Neutral Citation Number: [2014] EWHC 445 (Pat)

Case Nos: HC12A03904, HC12B04588

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

Royal Courts of Justice, Rolls Building
Fetter Lane, London, EC4A 1NL

Date: 28 February 2014

Before :

THE HON MR JUSTICE ARNOLD

- -

Between :

JARDEN CONSUMER SOLUTIONS (EUROPE) LIMITED	**Claimant**
- and -	
SEB SA	**Defendant/ Part 20 Claimant**
- and -	
GROUPE SEB UK LIMITED	**Part 20 Claimant**

- -
- -

Benet Brandreth, instructed by **Bird & Bird LLP**, for **SEB**
Andrew Lykiardopoulos instructed by, and **Graham Burnett-Hall** of, **Marks & Clerk Solicitors LLP**) for **Jarden**

Hearing dates: 4-6, 10 February 2014

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Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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THE HON MR JUSTICE ARNOLD

MR JUSTICE ARNOLD :

Contents

Introduction

1. The Defendant is the registered proprietor of European Patent (UK) No. 2 085 003 entitled "Fryer with automatic fat coating" (the official title is "deep fryer" rather than "fryer", but this is a mistranslation) ("the Patent"). The Second Part 20 Claimant claims to be the exclusive licensee under the Patent. The Defendant and the Second Part 20 Claimant (together, "SEB") claim that the Claimant ("Jarden") has infringed the Patent by importing and selling a fryer called the Breville Halo Health fryer ("the Halo").

2. Jarden denies infringement and claims that the Patent should be revoked on the grounds of obviousness over three items of prior art:

    i) German Patent Application No. 2 102 062 entitled "Method and device for cooking food" filed on 16 January 1971 and published on 27 July 1972 ("Vogt");

    ii) United States Patent No. 4,417,506 entitled "Home Cooking appliance" filed on 23 September 1981 and published on 29 November 1983 ("Herbst"); and

    iii) United States Patent No. 6,054,681 entitled "Cooking apparatus" filed on 16 February 1999 and published on 25 April 2000 ("Siu").

3. There is no challenge to the claimed priority date of the Patent, which is 8 June 2004. The specification of the Patent is in French, but there is an agreed translation to which I shall refer. In response to the allegation of obviousness, SEB rely on the commercial success of their Tefal Actifry fryer ("the Actifry") which embodies the patented invention.

The witnesses

Expert witnesses

4. SEB's expert witness was Martin Nicholson. He obtained a degree in Mechanical Engineering with Business in 1988. He was employed as a project engineer by Kenwood from 1993 to October 1999. Since then, he has run his own product design consultancy. Both during his employment by Kenwood and since then, he has been involved in the design of a variety of food-related appliances, including deep fryers. He is named as an inventor on nine patent applications.

5. Mr Nicholson's reports were extremely thorough. They were also longer than they needed to be, because a certain amount of space was devoted to issues of construction falling outside Mr Nicholson's province; but I do not blame Mr Nicholson for that. Consistently with his reports, Mr Nicholson's oral evidence was very careful.

6. Jarden's expert witness was Dov Glucksman. He obtained a BS in Mechanical and Nuclear Engineering and an MS in Aeronautical Engineering in the early 1960s. Since 1974, he has been President and head of the technical team at his own product development company, Appliance Development Corporation, which specialises in designing small electrical appliances. He also founded, and was until very recently Chairman of, Brew1 Technologies Inc, a company engaged in manufacturing and distributing single-serve coffee brewing systems. He has not been involved in designing a deep fryer, but has designed other cooking appliances such as grills, griddles and breadmakers. He is named as an inventor on over 120 patents and patent applications.

7. Although he gave his oral evidence fairly, Mr Glucksman was not impressive as an expert witness. Cross-examination revealed that he had not read the key documents in the case with the care that was required. In the case of Siu, he made an elementary and inexplicable error in his reading of the document; but he was somewhat cavalier in his approach in a number of other cases as well. Accordingly, on technical matters I have accorded more weight to the evidence of Mr Nicholson.

Factual witnesses

8. SEB called Valérie Vuillemot. Ms Vuillemot was employed by SEB from 1997 to 2012. She was the product manager at SEB when the Actifry was designed and launched. She gave evidence about the commercial success of this product.

9. In addition, SEB relied on a witness statement of Bernard Bois which was served under a hearsay notice. He worked at Moulinex. He gave evidence about a low-fat fryer Moulinex was in the early stages of developing before it became insolvent in 2001.

10. Jarden called Craig Asbridge and Christopher Salmon. Mr Asbridge is Jarden's Engineering Manager at Jarden and verified Jarden's Product Description. He instructed Mr Salmon to undertake some experiments for the purposes of this litigation.

11. All of the factual witnesses who gave evidence in person were straightforward witnesses.

Background

12. There are three main ways in which to cook food. The food may be heated by conduction, as by placing the food on a hot surface; by convection, as by placing the food in an oven or in boiling water; or by radiation, as by grilling or microwaving. It has also long been common to heat food by a combination of two or more of these methods.

13. Frying food involves the use of melted fat or oil (like the Patent, I shall use these expressions interchangeably) as a cooking medium. Since oil has a high boiling point, the temperature of the oil can be raised to a point which achieves rapid cooking of the food. In conduction cooking, the oil also provides a good thermal path from the heated surface to the food.

14. Two main types of frying have long been known: deep frying, where the food to be cooked is immersed in a bath of hot oil; and shallow frying, where the food is placed on a hot surface covered with a layer of oil.

15. Within the general category of shallow frying, various different techniques exist, often varying with the cuisine: pan-frying, sautéing, stir-frying and so forth. In most cases of shallow frying, oil will be added to the pan. Sometimes the food itself contains sufficient fat that additional oil is not needed, particularly if the pan has a "non-stick" surface such as a Teflon coating. Naturally, different types of frying are suited to different kinds of foods and achieving different kinds of effects.

16. In shallow frying, there are significant temperature variations between the side of the food in contact with the hot surface and the other sides. For that reason, and to stop the food sticking to the hot surface, the food is usually turned to bring different sides into contact with the hot surface. Even with turning, it can be hard to cook the food evenly, depending on the shape and thickness of the food. By contrast, deep frying has the advantage that all sides of the food are evenly cooked.

17. Getting good quality chips is difficult without deep frying. Deep frying of chips is usually a two-stage process. First, the potato is gently cooked to dissolve starch in the outer layers and allow it to migrate to the surface of the chip whilst the inner part cooks. In the second stage, the chips are introduced to a much hotter bath of oil, which flash cooks the entire outer surface so as to produce a crisp, golden-brown outer layer.

18. As the Patent discusses, deep frying has a number of disadvantages. In addition, the high oil content which results from the cooking process is considered to be unhealthy. Deep frying is persisted with despite these disadvantages because the food produced, particularly in the case of chips, tastes good.

19. An alternative to traditional deep-fried chips is oven chips, that is to say, chips impregnated with oil which can be cooked (usually from frozen) in a domestic oven. These eliminate many of the disadvantages of deep frying, but are generally considered not to taste as good. Furthermore, they still contain a level of oil which is regarded as unhealthy.

20. The Patent takes a different approach. It discloses what it claims to be a novel method of frying food, and in particular chips, which aims to achieve the effect of deep frying with only a small quantity of oil. In essence, this involves automatically stirring and turning the food so as to coat it in a thin film of oil and cooking it by means of a directed flow of heat. This is accomplished by means of a fryer having a number of features.

The Patent

21. After identifying the field of the invention at [0001] as "cooking appliances for food, in particular domestic appliances of the fryer type and designed for frying food using fats", the specification states at [0002] that the invention "relates to a fryer comprising a main body intended to accommodate food for frying within it".

22. Having said at [0004] that "[f]rying food such as potato pieces using a domestic electric fryer is well known", the specification goes on at [0008]-[0010] to identify a number of disadvantages with conventional electric fryers due to the fact they use a large quantity of oil: this causes difficulties for the user when filling, moving or emptying the fryer; there is a risk of burns and accidents, which is exacerbated by the fact that the oil must be pre-heated for a relatively long period before the food can be introduced; such fryers are expensive to run if fresh oil is used each time, but re-using oil is unsatisfactory for reasons of hygiene, taste and the environment; disagreeable odours are released; and cleaning the fryer can be difficult. The specification also identifies at [0012]-[0013] certain disadvantages with oven chips, in essence that they do not taste as good as chips cooked by immersion in oil. At [0014] the specification states:

> "From document DE-2 102 062 a cooking appliance provided with a receptacle and a blade turning in the receptacle is known."

23. The specification then sets out the objects of the invention at [0015]-[0025], saying that it proposes "a novel fryer and a novel frying method" which has various advantages. The expression "a novel fryer and a novel frying method" is repeated no less than 11 times in this passage. The specification then states at [0026] that:

> "The above objects of the invention are achieved by means of a dry fryer according to claim 1."

24. At [0027]-[0121] the specification describes in considerable detail a preferred embodiment of the invention shown in Figures 1-5 and an alternative embodiment shown in Figure 6. Mr Nicholson helpfully included in his report annotated versions of Figures 1 and 2 which I reproduce below.

