

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 18 February 2020**

Case Number: T 0194/16 - 3.2.06

Application Number: 04771892.9

Publication Number: 1661538

IPC: A61F13/49, A61F13/56

Language of the proceedings: EN

Title of invention:

DISPOSABLE ABSORBENT ARTICLE AND PROCESS FOR MAKING THE SAME

Patent Proprietor:

UNI-CHARM CO., LTD.

Opponent:

Kimberly-Clark Worldwide, Inc.

Headword:

Relevant legal provisions:

EPC Art. 123(2), 84
RPBA 2020 Art. 13(1)

Keyword:

Amendments - main request - added subject-matter (yes)
Late-filed auxiliary requests - request clearly allowable (no)
Late-filed requests 1, 2 and 3 - diverging versions of claims

Decisions cited:

T 0634/16

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0194/16 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 18 February 2020

Appellant: UNI-CHARM CO., LTD.
(Patent Proprietor) 182, Shimobun
Kinsei-cho
Shikikucho-shi, Ehime 799-0111 (JP)

Representative: Staeger & Sperling
Partnerschaftsgesellschaft mbB
Sonnenstraße 19
80331 München (DE)

Respondent: Kimberly-Clark Worldwide, Inc.
(Opponent) 2300 Winchester Road
Neenah WI 54956 (US)

Representative: Dehns
St. Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 11 January 2016
revoking European patent No. 1661538 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman M. Hannam
Members: P. Cipriano
E. Kossonakou

Summary of Facts and Submissions

- I. The appellant (patent proprietor) filed an appeal against the revocation of European Patent No. 1 661 538 by the opposition division.
- II. The appellant requested that the decision of the opposition division be set aside and the patent be maintained according to the main request or one of auxiliary requests 1 to 3.
- III. The respondent (opponent) requested that the appeal be dismissed.
- IV. The Board issued a summons and a subsequent communication to oral proceedings containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of the main request extended beyond the content of the application as filed.
- V. With letter dated 10 January 2020 the appellant filed new auxiliary requests OA, OB, OC and OD.
- VI. Oral proceedings were held before the Board on 18 February 2020, during which the appellant filed a new auxiliary request OA'.

The final requests were as follows:

The appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request filed with the statement setting out the grounds of appeal, or on the basis of auxiliary request OA filed with the letter of 6 February 2020, or

on the basis of auxiliary request 0A' filed at oral proceedings before the Board, or on the basis of one of auxiliary requests 0B to 0D, filed with the letter of 6 February 2020, or one of auxiliary requests 1 to 3, filed with the statement setting out the grounds of appeal.

The respondent requested that the appeal be dismissed.

VII. The respective claim 1 of the main request and of auxiliary requests 0A, 0A', 0B, 0C, 0D and 1 to 3 are annexed to the end of this decision.

VIII. The arguments of the appellant may be summarised as follows:

Main request - Article 123(2) EPC

The subject-matter of claim 1 fulfilled the requirement of Article 123(2) EPC.

The subject-matter of claim 1 resulted from a combination of the features of granted claim 1 with claim 9 as originally filed and paragraph [0037] of the published application.

The features relating to the fixation of the elastic members to the base sheet of paragraph [0035] as well as the features relating to the arrangement of the elastic member 19 and its tensile stresses of paragraph [0036] were not structurally and functionally linked to the features of paragraph [0037] defining the "idea" of the invention that were added to claim 1, wherein the elastic members were operatively associated or cooperating with each other through the intermediary of

the fastener means in order to achieve an appropriate fit.

Auxiliary request 0A, 0B, 0C, 0D - Admittance

Claim 1 was amended with the features of paragraphs [0035], [0036] and claim 4 as originally filed such that it now disclosed all the features functionally and structurally necessary for establishing the "operative association or cooperation between the elastic members through the intermediary of the fastener means". It overcame the objections regarding claim 1 of the main request.

The adverb "fixedly" in the expression "fixedly interposed" in paragraph [0035] was not in originally filed claim 4 and was thus not structurally and functionally necessary for the establishment of the operative association.

Auxiliary request 0A' - admittance

The feature "fixedly interposed" was not added before, because it was not considered a crucial feature.

