

**OPINION UNDER SECTION 74A**

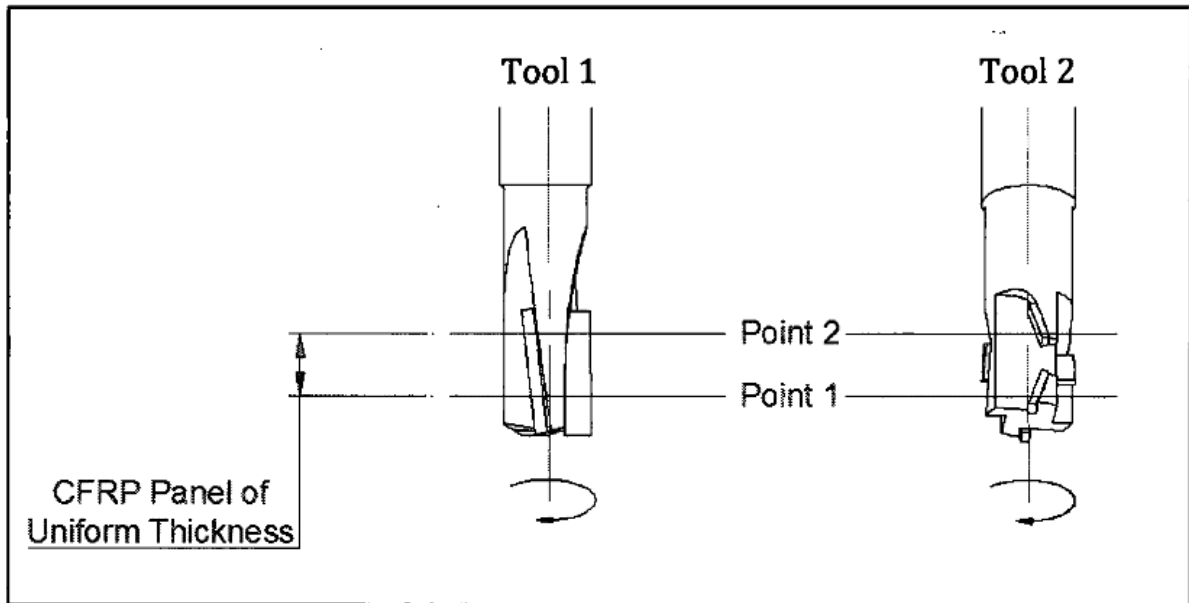
Patent	GB2404890
Proprietor(s)	Exactaform Cutting Tools Limited
Exclusive Licensee	None
Requester	Exactaform Cutting Tools Limited
Observer(s)	None
Date Opinion issued	20 January 2017

**The request**

1. The comptroller has been requested to issue an opinion as to whether the Patent, GB2404890 is novel and inventive in relation to a piece of prior art that Exactaform, the proprietor have provided. The Patent has a priority date of 7 August 2003, and was granted on the 5 July 2006.
2. No observations have been filed.

**Discussion**

3. The Patent relates to a cutting tool which has been designed to reduce fluttering when non-ferrous materials are cut. The Patent suggests that this is becoming an increasing problem as industries such as aviation use more materials such as carbon fibre.
4. The request notes a prior art router, which it suggests was designed for routing wood, and asks for an opinion as to whether the Patent is novel and inventive in relation to this document. I have no reason to believe that this alternative router was not as the requester suggests available before the priority date of the Patent.
5. In the request, Exactaform provide the following diagram of the two cutting tools, where they have labelled tool 1 as that in the Patent and Tool 2 as the woodworking tool prior art. I note that this representation of tool 1 is not one that was specifically included in the Patent.



