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(54) **Compactor**

(57) A hand controlled compactor (1) for the compaction of ground work, paving etc comprises a base plate (2), carrying both a rotatable, out of balance mass (5) and a motor or engine (6), with a drive connected to the mass (5) to impart vibrations to the base plate (2), an operator's handle (22) also being provided, the motor or engine (6) being attached to the base (2) plate via a plurality of anti-vibration, shock-absorbing mountings (9). Another aspect provides for the operator's handle (22) to be attached to the compactor (1) via anti-vibration bushes (29) housed in a closed eye (28).

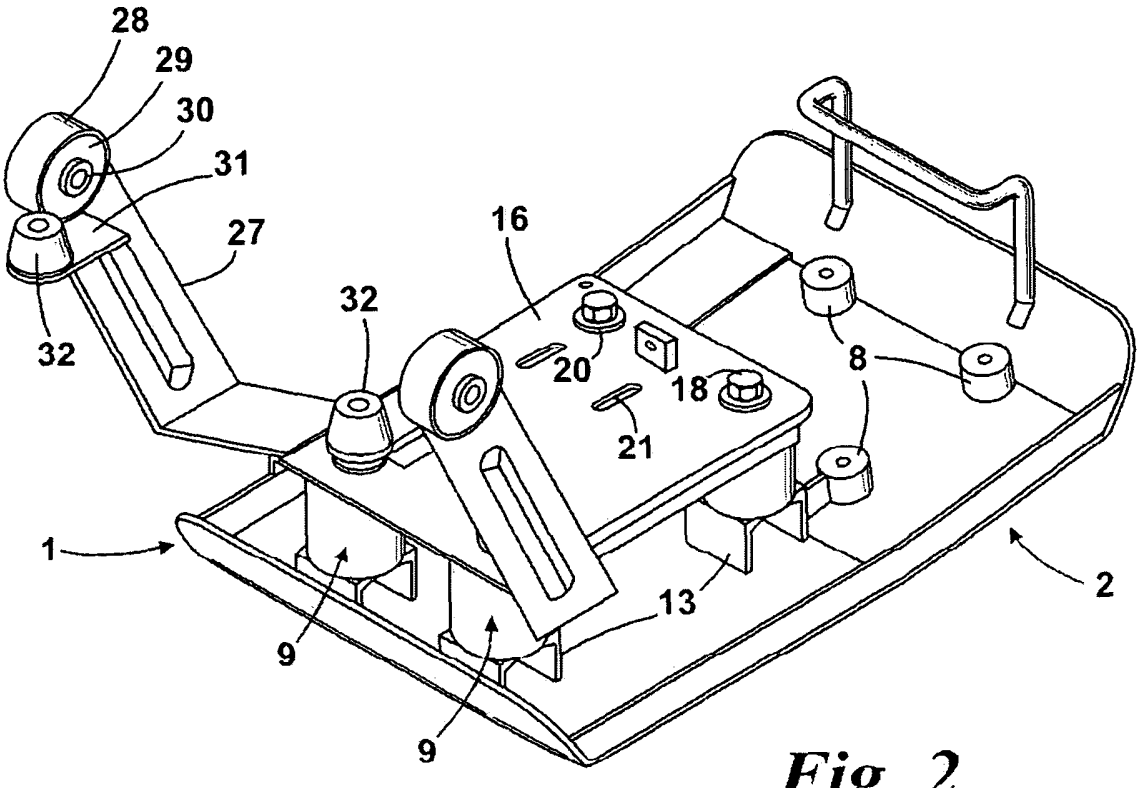

Fig. 2

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Description

Field of the Invention

[0001] This invention relates to a manually controlled compactor for the compaction of ground work, earth work, landfill, paving etc.

