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(54) **MULTIPLE SHEET CORRESPONDENCE FORM AND A MACHINE FOR THE PROCESSING THEREOF**

(57) A multiple sheet correspondence form (1) comprising a first sheet (2) having a rear face (4) for containing the first page of a correspondence text, with portions (8) which may be gummed. The first sheet (2) comprises, among other features, a first fold line (20) and a second fold line (22). The form (1) further comprises at least one

second sheet (3) for containing at least the second page of a correspondence text, which is narrower than the first sheet (2). The form (1) may be folded along the first and second fold lines (20, 22) and sealed such as to guarantee the indivisibility and confidentiality of the content. The invention further relates to a processing machine (32) for multiple sheet correspondence forms (1) of the invention.

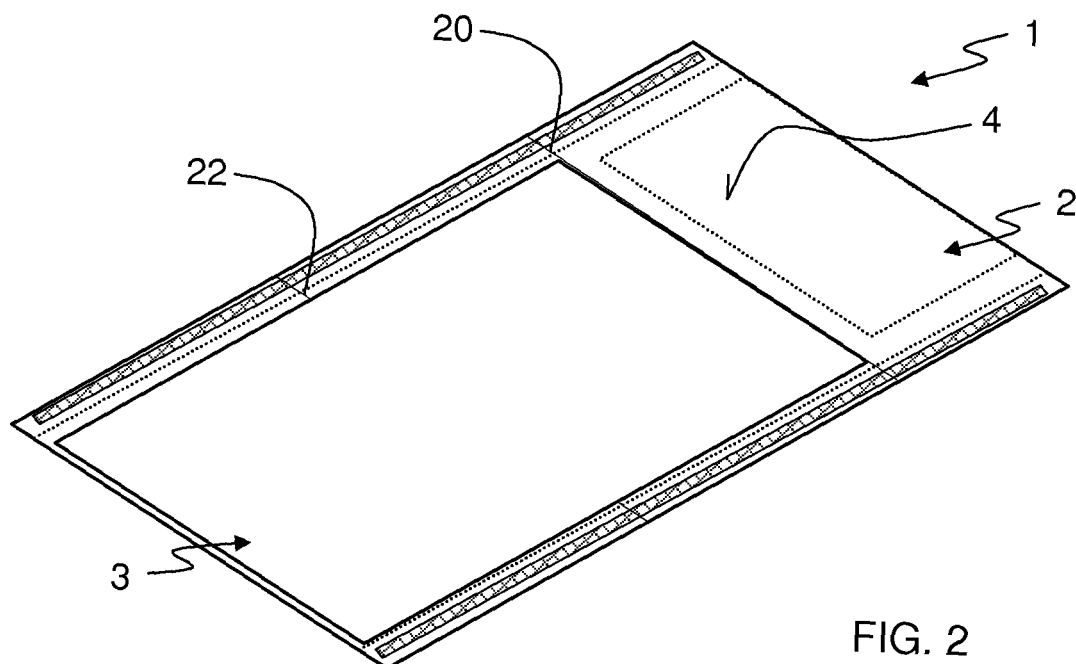


FIG. 2

Description

Field of the Invention

[0001] The invention relates to a multiple sheet correspondence form comprising a first sheet having a rear face for containing the first page of the correspondence text and which comprises two first longitudinal edge areas having first portions which may be gummed; a front face opposite to said rear face for containing at least data relative to the addressee, comprising two second longitudinal edge areas, having second portions which may be gummed; first and second transverse edges; a first substantially transverse fold line adjacent said first transverse edge, and a second substantially transverse fold line which is located between said first fold line and said second transverse edge.

[0002] Likewise, the invention relates to a machine for processing multiple sheet correspondence forms comprising a folding area with at least one first pair of intake folding rollers and a second pair of outlet folding rollers and a sealing area having a plurality of sealing rollers disposed at the exit from said folding area downstream of said second pair of rollers.

State of the Art

[0003] For an official communication to have legal effects there is the legal obligation of guaranteeing that the correspondence sent to an addressee is that which the latter really receives. This feature is known as the indivisibility of the correspondence.

[0004] Presently, this guarantee obligation is only achieved when the correspondence is sent through a notary public, namely, when the notary certifies that the correspondence inserted in an envelope is that which is sent to the addressee of the envelope. This means that this way is mainly used by natural persons or companies which only have to guarantee the indivisibility occasionally.

[0005] The correspondence of more than one sheet sent from any type of administration, Justice, Tax Authority, Government, etc., does not afford this guarantee. The reason for this is the great volume of correspondence generated by the administration, the cost of notaries that this would entail and the terms to be fulfilled which in the majority of cases this correspondence implies.

[0006] It is also known to send letters with acknowledgement of receipt by which it is certified that the Postal Authority has delivered an envelope to the addressee. Nevertheless, in this case, the Postal Authority does not certify the content of the envelope, namely, it does not certify the indivisibility.

[0007] Alternatively, there is the possibility of the Postal Authority certifying the sheets sent with a stamp impress. In this case, the user goes to a Post Office with the envelope open, each of the sheets to be sent is stamped, the envelope is closed and the "n° of stamped

sheets" is stated on the registration documentation. This does not add any cost to the registration process, but this way is only valid for written communication between natural or legal persons towards the administration, but not between natural or legal persons. In this case, the alternative to going through a notary is a bureaufax communication.

[0008] On the other hand, it is also known a system of acknowledgement of receipt of multiple sheet correspondence sent to the addressee. An envelope is known which has an acknowledgement of receipt card sticker at one side of the envelope window. The destination details given in the correspondence may be seen through the window and these may be typed or handwritten on the acknowledgement of receipt card. The purpose of this system or process is to simplify the method of preparing a traditional acknowledgement of receipt card which after being completed is adhered to the back of the envelope. This avoids the operation of adhering the card and thereby avoids the risk of error by interchanging cards when several letters are written. But there is still no guarantee that a letter of one or several sheets is sent. ES1041028 of the same applicant discloses a correspondence form without envelope for confidential correspondence contents. The form does not solve the problem of the indivisibility of multiple sheet correspondence.

Summary of the Invention

[0009] It is an object of the invention to propose a multiple sheet correspondence form which is suitable for simply and economically validly guaranteeing the indivisibility of multiple sheet correspondence, namely without the need of having to go through a notary, as well as the confidentiality of the information contained in the form. This object is achieved by a multiple sheet correspondence form of the type first mentioned above, **characterised in that** said form further comprises at least one second sheet for containing at least the second page of a correspondence text, consecutive to said first page, the width of said second sheet being smaller than the distance comprised between said first longitudinal edge areas of said first sheet, and for being contained inside said form on said rear face, said form being suitable for having a first fold along said second fold line opposing the rear face on itself, and a second fold along said first fold line opposing the remaining section of said rear face comprised between said first transverse edge and said first fold line with the corresponding front face section.

[0010] In the invention, the first and second fold lines do not necessarily have to be physically marked on the sheet, but may also be a linear geometrical locus where the first sheet will be folded at the right time. It should also be pointed out that the idea of second sheet should be understood as a second type of sheet namely that in the form of the invention there will be one or more second sheets of the same format.

[0011] This form provides multiple advantages. In the

first place, the text of the first page starts on the same first sheet, whereby there is guaranteed the continuity between the information relating to the sender and the addressee and the content of the letter. On the other hand, the second sheet or sheets, which it should be remembered have been inseparably folded within the first sheet, contain the consecutive pages of the text, such that the continuity or indivisibility of the correspondence sent is thereby guaranteed. Also, thanks to the folding and sealing with glue, the confidentiality of the letter is guaranteed, since no access may be had to the information contained until the first sheet of the form has been opened, by destroying the glued joint of the edges of the first sheet. Also thanks to the second sheet or sheets being narrower than the distance between the edge areas where the glue is applied, it is guaranteed that the second sheets may not become impregnated with the sealing glue and thereby prevent a correct closing of the form. In other words, the combination of technical features has the technical effect of guaranteeing, on the one hand the indivisibility and, on the other hand the confidentiality of the content of the form. This also has the advantage of optimizing the closing points of the form, since thanks to its folding it is not absolutely necessary to dispose gluing points transversal to the longitudinal direction of the form, namely parallel to the edges of the first sheet.

[0012] The length of said second sheet is preferably shorter than the length of said first sheet. This thereby hinders access to the inner sheets of the form through the first transverse edge of the first sheet, thereby preventing anybody from trying to pull out the inner sheets without opening the form.

[0013] It is especially preferred that the length of said second sheet is the same as or smaller than the distance between said second transverse edge and said first fold line, so that it is impossible to remove the inner sheets without previously opening the outer sheet.

[0014] The length between said second transverse edge and said second fold line is preferably the same as the length between said second fold line and said first fold line.

[0015] Preferably a first glue band is comprised on said rear face substantially over the entire length of said first portions and a second glue band on said front face at the most on the distance between said second transverse edge and said second fold line. This allows the glue used on the form to be optimized, without thereby impairing correct closure thereof.