6. Exactaform have alongside the request provided a sample tool, both of their product and of the prior art. This is of course helpful in gaining a rapid understanding of the nature of the tools concerned, however, I must of course rely on the Patent to understand what the scope of protection that it offers actually is.
7. The request notes a number of practical differences in terms of delaminating and forces generated by cutting edges of the two tools. I think that even looking at the two figures above, the clear differences in terms cutting edges of the woodworking tool are readily apparent.
8. However, in order to determine whether the Patent is novel and inventive, I will first need to construe the claims of the patent given that Section 125(1) of the Act states that:

*For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

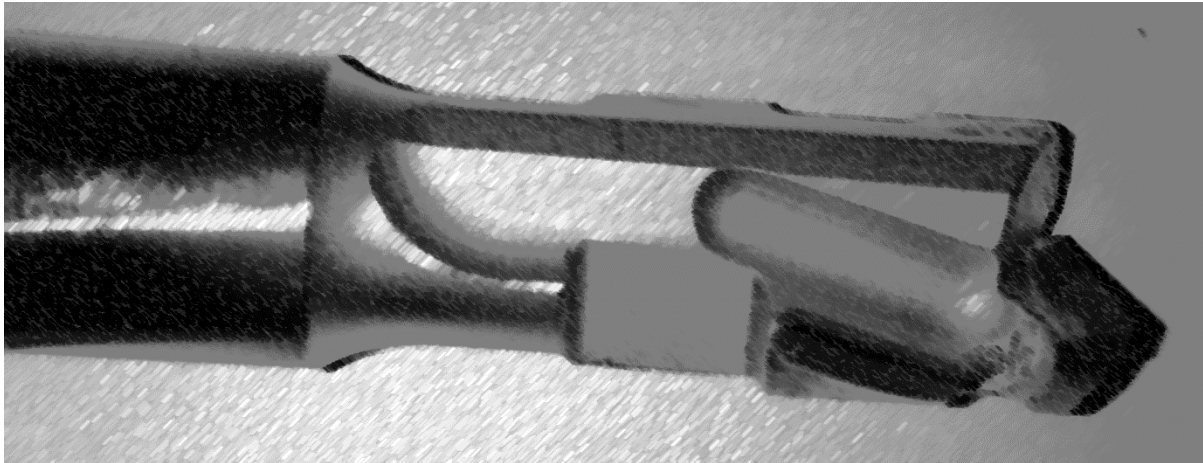
9. I shall therefore follow the well known authority on claim construction which is *Kirin-Amgen and others v Hoechst Marion Roussel Limited and others* [2005] RPC 9. This requires that I put a purposive construction on the claims, interpret it in the light of the description and drawings as instructed by Section 125(1) and take account of the Protocol to Article 69 of the EPC. Simply put, I must decide what a person skilled in the art would have understood the patentee to have used the language of the claim to mean.
10. The Patent has a single independent claim, six dependent claims and an omnibus claim. Normal practice in office opinions is not to consider omnibus claims in detail. So I shall turn to claim 1 first:

*A rotary cutting tool for a power tool, the cutting tool comprising:  
a body means having at least two flutes, each flute having a substantially  
planar cutting surface and a cutting edge formed at an angle to a longitudinal  
axis of the cutting tool on said cutting surface, wherein:  
the flutes are arranged spaced around the body means;  
and said angle of the cutting edge of each flute is different to said angle of  
the or at least one other cutting edge, thereby to apply a corresponding  
different force during operation.*

11. I do not think that anything in the claim causes a particular difficulty in terms of construction. It is clear that the claim covers an arrangement where flutes are provided, and that the cutting edge is at an angle to the axis, and that angle is different to at least one other cutting edge. It is perhaps worth noting, that where the claim requires “a” or “at least two”, that does not preclude the provision of further flutes, surfaces or edges.
12. There is perhaps one further issue in the claim, which I should note, and that is the final clause, which defines the cutting edges as providing corresponding different forces during operation.
13. In the sample that Exactaform provide, there are three flutes, one of which has a cutting edge along the same axis (effectively an angle of zero) as the longitudinal axis, and the other two cutting edges lean forward and backwards. In the Patent, these are described as upshear, neutral and downshear cutting edges, to indicate the direction of the shear force generated. Though the claim is not limited to this particular embodiment.
14. Whilst the objective of the invention is stated as being to reduce fluttering that results from excessive pressure, the Patent on page 6, suggests that this arrangement reduces the excess force. I do not take the terms “corresponding different force” to imply that there is a very narrow intent that the upward and downward forces should exactly balance out. Rather, it seems to me that the claim merely requires that the different cutting edges should not all create a force in the same direction.

