



(22) Date de dépôt/Filing Date: 1994/04/29

(41) Mise à la disp. pub./Open to Public Insp.: 1994/11/02

(45) Date de délivrance/Issue Date: 2007/02/20

(30) Priorité/Priority: 1993/05/01 (DEP 43 14 380.6)

(51) Cl.Int./Int.Cl. *D21H 21/42* (2006.01),
B42D 15/00 (2006.01), *B44F 1/12* (2006.01),
D21F 1/44 (2006.01), *D21F 11/06* (2006.01)

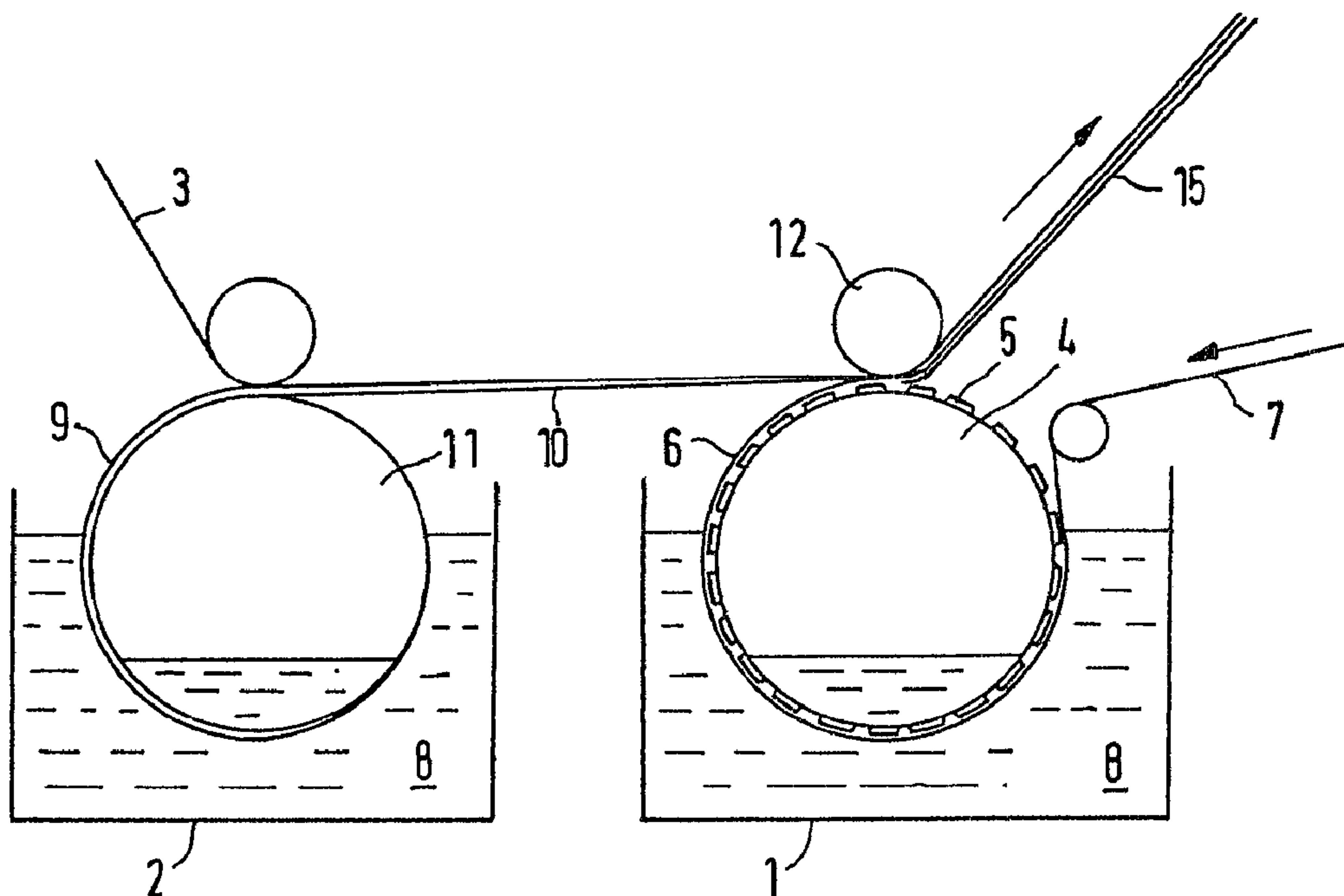
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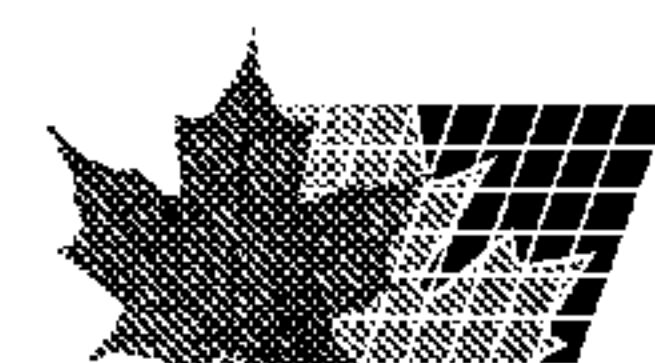
(54) Titre : PAPIER A L'EPREUVE DE LA CONTREFACON

