Intellectual Property Office

BL O/138/17

23 March 2017

PATENTS ACT 1977

BETWEEN

John Horsfall & Sons (Greetland) Ltd	Claimant
and	
Robert J. MacDonald	Defendant

PROCEEDINGS

Application under Section 72 of the Patents Act 1977 to revoke
EP Patent No. EP1295550 B1

HEARING OFFICER Stephen Probert

For the claimant: Paul Misselbrook of Appleyard Lees IP LLP
For the defendant: Graham Ablett of Ablett & Stebbing
Hearing date: 15 December 2016

DECISION

1 The claimant, John Horsfall & Sons (Greetland) Ltd ("Horsfall") applied to revoke patent EP1295550 B1 ("the patent"). The patent belongs to the defendant, Robert J. MacDonald ("MacDonald") who opposes the revocation action.

2 The patent relates to improvements to a particular type of fitted sheet for mattresses, known as an envelope sheet, an example of which was described and claimed in another patent US 5,765,241 (which shall be referred to as "D2"). The patent explicitly relates to an improvement of the specific fitted sheet of D2.

3 The previously described envelope sheet was manufactured from a tube of knit fabric, slit along an edge to form a rectangle, the side margins of the rectangle were then folded inwardly to the midline of the sheet and the top and bottom edges were sewn, joining the top and bottom edges of the fabric of the folded over margins to the top and bottom edges of the sheet of fabric, as shown in Figure 6 and 7 of D2 reproduced below.

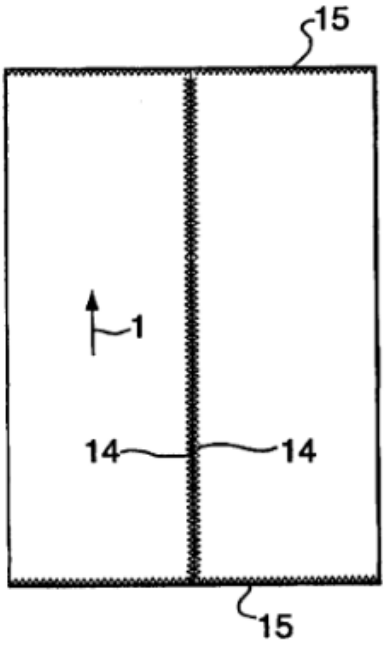


FIG. 6

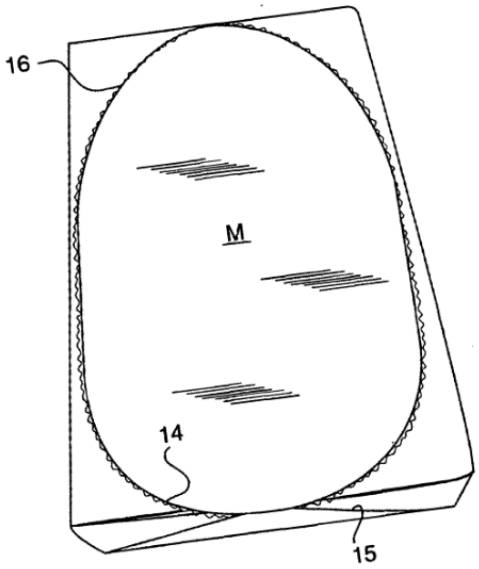


FIG. 7

4 In the manufacture of the previously described envelope sheet, the sewing of the top and bottom edges of the folded-over sheet was substantially transverse to the longitudinal axis of the sheet, but this transverse straight line sewing tended to create “ears” of excess material at the outer edge of the sheet when fitted to a mattress. These “ears” were said to be untidy looking, a waste of fabric, and to give the impression of an ill-fitting sheet.

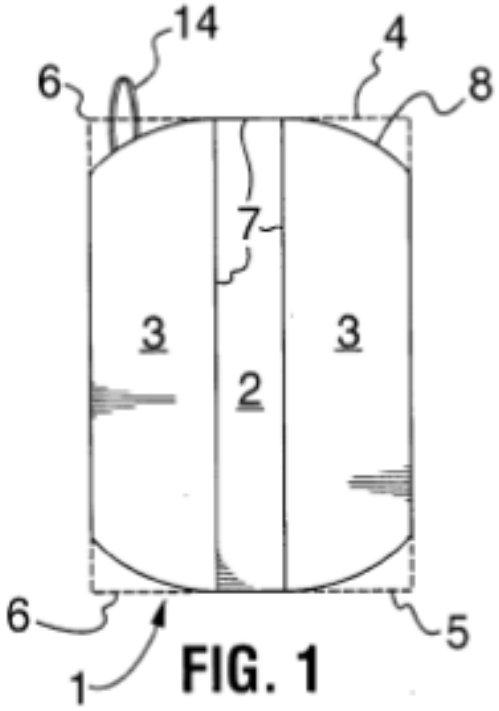


FIG. 1

5 The improvement of the patent over D2 is manufactured in the same manner but with the sewing of the top and bottom end edges of the folded-over sheet included seams 8 which were arcuate or angled from the centre (instead of substantially transverse seams) to eliminate or substantially reduce the formation of “ears”. As shown here in Fig.1 of the patent.

