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**A1F FHA**

(56) Documents Cited

**WO 2002/006212 A1 DE 004428373 C1**  
**US 4738084 A**

(58) Field of Search

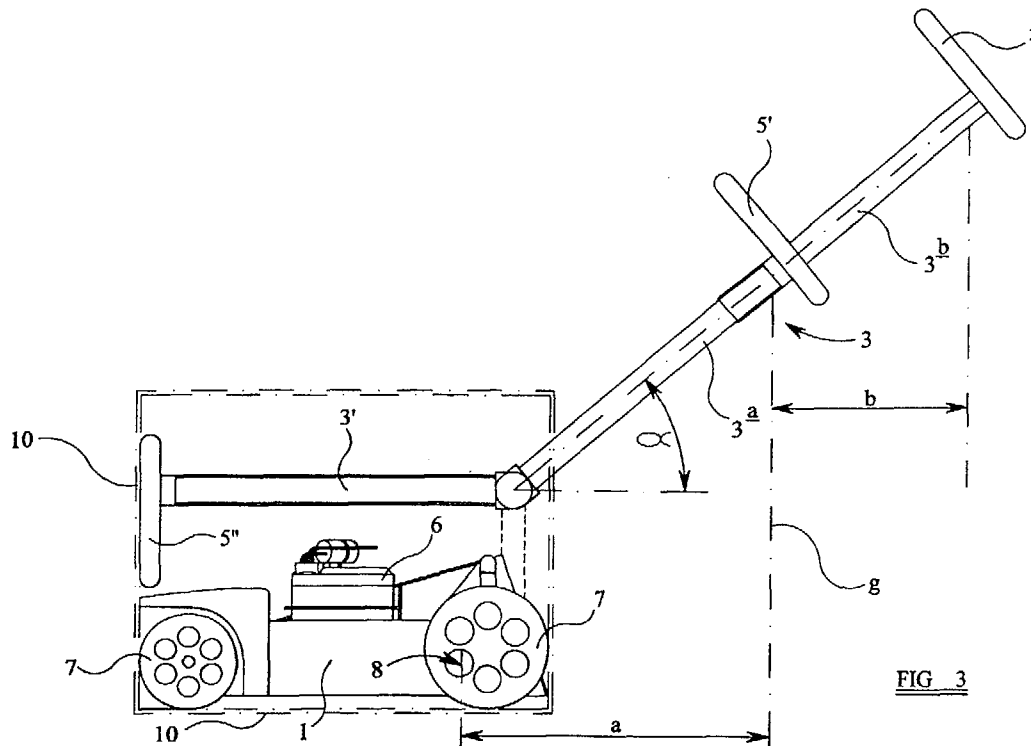
UK CL (Edition V ) A1F  
INT CL<sup>7</sup> A01D

Other: On-line: WPI, EPODOC, JAPIO

(54) Abstract Title

**Adjustable handle for a lawnmower**

(57) A ground working machine, particularly a lawnmower is described, which is provided with a handle 5 on a telescopic tube 3 and whose length can be adjusted in order to adapt to operators of different heights. It is consequently possible to bring the position of the handle 5 to different heights, but simultaneously with a higher positioned handle to increase the spacing (a + b) with respect to the lawnmower casing 1. This makes it possible to adapt to the stride of the operator.