(54) Title: ANTIFALSIFICATION PAPER



(57) Abrégé/Abstract:

An antifalsification paper is described having an embedded safeguarding thread which is embedded in the paper so as to be freely accessible in some areas. The safeguarding thread has a width greater than 2 mm. The antifalsification paper comprises at least two paper layers produced on separate paper machines. The safeguarding thread is embedded in the first paper layer which has openings or recesses in its surface through which the thread is partly accessible on both sides. This first paper layer is covered with at least one second paper layer and firmly connected therewith, the second paper layer having a thickness of 10 to 50%, preferably 20%, of the total thickness of the antifalsification paper. The use of particularly wide safeguarding threads and the resulting possibility of equipping the threads with certain optical effects can improve the resistance to forgery of the antifalsification paper provided therewith.



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Abstract

An antifalsification paper is described having an embedded safeguarding thread which is embedded in the paper so as to be freely accessible in some areas. The safeguarding thread has a width greater than 2 mm. The antifalsification paper comprises at least two paper layers produced on separate paper machines. The safeguarding thread is embedded in the first paper layer which has openings or recesses in its surface through which the thread is partly accessible on both sides. This first paper layer is covered with at least one second paper layer and firmly connected therewith, the second paper layer having a thickness of 10 to 50%, preferably 20%, of the total thickness of the antifalsification paper. The use of particularly wide safeguarding threads and the resulting possibility of equipping the threads with certain optical effects can improve the resistance to forgery of the antifalsification paper provided therewith.

An antifalsification paper

The present invention relates to an antifalsification paper having an embedded safeguarding band which is embedded in the paper so as to be freely accessible at least in part, and to a method for producing it.

For antifalsification papers such as bank notes, papers of value, documents, identity cards, etc., it is known to embed security elements in the form of threads, bands or the like as security features. These threads or bands are usually incorporated in the paper during production of the paper. With cylinder mold machines the thread or band is introduced into the pulp and brought against the wire in such a way as to be embedded in the fibrous structure during sheet forming. This embedding method is commonly known and described e.g. in EP-A1 0 279 880 (Crane) or EP-A1 0 492 407 (GAO).

Occasionally it is desirable for the security element to be embedded in the antifalsification paper in such a way as to be exposed in at least one place on the surface of the antifalsification paper. If the security element has optically variable effects, their action is considerably enhanced, or in many cases made possible at all, by the at least partial exposure of the security element.

One possibility of incorporating such a so-called window safeguarding thread in a document is known from EP-A1 0 059 056 (Portals). The security element is brought against the wire outside the pulp in such a way as to come to lie on raised places applied thereto, called bumps in the following text. At the places where the safeguarding thread lies on the bumps no paper can form on the side facing the wire so that it is freely accessible at exactly these places in the later finished paper.

It is known that the embedding of a safeguarding thread causes difficulties in practice in so far as sheet forming

is impeded over and under the thread since the flow rate of the pulp toward the wire is clearly changed or reduced in the area of the thread. This is all the more so the wider the thread to be embedded is. To ensure a sufficiently good sheet quality the method known from EP-A 0 059 056 is therefore limited to threads whose width does not exceed 1 mm to 1.5 mm.

To permit the embedding of wide safeguarding bands as well EP-C 0 070 172 (Portals) proposes embedding the thread by the classical technique described at the outset (wire without bumps) but making special demands on the thread material to be embedded. The filmlike safeguarding band is made to be liquid-permeable in certain periodically recurring areas so that fiber deposit or sheet forming is possible unchanged in these areas during papermaking but sheet forming is prevented in the impermeable areas. During embedding of such a safeguarding band areas thus form in the area of the liquid-impermeable zones in which the band is freely accessible on one side.