- IX. The arguments of the respondent may be summarised as follows:

Main request - Article 123(2) EPC

The subject-matter of claim 1 contravened Article 123(2) EPC.

Claim 1 of the main request now defined features which were originally from paragraph [0037] of the published application. This paragraph belonged to the specific

disclosure of the first embodiment of the article described in paragraphs [0033] to [0044] and the features added to claim 1 had been taken in isolation from the other features described as being essential to that first embodiment.

The expression "in this manner" in paragraph [0037] referred to the arrangement and specific operative association or cooperation of the elastic members in paragraphs [0035] and [0036] of the first embodiment such that all these paragraphs formed a single disclosure.

Auxiliary request 0A, 0B, 0C, 0D - admittance

The amendments to claim 1 did not overcome the objections with regard to claim 1 the main request.

The adverb "fixedly" in "fixedly interposed" was structurally and functionally linked to the other features of paragraph [0035] since it disclosed the fixation of the elastic members to the sheets of the base sheet that enabled their contraction.

Auxiliary request 0A' - admittance

The appellant presented no arguments in support of filing this request at this late stage of the appeal proceedings. The request should not be admitted as the absence of the feature "fixedly interposed" had already been pointed out by the Board in its preliminary opinion as extending the subject-matter of the main request beyond the content of the application as filed.

In addition, the added features did not overcome the objection under Article 123(2) EPC and further the

feature "elastic members extend in a transverse direction" rendered claim 1 unclear.

Auxiliary requests 1, 2 and 3 - admittance

The auxiliary requests 1, 2 and 3 were non-convergent and at least for this reason should not be admitted.

Reasons for the Decision

1. Main request - Article 123(2) EPC
 - 1.1 Irrespective of the issue as to whether the main request should be admitted into the proceedings, the Board anyway finds that claim 1 of the main request fails to meet the requirement of Article 123(2) EPC.
 - 1.2 Contrary to the view of the appellant, the subject-matter of claim 1 is not derivable, at least not directly and unambiguously, from the features of claim 1 and claim 9 as originally filed in combination with paragraphs [0013] and [0037] of the published application.
 - 1.3 The Board finds that the features of paragraph [0037] added to claim 1 relating to the elastic members being arranged to be operatively associated or cooperate with each other (hereafter simply "operative association") are originally disclosed only in combination with the more specific arrangement of the first embodiment disclosed in the paragraphs [0033] to [0044]. The skilled person taking into account the whole disclosure would consider that this first embodiment discloses

only a more specific "operative association" in order to ensure an appropriate fit.

- 1.4 The appellant's argument that the features relating to the fixation of the elastic members to the base sheet of paragraph [0035], as well as the features relating to the arrangement of the elastic member 19 and its tensile stresses of paragraph [0036], were not structurally and functionally linked to the features of paragraph [0037] defining the "idea" of the invention, is not found convincing by the Board.

For example, paragraphs [0035] and [0036] (whose features have not been added to claim 1) disclose the way in which the elastic members are arranged and attached to the base sheet and the way in which the tensile stress of the elastic members is set, which the skilled person would recognize as being a part of the originally disclosed "operative association" that influences the way the front and rear waist regions are pressed against the wearer in order to obtain the appropriate fit as disclosed in paragraph [0037]. There is thus a structural and functional link between the way the elastic members are arranged (paragraphs [0035] and [0036]) and the "operative association" and cooperation of elastic members and fastener means to obtain an appropriate fit (paragraph [0037]).

- 1.5 The addition of the features of paragraph [0037] to claim 1 without the other features relating to the claimed "operative association" with which they are directly and unambiguously disclosed results therefore in an intermediate generalisation for which there is no unambiguous disclosure in the application as filed.

1.6 It follows therefore that the subject-matter of claim 1 contravenes Article 123(2) EPC. The main request is consequently not allowable.

2. Auxiliary requests 0A, 0B, 0C, 0D - Admittance

2.1 The auxiliary request 0A was filed by the appellant in reply to the preliminary opinion of the Board after the entry into force of the revised Rules of Procedure of the Boards of Appeal of the European Patent Office (hereinafter referred to as RPBA 2020), the summons to oral proceedings having been notified to the parties before their entry into force on the 1 January 2020.