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FIG 1

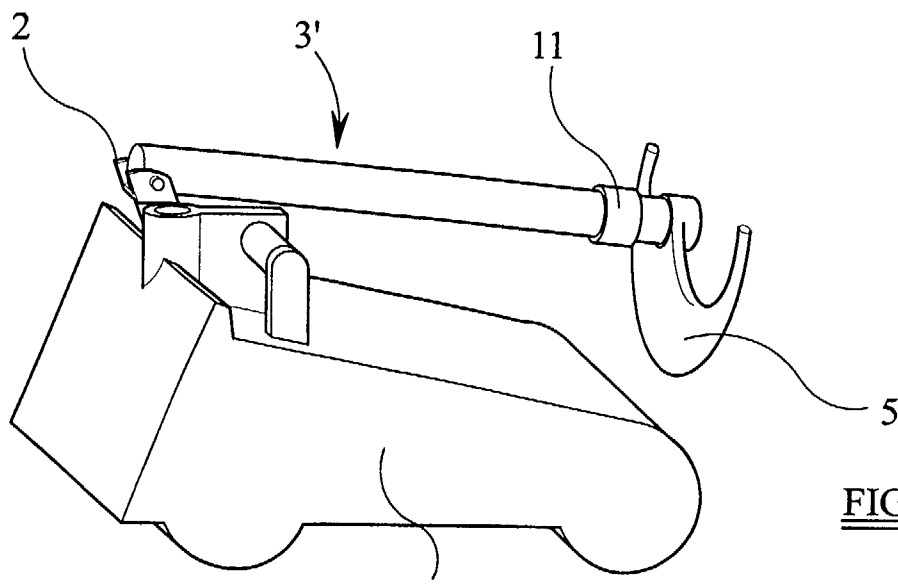