[0016] The invention also contemplates the problem of simplifying the closure of the form to the utmost, as well as the machine with which it must be closed. Therefore, advantageously said first and second glue bands are constituted by pressure-sensitive glue, and particularly preferably high pressure. This avoids the need of special folding machines having glue metering devices.

[0017] Alternatively, said first and second glue bands are constituted by wettable glue. This allows the costs of

the form to be reduced, since the wettable glues are particularly cheap. This type of form requires a folding machine fitted with moisturizing devices.

[0018] Also alternatively, said first and second bands are applied by glue metering devices prior to folding, provided on the folding machine itself. This reduces the costs of the form, but requires a machine having glue metering devices.

[0019] It may also be desirable for the opening of the form to be as simple as possible to avoid damaging the inner sheets. Therefore, the form preferably comprises a first longitudinal perforation line delimiting said two first and second longitudinal edge areas.

[0020] In one advantageous embodiment, said first sheet comprises a second perforation line, said second perforation line starting and finishing at two points spaced apart from said first transverse edge. This avoids the need to use additional acknowledgement of receipt forms. In one particularly advantageous embodiment, the second perforation line extends along said first fold line and between said first edge and said first line it coincides with said first perforation line. This greatly simplifies the perforation of the form and on the other hand, after the form has been opened along the perforation lines, allows the first sheet to be trimmed in such a way that its new longitudinal and transverse edges coincide with the edges of the second sheet, thereby facilitating the task of filing the form in a folder thanks to all the sheets having the same dimensions.

[0021] It is particularly preferred that each of said second sheets is written on both sides and each of the pages of the form is numbered with the individual page number and the total number of pages. This allows for an optimum guarantee of the indivisibility of the pages of the form.

[0022] The invention also contemplates the problem of proposing a machine capable of efficaciously folding the form of the invention and which simultaneously guarantees the indivisibility and confidentiality of the content.

[0023] This problem is solved by a machine first described above, **characterised in that** it further comprises an accumulation area with an accumulator for sheets to be folded adapted to receive a first sheet and at least one second sheet narrower than said first sheet, said accumulator being provided at the entrance to said folding area and said accumulator having a first width corresponding to the width of said first sheet and a second width centered relative to said first width corresponding to the width of said second sheet. The accumulator with two differentiated widths with one centered relative to the other has the technical effect of disposing the second sheets perfectly centered relative to the first sheet, and therefore automatically avoiding the second sheets from hindering the correct closing of the form.

[0024] In a preferred embodiment, said accumulator comprises adjustment means for modifying said first and second widths, to allow different form dimensions to be processed.

[0025] Advantageously, said accumulator further com-

prises vibrator means for aligning the sheets of said form prior to initiating a folding step. This allows the sheets to be correctly aligned, for example, when any inner sheet were slightly offset relative to the outer sheet of the form, or when, for example, one of the second sheets of the form were incorrectly resting with its edge on the width of the machine corresponding to the first sheet.

[0026] Advantageously, said accumulator comprises a wedge movable between a sheet passage position in which said wedge is flush with or below the main surface of said accumulator, and a folding position in which said wedge projects from the main surface of said accumulator to said first pair of folding rollers, said wedge being provided between said first pair of rollers orientated towards the entrance to said folding area. This wedge provides for all the sheets of the form being drawn simultaneously towards the folding area by the pair of intake folding rollers.

[0027] In a preferred embodiment said accumulator further comprises an entraining roller movable between a sheet passage position in which said entraining roller is flush with or below the main surface of said accumulator and an entrainment position in which said entraining roller projects from the main surface of said accumulator and engages one of the rollers of said first pair of folding rollers, being capable of rotating in the opposite direction to the direction of rotation of the corresponding roller, substantially at the same tangential speed. This provides the advantage that while the wedge is pushing the ensemble of sheets forming the form towards the intake folding rollers it is guaranteed that the inner sheets of the form enter the folding area together and that, therefore, the form may be folded in an optimum fashion.

[0028] Preferably the machine comprises at least one cover for covering said accumulation, folding and sealing areas which covers the visual access to said forms during the processing thereof, thereby guaranteeing the absolute confidentiality of the information contained in the form.

[0029] Advantageously said accumulator is inclined relative to the longitudinal direction of the machine. Thus, thanks to gravity a simple way is provided of having all the sheets aligned along the bottom edge thereof.

[0030] The invention also embraces improvements which were not described in Spanish patent application n° ES200930542, priority of which is being claimed but which have been added to the present application. These added improvements are related in claims 11 and 12 and claims 19 and 20, as well as in the final portion of the detailed description of embodiments of the invention corresponding to Figures 7 to 11.

[0031] In certain countries, the cost of sending a letter also depends, among other factors, on the dimensions thereof. Therefore, for the purpose of reducing the costs of sending, the invention also optionally contemplates a form comprising a third substantially transverse fold line which lies between said first fold line and said second fold line, said form being adapted to have a third fold

along said third fold line opposing the remaining section of said rear face comprised between the third fold line and the first transverse edge with the corresponding front face section. This allows a more compact multiple sheet form to be obtained.

[0032] Also preferably, the form comprises a third glue band on said front face at the most over the distance comprised between said second fold line and said third fold line, which improves the closing of the form.

[0033] Likewise during the priority year the machine of the invention has evolved to be able to fold new types of form. Preferably this new machine embodiment comprises a third pair of folding rollers between said first and second pairs of folding rollers wherein at the exit from said first and third pairs of folding rollers there are provided pick-up guides for said form and wherein said accumulator and said guides comprise a main stopper and an auxiliary stopper, said auxiliary stopper being movable between a withdrawn position which allows the passage of said form up to said main stopper and a stopping position in which said form is stopped on said auxiliary stopper. Thus, the same machine can carry out the above described folding, but also allows an additional fold to be made for obtaining more compact forms. The manner of performing the different folds will be explained in greater detail in the description of the figures.

[0034] Optionally the machine comprises cutting means for trimming the longitudinal edges of said at least one second sheet.

Brief Description of the Drawings

[0035] Further advantages and features of the invention will be appreciated from the following description, wherein, without any limiting nature, there is disclosed a preferred embodiment of the invention, with reference to the accompanying drawings, in which:

Figures 1A and 1B are a front view of, respectively, the rear and front faces of a first sheet of the form of the invention.

Figure 2 is a perspective view of the form of the invention prior to being folded.

Figures 3A to 3C show a folding sequence of the form of the invention.

Figures 4A and 4B are a front views, respectively, of the rear and front faces of a second embodiment of the first sheet of the form of the invention.

Figure 5 is a schematic longitudinal section view of a first embodiment of a machine of the invention.

Figure 6 is a schematic partial cross section view of the accumulator of the machine along the line VI-VI of Figure 5.

Figure 7 is a front view of the front face of a first sheet of the form of the invention.

Figure 8 is a perspective view of another form of the invention before being folded.

Figures 9A to 9C show a folding sequence of the

form of Figure 8 according to the invention.

Figure 10 is a schematic longitudinal section view of a second embodiment of the machine of the invention.

Figure 11 is a partial schematic cross section view of the accumulator of the machine along the line XI-XI of Figure 10.

Detailed Description of one Embodiment of the Invention

[0036] The figures show a preferred embodiment of the multiple sheet correspondence form 1 of the invention. The form 1 comprises a first sheet 2, the rear face 4 or reverse side of which is illustrated in Figure 1A and the front face 10 of which is illustrated in Figure 1B. The first sheet is delimited by first and second transverse edges 16, 18 and first and second longitudinal edges 15, 17.

[0037] The first sheet 2 has a first transverse fold line 20, close to the first transverse edge 16 and a second transverse fold line 22 between the first line 20 and the second transverse edge 18.

[0038] The rear face 4, which is for containing the text of the first written page of the form 1, has two first longitudinal edge areas 6 with first portions 8 which may be gummed. In particular, on these first portions 8 there is provided a first glue band 24 extending substantially along the entire length of the first sheet 2.

[0039] The front face 10 of the first sheet 2 is for containing, among other things, the addressee's details and optionally those of the sender. This face 10 also has two second longitudinal edge areas 12 with second portions 14 which may be gummed. In this case, the second glue band 26 extends only partly over the distance comprised between said second transverse edge 18 and said second fold line 22. As may be clearly appreciated from this configuration, the sender's details cannot be separated from the content of the first page of the communication, whereby the person receiving the letter cannot say that the content thereof is different from that which is written on the first page.

[0040] The first and second glue bands 24, 26 are preferably formed by glues provided on the first sheet 2 which are activated by pressure after the folding stage of the form 1. Nevertheless, it is contemplated within the scope of the invention that the glue bands 24, 26 are constituted, for example, by wettable glue. For this, the machine needs to have a device for metering water on the wettable glue bands.