2.2 According to the transitional provisions stipulated in Article 25(1) RPBA 2020, Article 13(1) RPBA 2020 applies to this case. Under Article 25(1) RPBA 2020, the RPBA 2020 apply to any appeal pending on its date of entry into force (see e.g. T 634/16, Reasons 7 to 14).

2.3 Article 13(1) RPBA 2020 stipulates that any amendment to the case may be admitted only at the Board's discretion. This discretion shall be exercised in view of, *inter alia*, the current state of the proceedings, the suitability of the amendment to resolve the issues which were admissibly raised and whether the party has demonstrated that any such amendment, *prima facie*, overcomes the issues raised by another party in the appeal proceedings or by the Board and does not give rise to new objections.

2.4 Claim 1 of auxiliary request 0A reads as claim 1 of the main request with *inter alia* the following feature having been added to the claim:

- said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets.

2.5 Contrary to the argument of the appellant, this feature does not have a basis either in originally filed claim 4 nor in paragraph [0035]. Claim 4 does not define that the two sheets are nonwoven fabric sheets. Paragraph [0035] describes two nonwoven fabric sheets but further discloses that the elastic members are fixedly interposed between these nonwoven fabric sheets, which is more specific than the general interposition defined in the claim. Neither originally filed claim 4 nor paragraph [0035] form a basis for the added feature to claim 1.

2.6 The appellant argued that the adverb "fixedly" in the expression "fixedly interposed" in paragraph [0035] was not in originally filed claim 4 and thus it was not structurally and functionally necessary for the establishment of the operative association. This argument is not found persuasive by the Board. Paragraph [0035] refers to the first embodiment of the article described in paragraphs [0033] to [0044]. The fixed interposition (instead of a mere interposition) disclosed therein describes an attachment of the elastic members to the base sheet and is necessary to create the appropriate fit of the front and rear waist regions of the diaper against the wearer's waist. The Board did not find any alternative to this fixed interposition in the whole disclosure of the patent nor has the appellant argued that there was any.

2.7 Claim 1 therefore *prima facie* does not overcome the objections made against claim 1 of the main request and fails to fulfill the requirement of Article 123(2) EPC.

Since *prima facie* the requirement of at least Article 123(2) EPC is still not fulfilled, the Board exercised its discretion under Article 13(1) RPBA not to admit auxiliary request 0A into the proceedings.

2.8 The respective claim 1 of the auxiliary requests 0B, 0C and 0D (which were filed at the same time as auxiliary request 0A) all contain the added feature discussed above under point 2.4 which does not include the adverb "fixedly". The appellant did not bring forward any argument as to how the further amendments to claim 1 of each of these requests overcome the objection above and thus fulfill the requirement of Article 123(2) EPC. The Board could also not find any such justification.

Thus for the same reasons given above for auxiliary request 0A, the Board exercised its discretion under Article 13(1) RPBA also not to admit auxiliary requests 0B, 0C and 0D into the proceedings.

3. Auxiliary request 0A' - admittance

3.1 Auxiliary request 0A' was filed during the oral proceedings; the admittance of this request is thus also subject to the discretion of the Board according to Article 13(1) RPBA 2020 for the reasons discussed above (see points 2.2 and 2.3). In addition, Article 13(1) RPBA 2020 also requires that the party shall provide reasons for submitting the amendment at this stage of the appeal proceedings.

3.2 In comparison to auxiliary request 0A, the amendments to claim 1 consisted of the addition of the features "fixedly interposed" and "[the elastic members] extend in a transverse direction".

3.3 The appellant argued that, although the Board had stated in point 2.3 of its communication that the feature "fixedly interposed" seemed to necessarily also be part of the relevant disclosure, at the time of filing auxiliary requests 0A to 0D it had not considered that the fixation was a crucial feature to the invention and had thus left it out. This justification for submitting the amendment only at this stage of the appeal proceedings is not found persuasive by the Board.

In this regard, the letter dated 6 February 2020 of the appellant did not provide any reasons as to why the interposition need not be a fixed interposition as described in paragraph [0035] and could thus be omitted from claim 1. Neither the argument regarding the non-necessity of adding the feature nor a request comprising the feature were submitted in the reply to the preliminary opinion of the Board and both were only submitted at the latest possible stage, during the oral proceedings.