6 At the hearing, there was some discussion of the correct terminology to use for the sides and ends of mattresses. The clearest terminology used referred to the mattress in terms of the orientation of a prone person using the mattress, which gives us a head end, a foot end and two arm/leg sides and so that is the terminology used.

Issues

7 Horsfall contends that the patent is invalid for lack of:-

a. novelty over a US patent specification, US4912790 ("D1"), or

b. lack of inventive step over D1.

Witness

8 MacDonald called Mr Tim Meadows, a witness for Horsfall, for cross examination. Mr Meadows is currently the Customer Services Manager at Interweave Textiles Limited, a wholly owned subsidiary of Horsfall. Mr Meadows has worked in the hospital textiles industry for 17 years, from June 1998, and has been most recently concerned with the tender for supply of textile products, including sheets for hospital beds.

9 A large part of Mr Meadows' evidence related to the material costs and the machining time considerations in the manufacture of fitted sheets. During cross examination, Mr Meadows came across as a cautious witness who listened very carefully to Mr Ablett's questions – eg. as if he was anticipating a trap. In the event, none of the issues that were covered during the cross examination proved to be critical in the decision I have reached.

The skilled person and the common general knowledge

10 The claimant and defendant do not agree on the characteristics of the person skilled in the art ('skilled person') or the extent of the common general knowledge.

11 The claimant argued that the claim is to a fitted sheet for a mattress, which encompasses the wide field of fitted sheets for known mattresses, including standard mattresses and more specialist medical mattresses. The skilled person must therefore have the common general knowledge in the field of fitted sheets for this wide range of mattresses.

12 The claimant argued that this skilled person had available at least three key pieces of information:

(i) that different size mattresses were available and the skilled person was comfortable altering sheet dimensions to fit various sizes of mattress;

(ii) that fitted sheets were manufactured from either knitted or woven material;

(iii) that it was aesthetically most pleasing if the arm/leg side mattress edges are covered by a fitted sheet.

13 The defendant argued that the appropriate notional skilled person, at the priority date, would know what fitted sheets were and that mattresses have a head end, a foot end, a left arm/leg side and a right arm/leg side. Also, the skilled person would have some understanding of how you fabricate mass produced fitted sheets and would understand how a fitted sheet is put on to a mattress.

14 The defendant argued that the common general knowledge includes the three types of fitted sheet described in the second paragraph of D1 in relation to oblong mattresses that were commonly available, and that the common general knowledge would include the types of manufacturing operations that are involved in the fabrication of these three types of fitted sheet.

15 Additionally, the defendant argued that the common general knowledge would include knowledge of the costs of the raw stock material, thread and elastic trim used in the fabrication processes and how operators perform the cutting and sewing operations. Finally, the defendant argued that the common general knowledge would include a commercial awareness of the impact on the sale of fitted sheets due to increased or reduced costs of manufacture and/or increased or reduced product quality.

16 I consider that the skilled person would be a factory based manufacturer of fitted sheets. In all probability, he (or she) would also be familiar with the design and manufacture of a wider range of fabric goods associated with bedding in particular – eg. plain sheets, duvet covers, pillow cases.

17 It is normally clear which orientation a person would lie upon a bed, consisting of a mattress on a frame or support of some kind, and so it would seem clear that the skilled person would know which are the head/foot ends of a mattress, and which are the arm/leg sides.

18 The skilled person would know that mattresses of different sizes are available and that the most common mattress sizes in the UK are single, double, king-sized and super king size and he would also know that other mattresses are more rare, such as, emperor size and bespoke shaped mattresses. The skilled person would know that medical mattresses are also available in different sizes and that these are also non-standard.

19 The skilled person would know that fitted sheets need to be dimensioned to fit the size of mattress that they are intended to be used upon, paying regard to the length and width of the top-face of the mattress intended to be covered and also the depth of the mattress.

20 The skilled person at the priority date would know that fitted sheets are commonly made of woven or knit material and would also have an idea of the costs of the raw materials, elastic and trims used in making a fitted sheet. The skilled person would also have a commercial common-sense, which would inform him or her that higher quality products will sell at higher prices and lower quality products will sell at lower prices.

The Law

21 These proceedings have been initiated under section 72(1), which reads as follows:-

> **Section 72(1)**
> Subject to the following provisions of this Act, the court or the comptroller may by order revoke a patent for an invention on the application of any person (including the proprietor of the patent) on (but only on) any of the following grounds, that is to say -
>
> **(a) the invention is not a patentable invention;**
>
> (b) that the patent was granted to a person who was not entitled to be granted that patent;
>
> (c) the specification of the patent does not disclose the invention clearly enough and completely enough for it to be performed by a person skilled in the art;
>
> (d) the matter disclosed in the specification of the patent extends beyond that disclosed in the application for the patent, as filed, or, if the patent was granted on a new application filed under section 8(3), 12 or 37(4) above or as mentioned in section 15(9) above, in the earlier application, as filed;
>
> (e) the protection conferred by the patent has been extended by an amendment which should not have been allowed.

