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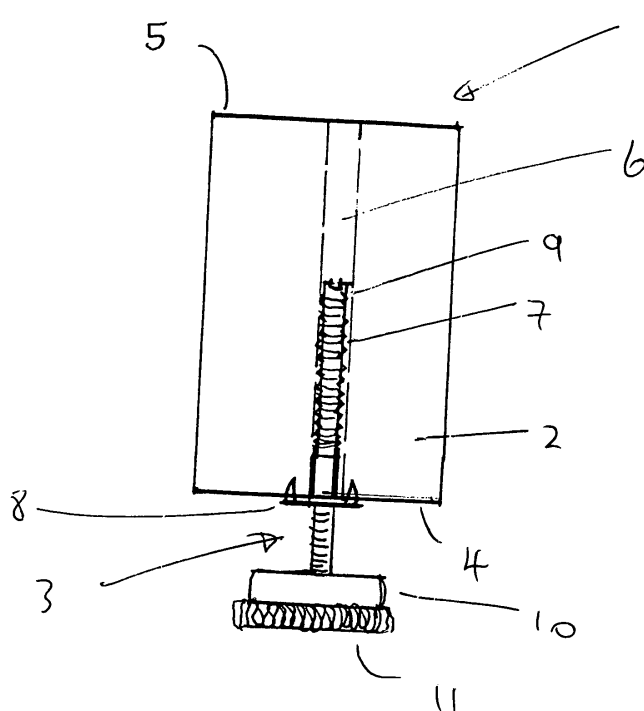
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(54) **Batten**

(57) The present invention relates to a batten for assisting elevation of a load-bearing floor member above

a separating floor and to a kit comprising a plurality of the battens.

Fig. 1



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Description

[0001] The present invention relates to a batten for assisting elevation of a load-bearing floor member above a separating floor and to a kit comprising a plurality of the battens.

[0002] Noise pollution can have an adverse impact on a person's quality of life and health. It is particularly prevalent in multi-occupancy dwellings such as apartment blocks and in multi-office buildings where each storey is separated by a concrete or timber separating floor. Recent changes in building regulations intended to tackle the impact of noise pollution are placing stringent demands on the construction industry.

[0003] One approach to meeting these demands is a so-called "floating floor" which improves both airborne and impact sound levels by dislocating a load-bearing floor member from the separating floor. One such conventional floating floor system comprises a number of U-shaped cradles standing on the separating floor. Floor battens are seated in collinearly positioned cradles and provide collectively an upper surface to which the load-bearing floor member is fastened. By tucking shims or packers beneath, the cradles are height adjustable to account for irregularities in the surface of the separating floor. Soft foam may be provided on the base of the cradles to improve sound insulation. The disadvantage of this system is that the battens need to be dislodged or removed completely to allow access to beneath the cradle for the shims or packers to be introduced. This is inconvenient and labour intensive. Moreover, the shims are generally a minimum of 2mm thick and so small irregularities in the surface of the load bearing floor cannot be accommodated

[0004] The present invention seeks to improve floating floors by elevating a load-bearing floor member above a separating floor using a batten with an extender which is extendible by the operator other than by access to the underneath of the batten.

[0005] Thus viewed from one aspect the present invention provides a batten for assisting elevation of a load-bearing floor member above a separating floor comprising:

an elongate batten body including:

an upper elongate surface capable of supporting the load-bearing floor member and

a lower elongate surface spaced apart from the upper elongate surface; and

at least one extender extendible between the lower elongate surface and the separating floor other than by access to beneath the lower elongate surface.

[0006] By being extendible other than by access to be-

neath the lower elongate surface, the extender permits the elevation of the load-bearing floor member above the separating floor to be altered *in situ*. Moreover the load-bearing floor can be elevated beyond the maximum level typically achievable with conventional cradle/shim systems (eg beyond 15mm). The present invention advantageously has few components and may be fitted without the need for special tools or any specific technical expertise.

[0007] The elongate batten body may be a strip, board, bar or rod. Typically the lower elongate surface is substantially parallel to the upper elongate surface. The lower elongate surface and the upper elongate surface are typically substantially planar. The lower elongate surface and upper elongate surface may be spaced apart by first and second side surfaces. The first and second side surfaces may be substantially parallel. The first and second side surfaces may be substantially planar. The elongate batten body may be substantially cuboidal. The elongate batten body may be composed of timber (eg softwood timber).

[0008] In a preferred embodiment, the batten comprises a plurality of extenders each of which are independently extendible other than by access to beneath the lower elongate surface. The plurality of extenders may be positioned alone at intervals or in pairs at intervals (typically about 450mm intervals). A plurality of independently extendible extenders permits irregularities in the surface of the separating floor to be accommodated conveniently and rapidly by a single operator.

