

OPINION UNDER SECTION 74A

Patent	GB 2407777
Proprietor(s)	Mr Andrew Sean Gordon Daly
Exclusive Licensee	
Requester	New Equine Wear Ltd, on 10 April 2007
Observer(s)	
Date Opinion issued	10 July 2007

The request

1. The comptroller has been requested by New Equine Wear Limited (“the requestor”) to issue an opinion as to whether GB2407777 (“the patent”) is valid in light of patent document US4470411 and whether the patent is infringed by the products sold by the requestor and known as Airoflow sport boot and Airoflow exercise boot (hereafter “the Airoflow boots”).

Observations

2. Observations in response to the request were received from McDermott Will & Emery on behalf of the patent proprietor. In these the proprietor contends that the patent is clearly valid and infringed. Observations in reply were received from Wynne-Jones, Lainé & James on behalf of the requestor refuting the patentee’s conclusions on validity and infringement in their observations and including two samples of their Airoflow boots.

Preliminary matters

3. Both parties refer to Patents County Court proceedings reference PAT06014 to which they are also opposing parties. I have contacted the Patents County Court and been informed that these proceedings have been stayed. Therefore I am content that my opinion will not cover ground that has already been covered in litigation. In this regard I note

that neither party suggests that it would be inappropriate for me to issue an opinion.

4. An opinion is sought first on the question of validity and only if any of claims 1, 2, 3, 4 or 6 of the patent are valid is an opinion on infringement sought.

The patent

5. GB2407777 was divided from application number GB0225220.3 from which it derives a date of filing of 30 October 2002. There is no claim to an earlier priority. The patent was granted on 21 September 2005 and remains in force at the time of writing this opinion.
6. The subject matter of the patent is an air cooled horse exercise boot. According to the specification the boot is intended to prevent damage to a horse's leg caused by exercise induced strain, exercise induced hypothermia or by external striking. The boot is formed of a collar secured around at least the cannon bone of a horse's leg and includes at least one air intake, exit outlets and channels connecting the intake and outlets. Several different embodiments of the invention are described in the patent.
7. Figures 1 and 2 of the patent (below) show a first embodiment of the invention in the form of a boot 90 with a cooling channel 91.

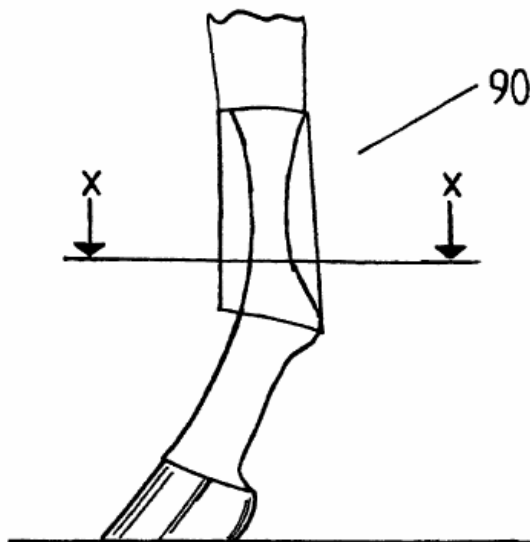


Figure 1

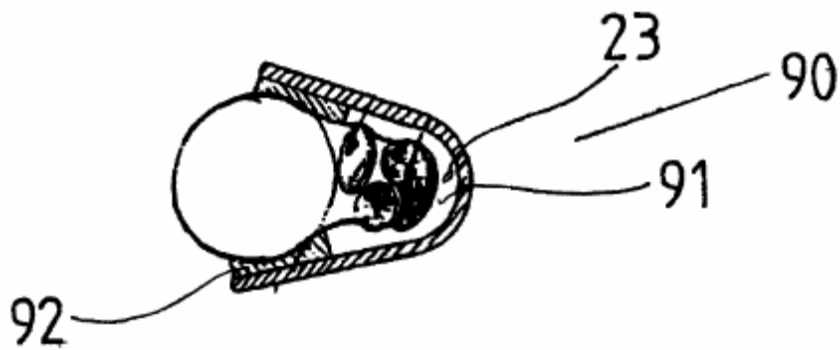


Figure 2

8. Figures 4 and 5 of the patent (below) illustrate an alternative embodiment of the invention showing cold air 102 entering intake 103, passing along channels 104 to tendons and ligaments 105 and tendon core 101 and then to air exit holes 106.