The claims

22 The patent as granted contains 5 claims, with a single independent claim, claim 1, to a fitted sheet for a mattress.

> 1) *A fitted sheet for a mattress comprising:*
>
> *(a) a rectangular panel of knit material having a central rectangular area extending from one end of the panel to the other end thereof, and*
>
> *(b) side margins flanking the central area,*
>
> *(c) the side margins being folded under the central area and*
>
> *(d) joined thereto by seams extending across each end of the central rectangular area*
>
> *(e)* ***characterised in that the seams at each end of the central rectangular area are arcuate or angled from the centre****.*

Claim construction

23 The claimant argued that the term “side margin” has no specific meaning in the art and therefore the term should be construed broadly to mean a margin (a fabric panel) to *any side or end* of the rectangular sheet. This is referred to as the broad construction of side margin.

24 Alternatively, the claimant stated that if the term “side margin” was construed narrowly to mean a fabric panel on the arm/leg side of the rectangular sheet the claim lacked an inventive step.

25 To aid with construing the claim, the defendant relied on:

Kirin-Amgen Inc v Hoechst Marion Roussel Ltd [2005] RPC 9 which sets out the principles by which the claim should be construed, especially the question: “What would the person skilled in the art have understood the patentee to be using the language of the claim to mean?” (See paragraph 34)

Schenck Rotec GmbH v Universal Balancing Limited [2012] EWHC 1920 from which the key point is that construction is concerned with what a reasonable person would understand the author to be using the words to mean; that claims are not construed alone or in the abstract but in their context in the specification; that purposive construction is vital and that one is in the end concerned with the meaning of the language used. (See paragraph 72)

Virgin Atlantic Airways Ltd V Premium Aircraft Interiors UK Ltd [2010] RPC 8 which are said to suggest (paragraphs 13 & 15) that the skilled person is able to read, understand and interpret a patent specification, especially bearing in mind that the skilled person will be construing the claims of the patent.

26 The defendant stated that the fitted sheet claim has “a central rectangular area extending from one end of the panel to the other end thereof” and that this could be construed in two ways:

> (i) that one end of the panel corresponds to the head end of the mattress and the opposing end corresponds to the foot end; the narrow construction.
>
> (ii) that one end of the panel corresponds to the arm/leg side and the opposing end corresponds to the other arm/leg side; the broad construction.

27 The defendant argued that the skilled person would understand that the patent relates to an improvement on the embodiments of figures 6 and 7 of D2 and would read the description of those embodiments in D2 to construe the claims of the patent.

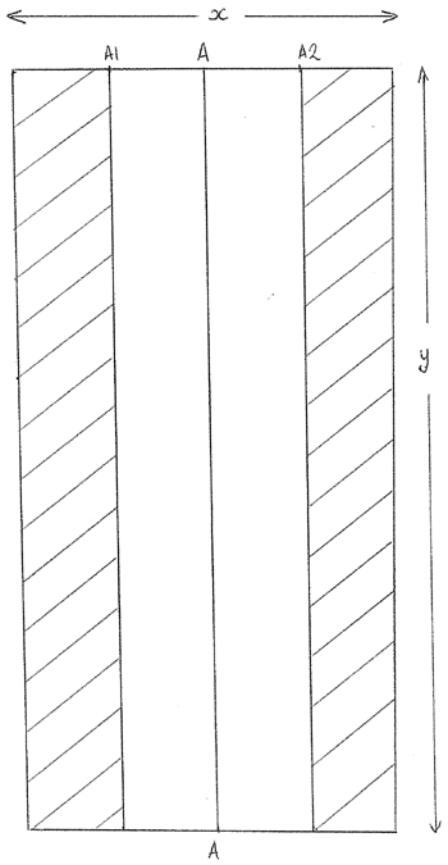
28 The claimant argued that it is absurd to construe the claims of the patent using information from D2. The patentee claimed *any* fitted sheets suitable for *any* mattresses and the claims should be construed accordingly.

29 The patent clearly states that it relates to an area of improvement of the envelope sheet of D2. I note also that the description part of the patent takes up less than one page of A4 in the published specification. For these reasons it seems appropriate to use the description of D2 to help construe the claims of the patent.

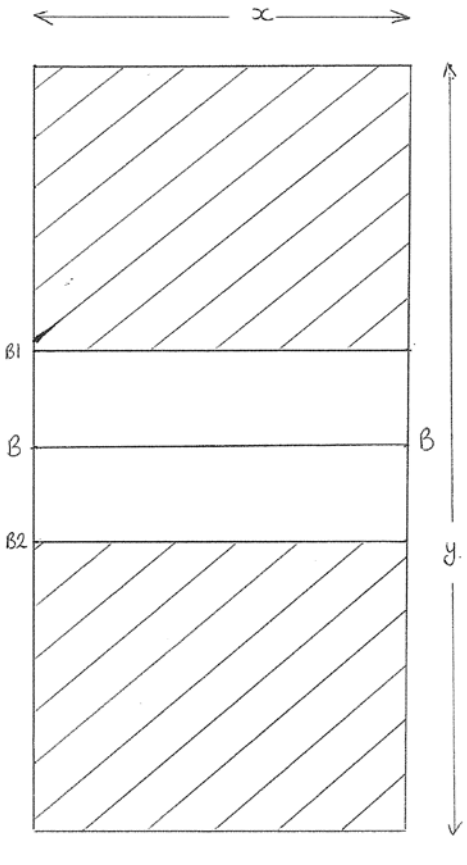
30 The description of figures 6 and 7 of D2 clearly refer to the head/foot ends as “the ends” and the arm/leg sides as “the sides” and an alternate orientation is not considered. Claim 1 of the patent claims a fitted sheet for a mattress having a central rectangular area of knit material, with side margins folded under the central rectangular area and joined thereto by seams extending across each end of the central rectangular area, which is entirely consistent with the sheets described in the figure 6 and 7 embodiment of D2.