3.4 Notwithstanding the above being detrimental to the procedural economy requirement for admittance under Article 13(1) RPBA 2020, the request has further problems counting against its admittance.

3.4.1 The amendment made to claim 1 includes that both the first and the second elastic members extend in a transverse direction. This amendment, as also argued by the respondent, at least *prima facie* renders the

subject-matter of claim 1 unclear since the claim further defines that the second elastic means (i.e. the second elastic members) are also adapted to operate in a leg-surrounding direction of the wearer, which does not correspond to a transverse direction.

3.4.2 Further, the Board finds that, at least *prima facie*, the amendment does not overcome the issues raised under Article 123(2) EPC for the previous requests. As pointed out above under points 1.3 and 1.4, the features of paragraph [0037] added to claim 1 relating to the "operative association" are originally disclosed only in combination with the more specific arrangement of the first embodiment disclosed in the paragraphs [0033] to [0044]. As the respondent pointed out, the construction of the base sheet and its fabric sheets disclosed in paragraph [0044] is also functionally and structurally linked to the arrangement of the elastic members and to the way that the first embodiment of the absorbent article provides an appropriate fit.

3.5 Since at least the previously discussed objections under Article 123(2) EPC have *prima facie* not been overcome and claim 1 has *prima facie* been rendered unclear under Article 84 EPC, the Board exercised its discretion under Article 13(1) RPBA not to admit auxiliary request 0A' into the proceedings.

4. Auxiliary requests 1, 2 and 3 - admittance

4.1 Auxiliary requests 1, 2 and 3 were filed with the grounds of appeal. Although the numbering of these requests has not been altered, the sequence of the auxiliary requests has been changed markedly during the course of the appeal proceedings, the last time during the oral proceedings, such that these requests

correspond now to the fifth, sixth and seventh auxiliary request considered by the Board, thus involving an amendment of the case which the Board and the respondent had to deal with.

- 4.2 Although the Board did not require re-numbering of the requests for the sake of simplicity for all involved, the selected sequence of the auxiliary requests leads to an evident broadening and lack of convergency in the requests. For example, the features relating to the interposition of the elastic members between layers and the features relating to the spacing between the elastic members, which are present in every higher ranking auxiliary request considered, are not present in auxiliary requests 1, 2 and 3. Such a change in the course of the proceedings does not meet the requirement for procedural economy as set out in Article 13(1) RPBA 2020.
- 4.3 The fact that auxiliary requests 1, 2 and 3 may have been convergent with the main request at the time of filing, is not relevant. Convergency of the requests is not bound to the date of filing of a request.
- 4.4 Accordingly, the Board exercised its discretion under Article 13(1) RPBA 2020 not to admit the auxiliary requests 1, 2 and 3 into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Chavinier-Tomsic

M. Hannam

Decision electronically authenticated

Claim 1 of the main request

Main request

1. A disposable diaper comprising:

an absorbent chassis (10) having a first waist region (12);

a second waist region (13), a crotch region (14) extending between these waist regions (12, 13);

leg region (14a) extending on transversely opposite sides of said crotch region wherein;

of said first and second waist regions (12, 13), at least said first waist (12) region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;

said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;

said first waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said first and second waist regions (12, 13); characterized in that said first waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said first waist region (12), wherein in the inelasticized zones (24) the elastic means in said

zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means (19, 20) comprise a plurality of elastic members and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the elastic members (19, 20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21, 22) and a contraction stress of the first elastic members (19) is operatively associated with a contraction stress of the second elastic members (20).