Although this method permits very wide bands to be embedded in the paper and made accessible in window areas it proves disadvantageous that the homogeneity of the band is repeatedly interrupted in the longitudinal direction by the periodically recurring perforations. This sacrifices a special advantage of previous window safeguarding threads, namely that the optical effects of the band (negative writing, optically variable properties, etc.) are only testable in the window areas in incident light but the areas embedded in the paper are also recognizable in transmitted light. If the safeguarding thread or band is applied homogeneously in the longitudinal direction it is recognizable as an uninterrupted bar in transmitted light and is thus easy to test. If it has inhomogeneities in the areas embedded in the paper it does not differ very substantially when viewed in incident and transmitted light and is thus difficult to distinguish from applied imitations.

The invention is based on the problem of proposing a security document in which a wide window safeguarding band is embedded, the safeguarding band having a uniform appearance in the document in incident light and transmitted light, and a method for producing it.

This problem is solved by the features stated in the characterizing parts of the independent claims.

An essential aspect is that an antifalsification paper with a window safeguarding thread is formed in the known way but the safeguarding thread is deliberately made so wide that the resulting paper necessarily has flaws in the form of arbitrary holes in the area of the safeguarding thread or band. The expert usually attempts to avoid such flaws by all means. In the inventive antifalsification paper these flaws are deliberately accepted and then combined or connected with one or two faultless paper layers in such a way that all flaws are covered by the additional layer(s) or brought in a predefined form.

The invention is based on the surprising finding that when threads or bands of increasing width are incorporated during production of antifalsification papers with window safeguarding threads flaws in the form of holes first arise over the safeguarding band on the side facing away from the wire (the back) as of a certain width of the band. As the width of the band increases further the number and size of these flaws increase without the same flaws occurring on the side of the paper facing the wire (the front) as well. Only after a further increase in width do these flaws occur simultaneously on both sides. If the width of the safeguarding band is increased further there is no sheet forming at all in the area of the safeguarding band on either side of the band in the extreme case.

If one determines experimentally the width of the safeguarding band as of which the flaws occur on the back and the width as of which they additionally occur on the

front one has the two limiting values for selecting the inventively usable safeguarding bands in the simplest case.

Experience has shown that the first flaws occur on the back as of a width of about 1.5 to 2 mm. Without additional measures on the cylinder mold machine one can increase the width of the safeguarding band to about 4 to 5 mm (with a customary mesh size of the wire and customary height of the bumps) before flaws occur on the front of the paper as well.

With the inventive solution it is now possible for the first time to use safeguarding threads having a width up to about 4 mm instead of the previous 0.75 to 1 mm, without taking any special additional measures on the cylinder mold machine. By additionally enlarging the mesh size of the wire (which is only possible within narrow limits if the fiber length is unchanged) and changing the height and form of the bumps one can increase the width further without any flaws occurring on the front of the paper.

If even wider safeguarding bands are to be used it is proposed in a development of the invention to provide additional liquid-permeable areas in the edge area of the safeguarding band which are not visible in the finished paper. This measure makes it possible to embed and anchor the band in the edge area even if the impermeable band area is completely exposed. These measures even open up the possibility of embedding safeguarding bands of any desired width in the first paper layer in such a way that they are accessible without interruption from both sides in the center area of the safeguarding band in the extreme case.

If the liquid-permeable edge areas are provided along the safeguarding band on both sides and made sufficiently wide, the safeguarding band is anchored so intensively in the paper layers disposed on both sides that the paper webs can only be detached in the finished paper under a high mechanical load. Such an antifalsification paper can thus fundamentally be used even without any additionally applied paper layers. By applying further paper layers, however, one

can additionally stabilize the antifalsification paper and change its appearance further. The second paper layer can also have window areas in the area of the safeguarding band in which the safeguarding band is then accessible unchanged.

By applying additional paper layers on one or both sides with or without window areas one can produce antifalsification paper variants that differ very clearly from previous ones. The particularly wide safeguarding bands give the antifalsification papers a specific appearance that distinguishes them clearly from others and cannot be reproduced even with modern copiers.