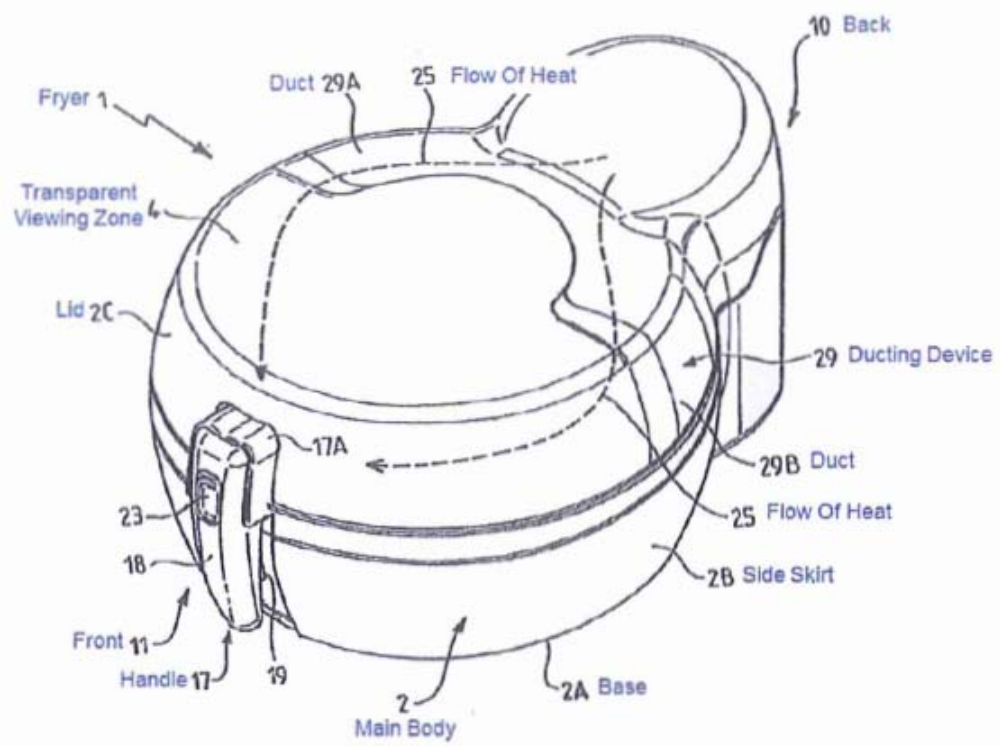


Figure 5: Annotated version of Figure 1 of the Patent

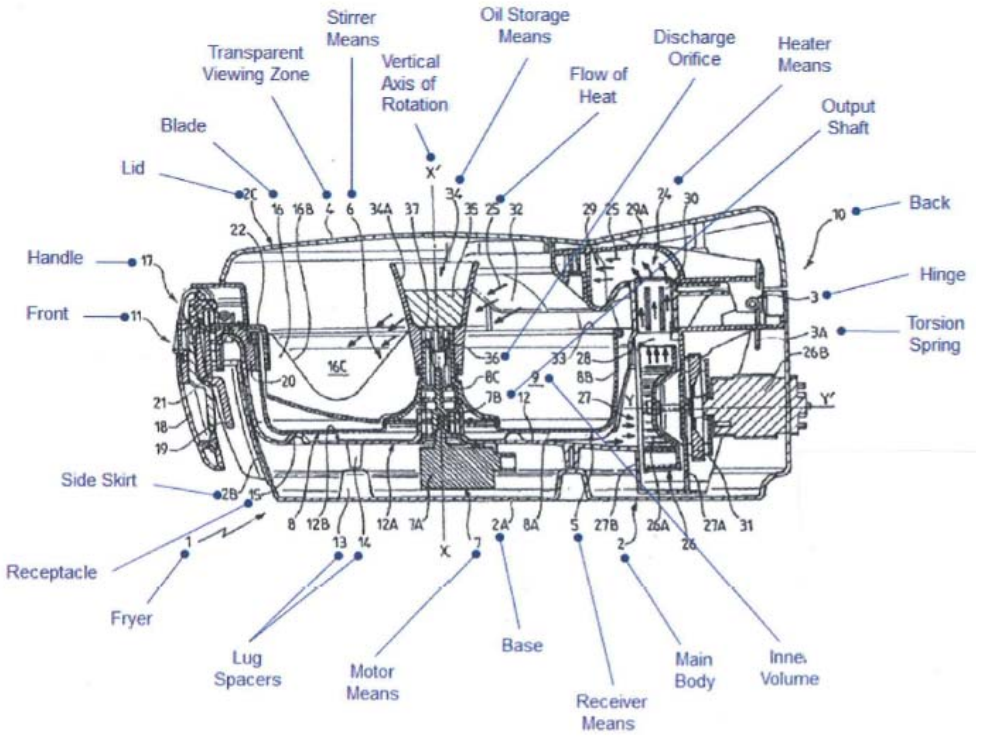


Figure 8: Annotated Version of Figure 2 of Patent

25. Much of the detail of the description is unimportant for present purposes, but nevertheless I must refer to a number of passages which bear upon the issues of construction considered below. Having explained at [0028]-[0029] that the fryer 1 shown in Figures 1 to 5 is an electric fryer designed for domestic use, and in particular to fry potatoes to make chips, the specification goes on:

> "[0030] The fryer of the invention is a dry fryer. The term '*dry frying*' as used here means a mode of cooking food without immersing it in oil or fat, either partially and/or temporarily during the cooking cycle. On the contrary, '*dry frying*' means cooking in which the food, although '*wetted*' by a cooking medium (for example oil), is not immersed in or swimming in that medium. Thus, the principle by which the fryer of the invention functions is different from that of a conventional deep fat fryer.
>
> [0031] The fryer 1 of the invention comprises, in conventional manner, a main body 2 intended to accommodate food to be fried (not shown)."

26. Having explained at [0032]-[0033] that "the main body 2 comprises a base 2A" and that "starting from the base 2A and at its periphery is a side skirt 2B", the specification continues:

> "[0034] Advantageously, the main body 2 is provided with a lid 2C movably mounted between a closed position (shown in Figure 1) in which the lid 2C together with the main body 2 form a substantially sealed chamber around the food to be fried, and an open position (not shown) allowing food to be fried to be introduced into the main body 2. In other words, the lid 2C forms a closed box in cooperation with the side skirt 2B and the base 2A, which is preferably substantially hermetically sealed, allowing cooking to be carried out in a closed atmosphere. The substantially leaktight seal of the main body 2 by the lid 2C may, for example, be achieved using seals (not shown in the Figures).
>
> [0035] As can be seen in Figures 1 and 2, the lid 2C is advantageously mounted on the main body 2 by a pivotal resilient connection produced by a hinge 3 provided with a torsion spring 3A so that the open position of the lid 2C is also a return position. …
>
> [0036] Advantageously and as shown in Figure 1, the lid 2C may be provided with a transparent viewing zone 4 to allow frying progress inside the appliance to be viewed during the cooking cycle while the lid 2C is closed on the main body 2.
>
> [0037] In accordance with a major feature of the invention, the fryer 1 comprises, mounted in the main body 2, a means for automatically coating food to be fried with a film of fat by mingling said food with the fat.

> [0038] In other words, in contrast to prior art devices where the food is immersed in oil, the invention is based on the principle of frying carried out simply by coating the surface of the food with a thin layer of oil or any other suitable food grade fat. Thus, cooking is not carried out in a bath of oil, which implies the presence of a large quantity of fat surrounding all or part of the food, but because a small quantity of oil forms a thin substantially homogeneous coating on the surface of each piece of food placed in the main body 2."

27. The specification then states:

> "[0040] The term '*mingling*' relates to the action of mingling, i.e. '*stirring with mixing*'. Within the context of the invention, the food is thus coated by combining food and fat and mingling them to cover the food with a film of fat.
>
> [0041] The mingling action employed in the context of the invention preferably involves turning the food and the fat; turning can, for example, be carried out by lifting the pieces of food and turning them over."

28. Having said at [0042] that the means for automatically coating the food with a film of fat comprises receiver means 5 and stirrer means 6, the specification explains:

> "[0047] According to the invention, the receiver means 5 and the stirrer means 6 are designed to be moved with respect to each other, to mingle and stir the food and the fat inside the receiver means 5, to coat substantially every piece of food with a substantially uniform, homogeneous, and continuous film of fat.
>
> [0048] Advantageously, the stirrer means 6 is mounted in a stationary position relative to the main body 2, while the receiver means 5 is mounted in rotation relative to the main body 2 and to the stirrer means 6, and is also functionally connected to a motor means 7 to be driven in rotation thereby.
>
> [0049] This construction corresponds to that employed in the fryer 1 in accordance with the first variation shown in Figures 1 to 5, and which will be described below.
>
> [0050] However, without departing from the scope of the invention, it can be envisaged that the fryer 1 may use a stirrer means 6 movably mounted relative to the main body and to the receiver means 5, the receiver means 5 then being mounted in a stationary position in the main body (in the second variation shown in Figure 6) or it may be movably mounted in said main body.

> [0051] Thus, in the second variation shown in Figure 6, the receiver means 5 is preferably mounted in a stationary position relative to the main body 2 while the stirrer means 6 is mounted in rotation relative to the receiver means 5, and is also functionally connected to a motor means 7 to be driven in rotation thereby."

29. The specification goes on at [0052]-[0058] to say that the receiver means 5 comprises a receptacle 8 removably mounted on the main body 2. The receptacle 8 has a receptacle bottom 8A and side walls 8B and 8C. In the preferred embodiment, the receptacle 8 is driven in rotation by motor means 7 comprising electric motor 7A and output shaft 7B. In the alternative embodiment, the receptacle 8 is independent of shaft 7B which instead drives the stirrer means 6 in rotation.

30. After describing the blade 16 of the stirrer means 6, the specification states at [0071]:

> "The bottom of the receptacle 8 advantageously has protuberant profiles which may act as an abutment for food to be fried to allow the blade 16, cooperating with said profiles, to lift said food instead of simply pushing it round the receptacle 8."

