

Structure and Connectivity in Patent Claims

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Patent claims are commonly understood to define the structure of an invention, and claim limitations should delineate the connections and relationships among claim elements. Occasionally, claims are rejected during examination as indefinite, with the Examiner pointing out that it is not clear how the claim elements are interrelated and interconnected and/or that there is insufficient structure in the claim. What sorts of claim amendments or arguments should be considered?

It may be a first instinct to add physical structure to the claims, such as fasteners or joiners for a mechanical invention or wires, busses or connectors for electronic invention, etc.

But, it may be equally valid to add functional connectivity and relationships among claim elements, without limiting to specific physical features. Choice of which to pursue should be carefully considered, so that claims are not unduly or inadvertently narrowed in areas where they don't need to be.

Here's an example for electronics. Suppose the claim has a first module and a second module, each with functions, and the claims are rejected as above. One type of amendment would be to say that the first module and the second module are each implemented using electronic hardware, software executing on a computer, etc., and the first module is coupled to the second module by a bus or a network.

Another way of handling this would be to say that the claim is now amended to recite a computing device having a first module and a second module, with the first module producing a first result and the second module performing a function on the first result to produce a second result. This connects the first module and the second module functionally, without limiting to the particular type of physical connection these modules have.

Next, an example for a mechanical article. Suppose the claim is of a handle, a body and an actuator and is rejected as above. One type of amendment would be to say that the handle and the body are coupled to each other at a particular range of angles and have a cable, a rod or an hydraulic line running from the handle through the body to the actuator, or an electric motor positioned in some manner. Perhaps the novelty is in the actuator itself. But this amendment doesn't emphasize the novelty of the actuator, and limits the claim to those particular added elements in combination with the actuator. Another way of connecting the base elements would be to add an amendment that says operating the handle transfers a force or a motion through the body to the actuator, resulting in the actuator performing a function. This functionally connects the handle, the body and the actuator, without limiting to the particular type of physical coupling of a specific embodiment.

Sometimes it is important to emphasize the physical structure connecting elements. A mechanical invention or electronic invention might function better with a certain type or class of connectors, a material might function better with a certain type of bonding or with a specific sequence of layers or class of materials for some of the connecting layers, and that would be a good way to claim any of these. But, look also at the functions that any of these perform, and see if it is possible to claim the connections functionally. Perhaps a good claim set has aspects of each of these.

Or, it may be possible to argue the claim already does the above and doesn't need amendment. By carefully explaining how certain limitations show connection from one element to another, and other limitations show relationship of one element to another, it may well be possible to argue that the claims have sufficient



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connectivity and show sufficient relations among the elements as to have sufficient structure for patentability. To amend, argue or both, and how, will be situation specific. This is all part of the art of patenting.

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