[0041] Figures 1A and 1B also show that the first sheet 2 has a first longitudinal line of perforations 28 separating the first and second areas 6, 12 from the central body of the sheet 2. As will be appreciated hereinafter, this first line of perforations 28 facilitates the opening of the form 1 in a simple way.

[0042] The first sheet 2 also has a second card-like rectangular line of perforations 30 in the area comprised between the first transverse edge 16 and the first fold line 20. This second line of perforations serves as an

acknowledgement of receipt card, simplifying its use over the prior art.

[0043] As is shown in Figure 2, the form 1 comprises at least one second sheet 3, the width of which is smaller than the distance comprised between the first longitudinal areas 6 and which is for containing at least the second page of the text of the correspondence. Thus, it is guaranteed that when the form 1 is folded with one or more second sheets 3 in the interior thereof, these second sheets 3 do not cover the glue bands 24, 26, preventing correct closing of the form 1. There is also guaranteed the continuity of the text of the first sheet of the form and consequently the indivisibility of the contained information. Furthermore, the length of the second sheet 3 is preferably shorter than the length of the first sheet 2, and particularly preferably the length of the second sheet 3 is the same as or less than the distance from the second transverse edge 18 to the first fold line 20. Preferably the first sheet 2 measures 250 x 420 mm, while the second sheet is the standard DIN A4 format (210 x 297 mm) and is printed on both sides when the form contains more than two pages of text and further each of the pages of the form 1 is numbered with the individual page number and the total number of pages.

[0044] Figures 3A and 3C schematically illustrate the folding of the form 1 of the invention. As will be disclosed hereinafter in the description, the steps shown here are carried out in the machine 32 of the invention.

[0045] Firstly, starting out from the situation shown in Figure 2, a first sheet 2 is provided and on the rear face 4 thereof there is placed one or more second sheets 3 centered on the space delimited by the first areas 6. At this time, see Figure 3A, a first fold of the whole form 1 is made along the second fold line 22 of the first sheet 2 such that the rear face 4 faces itself, obviously containing the interior second sheets 3, namely a symmetrical fold of the second sheets 3 is made, such that the distance between the second transverse edge 18 and the second fold line 22 of the first sheet 2 is the same as the distance between the second fold line 22 and the first fold line 20. Thereafter, see Figure 3B, a second fold is made along the first fold line 20 in which the section of the rear face 4 comprised between the first transverse edge 16 and the first fold line 20 faces the corresponding section of the front face 10, namely, the section of the front face comprised between the second transverse edge 18 and the second fold line 22.

[0046] Subsequently to the folding step, with the glue bands 24, 26 being configured as pressure-sensitive glue bands, it is sufficient to exert a pressure on the respective longitudinal edge areas 6, 12, for the glue of the bands 24, 26 to function and the form 1 is perfectly closed.

[0047] Figures 4A and 4B show a second embodiment of the first sheet 2 of the form 1 with two differentiating elements relative to the first embodiment. Firstly, the second perforation line 30 coincides with the first fold line 20 and the side edges thereof coincide with the first perforation line 28. Thereby, the acknowledgement of receipt

card may be simply torn away and after the form has been opened along the first and second perforation lines 28, 30 all the sheets of the letter have the same format.

[0048] The second important difference is that in this case the form 1 does not comprise a priori the glue bands 24, 26. This form 1 has been conceived for gluing in the form processing machine itself, provided that the latter is fitted with appropriate gluing devices.

[0049] Figures 5 and 6 schematically show a first embodiment of the machine 32 for processing multiple sheet correspondence forms 1 according to the invention. This machine 32 allows the form 1 to be folded automatically, guaranteeing on the one hand the indivisibility and on the other hand the confidentiality.

[0050] In Figure 5, the machine 32 is seen to comprise from left to right an accumulation area 44, a folding area 34, a sealing area 40 and finally a collection area 66 where the machine 32 deposits the folded and sealed forms 1.

[0051] Furthermore, at the left of Figure 5, a printer device 64 is shown schematically in dashed line, which may be attached at the intake 45 to the machine 32. Optionally, the machine 32 itself may comprise the printer device 64.

[0052] The accumulation area 44 comprises an accumulator 46 of sheets to be folded provided at the intake end, below the folding area 34, and sloping relative to the longitudinal direction of the machine 32 and the structure of which may be seen in detail in Figure 6. The slope of the accumulator 46 facilitates the correct positioning of the sheets. The accumulator 46 is provided with a first width 48 for receiving the first sheet 2, and a second width 50 for receiving a plurality of second sheets 3. In the embodiment shown in the figures, the printer device firstly prints the second sheets 3, leaving the second page of the correspondence text facing upwards and finally the first sheet 2, placing it with the rear face 4 thereof containing the first page of the text facing downwards, namely towards the main surface 58 of the accumulator 46. In other words, thanks to this, there is guaranteed in a simple way that no visual access to the information written on the form 1 may be had, as well as the continuity of the pages of the text and, therefore, the indivisibility thereof. As will be seen hereinafter, a cover 62 may be provided, which allows the protection of the information to be further increased. Alternatively, the order of printing or depositing of the sheets of the form 1 in the accumulator 46 may be reversed, namely, that the first sheet 2 should be at the bottom of the accumulator 46, while the rest of the second sheets 3 should be on top of the first sheet 2. Furthermore, in a preferred embodiment, the machine 32 is provided with adjustment means such as a toothed rack associated with gear wheels attached to the first and second walls 49, 51 delimiting the first and second widths 48, 50, allowing the width of the accumulator 46 to be varied symmetrically relative to the casing 52, in the direction of the two-headed arrows of Figure 6, to facilitate the processing of forms 1 of different widths.

[0053] The accumulator 46 also comprises vibrating means 54 for perfectly aligning the sheets of the form 1 prior to starting the folding step.

[0054] In the folding area 34, the machine 32 is seen in this embodiment to comprise a first pair of folding rollers 36 corresponding to the entrance to the folding area and a second pair of folding rollers 38 corresponding to the exit, disposed above the accumulator 46.

[0055] The accumulator 46 also comprises a wedge 56 having the mission of introducing the form 1 into the folding area 34. In particular, the wedge 56 is located between the first pair of rollers 36. This presents a position of passage of the sheets, during the accumulation of sheets of the form 1, in which it is flush with the main surface 58 of the accumulator 46, and a folding position (shown in dashed lines in Figure 5) in which, when all the sheets 2, 3 making up the form 1 are prepared and aligned, projects from the main surface 58 and pushes the form 1 against the first pair of folding rollers 36.

[0056] Furthermore, to prevent the second sheets 3 of the form 1 from moving or becoming off centre relative to the first sheet 2, the accumulator 46 comprises also an entraining roller 60. As in the case of the wedge 56, the entraining roller 60 is movable between a position of passage in which it is flush with the main surface 58 and an entraining position (shown in dashed lines in Figure 5) in which it is projected above the main surface 58 and compresses the form 1 against one of the rollers of the first pair of folding rollers 36. It can rotate in the opposite direction to the latter and at the same tangential speed. This synchronization of tangential speeds prevents the second sheets 3 from moving relative to the first sheet 2 and thus an optimum fold is achieved.

[0057] It should be noted that according to an alternative embodiment not shown in the figures, the folding area 34 and the sealing area 40 may be disposed below the accumulator 46.

[0058] For greater security of the confidentiality of the information contained in the form 1, the machine 32 may be provided with a cover 62 covering the accumulation 44, folding 34 and sealing 40 areas, such that no visual access may be had to the information during the processing of the form 1. This cover 62 may alternatively consist of differentiated covers for each of the areas.

[0059] The machine 32 of Figures 5, 6 operates as follows: the printer device 64 firstly prints a plurality of second sheets 3 which it gradually deposits on the accumulator 46. The screen 68 prevents the sheets from coming into contact with the folding rollers. After having printed the second sheets 3, it prints the first sheet 2 and places it on the accumulator 46 with the rear face 4 downward. A sensor not shown in the figures detects that the first sheet has been deposited on the accumulator 46 and the control of the machine 32 activates the vibrating means 54 to align the sheets in an optimum way.

[0060] At the end of this step, the folding rollers start to rotate and the wedge 56 and the entraining roller 60 move from the initial passage position to the respective

folding and entraining positions. Figure 6 shows the intermediate situation in which the wedge 56 is moving towards the first pair of folding rollers 36. When the form 1 contacts these folding rollers, pushed by the wedge 56, it is pulled upwards and inserted in the guide 70. Thanks to this, a first fold is made in the form 1 along the first fold line 20. The form 1 continues rising along the guide 70 pushed by the first pair of folding rollers 36, until it abuts the stopper 72, for which reason the form 1 cannot continue to advance. Nevertheless, the opposite end of the form 1, namely the area of the first sheet 2 comprised between the first transverse edge 16 and the first line 20, enters the second pair of folding rollers 38 which make a second fold along the first fold line 20, thereby closing the form 1 as shown in Figure 3C.