Background of the Invention

[0002] Manually controlled compactors are known comprising basically an internal combustion engine to drive an eccentric to create the necessary vibrations with the engine attached to a base plate for the transmission of those vibrations to the base plate and thereafter to the earth work etc, with an operators handle adapted to manoeuvre the compactor as required. It follows that vibrations are transmitted back from the base plate through the engine to the operator's handle and with a view to avoiding or reducing the propensity for an operator to suffer HAVS, rubber hand grips are conventionally provided on the operator's handle.

Object of the Invention

[0003] A basic object of the invention is the provision of an improved compactor for paving etc.

Summary of a First Aspect of the Invention

[0004] According to a first aspect of the present invention, there is provided a hand controlled compactor for the compaction of ground work, paving etc comprising:-

(i) a base plate having an underside adapted to engage the ground etc and to transmit compacting vibrations to the ground etc;
(ii) a rotatable, out of balance mass mounted on an upper side of the base plate;
(iii) a motor or engine attached to the base plate with a drive connected to the mass to impart vibrations to the base plate; and
(iv) an operator's handle **characterised in that** the motor or engine is attached to the base plate via a plurality of anti-vibration, shock-absorbing mountings.

Advantages of the Invention

[0005] The imposition of such mountings between the motor/engine and the base plate as a means of attaching these two components together substantially reduces the vibrations transmitted back from the base plate through the motor/engine to the operator's handle.

Preferred or Optional Features

[0006] Each mounting is wholly or principally of rubber.

[0007] Each mounting consists of an anti-vibration, shock-absorbing bush.

[0008] Each bush is cylindrical, and is adapted to be fitted on an upright axis.

[0009] Each bush has at least one embedded metallic threaded insert to receive the stem of a securing bolt.

[0010] Two discrete, coaxial inserts are provided e.g. by moulding in or into each mounting.

[0011] The motor is attached to the base plate via a mounting plate.

[0012] The drive connection is a belt or chain.

Summary of a Second Aspect of the Invention

[0013] According to a second aspect of the invention, of independent significance, there is provided a hand controlled compactor for the compaction of ground work, paving etc comprising:-

(i) a base plate having an underside adapted to engage the ground etc and to transmit compacting vibrations to the ground etc;
(ii) a rotatable, out of balance mass mounted on an upper side of the base plate;
(iii) a motor or engine attached to the base plate with a drive connected to the mass to impart vibrations to the base plate; and
(iii) an operator's handle which carries manually operable control means;

characterised in that the handle has a portion extending transversely into an anti-vibration bush housed in a closed eye in each of a pair of side arms of the compactor.

[0014] The pair of side arms are attached to the mounting plate and extended upwardly and rearwardly therefrom.

Brief Description of the Drawings

[0015] One example of compactor in accordance with two aspects of the invention is shown in the accompanying drawings, in which:-

Figure 1 is a perspective view of a manually controlled compactor in accordance with the two aspects of the invention;
Figure 2 is an isometric view of a base plate of a compactor of Figure 1 fitted with an engine mounting plate;
Figure 3 is a side elevation of Figure 2;
Figure 4 is and end elevation of Figure 2;
Figure 5 is a plan view of Figure 2;
Figure 6 is an exploded view of Figure 2; and
Figure 7 is an axial sectional view through an anti-vibration or shock-absorbing mounting.

Detailed Description of the Drawings

[0016] A hand controlled compactor 1, for the compaction of ground work, paving etc comprises a base plate 2 - typically having a working area of 400mm x 320mm - provided with an underside 3 adapted to engage the ground etc and to transmit compacting vibrations to the ground, and for this purpose carrying, on a front end of an upper side 4 of the base plate 2 a rotatable, out of balance mass 5.

[0017] A petrol (gasoline) engine 6 - typically 2.4 HP, single cylinder, four stroke - is also attached to the rear end of the upper side 4 of the base plate 2, with an output shaft (not shown) carrying a drive pulley (not shown) of a belt drive which is shielded by a cover 7 to a driven pulley (not shown) attached to the out of balance mass 5 whereby, when rotated, the mass 5 imparts vibrations to the base plate 2, the mass 5 having a generally rectangular mounting plate (not shown) attached by four bolts (not shown) to mountings 8 carried by the upper side 4 of the base plate 2.

