

flexibility when passing over the one or more sheaves 18 to provide low bending stresses, meet belt life requirements and have smooth operation, while being sufficiently strong to be capable of meeting strength requirements for suspending and/or driving the elevator car 12. The jacket 34 could be any suitable material, including a single material, multiple materials, two or more layers using the same or dissimilar materials, and/or a film. In one arrangement, the jacket 26 could be a polymer, such as an elastomer, applied to the cords 32 using, for example, an extrusion or a mold wheel process. In another arrangement, the jacket 34 could be a woven fabric that engages and/or integrates the cords 32. As an additional arrangement, the jacket 34 could be one or more of the previously mentioned alternatives in combination.

The jacket 34 can substantially retain the cords 32 therein. The phrase substantially retain means that the jacket 34 has sufficient engagement with the cords 32 to transfer torque from the machine 50 through the jacket 34 to the cords 32 to drive movement of the elevator car 12. The jacket 34 could completely envelop the cords 32 (such as shown in figure 7), substantially envelop the cords 32, or at least partially envelop the cords 32.

Referring to figure 9, a fault detection unit 52 is electrically connected to a plurality of cords 32 of the belt 16. The fault detection unit 52 is connected to a terminated portion of the belt 16, for example, at an end 24a and/or 24b of the belt 16 located at the support 26 (shown in figure 5). The cords 32 are electrically connected to the fault detection unit 52 in a Wheatstone bridge configuration. In one embodiment, as shown in figure 9, each cord 32a, 32b, 32c and 32d of a four-cord 32 arrangement forms each leg of the Wheatstone bridge. Cord ends 32A and 32B are connected are connected via input leads 54, while cord ends 32C and 32D are connected via input leads 54. Other ends of cords 32a and 32b, referred to as 32A' and 32B' are connected via output lead 56, while ends of cords 32c and 32d, referred to as 32C' and 32D' are also connected by an output lead 56. The resulting bridge circuit 58 is shown in figure 10.

Each leg 60 of the bridge circuit 58 is an LCR circuit allowing for measurement of complex impedance of the legs 60 or alternatively resistance of the legs 60. An excitation voltage is applied across the bridge circuit 58 via the input leads 54 from the fault

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