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What is claimed is:

1. An elastic force measuring jig for measuring an elastic force of a coil spring, comprising:

a cylindrical holder; and

a guide cylinder which is arranged slidably in an inner portion of the cylindrical holder, and includes an inner diameter substantially equal to an outer diameter of the coil spring to be measured.

2. The elastic force measuring jig according to claim 1, wherein a sliding resistance of the cylindrical holder and the guide cylinder has a resistance value which prevents the guide cylinder from moving by its empty weight.

Background of the Invention

1. Field of the Invention

[0001] The present invention relates to a jig for arranging a coil spring in a standing condition, which is used when measuring a designated load at a designated height of the coil spring.

2. Description of Related Art

[0002] With reference to Fig. 6 and Fig. 7, a description will be made of a conventional art. Reference numeral 101 denotes an inspection table of a spring load measuring machine. A fixed cylinder 112 is arranged on the inspection table 101. The fixed cylinder 112 fixes a coil spring 111 in a standing condition. The coil spring 111 is inserted in an inner portion 113 of the fixed cylinder 112. A load measuring portion 114 compresses the coil spring 111 to a designated height and measures a designated load (elastic force).

[0003] In the above-described conventional art, at least half of the coil spring 111 protrudes from an upper end of the fixed cylinder 112. Therefore, when the load measuring portion 114 is lowered to measure the designated load, there are cases where the coil spring 111 buckles at its intermediate part (refer to Fig. 7) and the designated load cannot be measured. There are cases when measuring a designated load at a high designated height. In such cases, the fixed cylinder 112 may be lengthened. However, when measuring a designated load at a low designated height, the fixed cylinder 112 cannot be lengthened. Thus, the above-described problem may occur.

[0005] According to an aspect of the present invention, the measuring jig elongates and contracts by the sliding movement of the holder and the guide cylinder. Therefore, regardless of the designated height of the coil spring to be measured, a protruding amount of the coil spring from the upper end of the guide cylinder is reduced and the coil spring is prevented from buckling.

Detailed Description of the Preferred Embodiments

[0006] A guide cylinder 3 is arranged slidably in an inner portion 2 of a metal cylindrical holder 1. A gap 4 is formed between the guide cylinder 3 and the holder 1. A diameter of a hollow inner portion 5 of the guide cylinder 3 is formed substantially the same as an outer diameter of a coil spring to be measured. Circumferential grooves 6 and 7 are respectively formed on an upper part and a lower part of the guide cylinder 3. Rubber O-rings 8 and 9 are respectively mounted on the circumferential grooves 6 and 7. The O-rings 8 and 9 make contact with a surface of the inner portion 2 of the holder 1. A sliding resistance force of the guide cylinder 3 with respect to the holder 1 based on the contact force is set so that the guide cylinder 3 does not move downward by its empty weight and set so that the guide cylinder 3 moves downward by some external force.