[0018] In accordance with the first aspect of the invention, the engine 6 is attached to the base plate 2 via a plurality of anti-vibration, shock absorbing mountings 9.

[0019] In the example of compactor 1 illustrated in the drawings, four mountings 9 are shown, each being wholly or principally of rubber and consisting of an anti-vibration, shock absorbing bush10 of cylindrical form and adapted to be fitted on an upright axis. As detailed in Figure 7 each bush 10 is provided with two metallic inserts 11, each having a coaxial thread 12.

[0020] Each mounting 9 seats at one end on a bridge 13 welded to the upper side 4 of the base plate 2, with a bolt 14, with a spring washer 15, screwed via a hole in each bridge 13 into the lower insert 11, whilst a motor mounting plate 16 is provided with four slotted holes 17 (Figure 6) for the passage of bolts 18, each with a spring washer 19, and a shock absorber washer 20, to screw into the upper inserts 11 of each mounting 9. The motor mounting plate 16 is also provided with slots 21 to receive engine mounting bolts (not shown).

[0021] As shown in Figure 1, an operator's handle 22 (of a readily dismantleable, easy fold construction for ease of storage and transportation) extends upwardly and rearwardly from the rear of the compactor 1, approximately to waist height of an operator. The handle 22 comprises a first U-shaped frame 23 to which is attached, by four screw knobs 24, a second U-shaped frame 25, having a handgrip covered in a shock absorbing foam or rubber sleeve 26.

[0022] In accordance with the second aspect of the invention a pair of side arms 27 extend upwardly and rearwardly from the motor mounting plate 16, as clearly illustrated in Figures 2 and 3. Each side arm 27 terminates at an upper end in a closed eye 28, into each of which eyes 28 is bonded an anti-vibration, shock absorbing bush 29 having coaxial, metal ferrules 30.

[0023] Each side arm 27 also carries a mounting plate 31 provided with a rubber stop 32, the handle 22 being provided with a transverse tube 33 engaging the ferrules 30 and seating on the stops 32.

Claims

1. A hand controlled compactor for the compaction of ground work, paving etc comprising:-

   (i) a base plate having an underside adapted to engage the ground etc and to transmit compacting vibrations to the ground etc;
   (ii) a rotatable, out of balance mass mounted on an upper side of the base plate;
   (iii) a motor or engine attached to the base plate with a drive connected to the mass to impart vibrations to the base plate; and
   (iii) an operator's handle,

   characterised in that the motor or engine (6) is attached to the base plate (2) via a plurality of anti-vibration, shock-absorbing mountings (9).

2. A compactor as claimed in Claim 1, wherein each mounting (9) is wholly or principally of rubber.

3. A compactor as claimed in Claim 2, wherein each mounting (9) consists of an anti-vibration or shock-absorbing bush (9).

4. A compactor as claimed in Claim 3, wherein each bush (9) is cylindrical, and is adapted to be fitted on an upright axis.

5. A compactor as claimed in any one of Claims 2 to 4, wherein each bush (9) has at least one embedded metallic threaded insert (11) to receive the stem of a securing bolt.

6. A compactor as claimed in Claim 5, wherein two discrete, coaxial inserts (11) are provided in each mounting.

7. A compactor as claimed in any preceding claim, wherein the motor or engine (6) is attached to the base plate (2) via a mounting plate (16).

8. A compactor as claimed in any preceding claim, wherein the drive connection (7) is a belt or chain.

9. A hand controlled compactor for the compaction of ground work, paving etc comprising:-

   (i) a base plate having an underside adapted to engage the ground etc and to transmit compacting vibrations to the ground etc;
   (ii) a rotatable, out of balance mass mounted on

an upper side of the base plate;
(iii) a motor or engine attached to the base plate with a drive connected to the mass to impart vibrations to the base plate; and
(iii) an operator's handle,

characterised in that the operator's handle (22) has a portion extending transversely into an anti-vibration bush (29) housed in a closed eye (28) in each of a pair of side arms (27) of the compactor (1).

