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Courier Press, Leamington Spa, England.

Description

Background of the invention

This invention relates to apparatus for scabbling concrete.

Apparatus for scabbling concrete includes a cylinder block having a plurality of piston and cylinder devices and fluid inlet and outlet means whereby the pistons, equipped with scabbling bits, are caused to reciprocate relative to the cylinders thus to scabble the surface on which the apparatus rests. Generally, the cylinder block is rigidly attached to an operating handle, and to facilitate movement, groundwheels are provided.

Reciprocation of the pistons and their impact against the surface being scabbled result in vibrations in the operating handle. Such vibrations cause the apparatus to be difficult to use and cause discomfort to the operator.

Concrete cutting apparatus is known from Patent Specification GB—A—1,302,702. This Specification describes cutting apparatus in which a cylinder block is mounted within a frame which effects movement across the surface to be treated. In this specification, the cylinder block is mounted within a frame and is free to move in the direction of the reciprocation of the pistons. However the concept of the frame is arranged to be mounted on a fixed apparatus.

Summary of the invention

It is an object of the present invention to obviate or mitigate the above disadvantages.

According to the present invention there is provided apparatus for scabbling concrete comprising a frame, a cylinder block having a plurality of scabbling bit carrying pistons mounted for reciprocal movement therein, the cylinder block being mounted within the frame between guide means arranged to guide the cylinder block such that it is free to move within the frame in the direction of reciprocation of the pistons characterised in that the frame comprises a lower chassis provided with groundwheels, an upper cross member, and upstanding side members connecting the cross member to the chassis and co-operating with the sides of the cylinder block to form the guide means.

Description of the drawings

Embodiments of the present invention will now be described by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a side elevational view of an embodiment of scabbling apparatus made in accordance with the present invention;

Fig. 2 is a top plan view of the apparatus of Fig. 1;

Fig. 3 is a side elevantional view of a hand-held embodiment of scabbling apparatus made in accordance with the present invention;

Fig. 4 is a top plan view of the apparatus of Fig. 3;

Fig. 5 is a part sectional side elevational view of a further embodiment of scabbling apparatus made in accordance with the present invention;

Fig. 6 is a part broken-away plan view of the apparatus of Fig. 5; and

Fig. 7 shows the scabbling apparatus of Fig. 5 fitted with a cover.

Description of the preferred embodiments

Referring to Figs. 1 and 2, a scabbler cylinder block 110 is reciprocably mounted within a frame 120 which comprises a chassis 121 to which groundwheels or castors 122 are fitted. The chassis 121 has a pair of side members 123 to which a cross member 124 is fitted. The scabbler cylinder block 110 is located by means of guides 129 fitted to each side of the block 110 and co-operating with respective side members 123. The interaction of the guides 129 and the side members 123 is such to permit vertical movement of the scabbler block 110 relative to the frame.

A support plate 125 which is received in a slot 126 in the cross member 124 provides means whereby the scabbler cylinder block 110 may be moved between a lowered, in-use position and raised, out-of-use position. In the in-use position, scabbling bits 113 contact the surface to be scabbled and the scabbler is held against this surface by virtue of its own weight or may be positively urged by means of springs (not shown). In the out-of-use position the scabbling bits 113 are raised by lifting the support plate 125 by means of cross handle 128 and interposing a locking pin (not shown) in a slot 127 in the plate 125 thus permitting the scabbler to be wheeled to and from an operating location.

Compressed air is fed to the block 110 via a control valve 137, pipe 115 and manifold 114.

Referring now to Figs. 3 and 4, hand-held scabbling apparatus 40 has a cylinder block 41 monted in a frame 42. The block 41 has a plurality of pistons 52 having scabbling bits 53 and mounted for reciprocating movement within the block 41. The frame 42 comprises a chassis 43 having castors or wheels 44 adapted to engage the surface being scabbled, side members 45 and a cross member 46 to which handles 47 are fixed. The side members 45 cooperate with protrusions 49 of the block which serve to guide the block constraining its movement in the direction of reciprocation of the pistons.

The scabbling unit 41 is resiliently mounted within the frame through coil springs 50 which engage the top surface of the block 41 and the underside of the cross member 46 to urge the block 41 against the surface being scabbled. The scabbling block 41 is thus free to move relative to the frame 42 in the direction of movement of the pistons 52 and the vibrations are absorbed by the springs 50. A lead screw 70 is fitted to the block 41 and extends through the cross member 46. A stop nut 71 serves to limit the

downward travel of the block 41 within the frame 42.