Claim 1 of auxiliary request 0A

Auxiliary request 0A

1. A disposable diaper comprising:
 - an absorbent chassis (10) having a front waist region (12);
 - a rear waist region (13), a crotch region (14) extending between these front and rear waist regions (12, 13);
 - leg region (14a) extending on transversely opposite sides of said crotch region wherein,
 - of said front and rear waist regions (12, 13), at least said front waist region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;
 - said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;
 - said front waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said front and rear waist regions (12, 13); characterized in that
 - said front waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said front waist region (12), wherein in the inelasticized zones (24) the elastic means in

said zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the first and second elastic members (19,20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21,22) and the contraction stress of the first elastic members (19) is operatively associated with the contraction stress of the second elastic members (20), so that if the front and rear waist regions (12, 13) are elastically pressed against a wearer's waist with an appropriate fit, the leg regions of the diaper will be also elastically pressed against wearer's legs correspondingly with an appropriate fit,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and a semirigid absorbent panel fixed to said inner surface,

wherein said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets,

wherein the first elastic members (19) are arranged over almost whole area defined between the vicinity of respective upper edges of the front and rear waist regions (12, 13) and the vicinity of respective upper edges of the crotch region (14), and the elastic members (19a) extending along the upper edge of a waist-hole are spaced apart one from another by a relatively small dimension and the elastic members (19b) laid below the elastic members (19a) are spaced apart one from

another by a relatively large dimension,

wherein the elastic members (19a) arranged in the vicinity of the waist-hole present a relatively high tensile stress and the elastic members (19b) arranged in the remaining zone present a relatively low tensile stress.

Claim 1 of auxiliary request 0A'

Auxiliary request 0A'

1. A disposable diaper comprising:
 - an absorbent chassis (10) having a front waist region (12);
 - a rear waist region (13), a crotch region (14) extending between these front and rear waist regions (12, 13);
 - leg region (14a) extending on transversely opposite sides of said crotch region wherein,
 - of said front and rear waist regions (12, 13), at least said front waist region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;
 - said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;
 - said front waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said front and rear waist regions (12, 13); characterized in that
 - said front waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said front waist region (12), wherein in the inelasticized zones (24) the elastic means in

said zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the first and second elastic members (19,20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21,22) and the contraction stress of the first elastic members (19) is operatively associated with the contraction stress of the second elastic members (20), so that if the front and rear waist regions (12, 13) are elastically pressed against a wearer's waist with an appropriate fit, the leg regions of the diaper will be also elastically pressed against wearer's legs correspondingly with an appropriate fit,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and a semirigid absorbent panel fixed to said inner surface,

wherein said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets, ^{fixedly} and extend in a ~~transverse~~ ^{transverse} direction,

wherein the first elastic members (19) are arranged over almost whole area defined between the vicinity of respective upper edges of the front and rear waist regions (12, 13) and the vicinity of respective upper edges of the crotch region (14), and the elastic members (19a) extending along the upper edge of a waist-hole are spaced apart one from another by a relatively small dimension and the elastic members (19b) laid below the elastic members (19a) are spaced apart one from

another by a relatively large dimension,

wherein the elastic members (19a) arranged in the vicinity of the waist-hole present a relatively high tensile stress and the elastic members (19b) arranged in the remaining zone present a relatively low tensile stress.

Claim 1 of auxiliary request 0B

Auxiliary request 0B

1. A disposable diaper comprising:
 - an absorbent chassis (10) having a front waist region (12);
 - a rear waist region (13), a crotch region (14) extending between these front and rear waist regions (12, 13);
 - leg region (14a) extending on transversely opposite sides of said crotch region wherein,
 - of said front and rear waist regions (12, 13), at least said front waist region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;
 - said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;
 - said front waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said front and rear waist regions (12, 13); characterized in that ear flaps made of separately prepared material are connected to the transversely opposite side edge portions of the rear waist region (13) so as to form a part of the chassis;
 - the front and rear waist regions (12,13) and the side edge portions of the respective ear flaps (40) are overlapped and connected together by seam lines (41) extending along these side edge portions, whereupon the pull-on diaper is formed with a waist-hole (42) and a pair of leg-holes (43);
 - said front waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said front waist region (12), wherein in the inelasticized zones (24) the elastic means in

said zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the first and second elastic members (19,20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21,22) and the contraction stress of the first elastic members (19) is operatively associated with the contraction stress of the second elastic members (20), so that if the front and rear waist regions (12, 13) are elastically pressed against a wearer's waist with an appropriate fit, the leg regions of the diaper will be also elastically pressed against wearer's legs correspondingly with an appropriate fit,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and a semirigid absorbent panel fixed to said inner surface,

