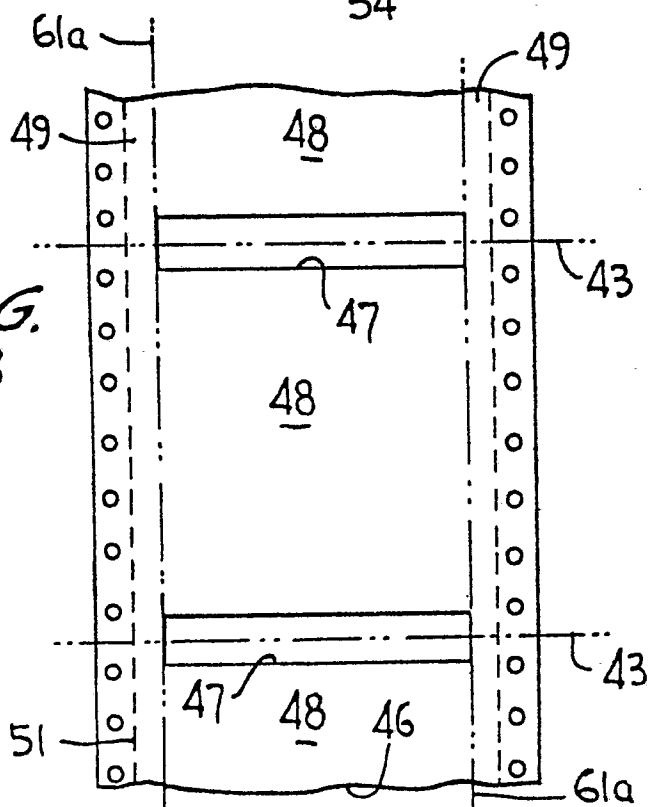


FIG. 8



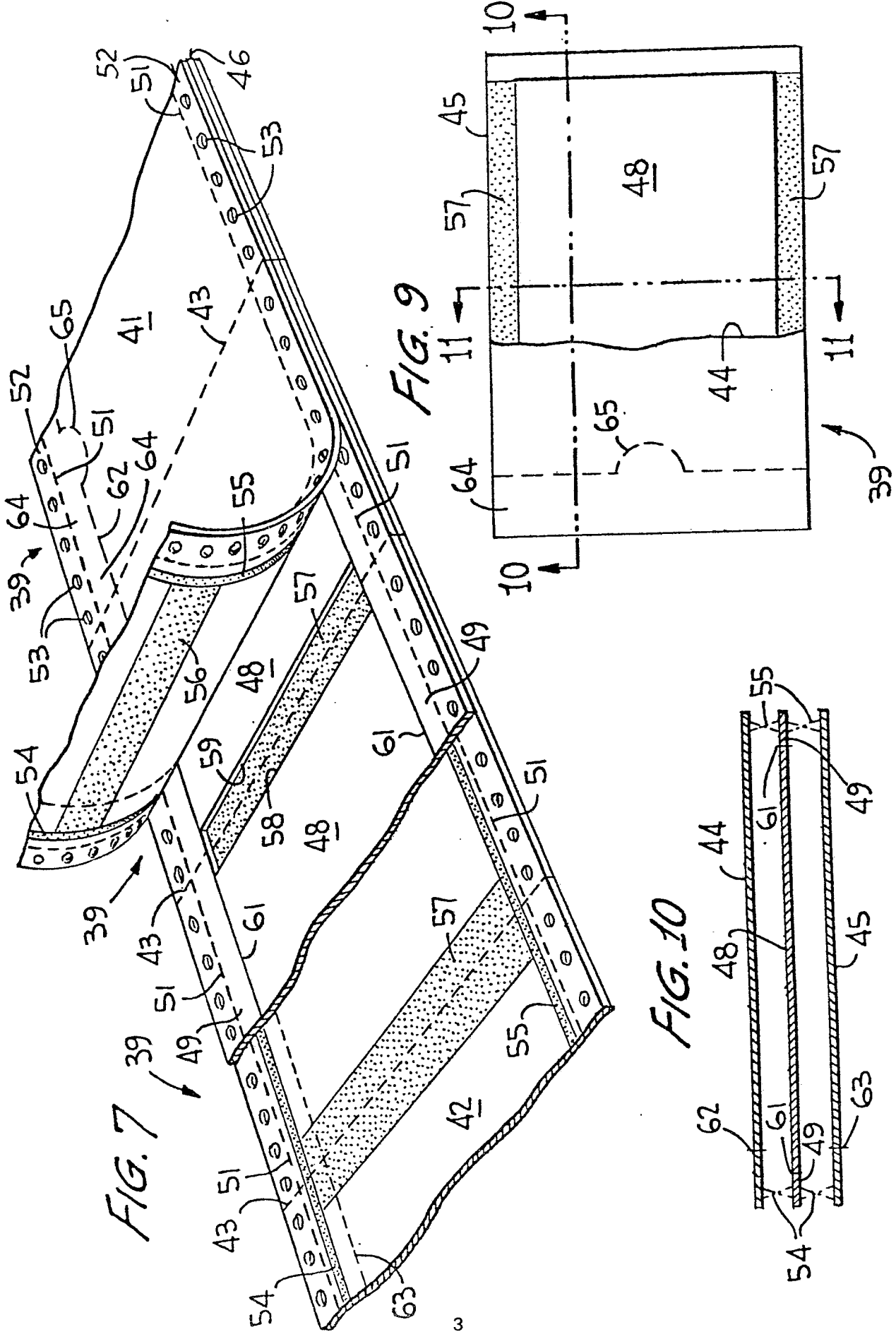


FIG. 11