10. A compactor as claimed in Claim 9, wherein the motor or engine (6) is attached to a mounting plate (16), and the pair of side arms (27) are also attached to the mounting plate (16) and extended upwardly and rearwardly therefrom.

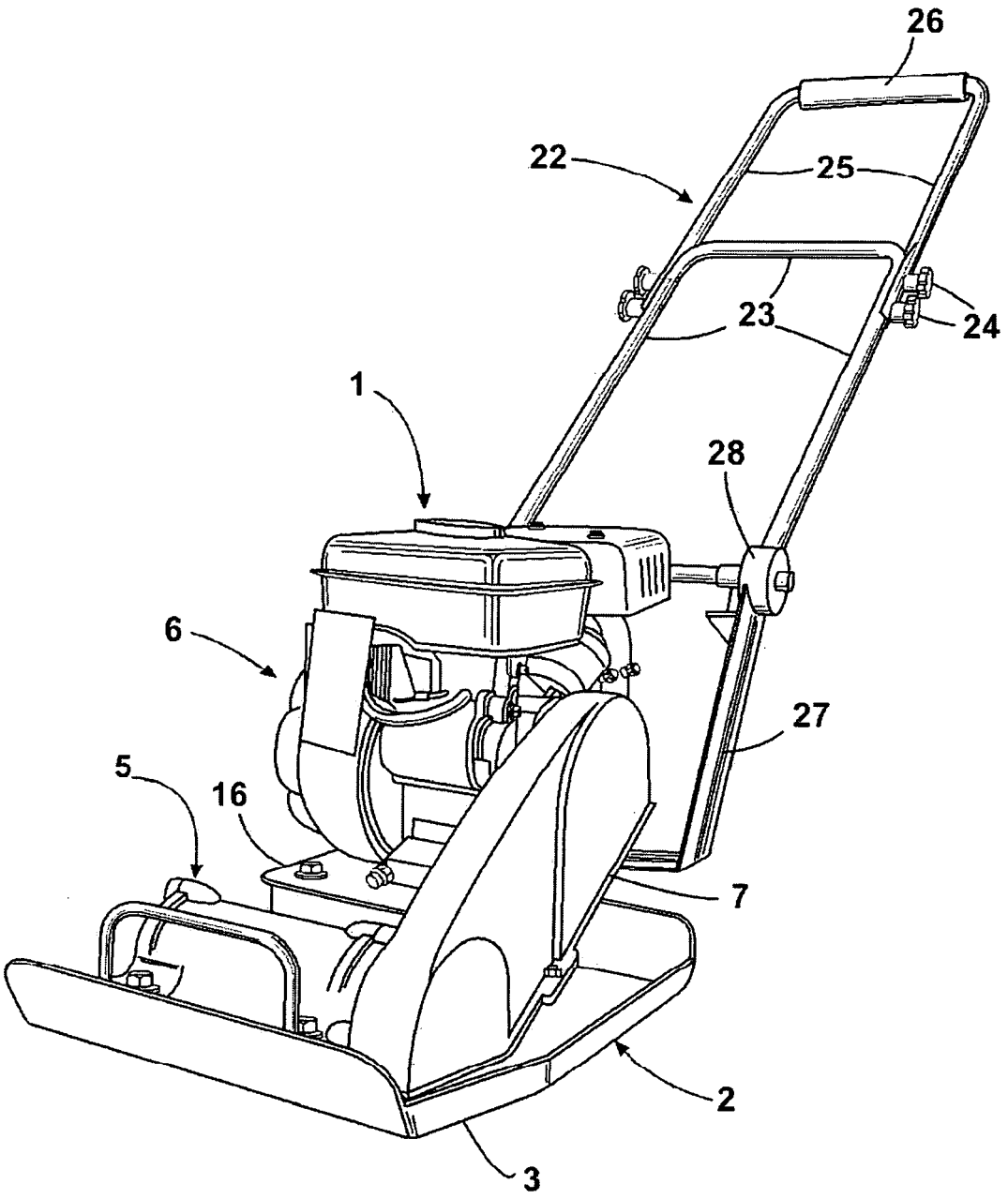

Fig. 1

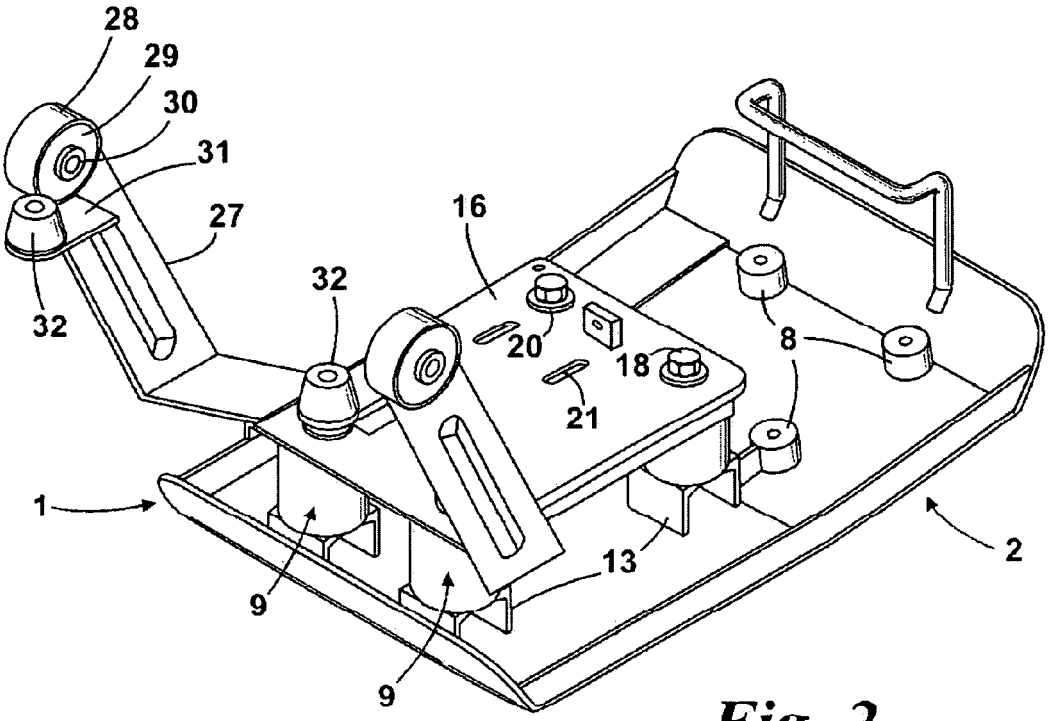
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Fig. 2