31. After describing the handle 17, the specification continues:

> "[0082] The fat-coated food may be heated in the fryer 1 using any known internal (i.e. integrated into the fryer 1) or external (i.e. independent of the fryer 1) heater means provided that these heater means are designed and dimensioned to provide excellent heat exchange with the food, which is all the more important since cooking is not carried out in an oil bath but simply with a coating of oil.
>
> [0083] Advantageously, the fryer 1 includes, mounted on the main body 2, a main heater means 24 provided to generate a flow of heat 25 which is orientated to strike at least part of the food in the main body 2 substantially directly.
>
> [0084] The term '*main heater means*' denotes a heater means which can of itself provide at least most of the contribution of the heat for cooking. Preferably, the main heater means 24 is designed and arranged to supply all of the heat.
>
> [0085] The term flow of heat as used here denotes a directional stream of heat with a positively controlled dynamic character in contrast, for example, to a simple natural convection effect which can be obtained by purely static heating.
>
> [0086] Because the flow of heat 25 is directed to be exerted directly without an intervening medium (such as the bottom of a receptacle, for example) onto the food present in the receptacle 8, this contributes to excellent heat exchange and, by cooperating with the film of oil present on the food, cooks in a

> manner which is substantially equivalent to that obtained in an oil bath but without the disadvantages of a bath.
>
> [0087] Advantageously, the flow of heat 25 is a flow of hot air. However, the invention is not limited to a flow of hot air, and it is possible to envisage the flow of heat emanating from infrared heating, for example. Hot air heating is preferred, however, at least in the specific embodiment shown in the figures, since it produces better results compared with infrared heating, especially with food that has been cut up manually and has pieces of varying sizes and thicknesses.
>
> [0088] Advantageously, the flow of hot air 25 is directed substantially towards the stirrer means, in this case the blade 16. Because it functions as an obstacle, the blade 16 will contribute to aggregating close to it the major portion if not all of the food present in the receptacle 8. Thus, it is sufficient to orientate the flow of hot air 25 towards the blade 16 to heat the food in an optimal manner without needing to heat the whole of the receptacle 8 uniformly. The combination of a blade 16 and a localized flow of hot air 25 is particularly advantageous as regards cooking efficiency, energy saving, and simplicity of design."
>
> …
>
> [0095] Advantageously, the flow of heat meets the food at a glancing angle (i.e. less than 45°). This technical disposition means that the ducting device can be arranged laterally in the appliance. This lateral guidance of hot air means that the lid can be lighter and that handling the appliance is easier while proper cooking is continued. Cleaning is also facilitated, as well as removal or positioning the cooking receptacle 8."

32. Having explained at [0090]-[0092] that the main heater means 24 includes a fan 26 which generates an air flow by taking air from an inlet vent 27 and discharging it via an outlet vent 28 in a ducting device 29 and includes a heater element 30 positioned in the air flow, the specification says at [0096]-[0097] that the ducting device 29 preferably comprises ducts 29A and 29B which are "mounted in the lid 2C".

33. Later the specification states that:

> "[0109] Advantageously, the fryer 1 of the invention forms, when operating (i.e. when the lid 2C is closed), a substantially closed cooking chamber around the receiver means 5, i.e. preferably closed in a sealed manner, said chamber preferably being provided with a calibrated steam-releasing means (not shown).
>
> [0110] This measure can control the humidity prevailing in the chamber.

> [0111] To this end, the calibrated steam-releasing means are dimensioned so that:
>
> - pressure cooking is avoided; this would occur if the chamber were to be completely sealed and could cause the fries to break up; and
>
> - economic energy consumption is encouraged, since if too much steam escapes, this would result in a major dissipation of energy, which would mean that the heater element 30 would have to be over-dimensioned.
>
> [0112] Preferably, the calibrated steam-releasing means comprises a venting orifice (not shown), preferably disposed close to the inlet vent 27 of the fan 26, which allows controlled continuous evacuation of steam throughout the cooking cycle and controlled renewal of the air inside the chamber."

34. Having explained at [0113] that the fryer advantageously includes a means 34 for storing fat 35, the specification states at [0120] that:

> "Advantageously, the appliance of the invention may include an orifice for filling the storage means 34 when the lid 2C closes the main body 2. This make-up orifice, which may be extended by a conduit is, for example, provided in the lid 2C or, more generally, in the main body 2. This disposition allows fat to be added after cooking has commenced, for example if it has been forgotten, or to obtain fries which are a little browner."

35. The specification goes on at [0122]-[0133] to describe the use of the fryer 1 to fry potato pieces. It then describes at [0135]-[0147] a method of frying food which is not claimed as such. In this context, the specification states at [0136]:

> "This frying method is a dry cooking method, i.e. the cooking operation proper is not by immersion in a bath of heated fat, not even partial or momentary immersion. The envisaged frying method is thus a method without immersion in a bath of hot fat."

The claims

36. SEB contends that claims 1, 3, 8, 10, 11 and 13 are independently valid and infringed. Claim 10 is dependent on claim 9, which is important when it comes to infringement. Broken down into integers and omitting reference numerals, the claims are as follows:

> "1.[A] Dry fryer comprising:
>
> [B] - a receiver means designed to contain both food and fat;
>
> [C] - a stirrer means for stirring food contained in the receiver means,

[D] the receiver means and the stirrer means being designed to be moved with respect to each other,

characterized in that

[E] the receiver means is removably mounted inside a main body

[F] and **in that** the receiver means and the stirrer means are designed to be moved with respect to each other inside the main body,

[G] for automatically coating said food with a film of fat by mingling said food with fat inside said receiver means.

3.[A] Dry fryer according to claim 1 or 2

characterized in that

[B] the main body is provided with a lid movably mounted between

[C] a closed position in which the lid together with the main body form a substantially sealed chamber around the food to be fried

[D] and an open position allowing food to be fried to be introduced into the main body.

8.[A] Dry fryer according to any one of claims 1 to 6

characterized in that

[B] the stirrer means is mounted in a position that is stationary relative to the main body

[C] while the receiver means is mounted in rotation relative to both the main body and the stirrer means,

[D] and is functionally connected to a motor means to be driven in rotation thereby.

9.[A] Dry fryer according to any one of claims 1 to 8

characterized in that

[B] it comprises, mounted on the main body,

[C] a main heater means by itself providing at least most of the contribution of the heat for cooking.

10.[A] Dry fryer according to claim 9

characterized in that

[B] said main heater means is designed to generate a flow of heat

[C] orientated so as to strike substantially directly at least a portion of the food.

11.[A] Dry fryer according to claim 9 or 10

characterized in that

[B] the main heater means is designed to generate a flow of heat above the receiver means.

13.[A] Dry fryer according to claim 10

characterized in that

[B] the flow of heat is either a flow of hot air or a flow of heat emanating from infrared heating."

The skilled team

37. A patent specification is addressed to those likely to have a practical interest in the subject matter of the invention, and such persons are those with practical knowledge and experience of the kind of work in which the invention is intended to be used. The addressee comes to a reading of the specification with the common general knowledge of persons skilled in the relevant art, and he (or she) reads it knowing that its purpose is to describe and demarcate an invention. He is unimaginative and has no inventive capacity. In some cases the patent may be addressed to a team of persons having different skills.

38. In the present case it is common ground that the Patent is addressed to a skilled team comprising a design engineer, a development engineer and a home (or food) economist. It is also common ground that the team would be led by the design engineer, and hence it is the knowledge and perceptions of the design engineer (of whom both Mr Nicholson and Mr Glucksman were representative) that matter. Finally, it is common ground that the design engineer would have experience of a range of kitchen appliances, and in particular food appliances, and not just fryers.

Common general knowledge

39. I reviewed the law as to common general knowledge in *KCI Licensing Inc v Smith & Nephew plc* [2010] EWHC 1487 (Pat), [2010] FSR 31 at [105]-[115]. That statement of the law was approved by the Court of Appeal [2010] EWCA Civ 1260, [2011] FSR 8 at [6].

40. There is no dispute that the common general knowledge of the skilled team in June 2004 would have included the following matters.

41. *Domestic deep fryers*. There were a variety of products on the market designed for domestic use for deep frying food, and in particular chips. These included a number of stand-alone, counter-top electric devices.

42. *"Cool touch" or insulated outer housings*. The hot parts of appliances such as toasters, breadmakers, deep fryers and kettles were often surrounded by an insulated outer enclosure of metal or plastic which was cool to the touch. As well as keeping hot surfaces away from users, these housings promoted energy efficiency. The way in which to construct such housings, usually utilising an air gap, was well known.

43. *Removable cooking vessels*. Appliances such as food mixers, breadmakers and deep fryers were often provided with a cooking bowl or basket which was removable either for ease of use or for ease of cleaning or to transport it to the table. Ways in which to achieve this (and the detachable electrical connections necessary) were well known.

44. *Hinged lids*. Most food appliances had a lid in order to create a closed cooking environment. In many cases, the lid was hinged for added convenience. It was common for the lid to close flush with the outer housing. It was well known that adding a feature like a hinged lid requires care and attention to ensure that the design as a whole functions correctly (e.g. the appliance does not tip over when the lid is lifted and electrical components are protected from condensation), but achieving this was within the expertise of the skilled team.

45. *Steam venting*. Where an appliance such as a breadmaker or fryer had a lid, particularly a hinged lid which closed flush, it was common for vents to be provided to enable steam to escape and prevent pressure building up. Sometimes these vents included filters to absorb the odour of cooking oil or other odours. The skilled team would know that care must be taken as to where steam vents from the product.

46. *Electrical connections through hinges*. It was known how to pass electrical connections via moving parts such as hinges provided care was taken.

47. *Methods of heating, heat sources and methods of frying.* The skilled person would know about the principles of heat transfer (conduction, convection, radiation), about different heat sources (and in particular the fact that food could be heated from below or above or both or even from the sides (as in a conventional toaster)) and the different methods of frying (deep frying and shallow frying).

48. *Temperature control*. It was well known that domestic appliances that employed heaters generating a significant amount of heat would need to use thermostats. Deep fryers heat oil quite close to the flashpoint of oil and therefore needed to employ controls that were sufficiently sensitive to ensure the appliances were safe.

49. *Rotating components*. It was well known for kitchen appliances such as blenders, breadmakers and food processors to have rotating parts in order to stir and mix food. This could be done with internal mixing elements (beaters/stirrers/whisks) or by rotating the bowl which contained the food.

50. *Aesthetics*. The visual appeal and styling of appliances had become important by 2004.

51. *Safety regulations*. The skilled team would be aware of the relevant safety regulations which applied to the product they were designing.

52. *Other matters.* In addition, it is common ground that the skilled team would be aware that competition from Asian manufacturers with lower production costs was making it harder for Western manufacturers to compete on price and accordingly there was an increasing emphasis on design. In particular, a number of companies had marketed improved deep fryers. A specific example to which both experts referred in their reports was the De'Longhi Rotofryer, which used a rotating basket set at an angle repeatedly to immerse the food in a smaller bath of hot oil than in a conventional deep fryer.

