

COMMISSIONER'S DECISION

Sec. 2; Sec. 36 - Improper Combination

The application relates to the repair of tubes in a heat exchanger. Claims were rejected as defining an improper combination of a tool and a workpiece. The tool consists of an exploding plug and a plurality of support means while the workpiece is the heat exchanger to be repaired by the use of the tool.

Final Action: Affirmed

Patent application 298,822 (Class 26-145), was filed on March 13, 1978 for an invention entitled "Support Plug." The inventor is Gordon C. Larzon, assignor to (The) Babcock & Wilcox Company. The Examiner in charge of the application took a Final Action on November 30, 1979 refusing to allow it to proceed to patent. In reviewing the rejection, the Patent Appeal Board held a Hearing on January 19, 1981 at which the Applicant was represented by Mr. R.A.R. Parsons.

The application is directed to an arrangement for supporting tubes in a heat exchanger, which tubes surround a leaky tube to be sealed by an explosive activated plug.

In the Final Action the Examiner refused claims 1 to 6 as defining an improper combination of a tool and a workpiece. The tool is made up of an explosive plug and a plurality of supporting means. The workpiece is a heat exchanger to be repaired by use of the tool. He went on to say (in part):

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Claim 1 defines a combination of a pressure vessel and a plurality of support plugs inserted in certain tubes in the vessel. The pressure vessel is a workpiece which is to be repaired. The plugs are part of a set of tools to be used in the repair of the vessel. During performance of the repair method, the plugs are temporarily located in the tubes adjacent the tube to be repaired. This is a transient combination which exists only during the performance of the repair procedure.

The Patent Act provides for claims which define a method or process, a product resulting from a method or process and apparatus capable of performing or being employed in a method or process. Applicant's attention is directed

to Form 22 of the Patent Rules where examples of such claims are provided.

Applicant's invention, as stated at page 1, is "...an apparatus and method wherein distortion of the adjacent tubes and tube sheet ligaments by the explosive force is substantially minimized". The method aspect of the invention is claimed in claims 7 to 10.

If applicant considers that his apparatus for performing the method is inventive he may present claims to the apparatus. Similarly, if he deems the repaired product to be inventive, he may present claims to this product and may include therewith those tools which remain with the vessel after repair.

However, under no circumstances may the damaged pressure vessel be included in a claim. The vessel, prior to repair, does not represent any aspect of the invention. To include with it some of the repair tools does not lend any patentable distinction to the damaged vessel.

Claims 1 to 6 are rejected on the grounds of failure to define a patentable combination and failure to define either a product or an apparatus representative of the invention.

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In response to the Final Action the Applicant had inter alia this to say:

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It is also respectfully requested that the Commissioner review the Examiner's action in rejecting claims 1 to 6 of the present application for being directed to an improper combination of a tool and a workpiece.

It is submitted that there is no statutory nor common law authority for such a rejection. The Examiner has not specified which section of the Patent Act, or which Rule under the Act he relies upon to support his rejection, nor has he cited any precedent for such a rejection. The only reference made by the Examiner to the Patent Rules in his rejection of the claims is to Form 22, which includes examples of permissible claims. It is however submitted that the examples given in Form 22 are manifestly not exhaustive of the types of claims which may be permitted, and the Examiner appears to concede this by admitting the admissibility of forms of claim other than the types shown in Form 22. It is not in any event conceded that the claims rejected in the present application fail to accord with the precedents suggested in Form 22. Both the exemplary apparatus and article claims consist of combinations of co-acting parts, just as in the present application. It is therefore submitted that the claims comply with the requirements of Rule 33.

It is furthermore submitted that the rejected claims comply with the requirement of Section 36(2) of the Patent Act, which states (emphasis added) "The specification shall end with a claim or claims stating distinctly and in explicit terms the things or combinations that the applicant regards as new and in which he claims an exclusive property or privilege." It is further submitted that the subject matter of the rejected claims is an invention within the meaning of Section 2 of the Patent Act in that it is a new manufacture or an improvement in a manufacture.

Applicant's agents are not aware of any precedent suggesting that claims such as those under rejection can not properly be allowed in a patent application, nor has review of the Manual of Patent Office Practice indicated that the rejected claims fall in any of the categories indicated as improper in that publication. It is submitted that the rejected claims are directed to a true combination within the meaning of paragraph 8.05 of the Manual, and they are not directed to an exhausted combination as defined in paragraph 8.05.01, which states "An inventor is entitled to claim his invention, be it apparatus, product or method, and its immediate and cooperating environment" (emphasis added). In the present case, all of the parts of the claimed combination cooperate to produce a unitary and practical result that is not the sum of the known characteristics of the parts. The pressure vessel is an essential part of the combination without which the desired cooperation can not take place.

