## IN THE CANADIAN PATENT OFFICE

## DECISION OF THE COMMISSIONER OF PATENTS

Obviousness- Spinner Nozzle Assembly for Cylinder Diagnosis

Patent application 584,632 having been rejected under Rules 47(2) of the patent Rules, the Applicant asked that the Final Action of the Examiner be reviewed. The rejection has consequently been considered by the Patent Appeal Board and by the Commissioner Of Patents. The findings of the Board and the ruling of the Commissioner are as follows:

Agent for Applicant

John Russell Uren c/o Russell & DuMoulin Suite 1500 1075 West Georgia Street Vancouver, B.C. V6E 3G2 Patent application 584,632 was filed on November 30, 1988 in the name of David N. Schuh, and is entitled "Spinner Nozzle Assembly for Cylinder Diagnosis". This decision deals with a request for a review by the Commissioner, under Section 47(2) of the Patent Rules, in respect of an Examiner's Final Action dated January 11, 1991. The Patent Appeal Board, comprised of Mr. F. Adams, Chair; Mr. M. Wilson and Mr. R. Kesten, Members, conducted a Hearing by teleconference on November 27, 1991, with Mr. John R. Uren, Patent Agent of the firm Russell & DuMoulin representing the applicant.

The application is directed to a nozzle assembly used for assisting in the diagnosis of cylinder condition, and to a method of wetting the walls of the cylinder of an engine with oil using the nozzle assembly. The application describes the flow rating technique of testing reciprocating engines to determine the condition of the cylinders as one in which both "dry" and then "wet" tests are conducted. The "wet" test involves the "wetting" of the cylinder walls with oil. This "wetting" is carried out by inserting an oil nozzle into the cylinder through the spark plug hole and emitting oil from the nozzle.

Figure 1 of the application shows a prior art device used to "wet" the cylinder wall, figure 2 shows the applicant's device in operation and figures 6A and 6B show the spinner portion of the nozzle.





The applicant explains that since oil nozzles, such as the one shown in Figure 1, emit oil only in a direction which is coaxial with the nozzle, the cylinder wall may not receive an even coating of oil, resulting in uncertainty in the test readings.

The applicant's nozzle assembly is shown in figure 2 and comprises a body portion 31, oil supply tube 24 and a spinner portion 32 mounted on the body portion and being rotatable about the longitudinal axis of the nozzle. There are liquid emitting holes in the spinner portion which are normal to the axis and through which oil is sprayed about a 360° arc as the spinner portion rotates about the axis. The wall of a cylinder is "wetted" by inserting the nozzle assembly through an access hole into the cylinder, oil under pressure is provided to the nozzle assembly and is sprayed from the spinner of the nozzle assembly in a direction substantially normal to the axis of the spinner about substantially 360°. In the embodiment of figures 6A and 6B, the spinner is round and composed of two identical halves 51 and 52, one half having oil conveying grooves 53 ground at four locations, the two halves being soldered or brazed together. An important aspect of this embodiment is that each half of the spinner has a portion of the annulus 60. Despite the importance attached to this feature, the reference number 60 which is mentioned in the disclosure does not appear on the drawings.

In the Final Action, the Examiner refused the claims and the application in view of the following citation:

Canadian Patent 720,014 October 19, 1965 Copeland et al

The inventors named in this patent are Copeland and Coe. At various times during the prosecution of this application, this patent is referred to as the Coe et al patent and at other times as the Copeland et al patent.



The Copeland patent relates to a rotary spray head which is adapted to be attached to the discharge end of a fluid conduit to effect a rotary spray from the end of the conduit. Figures 1 to 4 of that patent are shown above.

The rotary spray head is shown generally as element 10 in figure 1 and the spinner nozzle as element 28. The spinner nozzle is mounted on the end of the spray head and is supplied with pressurized liquid (specifically water) via tube 14, and holes 54. The liquid enters the annulus 32 and is sprayed through holes 52. Because the nozzle is rotatably mounted on the spray head, it is caused to rotate by the force of the pressurized liquid leaving the nozzle.

In the Final Action, the Examiner stated in part:

"Coe discloses essentially the same spraying structure as the present one.

That the present device is for spraying oil is not significant because an artisan is but expected to adapt a known spraying structure for a different liquid if a different liquid is to be sprayed.

That the present device is allegedly smaller than the reference device is also not patentably significant as modern technology and materials allow the manufacture of very small devices and elements and the utilization of such technology and materials is but expected of an artisan.

That the spinner is formed from at least two individual pieces is not patentably significant for the following reasons:

No where in the original disclosure is there a statement or indication that the two piece spinner is an important or essential part of the present alleged invention. In fact there is no indication in the original disclosure that the spinner shown in figure 4a and 4b is made from two pieces. Only on the last page 7 of the original disclosure is the two piece spinner mentioned and even then there is no indication that the two piece spinner is essential or important.