31 Additionally, the defendant demonstrated, using two paper models of the fitted sheet of the patent, where the width of the cardboard “mattress” is approximately half the length. This approximately corresponds to the relative dimensions of a single mattress. One model had the side panels at the ends, according to the broad construction, and the other model had the side panels at the sides, according to the narrow construction. I have illustrated the models in the two figures below (these illustrations are not to scale).

Model 1



Model 2



32 In both the models displayed the overlapped side panels met at the middle, along lines A-A and B-B respectively. The patent does not describe the size requirements

of the side panels, but the patent is an improvement on D2 and so the reader is explicitly referred to D2, which indicates the maximum and minimum length of the sheet fabric with respect to the length of the mattress (column 4 lines 52-63) and also gives constraints to the width of the side panel overlaps:

> *"While the applicant had found the best success with folding the sides of the fabric until they meet midway, leaving a small gap between the finished side edges of the knit fabric will not affect the performance of the sheet. The gap should not be greater than about half the width of the mattress to be dressed. Moreover, it will be understood that for hospital bed usage, the gap will preferably be minimal or no gap at all will be provided."*
>
> *(D2 column 4 lines 64 to column 5 line 4).*

33 For clarity, I have added an indication of the maximum gaps described in D2 on the illustrations of the models displayed by the defendant. The maximum allowed gaps are shown between the lines A1-A2 and B1-B2. The hatched portions show the minimum described extent of the side panel overlaps.

34 The defendant argued that in order to place model 1 on the mattress, the side margins have to be pulled back by approximate distance X/2 for the side flaps that meet in the middle or X/4 for the side flaps with the maximum gap. In order to place model 2 on the mattress the side margins have to be pulled back a further distance of between Y/2 and Y/4. This additional stretching requirement would make it difficult to place the sheet on the mattress and would risk tearing the seams. Model 2 does not seem to be a viable sheet when made out of a material with some inherent stretch, such as a knit material.

35 Additionally, the defendant argued that the joining seam of model 1 would need to go across the top end and across the bottom end, which is equivalent to a length of twice X. The joining seam necessary in model 2 would need to go down both sides, which is equivalent to a length of twice Y (approx. 4X). From the evidence of Mr Meadows, it was stated that a longer seam of approximately double the length would take only marginally longer to sew, which Mr Meadows described as a negligible difference because it is the setting up of the machine and fabric ready to sew which takes the time.

36 I do not think that the sewing time difference would be completely negligible. Accurately sewing a joining seam of twice the length cannot be considered to be equally efficient and so model 2 would be, at least, marginally more expensive to manufacture in both the time and the thread length used when compared with model 1. Mr Meadows' evidence confirmed that the cost of manufacture of mass produced fitted sheets is a key consideration in their design.

37 Therefore, for both of the reasons discussed above, the first construction proposed by the defendant would seem to be the correct one. This is equivalent to the narrow construction put forward by the claimant.

38 I will construe the claims such that "the ends" are the head/foot ends and "the side margins" are located at the arm/leg sides.

Novelty

39 The claimant's attack on novelty is based on D1. D1 was published on April 3rd 1990, just over ten years before the priority date of the patent. It describes two embodiments of a fitted bed sheet designed to prevent the weight of a person lying on the sheet from tensioning the corner seam such that the corner seam rips. The sheets of the invention are provided with elastic sewn into the corner seams, rather than just around the periphery of the fitted sheet, to allow the corner seam to give elastically rather than rip.

40 The unsewn sheet of the first embodiment (figures 3 and 4) includes a rectangular main body portion, rectangular side portions and rectangular end portions; the side and end portions being joined by substantially vertical corner seams which are at least partly elasticated. The second embodiment (figure 5) discloses a similar fitted sheet where the side portions are trapezoidal and the end portions and main body portions are rectangular "thereby to form a pocket upon installation of the elastic" (see column 1 lines 61-64). The second embodiment would not have vertical corner seams. Both embodiments describe the installation of elastic into the corner seams to allow the corners to give elastically when tensioned. The second embodiment was used in the novelty attack, and figure 5 is reproduced below:

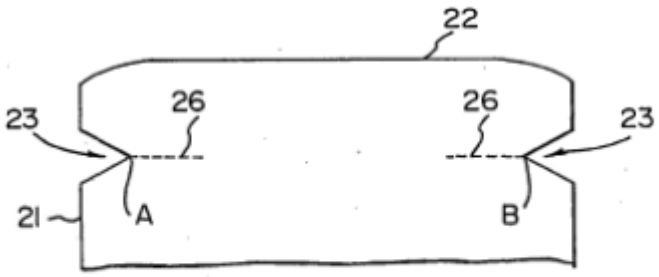


FIG. 5

41 In the fabrication of the figure 5 embodiment, the fabric is folded at 26 to allow the sides of indented triangle 23 to be sewn together, with elastic added into the joining seam (see column 3 lines 47-50). The sewing operation is carried out in one step per end, from the inner end of one cut out (A) to the inner end of the other cut-out (B) to provide a bag like pocket at each end.

