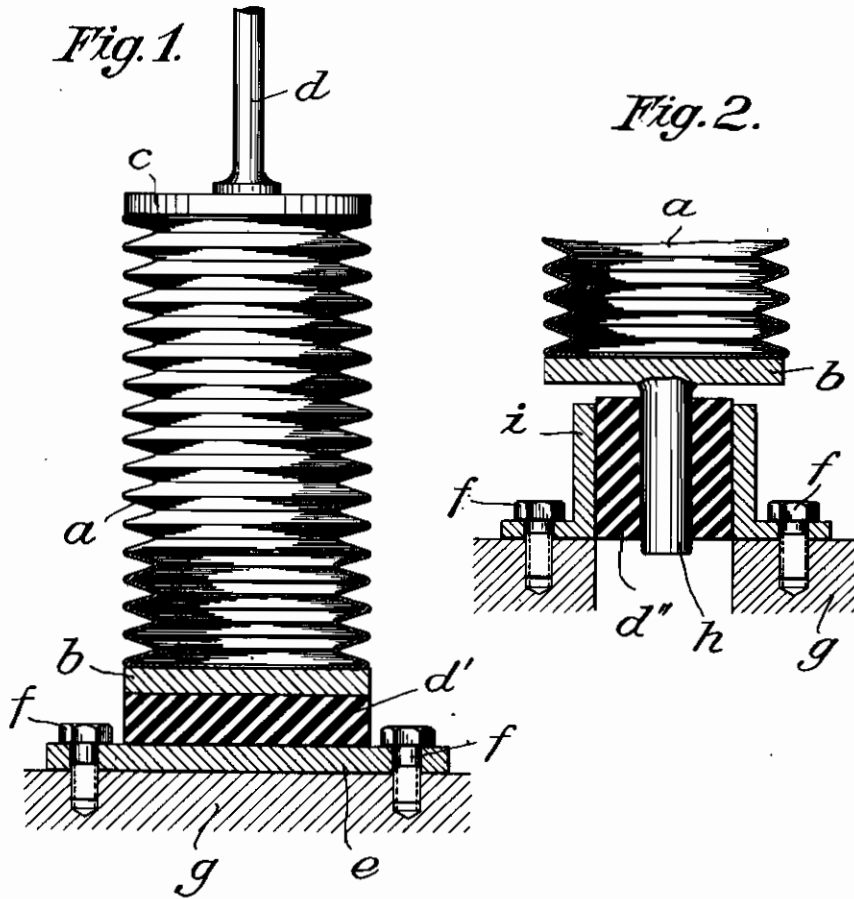


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FASTENINGS OF INSTRUMENTS

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The invention refers to a fastening of instruments onto an object subject to vibrations, specially of a barometric box onto internal combustion engines, aeroplanes or the like. Such boxes are often used as so called controller boxes for aeroplane motors or other motors for high altitudes, in order to control any aggregate in dependence on the outer air pressure or on the pressure in the inlet piping of the engine, for instance to throw-in or -out the high altitude blower of the engine, in order to regulate its number of regulations.

Above all the object of the invention is a special suspension of the barometric box or of other instruments which excludes a damaging, specially a leaking of the barometric box in consequence of vibrations to which the object is subjected, onto which the instrument is suspended or secured. This refers specially to the vibrations arising in the operation of an internal combustion engine.

At the same time noises resulting from the loosening of fastening elements should be avoided as far as possible.

Furthermore the invention refers to specially safe and simple arrangements of such instruments, specially of barometric boxes, where an easy mounting and dismounting is of special importance.

A further feature of the invention is this, that the layers consisting of rubber or another yielding material for damping the vibrations should be connected to the instrument, and that preferably by adhesion, so that they may be removed together with the instrument as one unit, and that if for instance they shall be applied onto an object carrying this instrument, they necessitate no change of said object.

In the drawing two types of the new invention are illustrated by way of example, showing 40
In Fig. 1: a barometric box suspended according to the invention, partly shown in view and partly in longitudinal section,

In Fig. 2: the lower end of another barometric box with a somewhat altered suspension. 45

The barometric box *a* shown in Fig. 1 consists substantially of a corrugated or accordeon-

plated, thin walled sheet metal cylinder, closed at both ends by soldered-on base plates *b* and *c*. The interior space of the box is exhausted of air to a vacuum so that the box contracts or expands yieldingly with the alterations of the outer air pressure. Into the upper base plate *c* of the box a controlling rod *d* is air-tight inserted. By means of this rod the longitudinal alterations of the box are transferred onto the controlled parts of the engine.

In order to attain the required sensibility of the box for changes in the pressure of the outer atmosphere the case of the box should be manufactured of very thin material. This case, the material of which has already undergone a very hard stress with the manufacture of the corrugations or plaits, is liable to tear, if it is constantly subjected to vibrations.

In order to remedy this, the lower base plate *b* of the box is connected with the fastening plate *e* proper by means of a comparatively thick layer of soft rubber. As well the base plate *b* as also the fastening plate *e* is connected to the layer of rubber by means of any well known adhesive method, for instance by means of vulcanising. The fastening plate *e* is secured to the part *g* of the engine or aeroplane subject to vibrations by means of screws *f*. In this way the box is held in the predetermined position at the part of the engine or aeroplane without transferring the vibrations starting from the part *g* onto the box.

In Fig. 2 the same box as above is provided with a central pin *h* at its lower base plate. This pin sits in a comparatively thick walled soft rubber bushing *d''* which is inserted into a metal sleeve *i*. The securing of the rubber bushing onto the pin *h* and the bushing *i* respectively may be done either by means of surface pressure or by means of any of the well known adhesive methods. The sleeve *i* again is fastened onto the part *g* of the engine or aeroplane by means of screws *f*. The result in this case is the same as with the first type, i. e. the box *a* is protected against damage from the vibrations starting from the part *g*.

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