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(54) Adjustable fitting device for shovel implements for collecting and removing material

(57) An adjustable fitting device for a turned material collecting and removing shovel implements comprises a fixed body, associated with a shovel or blade, and a movable body, associated with a support rod or handle, the movable body being associated to the fixed body by adjustable locking means allowing the movable body to be locked at discrete position with respect to the fixed body to change an angle between the shovel and support therefor with respect to a horizontal plane, the adjustable locking means comprising a deformable plate operating as a push-button element to unlock or disengage the movable body and change the handle angle with respect to the shovel.

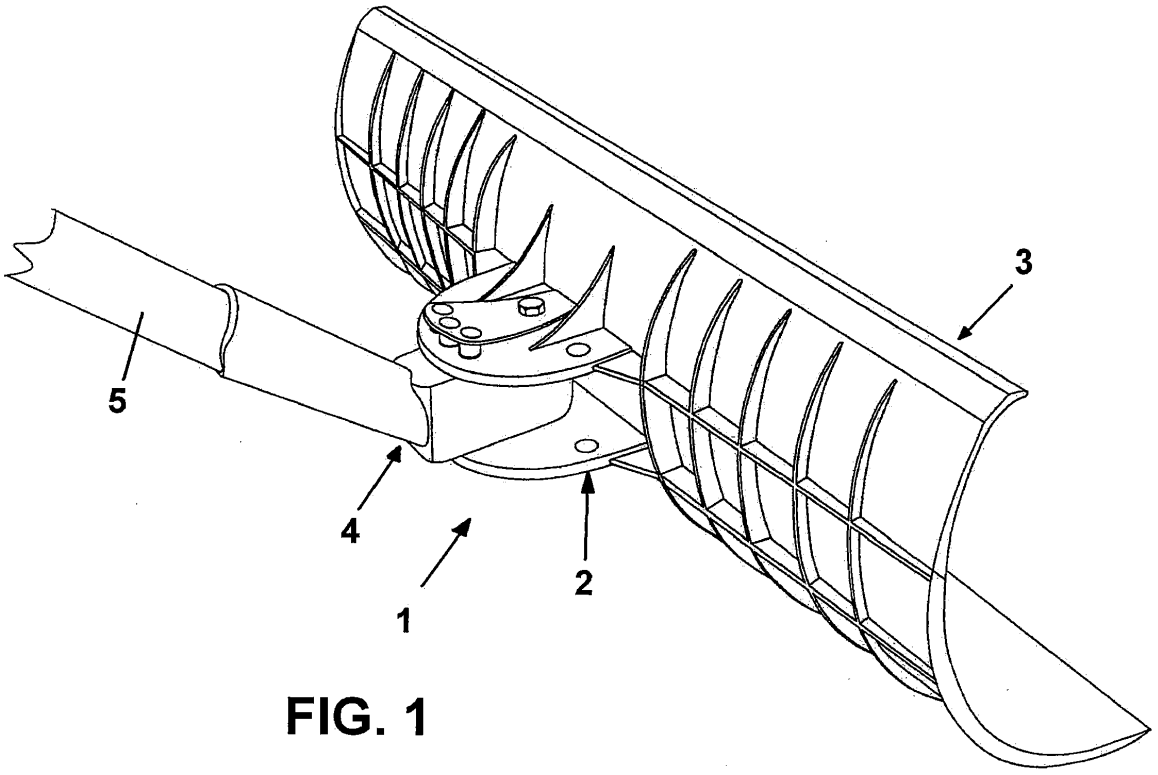

FIG. 1

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an adjustable fitting device for turned material collecting and removing shovel implements.

[0002] As is known, implements for manually shoveling snow conventionally comprise a rod element which is rigidly associated with a shovel.

[0003] For shoveling snow, the user pushes the shovel on the ground for a short path, thereby accumulating snow on the implement shovel.

[0004] As the shovel is full of snow, the user must raise and laterally overturn it, or drive the shovel to any other position away from the zone to be shoveled.

[0005] Such an activity is a very demanding one from a physical standpoint and moreover is potentially dangerous, mainly for the user back muscles.

SUMMARY OF THE INVENTION

[0006] Accordingly, the aim of the present invention is to provide such a fitting or attaching device allowing to make a material removal shovel implement which is much more efficient than conventional like implements.

[0007] Within the scope of the above mentioned aim, a main object of the invention is to provide such a fitting or attachment device which may be used in a manual shovel implement, for example of a snow shoveling type.

[0008] Another object of the invention is to provide such a fitting or attachment device which may be advantageously used in any implements in which a shovel element is associated with a support therefor.

[0009] Another object of the present invention is to provide such a fitting or attachment device which, owing to its specifically designed structural features, is very reliable and safe in operation.