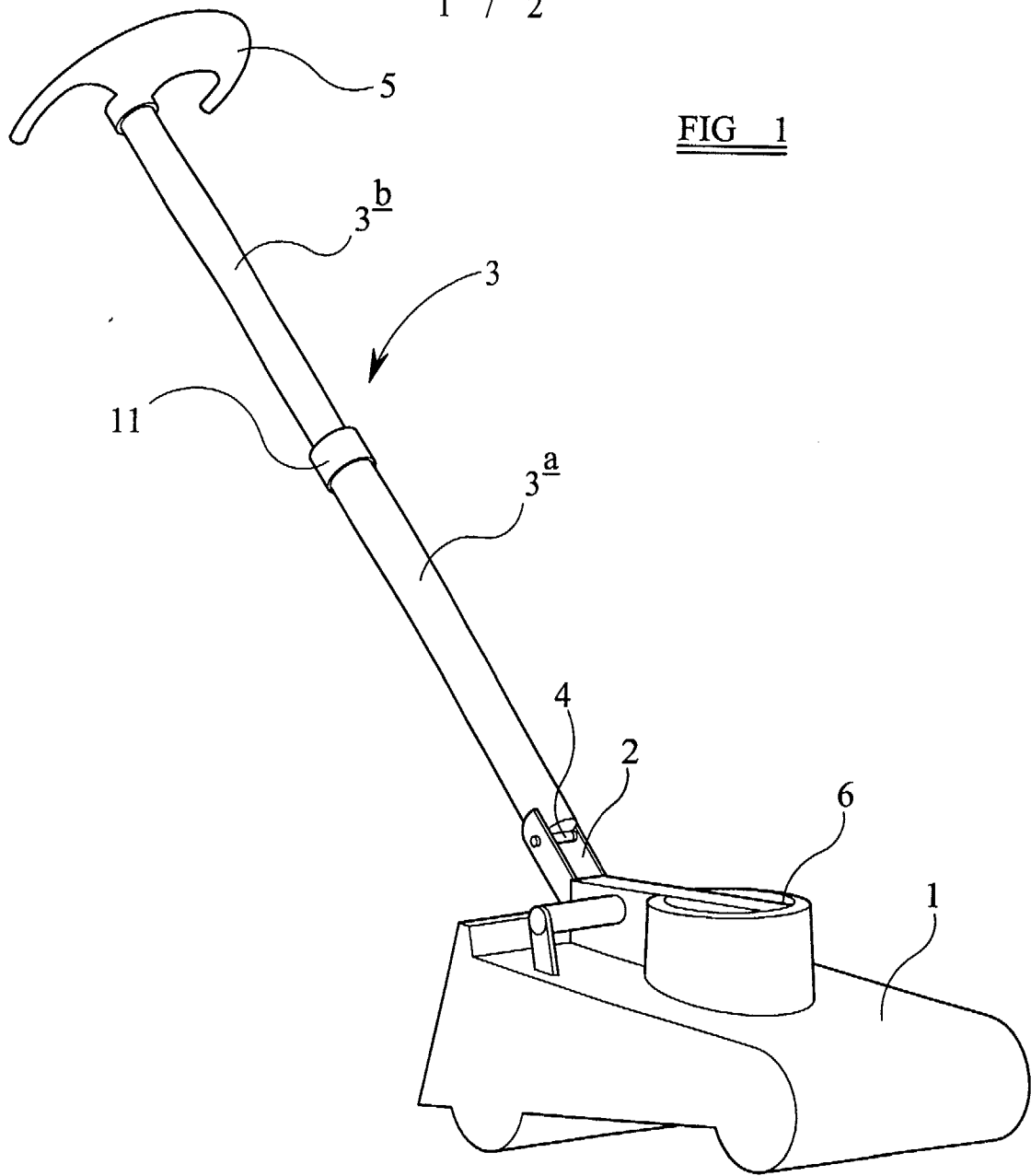
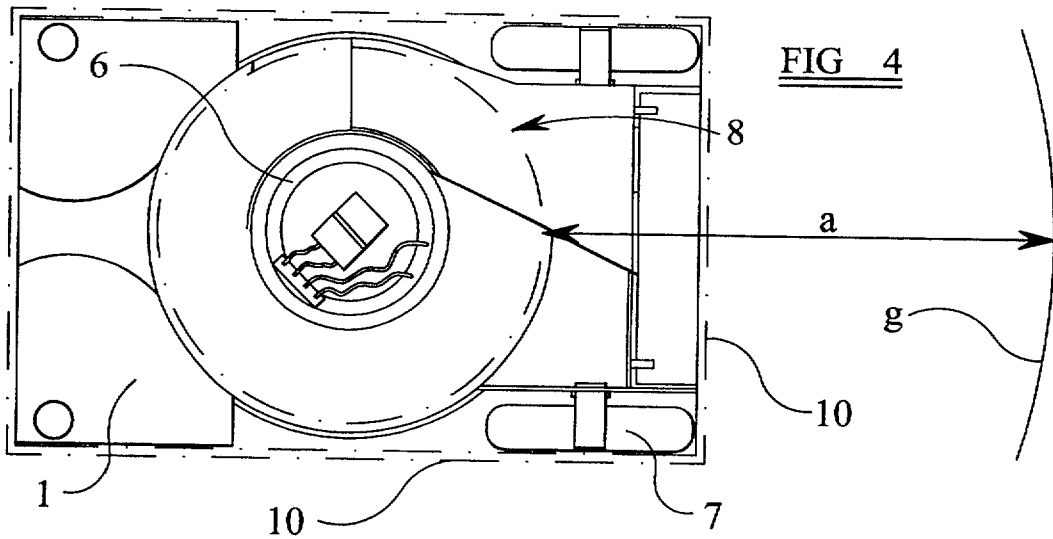
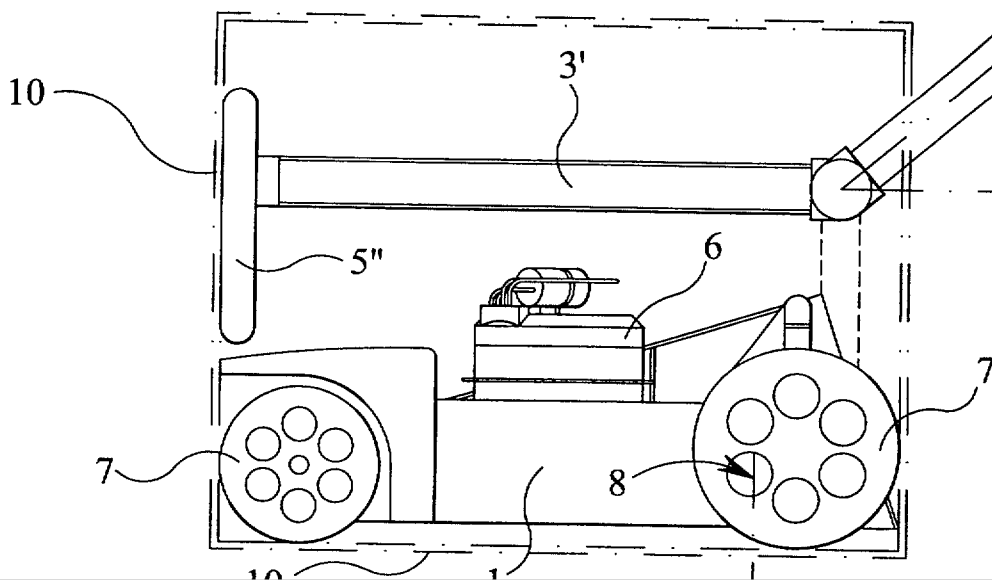