53. At the beginning of the trial, Jarden contended that a type of product known as a turbo oven (an oven with a high-velocity overhead fan and resistance heater) was common general knowledge. On the evidence, turbo ovens appear to have been quite widely sold in the USA by June 2004, but much less so in the UK. It was Mr Nicholson's evidence that he had not encountered turbo ovens by June 2004, or even for some time afterwards. Furthermore, they were not listed in the Argos and Littlewoods Index catalogues which the experts agreed provided a good indication of what was generally known. In these circumstances, counsel for Jarden rightly conceded in his closing submissions that it had not been established that turbo ovens were part of the common general knowledge. Instead, he submitted that the skilled team would encounter turbo ovens as a result of a routine search. I will deal with this submission in the context of obviousness.

Construction

The law

54. The general principles applicable to the construction of patent claims were summarised by Jacob LJ giving the judgment of the Court of Appeal in *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* [2009] EWCA Civ 1062, [2010] RPC 8 at [5] as follows.

> "One might have thought there was nothing more to say on this topic after *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. The judge accurately set out the position, save that he used the old language of Art.69 EPC rather than that of the EPC 2000, a Convention now in force. The new language omits 'the terms of' from Art.69. No one suggested the amendment changes the meaning. We set out what the judge said, but using the language of the EPC 2000:
>
> [182] The task for the court is to determine what the person skilled in the art would have understood the patentee to have been using the language of the claim to mean. The principles were summarised by Jacob LJ in *Mayne Pharma Pty Ltd v Pharmacia Italia SpA* [2005] EWCA Civ 137 and refined by Pumfrey J in *Halliburton Energy Services Inc v Smith International (North Sea) Ltd* [2005] EWHC 1623 (Pat) following their general approval by the House of Lords in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. An abbreviated version of them is as follows:

(i) The first overarching principle is that contained in Article 69 of the European Patent Convention.

(ii) Article 69 says that the extent of protection is determined by the claims. It goes on to say that the description and drawings shall be used to interpret the claims. In short the claims are to be construed in context.

(iii) It follows that the claims are to be construed purposively - the inventor's purpose being ascertained from the description and drawings.

(iv) It further follows that the claims must not be construed as if they stood alone - the drawings and description only being used to resolve any ambiguity. Purpose is vital to the construction of claims.

(v) When ascertaining the inventor's purpose, it must be remembered that he may have several purposes depending on the level of generality of his invention. Typically, for instance, an inventor may have one, generally more than one, specific embodiment as well as a generalised concept. But there is no presumption that the patentee necessarily intended the widest possible meaning consistent with his purpose be given to the words that he used: purpose and meaning are different.

(vi) Thus purpose is not the be-all and end-all. One is still at the end of the day concerned with the meaning of the language used. Hence the other extreme of the Protocol - a mere guideline - is also ruled out by Article 69 itself. It is the terms of the claims which delineate the patentee's territory.

(vii) It follows that if the patentee has included what is obviously a deliberate limitation in his claims, it must have a meaning. One cannot disregard obviously intentional elements.

(viii) It also follows that where a patentee has used a word or phrase which, acontextually, might have a particular meaning (narrow or wide) it does not necessarily have that meaning in context.

> (ix) It further follows that there is no general 'doctrine of equivalents.'
>
> (x) On the other hand purposive construction can lead to the conclusion that a technically trivial or minor difference between an element of a claim and the corresponding element of the alleged infringement nonetheless falls within the meaning of the element when read purposively. This is not because there is a doctrine of equivalents: it is because that is the fair way to read the claim in context.
>
> (xi) Finally purposive construction leads one to eschew the kind of meticulous verbal analysis which lawyers are too often tempted by their training to indulge."

55. Jacob LJ went on at [6]-[22] to hold that the skilled reader is to be taken to know (i) the purpose of including reference numerals in patent claims, (ii) the purpose of dividing claims into pre-characterising and characterising portions and (iii) the practice of filing divisional applications, and to bring that knowledge to bear when he considers the scope of the claim. In relation to reference numerals, he said at [17]:

> "… we do not think that numerals should influence the construction of the claim at all – they do not illustrate whether the inventor intended a wide or narrow meaning. The patentee is told by [rule 29(7) of the Implementing Regulations to the EPC] that if he puts numerals into his claim they will not be used to limit it. If the court subsequently pays attention to the numbers to limit the claim that is simply not fair. And patentees would wisely refrain from inserting numbers in case they were used against them. That is not to say that numbers are pointless. They help a real reader orient himself at the stage when he is trying to get the general notion of what the patent is about. He can see where in the specific embodiment a particular claim element is, but no more. Once one comes to construe the claim, it must be construed as if the numbers were not part of it. To give an analogy, the numbers help you get the map the right way up, they do not help you to read it to find out exactly where you are."

Dry fryer

56. Integer A of claim 1 requires the product to be a "dry fryer". It is common ground that the Patent defines this expression at [0030]. Nevertheless, there is a dispute between the parties as to the effect of this definition. SEB contend that, read in context, the definition would be understood by the skilled team as meaning that a dry fryer was a fryer which coated the food with a film of fat by mingling the food with fat and which heated the food with a direct flow of heat which provided the main heat for cooking. The point of this interpretation is that it excludes a device which cooks food by

shallow frying. Jarden disputes this interpretation, and contends that the definition covers a shallow fryer.

57. It is convenient before addressing the parties' main arguments to consider the relevance to this issue of the reference in the specification at [0014] to Vogt. Given that Vogt is the only specific item of prior art acknowledged in the specification, the skilled team might think that the pre-characterising portion of the claim was based on Vogt. On the other hand, the skilled team would notice that the specification describes Vogt as a "cooking appliance" rather than as a "dry fryer". Accordingly, I consider that the skilled team would not attach much significance to this paragraph.

58. Counsel for Jarden relied on two main arguments in support of Jarden's construction. First, he submitted that the definition was clear in its wording and effect and that SEB were trying to read into the definition elements which were simply not present. Secondly, he pointed out that the specification was at pains to distinguish the fryer of the invention from a deep fryer, both generally at [0004]-[0026] and more specifically at [0030], [0038], [0086] and [0136], but made no attempt to distinguish it from a shallow fryer.

59. Counsel for SEB relied on three main arguments in support of SEB's construction. First, he submitted that the reference to partial immersion in the second sentence of [0030] and the first sentence of [0136] included frying in a shallow layer of oil. Secondly, he argued that the skilled team would understand the "mode of cooking food" and "the principle by which the fryer of the invention functions" referred to in [0030], when read in the context of the specification as a whole, to refer to the novel method of frying which is repeatedly referred to in the specification. Thirdly, he submitted that the skilled team would appreciate that shallow frying was a very old method indeed, and would conclude that the patentee could not have intended to include it within the expression "dry frying".

60. In my judgment Jarden's construction is the correct one. So far as counsel for SEB's first point is concerned, the very next sentence makes it clear that the term "dry frying" embraces "wetting" the food with oil. Indeed, if it were otherwise, it would exclude the preferred embodiment, the Actifry and the Halo. Thus the skilled person would understand that, by partial immersion, the patentee was referring to substantial, albeit not total, immersion in oil (as, for example, occurs some of the time in the Rotofryer).

61. Counsel for SEB's second point does not support SEB's construction. As counsel for Jarden submitted, the skilled team would appreciate that in [0030] the specification is distinguishing the mode or principle of the invention from deep frying, not shallow frying. This reading is supported by the other passages relied on by counsel for Jarden.

62. As for counsel for SEB's third point, the skilled team would appreciate that the "novel method of frying" involves the use of a fryer with a number of features. Indeed, counsel for SEB expressly submitted that the novel method of frying would be understood to involve the features of claim 1 and integers 9[C] and 10[B] and [C]. But the skilled team would not interpret the term "dry fryer" as importing all of those requirements. In the first place, the skilled team would note that the words "dry fryer" are in the pre-characterising part of the claim and thus appear to be describing

something known (even if not necessarily the fryer disclosed in Vogt). In the second place, the skilled team would appreciate that such an interpretation would render most of the wording of claim 1 and much of the wording of claims 9 and 10 redundant. In the third place, the skilled team would appreciate that claim 1 covers, and as the specification makes clear at [0082], is intended to cover, a variety of different heating arrangements, such as the use of an external hotplate below the fryer. Thus it is clear that a "dry fryer" will not necessarily implement the novel method of frying disclosed in the Patent.

For automatically coating said food with a film of fat

63. Integer B of claim 1 requires the presence of "a receiver means designed to contain food and fat". Integer C requires "a stirrer means for stirring food contained in the receiver means". Integers D and F require the receiver means and the stirrer means to be "designed to be moved with respect to each other". Integer G requires that this is "for automatically coating said food with a film of fat by mingling …".

64. It is common ground that the Patent defines "mingling" at [0040] to mean stirring with mixing. Jarden contends that integer [G] means that the relative movement of the stirrer means and the receiver means must result in the food being stirred and mixed with the fat so as to coat it with a film of fat. SEB agree that the relative movement of the stirrer means and the receiver means must result in stirring and mixing of the foods, but contend that this does not exclude other parts of the fryer from contributing to the stirring and mixing process.

65. In my judgment SEB's construction is the correct one. There is nothing in either the wording of claim 1 or the teaching of the specification to indicate to the skilled team that the patentee intended to exclude arrangements in which other parts contribute to the stirring and mixing process. On the contrary, the specification expressly envisages at [0071] that protuberant profiles on the bottom of the receptacle may contribute to the process.

Substantially sealed

66. Integer C of claim 3 requires that the "lid together with the main body form a substantially sealed chamber around the food". SEB contend that this covers an arrangement in which there is a small gap between the lid and the main body around its circumference (as in the Halo). Jarden disputes this, contending that it requires the presence of a substantially leaktight seal between the lid and the main body.

67. In support of SEB's construction, counsel for SEB relied in particular on the passage at [0109]-[0112] of the specification. In support of Jarden's construction, counsel for Jarden relied in particular on the passage at [0034], and especially the reference there to the "substantially leaktight seal". He also relied upon the passage at [0109]-[0112] as showing that the chamber was sealed apart from the calibrated steam releasing means. Finally, he pointed out that claim 3 went further than claim 2, which merely requires "a substantially closed cooking chamber".