One of the handles 47 is provided with an operating valve 57 for controlling the operation of the scabbling unit 41 via control lever 58, pipe 61 and manifold 62, compressed air being fed to that handle via inlet pipe 59.

In Figs. 5 and 6, scabbling apparatus 200 comprises a frame 210 comprising a chassis 211, side members 212 and a cross member 213.

The chassis 211 is provided with vertically adjustable wheels 214 mounted on suitable axles 215.

Each side member 212 is provided with a V-section portion 218 carrying plastics bearing pads 216 adjustable by means of respective set screws 217 and urged outwardly by compression springs.

A scabbler cylinder block 220 is mounted within the frame 210 and is provided on each of its sides with V-shaped guides 221. The pads 216 bear against respective faces of the guides 221 and locate the block 220 within the frame 210 whilst permitting vertical movement of the block relative to the frame.

The cross member 213 having a U-section, connects the two side members 212 and provides height adjustment means for the block 220. Such means comprises a lead screw 231 having a lifting block 232 fitted to one end. The lifting block 232 cooperates with top plates 223 of the cylinder block 220 whilst the other end of the lead screw 231 has an adjustment block 233 which engages the cross member 213 thus limiting the amount of downward movement of the block relative to the frame. An extension 236 adjustment block 233 extends from the cross member 213.

Modifications and improvements may be incorporated without departing from the scope of the invention as claimed. For example, the four wheels 214 may be replaced with a pair of larger wheels centrally located on the chassis 211.

In Fig. 7, the scabbling apparatus is provided with a cover 300 which serves as a sound absorbtion barrier. The cover 300 is fixed to the cross member 213 and can optionally be provided with a skirt 310 which seals the scabbling apparatus against the surface to be scabbled. In this way, a vacuum extraction pipe 320 to extract dust etc. from the scabbler apparatus may be provided.

Claims

1. Apparatus for scabbling concrete comprising a frame (120, 42, 210) a cylinder block (110, 41, 220) having a plurality of scabbling bit carrying pistons (112, 52) mounted for reciprocal movement therein, the cylinder block (110, 41, 220) being mounted within the frame (120, 42, 210) between guide means (123, 124; 45, 46; 212, 213) arranged to guide the cylinder block (110, 41, 220) such that it is free to move within the frame (120, 42, 210) in the direction of reciprocation of the pistons (112, 52) characterised in that the frame (120, 42, 210) comprises a lower chassis (121, 43, 211) provided with groundwheels (122, 44, 214), and upper cross member (124, 46, 213), and upstanding side members (123, 45, 212) connecting the cross member (124, 46, 213) to the chassis (121, 43, 211) and cooperating with the sides of the cylinder block (110, 41, 220) to form the guide means (123, 124; 45, 46; 212, 213).

2. Apparatus as claimed in Claim 1, characterised in that said guide means includes protrusions (129) extending from the sides of the cylinder block (110) and co-operating with respective edges of the side members (123) of the frame (120).

3. Apparatus as claimed in Claim 1, characterised in that the guide means includes V-shaped angle sections (221) fitted to the sides of said cylinder block (220) and cooperating with a pair of bearing pads (216) fixed to a V-shaped portion (218) of the side members (212) of the frame (210).

4. Apparatus as claimed in Claim 1, characterised in that there is included means (125, 128; 70, 71; 231, 232) for moving said cylinder block (110, 41, 220) between a lowered in-use position and a raised out-of-use position.

5. Apparatus as claimed in any preceding claim, characterised in that a cover (300) is fitted over said frame and cylinder block.

6. Apparatus as claimed in Claim 5, characterised in that said cover (300) is provided with a skirt (310) sealing the interior of the cover to the surface to be treated.

Patentansprüche

1. Vorrichtung zum Stocken von Beton mit einem Rahmen (120, 42, 210) und einem Zylinderblock (110, 41, 220), der mehrere Stockmeißelträgerkolben (112, 52) aufweist, die zur Hin-und Herbewegung in dem Zylinderblock montiert sind, wobei der Zylinderblock (110, 41, 220) innerhalb des Rahmesn (120, 42, 210) zwischen einer Führungseinrichtung (123, 124; 45, 46; 212, 213) montiert ist, die den Zylinderblock (110, 41, 220) derart führt, daß er innerhalb des Rahmens (120, 42, 210) in Richtung der Hin- und Herbewegung der Kolben (112, 52) frei bewegbar ist, dadurch gekennzeichnet, daß der Rahmen (120, 42, 210) ein unteres Chassis (121, 43, 211) mit Bodenrädern (122, 44, 214), ein oberes Querstück (124, 46, 213) und aufrechtstehende Seitenteile (123, 45, 212) aufweist, die das Querstück (124, 46, 213) mit dem Chassis (121, 43, 211) verbinden und zur Bildung der Führungseinrichtung (123, 124; 45, 46; 212, 213) mit den Seiten des Zylinderblocks (110, 41, 220) zusammenwirken.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Führungseinrichtung Vorsprünge (129) aufweist, die sich von den Seiten des Zylinderblocks (110) erstrecken und mit jeweiligen Rändern der Seitenteile (123) des Rahmens (120) zusammenwirken.

3. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Führungseinrichtung V-förgmige Winkelabschnitte (221) aufweist, die an

den Seiten des Zylinderblocks (220) angebracht sind und mit zwei Lagerpuffern (216) zusammenwirken, die an einem V-förmigen Abschnitt (218) der Seitenteile (212) des Rahmens (210) befestigt sind.

4. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß eine Einrichtung (125, 128; 70, 71; 231, 232) vorgesehen ist, die den Zylinderblock (110, 41, 220) zwischen einer abgesenkten Betriebsposition und einer angehobenen Nichtbetreibsposition bewegt.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß eine Abdeckung (300) über dem Rahmen und dem Zylinderblock angebracht ist.

6. Vorrichtung nach Ansrpuch 5, dadurch gekennzeichnet, daß die Abdeckung (300) mit einem Randteil (310) versehen ist, das das Innere der Abdeckung zu der zu behandelnden Oberfläche abdichtet.

Revendications

1. Appareil pour le bouchardage de béton, comprenant une ossature (120, 42, 210), un block-cylindres (110, 41, 220) comportant une pluralité de pistons (112, 52) qui portent des embouts de bouchardage et que sont montés pour un mouvement alternatif dans le bloc-cylindres, le block-cylindres (110, 41, 220) étant monté à l'intérieur de l'ossature (120, 42, 210) entre des moyens de guidage (123, 124; 45, 46; 212, 213) agencés pour guider le bloc-cylindres (110, 41, 220) de sorte qu'il est libre de se déplacer à l'intérieur de l'ossature (120, 42, 210) dans la direction du mouvement alternatif des pistons (112, 52), caractérisé en ce que l'ossature (120, 42, 210) comprend un châssis inférieur (121, 42, 211) muni de roues de contact avec le sol (122, 44, 214), une traverse supérieure (124, 46, 213), et des montants latéraux (123, 45, 212) que connectent la traverse (124, 46, 213) au châssis (121, 43, 211) et qui coopèrent avec les côtés du bloc-cylindres (110, 41, 220) pour former les moyens de guidage (123, 124; 45, 46; 212, 213).

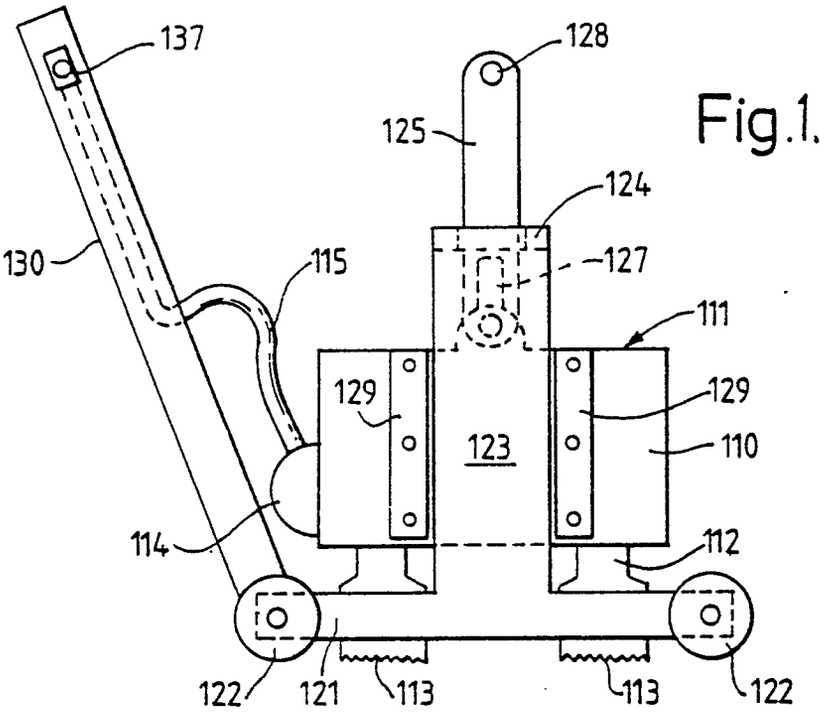
2. Appareil suivant la revendication 1, caractérisé en ce que lesdits moyens de guidage comprennent des saillies (129) qui partent des côtés du bloc-cylindres (110) et coopèrent avec des bords respectifs des montants latéraux (123) de l'ossature (120).

