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IN THE MATTER OF an application under  
Section 72 by Mr Vilnis Oliver Vesma for the  
revocation of Patent No 2145526 in the name  
of Shirley Institute

**DECISION**

Revocation of patent number 2145526 was initially sought by Mr Vesma on the ground that the invention is not a patentable invention because it is not novel. Mr Vesma, who is acting on his own behalf apparently without professional assistance, subsequently amended his application on three occasions. The final amended statement was filed on 27 May 1992 and sought revocation on the grounds that the invention claimed is not new, does not involve an inventive step, and is excluded from being patentable by section 1(2) of the Act.

In response to Mr Vesma's third amended statement, the patentees filed an amended counterstatement on 8 June 1992 and Mr Vesma filed evidence on 6 August 1992. The patentees then indicated in a letter dated 23 September 1992 that they did not intend to file any evidence and the matter subsequently came before me at a hearing on 6 January 1993 at which Mr Vesma presented his own case and the patentees were represented by Mr D A McNeight of McNeight & Lawrence.

Although Mr Vesma's final amended statement was perhaps still not as clear as it might have been as to the distinction between the various grounds for revocation which he alleged, Mr McNeight apparently had no major problems with it. Indeed, I think that it is clear enough, especially when taken in conjunction with the evidence which Mr Vesma submitted, that his argument is that:

- (i) the invention claimed is not new as required by section 1(1)(a) having regard to:-

- (a) the design of an electro-mechanical degree-day meter disclosed in an article by I F G McVicker in the Journal of the Institute of Heating and Ventilation Engineers, November - December 1946,
  - (b) the EY 2400 Substation manufactured by Sauter Automation Ltd, and
  - (c) the Freeman Temperature Memory Recorder manufactured by Freeman Enercon Ltd.
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- (ii) the invention claimed does not involve an inventive step as required by section 1(1)(b) having regard to common general knowledge in the art in question and to the McVicker document cited above, and
  - (iii) the invention claimed is excluded from being patentable by virtue of section 1(2).

The patent in suit relates to a measuring instrument to provide a measurement of the heating (or cooling) requirement faced by a heating (or air-conditioning) system as a result of changing values of ambient air temperature. The measurement concerned is the integral over time of the difference between ambient temperature and a desired reference temperature expressed in terms of degrees centigrade and days, referred to as degree days. To provide an accurate measurement, the instrument has a temperature sensor which continuously senses ambient temperature. The sensed temperature is compared with a reference temperature which may be set using a keyboard, eg at 15.5°C, and whenever the sensed temperature differs from the reference temperature the temperature difference is integrated over time. The start and finish times of the integration may be set using the keyboard and a memory may be provided to allow a user to obtain the integrated value over any chosen period of time.

The main claim of the patent reads as follows:-

1. An instrument for measuring degree days comprising temperature sensing

means continuously connected to a microprocessor or programmed to integrate temperature differential from a given reference temperature with respect to time when the sensed temperature lies to one side of the reference temperature in accordance with the equation:-

$$\frac{T_1}{T_0} = \frac{\sum \delta(t_r - t_m) \cdot \Delta T}{\sum \Delta T}$$

where  $T_0$  is the start time

$T_1$  is the finish time

$t_r$  is the reference temperature

$t_m$  is the measured temperature

and where  $\delta$

$$\begin{aligned} &= 1 \text{ for } t_r > t_m \\ &= 0 \text{ for } t_r < t_m \end{aligned}$$

to assess a heating requirement or where

$$\begin{aligned} &= 0 \text{ for } t_r > t_m \\ &= 1 \text{ for } t_r < t_m \end{aligned}$$

to assess a cooling requirement.

During the course of the hearing the meaning and scope of this claim was questioned in a number of respects. One question which arose was whether the use of the word "or", between 'microprocessor' and 'programmed' necessarily required that the instrument included a microprocessor to integrate the temperature differential or whether it was sufficient that the

instrument was programmed, in the sense of being merely arranged, to integrate the temperature differential.

However I do not think that I need to consider this issue in any detail because Mr McNeight indicated quite categorically that the patentees were relying on the equation or formula set out in the claim to characterise the invention, and made it clear that if Mr Vesma (or anyone else I presume) does not use this equation then he does not infringe the patent. Mr McNeight also maintained that the patent is essentially about how the data is analysed and the essence of the patentees' case is that the equation has been found to be useful. The standard approach to measuring degree days is to look at 24 hour intervals, whereas the invention makes it possible to look at any part of a day, the result being in degree days per day.

Mr Vesma argued that claim 1 does not make it clear that the integration interval is intended to relate to only part of a day and that any value calculated over less than a day would have no utility given that the application of the instrument was to heating or cooling systems in buildings which meant that it was essential to consider the variations of ambient temperature over a complete 24-hour cycle.