Therefore the original disclosure clearly does not describe the two piece spinner as an essential part of the present device and a patent can of course not be granted for non essential details or parts. Further patents are not granted for mere differences. To be patentable, a difference must be unobvious to a skilled artisan and must also constitute an advance or improvement over the prior art. The original disclosure does not describe the two-piece annulus as an improvement over the prior art, or in which respects or how it improves prior art devices. In fact only the spinner shown by figures 6A and 6B are (sic) described as comprising two identical halves. Therefore the original disclosure describes the two-piece spinner as a mere difference and patent cannot be granted for such a difference.

Aside from the content of the original disclosure no improvement or invention can be ascertained by simply substituting two-piece spinner for the known one-piece spinner.

Even assuming that the disclosure described the two piece spinner as an essential requirement, then the resulting sprayer would still not have any patentable features simply because the two pieces of the spinner are soldered or brazed together, resulting in a unitary spinner as disclosed by Coe.

The fact that an article is manufactured by a different method from other similar articles does not render the article patentable. In order to be patentable an article must have different novel structural features from other articles."

In response to the Final Action, Applicant summarized the alleged invention, setting out the prior art method of injecting oil into the cylinder of a reciprocating engine and the shortcomings associated therewith, and reiterated the features of applicant's alleged invention which he stated were not shown in the Copeland patent. These include the liquid sprayed (water for Copeland and oil for Applicant), the reason for spraying (cleaning for Copeland and wetting for Applicant) and the construction of the spinner portion (one piece for Copeland and 2 pieces for Applicant).

The applicant's reply included the following:

"To make the annulus 60 inside the spinner 32 of the nozzle as large as possible given its small size, two individual pieces 51, 52 (Figures 6A and 6B) are used for the spinner. The reason two pieces must be used is set out in applicant's response dated December 28, 1989." In the December 28, 1989 response, Applicant stated:

"..an annulus is required in the spinner in order for the spinner to rotate by the pressure of the oil being emitted from the holes. Coe et al teach a <u>single piece</u> being used for the spinner or rotary spray head as is clear from the section lines of Figure 3 and the absence of any contrary teachings in the specification. In order for Coe et al to form their single piece spinner, it is necessary for them to utilize a boring tool, such tool to be inserted along the axis of the spray head 28 about which the spray head rotates and, subsequently, to remove material which thereby forms the annulus 32.

For the tool to be made small enough to be inserted into a spark plug hole in order to perform engine diagnoses, it is practically impossible to form an annulus in a spinner from a single piece of material since the boring tool necessary to form the annulus is simply too large to be inserted along the axis of rotation and, thereafter, extend outwardly therefrom to form the annulus so that the necessary material can be removed."

In the reply to the Final Action, Applicant also stated:

"The Copeland et al Canadian Patent 720,014 teaches a rotary spray head 10 which provides a rotary spray of <u>water</u> in which it is designed to assist in the <u>cleaning</u> of the interior of closed vessels such as tanks, conduits and the like. The annulus 32 is contained within the spinner 28 which is made from a <u>single</u> piece of material. Copeland et al do state that one of their intentions is to "construct...[the rotary spray head] in a manner whereby its maximum diameter is maintained at a minimum..." but they do not contemplate or disclose a spinner made of two pieces.

There is no suggestion whatsoever in Copeland et al that oil could be used and, indeed, since the Copeland et al apparatus teaches <u>cleaning</u> the interior of closed vessels, oil clearly would not even be contemplated by Copeland et al. This reference, therefore, teaches <u>away</u> from the use of oil in a cylinder. Furthermore, Copeland et al teach a single piece spinning nozzle not a two piece nozzle as required by the claims. Since the boring tool used to machine the annulus of the Copeland et al spinner must be a certain minimum size, the Copeland et al reference would be too large to insert through a spark plug hole and would, therefore, be <u>inoperable</u> in the operating environment intended for the present invention."

The issue before the Board is whether or not claims 1 to 7 are patentable over the cited art and whether the application discloses anything patentable over that art.

Claim 1 is directed to the nozzle assembly and reads as follows:

A nozzle assembly for use in diagnosing an engine cylinder comprising means for supplying oil to a body, a spinner mounted on said body and being rotatable about an axis parallel to the axis of said cylinder when said nozzle assembly is inserted into said cylinder, said spinner having an annulus, oil emitting holes in said spinner being offset from and extending substantially perpendicular to said axis so as to emit oil onto the walls of said cylinder, said oil emitting holes communicating with said annulus, said spinner comprising at least two individual pieces joined together to form said spinner, each of said pieces including a portion of said annulus.