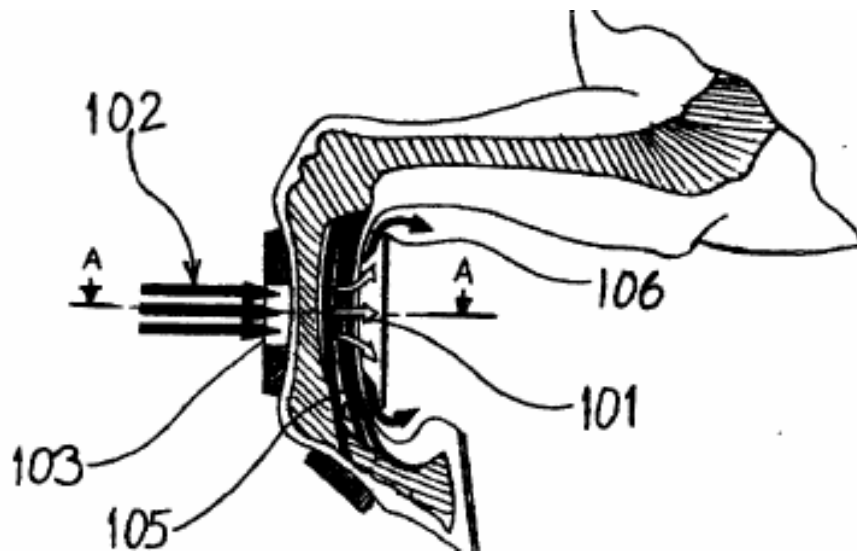


Figure 4

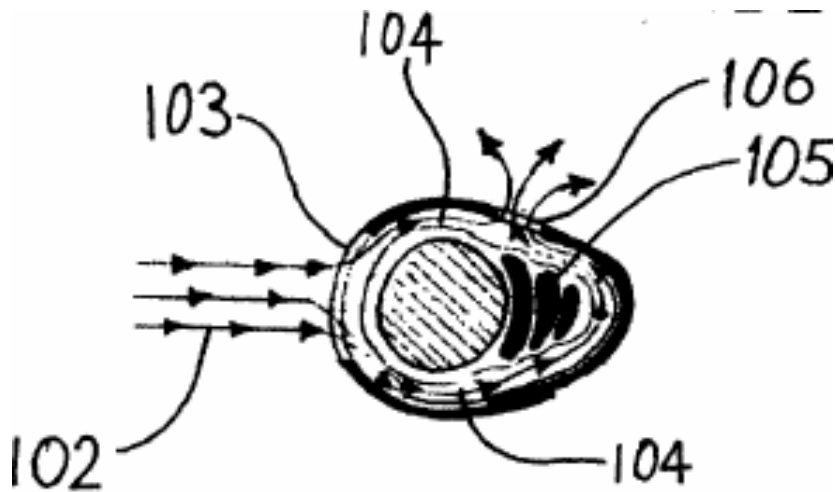


Figure 5

9. Claim 1 of the granted patent is the only independent claim and reads as follows:

“An exercise boot (90, 100) for a horse comprising a leg-embracing collar and means for securing the collar so as to embrace a horse’s leg around at least the cannon bone, wherein the collar comprises channels (91, 104) to allow coolant air or fluid to pass from one part of the boot to another, characterized by; at least one air intake (103) allowing air hitting the horse’s leg, as it gallops, to penetrate through the boot, air or fluid exit outlets (106) to the outer surfaces of the boot and channels (104) adapted to allow air (102) that enters through the or each intake (103) to be compressed and channeled to pass from the intakes towards the exit outlets (106) over the horse’s tendons and ligaments (105).”

Claim construction

10. Section 125(1) of the Patents Act 1977 states that the extent of the protection conferred by a patent shall be determined as that specified in a claim of the patent as interpreted by the description and any drawings.
11. In *Catnic Components Ltd and another v Hill and Smith Ltd* [1982] RPC 183 it was held that “A patent specification should be given a purposive construction rather than a purely literal one...”.. According to the House of Lords in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9 the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean.
12. In this case my view is that the skilled person or persons would be someone engaged with exercise boots for horses.