[0061] At the exit from the folding area 34, the form enters the sealing area 40, in which the form enters with the first fold line 20 forward, and both pairs of sealing rollers press on the first and second areas 6, 12 of the form 1. Owing to this compression, the pressure sensitive glue bands 24, 26 come together and the form 1 is closed.

[0062] Finally, at the exit from the sealing area 40, the sealing rollers 40 deposit the folded form 1 in the collection area 66.

[0063] Hereinafter there are described improvements which have been developed subsequently to the filing of Spanish patent application ES200930542, priority of which is claimed.

[0064] Figures 7 and 9A to 9C show another embodiment of the form of the invention. This embodiment has a large number of elements identical to the forms described above, whereby hereinafter only the differentiating features will be explained.

[0065] Thus, additionally to the general features described for the already explained embodiments, the form 1 of Figures 7 to 9C comprises a third substantially transverse fold line 23 lying between the first fold line 20 and the second fold line 22. Thereby, a third fold along the third fold line 23 may be made in the form 1. More precisely, in this embodiment, the distances comprised between the second transverse edge 18 and the second fold line 22, between the second and third lines 22, 23 and between the third and first lines 23, 20 are the same.

[0066] As is to be seen in Figures 9A to 9C, after making the first fold along the second line 22, the third fold is made opposing the remaining section of the rear face 4, comprised between the third fold line 23 and the first transverse edge 16, over the section of the front face 10 comprised between the second transverse edge 18 and the second line 22. Finally, the portion comprised between the first line 20 and the first transverse edge 16 is folded over the part of the rear face 4 comprised between the second and third fold lines 22, 23.

[0067] To guarantee a correct closing of the form 1, in this embodiment there is provided a third glue band 27 on the front face 10 at the most over the distance comprised between said second and third fold lines 22, 23. Thus, this embodiment allows a compact form 1 with the

aforementioned advantages to be obtained.

[0068] Finally, Figures 10 and 11 show another embodiment of the machine of the invention. As may be seen, the same as in the case of the machine of Figures 5 and 6, this machine 32 also comprises a folding area 34 with a first pair of intake folding rollers 36 and a second pair of outlet folding rollers 38. Then there is provided a sealing area 40 with two pairs of sealing rollers 42 disposed at the exit from the folding area 34.

[0069] This machine 32 comprises an accumulation area 44 with an accumulator 46 for sheets 2, 3 at the entrance to the folding area 34. The same as in the previous machine, the accumulator 46 has a first width 48 corresponding to the width of the first sheet 2 and a second width 50 centered relative to the first width 48 corresponding to the width of the second sheet 3. In this case, unlike the previous embodiment, the accumulator 46 is orientated substantially vertically, which affords the advantage that the sheets are aligned on their second transverse edge 18 in a simple way. Thus, if desired, a vibrator may be dispensed with.

[0070] Another important improvement, in this case, consists of the machine 32 having a third pair of folding rollers 39 between the first and second pairs of folding rollers 36, 38. At the exit from the first and third pairs of folding rollers 36, 39 the machine has guides 70 which pick up the form 1. Both the accumulator 46 and the guides 70 have a main stopper 72 and an auxiliary stopper 74 movable between a withdrawn position allowing the passage of the form 1 up to the main stopper 72 (see the auxiliary stopper 74 shown in a solid line in Figure 10) and a stopping position in which the form 1 is stopped on the auxiliary stopper 74 (see the auxiliary stopper 74 shown with a dashed line). When the auxiliary stopper 74 is in the withdrawn position the machine 32 allows the forms 1 shown in Figures 1 to 4B to be folded, as explained hereinbefore.

[0071] When it is desired to obtain a form 1, as described in Figures 7 to 9C, the auxiliary stoppers 74 come into action, passing to their stopping position. In this situation, at the exit from the printer device the sheets 2, 3 rest in the accumulator 46 with their second transverse edge 18 on the auxiliary stopper 74. From here, the wedge 56 pushes the form 1 on the first pair of folding rollers 36 performing a first fold at one third of the height of the second sheet 3 along the second fold line 22. Then the form 1 enters the guide 70 and abuts the auxiliary stopper 74 on the second fold line. At the opposite end thereof it is inserted in the third pair of folding rollers 39 which fold the form 1 along the third fold line 23. Finally, the form rises along the guide 70 to the exit from the third pair of folding rollers 39 to abut the auxiliary stopper 74 of this guide 70, such that the form 1 is led towards the second pair of folding rollers 38 and the form is definitively closed according to the form of Figure 9B. At the exit from this point, the form 1 is led to the sealing area 40 where the sealing rollers 42 definitively close the form 1.

[0072] Finally, in this embodiment, it should be ob-

served that the machine 32 comprises cutting means 76 to trim the longitudinal edges of the second sheets 3. This allows a first sheet having a width of 216 mm, corresponding to the format known in the art as Letter size (279x216 mm) to be used, while the second sheets may be DIN A4 type (297x210 mm). Then, the second sheets 3 printed in DIN A4 format are laterally trimmed at the entrance to the machine 32 by the cutting means 76 so that the first and second portions 8 and 14 which have the glue are sufficiently wide to guarantee a good closure. In this way, it is not necessary to use large size printers, but a DIN A4 sheet printer, which as is known can also print Letter size widths, may be used.

[0073] As may be appreciated from this description, the machine according to the invention allows a multiple sheet form to be processed, guaranteeing on the one hand the indivisibility of the content of the form, and the confidentiality thereof, in a simple and particularly economical way, thereby overcoming the drawbacks described in the state of the art.

Claims

1. A multiple sheet correspondence form (1) comprising:

[a] a first sheet (2) having

[i] a rear face (4) for containing the first page of the correspondence text and which comprises two first longitudinal edge areas (6) having first portions (8) which may be gummed;

[ii] a front face (10) opposite to said rear face (4) for containing at least data relative to the addressee, comprising two second longitudinal edge areas (12), having second portions (14) which may be gummed;

[iii] first and second transverse edges (16, 18);

[iv] a first substantially transverse fold line (20) adjacent said first transverse edge (16), and

[v] a second substantially transverse fold line (22) which is located between

said first fold line (20) and said second transverse edge (18),

characterised in that said form further comprises

[b] at least one second sheet (3) for containing at least the second page of a correspondence text, consecutive to said first page,

[i] the width of said second sheet (3) being smaller than the distance comprised between said first longitudinal edge areas (6)

of said first sheet (3), and for being contained inside said form (1) on said rear face (4),

[c] said form (1) being suitable for having a first fold along said second fold line (22) opposing the rear face (4) on itself, and a second fold along said first fold line (20) opposing the remaining section of said rear face (4) comprised between said first transverse edge (16) and said first fold line (20) with the corresponding front face (10) section.

2. The form of claim 1, **characterised in that** the length of said second sheet (3) is shorter than the length of said first sheet (2).

3. The form of claim 2, **characterised in that** the length of said second sheet (3) is the same as or less than the distance between said second transverse edge (18) and said first fold line (20).

4. The form of any one of claims 1 to 3, **characterised in that** a first glue band (24) is comprised on said rear face (4) substantially over the entire length of said first portions (8) and a second band (26) on said front face (10) at the most over the distance between said second transverse edge (18) and said second fold line (22).

5. The form of claim 4, **characterised in that** said first and second glue bands (24, 26) are constituted by pressure-sensitive glue.

6. The form of claim 4, **characterised in that** said first and second glue bands (24, 26) are constituted by wettable glue.

7. The form of any one of claims 1 to 6, comprising a first longitudinal perforation line (28) delimiting said two first and second longitudinal edge areas (6, 12).

