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JOHANN NICOLAAS RAUBENHEIMER	First Appellant
PEACOCK INVESTMENTS (PROPRIETARY) LIMITED	Second Appellant

AND

KREEPY KRAULY (PROPRIETARY) LIMITED	First Respondent
PERMKLEENPOOL (PROPRIETARY) LIMITED	Second Respondent

IN THE SUPREME COURT OF SOUTH AFRICA

(APPELLATE DIVISION)

In the matter between:

JOHANN NICOLAAS RAUBENHEIMER — First Appellant

PEACOCK INVESTMENTS (PROPRIETARY) LIMITED — Second Appellant

AND

KREEPY KRAULY (PROPRIETARY) LIMITED — First Respondent

PERMKLEENPOOL (PROPRIETARY) LIMITED — Second Respondent

CORAM: CORBETT, TRENGOVE, HOEXTER, VAN HEERDEN, JJA et NICHOLAS, AJA

HEARD: 15 and 16 August 1985

DELIVERED: 30 August 1985

J U D G M E N T

NICHOLAS, AJA

This appeal has to do with a swimming pool

cleaning .....

cleaning device which is marketed under the name of Kreepy Krauly, and which was the subject of an action in the Court of the Commissioner of Patents. Alleging that the manufacture and sale of the Kreepy Krauly infringed SA Patent No71/0231, dated 14 January 1971, the plaintiffs (described respectively as the registered patentee and the exclusive licensee under the patent) claimed an interdict and other relief as against the defendants (being respectively the manufacturer and a seller of Kreepy Krauly cleaning devices). The Commissioner of Patents (VAN REENEN J) held that the patent had not been infringed and granted judgment for the defendants with costs and made a declaration as to non-infringement.

An appeal to the Transvaal Provincial Division (MARGO, PREISS and GROSSKOPF JJ) was dismissed with costs. The matter now comes on appeal to this Court, leave having been granted by the Court a quo.

In this judgment I shall refer to the parties as they were in the trial Court, namely, to the appellants as the plaintiffs, and to the respondents as the defendants.

In terms of the specification, the invention provides a cleaning device for cleaning surfaces covered by a liquid, especially underwater surfaces, e.g. the floor and sides of swimming pools, boats' hulls, and harbour or lock walls. In its basic form the device comprises a cleaning head adapted to fit against a surface to be cleaned, an inlet into the head, an outlet from the head permitting suction to be applied through

a .....

a flexible suction pipe to the head; and automatic means for enabling the suction periodically to be cut off and re-applied, whereby when suction is applied the liquid can pass along the flexible suction pipe with the head in suction contact with the surface to be cleaned and, when suction is cut off, the liquid in the pipe will cause the pipe to flex and so move the head along the surface before suction is re-applied. (The specification states that there may be a plurality of adjacent heads in the form of a cluster. The possibility of multiple heads is of no importance in the present case, and it will not again be referred to.)

The specification then gives some description of

two .....

two of the constituent parts of the invented device.

The cleaning head may be of any desired shape, for example, substantially triangular, rectangular or circular in plan view. Conveniently the head has sides which can make substantially suction-tight contact with the surface to be cleaned - the contacting parts may have a flexible rim of, for example, a rubber or plastic material. The liquid covering the surface to be cleaned (usually water) must be able to pass through the cleaning head (to facilitate which the rim may be cut away in places to provide passages for a current of the liquid to flow in the head and over the surfaces to be cleaned) and down the suction pipe.

The .....

The means for automatically enabling the suction to be cut off and re-applied may conveniently be mounted on the head. That means "may comprise a gate which automatically opens and closes the vacuum line to inlet into the head according to a regular or irregular pattern. Thus a chamber may be provided having an inlet to the head, an outlet to the flexible pipe which itself leads to the suction source and a gate for closing the suction inlet and/or outlet of the chamber, the gate being adapted to be opened and/or closed by liquid which is sucked through the chamber".

After a description of a number of other embodiments of the invention, the specification describes the device

in .....

in operation:

> "A flexible hose leads from the suction chamber of the above embodiments to the suction source. When in use for cleaning a swimming pool, the hose becomes filled with water and the continuous opening and closing of the gate causes the hose to jerk. As the suction against the surface(sc. to be cleaned) is momentarily released each time the gate closes, the jerks of the hose cause the head to move over the surface to be cleaned. The movement may be completely random, may be guided or may be between these two extremes. The head appears to 'walk' along the surface to be cleaned. It can be left unattended."

The Kreepy Krauly is itself the subject of a patent - SA Patent No 75/1166 dated February 1975.

The nature and scope of the invention claimed in that

specification .....

specification were considered by this Court in Selero (Pty) Ltd and Another v Chauvier and Another 1984(1) SA 128(A).