68. In my judgment SEB's construction is the correct one. It is clear from what the specification says at [0109] that the difference between claim 2 and claim 3 in this respect lies not in a distinction between the word "closed" and the word "sealed", but

in the fact that claim 3 requires the main body and lid in its closed position to form the chamber. The skilled team would appreciate from the specification that the purpose of the chamber being "substantially sealed" is to ensure that (a) much of the flow of heat can be recycled within the chamber, but nevertheless (b) steam can be released. As the specification makes clear, and as the skilled team would understand, if the chamber was completely sealed, the device would become a pressure cooker. There is nothing in the specification to suggest that the patentee was intending to limit claim 3 to a device in which the lid and main body form a completely sealed chamber, but there are vents somewhere else in the main body to release the steam. Although the skilled team would appreciate that it was desirable that the release of steam should be controlled, the skilled team would understand that the provision of vents was not the only way to achieve this. Accordingly, the skilled team would not think that the patentee intended to exclude an arrangement in which there is a small gap between the lid and the main body which simultaneously enables much of the heat to be recycled and steam to be released.

Claim 8

69. Claim 8 covers the case where the stirrer means is stationary and the receiver means rotates, whereas claim 7 covers the case where the stirrer means rotates and the receiver means is stationary. Thus integer B of claim 8 requires that "the stirrer means is mounted in a position that is stationary relative to the main body", while integer C requires that "the receiver means is mounted in rotation relative to both the main body and the stirrer means".

70. There is a minor dispute as to what the words "mounted in a position that is stationary" in integer B mean. Counsel for SEB submitted that it was the mounting that was stationary, while counsel for Jarden submitted that it was the stirrer means that was stationary. I think that counsel for Jarden is right about this, as can be seen when integer 8[B] is compared with integer 8[C] ("mounted in rotation").

Mounted on the main body

71. Integer B of claim 9 requires that the main heater means is "mounted on the main body". SEB contends this extends to an arrangement in which the main heater means is mounted on the lid (as in the Halo). Jarden disputes this.

72. Counsel for SEB advanced four main arguments in support of SEB's construction. First, he submitted that it was clear from the general manner in which the embodiments were described in the specification that the lid was part of, albeit an optional and distinct part of, the main body. Thus the specification describes the main body 2 as having three parts: a base 2A, a side skirt 2B and a lid 2C. Furthermore, the specification uses the same numbering scheme to describe a number of other assemblies. Thus the receptacle 8 is described at [0054] as having a receptacle bottom 8A, an outer side wall 8B and an inner side wall 8C; the motor means is described at [0057] as having a first electric motor 7A and an output shaft 7B; the casing 12 is described at [0059] as having an inner face 12A and an opposite outer face 12B; the blade 16 used in the alternative embodiment is described at [0063] as having a lower edge 16A, an upper edge 16B and a cut-out opening 16C; the centrifugal fan 26 is described at [0094] as comprising an impeller 26A and a second electric motor 26B; there is a volute described at [0094] as being formed by a rear side plate 27A and a

front side plate 27B; and the ducting device 29 is described at [0096] as comprising two ducts 29A and 29B.

73. Secondly, he relied on a number of passages in the specification as specifically indicating that the lid was regarded as part of the main body when present, in particular the statement in [0034] that "the main body is provided with a lid 2C" and the statement in [0120] that the make-up orifice is "provided in the lid 2C or, more generally, in the main body 2".

74. Thirdly, he argued that it was commonplace for a whole to comprise parts which were both part of the whole and yet distinct: a teapot and its lid and a human body and its arms and legs, for example. Thus it was unsurprising that the Patent treated the lid as both separate from and as part of the main body.

75. Fourthly, so far as the location of the main heater means was concerned, he submitted that the specification disclosed part of this as being located in the lid. The basis for this submission was an argument that the main heater means was described at [0090] as consisting of the complete hot air system for the cooking, including the ducting device 29, which was located in the lid. Consistently with this, Figure 2 shows the main heater means 24 as being where the ducting device is, in the lid. It also shows the flow of heat 25 as coming from the ducting device in the lid.

76. Counsel for Jarden advanced five main arguments in support of Jarden's construction. First, he submitted that the Patent differentiates between the main body and the lid in a number of ways. Whereas the main body is said to "comprise" the base 2A and (implicitly) the side skirt 2B, it is not said to comprise the lid 2C, but rather to be "provided with" the lid. The specification goes on to differentiate between components mounted or positioned on the main body and the lid apart from the main heater means: thus the lid may be provided with a viewing zone 4 ([0036]); the means for coating food with fat is mounted in the main body ([0037]); the stirrer means and receiver means are mounted relative to the main body ([0048]-[0051]); the receptacle is mounted on the main body ([0053]); and the ducts 29A, 29B are mounted in the lid ([0097]). Similarly, claims 3, 4 and 9 differentiate between the main body and the lid.

77. Secondly, he pointed out that claim 1 requires a main body, but not a lid, while claim 3 requires a movable lid which forms a substantially sealed chamber together with the main body. He argued that this confirmed that the main body did not encompass the lid, but they were different components.

78. Thirdly, he submitted that when the Patent meant to be more general, it was. Thus it states at [0082] that food may be heated in the fryer by any known internal or external heater means. By contrast the preferred embodiment described at [0083] onwards was limited to a main heater means mounted on the main body, which formed the basis for claim 9.

79. Fourthly, he argued that the specification taught the reader at [0095] that the technical purpose of mounting the main heater means on the main body was to enable the lid to be lighter and handling the appliance easier. Furthermore, the skilled team would appreciate that a heater in the lid could create additional technical problems and safety issues, although these would be soluble.

80. Fifthly, he argued that none of SEB's arguments supported its construction. In particular, he submitted that SEB's reliance on the reference numerals as supporting its construction contravened the principle laid down by Jacob LJ in *Virgin*. As for the argument with regard to the location of the main heater means, he submitted that the specification distinguished between the main heater mains, which was mounted on the main body, and the ducting device, which was mounted on the lid.

81. In my view these arguments are finely balanced, but I find SEB's arguments more persuasive. The issue is whether the skilled team would understand the patentee to be using the words "main body" in the context of integer 9[B] in contradistinction to, and hence as excluding, the lid. I consider that, for the reasons given by counsel for SEB, the skilled reader of the specification would conclude that the lid was part of the main body for this purpose, albeit an optional and distinct part. So far as the reference numerals are concerned, I do not consider that SEB's argument contravenes the principle stated by Jacob LJ. It is not using the *reference numerals in the claim* to construe the claim, and certainly not to limit the scope of the claim. Rather, it is taking proper account of the *system of numbering used in the specification*, and the message which that conveys about the relationship between the respective parts. Furthermore, bearing in mind that claim 9 is dependent on each of claims 1-8, I consider that the skilled reader would understand that the reference to "main body" in integer 9[B] was in contradistinction to the receiver means and stirrer means rather than in contradistinction to the lid. I acknowledge the force of counsel for Jarden's argument with regard to technical purpose, but I do not think that this is decisive. Leaving aside the fact that the specification does not explicitly link the lightness of the lid with mounting the main heater means on the main body, I consider that the skilled team would appreciate that the extent of this advantage depended on a number of other factors, such as the weight of the heater and the fan. The skilled team would also appreciate that what is more important to the invention is achieving the directional flow of heat which is the subject of claim 10, and that for this purpose a main heater means mounted in the lid, as distinct from the main body, would be just as good, if not better.

Flow of heat

82. Integer B of claim 10 requires a "flow of heat". It is common ground that the specification defines the term "flow of heat" at [0085].

The prior art

Vogt

83. Although there is an agreed translation of Vogt, it is a rather literal and unidiomatic translation. Partly for this reason, partly because copying of the document has slightly degraded the quality of the images and partly because of the brevity and lack of detail of the specification, the disclosure is not entirely clear in some respects.

84. Vogt begins by describing the problems which it aims to solve in the following terms:

> "For centuries the frying pan has been an indispensable kitchen utensil; but a uniform heating of the food being cooked required a constant manual movement thereof, to avoid local

> hot spots. Unevenly cooked food, physical effort, and additional work time are its drawbacks.
>
> The present invention avoids these drawbacks. In surprising, not foreseeable manner, it allows not only more even cooking of rather thick layers of food, but also removal of the constantly arising steam, so that dry, seared foods are the result. Moreover, it turns out, surprisingly, that the steam produced at the heated bottom of the vessel gives off its heat of condensation to the layers on top of it and produces a further savings of heat and time.
>
> The mechanical turning of crumbly foods also makes it unnecessary to constantly watch the cooking process; instead, it is enough to end the cooking process after the predetermined processing time has elapsed by simply removing the device from the hotplate."

While "crumbly" is an accurate literal translation of the German ("*bröckeligen*"), I think that "lumpy" would better convey the sense.

85. The specification goes on to say that food prepared using the invention tastes better and is more evenly cooked without the need for personal intervention, and that the invention is especially advantageous at preparing "the folk dish of 'fried potatoes' [*Bratkartoffeln*]". As the specification makes clear later, it is referring here to pieces of potato of about a cubic centimeter in size. It also says that many other dishes can be advantageously prepared in this way.