42 As discussed above, the "side margins" of claim 1 of the patent should be construed narrowly so that the side margins are at the arm/leg sides, and so the novelty attack fails immediately as feature (b) of claim 1 is not disclosed. It follows that if there are no side margins, then the side margins cannot be folded under, so feature (c) of claim 1 is also not disclosed.

43 Additionally the claimant argued that the disclosure of D1 did not mention any material explicitly and so the common general knowledge of the skilled person could be used to make the sheet out of a woven or a knit material. The claimant considered that the first embodiment of D1 relates to the use of elastic in a vertical

corner made from an inelastic, probably woven, material, but the second embodiment was not limited to the inelastic fabric or elasticated corners.

44 Although there is no explicit disclosure of the fabric of the fitted sheet of D1, it is implicit in the problem to be solved by both embodiments that the fabric of the fitted sheet does not stretch. Column 1 lines 61-64 discuss the second embodiment, where the side portions are “trapezoidal”, which is due to the triangular notches cut out, and it is stated that the pocket is formed “upon installation of the elastic” i.e. the corner is still elasticated to overcome the same problem of the corner seams ripping under tension. The problem of the corner seams ripping when the sheet is tensioned would only occur if the sheet was made of an inelastic fabric, such as woven material. It is common ground between the parties, and accepted by me, that knit material is inherently somewhat elastic. Therefore D1 does not implicitly disclose the rectangular panel of knit material required in feature (a) of claim 1.

Inventive step

45 In assessing whether or not an invention would have been obvious it is easy to be misled by hindsight. Therefore it has become the practice to approach the question in a step-by-step way, as first laid down in the Windsurfing case [1985] FSR 59 at 73. More recently it has been restated by the Court of Appeal in Pozzoli Spa v. BDMO SA [2007] EWCA Civ 588 at §23. In the words of Jacob LJ:-

> I would restate the Windsurfing questions thus:
>
> (1) (a) Identify the notional “person skilled in the art”
>
> (b) Identify the relevant common general knowledge of that person;
>
> (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
>
> (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;
>
> (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

46 I have identified the notional skilled person as a factory based manufacturer of fitted sheets, who would also be familiar with the design and manufacture of a wider range of fabric goods associated with bedding in particular.

47 I have decided that the skilled person, at the priority date of the patent, would know which are the head/foot ends of a mattress, and which are the arm/leg sides. He or she would know that mattresses of different sizes are available and that the most common mattress sizes in the UK are single, double, king-sized and super-king and he would also know that other mattresses are more rarely available in the UK such as emperor size and bespoke shaped mattresses.

48 The skilled person would know that fitted sheets need to be dimensioned to fit the size of mattress on which they are intended to be used, paying regard to the length

and width of the top-face of the mattress intended to be covered and also the depth of the mattress, depending upon the specific design of the sheet. The skilled person would know that fitted sheets are commonly made of woven or knit material and would also have an idea of the costs of the raw materials, elastic and trims used in making a fitted sheet.

49 The inventive concept of the claim is an improvement to the prior art envelope sheet disclosed in D2, in which the seams at each end of the central rectangular area are arcuate or angled from the centre. This shaping of the seams reduces the formation of “ears” of excess material at the corners.

50 The claimant’s obviousness attack was based on a number of arguments in relation to D1. I have numbered them for ease of reference:

(i) If the term “side margins” is construed broadly to include pockets being formed at the head/foot ends or at the arm/leg sides of a fitted sheet, and D1 is not considered to clearly and unambiguously disclose forming the sheet from knit material, then it is submitted that knit material was one of two well-known types of material for fitted sheets and the skilled person would have been motivated to try both given that a specific material is not disclosed.

(ii) If the term “side margins” is construed narrowly to only include pockets being formed at the arm/leg sides of a fitted sheet, and D1 is considered to clearly and unambiguously disclose the use of knit material, then the skilled person would have been motivated to make fitted sheets to fit other known mattress sizes, including an emperor mattress, which is square. Such a fitted sheet would include all the features of the claim as the fitted sheet of D1 made for a square mattress would be suitable for fitting on an emperor mattress such that the side margins run along the sides of the mattress.

(iii) As (ii) but with D1 being considered not to clearly and unambiguously disclose the use of knit material, it was submitted that knit material was one of two well-known types of material for fitted sheets and the skilled person would have been motivated to try both in the manufacture of a fitted sheet for an emperor mattress given that a specific material is not disclosed.

(iv) If the term “side margins” is construed narrowly to only include pockets being formed at the arm/leg sides of a fitted sheet, and D1 is considered to clearly and unambiguously disclose the use of knit material, the sheet of D1 leaves the arm/leg sides of the bed somewhat uncovered. Given the common general knowledge of the skilled person that it is aesthetically more pleasing for the arm/leg sides to be covered, he would have adapted the sheet of D1 to form the pockets at the sides of the mattress.