A full description of the allegedly infringing device is contained in the judment of MARGO J in the Court a quo:

> "The Kreepy Krauly consists of a suction head, through the mouth of which water, and deposits of solid matter on the floor and walls of swimming pools, are sucked up. The suction force comes from the swimming pool pump, which is connected to the Kreepy Krauly by a length of flexible hose. The mouth is surrounded by a circular rubber suction seal. The water is drawn through the mouth into the head, above which there are two parallel and separate suction passages, which converge into one pipe at the top of the device, a short distance below the point at which it (the device) is coupled to the flexible hose. In the head, below the suction passages, a pyramid shaped plastic object is located in what is called a valve chamber. This object is termed a flapper valve or a hammer. In operation the flapper valve moves from one side of the valve chamber to the other some seven times per second, i.e. it traverses a complete

cycle .....

cycle (or Hertz) of movement about 3,5 times per second. While the valve is in the central position and is still passing from one side to the other, both suction passages are open. However, when the flapper valve is completely over to the left side, it fits into a valve seat below the suction passage on that side and so blocks the entry of the water into that passage. The water from the head is thus channelled up the other suction passage, on the right side, into the converging chamber and so on through the flexible hose to the pump. The stream of water up the right suction passage then generates a venturi effect, and this, together with the weight of the water in the left suction passage, causes the flapper valve to move over to the right side, where it fits into a similar valve seat located below the right suction passage and now blocks the entry of water into the passage. The water from the head is now channelled up the suction passage on the

left .....

left side into the converging chamber and so on through the flexible hose to the pump. The to and fro movement of the flapper valve, transferring the stream from the one suction passage into the other, and vice versa, continues while the device is in operation. The importance of this transfer of the stream is that, each time one of the suction passages is closed off, the behaviour of the water results in a jolt which causes the head to move a short distance over the surface it is cleaning. In this way the Kreepy Krauly 'walks' over that surface in random fashion, cleaning as it goes. If left in operation long enough it traverses the whole of the pool area. It will even travel over rounded joints between the bottom and the walls and climb the walls until a balance weight topples over and causes it to move downwards. A point of considerable importance is that the flow path from

the .....

> the mouth via the valve chamber, through both or one of the suction passages into the converging chamber, and thence to the flexible pipe and the pump, is always open."

From this description it is apparent that the Kreepy Krauly achieves the same result as the patented device. The evidence shows moreover that the fundamental hydraulic operation which enables the Kreepy Krauly to move over the surface to be cleaned is the same as that in the patented device, namely, the intermittent substantial variation of the flow of water through the machine.

Such similarities have, of course, no bearing on the issue of infringement. As DIPLOCK LJ observed in Rodi and Wienenberger A.G. v. Henry Showell Ltd 1966 RPC

441 (CA) at 467:

"In construing a modern specification, to speak of looking for the 'substance' or the 'pith and marrow' of the invention, may lead one erroneously to suppose that the patentee, whatever be the precise language in which he has framed his claim, is entitled to a monopoly of the mechanical or other principle of which his invention makes use or of the result which his invention achieves. This is not so. If the language which the patentee has used in the claims which follow the description upon its true construction specifies a number of elements or integers acting in a particular relation to one another as constituting the essential features of his claim, the monopoly which he obtains is for that specified combination of elements or integers so acting in relation to one another - and for nothing else.

There .....

> There is no infringement of his monopoly unless each and every one of such elements is present in the process or article which is alleged to infringe his patent and such elements also act in relation to one another in the matter claimed."

See also Frank and Hirsch (Pty) Ltd v Rodi and Wienenberger 1960(3) SA 747(A) at 762; Letraset Ltd v Helios Ltd 1972(3) SA 245(A) at 274.

The specification in suit contains seventeen claims, of which claims 1, 2 and 3 were alleged to have been infringed by the Kreepy Krauly.

Split into appropriate integers (and modified so as to exclude references to multiple cleaning heads), claim 1 reads as follows:

"(a) .....

"(a) a cleaning device for cleaning a surface beneath the level of a liquid,

(b) which device comprises at least one cleaning head;

(c) adapted to fit against the surface to be cleaned,

(d) an inlet into the ..... head,

(e) an outlet from the .... head,

(f) for permitting suction to be applied through a flexible suction pipe to said head, and

(g) automatic means for enabling the suction periodically to be cut off and reapplied .....

(h) whereby when suction is applied the liquid can pass along the flexible suction pipe with the head in suction contact with the surface and

(i) when suction is cut off, liquid in the pipe will cause the pipe to flex and so move the head along the surface before suction is reapplied."

The parties were agreed that it is unnecessary to examine claims 2 and 3 which are dependent on claim 1.