[0009] Typically the (or each) extender is retractably extendible. In a preferred embodiment, the (or each) extender is incrementally extendible. This advantageously permits small irregularities (eg less than 2mm, preferably less than 1mm) in the surface of the separating floor to be accommodated.

[0010] The extender may be extendible by actuating an actuatable actuator. Preferably the actuator is other than an actuator which is solely actuatable from a position at or beneath the lower elongate surface. The actuator may be actuatable from one or more of the group of positions selected from: at or above the upper elongate surface, at the first side and at the second side. Preferably the actuator is actuatable from a position at or above the upper elongate surface.

[0011] Preferably the actuator is a rotary (eg screw) or linear actuator.

[0012] Preferably the (or each) extender comprises an elongate stem mounted in a bore extending between the upper elongate surface and the lower elongate surface, wherein the elongate stem terminates at a first end beyond the lower elongate surface in a mounting foot (eg a cylindrical mounting foot) and at a second end opposite to the first end in an actuator. The elongate stem may be substantially cylindrical. The elongate stem is preferably threaded. The bore may be threaded. Preferably the bore is non-threaded and the elongate stem is mounted freely in the bore. The actuator may be an actuator head en-

gageable with rotary driving means (eg a screwdriver or drill). For example, the actuator head may be slotted.

[0013] In a preferred embodiment, the elongate stem is threaded and the batten further comprises a threaded member (eg a nut) threadedly engaged with the elongate stem. The threaded member is preferably fastened to the lower elongate surface of the elongate batten body substantially concentrically with the bore. The threaded member may be fastened to the lower surface in any suitable manner (eg mechanically or adhesively). Typically the threaded member is fastened to the lower surface by a fastening element. Preferably the threaded member comprises a collar incorporating the fastening element. In this embodiment, the fastening element may be adapted to impinge (eg linearly or rotationally impinge) into the lower surface. For example, the fastening element may be driven into the lower surface by a sharp force. The fastening element may be for example one or more teeth, barbs or pins.

[0014] The base of the extender (eg the mounting foot) may be covered or coated with a soft pad. The soft pad advantageously contributes to the acoustic benefits of the batten. Preferably the soft pad is sound absorbent. The soft pad may be a foam pad (eg a polyolefin foam pad). The soft pad may be attached to the base of the extender (eg the mounting foot) mechanically or using an adhesive (eg a polyurethane adhesive). The diameter of the foam pad is usefully larger than that of the base of the extender (eg the mounting foot).

[0015] In a preferred embodiment, the soft pad is a closed cell foam pad (eg a crosslinked closed cell foam pad). Closed cell foam pads with a density in excess of 90kgm^{-3} (eg about 100kgm^{-3}) have been found to give minimal deflection under load. A specific example is foam GA 100 from Palziv.

[0016] The separating floor may be concrete (new build or refurbished concrete) or timber. The separating floor may be a beam, block or full slab separating floor.

[0017] The load-bearing floor member may be fastened to the upper surface chemically (eg using adhesive) and/or mechanically (eg using fasteners). The load-bearing floor member may be one or more boards or planks of hardwood, softwood or timber. Individual battens may be fastened together *in situ* to increase rigidity.

[0018] Viewed from a further aspect the present invention provides a kit for elevating a load-bearing floor member above a separating floor comprising: a plurality of batten bodies and a plurality of extenders as hereinbefore defined assembled or assemblable into a plurality of battens as hereinbefore defined.

[0019] Preferably in the kit of the invention the plurality of batten bodies and plurality of extenders are assembled into a plurality of battens as hereinbefore defined.

[0020] The present invention will now be described in the non-limitative sense with reference to the accompanying Figures in which:

Figure 1 illustrates a section through an embodiment

of the batten of the invention;

Figure 2 illustrates schematically an embodiment of the kit of the invention in use; and

Figure 3 illustrates a section through a threaded jet nut used in the embodiment of the batten of the invention.

[0021] Figure 1 illustrates an embodiment of the batten of the invention (1) comprising an elongate batten body (2) of cuboidal configuration and an extender (3). The elongate batten body (2) is a softwood timber and has an upper elongate surface (5) and a lower elongate surface (4) with a bore (6) extending therebetween. The extender (3) comprises a threaded stem (7) extending freely through the bore (6) and is engaged with a threaded jet nut (8) exterior to the bore (6). The threaded jet nut (8) is shown in detail in Figure 3 and comprises a collar (8a) with four upstanding teeth (8b). The upstanding teeth (8b) are driven into the lower elongate surface (4) of the batten body (2) to rigidly fix the jet nut (8) in a position substantially concentric with the bore (6). An actuator head (9) at the upper end of the threaded stem (7) is slotted. A cylindrical mounting foot (10) at the lower end of the threaded stem (7) is covered with a closed cell foam pad (11).