(v) As (iv) but with D1 being considered not to clearly and unambiguously disclose the use of knit material it was submitted that knit material was one of two well-known types of material for fitted sheets and the skilled person would have been motivated to try both in the manufacture of a fitted sheet

covering the side portions of a mattress given that a specific material is not disclosed.

(vi) The envelope sheet design of D2 is acknowledged as common general knowledge by the patentee as it is cited in the patent application and is stated as being “known in the trade”. The only difference between the commonly known envelope sheet design and the claims is the angled seams to remove the ears. The skilled person when adapting D1 to form an envelope design using his common general knowledge, would arrive at the features of the claims.

(vii) Additionally, at the hearing, there was a discussion of the sewing routes and seam locations of the fitted sheet of the patent and a fitted sheet according to Fig.5 of D1, which I will also address below.

51 To proceed with the inventive step analysis according to the Pozzoli steps, I must identify the differences between the disclosures of D1 and the inventive concept of claim 1 and then analyse if those differences constitute steps which would have been obvious to the skilled person or do they require any degree of invention?

Material

52 As stated earlier, I consider that it is implicit in the problem to be solved in D1 that the fabric of the fitted sheet is not elastic. The problem of the corner seams ripping when the sheet is tensioned only occurs if the sheet was made of an inelastic fabric, such as woven material. It is essential that a fitted sheet according to the patent is made of knit material, which is inherently somewhat elastic. This is an important difference between D1 and the patent and because of it the claimant’s arguments (ii) and (iv) fail.

53 The claimant also argued that even if the skilled person considers D1, Fig 5, to be made of woven material, he would know from his common general knowledge that fitted sheets can be made of knit material, and so the sheet could be made out of knit material if desired. Knit material can be cheaper than woven material, and so a cheaper sheet could be made.

54 The defendant argued that making the sheet of Fig.5, D1 out of knit material does not result in a viable sheet as the pocket ends formed are too shallow to adequately grip the ends of the mattress. I can see that the pockets formed without added elastic may be insufficient to grip the end of the mattress but note that it is essential that elastic is sewn into the corner seams and around the end edge of the Fig.5, D1 sheet, and so the elastic trim would have to remain.

55 The evidence Mr Meadows gave under cross-examination confirmed that the cost of materials and production is a major factor in determining a tender price for the supply of sheets, especially when supplying the price-conscious NHS. It follows that replacing a simple joining seam between two layers of fabric with a joining seam incorporating “elastic in a stretched condition” (column 2 line 15 of D1) would increase the cost and the time taken by the sewing machine operator to create the seam.

56 Finally, the teaching of D1 relates to how to prevent the corner seams from splitting when an inelastic sheet is tensioned; it seems highly unlikely that the skilled person would try to manufacture the elasticated corner sheet design of fig.5 D1 with a stretch knit fabric. The claimant's arguments (iii) and (v) fail.

Orientation and aspect ratio

57 The sheet of Fig. 5 D1 has pockets formed at head/foot ends of the mattress and the sheet of the patent has been construed according to the narrow construction to require side margins formed into pockets on the arm/leg sides of the mattress. The orientation of the fitted sheets of the patent and D1 are 90 degrees out of alignment with each other. Therefore the claimant's argument (i) in relation to the broad construction fails.

58 The claimant stated that a sheet designer would find a sheet more aesthetically pleasing if the arm/leg sides of a mattress are covered rather than the head/foot ends, and therefore it would be obvious for the skilled person to rotate the sheet of fig.5 of D1 so that the end pockets covered the sides. Further, the claimant argued that in the case of a square emperor mattress, with an aspect ratio of 1:1, the relative dimensions of the fitted sheet would not have to be changed to carry out this rotation. Single, double, king-sized and super king-sized mattresses, sold in the UK, have a width that is less than their length, and so have an aspect ratio of less than 1:1.

59 The defendant argued the relative merits of the orientation of the fitted sheet of D2, rather than the fitted sheet of D1, and this argument (with the accompanying models) was of use in construing the claim of the patent earlier. However, if the models had been made for two square emperor mattresses, instead of oblong mattresses, the defendant's argument becomes less clear. The length of the sewn seams and required distance to pull back the fabric overlaps to fit the mattress to the sheet would be identical in either orientation.

60 However, I have already found that the fig 5 embodiment of D1 relates to a fitted sheet with head/foot end pockets, *made of inelastic material and provided with elasticated corner seams*. Even if it were obvious to rotate this sheet through 90 degrees to form a fitted sheet with arm/leg side pockets, whether or not the skilled person would have to change the relative width and length dimensions in the case of an oblong or square mattress, s/he would still have a fitted sheet *made of inelastic fabric with elasticated corner seams*. S/he would not have a sheet according to claim 1. Accordingly the claimant's argument (iv) fails.