It has been common cause in all three courts that integers (a), (b), (c), (d) and (h) of claim 1 are present in the Kreepy Krauly. In regard to integers (e) and (f), there is an issue between the parties as to the interpretation to be placed on the word "head", but it was not one which received the consideration of either the trial Court or the Court a quo, and it was only touched on in argument in this Court. The real dispute is in regard to the presence in the Kreepy Krauly of integers (g) and (i), which, it is common cause, are essential integers.

VAN .....

VAN REENEN J held that the Kreepy Krauly did exhibit integer (g), saying that in the operation of the device "there is a periodic cut-off and re-application of suction". He held however that integer (i) was not present. In the judgment of the Court a quo, MARGO J disagreed with VAN REENEN J in regard to integer (g), finding

> "that the evidence showed that there was in the Kreepy Krauly no automatic means for enabling the suction to be cut off or re-applied."

but agreed that the plaintiffs had failed to establish that integer (i) was present in the Kreepy Krauly.

In the view which I take of the matter, it is necessary to consider only integer (g).

In order to determine whether that integer is

present .....

present in the Kreepy Krauly it is necessary first to interpret the expressions "suction", "cut off" and "automatic means" as they are used in claim 1.

"Suction" is not a technical term requiring definition or explanation by the evidence of experts. Indeed, its use is eschewed by the writers of hydraulics textbooks and professors of hydraulic engineering. The definitions of the word "suction" in standard dictionaries are substantially the same. They include:

Shorter Oxford English Dictionary

> "sucking; production of more or less complete vacuum with the result that external atmospheric pressure forces fluid into the vacant space or causes the adhesion of surfaces."

Concise .....

Concise Oxford Dictionary

> "sucking; the production of a partial vacuum by removal of air etc. for purpose of enabling external atmospheric pressure to force liquid or produce adhesion of surfaces."

Webster's Third International Dictionary

> "2 a. The act or process of exerting a force upon a solid liquid or gaseous body by reducing air pressure over part of its surface; the force so exerted ."

The American Heritage Dictionary of the English Language

> "2. A force that causes a liquid or solid to be drawn into an interior space or to adhere to a surface because of the difference between the

external .....

external and internal pressures."

The Shorter Oxford refers to the result, and the Concise Oxford to the purpose, of the production of a vacuum. In my view the latter is to be preferred. All the definitions have in common the exertion of a force as a result of a difference in pressure.

The dictionary meaning is the sense in which the word "suction" is used in claim 1 and throughout the specification. Thus, in the body of the specification there are references to the vacuum being cut off and reapplied and to the "vacuum line"; and to the momentary release of the suction head against the surface to be cleaned - a reference to the adhesion of surfaces resulting .....

sulting from suction. Professors Stephenson and Smoleniec, expert witnesses who gave evidence on behalf of the plaintiffs, were of the view that "suction" as used in the specification was interchangeable with "flow". In their first expert summary they recorded that they had been instructed to consider whether or not the suction in the Kreepy Krauly device is in fact cut off as specified under integers (g) and (i); that they carried out tests whose object was to measure the rate of flow from the head of the apparatus into the hose leading to the pump; that they concluded that it was apparent from the tests that "complete cut off of the flow occurred in the suction pipe of the Kreepy Krauly device." In an additional expert sum-

mary they expressed the opinion that "the flow, or suction, into the Kreepy Krauly device is cut off and reapplied at regular intervals." This was the position which they sought to maintain when giving evidence.

This position was untenable. While the word "flow" does have some ideas involved in its meaning in common with "suction", the words are not interchangeable.

Suction may be evidenced by flow, and an absence of flow could be a manifestation of an absence of suction, but it does not necessarily follow that where there is no flow, or even a reversal of flow, there is no suction. To take an everyday example: when suction is applied by the mouth to a drinking straw in a liquid, the degree

of .....

of difference between the pressure inside the tube and the atmospheric pressure will determine how far the liquid will move up the straw. The liquid will move up or down the straw depending on the variations in the differential pressure, and its flow may reverse even though there is still some suction.

That the words are not interchangeable is evident from the specification. See, for example, the statement in claim 1: "when suction is applied the liquid can pass (i.e. flow) along the flexible suction pipe". It would be entirely inappropriate to speak of flow being applied and re-applied. And flow can have no part in suction which produces the ad-

hesion .....

hesion of surfaces - see the references in the body of the specifications to "the head has sides which can make substantially suction-tight contact with the surface to be cleaned" and "as the suction against the surface is momentarily released each time the gate closes, the jerks of the hose cause the head to move over the surface to be cleaned."

The ordinary meaning of "cut off" if a context such as the present is "interrupt" or "stop" (as in cutting off communication, or a passage, or a line of retreat). In order to "cut off suction", there must be an interruption of the suction line between the mouth of the head and

the suction source (the swimming pool pump), on either the inlet or the outlet side.