Claim 5 is directed to a method of wetting the walls of an engine cylinder and reads as follows:

A method of wetting the walls of an engine with oil comprising the steps of inserting a nozzle assembly through an access hole into said cylinder, providing oil under pressure to said nozzle assembly, and emitting oil from a spinner about an axis parallel to the axis of said cylinder, said oil being emitted by said spinner in a direction about substantially 360 degrees.

The applicant has highlighted what he considers to be the differences of the alleged invention over the prior art as shown in the Copeland et al patent as being: use of the device, the operating environment, the liquid used and the non-unitary construction of the spinner.

It is the opinion of the Board that the use of the device in the specific environment is not an unobvious solution to the problem of uniformly wetting or spraying cylinder walls evenly. The well known way in which the oil was admitted to the cylinder in the past was by inserting an oil can spout or nozzle through an access opening i.e. a spark plug opening, and injecting oil. Confronted with the problem of uneven distribution of liquid through the use of a static oil injecting device, a person skilled in the art of nozzles would have no trouble in using a rotary spray head such as shown in Copeland. The Board believes that this skilled person would be led directly and without difficulty to the use of a spinner having the attributes disclosed by the applicant. Indeed, nozzles of this type are well-known and have been designed precisely for the purpose of ejecting a liquid about a 360° arc which is perpendicular to the axis of the nozzle.

The Copeland et al patent discloses the concept of spraying the walls of a closed vessel with a liquid, albeit for the purpose of cleaning the interior of the vessel, and for <u>evenly discharging</u> <u>the fluid</u>. This even discharge of fluid would translate into an even coating of fluid on the walls of cylindrical vessels. Furthermore, the fluid used, in applicant's case oil, is dictated by the environment and the problem i.e. use of oil to carry out "wet" test of cylinders. Copeland sprays water while the applicant sprays oil. However, there is no indication in Copeland that the spinner nozzle is specifically adapted to spray only water. Likewise, applicant makes no mention of how his nozzle is specifically adapted to spray only oil. It would appear that the choice of liquid is based only on the application and that this type of nozzle can be used with whatever liquid is appropriate. Applicant has not specifically modified his nozzle to spray oil. In <u>Detroit Rubber Products Inc. v Republic Rubber</u> <u>Co.</u>, [1928], Ex.C.R., 29 at 33, Audette J. stated

The application of a well-known contrivance to an analogous purpose, without novelty in the mode of application, is not invention and is not a good ground for a patent.

Applicant argues that the Copeland et al device would be inoperable if intended to be used for engine diagnosis since the apparatus could not be inserted into an engine cylinder through a spark plug hole because it is too big. Applicant reasons that the spinner requires an annulus to provide rotation by oil pressure and must be made small enough in diameter to fit through a spark plug hole. Further, a single piece spinner would be nearly impossible to produce since all known boring tools are too large to be inserted along the axis of rotation of a very small spinner. Applicant solves this problem by providing a spinner which is formed from two pieces soldered or brazed together.

The Board notes that the embodiment claimed, including a spinner comprised of two parts that are soldered or brazed together, is one of the embodiments disclosed in this application. The other embodiment which is disclosed and illustrated in the application includes a one piece spinner which has a cavity located in the spinner to receive the oil and cause the spinner to spin. From this description it is evident that this spinner has an annulus which performs the same function as the annulus in the two piece spinner. There is no mention of any special manufacturing techniques being employed to make this spinner nor any problems in making it small enough to fit through spark plug hole. This leads the Board to conclude that this spinner is made using standard manufacturing methods.

As a result, the Board is not convinced that it would be almost impossible to produce a very small unitary spinner which could fit through a relatively small hole, such as a spark plug hole, as stated by the Applicant in the response dated December 28, 1989. The use of a two piece device which is soldered or brazed together to form a unitary apparatus instead of a unitary device is merely a matter of choice. Either type of spinner would achieve the desired result and it is within the purview of a skilled worker to choose the most convenient method of manufacture. This choice does not require inventive ingenuity.

In summary the Board believes that the changes made to the prior art devices described in the present application do not constitute inventiveness.

Therefore, it is recommended that the decision in the Final Action to refuse the application be affirmed.

Adams Chairman Patent Appeal Board

Wilso Μ. Member Patent Appeal Board Patent Appeal Board

R. /Kesten Member

I have reviewed the prosecution of this application and concur with the reasoning and findings of the Board. Accordingly, I refuse to grant a patent on this application. The applicant has 6 months within which to appeal this decision under the provision of Section 41 of the Patent Act.

M. Leesti Commissioner of Patents

Dated at Hull, Quebec this 18th day of May 1993