86. The specification describes a specific embodiment of the invention by reference to Figures 1a and 1b which I reproduce below:

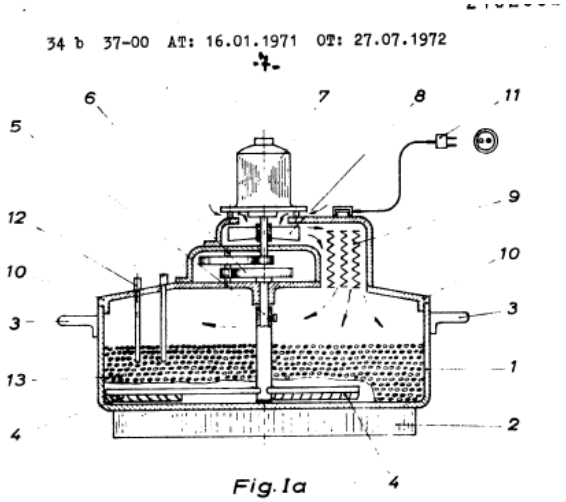


Fig. 1a

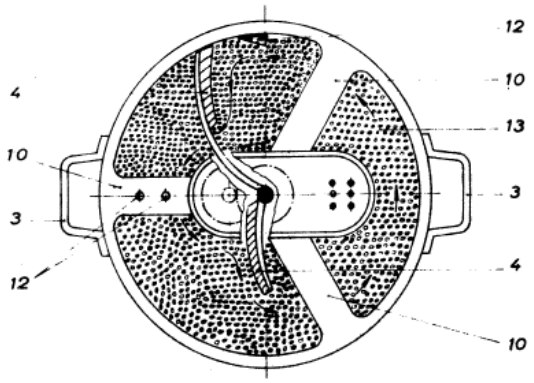


Fig. 1b

87. The device comprises a pan 1 which is preferably coated with Teflon. The pan is heated by means of an external hotplate 2 which Vogt says may be rated at several kilowatts, and in particular 3 kW. The pan has two handles 3. Rotating scrapers 4 in the pan move the food 13 both radially and vertically. The scrapers are fastened to a shaft 5 which is turned via reduction gearing 6 by motor 7. Located on the shaft of the motor is a fan 8 whose function is described as follows:

> "… which draws in fresh air from a gap between the motor flange and the housing, heats it by a heating element (9), and transports it to the surface of the food being cooked (arrow direction 1), so as to blow away the steam arising there. The steam-saturated air escapes through openings, which as shown in Fig. 1 b are located between the supporting and holding parts (10, 10) of the top structure, and motor (7), fan (8) and reduction gearing (6)."

88. The specification describes the operation of the device as follows:

> "The device is placed on the hotplate (2), where its bottom is heated. After adding grease, such as butter or bacon fat, if required, the crumbly food is added. … At the same time, after inserting the plug (11) into the wall outlet, motor, fan and scraper are placed in motion and the heating element (9) starts

> to glow. The food is now moved radially and also lifted constantly from the bottom of the vessel, so that different parts always arrive at the heated bottom. At the same time, thanks to the fan (8), the air heated by the heating element (9) begins to flow over the material, both heating it and removing the escaping steam from it. The heating of the food can also be further promoted by mounting radiant heaters on the lid. To prevent a rotating of the layer of food, resistances or obstacles (12, 12) are arranged to exert a braking action on the layer of food (13), thereby promoting the desired tossing process and deterring a circular movement."

89. It is not very easy to see from Fig 1b, but careful inspection reveals that there are three obstacles 12: two at 9 o'clock and one at 12 o'clock. The two at 9 o'clock depend from the supporting part 10 there. The one at 12 o'clock appears to depend from the rim at the side.

90. There are four issues as to the disclosure of Vogt. The first concerns the statement that "the steam-saturated air escapes through openings, which as shown in Fig. 1b are located between the supporting and holding parts (10,10) of the top structure…". SEB, supported by Mr Nicholson, contend that this means that the top structure is open between the supporting and holding parts. Jarden, supported by Mr Glucksman, contends that it means that there are openings somewhere which are not shown, and that the rest of space between the supporting and holding parts is covered by a transparent material. In my judgment the wording of the passage quoted shows that SEB's interpretation is correct.

91. The second issue is whether Vogt discloses that the top structure is removable. SEB contend that it does not, while Jarden contends that it does. In paragraphs 185-187 and 190 of his first report, Mr Nicholson proceeded on the basis that the top structure was not removable. In cross-examination he appeared to agree that it was removable, but I accept counsel for SEB's submission that in context he was intending to agree that it could be modified to be removable. Mr Glucksman did not address this issue in his reports. In my judgment Vogt does not clearly disclose that the top structure is removable. If anything, the description of the method of operation of the device implies that it is not. The only pointer to it being removable is the use of the word "lid", but since it is also described as a "top structure", I consider that this is inconclusive.

92. The third issue concerns the statement that "the air heated by the heating element (9) begins to flow over the material, both heating it and removing the escaping steam from it". SEB, supported by Mr Nicholson, contend that the function of heater 9 is merely to stop the food being cooled by the flow of air from the fan 8 rather than to cook it. In support of this, SEB rely upon the fact that heater 9 is only mentioned in this sentence, its positioning and the fact that no information is given as to its power rating, unlike the hotplate 2. Jarden, supported by Mr Glucksman, contends that the heater 9 does cook the food. In support of this, Jarden relies upon the wording of the sentence I have quoted, upon the reference in the next sentence to further promotion of the heating of the food and to the reference in claim 1 to "supplying the cooking heat from heated top or bottom layers". In my judgment Vogt discloses that the

heating element heats the food, and thus contributes to an unspecified extent to cooking it.

93. The fourth issue concerns the statement that "the heating of the food can also be further promoted by mounting radiant heaters on the lid". It is common ground that the main heating means in the disclosed embodiment is the external hotplate 2. Jarden contends that the sentence I have quoted indicates that the heater 9 and the radiant heaters in the lid could be the main heating means. SEB dispute this. In my view, the whole thrust of Vogt is that the hotplate is the main heating means, and the contribution of the heater 9 and the radiant heaters in the lid, if present, is subsidiary.

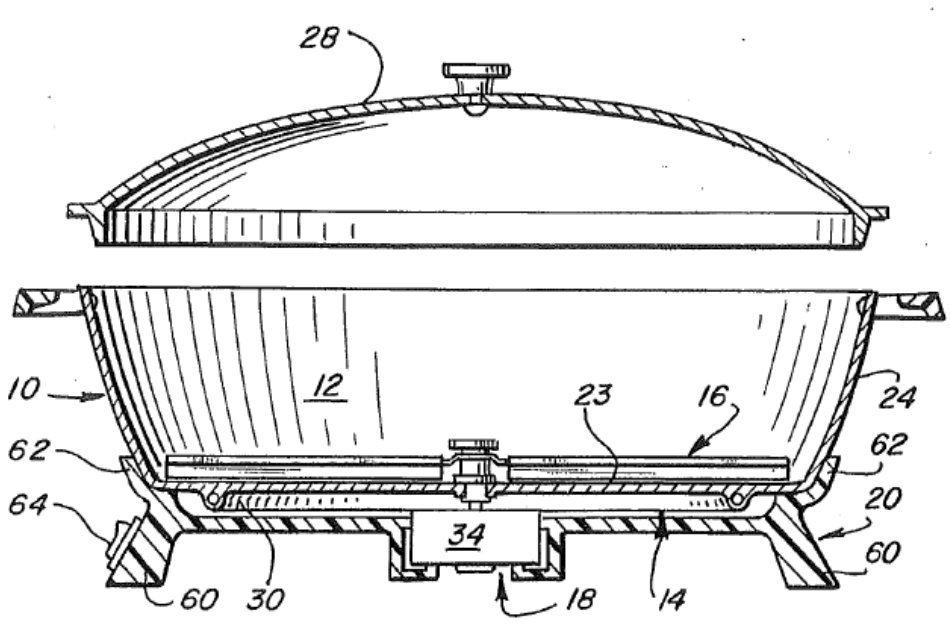
Herbst

94. Herbst begins by describing the background to the invention at column 1 lines 5-22 as follows:

> "The present invention pertains to cooking appliances and, more particularly, to a cooking appliance for use in the home wherein an automatic stirring function is provided. The invention finds suitable application in electrical counter-top fryers, skillets, small ovens and other small cooking vessels wherein the foods being cooked require intermittent or continuous stirring.
>
> In recent years, a wide variety of counter-top cooking appliances have been developed to facilitate the cooking of foods in the home. While such appliances have resulted in greatly enhancing the ease and convenience of home cooking, they have not adequately addressed the problems encountered when foods are cooked that require stirring or mixing during the cooking process. As a result, when such foods are being prepared the person attending the appliance must remain at or near the cooking station to perform this function manually."

95. The specification goes on at column 1 lines 26-29 to say that the invention is "directed to a home cooking appliance which overcomes the deficiency in prior art appliances with regard to the automation of the stirring function".

96. The specification describes a preferred embodiment of the invention by reference to a number of figures. I reproduce Figure 2 below:

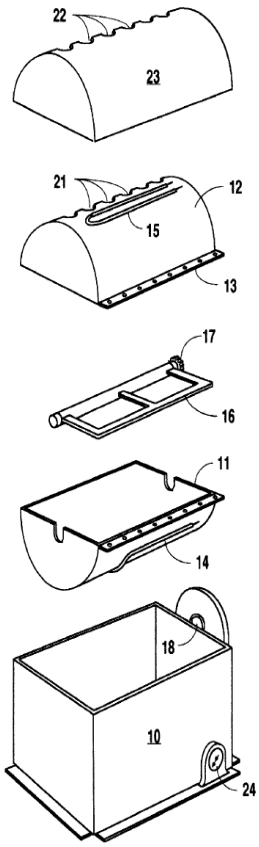


97. The appliance 10 includes a vessel 12, a heating element 14, a stir member 16, a drive means 18, a stand 20 and a lid 28. The vessel may include insulated handles. Heating is provided by heating element 30 which may be an integral component in bottom wall 22 of the vessel. The stir member has curved faces which diverge outwardly at the base (shown in cross-section in another figure). The stir member is rotated by electric motor 34 via a shaft and a bearing mounted in the centre of the bottom wall. At column 4 lines 1-12 Herbst states:

> "The self-stirring appliance disclosed herein is capable of mixing and turning foods at the cooking surface of the appliance and is ideally suited for preparing sauteed and fried vegetables, browned meats, sauces, scrambled eggs and numerous other foods. In addition, due to the design of the stir member and drive train, the appliance may be used as a conventional cooking utensil without the stir member. The two-piece vessel and stand design also permits the vessel to be used separately as a serving piece and facilitates cleaning the vessel. which may be completely immersed during washing."