The inventive antifalsification paper also has the advantage that the use of substantially wider safeguarding bands makes the latter much easier to test merely due to the greater surface, in particular if windows are simultaneously used. The greater surface also permits more elaborate and complicated printed images and optical effects to be used, which additionally makes it harder to imitate such safeguarding bands. Since such antifalsification papers can also be produced on conventional twin wire paper machines it is possible to utilize the inventive method without any great additional expenditures or investments for manufacturing technology. The use of special safeguarding threads made to be permeable in the edge area furthermore yields completely new possibilities for designing antifalsification papers, since safeguarding bands can now be integrated in a very simple way in the antifalsification paper throughout the length on one or both sides so as to be freely accessible. The accessibility of these bands can also be prevented in case of need on one or both sides by being combined with one or two further paper layers, which can also have congruent or mutually offset windows. By specially arranging such bands in the multiple-copy paper web or by cutting the webs/sheets in the area of the band one can even produce antifalsification papers which are made of transparent film

material on one edge and run into the known mottled paper only at a certain edge distance.

In one aspect, the present invention provides an antifalsification paper having an embedded safeguarding band which is embedded in the paper so as to be freely accessible at least in part, characterized in that the safeguarding band has a width greater than 2 mm, the antifalsification paper is of multiplayer design, i.e. has at least two paper layers produced on separate paper machines, the safeguarding band is embedded in the first paper layer and accessible therein on both sides at least in part through openings in the paper surface, and the first paper layer is covered with at least one second paper layer and firmly connected therewith, the second paper layer having a thickness of 10 to 50%, preferably 20%, of the total thickness of the antifalsification paper.

More preferably, the present invention provides the method wherein the safeguarding band is equipped with optically variable effects, in particular diffraction patterns, holograms or interference effects.

More preferably, the present invention provides the method wherein the safeguarding band contains a metal layer.

More preferably, the present invention provides the method wherein the safeguarding band contains fluorescent, in particular daylight fluorescent, substances.

In another aspect, the present invention provides a method for producing an antifalsification paper with a safeguarding band partly embedded in the antifalsification paper, having the following steps: forming on a wire a first paper web having a front facing the wire and a back facing away from the wire, embedding during sheet forming a safeguarding band with a width greater than 2 mm such that predefined windows are formed on the front of the first paper web through which the safeguarding band is freely

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accessible, while fortuitous flaws in the form of holes are accepted on the back of the first paper web in the area of the safeguarding band, forming a second paper web which is applied, after completion of the first paper web, to the back of the first paper web and connected therewith so that the fortuitous flaws are covered, the second paper web having a thickness of 10 to 50% of a total thickness of the antifalsification paper.

In another aspect, the present invention provides a method for producing an antifalsification paper with a safeguarding band partly embedded in the antifalsification paper, having the following steps: forming on a wire a first paper web having a front facing the wire and a back facing away from the wire, embedding during sheet forming a safeguarding band with a width greater than 2 mm such that predefined windows are formed on the front of the first paper web through which the safeguarding band is freely accessible, while fortuitous flaws in the form of holes are accepted on the back of the first paper web in the area of the safeguarding band, forming a second flawless paper web which is applied, after completion of the first paper web, to the back of the first paper web and connected therewith, the second paper web being designed so that the fortuitous flaws are brought in a predefined form, and the second paper web having a thickness of 10 to 50% of a total thickness of the antifalsification paper.

In another aspect, the present invention provides an antifalsification paper having a partly embedded safeguarding band, wherein the safeguarding band has a width greater than 2 mm, the antifalsification paper is composed of at least a first and a second paper web, a back surface of the first paper web being covered with the second paper web and firmly connected therewith, and a front surface of the first paper web being freely accessible, the safeguarding band is embedded in the first

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paper web, whereby the safeguarding band is freely accessible in predefined windows on the front surface of the first paper web, the back surface of the first paper web having fortuitous flaws in the form of holes in an area of the safeguarding band, and the second paper web has a thickness of 10 to 50% of a total thickness of the antifalsification paper.

In another aspect, the present invention provides an antifalsification paper having an embedded safeguarding band embedded in the paper so as to be freely accessible at least in part, the safeguarding band being permeable to liquids in an edge area of one or both sides in a longitudinal direction of the band over an entire length of the band, the permeable edge area being anchored in a fibre compound of the antifalsification paper, and the band having at least one area of substantially constant width which is impermeable to liquids and extends over the entire length of the band, the width of the impermeable area being at least great enough so that this area is not covered by paper fibres of a paper web in which the band is embedded.

In another aspect, the present invention provides a method for producing the antifalsification paper comprising the step of embedding the safeguarding band in the paper web concurrently while forming said first paper web, the band being permeable to liquids in at least one of its edge areas along a running direction of the band over the entire length of the band, but impermeable to liquids outside the at least one edge area, and the band running during embedding over a track like raised area in a wire which is narrower than the safeguarding band so that the at least one permeable edge area protrudes beyond the raised area.

