

Amendments to the Claims:

1. (Currently Amended) A safety arrangement for use with a piece of equipment, the safety arrangement comprising:

a signal generating unit for generating an optical signal;

an elongate element to be permanently disposed along, about, around or through the piece of equipment and positioned and oriented so that an operator can manually pull the elongate element to alter an operating condition of the piece of equipment, the elongate element being capable of transmitting an optical signal; and

a signal detecting unit for detecting an optical signal;

the signal generating unit being connected to the signal detecting unit by the elongate element, such that the signal detecting unit is in optical communication with the signal generating unit, the signal detecting unit being arranged to detect a change in the optical signal transmitted by the elongate element as a consequence of movement of the elongate element by interaction from the operator and, upon detection of the change in the signal, the detecting unit is configured to effect a change in the operation of the piece of equipment.

2. (Original) A safety arrangement as claimed in claim 1, wherein the piece of equipment is a conveyor belt.

3. (Original) A safety arrangement as claimed in claim 1, wherein the signal generating unit comprises a laser.

4. (Original) A safety arrangement as claimed in claim 1, wherein the signal detecting unit comprises a photo detector.

5. (Original) A safety arrangement as claimed in claim 1, wherein the elongate element comprises an optical fibre.

6. (Original) A safety arrangement as claimed in claim 5, wherein the optical fibre extends along a support cable.

7. (Original) A safety arrangement as claimed in claim 6, wherein the support cable is provided with protrusions.

8. (Original) A safety arrangement as claimed in claim 6, wherein the support cable is electrically conductive.

9. (Original) A safety arrangement as claimed in claim 1, wherein the elongate element comprises two optical fibres.

10. (Original) A safety arrangement as claimed in claim 1, wherein the detecting unit is, upon detection in the change of the optical signal, configured to directly affect the operation of the piece of equipment.

11. (Original) A safety arrangement as claimed in claim 1, wherein the detecting unit is, upon detection in the change of the optical signal, configured to indirectly affect the operation of the piece of equipment.

12. (Original) A safety arrangement as claimed in claim 1, wherein upon detection of the change in the signal, the detecting unit is configured to effect the prevention of the supply of power to the piece of equipment.

13. (Original) A safety arrangement as claimed in claim 1, wherein upon detection of the change in the signal, the detecting unit is configured to effect the prevention of movement of at least a part of the equipment.

14. (Currently Amended) A piece of equipment provided with a safety arrangement, the safety arrangement comprising:

a signal generating unit for generating an optical signal;

an elongate element to be disposed along, about, around or through the piece of equipment, the elongate element being capable of transmitting an optical signal; and

a signal detecting unit for detecting an optical signal;

the signal generating unit being connected to the signal detecting unit by the elongate element, such that the signal detecting unit is in optical communication with the signal generating unit via communication of the optical signal along the elongate element, the signal detecting unit being arranged to detect a change in the optical signal transmitted by the elongate element as a consequence of movement of the elongate element by direct interaction of a user with the elongate element and, upon detection of the change in the signal due to pulling of the elongate element, the detecting unit is configured to effect a change in the operation of the piece of equipment.

15. (Currently Amended) A method of affecting the operation of a piece of equipment, the piece of equipment being provided with an elongate element that is capable of transmitting an optical signal, and which is disposed along, about, around or through the piece of equipment for being manipulated by an operator to cause a change of shape of the elongate element, the method comprising:

sending an optical signal along the elongate element;

monitoring the optical signal sent along the elongate element for changes in the optical signal caused by changes in shape of the elongate element due to operator pulling of the elongate element; and

if a change in the optical signal is detected as a consequence of movement of the elongate element caused by direct operator interaction with the elongate element anywhere along the longitudinal length of the elongate element, affecting the operation of the piece of equipment.

16. (Original) A method as claimed in claim 15, wherein the piece of equipment is a conveyor belt.

17. (Original) A method as claimed in claim 15, wherein the elongate element comprises an optical fibre.

18. (Original) A method as claimed in claim 15, wherein the detected change is a change in intensity of the optical signal sent along the elongate element.

19. (Original) A method as claimed in claim 15, wherein the detected change is a change in a wavelength of the optical signal sent along the elongate element.

20. (Original) A method as claimed in claim 15, wherein the detected change is a change in a time of flight of the optical signal sent along the elongate element.

21. (Previously Presented) A method as claimed in claim 15, wherein the detected change is a change in a polarization state of the optical signal sent along the elongate element.

22. (Original) A method as claimed in claim 15, wherein two signals are sent along the elongate element.

23. (Original) A method as claimed in claim 15, wherein the detected change is a change in phase between the two signals.

24. (Original) A method as claimed in claim 15, wherein the signal is continuous.

25. (Original) A method as claimed in claim 15, wherein the signal comprises a plurality of pulses.

26. (Original) A method as claimed in claim 15, wherein affecting the operation of the piece of equipment comprises preventing power being supplied to the piece of equipment.

27. (Original) A method as claimed in claim 15, wherein affecting the operation of the piece of equipment comprises preventing movement of at least a part of the piece of equipment.

28. (Currently Amended) A safety arrangement for use with a piece of equipment, the safety arrangement comprising:

a signal generating unit for generating a pressure wave signal;

a single elongate element to be disposed, for at least a majority of a length of the single elongate element, along, about, around or through the piece of equipment and being oriented for direct manipulation by an operator to effect a change in shape of the single elongate element anywhere along the

majority of the length of the single elongate member, the single elongate element being capable of transmitting a pressure wave signal along the length of the single elongate member; and

a signal detecting unit for detecting a pressure wave signal transmitted by the single elongate member; the signal generating unit being connected to the signal detecting unit by the single elongate element, the signal detecting unit being arranged to detect a change in the pressure wave signal transmitted by the single elongate element as a consequence of movement caused by the operator anywhere along a length of the single elongate element and, upon detection of the change in the signal, the detecting unit is configured to effect a change in the operation of the piece of equipment.