As to the expression "automatic means for enabling the suction to be cut off and re-applied", MARGO J considered that it indicated

> "the presence of some apparatus or component which, by automatic action, effects closure of the line of communication from the source of the suction to the point at which it is applied. That, in my view, is the plain meaning of the words".

I agree. "Automatic means" is one of the constituent parts, elements or components of the claimed device, which is said to comprise (a) a cleaning head, (b) an inlet into the head, (c) an outlet from the head permitting suction

to .....

to be applied through a flexible suction pipe to the head, and (d) automatic means for enabling the suction periodically to be cut off and re-applied. The word "means" signifies a way to an end, and the word "for" has in this context the meaning of "with an aim or a view to". The expression accordingly denotes an automatic device, contrivance or instrument, which is a constituent element of the claimed apparatus, and the designed function of which is to enable the suction periodically to be cut off and re-applied, that is, periodically to make and break the suction line between the opening in the head and the suction source.

The plaintiffs sought to prove the presence of

integer .....

integer (g) in the Kreepy Krauly by the evidence of Professor Stephenson and Professor Smoleniec. As indicated above, their evidence related largely to the tests and experiments which they conducted, and which they claimed to show that in the operation of the Kreepy Krauly the flow into the device was cut off and re-applied at regular intervals: "Complete cut off of the flow occurred in the suction pipe of the Kreepy Krauly device. The period of cut off coincided with the oscillation of the valve." On behalf of the defendants, another expert, Dr Schwartz, gave evidence of tests and experiments which he conducted and which he claimed gave different results.

VAN REENEN J observed that

" .. all .....

> "... all (the) experiments were subjected to close scrutiny, and severely criticised by the opposite side. The criticisms covered every conceivable field from the inception of the experiments, the equipment used, the methods used, the results obtained and the interpretation of these results. To this end I was treated to discourses on mathematical integration, harmonic motion, Fourier analyses and electric filters."

The debate as to what the experiments proved was continued at length in the argument in this Court, but I do not find it necessary to deal with the differing contentions. VAN REENEN J found (and this was the basis of his finding that integer (g) was present in the Kreepy Krauly) that

".. one .....

> "... one fact emerges clearly from all these experiments and that is that a reversal of flow does take place in each of the tubes ...."

and I shall assume the correctness of the finding for the purposes of this judgment.

The evidence of the plaintiffs' experts was wide of the mark.

They did not address themselves to the real question in the case, namely, whether there is present in the Kreepy Krauly an automatic means such as is referred to in claim 1. It is clear that the Kreepy Krauly has no such means. Counsel for the plaintiffs said in answer to a question by the presiding judge that the automatic means was the hammer valve. However, the

valve .....

valve moves from side to side, closing off first one suction tube and then the other, so that there is no time when both tubes are closed off.

Moreover, the evidence of the plaintiffs' experts did not prove that when the Kreepy Krauly was operating, the suction was cut off. Put at its highest, their evidence was that there occurred intermittently a reversal of flow in each of the tubes, although it was not possible to ascertain precisely at what part ofthe travel of the hammer valve this reversal of flow took place. For the reasons cogently advanced by MARGO J, a reversal of flow did not justify an inference that suction had been cut off:

"On .....

"On the evidence it is clear that the suction in the Kreepy Krauly is at no time cut off. Accepting for present purposes the results of the experiments conducted by Professors Stephenson and Smoleniec (although those results were questioned by Dr. Schwartz), I find that the inference drawn therefrom that the suction is cut off is a non sequitur. If the experiments had shown a continuous inflow, that would have demonstrated sustained suction. But the occurrence of a periodic outflow does not necessarily mean that the suction has been cut off. On the design and function of the Kreepy Krauly it is clear that the suction force is maintained throughout along an open line of communication from the swimming pool pump to the mouth of the device, although there is a periodic transfer of the stream from one suction passage to the other. Mr. Bowman, for the appellants, conceded that much, but relied on the reverse flow pat-

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> tern as showing that the suction was cut off. Granted that the pump at all times remains in suction communication with the mouth and that the pump continues to suck with the same force, the fact (if it be such) of a periodic reverse flow is to be accounted for by something other than a cutting off of the suction. The occurrence of a reverse flow would then indicate merely that the force of the suction, periodically for 1/100th of a second every 1/7th of a second, is inadequate to cope with the increased load caused by the sudden transfer of the upward stream from the one suction passage to the other."

The conclusion is that integer (g) was not present in the Kreepy Krauly, and that there was therefore no infringement of the patent.

The .....

The appeal is dismissed with costs including the costs of two counsel.

NICHOLAS, AJA

CORBETT, JA)
)
TRENGOVE, JA)
) CONCUR
HOEXTER, JA)
)
VAN HEERDEN, JA)