In another aspect, the present invention provides a safeguarding band to be embedded in an antifalsification paper, having at least one edge area extending in a longitudinal direction of the band which is permeable to

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liquids and at least one further area extending in the longitudinal direction of the band which is impermeable to liquids over an entire length of the band, this area having a substantially constant width.

In another aspect, the present invention resides in the method wherein the safeguarding band is brought against the wire after about 30% of the sheet forming of the first paper web is over.

Further advantages and advantageous developments are the object of the subclaims and will emerge from the description of the invention with reference to the figures, in which:

Fig. 1 shows a schematic representation of a twin-wire paper machine for producing an antifalsification paper;

Fig. 2 shows a detail of the wire with bumps for producing window areas in the paper web;

Figs. 3 to 5 show front and cross-sectional views of an antifalsification paper with a window safeguarding thread;

Fig. 6 shows the schematic representation of a safeguarding band with a liquid-permeable edge area;

Fig. 7 shows a detail of the wire with a ring-shaped raised area;

Fig. 8 shows the wire bump of Fig. 7 with a safeguarding band thereon (cross-sectional view);

Fig. 9 shows a front view of an antifalsification paper with an uninterrupted window area;

Figs. 10, 11 show sections CD of the antifalsification paper of Fig. 9;

Fig. 12 shows a front view of an antifalsification paper with an embedded safeguarding band and different window variants;

Fig. 13 shows section EF of the antifalsification paper of Fig. 12;

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Fig. 14 shows a front view of an antifalsification paper with a transparent edge area;

Fig. 15 shows section GH of the antifalsification paper of Fig. 14

Fig. 1 shows a schematic representation of a twin-wire paper machine as is used for producing antifalsification paper. The machine comprises two cylinder mold paper machines 1 and 2 interconnected by pick-up felt 3.

In paper machine 1 paper web 6 in which safeguarding band 7 is embedded is formed on wire 4. Safeguarding band 7 runs over bump 5 of wire 4 before associated bump 5 or the particular wire area is immersed in pulp 8 of the paper machine. With paper web 6 produced in this way the safeguarding band is located in an inner plane of the paper. In the areas where it lies on the bumps, however, safeguarding band 7 is freely accessible. The production of such paper webs 6 corresponds to the production method as described for example in EP-C 056 059.

By means of paper machine 2 second paper web 9 is prepared parallel to the production of paper web 6. In the present example paper web 9 is homogeneous, i.e. has no windows or the like. Paper web 9 is removed from wire 11 by means of so-called pick-up felt 10, connected with paper web 6 in the area of contact roll 12 and fed together therewith to further processing units (calender, paper sizing, etc.) of the manufacturing plant.

Fig. 2 shows a detail of cylinder mold machine 1 in which the described incorporation of safeguarding band 7 can be detected somewhat more clearly. In particular one can see that no sheet forming is possible in the areas where safeguarding band 7 lies on bump 5 since no fibers can be deposited due to the intimate contact between safeguarding band 7 and bump 5. In the finished paper these contact surfaces form the window areas where the safeguarding band will later be freely accessible. Bumps 5 in wire 4 are usually much wider than the safeguarding band. This permits the safeguarding band to be incorporated within a wide range of tolerance. Depending on the form of bumps 5 and their mutual arrangement in the circumferential track of wire 4 the number and position of window areas in the later paper can be selectively planned.

As mentioned at the outset, sheet forming in the area of the safeguarding thread or band is dependent on the width of the safeguarding band since usually liquid-impermeable

band 7 impedes the dewatering through wire 4. The expert is aware that if the safeguarding bands used are too wide flaws in the form of holes can occur which expose the safeguarding band. Since the first flaws are already to be expected at a width of about 1.5 mm safeguarding threads with a maximum width of 1 mm are normally used.

Exact tests have now shown that when the width of the safeguarding thread is increased flaws in the form of holes do not occur simultaneously, as expected, on both sides of the safeguarding band, i.e. side 13 facing wire 4 and side 14 facing away from the wire. Surprisingly enough the flaws appear first on the back of the safeguarding band, i.e. in layer area 14 of the paper web. Only after the width of the safeguarding band is clearly enlarged is the sheet forming influenced in layer area 13 as well so that fortuitous holes arise there in addition to the deliberately produced window areas. If the width of the safeguarding band is increased further the number and size of the holes on both sides of the paper web increases further until sheet forming is finally prevented completely on both sides in the area of the safeguarding band.