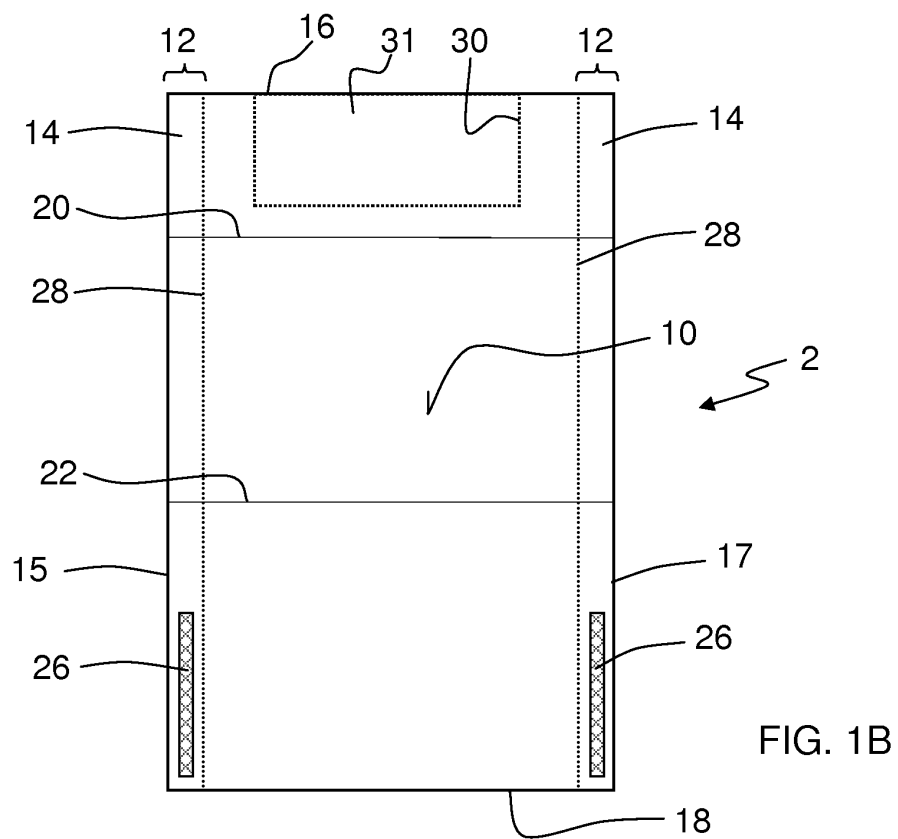
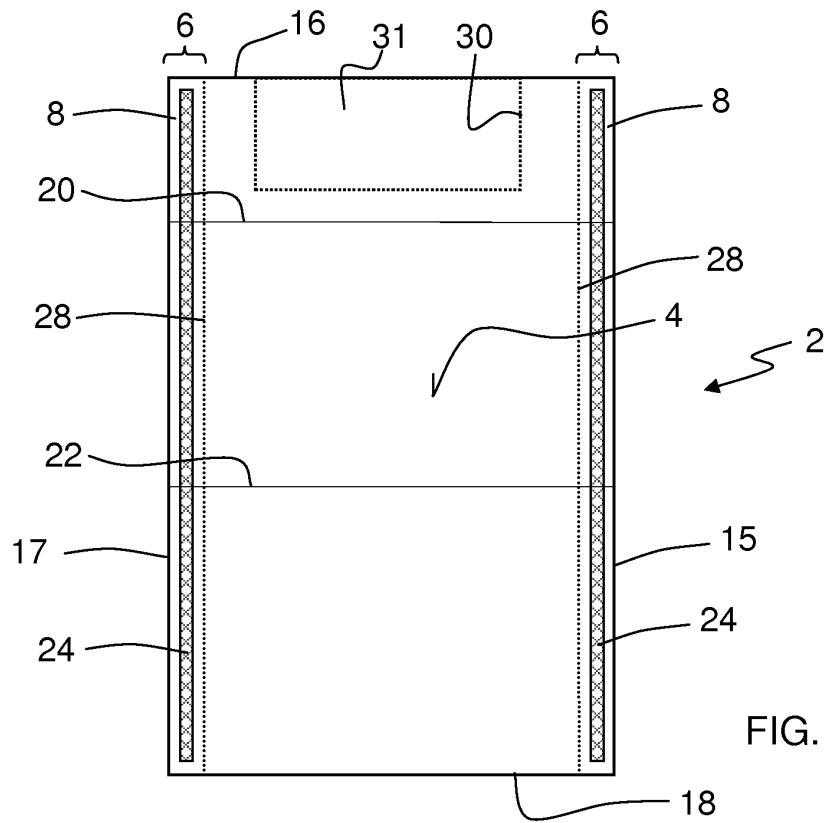
8. The form of any one of claims 1 to 7, **characterised in that** said first sheet (2) comprises a second perforation line (30), said second perforation line (30) starting and ending in two points spaced apart from said first transverse edge (16).

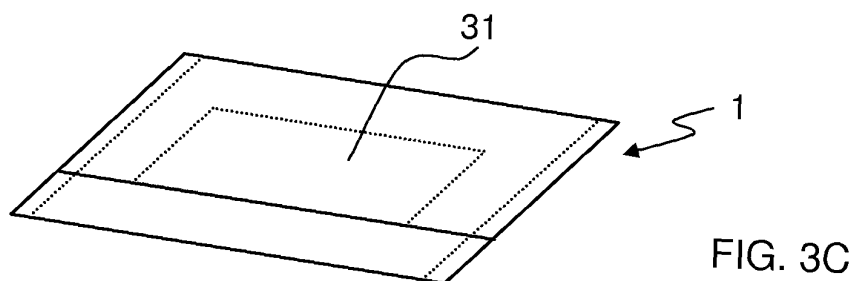
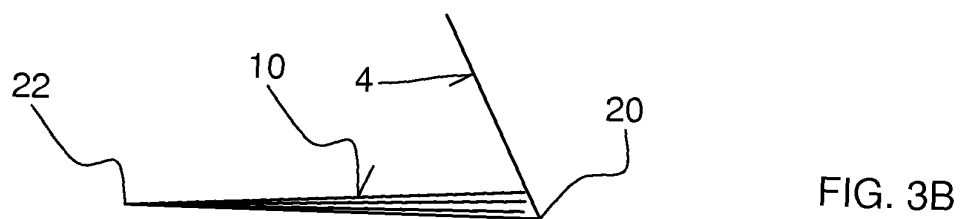
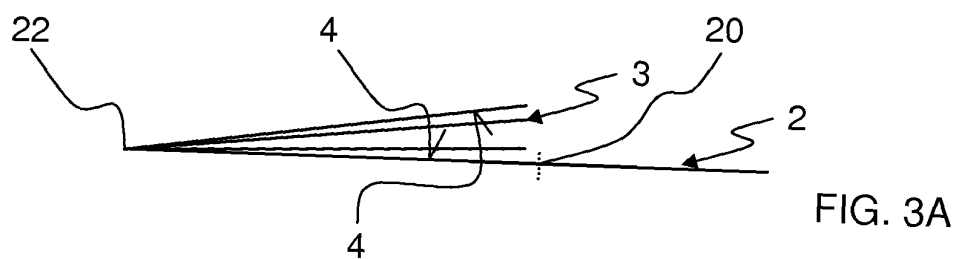
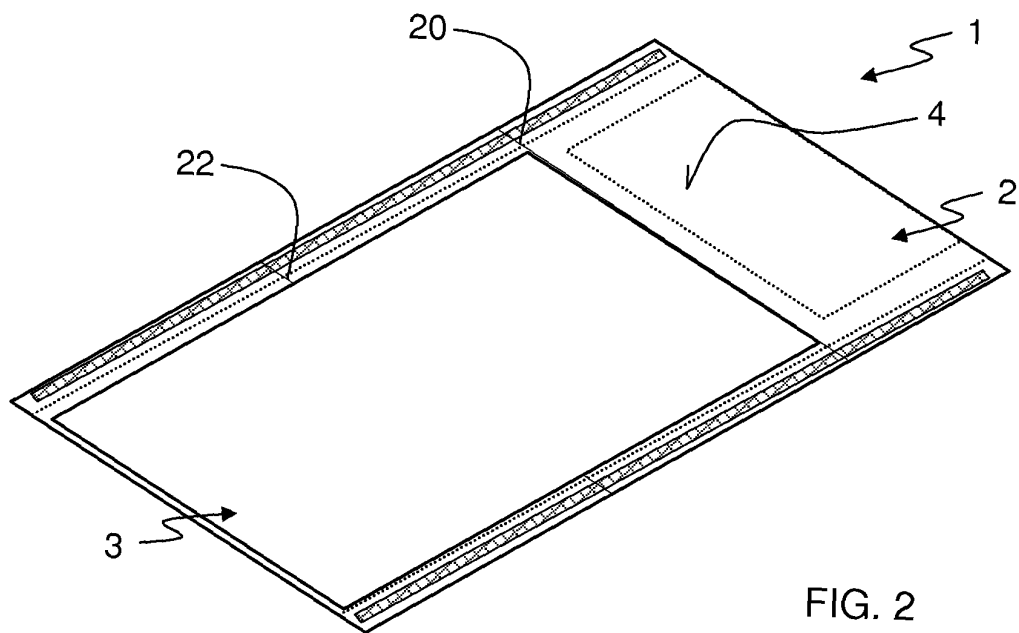
9. The form of claim 8, **characterised in that** said second perforation line (30) extends along said first fold line (20) and between said first edge (16) and said first line (20) coincides with said first perforation line (28).

