CLAIMS

1. A machine tool comprising: a tool holder (14) mounted to a platform (9), and a plurality of legs (1) extending from respective positions on the platform for connecting the platform to respective positions on a workpiece, each leg having a first joint system (8a) at its platform end allowing each leg to pivot relative to the platform, each first joint system having an actuator arrangement (34) having a first operating mode in which the actuator arrangement is configured to apply a load to move the respective leg, and a second operating mode in which the actuator arrangement is configured to allow free movement of the respective leg.

2. A machine tool according to claim 1 wherein each leg comprises a second joint system (8b) at its workpiece end, the second joint system allowing the respective leg to pivot relative to the workpiece.

3. A machine tool according to claim 2, wherein each leg is actuable when the actuator arrangement (34) of the first joint system (8a) is in the second operating mode to alter the inter-joint distance between the first and second joint systems, such that by coordinating alterations in the inter-joint distances of one or more legs, the position and orientation of the tool holder (14) relative to the workpiece is controllable.

4. A machine tool according to any of the preceding claims, wherein each leg further comprises at its workpiece end an attachment foot (4) for removably attaching the respective leg to the workpiece.

5. A machine tool according to any of the preceding claims, wherein the legs extend from respective spaced positions around the perimeter of the platform.

6. A machine tool according to any of the preceding claims, wherein the machine tool has four or more legs, and may have six legs.

7. A machine tool according to any of the preceding claims, wherein one or more of the legs has telescopically linked sections (2, 3) which allow alteration of their inter-joint distances.

8. A machine tool according to any of the preceding claims, wherein one or more of the legs has hinged sections (448, 449) which allow alteration of their inter-joint distances.

9. A machine tool according to any of the preceding claims, wherein the first joint system comprises a ball and socket joint (32a, 33a), and the actuator arrangement may comprise a plurality of control cables (35a, 35b, 35c).

10. A machine tool according to claim 9, wherein a first end of each control cable is attached to the platform, and a second end of each control cable is attached to a respective leg such that, in the first operating mode, selective tensioning of one or more control cables causes pivoting movement of the respective leg.

11. A machine tool according to claim 10, wherein the actuator arrangement (34) is configured to the first operating mode by tensioning of one or more of the control cables, and is configured to the second operating mode by slackening of each of the control cables.

12. A machine tool according to any of claims 1 to 8, wherein the actuator arrangement (134) comprises an engagement member (140) mounted to the platform by a mounting arrangement (141), the engagement member being configured in the first operating mode to selectively apply pressure to a respective leg in a direction substantially normal to the leg axis.

13. A machine tool according to claim 12, wherein a first end of each engagement member (140) is configured to be slidably moveable relative to one of a surface of the respective leg and the mounting arrangement normal to the direction of pressure, and a second end of each engagement member is configured to be slidably moveable relative to the other of the respective leg and the mounting arrangement along the direction of pressure, and pivotably moveable relative to the other of the respective leg and the mounting arrangement.

14. A machine tool according to claim 12, wherein the actuator arrangement comprises a linear actuator (143) configured to move the engagement member (140) to apply pressure to the respective leg.

15. A machine tool according to claim 14, wherein the actuator arrangement is configured to the first operating mode by moving the engagement member to an engaged position, and is configured to the second operating mode by moving the engagement member to a disengaged position.