3. Appareil suivant la revendication 1, caractérisé en ce que les moyens de guidage comprennent des profilés à section en V (221) fixés aux côtés dudit block-cylindres (220) et qui coopèrent avec une paire de patins de portée (216) fixés à une partie en forme de V (218) des montants latéraux (212) de l'ossature (210).

4. Appareil suivant la revendication 1, caractérisé en ce qu'il comprend des moyens (125, 128; 70, 71; 231, 232) pour déplacer ledit bloc-cylindres (110, 41, 220) entre une position basse, en service, et une position haute, au repos.

5. Appareil suivant l'une quelconque des revendications précédentes, caractérisé en ce qu'un capot (300) est placé sur ladite ossature et ledit bloc-cylindres.

6. Appareil suivant la revendication 5, caractérisé en ce que ledit capot (300) comporte une jupe (310) pour fermer l'intérieur du capot en relation avec la surface à traiter.


137
128
125
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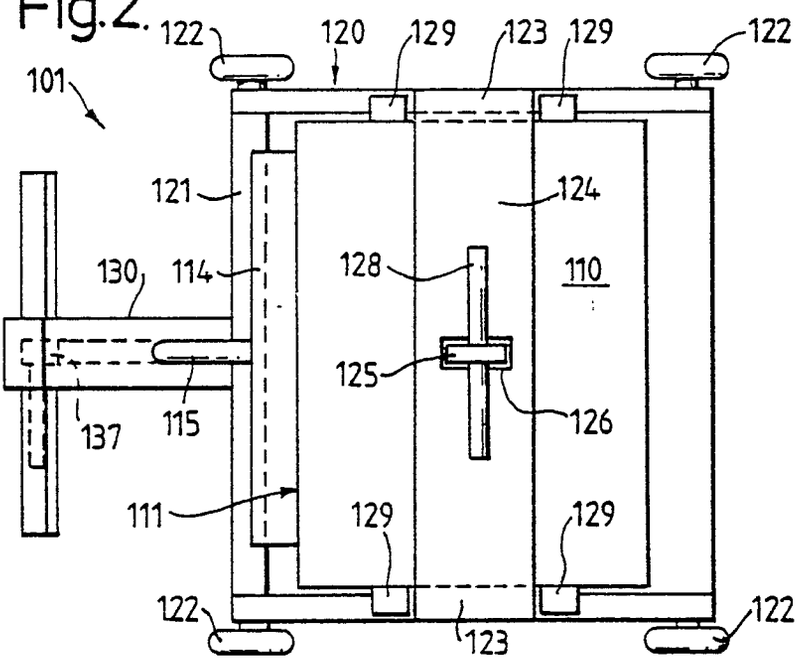
110
114
112
122
121
113
113
122

Fig.1.