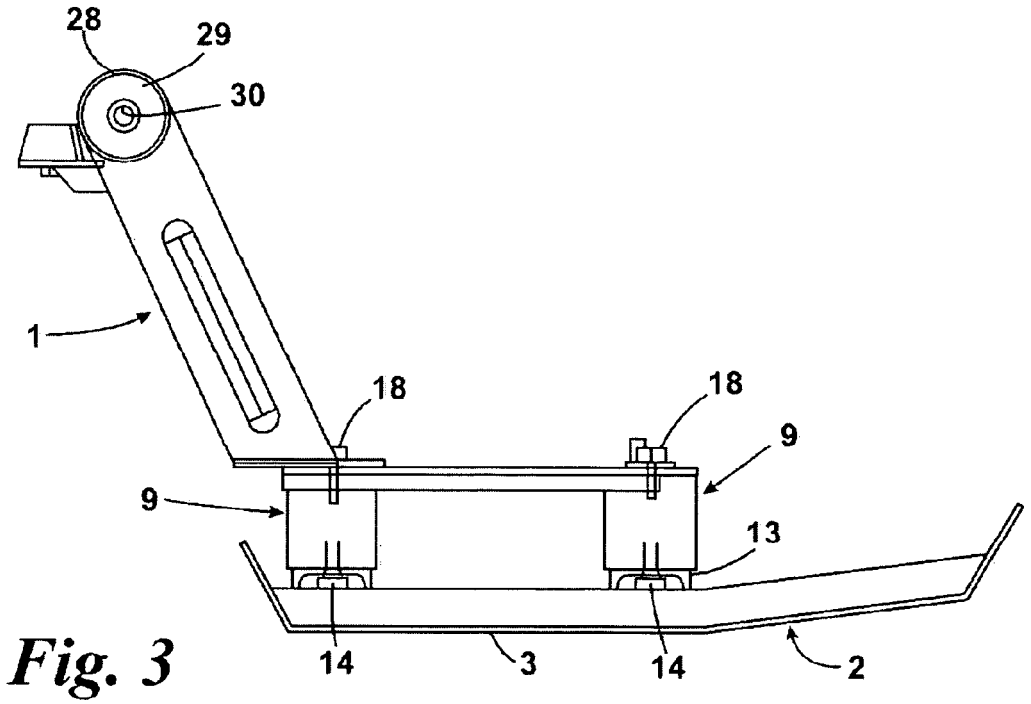
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Fig. 3