In a first embodiment of the invention safeguarding bands are used whose width is selected to be so great that flaws in the form of holes occur on the back of the later antifalsification paper, i.e. in area 14 of safeguarding band 7, but such flaws cannot yet be detected on the front, i.e. in area 13. Such safeguarding bands preferably have a width of 2 mm to 4 mm.

If the faulty back of the thus produced antifalsification paper is covered with paper web 9 produced in the second cylinder mold machine, a minimum paper thickness conveying a homogeneous impression of the paper surface is always present in the area of the flaws as well. The flaws in paper web 6 are thus hidden from the later viewer.

Fig. 3 shows an antifalsification paper with an embedded window safeguarding band from the front. It has window

areas 16 and areas 17 where the antifalsification paper is embedded in the paper or covered by fibers.

Assuming that the antifalsification paper shown in Fig. 3 is a paper produced by conventional methods in which a safeguarding band with a width of 4 mm was "incorrectly" embedded, this paper has for example in area 18 a flaw that exposes the safeguarding band in Fig. 4 similar to window area 16.

Fig. 5 shows the same section AB of the antifalsification paper except that this antifalsification paper was produced by the inventive method. In this embodiment flaw 18 is covered with additional paper web 9. Although paper web 6 and paper web 9 are shaded differently in Fig. 5 no separate paper layers are ascertainable in the finished paper since two paper webs brought together shortly after sheet forming are interconnected in the following processing steps (calendering, sizing, drying, etc.) so intimately that the individual webs can no longer be separated or distinguished. Superimposition of these two layers thus arouses the impression of a faultlessly produced paper web.

Fig. 6 shows a special embodiment of safeguarding band 19 which is much wider than the originally defined safeguarding band. Safeguarding band 19 is for example 20 mm or 30 mm wide. It has liquid-permeable and, ideally, even fiber-permeable areas in edge areas 20. In center area 21 band 19 is liquid-impermeable.

Such a safeguarding band 19 can be produced for example from a film strip which was made liquid- or fiber-permeable in the edge area by perforation. Alternatively one can use a liquid- or fiber-permeable fabric tape which was made liquid-impermeable in center area 21 by special impregnation or coating.

When such a safeguarding band 19 is made to run, as shown in Fig. 7, over ring-shaped raised area 22 of wire 4, considered in the direction of rotation of the wire, and ring-shaped raised area 22 is made so narrow that permeable

edge areas 20 protrude beyond raised area 22 (Fig. 8), the safeguarding band will prevent sheet forming in impermeable area 21 in so far as the latter lies on the ring. In protruding, permeable edge areas 20, however, it is embedded in the paper.

The result of this procedure is an antifalsification paper in which an extremely wide safeguarding band is embedded that is freely accessible from both sides in center area 21. Edge areas 20 are firmly anchored in the paper due to the permeable structure. Such a paper is shown in Figures 9 and 10 from the front and in cross section.

Fig. 11 shows the cross section of such an antifalsification paper in which one side is provided with additional paper layer 9. This gives the antifalsification paper a homogeneous appearance on one side. On this side it can thus be printed all over like conventional antifalsification papers.

On the other side the antifalsification paper is interrupted by safeguarding band 19. If the safeguarding band has holographic or other optically variable effects it seems useful to include these areas in the printed image only in the transitional area. If the safeguarding band only has structures with metallic luster which would each be relatively easy to imitate per se, it is recommendable to provide the security print (steel intaglio printing, guilloche pattern, etc.) over this area as well. This combines or firmly connects the metallic luster of the safeguarding band with the security print.

In the embodiments shown in Figs. 12 and 13 antifalsification paper 23 is connected on each side with further paper layer 27, 28. Outer paper layers 27, 28 have windows 16 in the area of the safeguarding band that are disposed relative to each other such that the safeguarding band is accessible on both sides in one case, through one window only from the front in another case and finally through another window only from the back. A thus produced antifalsi-

fication paper can be processed on both sides like customary antifalsification papers. In the relatively large-surface window areas all visually testable properties provided on the safeguarding band are very clearly accessible and thus easy to test by anyone without any optical aids. The window accessible from both sides permits look-through features to be provided, e.g. color layers varying in transmitted and incident light, which increase the resistance to forgery further.