Fig.2.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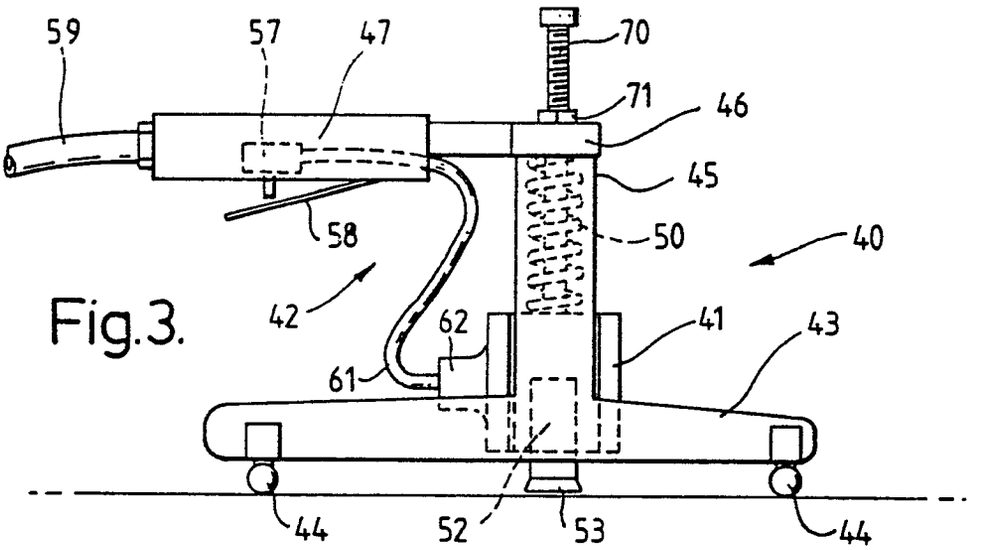
122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62
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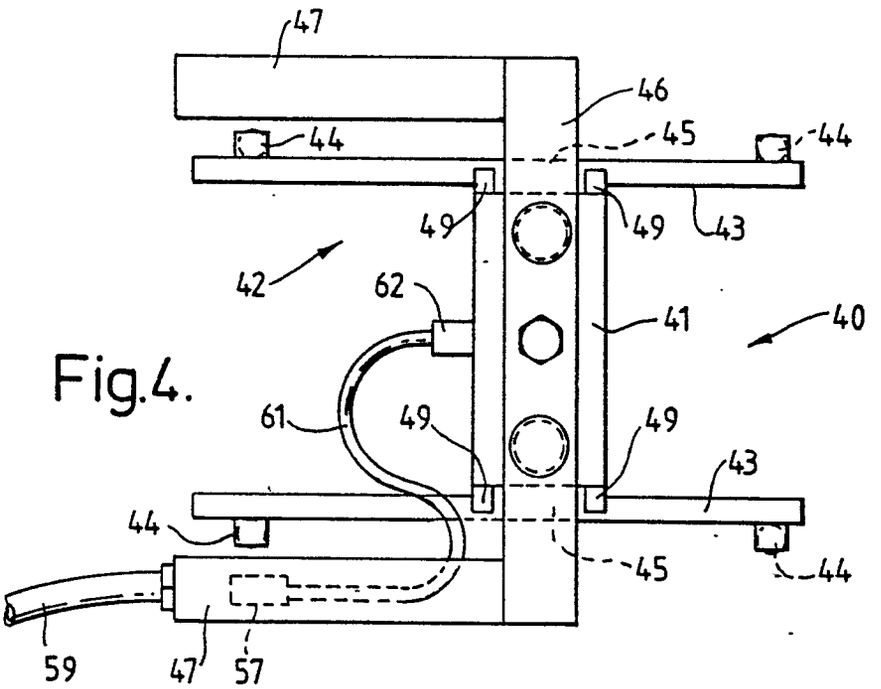
52
53
44

Fig.3.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61
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44
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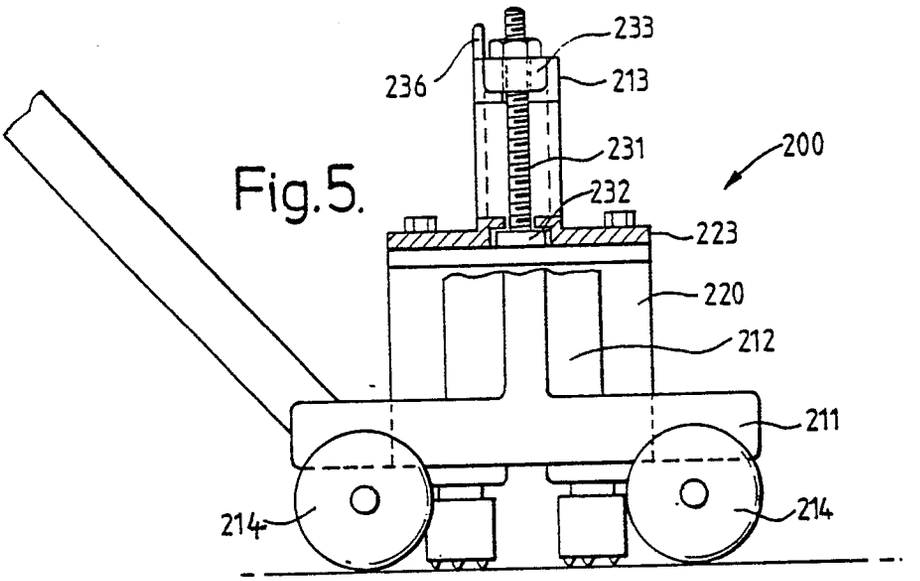
44
59
47
57