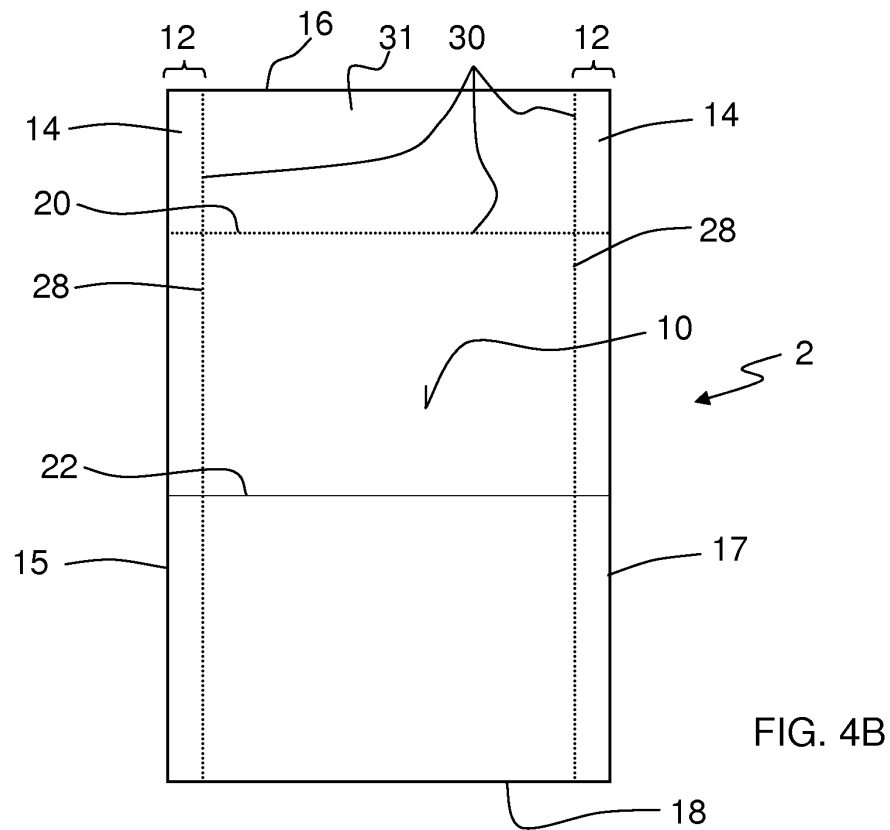
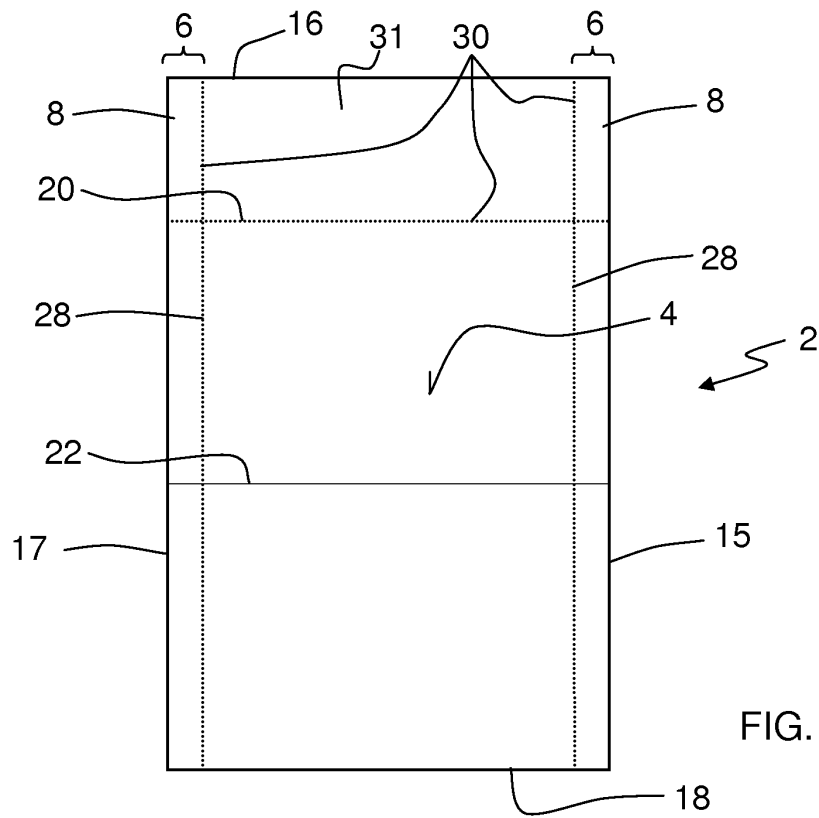
10. The form of any one of claims 1 to 9, **characterised in that** each one of said second sheets (3) is written on both sides and each of the pages of the form (1) are numbered with the individual page number and

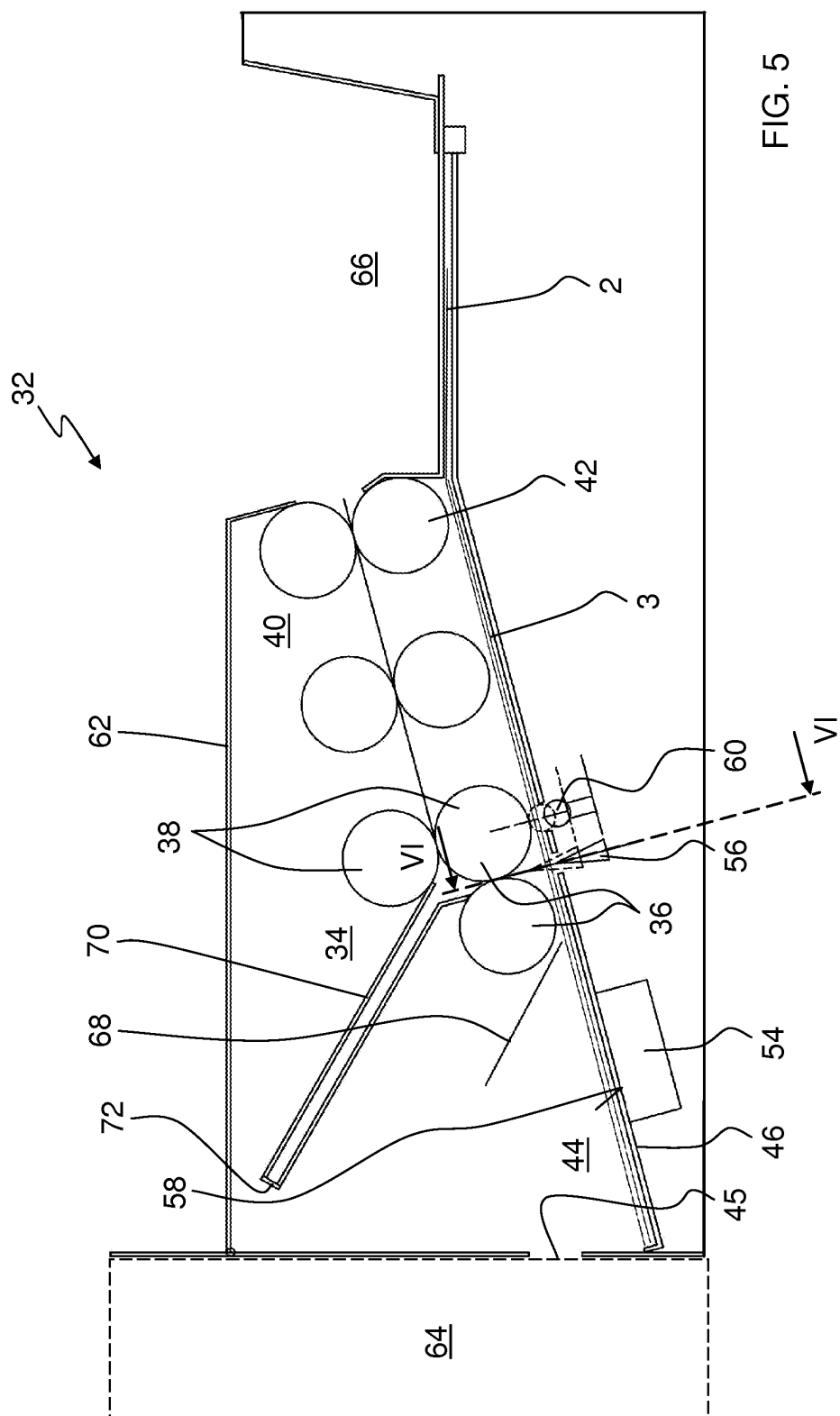
the total number of pages.