wherein said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets,

wherein the first elastic members (19) are arranged over almost whole area defined between the vicinity of respective upper edges of the front and rear waist regions (12, 13) and the vicinity of respective upper edges of the crotch region (14), and the elastic members (19a) extending along the upper edge of the waist-hole are spaced apart one from another by a relatively small dimension and the elastic members (19b) laid below the elastic members (19a) are spaced apart one from

another by a relatively large dimension,

wherein the elastic members (19a) arranged in the vicinity of the waist-hole present a relatively high tensile stress and the elastic members (19b) arranged in the remaining zone present a relatively low tensile stress,

and wherein in the front waist region (12), the first elastic members (19) extend beyond the intermediate zone (23) to the transverse side edge zones (24) and these extensions of the first elastic members (19) are cut into small segments in the longitudinal direction thereof through the base sheet (17) by a plurality of rows of slits (44) each extending intermittently in the vertical direction of the diaper and arranged in parallel one to another in the transverse direction of the diaper and in consequence, these segments of the first elastic members (19) in the transversely opposite side edge zones (24) have no more contractility.

Claim 1 of auxiliary request 0C

Auxiliary request 0C

1. A disposable diaper comprising:

an absorbent chassis (10) having a front waist region (12);

a rear waist region (13), a crotch region (14) extending between these front and rear waist regions (12, 13);

leg region (14a) extending on transversely opposite sides of said crotch region wherein,

of said front and rear waist regions (12, 13), at least said front waist region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;

said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;

said front waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said front and rear waist regions (12, 13); characterized in that ear flaps made of separately prepared material are connected to the transversely opposite side edge portions of the rear waist region (13) so as to form a part of the chassis;

the front and rear waist regions (12, 13) and the side edge portions of the respective ear flaps (40) are overlapped and connected together by seam lines (41) extending along these side edge portions, whereupon the pull-on diaper is formed with a waist-hole (42) and a pair of leg-holes (43);

said front waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said front waist region (12), wherein in the inelasticized zones (24) the elastic means in

said zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the first and second elastic members (19,20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21,22) and the contraction stress of the first elastic members (19) is operatively associated with the contraction stress of the second elastic members (20), so that if the front and rear waist regions (12, 13) are elastically pressed against a wearer's waist with an appropriate fit, the leg regions of the diaper will be also elastically pressed against wearer's legs correspondingly with an appropriate fit,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and a semirigid absorbent panel fixed to said inner surface,

wherein said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets,

wherein the first elastic members (19) are arranged over almost whole area defined between the vicinity of respective upper edges of the front and rear waist regions (12, 13) and the vicinity of respective upper edges of the crotch region (14), and the elastic members (19a) extending along the upper edge of the waist-hole are spaced apart one from another by a relatively small dimension and the elastic members (19b) laid below the elastic members (19a) are spaced apart one from

another by a relatively large dimension,

wherein the elastic members (19a) arranged in the vicinity of the waist-hole present a relatively high tensile stress and the elastic members (19b) arranged in the remaining zone present a relatively low tensile stress,

and wherein in the front waist region (12), the first elastic members (19) extend beyond the intermediate zone (23) to the transverse side edge zones (24) and these extensions of the first elastic members (19) are cut into small segments in the longitudinal direction thereof through the base sheet (17) by a plurality of rows of slits (44) each extending intermittently in the vertical direction of the diaper and arranged in parallel one to another in the transverse direction of the diaper and in consequence, these segments of the first elastic members (19) in the transversely opposite side edge zones (24) have no more contractility,

wherein said fastener means (21, 22) are attached to said front waist region in said transversely opposite side edge zones (24) through the intermediary of reinforcing layers (45) made of material provided separately of said first waist region, wherein each of the reinforcing layers (45) has a sufficiently large contour size to cover a generally inner half of the side edge zone (24) on the outer surface of the front waist region and the side edge portion of the intermediate zone; and

wherein the fastener means (21) are permanently bonded to these reinforcing layers (45) in the vicinity of the transversely opposite side edge zones (24) of the front waist region (12).