Fig.4.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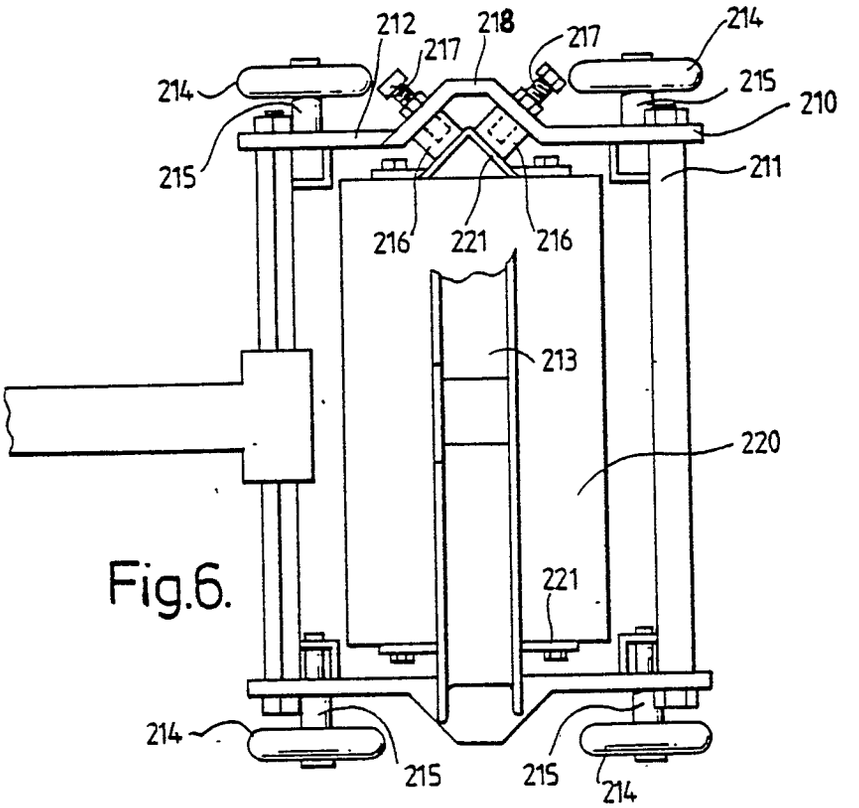
236
213
231
200
232
223
220
212
211
214
214

Fig.5.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218
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214

Fig.6.

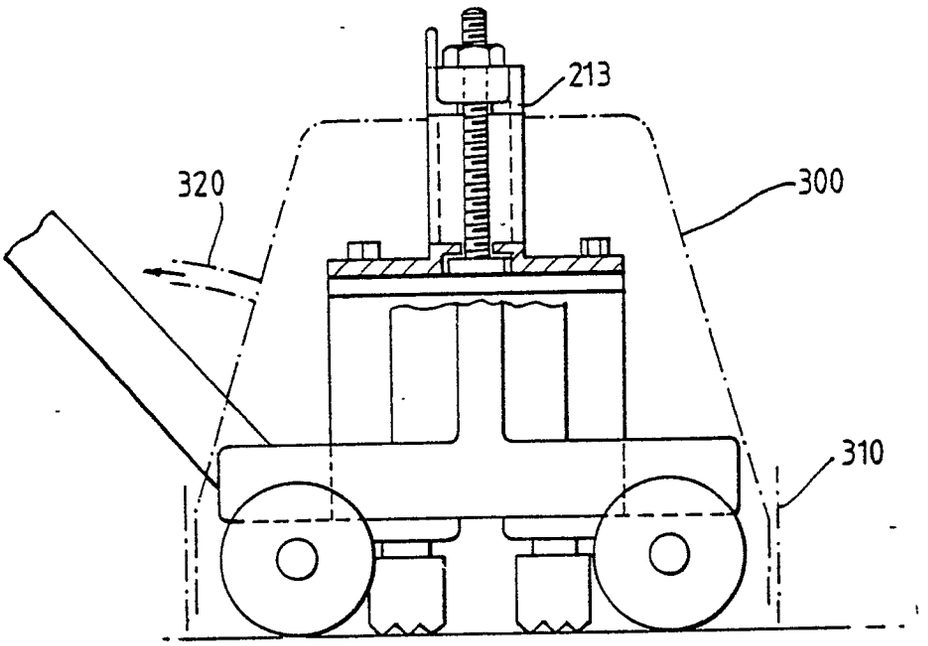

Fig.7