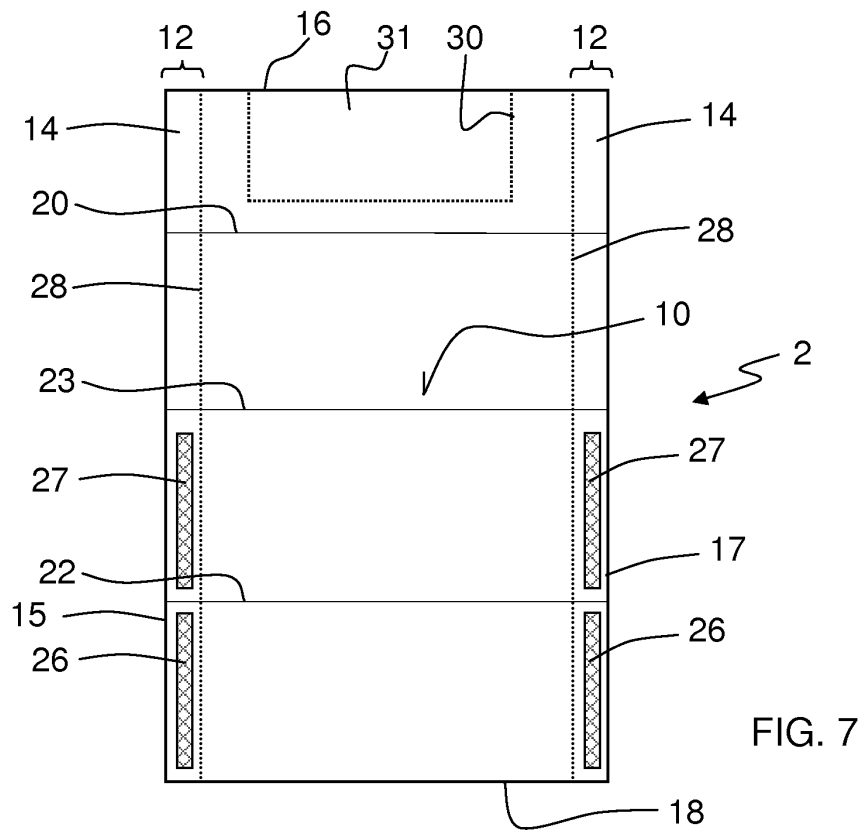
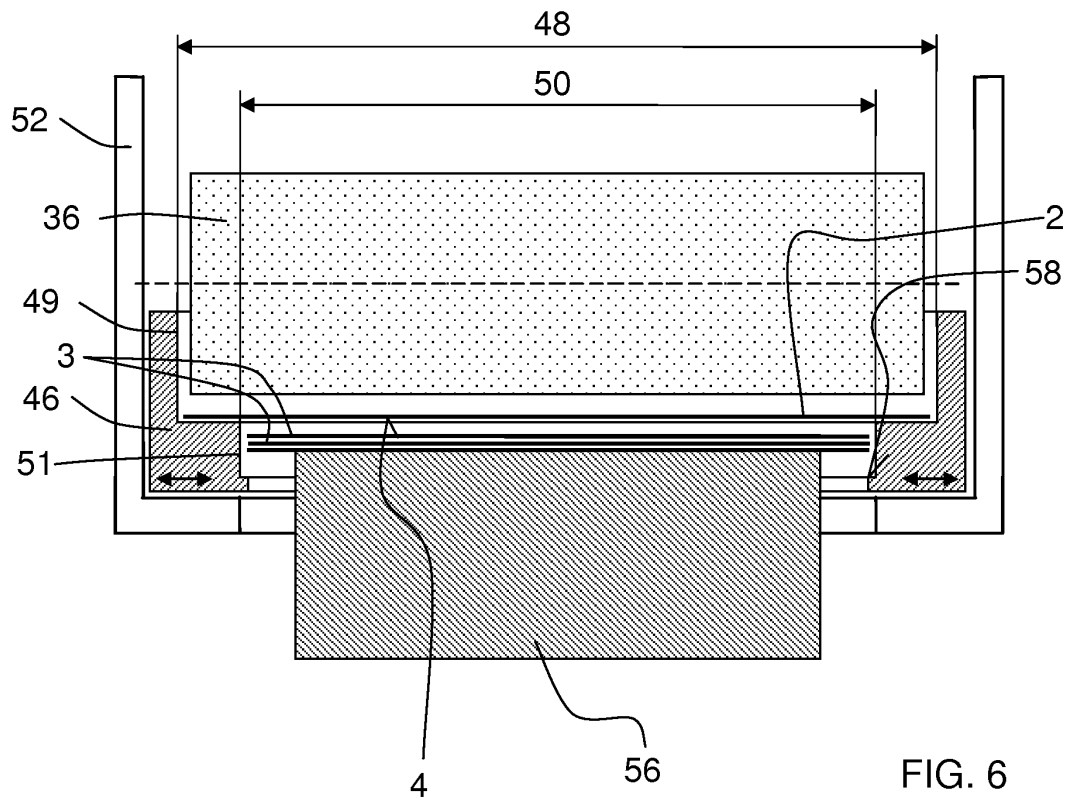
11. The form of any one of claims 1 to 10, comprising a third substantially transverse fold line (23) which lies between said first fold line (20) and said second fold line (22), said form (1) being adapted for having a third fold along said third fold line (23) opposing the remaining section of said rear face (4) comprised between the third fold line (23) and the first transverse edge (16) over the corresponding front face (10) section.
12. The form of claim 11, comprising a third glue band (27) on said front face (10) at the most over the distance comprised between said second fold line (22) and said third fold line (23).
13. A machine for processing multiple sheet correspondence forms comprising a folding area (34) with at least one first pair of intake folding rollers (36) and a second pair of outlet folding rollers (38) and a sealing area (40) having a plurality of sealing rollers (42) disposed at the exit from said folding area (34) downstream of said second pair of folding rollers (38), **characterised in that** it further comprises an accumulation area (44) with an accumulator (46) for sheets to be folded adapted to receive a first sheet (2) and at least one second sheet (3) narrower than said first sheet (2), said accumulator (46) being provided at the entrance to said folding area (34) and said accumulator (46) having a first width (48) corresponding to the width of said first sheet (2) and a second width (50) centered relative to said first width (48) corresponding to the width of said second sheet (3).
14. The machine of claim 13, **characterised in that** said accumulator (46) comprises adjusting means for modifying said first and second widths (48, 50).
15. The machine of claim 13 or claim 14, **characterised in that** said accumulator (46) further comprises vibrating means (54) for aligning the sheets (2, 3) of said form (1) prior to initiating a folding step.
16. The machine of any one of claims 13 to 15, **characterised in that** said accumulator (46) comprises a wedge (56) movable between a sheet passage position in which said wedge is flush with or below the main surface (58) of said accumulator (46), and a folding position in which said wedge (56) projects from the main surface (58) of said accumulator (46) to said first pair of folding rollers (36), said wedge (56) being provided between said first pair of folding rollers (36) orientated towards the entrance to said folding area (34).
17. The machine of any one of claims 13 to 16, **characterised in that** said accumulator (46) further comprises an entraining roller (60) movable between a sheet passage position in which said entraining roller (60) is flush with or below the main surface (58) of said accumulator, and an entrainment position in which said entraining roller (60) projects from the main surface (58) of said accumulator (46) and engages one of the rollers of said first pair of folding rollers (36), being capable of rotating in the opposite direction to the direction of rotation of the corresponding roller, substantially at the same tangential speed.
18. The machine of any one of claims 13 to 17, comprising at least one cover (62) for covering said accumulation (44), folding (34) and sealing (40) areas which covers the visual access to said form (1) during the processing thereof.
19. The machine of any one of claims 13 to 18, **characterised in that** it comprises a third pair of folding rollers (39) between said first and second pairs of folding rollers (36, 38), **in that** at the exit from said first and third pairs of folding rollers (36, 38) there are provided pick-up guides (70) for said form (1) and **in that** said accumulator (46) and said guides (70) comprise a main stopper (72) and an auxiliary stopper (74), said auxiliary stopper (74) being movable between a withdrawn position which allows the passage of said form (1) up to said main stop (72) and a stopping position in which said form (1) is stopped on said auxiliary stopper (74).
20. The machine of any one of claims 13 to 19, comprising cutting means (76) for trimming the longitudinal edges of said at least one second sheet (3).