13. For the most part the language of claim 1 needs no interpretation. Only one part of the pre-characterising text of claim 1 deserves comment. In that part of the claim the collar is said to comprise channels and reference numerals 91 and 104 are included. Such reference numerals in a claim should be regarded as helpful rather than restrictive and in that spirit I note that channels 91 and 104 have different orientations and take this first reference to channels to mean any channels allowing air to move from one part of the boot to another.
14. In the characterising part of the claim several terms merit discussion. At least one intake and exit outlets are required by the claim. The embodiments of the patent only show what I would call discrete intakes and exit outlets i.e. air can enter and exit the channels only at specific points. Claims 3 and 4 and the corresponding part of the description disclose the possibility of the exit outlets being formed "*by a gas permeable panel covering the tendon area at the back of the leg*", which panel "*comprises materials that include a gridwork of perforated foam or a gas or fluid permeable membrane such as a thin or open weave fabric*". Further claim 2 and the description also state that preferably the air intakes are "*comprised by a front panel with intakes allowing air to penetrate through the front of the boot*". However none of these claims or their accompanying description point to arrangements wherein the intake and outlets are anything other than discrete. Hence, taking all of this into account, it is my view a skilled man would understand that the patentee was using the terms intakes and outlets broadly, but not so broad as to cover arrangements wherein the entire outer surface of the channels was formed of generally permeable material.
15. The characterising part of the claim also requires "*channels (104) adapted to allow air (102) that enters through the or each intake (103) to be compressed and channeled to pass from the intakes towards the exit outlets (106) over the horse's tendons and ligaments (105)*". I note that reference numeral 91 has been omitted and that the claim does not refer to "*the channels*" at this point, but just to "*channels*". While this is a minor matter I take it from this that only some of the channels in the boot need to have this adaptation. The position of the channels required by claim 1 is in part dictated by the positions of the tendons and ligaments. However, the claim is silent as to their positions. The description of figures 4 and 5 talks of cooling the flexor tendons and suspensory ligaments, which are located at the rear of the leg, and reference numeral 105 indicates structures at the rear of the leg. The background discussion in the description refers to heat affecting flexor tendons, suspensory ligaments and check ligaments as well as impact damage to all of these and the extensor tendons. It is my view that the skilled man would understand the patentee to mean that the tendons and ligaments

in question must include those located at the rear of the leg and that therefore the channels in question are implicitly required by claim 1 to at least channel air over the rear of the leg.

16. The definition of channels connecting the intake(s) and outlets also raises a question of the positions of the intake(s) and outlets. The intake(s) are required to allow "*air hitting the horse's leg, as it gallops, to penetrate through the boot*". The only intakes described as doing this in the embodiments are intakes 103 which are said to be "*at the front of the device*". I do not believe that the skilled man would understand the patentee to mean that the intake(s) in claim 1 must be at the front of the boot, but rather than the intake(s) must face the oncoming air flow as the horse gallops, although the simplest way to do this would be to locate the intake(s) at the front of the boot. The position of the outlets is not defined in claim 1 beyond being connected to the intake(s) by the channels. The outlets shown in the embodiments are reference 106 in figures 4 and 5 which are shown at the top and bottom of the boot to the rear of the leg and also at the side of the boot. Claim 3 requires the exit outlets to be formed by a gas permeable panel covering the tendon area at the back of the leg. From this variety of positions of the exit outlets it is my view that the skilled man would understand the patentee to mean that the exit outlets can be located in any position to achieve the functional requirement of claim 1, i.e. to pass air moving along the channels from the intake(s) towards the outer surfaces of the boot over the horse's tendons and ligaments
17. One final point of interpretation arises from claim 1. The channels in claim 1 are required to allow air to be compressed and channelled. I think that the term channelled simply indicates that the air is guided to pass along the channels. That the air should be allowed to be compressed needs more consideration. The description adds little to illuminate the intended meaning of "*compressed*", merely stating that "*high-speed, cold air is compressed and channelled via air channels 104 to the tendons and ligaments 105*". I believe that the skilled man would take the patentee to mean that the high speed air flow would be slowed as it enters the channels via the intake(s) and that its static pressure would rise, the effect that the requester refers to as the ram air principle. I think that the skilled man would also understand the patentee to mean that the channels should be impervious to air other than in the flow direction, i.e. that the channels could not be constituted by a generally permeable outer surface to the boot otherwise the channels would not allow the air to be compressed.