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The consideration before the Board is whether or not claims 1 to 6 are proper combination claims. Claim 1 reads:

In combination with a pressure vessel comprising tube sheet means transversely arranged therein, a plurality of fluid conveying tubes disposed within the vessel, the tubes having their ends connected to the tube sheet means, and including explosive activated plugs disposed for insertion into the ends of a leaky tube, means for detonating the explosives in inserted plugs to fix the plugs to the surrounding tube walls thereby sealing the ends of the leaky tube, the improvement comprising means for supporting the tube sheet means and the ends of tubes adjacent to the leaky tube during detonation of the explosive, the supporting means including support plugs inserted into the ends of said adjacent tubes.

At the Hearing Mr. Parsons argued that, in his view, claims 1 to 6 properly define the invention described in the disclosure. He also discussed Form 22 and the sample claim therein which defines an operable tool for driving posts. He went on to say that present claim 1 is somewhat akin to that sample claim. We hasten to add, however, that the sample claim does not include the post in the combination, which, if it did, would then bring it closer in line with what the Applicant is attempting to claim.

It is clear that if there is no patent utility for the subject matter defined in a claim then it is an improper claim under Section 2 of the Patent Act. We believe that the decisional law in the United States setting forth and applying the principles governing the patentability of subject matter, in this area, is good law in Canada. For example, in Ex parte Howard 1924 CD 75 the legal principle is set forth as follows:

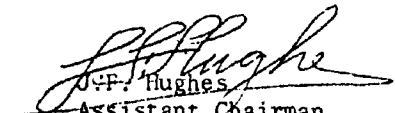
The article claims are drawn to a freely-falling drop or gob of molten glass. The drop exists as such only while falling to the mold. When it reaches the latter, it assumes a different shape, solidifies immediately, and is transformed into a completed article. In view of the decisions cited, I am of the opinion that it is the finished product that the patent statutes are designed to protect as 'manufactures' and not something which is produced at a particular stage of the manufacturing process and which is evanescent and adapted for use only in so far as it may enter into and be modified by subsequent steps of a method for producing a completed article.

In reaching this conclusion I am not unmindful of the fact that products of intermediate steps of a process or method may be inherently useful and new, and therefore may be patented as articles. Thus a roof is a 'manufacture' within the meaning of section 4886, Revised Statutes, and in constructing a roof the builder may also fabricate the clay tiles, beams, bolts, rivets, etc., used in forming the same, each of which would be intermediate products and, if new, patentable as a 'manufacture'. These articles, however, are inherently useful and complete in themselves. Nothing remains to be done to make a finished product. On the other hand the drop of glass claimed is in its temporary condition while being transformed into something else. The 'manufacture' is not yet made, the process of manufacturing is still incomplete.

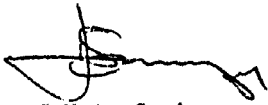
Mr. Parsons argued that the Examiner failed to point out a section of the Act which the claims offend. If it is an improper combination, the claimed subject matter does not satisfy Section 2 or Section 36 of the Patent Act. Claims 1 to 6 define a structure but rely upon a method step to provide a sealed tube in a heat exchanger. The structure is in a transitory stage instead of its final form with non-leaky tubes. The case thus hinges on the utility of the transitory structure, or transient combination as referred to by the Examiner, within the meaning of Section 2 of the Patent Act.

It is clear that any intermediate product can be acted on further in a process to turn it into a finished product. This feature of an intermediate product does not make it automatically a patentable intermediate product. Usefulness in further processing is implied in the definition of the expression "intermediate product", but such usefulness does not necessarily imply patentability. A further usefulness must be inherent in the intermediate product or the disclosure must assert the utility or indicate its use. The Applicant has not done this with respect to the subject matter of claims 1 to 6. Rather the best and only mode contemplated by the Applicant to carry out the invention is to place the explosive and support plugs into the tubes followed by detonation of the explosive charge. After insertion of the plugs into the heat exchanger the product is in a transitory stage toward a final useful product rather than a patentable intermediate product.

Although it may be common practice to patent commercial intermediate products which are finished at a later stage the present specification does not describe any commercial utility of the unactivated explosive plugs and support plugs in the pressure vessel assembly. We therefore conclude that the claimed arrangement is an intermediate transitory product with no inherent commercial use per se. (see Ex parte Howard, supra). Its transitory use, as mentioned, is in the chain or processing steps during manufacture of the final useful product. The new manufacture is not yet made and the process of manufacture is still incomplete in the transient arrangement of the tool and work piece. Claim 1, in our view, should therefore be refused for "failure to define a patentable combination." Dependent claims 2 to 6 further define the supporting means and should also be refused.


J.P. Hughes
Assistant Chairman
Patent Appeal Board, Canada

I have reviewed the prosecution of this application and considered the recommendation of the Patent Appeal Board. I concur with the reasoning and findings of the Board. Accordingly, I refuse to grant a patent on claims 1 to 6. The Applicant has six months within which to submit an appropriate amendment, or to appeal this decision under Section 44 of the Patent Act.



J.H.A. Gariepy
Commissioner of Patents

Dated at Hull, Quebec

this 5th. day of February, 1981

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