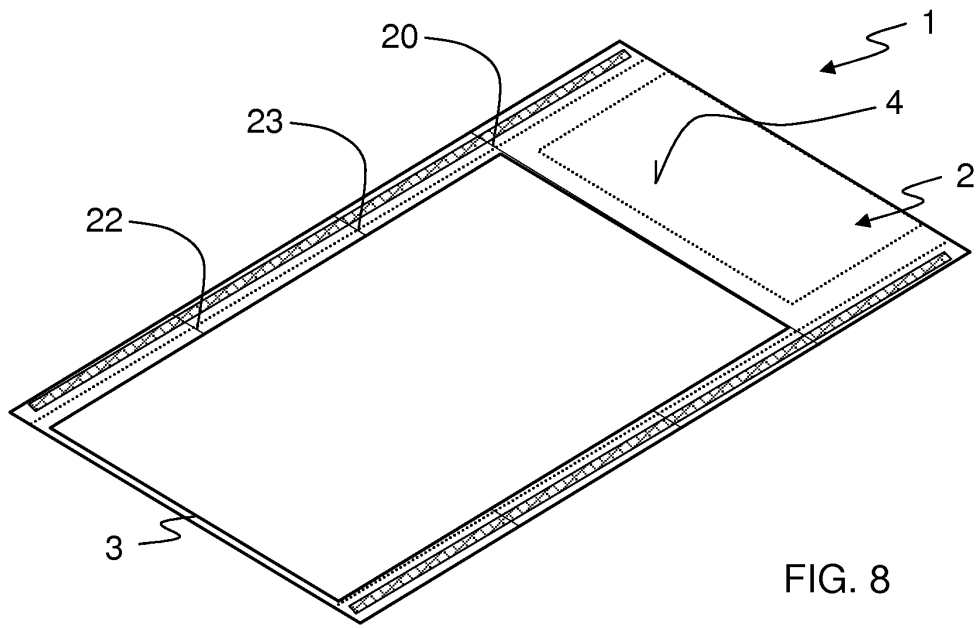


FIG. 8

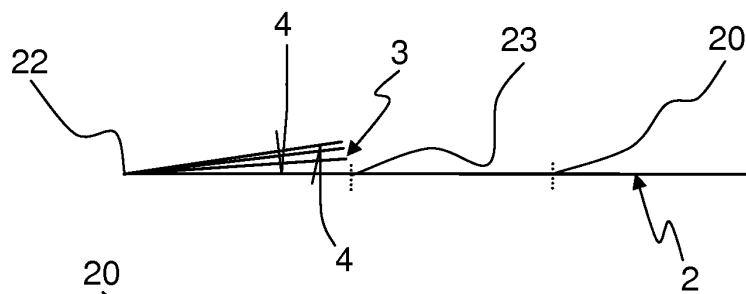


FIG. 9A

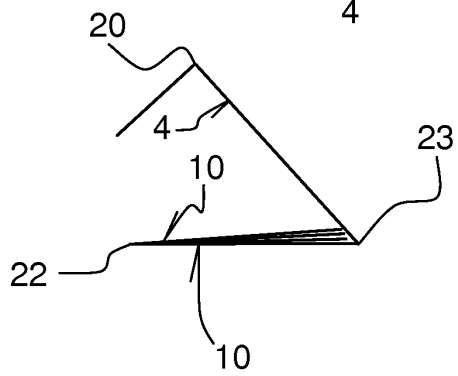


FIG. 9B

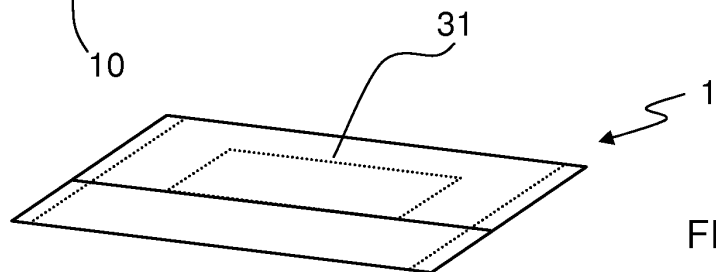


FIG. 9C

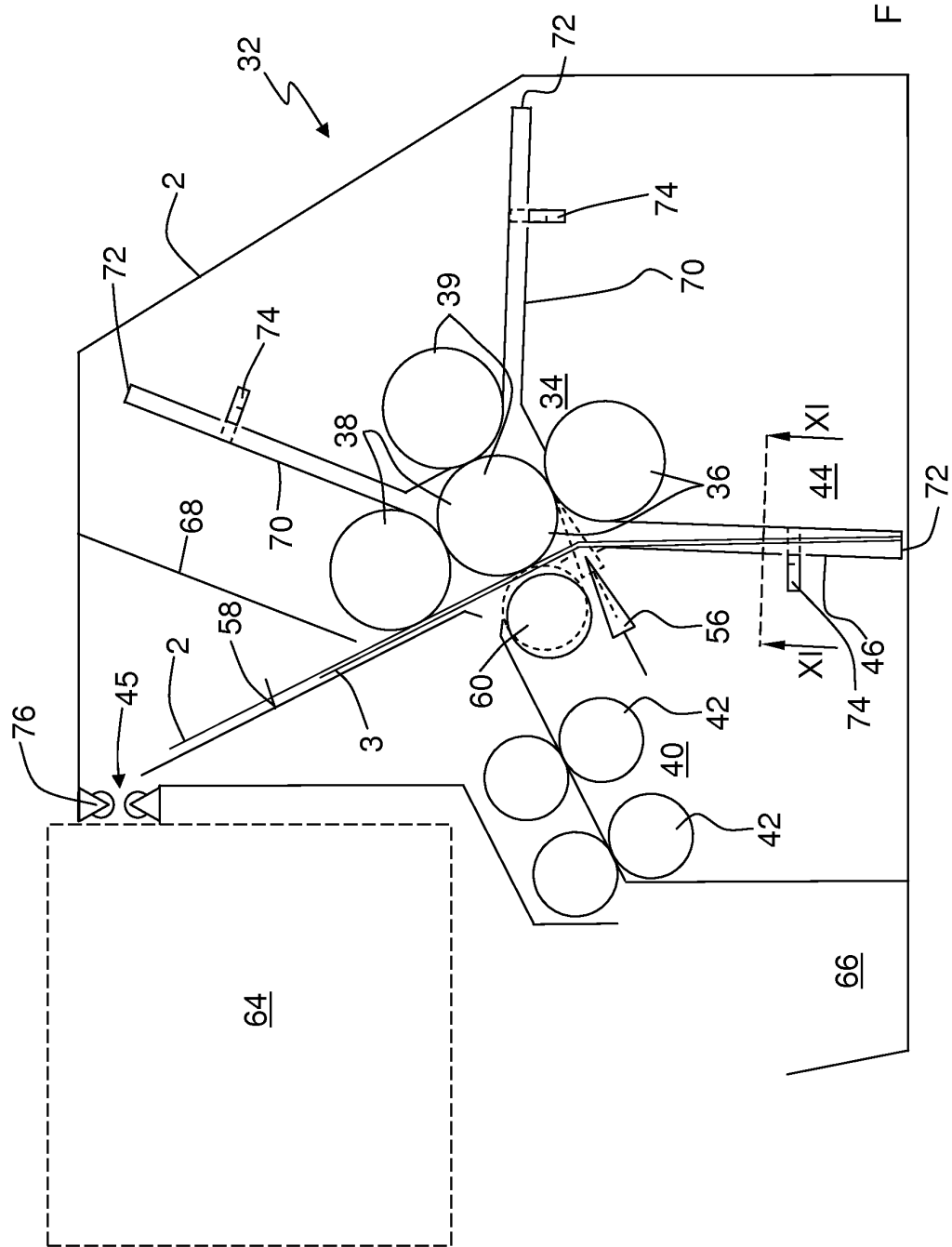
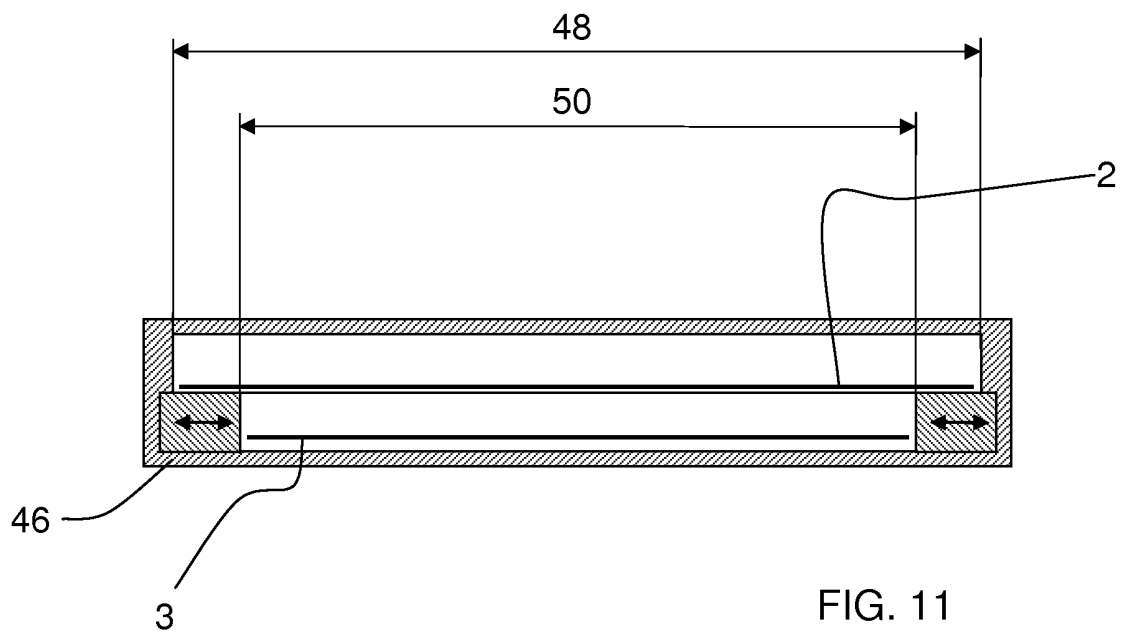


FIG. 10



REFERENCES CITED IN THE DESCRIPTION

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