## **The Prior Art**

15. When I turn to tool 2, the sample provided (photograph below) is perhaps clearer, than the figure. In the figure there are two cutting edges provided on the front of the tool, within a flute, where one leans forward and one backward, which will result in upshear and downshear forces. However, the figure does not go on to show the tool when rotated. In the sample provided, the flute on the reverse again has two cutting edges, one of which is at the base, and perpendicular to the axis, and a second at an acute angle to the axis.



(Photograph from the sample provided)

16. This means that the sample provides a flute on the reverse (as I have described it) and the front of the tool, each with a planar cutting surface and a cutting edge. This means that it provides all of the features specified by the claim. I therefore believe that claim 1 as currently worded is not distinguished from the sample of the prior art.
17. I shall therefore turn to the dependent claims. Claim 2 further specifies that there is a cutting surface in each of the first and second flutes, where they are inclined to the axis, in opposite directions. In the sample provided, as I have noted, one of the two cutting edges in the flute on the reverse (as in photograph above) is at an acute angle, which is aligned in the opposite direction to one of the two cutting edges on the opposite side (as shown in the figure above.) This means that the sample provides all of the features required in claim 2.
18. Claim 3 requires that a further cutting surface and edge is provided, and an additional flute. This must be read with the requirement of claim 1 that each flute has a cutting edge. In the embodiment of the Patent, there are three curved (but not helical) depressions in front of the three cutting edges. This allows the cut material to move away from the cutting edge. Such flutes, are typically spiral or helical.
19. Here, a determination is complicated by the compound nature of the grooves provided on opposite sides of the sample. In the figure above, the depression present in the sample in front of the two cutting edges is not shown. This further v shaped depression is aligned so that each arm of the v is parallel to the length of one of the two cutting edges. It is my view that this does not amount to a pair of separate flutes. I do not therefore believe that the sample provides all of the features of claim 3.
20. I have not been provided with any detailed argument on the question of inventive step in relation to this, or the other claims. However, it does not seem to me, prima facie, that the adaption of the prior art to have an additional flute would be obvious to the skilled man.
21. Claim 4 is dependent on claim 3, and is therefore similarly distinguished.
22. Claim 5 requires that the cutting surface is tipped with polycrystalline diamond. The opinion request does not identify whether the prior art tool has such a diamond, and I

am unable to determine what the cutting surface of the sample provided might be. I cannot therefore determine whether claim 5 is distinguished.

23. Again, I have not been provided with any detailed argument on whether this feature would be inventive. However, it seems to me that the use of polycrystalline diamond for a cutting edge would be part of the common general knowledge, and I therefore believe that the skilled man in the art of cutting tools would recognise that such a diamond cutting edge would be likely to be a suitable choice. I do not therefore believe that claim 5 provides an inventive step.
24. Claim 6 requires the provision of an additional transverse cutting edge, perpendicular to the longitudinal axis. The sample provided, has such an edge, on the reverse side as shown in the photograph above. I do not therefore believe that claim 6 is distinguished from the prior art provided.
25. Claim 7, is dependent on claim 6 and further requires that this transverse edge extend to the perimeter of the tool. It appears to me that the edge provided on the sample meets this further restriction.

## **Opinion**

26. It is therefore my view that claims 1, 2, 6 and 7 of the Patent, GB2404890, would not be novel in relation to the prior art provided. Furthermore, I believe that claim 5 is not inventive in relation to the prior art noted.

## **Application for review**

27. Under section 74B and rule 98, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

Robert Shorthouse  
Examiner

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## **NOTE**

*This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.*