[0022] In use (see Figure 2), the battens (1) of an embodiment of the kit of the invention are intermittently deployed on a concrete separating floor (21). Each batten (1) is provided with a number of extenders (3) at predetermined intervals. More specifically, the battens (1) *in situ* consist of lateral battens (22) positioned between perimeter battens (23). The lateral battens (22) extend in a substantially parallel fashion substantially across the breadth of the separating floor (21). The perimeter battens (23) are positioned near to the perimeter of the separating floor (21). A flanking or isolation strip (25) serves to isolate the perimeter battens (23) from the partitioning wall to enhance sound insulation. The slotted actuator head (9) of each batten (1) is accessible from above the upper elongate surface (5) by a screwdriver which can rotationally drive the threaded stem (7) beyond the lower elongate surface (4). This extends each extender (3) between the lower elongate surface (4) and the separating floor (21) and allows the elongate batten body (2) to be elevated to a desired height above the separating floor (21). By selectively extending the extenders (3) on each batten (1), it is possible to accommodate irregularities in the surface of the separating floor (21) to allow the upper elongate surfaces (5) of the lateral battens (22) and the perimeter battens (23) to be substantially coplanar. To the coplanar surface is fixed a load-bearing floor member such as a plurality of floor boards.

55 Claims

1. A batten for assisting elevation of a load-bearing floor member above a separating floor comprising:

- an elongate batten body including:
- an upper elongate surface capable of supporting the load-bearing floor member and a lower elongate surface spaced apart from the upper elongate surface; and at least one extender extendible between the lower elongate surface and the separating floor other than by access to beneath the lower elongate surface.
2. A batten as claimed in claim 1 comprising a plurality of extenders each of which is independently extendible other than by access to beneath the lower elongate surface.
 3. A batten as claimed in claim 2 wherein the plurality of extenders is positioned alone at intervals or in pairs at intervals.
 4. A batten as claimed in any preceding claim wherein the or each extender is incrementally extendible.
 5. A batten as claimed in claim 4 further comprising:

an actuatable actuator for actuating the extender, wherein the actuator is other than an actuator which is solely actuatable from a position at or beneath the lower elongate surface.
 6. A batten as claimed in claim 5 wherein the lower elongate surface and upper elongate surface are spaced apart by first and second side surfaces and the actuator is actuatable from one or more of the group of positions selected from: at or above the upper elongate surface, at the first side and at the second side.
 7. A batten as claimed in claim 5 or 6 wherein the actuator is actuatable from a position at or above the upper elongate surface.
 8. A batten as claimed in claim 5, 6 or 7 wherein the actuator is a rotary or linear actuator.
 9. A batten as claimed in any preceding claim wherein the or each extender comprises an elongate stem mounted in a bore extending between the upper elongate surface and the lower elongate surface, wherein the elongate stem terminates at a first end beyond the lower elongate surface in a mounting foot and at a second end opposite to the first end in an actuator.
 10. A batten as claimed in claim 9 wherein the elongate stem is threaded.
 11. A batten as claimed in claim 9 or 10 wherein the bore is non-threaded and the elongate stem is mounted freely in the bore.
 12. A batten as claimed in claim 9 wherein the elongate stem is threaded and the batten further comprises:

a threaded member threadedly engaged with the elongate stem.
 13. A batten as claimed in claim 9 wherein the threaded member is fastened to the lower elongate surface of the elongate batten body substantially concentrically with the bore.
 14. A batten as claimed in claim 13 wherein the threaded member is fastened to the lower surface by a fastening element and comprises a collar incorporating the fastening element.
 15. A batten as claimed in claim 14 wherein the fastening element is adapted to impinge into the lower surface.
 16. A batten as claimed in any preceding claim wherein the base of the extender is covered or coated with a soft pad.
 17. A batten as claimed in claim 16 wherein the soft pad is a closed cell foam pad.
 18. A kit for elevating a load-bearing floor member above a separating floor comprising: a plurality of batten bodies and a plurality of extenders as defined in any preceding claim assembled or assemblable into a plurality of battens as defined in any preceding claim.
 19. A kit as claimed in claim 18 wherein the plurality of batten bodies and plurality of extenders are assembled into a plurality of battens as defined in any preceding claim.