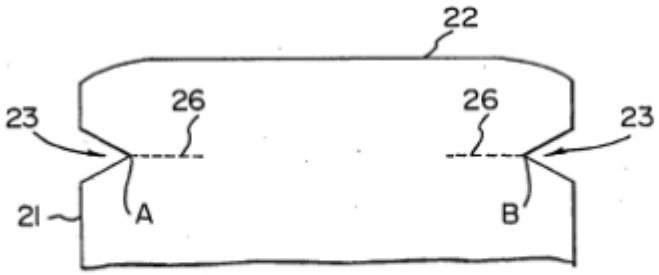


FIG. 5

D1 Fig 5

Sewn seams

61 In the fabrication of the figure 5 embodiment, the fabric is folded at 26 to allow the two cut sides of indented triangle 23 to be sewn together, with elastic added into the joining seam (see column 3 lines 47-50). It is not clearly disclosed whether the fold 26 is a complete fold, where the fabric is folded over the central area or whether just the dotted portion labelled 26 is creased to align the edges of the triangular cut out, however I am not sure that this would make a significant difference to the joining seam created.

62 To illustrate the similarities between the sheet of D1 and the patent, the claimant provided an “extrapolated” version of figure 5 in the statement of grounds. This shows a sheet blank with both ends shown as sides, which was called figure B (included below). The sewing operation is carried out in one step per end, a joining seam J (solid line) from the inner end of one cut out (A) to the out end of the cut-out A, then a finishing seam F (dashed line) from the outer end of cut-out A to the outer end of cut-out B (along edge 22), then a joining seam J from the outer end of

cut-out B to the inner end of cut-out (B) to provide a bag like pocket at each “side”.

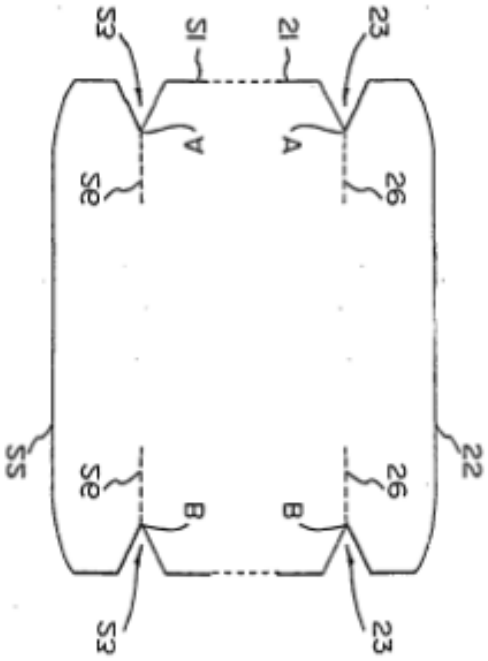


Figure B

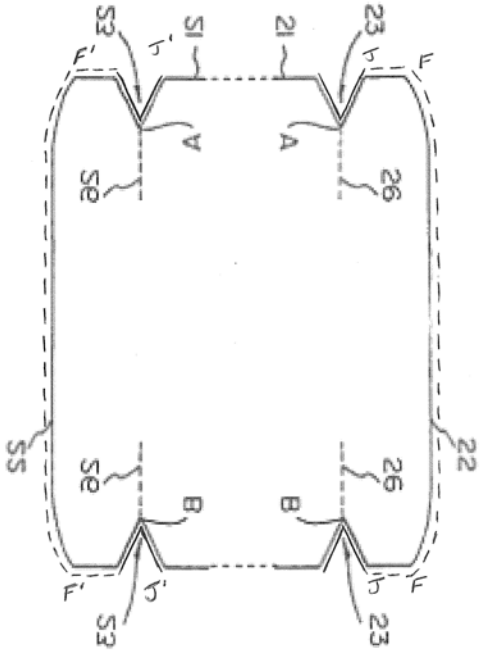


Figure B with sewing lines added

63 In the fabrication of the fitted sheet of the patent (Fig 1 and 1A shown below) the side margins are folded over or under the central area and “joined thereto by seams extending across each end of the central rectangular area” (feature (d) of claim 1). The sewing of the angled or arcuate seam is carried out across both ends, annotated C to D and C’ to D’ (or D to C, D’ to C’) joining the overlap portion 3 to the underlying fabric 2. If this sheet of A1 below was sewn in the same manner described in Fig 5 of D1, then one sewing operation would start at C with a joining seam to E, then a finishing seam to F, then a joining seam to C’ and the next similarly D to G to H to D’.