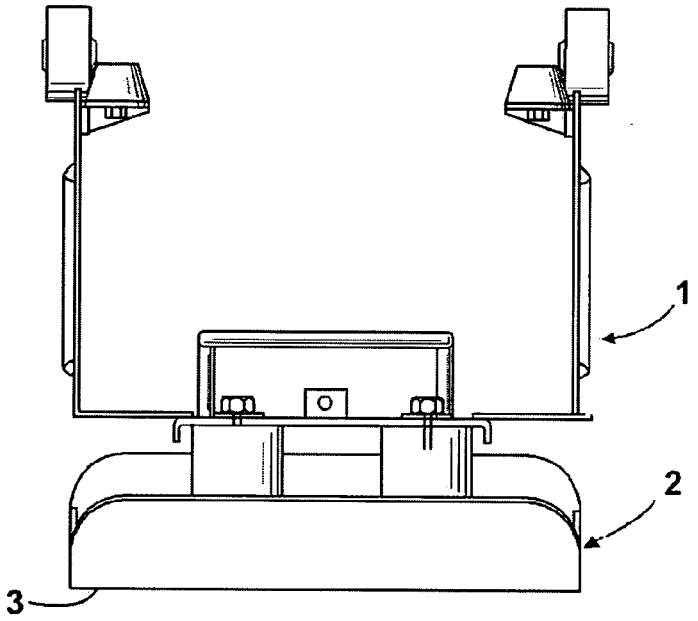

Fig. 4

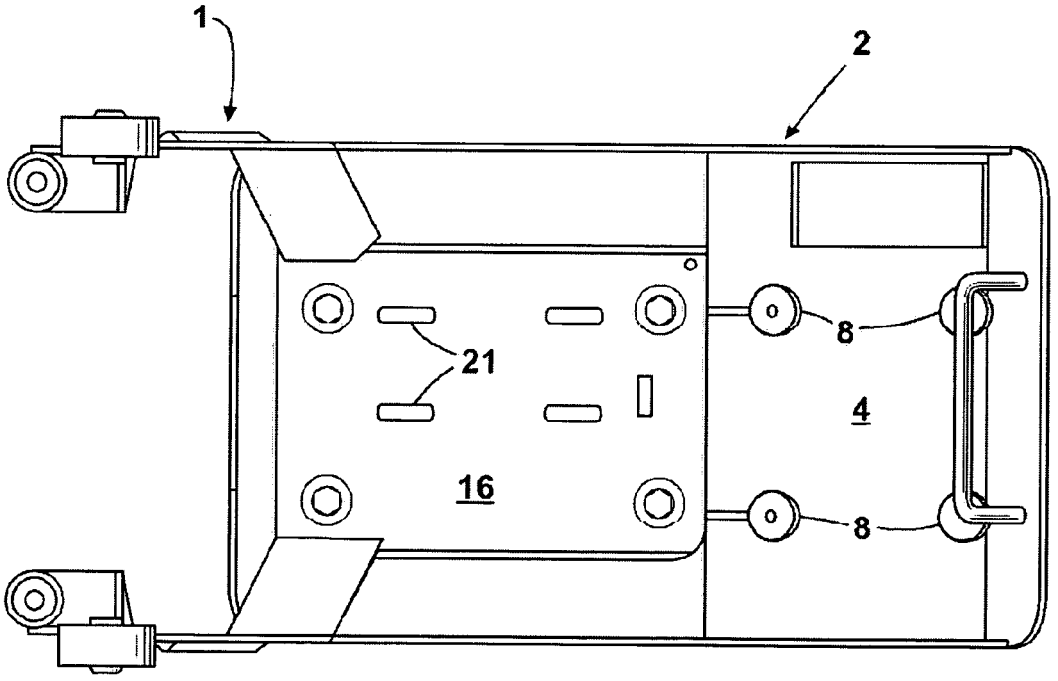

Fig. 5