Siu

98. Siu begins at column 1 lines 5-16 by saying that a variety of domestic stand-alone electric cooking appliances are known, but they lack versatility. The object of the invention is to overcome or reduce this problem. Accordingly, Siu discloses a cooking apparatus as shown in Figure 1 which I reproduce below:



99. The cooker has a base compartment 10 which supports a lower semi-cylindrical part 11 of a cooking chamber. The upper part of the cooking chamber 12 is connected to the lower part by a hinge 13. The lower and upper halves are each provided with an electric heating element 14 and 15 respectively which are either mounted externally or embedded. A stirrer 16 is rotatably supported and mounted inside the cooking chamber. The stirrer is driven by a gear wheel 17 formed on an end of the stirrer which fits through the aperture 18. The lid 23 of the apparatus has an array of venting ports 21 in it. There is a programmable timer 24. Siu states at column 2 lines 44-51 that the shape and configuration of the stirrer can vary, and that the stirrer described is particularly suitable for chipped potatoes while for other foods different stirrers may be preferable. It goes on at column 2 lines 59-63 that for many cooking operations, such as deep and stir frying, only the lower heating element 14 is required, whereas for other operations both elements or just the upper element may be used. At column 3 lines 7-12 it states:

> "It has been found that by having virtually total control of the cooking conditions, including automatic stirring where required, more healthy cooking can be achieved. In particular, less oils and fats, or in some cases 'dry' cooking performed, to prepare food satisfactorily."

Obviousness

The law

100. The structured approach to the assessment of allegations of obviousness first articulated by the Court of Appeal in *Windsurfing International Inc v Tabur Marine*

(Great Britain) Ltd [1985] RPC 59 was re-stated by Jacob LJ in *Pozzoli v BDMO SA* [2007] EWCA Civ 588, [2007] FSR 37 at [23] as follows:

> "(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?"

101. The primary evidence as to obviousness is that of properly qualified experts and secondary evidence needs to be kept in its place: see *Mölnlycke AB v Procter & Gamble Ltd* [1994] RPC 49 at 112-114 (Sir Donald Nicholls V-C). Nevertheless there are cases in which secondary evidence, and in particular evidence of commercial success of the invention, is important: see *Schlumberger Holdings Ltd v Electromagnetic Geoservices AS* [2010] EWCA Civ 819, [2010] RPC 33 at [76]-[85] (Jacob LJ).

102. The skilled person is deemed to read the prior art properly, and in that sense with interest, but without assuming that it will provide him with any assistance in solving the problem which confronts him. In some cases he may conclude that it is not a useful starting point for development: see *Terrell on the Law of Patents* (17th ed) §§12-27 to 12-30.

103. As Kitchin LJ and Sir Robin Jacob said in their joint judgment in *Gedeon Richter plc v Bayer Pharma AG* [2012] EWCA Civ 235, [2013] Bus LR D17 at [61], "it is trite law that … the older (from the priority date of a patent under attack) a piece of prior art said to render a patent obvious, the harder it is to show obviousness".

104. It is relevant, although not conclusive, to consider whether the skilled person would have a motive to take the step in question: see *Terrell* §§12-74 to 12-76.

105. In assessing whether a claimed invention is obvious, it is always important, although difficult, to avoid hindsight. The fact that, after the event, it is easy to see how the invention could be arrived at by starting from an item of prior art and taking a series of apparently simple steps does not necessarily show that it was obvious at the time: *British Westinghouse Electric & Manufacturing Co Ltd v Braulik* (1910) 27 RPC 209 at 230 (Fletcher Moulton LJ), *Non-Drip Measure Co Ltd v Strangers Ltd* (1943) 60 RPC 135 at 142 (Lord Russell) and *Technograph Printed Circuits Ltd v Mills & Rockley (Electronics) Ltd* [1972] RPC 346 at 362 (Lord Diplock).

General points

106. Before turning to the specific attacks advanced by Jarden, it is convenient to note some general points. The first is that neither of the expert witnesses was aware of any of the items of prior art relied on by Jarden having being commercialised.

107. Secondly, Jarden's attacks were progressively narrowed during the course of the case, including at trial. I shall only refer to the attacks which counsel for Jarden maintained in his closing submissions. For reasons that will appear, I will consider them in reverse chronological order of the prior art.

108. Thirdly, at no stage did Jarden advance a case of obviousness over common general knowledge alone.

109. Fourthly, nor did Jarden advance any case of obviousness based on a skilled team which was seeking to devise a fryer that would solve the problems with deep fryers and yet produce better quality chips than oven chips (i.e. the problems to which the Patent is addressed). Rather, Jarden's case was predicated upon a skilled team which was simply seeking to implement and update the prior art to produce a commercially acceptable product. In principle that is a permissible approach, but it has consequences in terms of what steps the skilled team may be expected to take. As will appear, this is particularly relevant when one comes to Vogt.

110. Fifthly, counsel for SEB rightly did not press SEB's commercial success argument in his closing submissions. As counsel for Jarden submitted, it does not assist SEB for a series of reasons. It is sufficient to mention the following. First, the Actifry embodies the invention of claim 14 as dependent on a number of other claims, and thus it cannot show the inventiveness of broader claims. Secondly, the prior art was not part of the common general knowledge, and there is no evidence that any of it was known to actual skilled teams developing fryers in 2004. Thirdly, the product was subject to further development after the Patent was applied for. Fourthly, it appears that the branding and marketing of the product were significant factors in its success.

Obviousness over Siu

111. *Claim 1*. Having regard to my construction of the term "dry fryer", Siu discloses a dry fryer. Accordingly, the difference between Siu and claim 1 is that Siu does not disclose that the cooking vessel is removable. Mr Nicholson's evidence was that making the cooking vessel removable for ease of cleaning was one of the first improvements that would come to mind in 2004, since this was a common feature in the field. He accepted that, although there were design issues to be addressed in making this change to Siu, this was something that the skilled team would be able to do using their common general knowledge. Mr Glucksman's evidence was to the same effect. Accordingly, I conclude that claim 1 is obvious over Siu.

112. *Claim 3*. It is common ground that Siu discloses the additional features of claim 3. Accordingly, claim 3 is obvious over Siu.

Obviousness over Herbst

113. Although Herbst was published just over 20 years before the priority date, as Mr Glucksman said, it has an attractive simplicity. Mr Nicholson's assessment was that it would not be particularly effective in stirring and turning food and he had concerns about its safety, but these reservations were mainly directed to its use for frying chips. SEB did not suggest that the skilled team would be deterred by its age from implementing Herbst and making obvious improvements.

114. *Claim 1*. Having regard to my construction of the term "dry fryer", Herbst discloses a dry fryer. The difference between Herbst and claim 1 is that Herbst does not disclose a receiver means which is removably mounted in a main body. Rather, it discloses a removable vessel on a stand. Jarden contends, and I agree, that providing Herbst with a cool touch outer housing would have been an obvious improvement. This was a common feature by 2004. As the experts agreed, there would be no technical difficulty in doing this. As Mr Nicholson agreed, from a marketing point of view the skilled team would be likely to want to retain the feature of a removable bowl. Again, there would be no difficultly in doing this. Accordingly, I conclude that claim 1 is obvious over Herbst.

115. *Claim 3*. As regards the lid, adding a hinged lid to a cooking appliance in June 2004 was a matter of design choice and numerous products on the market had such a feature. Mr Nicholson accepted that there were known consumer benefits to having a hinged lid, but pointed out that there were knock-on design considerations, including ensuring that the device remained stable. Whilst this would take care and attention on the part of the skilled team, it would not take invention.

116. As regards the requirement for a "substantially sealed" chamber, it makes no difference whether this is construed as Jarden contends or as SEB contend. It was well known that a fryer with a lid needed to be vented. Providing a small gap between the lid and the cooking vessel or providing a seal between the lid and the vessel and a vent elsewhere were both well known ways to achieve this. Accordingly, I conclude that claim 3 is obvious over Herbst.

117. *Claim 8*. Herbst teaches that the vessel stays still and the stirrer rotates. Claim 8 requires the stirrer to stay still whilst the vessel rotates. As the Patent effectively acknowledges, these are two sides of the same coin. What matters is that there is relative movement between the two components. Each option requires different design considerations (and there are advantages and disadvantages to both), but once a rotating stirrer in a stationary bowl is disclosed, it would not require invention to see that alternatively the bowl could rotate around a stationary stirrer.

118. Motorised rotating stirrers and bowls were both common general knowledge. Mr Glucksman's evidence was that the decision which component to rotate is merely design choice. Mr Glucksman did not consider there would be any technical problem in rotating the bowl in Herbst, describing it as a "simple engineering task". He was not challenged on this evidence. Mr Nicholson did not believe a skilled person would want to do this due to the knock-on effects it would have. He did not identify any real technical problem, however. Accordingly, I conclude that claim 8 is obvious over Herbst.

Obviousness over Vogt

119. As counsel for Jarden rightly accepted, Vogt adds nothing to Jarden's case based on Herbst so far as claims 1, 3 and 8 are concerned. Furthermore, he only relied on Vogt as rendering claims 10, 11 and 13 obvious if claim 9 was construed as contended for SEB, and hence as a squeeze on infringement. Since I have accepted SEB's construction of claim 9, however, it is necessary for me to consider Vogt.

120. Before turning to the individual claims, the first question is whether the skilled person would regard Vogt as a worthwhile starting point for development at all. It is a paper proposal by an individual inventor which is unclear in certain respects, lacking in detail and somewhat eccentric. Furthermore, it was filed over 33 years and published some 32 years before the priority date of the Patent. As Mr Glucksman accepted, the skilled team would regard it as something from a different technological era. In his first report, he expressed the opinion that the skilled team would have been interested in Vogt "because it is a food receptacle in which food articles are stirred and heat is provided for cooking, with the use of a small amount of oil". As he accepted, however, Vogt is no different from a frying pan as a starting point in that respect (or at least a shallow fryer with an automated stirrer). Furthermore, he himself immediately went on in his report to say that the skilled team would be concerned that consumers would not accept a stove-top device which was connected to the mains. It was put to Mr Glucksman in cross-examination that the skilled team would therefore put Vogt to one side. Although he did not accept that, I found his evidence on this point unconvincing. In my judgment the skilled team would not regard Vogt as a useful starting point for further development.