* * * * *

Claim 1 of auxiliary request 0D

Auxiliary request 0D

1. A disposable diaper comprising:
 - an absorbent chassis (10) having a front waist region (12);
 - a rear waist region (13), a crotch region (14) extending between these front and rear waist regions (12, 13);
 - leg region (14a) extending on transversely opposite sides of said crotch region wherein,
 - of said front and rear waist regions (12, 13), at least said front waist region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;
 - said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;
 - said front waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said front and rear waist regions (12, 13); characterized in that ear flaps made of separately prepared material are connected to the transversely opposite side edge portions of the rear waist region (13) so as to form a part of the chassis;
 - the front and rear waist regions (12,13) and the side edge portions of the respective ear flaps (40) are overlapped and connected together by seam lines (41) extending along these side edge portions, whereupon the pull-on diaper is formed with a waist-hole (42) and a pair of leg-holes (43);
 - said front waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said front waist region (12), wherein in the inelasticized zones (24) the elastic means in

said zones (24) have been deprived of contractility by subsequent treatment,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener means (21, 22) and oriented so as to cross these side edges,

wherein the first and second elastic members (19,20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21,22) and the contraction stress of the first elastic members (19) is operatively associated with the contraction stress of the second elastic members (20), so that if the front and rear waist regions (12, 13) are elastically pressed against a wearer's waist with an appropriate fit, the leg regions of the diaper will be also elastically pressed against wearer's legs correspondingly with an appropriate fit,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and a semirigid absorbent panel fixed to said inner surface,

wherein said base sheet (17) comprises a laminate sheet consisting of at least two nonwoven fabric sheets intermittently bonded together and said first and second elastic members (19, 20) are interposed between said two sheets,

wherein the first elastic members (19) are arranged over almost whole area defined between the vicinity of respective upper edges of the front and rear waist regions (12, 13) and the vicinity of respective upper edges of the crotch region (14), and the elastic members (19a) extending along the upper edge of the waist-hole are spaced apart one from another by a relatively small dimension and the elastic members (19b) laid below the elastic members (19a) are spaced apart one from

another by a relatively large dimension,

wherein the elastic members (19a) arranged in the vicinity of the waist-hole present a relatively high tensile stress and the elastic members (19b) arranged in the remaining zone present a relatively low tensile stress,

and wherein in the front waist region (12), the first elastic members (19) extend beyond the intermediate zone (23) to the transverse side edge zones (24) and these extensions of the first elastic members (19) are cut into small segments in the longitudinal direction thereof through the base sheet (17) by a plurality of rows of slits (44) each extending intermittently in the vertical direction of the diaper and arranged in parallel one to another in the transverse direction of the diaper and in consequence, these segments of the first elastic members (19) in the transversely opposite side edge zones (24) have no more contractility,

wherein said fastener means (21, 22) are attached to said front waist region in said transversely opposite side edge zones (24) through the intermediary of reinforcing layers (45) made of material provided separately of said first waist region, wherein each of the reinforcing layers (45) has a sufficiently large contour size to cover a generally inner half of the side edge zone (24) on the outer surface of the front waist region and the side edge portion of the intermediate zone;

wherein the fastener means (21) are permanently bonded to these reinforcing layers (45) in the vicinity of the transversely opposite side edge zones (24) of the front waist region (12).

and wherein the row of slits (44a) adjacent the seam line (41) extends from the upper edge to the lower edge of the front waist region (13).

* * * * *

Claim 1 of auxiliary request 1

Auxiliary request 1

1. A disposable diaper comprising:

an absorbent chassis (10) having a first waist region (12);

a second waist region (13), a crotch region (14) extending between these waist regions (12, 13);

leg region (14a) extending on transversely opposite sides of said crotch region wherein;

of said first and second waist regions (12, 13), at least said first waist (12) region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;

said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;

said first waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said first and second waist regions (12, 13); characterized in that said first waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said first waist region (12), wherein in the inelasticized zones (24) the elastic means in said zones (24) have been deprived of contractility by subsequent treatment,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and semirigid absorbent panel fixed to said inner surface,

wherein said first and second elastic means (19, 20) comprise a plurality of elastic members and longitudinally opposite ends of said elastic members are laid in the vicinity of inner side edges of said fastener

means (21, 22) and oriented so as to cross these side edges,
wherein the elastic members (19, 20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21, 22) and a contraction stress of the first elastic members (19) is operatively associated with a contraction stress of the second elastic members (20),
wherein, of the first elastic members (19), the elastic members (19a) arranged in the vicinity of a waist hole have a tensile stress higher than the tensile stress of the elastic members (19b) in a remaining zone, and these elastic members (19a, 19b) are fixed at least longitudinally opposite end portions thereof to the base sheet (17).

