hub. The upper and lower bearings also engage respective hub shoulders so that they are gripped between a shoulder on a respective hub and a shoulder on a respective stub axle.

In all embodiments, the arrangement is such that a bearing and stub axle arrangement couples the shaft to upper/top and lower/bottom supports of the blower. The bearings and shaft can otherwise have similar configurations (although in this embodiment the shaft need not be hollow), and as such this arrangement still provides the same benefits as the previous embodiments. The shaft can be of similar diameter to the shaft in traditional topologies, which allows for robust mechanical coupling of the impeller. But, because the stub axles can be thinner than the shaft and extend into the bearings, the diameter of the shaft is not dictated by the inner diameter of the bearings. The outer diameter of the shaft can then be a suitable size to allow for a robust impeller coupling, e.g. about 5mm, or alternatively from about 3mm to about 5mm A larger diameter shaft can still be used without dictating the bearing diameter size, because the bearings are off the shaft. The size of the bearing (e.g. the diameter size) can therefore be selected based on acceptable bearing speed. Similarly, the magnet/rotor 90 is pressed into the shaft. Similar advantages apply here, where the shaft can be a suitable size to allow for robust coupling.

The embodiments above show some examples of the shaft, stub axle and bearing arrangement that provide the advantages of the present invention. However, these embodiments are not exhaustive. More generally, it will be appreciated that other embodiments are also possible, with any combination of the following configurations:

- bearings in the shaft, or alternatively bearings on the top/bottom support
- stub axles in the top/bottom support, or alternatively stub axles on the shaft
- hollow, partially hollow, or solid shaft.

As an example, and referring to Figure 12A, in some embodiments, the blower has a hollow shaft 27, bearings 28 at either end of the shaft, and stub axles 29a, 29b on the top/bottom support.

As another example, and referring to Figure 12B, in some embodiments, the blower has a solid shaft 111, stub axles 112 on either end of the shaft 111, and bearings 110 on the top/bottom support. As illustrated in Figure 12B, the stub axles 29a, 29b in the impeller are rigid and the top/bottom supports have a resilient "cup" 220 to accept the bearing. The resilient material of the cup 220 is thin, and is just visible in the cross-section view. Alternatively, as previously described, the stub axles 29a, 29b are made of resilient material.