121. Even if that is wrong, in order to arrive at a fryer falling within claim 10, the skilled team would first have to make the following changes to Vogt: (i) provide a cool touch outer wall forming a main body with a removably mounted receptacle within it (the missing feature of claim 1), (ii) provide a hinged lid forming a substantially sealed chamber with the main body when closed (the missing features of claim 3) and (iii) rotate the bowl rather than the stirrer (the missing feature of claim 8). I am not persuaded that it would be obvious to take all of these steps. Step (ii) would be contrary to the teaching of Vogt, which is concerned to promote steam release. Step (iii) would involve a substantial re-design (rather more so than in the case of Herbst). Taking all three steps would involve a considerable re-design.

122. *Claim 10*. Jarden's case on claim 10 is that it would be obvious, in addition to taking steps (i)-(iii) above, to dispense with the external hotplate and to rely instead on the radiant heaters which Vogt suggests mounting on the lid (which, as I have construed claim 9, would be "mounted on the main body") as the main heater means. Even if it would be obvious to take steps (i)-(iii), I am not persuaded that it would be obvious to take this further step. As Mr Nicholson said in cross-examination, not only would taking this step be contrary to the teaching of Vogt, but also there is no reason why the skilled team would want to make all of these modifications to Vogt. It would be simpler to design a fryer from scratch; but it is not contended that claim 10 is obvious over common general knowledge alone. Jarden's case of obviousness over Vogt is pure hindsight.

123. Counsel for Jarden attempted to support this case in his closing submissions by arguing that it would be obvious for the skilled team considering Vogt's suggestion to

research what was on the market in 2004 with regard to radiant heaters in lids, and that as a result they would find turbo ovens. I do not accept this argument. In my judgment the evidence of the experts does not support the proposition that such a search would be carried out. Still less does it support the proposition that it would lead to turbo ovens, since it does not show that the skilled team would look more widely than the kinds of products which featured in the Argos and Littlewoods Index products. In any event, I do not consider that, supposing the skilled team would conduct a search and would find a turbo oven, this would assist Jarden. On the contrary, I consider that the skilled team would regard the turbo oven as a much better starting point for development and discard Vogt.

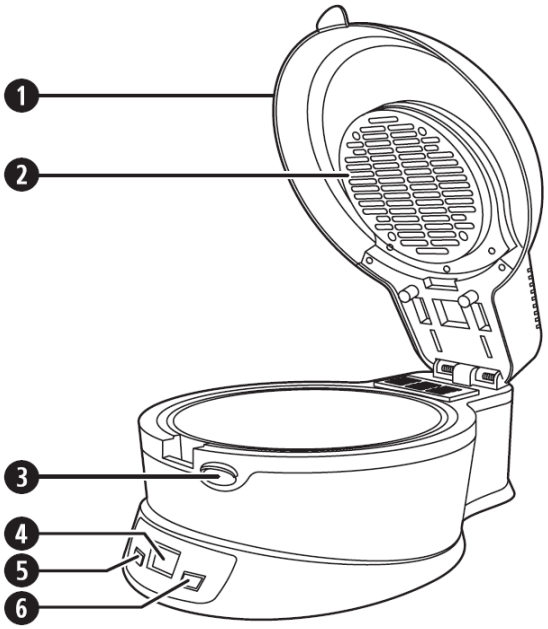
Infringement

The Halo

124. The Halo is described in Jarden's Re-Amended Product Description. Its method of operation was the subject of Jarden's experiments which were videoed. As well as viewing the videos, I have had the advantage of being able to use an example of the Halo and observe its operation for myself.

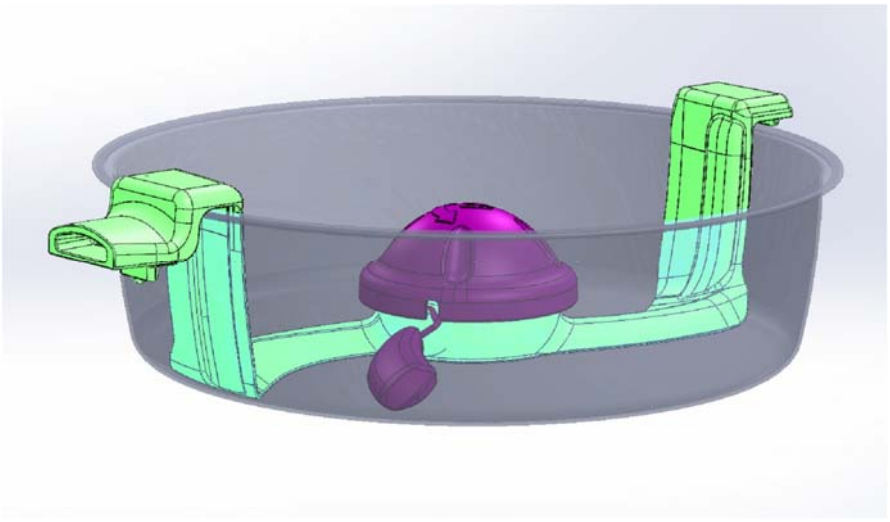
125. There is no dispute that the Halo is a dry fryer which operates in a broadly similar manner to the claimed invention, in that it stirs and turns the food to coat the food with a thin film of oil while cooking the food by means of a flow of heat from above. Much of the detail of the design of the Halo is not relevant for present purposes. The aspects of the Halo product that are relevant to the issues on infringement are as follows.

126. The Halo has a halogen heater and a fan which are both housed in the lid. They are shown marked 2 in the drawing below:



127. When the lid of the Halo is closed, the lid is raised above the housing by two protrusions. As a result, there is a gap of approximately 2.3 mm between the lid and the housing around most of the circumference of the lid.

128. The Halo includes within its cooking vessel a component, which the Halo's instruction manual describes as its stirrer, that consists of a bar and a paddle attached to a hub. The bar is shown in green and the hub and paddle in purple below:



129. During operation of the Halo, the cooking vessel and the hub and paddle are mechanically connected and rotate together. The bar remains stationary relative to the cooking vessel and the rotating hub and paddle. As the cooking vessel and the paddle push the food round to the stationary bar, the food rises up over the bar and tumbles down on to the other side. The paddle is spring mounted. As the paddle meets the stationary bar, it is briefly slowed until the tension of the spring is taken up. Then the paddle passes over the bar and briefly accelerates until the tension in the spring is released. This results in a brief "flick" of the paddle twice in each revolution.

Jarden's experiments

130. Jarden carried out three experiments. In experiment 1, the Halo as sold (conformation A) was used to cook 800 g of chips approximately following the recipe in the Halo instruction manual. It can be seen that the chips are mingled with the oil so as to coat the chips with a film of oil. In experiment 2, experiment 1 was repeated except that the paddle was removed from the Halo (conformation B). The result was that the chips stayed more or less still while the bowl rotated. As Mr Nicholson pointed out, it is possible when viewing the unedited version of the video of this experiment to observe a small degree of movement of the chips over time. Nevertheless, I find that this is insufficient to coat the food with a film of oil by mingling. In experiment 3, experiment 1 was repeated except that the bar was removed from the Halo (conformation C). The result was that the chips stayed more or less together and rotated with the bowl. Again, I find that this is insufficient to coat the food with a film of oil by mingling.

Claim 1

131. The issue on infringement of claim 1 is whether the receiver means and the stirrer means are designed to be moved with respect to each other (as required by integers D and F) for coating the food with a film of fat by mingling (as required by integer G).

132. SEB put their case on infringement in three different ways. Their primary case is that (i) the stirrer means in the Halo consists of the bar, (ii) the receiver means (the cooking vessel) moves relative to the bar, (iii) as a result there is mingling and (iv) it is immaterial if the paddle does not move relative to the bar but does contribute to the mingling. Their secondary case is that (i) the stirrer means in the Halo consists of the combination of the bar and the paddle, (ii) both the cooking vessel and the paddle move relative to the bar and (iii) as a result there is mingling. Their tertiary case is that (i) the stirrer means in the Halo consists of the bar, (ii) the receiver means comprises the cooking vessel and the paddle, both of which move relative to the bar, and (iii) as a result there is mingling.

133. Jarden contends that (i) the stirrer means in the Halo consists of the combination of the bar and the paddle, (ii) although the receiver means (the cooking vessel) moves relative to the bar, this does not cause any mingling and (iii) the paddle does not move relative to the cooking vessel.

134. I do not accept SEB's primary case. Although I have accepted the construction of integer G of claim 1 which underpins it, the fundamental problem with it is that Jarden's experiment 2 shows that, without the paddle, there is really no mingling at all.

135. I do accept SEB's secondary case. From my observation of the operation of the Halo, it is clear that the flick of the paddle as it passes over the bar makes an important contribution to the stirring and mixing of the food with the oil and the resultant mingling. Thus both the bar and the paddle move relative to the cooking vessel, and both kinds of movement contribute to the stirring and mixing. It is immaterial that there is also movement of the paddle relative to the bar.

136. If I am wrong about SEB's secondary case, I would in the alternative accept SEB's tertiary case.

Claim 3

137. Jarden disputes that the lid of the Halo forms a "substantially sealed" chamber with the main body due to the presence of the 2.3 mm gap. As I have construed integer C of claim 3, however, this requirement is satisfied.

Claim 8

138. The issue here is whether the stirrer means is stationary relative to the main body as required by integer B and the receiver means rotates relative to the main body and the stirrer means as required by integer C. This issue is tied up with the issue on claim 1 which I have already considered.

139. Given that I have accepted SEB's secondary case on infringement of claim 1, in my judgment it follows that claim 8 is not infringed. This is because only part of the stirrer means is stationary relative to the main body, while the other part rotates relative to the main body and the stirrer means. If, on the other hand, SEB's tertiary case on infringement of claim 1 were to be upheld in preference to SEB's secondary case, then claim 8 would be infringed.

Claims 10, 11 and 13

140. Jarden disputes that the main heater means of the Halo is "mounted on the main body" as required by integer B of claim 9. As I have construed integer B, that requirement is satisfied. There is no dispute that the remaining requirements of claims 10, 11 and 13 are also satisfied.

Summary of conclusions

141. For the reasons given above, I conclude that:

i) Claims 1 and 3 are obvious over Siu;

ii) Claims 1, 3 and 8 are obvious over Herbst;

iii) None of the claims are obvious over Vogt;

iv) Claims 1 and 3, but not claim 8, would be infringed if they were valid; and

v) Claims 10, 11 and 13 have been infringed.