Having considered this, it seems to me that there is no inconsistency in the specification as to the form of the equation and claim 1 is quite clear, at least in that respect. It is also quite clear from the description that any chosen integration interval may be selected and that the denominator of the equation will be determined accordingly. It therefore follows from all this that the invention as claimed in claim 1 is an instrument characterised in that it operates in accordance with the equation as set out in the claim, though it produces a result expressed in degree days per day rather than degree days.

On that basis I will now proceed to consider the invalidity allegations made by Mr Vesma, the first of these being that the invention claimed is not new in the light of an article by I F G McVicker in the Journal of the Institute of Heating and Ventilation Engineers, November - December 1946, which describes a design for a degree-day measuring instrument. The instrument consists of an electrical resistance thermometer connected in a

voltage compensated Wheatstone-bridge circuit and having a temperature indicator with a pointer moving over a scale calibrated from 60°F down to zero. A chopper bar integrator has a wedge shaped bar which extends transversely across and above the temperature pointer and which is dropped into, and subsequently raised out of, contact with the pointer every three minutes thereby driving a ratchet mechanism which in turn drives the measuring dials of the instrument. The wedge shaped bar is arranged so that there is no movement of the ratchet when the pointer indicates a temperature of 60°F but, as the pointer moves down the temperature scale towards zero, the travel of the chopper bar, and hence of the ratchet and the measuring dials, increases until it is at a maximum at the lowest temperature. Thus, increments of degree days are automatically and periodically added to the measuring dials at temperatures below 60°F. The article appears to have been published in November/December 1946, a fact the Patentees did not dispute. The earliest priority date to which the invention could be entitled is 26 August 1983.

On the assumption that the invention claimed did not necessarily include a microprocessor, Mr Vesma's argument was that the invention was anticipated by McVicker which is clearly arranged to integrate temperature differential over time. As Mr Vesma helpfully pointed out, if one visualizes how the oscillating chopper bar in McVicker would move in response to a varying ambient temperature, the locus of movement of the chopper bar is exactly the diagram shown in Figure 2 in the present specification. However, while this is undoubtedly true, it is equally clear that, as Mr McNeight submitted, there is nothing in McVicker to indicate that the integration is to be performed in accordance with the equation set out in claim 1 of the patent. In particular, while McVicker discloses determination of an integral in accordance with the numerator of the claim 1 equation, it does not disclose division of this integral in accordance with the denominator of the equation and cannot therefore be regarded as demonstrating that the invention claimed is not new.

Turning now to Sauter Automation Limited's EY 2400 Substation, which Mr Vesma argues also anticipates the invention claimed, this is described in an attachment to a letter dated 28 April 1992 from Mr Clive Church, the Systems Engineering Manager of Sauter Automation, and is referred to by Mr Church in a statutory declaration. The attachment is said to be "a part copy of our "Substation Manual" dated December 1982", a fact to which

Mr Church attests in his statutory declaration. The patentees have not however admitted that the manual was made available to the public in 1982, or indeed at all. Mr Church's statutory declaration, having said that the Manual was produced in 1982, goes on to indicate that Mr Church found the copy of the manual in Sauter's repair workshops. Although this does not of itself indicate that the Manual was made available to the public, and although there is no evidence that the manual ever was made available to the public, Mr Church's statutory declaration further indicates that the Manual is cited with a view to providing confirmation of the fact that Sauter was prior to 1983 engaged in supplying to others Sauter outstations which comprised temperature sensors connected to microprocessors capable of being programmed to evaluate degree days.

While Mr McNeight ultimately did not dispute Mr Church's evidence that such outstations were supplied to the public prior to the priority date of the patent, he again rested his argument on the basis that there is no evidence to suggest that the Sauter outstations operated in accordance with the equation set out in claim 1 of the patent. In my view, this argument is again conclusive in that there is nothing in any of the evidence before me which indicates that the Sauter outstations operated in accordance with the equation set out in claim 1 of the patent. I therefore find that the allegation that the invention claimed is not new having regard to the Sauter outstations fails.

Similarly, I do not consider that the evidence supplied by Dr David Croghan shows that the present invention is not new. Dr Croghan's statutory declaration refers to a copy of his paper dated November 1978 and entitled "Summary of Projects in Energy Conservation". Dr Croghan cites paragraph 3A of his paper as support for the proposition that the concept of a digital temperature recorder was known, and paragraph 3D as dealing with the concept of the application of digital technology to an instrument measuring degree days.