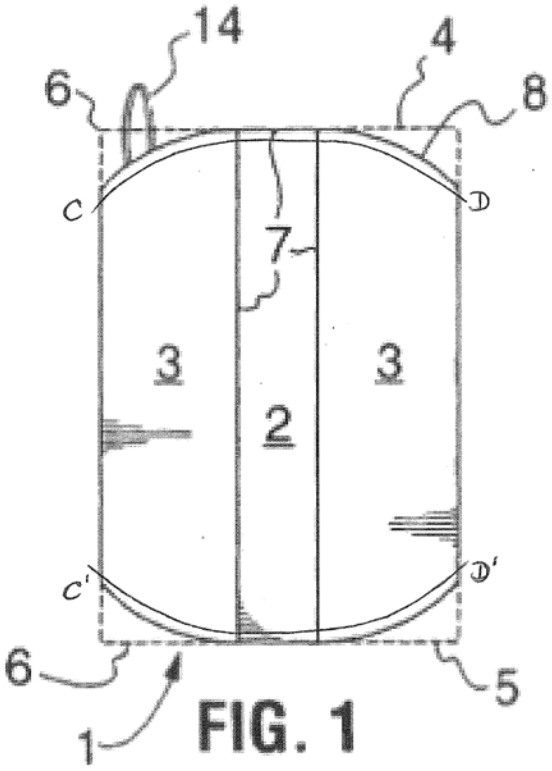


FIG. 1

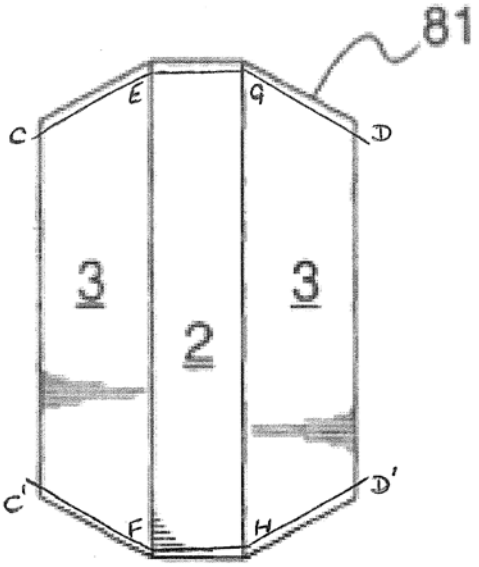


FIG. 1A

64 From the comparison of the sewing in the figures above, it is clear that the sewing lengths and directions of the patent and D1 are different, but both manufacturing methods result in a sheet with a central rectangular area, having portions of fabric folded under or over the central area, the portions of fabric joined to the central rectangular area by seams, the seams being angled from the centre.

65 However, the finishing or joining seams of D1 do not “extend across each end of the central rectangular area” as required by feature (d) of claim 1 of the patent; they do not extend from one side to the other of the central rectangular area. Instead, the top joining seam extends part of the way across the central rectangular area until the end of the overlap is reached, then diverts transverse to the end of the central rectangular area in the form of a finishing seam before becoming a joining seam at the bottom. The claimed sheet is not sewn in the same way as the sheet of D1, Fig.5. The manufacturing method of the sheet of the patent has a shorter sewing length and does not require the inclusion of elastic.

66 The claimant argued that if D2 is common general knowledge, it would be obvious to modify D1 to get to the claimed fitted sheet, with the angled seams to remove the ears. In the patent it is stated that the sheet of D2 “is fabricated from knit material and is *known in the trade* as an envelope sheet” and as the description states that the envelope sheet of D2 is “known in the trade” it is therefore a part of the common general knowledge. Therefore the skilled person can adapt the sheet of Fig 5, D1, using the knowledge of the envelope sheet of D2, and arrive at a sheet which falls within the claims, as it would have angled seams to remove the ears.

67 The defendant disagreed that D2 would be common general knowledge, relying on the judgement in *General Tire and Rubber v Firestone Tyre & Rubber* [1972] RPC 457 which stated that individual patent specifications do not form a part of the relevant common general knowledge. Additionally stating that D2 would have been

three years old at the priority date and that sort of knowledge does not go round the entire field of fitted sheet specialists within three years, especially as the evidence of Mr MacDonald is that the sheet was not exactly a commercial success.

68 Applying the reasoning of *General Tire*, I do not think that the specific envelope sheet as described in D2 would have become common general knowledge. But even if it had become common general knowledge, it would not have been obvious at the relevant date to adapt the sheet of figure 5 D1 to create a sheet which falls within the claim of the patent. D1 is addressing a specific problem of corner seams ripping in fitted sheets of inelastic fabric by the inclusion of elastic in the corner seams. The reader must take the disclosure of D1 properly and fairly in its own context, and not seek to interpret parts of it *ex post facto*.

69 At the hearing the claimant and defendant put forward arguments about whether each fitted sheet discussed had been a two dimensional or a three dimensional sheet. After careful thought about the sheets as they are manufactured, after manufacture and when placed on a 3D mattress, I did not find the 2D and 3D arguments helpful.

70 It was noted in the hearing that there was no attack of inventive step of the patent based upon D2 as a starting point.

71 The final step of the Pozzoli analysis is Step 4: Would the difference be obvious? Viewed without any knowledge of the invention as claimed, for the reasons discussed above, I consider the differences in the disclosed fabric, the elasticated corner seams and the placement of the sewn seams do not constitute steps that would have been obvious to the skilled person. The inventive step attack based upon D1 fails.

Summary

72 The claimant has not succeeded on any of the grounds for revocation pleaded in its statement of case, and therefore the application for revocation fails. The patent remains in force.

Costs

73 Before making an award of costs, I will allow one month from the date of this decision in case the parties wish to provide written submissions on the issue of costs. In case it assists the parties, all I will say here is that I am not aware of any reason to depart from the published scale of costs. If no written submissions are filed, costs will be awarded in accordance with the published scale.

Appeal

74 Any appeal must be lodged within 28 days after the date of this decision.

Stephen Probert
Deputy Director, acting for the Comptroller