29. (Currently Amended) A method of affecting the operation of a piece of equipment, the piece of equipment being provided with a single elongate element that is capable of transmitting a pressure wave signal, and which is permanently disposed along, about, around or through the piece of equipment, the method comprising:

sending a pressure wave signal along the single elongate element;

monitoring the pressure wave signal sent along the single elongate element for changes in the pressure wave signal caused by direct user interaction with the single elongate element anywhere along a length of the single elongate element; and

if a change in the pressure wave signal is detected as a consequence of movement caused by the direct user interaction anywhere along the length of the single elongate element, affecting the operation of the piece of equipment.

30. (Currently Amended) A safety arrangement for use with a piece of equipment, the safety arrangement comprising:

a signal generating unit for generating an electrical signal;

an elongate element to be disposed along, about, around or through the piece of equipment, the elongate element being capable of transmitting an electrical signal; and

a signal detecting unit for detecting an electrical signal; the signal generating unit being connected to the signal detecting unit by the elongate element, such that the signal detecting unit is in electrical communication with the signal detecting unit via the elongate element, the signal detecting unit being arranged to detect a change in the electrical signal transmitted by the elongate element as a consequence of movement of the elongate element caused by user pulling of the elongate element relative to the piece of equipment and, upon detection of the change in the signal, the detecting unit is configured to effect a change in the operation of the piece of equipment.

31. (Currently Amended) A method of affecting the operation of a piece of equipment, the piece of equipment being provided with an elongate element that is capable of transmitting an electrical

signal, and which is disposed along, about, around or through the piece of equipment and positioned to be grasped by an operator, the method comprising:

sending an electrical signal along the elongate element;

monitoring the electrical signal sent along the elongate element for changes in the electrical signal caused by movement associated with the operator grasping of the elongate element anywhere along a majority of a length of the elongate element; and

if a change in the electrical signal is detected as a consequence of movement of the elongate element, affecting the operation of the piece of equipment.

32. (Currently Amended) A safety arrangement for use with a piece of equipment, the safety arrangement comprising:

an elongate element to be movably but permanently disposed along, about, around or through the piece of equipment and positioned to be directly accessible by persons adjacent the piece of equipment, the elongate element being provided with a component that is sensitive to changes in magnetic fields and which is fixed in position relative to the elongate element, the component being in communication with a monitoring apparatus; and

a magnet located adjacent to the elongate element; the monitoring apparatus being arranged to detect changes in the component sensitive to changes in magnetic fields as a consequence of movement of the component sensitive to changes in magnetic fields, and thus the elongate element, relative to the magnet caused by pulling of the elongate element by adjacent persons, and, upon detection of that change in the component sensitive to changes in magnetic fields, the monitoring apparatus is configured to effect a change in the operation of the piece of equipment.

33. (Currently Amended) A method of affecting the operation of a piece of equipment, the piece of equipment comprising:

an elongate element disposed along, about, around or through the piece of equipment, the elongate element being provided with a component sensitive to changes in magnetic fields which is fixed in position relative to the elongate element and oriented so as to not otherwise interfere with operation of the piece of equipment, and a magnet located adjacent to the elongate element; the method comprising:

monitoring the component sensitive to changes in magnetic fields for changes in the magnetic fields without interfering with operation of the piece of equipment having the elongate element permanently but movably disposed relative thereto; and

if a change in the component sensitive to changes in magnetic fields is detected as a consequence of movement of the elongate element relative to the component sensitive to changes in magnetic fields

~~that is~~ caused by direct user interaction with the elongate element, affecting the operation of the piece of equipment.

34. (Currently Amended) A safety arrangement for use with a piece of equipment, the safety arrangement comprising:

an elongate element to be permanently disposed along, about, around or through the piece of equipment and positioned to be grasped by persons proximate the piece of equipment during operation of the piece of equipment, the elongate element being provided with a magnet which is fixed in position relative to the elongate element; and

a component sensitive to changes in magnetic fields located adjacent to the elongate element and in communication with a monitoring apparatus; the monitoring apparatus being arranged to detect changes in the component sensitive to changes in magnetic fields as a consequence of movement of the magnet, and thus the elongate element, caused by direct interaction by persons proximate the piece of equipment with any portion of the elongate element, relative to the component sensitive to changes in magnetic fields, and, upon detection of that change in the component sensitive to changes in magnetic fields, the monitoring apparatus is configured to effect a change in the operation of the piece of equipment.

35. (Currently Amended) A method of affecting the operation of a piece of equipment, the piece of equipment being provided with an elongate element permanently disposed along, about, around or through the piece of equipment so that interaction along the elongate element affects operation of piece of equipment, and positioned to be accessible to persons proximate the piece of equipment, the elongate element being provided with a magnet which is fixed in position relative to the elongate element, and a component sensitive to changes in magnetic fields located adjacent to the elongate element and supported by the piece of equipment; the method comprising:

monitoring the component sensitive to changes in magnetic fields for changes in the magnetic fields; and

if a change in the component sensitive to changes in magnetic fields is detected as a consequence of movement of the elongate element relative to the piece of equipment and the magnet whose position is fixed with respect to elongate element and caused by direct interaction with the elongate element, anywhere along a length of the elongate element, by the persons proximate the piece of equipment, affecting the operation of the piece of equipment.