leg-embracing collar and means for securing the collar so as to embrace a horse's leg around at least the cannon bone". Claim 1 goes on to require: "*wherein the collar comprises channels (91, 104) to allow coolant air or fluid to pass from one part of the boot to another*". I concluded earlier that a skilled man would understand that any channel allowing coolant air or fluid to pass from one part of the boot to another meets this requirement. US4470411 is silent as to the intended function of longitudinal grooves 26 (for example they might allow the boot to wrap around a horse's leg), but I take it that in use they could allow movement of coolant air or fluid. Consequently I am of the view that the pre-characterising part of claim 1 of the patent is shown in US4470411.

21. I shall now consider the characterising part of claim 1 of the patent. I concluded earlier that the terms "intake" and "outlet" should not be construed too broadly and hence simple perforations over the outer surface of a boot, such as 44a and 44b of US4470411, would not form air intakes and exit outlets of the kind required by claim 1. It is less clear whether the ends of the grooves 26 in US4470411 could constitute intakes given that the intakes are also required to face the air flow. The proprietor in his observations states that "*At mid stride this part of the leg ... is vertical to the ground...*" and this is effectively the same as the letter they have provided from Professor Graham, Professor of Unsteady Aerodynamics at Imperial College London, when he says "*If the part of a horse's leg ... moves so that its orientation remains approximately fixed as a vertical orientation ... negligible pressure gradient will be induced ...*". By contrast the requester in his statement says "*Depending on the angular position of the horse's leg while galloping, the ends of the channels (26) will act as either intakes or air outlets ...*". I agree with the proprietor and Professor Graham that if the relevant part of the leg remains vertical then the ends of the grooves 26 in US4470411 could not constitute intakes as required by the claim. However, to my mind one or other end of a groove on the front facing part of the device would allow air in if, whilst galloping, the relevant part of the leg were to move from the absolute vertical. And it is my understanding is that the relevant part of the leg of a galloping horse would indeed move considerably from the vertical whilst galloping. Therefore I believe that the ends of grooves 26 in US4470411 could constitute intakes of the kind required by claim 1, at least when those grooves were located on the front facing part of the protective device.
22. It follows that the ends of grooves 26 in US4470411 can also constitute the outlets "*to the outer surfaces of the boot*" that are required by the claim.
23. US4470411 is silent as to the actual purpose of the grooves 26, which may be unrelated to cooling. Indeed it seems from the description of the

background of the invention in US4470411 that short, direct evaporation channels such as perforations are the intention, rather than the longer paths along grooves 26 (see column 1 line 61 to column 2 line 8). Nevertheless I am satisfied that the grooves 26 in US4470411 can be considered as “channels” within the meaning of claim 1 into and out of which air flows.

24. This leaves the final clause of claim 1 concerning channels, which says: “*channels (104) adapted to allow air (102) that enters through the or each intake (103) to be compressed and channeled to pass from the intakes towards the exit outlets (106) over the horse’s tendons and ligaments (105)*”. When the grooves 26 include perforations 44a I do not believe that air or fluid passing through the grooves could be compressed. However, US4470411 does permit the possibility that the perforations may be positioned “*in either the ridges or the grooves or both, of the cushion layer*” (see column 3 lines 12 and 13). The outer layer of the boot in US4470411 is also said to be made from plasticized polyvinyl chloride which I take to be effectively impermeable. Therefore in the case that there are no perforations in the grooves 26 it is my opinion that the channels formed by the grooves 26 could allow air to be compressed and channeled between intakes and outlets.
25. However, the channels are also required to pass air “*from the intakes towards the exit outlets (106) over the horse’s tendons and ligaments (105)*”. I have already concluded that the tendons and ligaments in question must include those at the back of the horse’s leg and that the intakes must face the air flow. Claim 1 of US4470411 requires that the ribs and grooves extend “*longitudinally of the body portion and substantially lengthwise of the leg when applied thereto*” and there are no grooves or channels shown in US4470411 that have any other orientation. Therefore the only channels shown in US4470411 that could pass air over the tendons and ligaments at the back of a horse’s leg are those which are also at the back of the horse’s leg. However, I do not believe that either end of any of these grooves could act as an appropriate inlet. When the leg is pointed forward at the gallop the ends of the grooves at the back of the leg and closest to the hoof would be masked from the air flow by the lower part of the leg and when the ends of the grooves furthest from the hoof pointed forward the air flow would be blocked by the upper part of the leg. Hence US4470411 does not clearly disclose channels having all the features of the channels set out in claim 1.
26. Therefore I believe that claim 1 of the patent is novel in light of US4470411. It follows that the other claims are also novel as they all depend on claim 1.