Claim 1 of auxiliary request 2

Auxiliary request 2

1. A disposable diaper comprising:

an absorbent chassis (10) having a first waist region (12);

a second waist region (13), a crotch region (14) extending between these waist regions (12, 13);

leg region (14a) extending on transversely opposite sides of said crotch region wherein;

of said first and second waist regions (12, 13), at least said first waist (12) region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;

said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;

said first waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said first and second waist regions (12, 13); characterized in that

said first waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said first waist region (12), wherein in the inelasticized zones (24) the elastic means in said zones (24) have been deprived of contractility by subsequent treatment,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and semirigid absorbent panel fixed to said inner surface,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members (19, 20) are laid in the vicinity of inner side edges of said

fastener means (21, 22) and oriented so as to cross these side edges, wherein the elastic members (19, 20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21, 22) and a contraction stress of the first elastic members (19) is operatively associated with a contraction stress of the second elastic members (20),

wherein, of the elastic members (19) of the first elastic means, the elastic members (19a) arranged in the vicinity of a waist hole have a tensile stress higher than the tensile stress of the elastic members (19b) in a remaining zone, and these elastic members (19a, 19b) are fixed at least longitudinally opposite end portions thereof to the base sheet (17),

and wherein the elastic members (19, 20) of said first and second elastic means cross each other in the remaining zone of the first and second waist regions (12, 13).

Claim 1 of auxiliary request 3

Auxiliary request 3

1. A disposable diaper comprising:

an absorbent chassis (10) having a first waist region (12);

a second waist region (13), a crotch region (14) extending between these waist regions (12, 13);

leg region (14a) extending on transversely opposite sides of said crotch region wherein;

of said first and second waist regions (12, 13), at least said first waist (12) region being provided with first elastic means (19) adapted to operate in a waist-surrounding direction of a wearer;

said leg regions being provided second elastic (20) means adapted to operate in a leg-surrounding direction of the wearer;

said first waist region (12) being provided along transversely opposite side edge portions thereof with fastener means (21, 22) adapted to be releasably engaged one with another and thereby to releasably connect said first and second waist regions (12, 13); characterized in that

said first waist region (12) having an elasticized intermediate zone (23) and inelasticized transversely opposite side edge zones (24) in which said fastener means (21, 22) are attached to said first waist region (12), wherein in the inelasticized zones (24) the elastic means in said zones (24) have been deprived of contractility by subsequent treatment,

wherein said chassis comprises a flexible and liquid-resistant base sheet (17) having inner and outer surfaces and semirigid absorbent panel fixed to said inner surface,

wherein said first and second elastic means comprise a plurality of elastic members (19, 20) and longitudinally opposite ends of said elastic members (19, 20) are laid in the vicinity of inner side edges of said

fastener means (21, 22) and oriented so as to cross these side edges, wherein the elastic members (19, 20) arranged in this manner are operatively associated or cooperate with each other through the intermediary of the fastener means (21, 22) and a contraction stress of the first elastic members (19) is operatively associated with a contraction stress of the second elastic members (20),

wherein, of the elastic members (19) of the first elastic means, the elastic members (19a) arranged in the vicinity of a waist hole have a tensile stress higher than the tensile stress of the elastic members (19b) in a remaining zone, and these elastic members (19a, 19b) are fixed at least longitudinally opposite end portions thereof to the base sheet (17),

and wherein the elastic members (19, 20) of said first and second elastic means cross each other in the remaining zone of the first and second waist regions (12, 13),

wherein in the inelasticized transversely opposite side edge zones (24) the first elastic means (19) are cut into small segments through the chassis by a plurality of rows of slits (44) each extending intermittently in the vertical direction of the diaper and arranged in parallel one to another in the transverse direction of the diaper.