CLAIMS

1. A blower for a breathing apparatus comprising:
a bottom support for a shaft,
a top support for a shaft,
a motor core comprising a stator and rotor,
an impeller coupled to the motor core via a shaft,
wherein the shaft is rotatably coupled at a first end via a stub axle and bearing arrangement to the top support and at a second end via a stub axle and bearing arrangement to the bottom support,
wherein each stub axle is compliant and/or resilient, and
wherein each stub axle has a friction fit with the respective bearing arrangement.

2. A blower according to claim 1 wherein each bearing comprises an inner race and an outer race, and each stub axle couples to the respective inner bearing race.

3. A blower for a breathing apparatus according to claim 1 or 2 wherein the shaft is rotatably coupled at the first and second ends to the stub axles by bearings in the shaft.

4. A blower according to claim 3 wherein each stub axle is in the form of a protrusion that extends into and couples to the respective inner bearing race.

5. A blower according to claim 4 wherein the stub axles are solid and/or rigid and are over moulded with a resilient and/or flexible material.

6. A blower according to claim 4 wherein each stub axle is formed from an elastomer or other compliant and/or resilient material and has a friction fit within the respective inner bearing race.

7. A blower according to claim 1 or 2 wherein the shaft is rotatably coupled at the first and second ends to the top and bottom supports by stub axles and bearings in the top and bottom supports.

8. A blower according to any preceding claim wherein each stub axle comprises a shoulder that is formed by a flange, stepped portion or a taper.

9. A blower according to any preceding claim wherein the stub axle is thinner than the shaft.

10. A blower according to any preceding claim wherein the shaft maximum diameter size is independent of the bearing diameter size.

11. A blower according to any preceding claim wherein the blower is an axial inlet/axial outlet blower.

12. A blower according to any preceding claim wherein the blower is a single stage axial inlet/axial outlet blower, or the blower is an axial inlet/radial outlet or tangential outlet blower.

13. A blower according to any one of claims 1 to 10 wherein the blower is a single stage axial inlet/radial outlet or tangential outlet blower.

14. A blower according to any preceding claim wherein the impeller is integrally formed with the shaft or is coupled via a press-fit, over moulding or glue.

15. A blower according to any preceding claim wherein the rotor or magnet is press-fit on the shaft or coupled via over moulding or glue.