Inventive step

27. The requester's statement and observations in reply both refer to claim 1 of the patent either reading on to US4470411 or being rendered obvious thereby. No detailed argument is made regarding obviousness. Nonetheless having dealt with the question of novelty above I will now consider the obviousness of the patent in light of US4470411. In *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59A a for step test for obviousness was advanced, the steps of which are as follows:
- identify the claimed inventive concept
 - identify the common general knowledge known to a skilled but unimaginative addressee in the art at the priority date
 - identify the differences, if any, between the matters cited as being "known or used" and the alleged invention
 - decide whether, viewed without any knowledge of the alleged invention, those differences constitute steps which would have been obvious to the skilled man or whether they require any degree of invention
28. I believe that the inventive concept can be taken as that specified by claim 1 as I have construed it purposively, i.e. a horse boot having appropriate intake(s), outlets and channels. Earlier in this opinion I identified the skilled person as someone engaged with exercise boots for horses. Neither the requester nor the patentee has commented on the common general knowledge at the priority date. From the background discussion in the patent it seems that horse boots and bandages and tendon and ligament supports were well known as were strike protection devices and I consider that this was common general knowledge at the priority date. The prior art document US4470411 also suggests that such devices were known, albeit only based on earlier patents. Neither document suggests that the notion of cooling the leg of a horse within a boot, bandage, support or the like was generally known and I must conclude that this was not generally known at the priority date. The difference between the invention and US4470411 is effectively identified above, i.e. some of the channels must allow air or fluid to pass from an intake facing the air flow as the horse gallops, over the tendons and ligaments at the rear of the horse's leg and on to outlets to the outer surfaces of the boot. The final step is then to decide whether, viewed without any knowledge of alleged invention, those differences constitute steps which would have been obvious to the skilled man or whether they require any degree of invention.
29. From, for example, the summary of the invention in US4470411 my view is that a skilled man reading US4470411 would understand the principal

cooling channels to be the perforations 44a and 44b rather than the grooves 26, see column 3 lines 6 to 9: *“throughgoing perforations have their ends respectively communicating with the outer surface of the cushion layer and the outer surface of the backing layer so as to provide short and effective passages for evaporation of the sweat under the boot to the external atmosphere surrounding the boot”*. There is no suggestion in US4470411 that grooves 26 might be used for cooling purposes. Indeed a contrast is made with earlier documents, i.e. previous to US4470411. The structure shown in one earlier document was *“relatively ineffective for the reason that the sweat evaporation or removal path is extremely long and circuitous”*, that long and circuitous path being described as *“directly along the animal's leg and also after passage through the perforations between the inner and outer layer and exit at the margin of the bandage”*. Consequently I can find no motivation for the skilled man to arrange the grooves 26 in any way other than as required by claim 1 of US4470411, i.e. *“longitudinally of the body portion and substantially lengthwise of the leg when applied thereto”*. Therefore to arrange the channels as required by claim 1 of the patent in order for them to perform a cooling function would not be obvious to a skilled man.

30. Since it is my opinion that claim 1 is inventive over US4470411 it follows that the other claims are also inventive over US4470411 as they all depend on claim 1.
31. Consequently my opinion is that the patent is both novel and inventive in light of US4470411.