Paragraph 3A of the paper refers simply to a prototype electronic memory circuit incorporated into a temperature monitoring 'bug' which, after a period spent recording temperature in a building, may be "debriefed" through a chart recorder or digital processor. Paragraph 3D refers to the then currently known system of basing degree days measurements on centrally obtained, regional temperature figures as unsatisfactory and proposes a "building

envelope analogue fully sensitive to wind, rain, sun and air temperatures" and with a digital display that "allows direct comparison between any time periods".

Dr Croghan then goes on to refer to an advertisement for the "Freeman Temperature Memory Recorder" published in the January 1981 edition of the "Energy Manager". The advertisement refers to the device being used for monitoring (temperature) over long periods and to providing "at a stroke - .... degree day data". Dr Croghan asserts that this shows that the concept of the Shirley Institute patent was not novel at the time the patent was applied for. However, while it is I think clear from Dr Croghan's evidence that digital instruments for monitoring temperatures and providing degree day data were known at the priority date of the present invention, there is nothing in the evidence which shows that these instruments operated in accordance with the equation in claim 1 of the patent. Consequently I find that this allegation of want of novelty has also not been made out.

Moving now to the arguments on inventive step, Mr Vesma submitted that those skilled in the art would have considered it obvious at the priority date of the invention to collect and process degree day data electronically. However, Mr McNeight again rested his case on the equation in claim 1 of the patent which he argued was not shown or suggested by any of the prior art cited by Mr Vesma. In this respect, I think the closest art is that shown in the McVicker article which would clearly operate in accordance with the numerator of the claim 1 equation. If all that the invention did was to substitute electronic equivalents for the electromechanical parts of McVicker, there might be no dispute that the present invention does not involve an inventive step, though as Mr McNeight rightly pointed out, the McVicker instrument was only a prototype and was not an instrument in wide use. However, taking the view that the essence of the invention resides in the use of the equation in claim 1, and specifically the denominator of that equation, I see nothing in any of the evidence that Mr Vesma has adduced which suggests that it would have been obvious. Indeed, the fact that Mr Vesma, who clearly has considerable skills and experience in this particular field, had some difficulty in appreciating that this was indeed the heart of the invention, would seem to suggest that the invention is far from obvious.

Finally, I must deal with Mr Vesma's argument that the present invention is excluded from patentability by section 1(2) of the Act. Section 1(2) reads:

"It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -

- (a) a discovery, scientific theory or mathematical method;
- (b) ...
- (c) a scheme, rule or method for performing a mental act, playing a game, or doing business, or a program for a computer;
- (d) the presentation of information;

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such."

Mr Vesma argued that the invention amounted to a commonplace arrangement of staple electronic components programmed to evaluate a particular function and that consequently, the invention amounted to a computer program and was therefore excluded by virtue of section 1(2)(c). Mr Vesma also suggested that the overall function of the invention was simply to present information and that consequently, it might well be excluded by virtue of section 1(2)(d) on those grounds also.

On the other hand, Mr McNeight argued that the invention claimed was not simply a computer program, or indeed any other excluded item, but was an instrument consisting of temperature sensing means continuously connected to a microprocessor or programmed to integrate in a certain way and that accordingly, the invention could not be said to be excluded on the basis that it is a disguised claim to a computer program. This reference to a disguised claim to a computer program is derived from the judgment of Fox LJ in Merrill Lynch's

Application [1989] RPC page 561, though this was not referred to at the hearing. In his judgment at page 569 Fox LJ said:-

".... it seems to me to be clear, for the reasons indicated by Dillon L J, that it cannot be permissible to patent an item excluded by Section 1(2) under the guise of an article which contains that item - that is to say, in the case of a computer program, the patenting of a conventional computer containing that program. Something further is necessary. The nature of that addition is, I think, to be found in the Vicom case where it is stated: "Decisive is what technical contribution the invention makes to the known art". There must, I think, be some technical advance on the prior art in the form of a new result (eg., a substantial increase in processing speed as in Vicom)."

In the present case it seems to me to be clear that there is more than a program for a computer, or, for that matter, more than the presentation of information as such. What is claimed is a measuring instrument and although the instrument involves the use of a conventional microprocessor programmed to calculate a value in accordance with a mathematical expression, and although the instrument simply displays or otherwise provides the results of the calculation in the form of information, in my view the invention claimed involves a technical advance in the form of an improved measuring instrument. It therefore follows that I do not consider that the invention claimed is excluded from patentability by section 1(2).

In conclusion, then, I refuse the application for revocation and I direct that the applicant for revocation should pay the patentees, Shirley Institute, the sum of £250 (two hundred and fifty pounds) as a contribution towards their costs.

Dated the 18 day of February 1993

K E PANCHEN  
Superintending Examiner, acting for the Comptroller

PATENT OFFICE