Figs. 14 and 15 finally show an antifalsification paper in which the safeguarding band is disposed in the edge area. As indicated in particular by section GH, safeguarding band 26 is anchored in the paper only on one side. Such an antifalsification paper can be produced for example by disposing antifalsification paper 25 in the multiple-copy paper web to be produced in such a way that the cutting line for the individual bank note copies extends in the center of the safeguarding band. Alternatively it is also conceivable to provide the safeguarding band in the edge area of the cutting lines during papermaking in such a way that the area of the safeguarding band protruding beyond the cutting edge is removed as a waste strip. This embodiment has the advantage that the width of the film area can be maintained more exactly since the cutting lines can be oriented toward the transition between film and paper, but a disadvantage is that several cuts subject to control mechanisms are necessary. Furthermore this procedure reduces the useful surface of the paper web due to the unusable strips in the separated edge area.

The expert will appreciate that the stated embodiments are exemplary and that a great number of further embodiments based on the inventive idea are also conceivable.

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CLAIMS

1. A method for producing an antifalsification paper with a safeguarding band partly embedded in the antifalsification paper, having the following steps:

forming on a wire a first paper web having a front facing the wire and a back facing away from the wire,

embedding during sheet forming the safeguarding band with a width greater than 2 mm such that predefined windows are formed on the front of the first paper web through which the safeguarding band is freely accessible, while fortuitous flaws in the form of holes are accepted on the back of the first paper web in the area of the safeguarding band,

forming a second paper web which is applied, after completion of the first paper web, to the back of the first paper web and connected therewith so that the fortuitous flaws are covered, the second paper web having a thickness of 10 to 50% of a total thickness of the antifalsification paper.

2. A method for producing an antifalsification paper with a safeguarding band partly embedded in the antifalsification paper, having the following steps:

forming on a wire a first paper web having a front facing the wire and a back facing away from the wire,

embedding during sheet forming the safeguarding band with a width greater than 2 mm such that predefined windows are formed on the front of the first paper web through which the safeguarding band is freely accessible, while fortuitous flaws in the form of holes are accepted on the back of the first paper web in the area of the safeguarding band,

forming a second flawless paper web which is applied, after completion of the first paper web, to the back of the first paper web and connected therewith, the second paper

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web being designed so that the fortuitous flaws are brought in a predefined form, and the second paper web having a thickness of 10 to 50% of a total thickness of the antifalsification paper.

3. The method according to claim 1 or claim 2, wherein the second paper web has a thickness of 20% of the total thickness of the antifalsification paper.

4. The method according to any one of claims 1 to 3, wherein one or more further paper webs with or without window areas are applied to the front and the back of the antifalsification paper.

5. The method according to any one of claims 1 to 3, wherein one or more further paper webs with or without window areas are applied to the front or the back of the antifalsification paper.

6. The method according to claim 4 or claim 5, wherein the further paper webs have window areas which are brought to coincidence with exposed areas of the safeguarding band.

7. The method according to any one of claims 1 to 6, wherein the wire on which the first paper web is formed is a cylinder and has bumps onto which the safeguarding band runs.

8. The method according to claim 7, wherein the safeguarding band has liquid-permeable areas in an edge area, and the bumps are narrower than the safeguarding band so that the liquid-permeable areas of the safeguarding band protrude laterally beyond the bumps.

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9. The method according to any one of claims 1 to 8, wherein the safeguarding band is brought against the wire after about 30% of the sheet forming of the first paper web is over.

10. The method according to any one of claim 7 or claim 8, wherein the safeguarding band runs onto a portion of the bumps prior to immersion of the bumps in pulp.

11. An antifalsification paper having a partly embedded safeguarding band, wherein

the safeguarding band has a width greater than 2 mm,

the antifalsification paper is composed of at least a first and a second paper web, a back surface of the first paper web being covered with the second paper web and firmly connected therewith, and a front surface of the first paper web being freely accessible,

the safeguarding band is embedded in the first paper web, whereby the safeguarding band is freely accessible in predefined windows on the front surface of the first paper web, the back surface of the first paper web having fortuitous flaws in the form of holes in an area of the safeguarding band, and the second paper web has a thickness of 10 to 50% of a total thickness of the antifalsification paper.

12. The antifalsification paper of claim 11, wherein the second paper web has a thickness of about 20% of the total thickness of the antifalsification paper.

13. The antifalsification paper according to claim 11 or claim 12, wherein the safeguarding band is equipped with optically variable effects.

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14. The antifalsification paper according to claim 13, wherein the optically variable effects are selected from the group consisting of diffraction patterns, holograms and interference effects.

15. The antifalsification paper according to claim 11 or claim 12, wherein the safeguarding band is equipped with printed images.

16. The antifalsification paper according to claim 15, wherein the printed images are negative or positive characters.

17. The antifalsification paper according to claim 11 or claim 12, wherein the safeguarding band contains a metal layer.

18. The antifalsification paper according to claim 11 or claim 12, wherein the safeguarding band contains fluorescent substances.

