CLAIMS

1. An actuator and counterbalance system comprising:

a nonmobile carrier;

a mobile carrier, mobile relative to the non mobile carrier; and

a counterbalance system in operable communication with the mobile carrier and configured to counterbalance less than 100 percent of a return force of a tool actuated by the actuator.

2 An actuator and counterbalance system as claimed in claim 1 wherein the counterbalance system comprises a magnet field producing structure positioned in spaced relationship to the mobile carrier when the actuator is unactuated and a proximate relationship to the mobile carrier when the actuator is actuated.

3 An actuator and counterbalance system as claimed in claim 1 wherein the counterbalance system comprises a magnet field producing structure positioned at an end of the mobile carrier.

4 An actuator and counterbalance system as claimed in claim 2 wherein the magnetic field producing structure comprises one or more permanent magnets.

5 An actuator and counterbalance system as claimed in claim 2 wherein the magnetic field producing structure comprises a single permanent magnet.

6 An actuator and counterbalance system as claimed in claim 2 wherein the magnetic field producing structure is one or more coils.

7 An actuator and counterbalance system as claimed in claim 3 wherein the magnetic field producing structure comprises one or more permanent magnets.

8 An actuator and counterbalance system as claimed in claim 3 wherein the magnetic field producing structure comprises a single permanent magnet.

9 An actuator and counterbalance system as claimed in claim 3 wherein the magnetic field producing structure is one or more coils.

10 An actuator and counterbalance system as claimed in claim 1 wherein the counter balance system is mounted to the nonmobile carrier.

11 An actuator and counterbalance system as claimed in claim 1 wherein the counterbalance system is greater than about 75 percent and less than 100 percent of a return force of the tool actuated by the actuator.

12 A method for reducing power consumption in an electrical actuator used to actuate a tool comprising;

powering an electrical actuator;

moving a component of a tool attached to the actuator; and

maintaining the actuator in an actuated position with a counterbalance system having a holding capacity of less than 100 percent of a return force of a component of the tool actuated by the actuator.

13. An actuator and counterbalance system comprising:

a nonmobile carrier;

a mobile carrier, mobile relative to the non mobile carrier;

a first portion of a counterbalance system in operable communication with the mobile carrier and configured to counterbalance less than 100 percent of a return force of a tool actuated by the actuator; and

a second portion of the counterbalance system configured to hold the balance of the return force not held by the first portion of the counterbalance system.

14. A counterbalance system comprising:

a first structure being one of receptive to a magnetic field or configured to produce a magnetic field; and

a second structure being one of receptive to a magnetic field or configured to produce a magnetic field, one of the first structure and the second structure being in operative communication with a mobile portion of an actuator system and the other of the first structure and the second structure being positionally fixed relative to the actuator, the first structure and the second structure when brought together being attractive to one another sufficient to produce a force of less than 100 percent of a return force in a tool actuated by the actuator.

CLAIMS

1. A counterbalance system comprising:

a first structure being one of receptive to a magnetic field or configured to produce a magnetic field; and

a second structure being one of receptive to a magnetic field or configured to produce a magnetic field, one of the first structure and the second structure being in operative communication with a mobile portion of an actuator system and the other of the first structure and the second structure being positionally fixed relative to the actuator, the first structure and the second structure when brought together being attractive to one another sufficient to produce a force of less than 100 percent of a return force in a tool component actuated by the actuator, both the first and the second structures being separate from a powered assembly for the actuator system.

2. An actuator and counterbalance system comprising:

an actuator including:

a nonmobile carrier;

a mobile carrier, mobile relative to the nonmobile carrier;

a powered assembly operatively arranged for moving the mobile carrier;

a first portion of a counterbalance system in operable communication with the mobile carrier and configured to counterbalance less than 100 percent of a return force of a tool component actuated by the actuator, the first portion separate from the powered assembly of the actuator; and

a second portion of the counterbalance system configured to hold the balance of the return force not held by the first portion of the counterbalance system, the second portion separate from the powered assembly of the actuator.

3. An actuator and counterbalance system as claimed in claim 2 wherein the counterbalance system is mounted to the nonmobile carrier.

4. An actuator and counterbalance system as claimed in claim 2 wherein the counterbalance system comprises a magnet field producing structure positioned in spaced relationship to the mobile carrier when the actuator is unactuated and a proximate relationship to the mobile carrier when the actuator is actuated.

5. An actuator and counterbalance system as claimed in claim 4 wherein the magnetic field producing structure comprises one or more permanent magnets.

6. An actuator and counterbalance system as claimed in claim 4 wherein the magnetic field producing structure comprises a single permanent magnet.

7. An actuator and counterbalance system as claimed in claim 4 wherein the magnetic field producing structure is one or more coils.

8. An actuator and counterbalance system as claimed in claim 2 wherein the counterbalance system comprises a magnet field producing structure positioned at an end of the mobile carrier.

9. An actuator and counterbalance system as claimed in claim 8 wherein the magnetic field producing structure comprises one or more permanent magnets.

10. An actuator and counterbalance system as claimed in claim 8 wherein the magnetic field producing structure comprises a single permanent magnet.

11. An actuator and counterbalance system as claimed in claim 8 wherein the magnetic field producing structure is one or more coils