FIG 2



**FIG 4**



## GROUND WORKING MACHINE, PARTICULARLY LAWNMOWER

[001] The invention relates to a ground working machine, particularly a lawnmower having a handle arranged in spaced manner from a machine casing on a linkage and whose position relative to the casing is variable.

[002] It is known that engine-driven ground working machines, particularly lawnmowers, can be pushed and guided by means of a handle, which is fitted to a linkage. In the case of self-propelled lawnmowers the handle can also have different operating elements, which are to be oriented in such a way that the operator can operate the ground working machine in an ergonomic position.

[003] DE 35 32 830 C2 discloses a self-propelled lawnmower, in which a linkage with a handle is pivotable both about a horizontal axis and also about a vertical axis. The aim of the lateral pivotability is to also be able to guide the machine from the side. The vertical pivotability of the linkage is to be utilized in order to offer the handle in a readily accessible height to operators of different heights.

[004] However, in connection with the vertical pivotability about the horizontal axis, with a higher handle position the operator has a reduced horizontal spacing with respect to the mower. This is also the case in another guide rod known from DE 44 28 373 C1. In practice, the handling of mowers with such a pivotable linkage is unfavourable for persons having widely differing body heights and sizes.

[005] The problem of the invention is to provide a ground working machine of the aforementioned type, which can be equally easily handled by persons having different body sizes and heights. The solution according to the invention is described in claim 1.

[006] The inventive correlation of height and horizontal position of the handle advantageously leads to the fact that in the case of taller persons, who generally also have a larger stride, there is also a greater stepping freedom behind the ground working machine, e.g. a mower or a grass collector fitted thereto. Advantageously the pushing angle, i.e. the angle of the connecting line of the handle to the machine casing, remains largely unchanged with respect to the horizontal. Preferably the linkage in the use position is fixed to the casing with a pushing angle orientation independent of the handle position. Thus, for all body heights and sizes a good force introduction can be obtained during pushing.

[007] The handle position change can e.g. be obtained by a swivel connection between the handle and the linkage. However, preferably the length of the linkage, particularly in the case of a constant angular orientation with respect to the casing, is variably adjustable and lockable.

[008] In a preferred development of the invention the linkage comprises in simple manner a telescopically constructed tube, in which the telescoped tube parts are provided with spaced openings for the passing through of locking pins or bolts. It is particularly advantageous to lock the telescoped tube parts by clamping devices in their length and which are operable by a box nut and fix the telescoped tube parts in a positive and/or non-positive manner with respect to one another.

[009] According to a further development of the invention the telescopic tube can be fitted to the machine casing with the aid of an articulation and can be pivoted about the latter from the use position into the non-use position. The articulation and telescopic tube can be advantageously positioned and constructed in such a way that in the telescoped state, the telescopic tube with the handle does not project over the machine casing. If with such a construction the telescopic tube is held on the articulation so as to pivot by at least  $130^\circ$ , there is no need to re-

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