19. The antifalsification paper according to claim 18, wherein the fluorescent substances are daylight fluorescent substances.

20. A safeguarding band to be embedded in an antifalsification paper, having at least one edge area extending in a longitudinal direction of the band which is permeable to liquids and at least one further area extending in the longitudinal direction of the band which is impermeable to liquids over an entire length of the band, this area having a substantially constant width.

21. The safeguarding band of claim 20, wherein the safeguarding band is permeable to liquids on both edges and

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impermeable to liquids in a middle area in the longitudinal direction of the band.

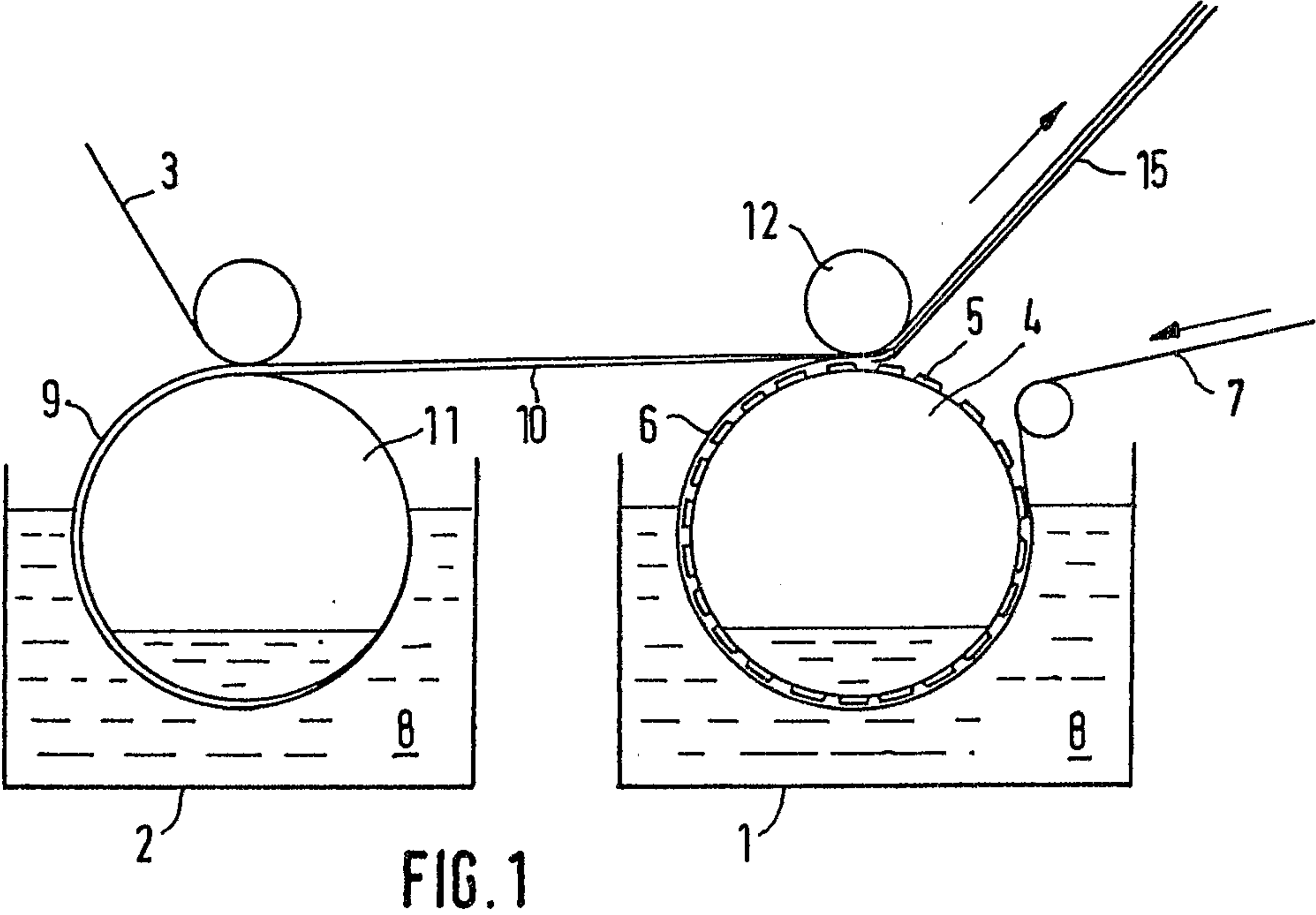


FIG. 2