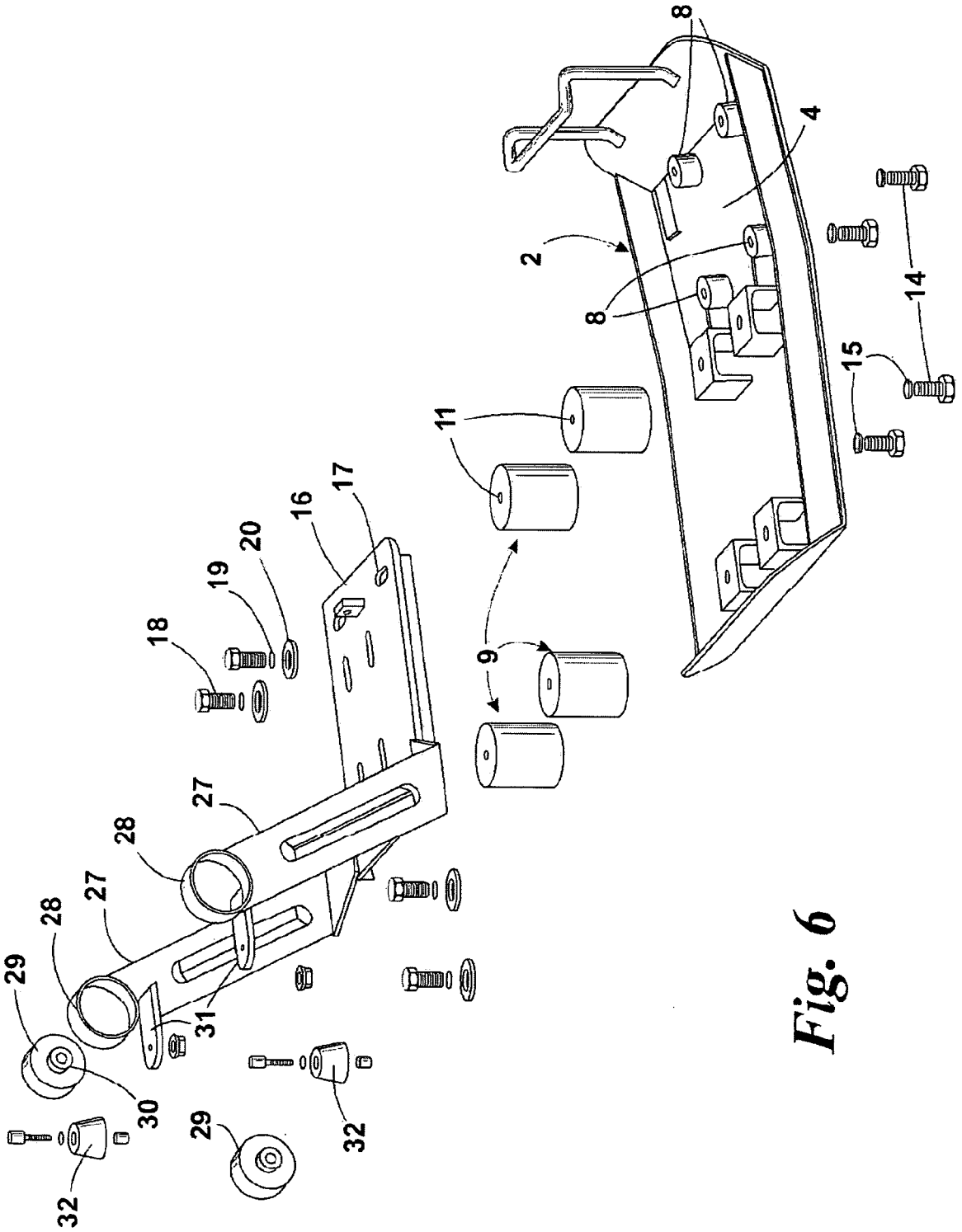

Fig. 6

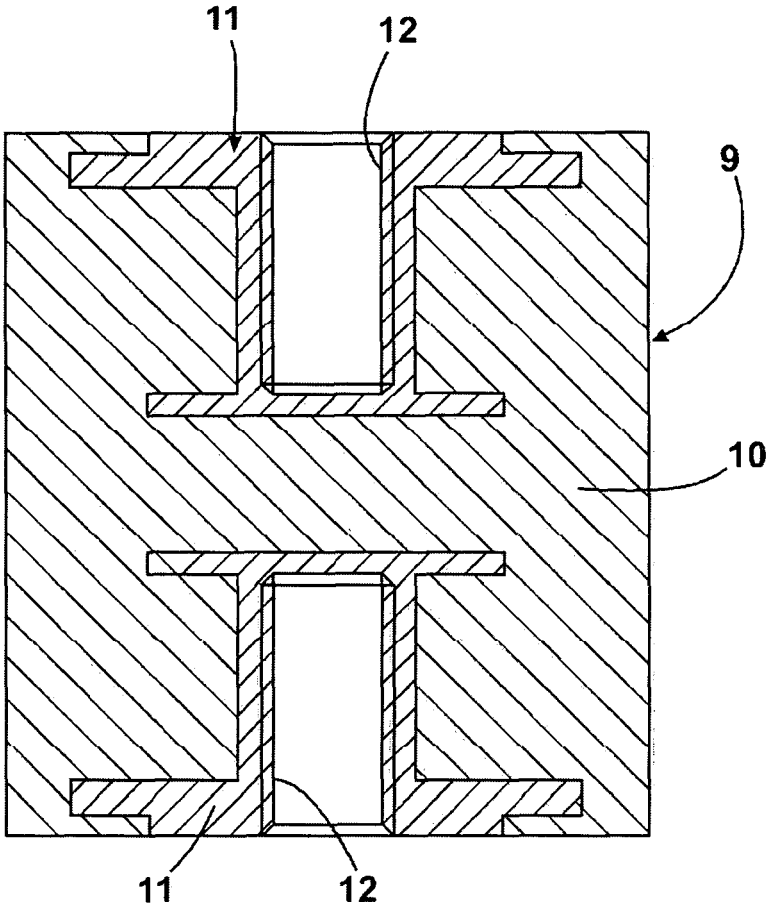

Fig. 7