Infringement

32. The requester seeks an opinion on the question of whether the Airoflow sport boot or Airoflow exercise boot infringe any of claims 1, 2, 3, 4 or 6 of the patent.
33. According to section 60 of the Patents Act 1977 *“a person infringes a patent for an invention if, but only if, while the patent is in force, ... where the invention is a product, he makes, disposes of, offers to dispose of, uses or imports the product or keeps it whether for disposal or otherwise”*. New Equine Wear have requested this opinion and also admit in their statement that they sell the allegedly infringing articles. Neither the requester nor the patentee have commented further on whether the acts of New Equine Wear do in fact constitute any of the infringing acts such as making, selling, etc the invention nor whether any of the circumstances in section 60(5) justifying those acts apply. Therefore I will simply consider whether the boots in question constitute

the product of the patent.

34. As the requester points out, the two Airoflow boots illustrated below differ from one another principally in that the exercise boot on the right includes a solid plastic guard stitched to its outer surface. Each boot comprises a body formed of two layers and including hook and loop fastening straps. The outer layer is an open weave material to which the solid plastic guard and the hook and loop fastening straps are secured. The inner layer is made from a foamed material having transverse, unperforated ribs separated by perforated grooves, shown at the bottom of the left hand picture below.



35. As with the question of validity I shall consider the requirements of claim 1 in turn. To recap, claim 1 of the patent reads as follows:

“An exercise boot (90, 100) for a horse comprising a leg-embracing collar and means for securing the collar so as to embrace a horse’s leg around at least the cannon bone, wherein the collar comprises channels (91, 104) to allow coolant air or fluid to pass from one part of the boot to another, characterized by; at least one air intake (103) allowing air hitting the horse’s leg, as it gallops, to penetrate through the boot, air or fluid exit outlets (106) to the outer surfaces of the boot and channels (104) adapted to allow air (102) that enters through the or each intake (103) to be compressed and channeled to pass from the intakes towards the exit outlets (106) over the horse’s tendons and ligaments (105).”

36. It is clear that the Airoflow boots are each an exercise boot for a horse

comprising a leg-embracing collar and means for securing the collar so as to embrace a horse's leg around at least the cannon bone. The perforated grooves in the inner layer would also constitute channels which "allow coolant air or fluid to pass from one part of the boot to another" as I have previously construed that requirement broadly.

37. Moving now to the characterising features of claim 1. There are no features of the Airoflow boots that could be described as intakes other than the small holes throughout the woven outer surface of the boot. In line with the construction of claim 1 set out above I am satisfied that the Airoflow boots do not possess intakes of the kind required. It follows that the woven outer surface also cannot provide the necessary outlets.
38. The channels of claim 1 must channel and compress the air flow and pass it over the horse's tendons and ligaments, and I have construed this to mean those tendons and ligaments which are at the back of the horse's leg. The requester argues that these grooves in the Airoflow boots do not channel the air whereas the patentee's observations argue exactly the opposite. It is not entirely clear to me that the perforated grooves in the Airoflow boots either channel or compress the air flow in the manner required by claim 1. There seems to me no suggestion that these grooves in the Airoflow boots guide the air flow in any meaningful way, the flow will be predominantly through the porous material of the boot. The flow will inevitably have a rearward component when the horse is galloping, but this is a result of the galloping and not of the grooves. In any case even if these grooves do channel the air over the rear part of the horse's leg it is not my opinion that they could compress the air in the manner required by claim 1 as I have construed it. As I have said, I believe the skilled man would understand the patentee to mean that the channels should be impervious to air other than in the flow direction, i.e. that the channels could not be constituted by the generally permeable outer surface of the Airoflow boots. I would add that if the outer surface had been generally impermeable then it is doubtful whether the Airoflow boots would have possessed the necessary intakes and outlets of claim 1.
39. Since the particular features of the intake(s), outlets and channels required by claim 1 of the patent are absent from the two Airoflow boots it is my opinion that the claim is not infringed by either of the Airoflow boots. If claim 1 is not infringed nor are the remaining claims, since they all depend on claim 1.

Opinion

40. I conclude that the patent is novel and inventive in light of US4470411 and is not infringed by either the Airoflow sport boot or the Airoflow exercise boot.

Application for review

41. Under section 74B and rule 77H, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.

Karl Whitfield
Examiner