Fig. 1

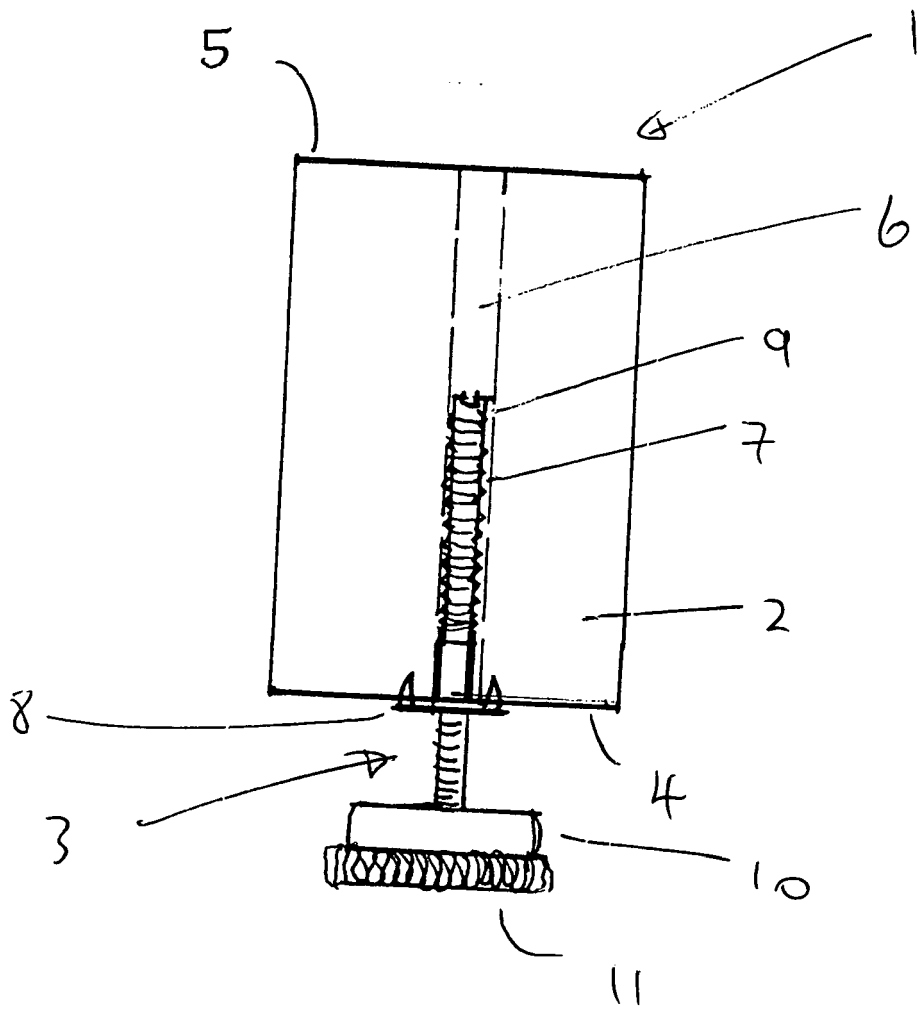


Figure 2

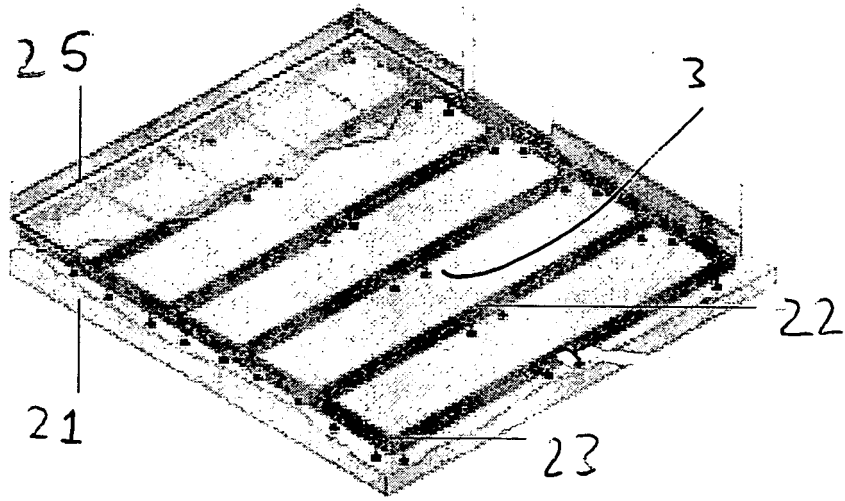


Figure 3