[0010] Yet another object of the present invention is to provide such a fitting device which can be made starting from easily commercially available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

[0011] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an adjustable fitting device for a turned material collecting and removing shovel implement, characterized in that said fitting device comprises a fixed body, which may be associated to a shovel or blade, and a movable body, which may be associated to a support element as a rod or handle, said movable body being associated with said fixed body by adjustable locking means allowing said movable body to be locked at different locking positions with respect to said fixed body, in order to change an angle between said shovel and support, with respect to a horizontal plane.

[0012] The adjustable locking means comprise a deformable plate which may be used as push-button to unlock the movable body and change the handle angle with respect to the shovel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is a rear perspective view of a shovel implement including a fitting or attaching device according to the present invention;

Figure 2 is a front perspective view of a shovel implement including a fitting or attaching device according to the present invention;

Figure 3 is a top plan view of the shovel implement shown in a condition thereof in which the support rod is arranged at a central position;

Figure 4 is a view similar to figure 3, but showing the support rod at a leftward tilted position;

Figure 5 is a view similar to figure 4, but showing the support rod at a rightward tilted position;

Figure 6 is an exploded perspective view of the fitting or attaching device according to the present invention;

Figure 7 is a side, cross-sectional, view showing the inventive device in a locked position thereof; and

Figure 8 is a further cross sectional side elevation view, similar to figure 7, but showing the inventive device being unlocked to change the position thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] With reference to the number references of the above mentioned drawing figures, the fitting or attaching device according to the present invention, which has been generally indicated by the reference number 1, comprises a fixed body 2 which may be associated with a shovel or blade 3, and a movable body 4 which may be associated to a support such as a support rod or handle 5.

[0015] The movable body 4 is coupled or associated with the fixed body 2 through adjustable locking means allowing the movable body 4 to be locked at different positions, with respect to the fixed body 2, to change the mutual angle between the shovel 3 and handle 5, with respect to a horizontal plane.

[0016] More specifically, the fixed body 2 comprises a pair of plates: a top plate 6 and a bottom plate 7, each of which comprises a pivot pin hole 9.

[0017] The top plate 6 comprises moreover a plurality of locking holes including a central hole 10 and side holes

11 arranged on a circle arch.

[0018] The pivot pin holes 9 of the plates 6 and 7 are adapted to engage therein a screw pivot pin 12 which may be locked by a locking nut 13.

[0019] The screw pin 12 passes through a hole 14 formed in parallelepipedal body 15 made as a single piece with a bushing 16 to form the movable body 4.

[0020] The bushing 16 engages therein an end portion of the support rod or handle 5, or any other shovel 3 supporting member.

[0021] The parallelepiped body 16 comprises a seat or recess 17 for housing a peg 18 which may be axially driven against a resilient element 19 including, for example, a coil spring element.

[0022] The coil spring element 19 urges the peg 18 toward the top plate 6 of the fixed body 2, so that said pin will interfere with the plate locking holes 10 and 11, thereby preventing the movable body 4 from rotating with respect to the fixed body 2.

[0023] To disengage the peg 18 and allow the movable body 4 to turn with respect to the fixed body 2, the latter comprises a disengagement element including a deformable plate 20, which is pivoted to the screw pin 12 and comprises a plurality of projections 21 at the locking holes 10 and 11.

[0024] Thus, by pressing on the deformable plate 20, a projection 21 will operate on the peg 18 so as to remove or disengage the latter from the locking hole 10 or 11, thereby making the movable body 4 free to rotate with respect to the fixed body 2.

[0025] Owing to the provision of the pin 12, the movable body 4, in particular, may be rotated with respect to the fixed body 2 thereby changing the angle formed by the handle 5 and the cross extension of the shovel 3 with respect to the horizontal plane.

[0026] The position of the movable body 4 is locked by engaging the peg 18 in one of the locking holes, that is either the central locking hole 10 or one of the side locking holes 11.

[0027] In the drawings two side locking holes 11 corresponding to a rightward or leftward offset position, with respect to the central position, have been shown.

[0028] It should be apparent that said side locking holes 11 may be differently designed to provide different discrete angular positions.

[0029] Thus, the shovel implement including the fitting or attaching device according to the present invention may be used with the handle thereof at two different angular positions with respect to the shovel or blade element 3.

[0030] Figure 3 shows a central position of the handle 5 with respect to the shovel 3.

[0031] Figure 4 shows the implement with the handle 5 at a leftward tilted position from the shovel 3, whereas figure 5 shows the implement with its handle 5 rightward tilted or offset with respect to said shovel 3.

[0032] The handle angle may be changed, in a very quick and easy manner, by pressing on the deformable plate 20 and rotating the handle up to its following position thereat said peg 18 will be automatically engaged, owing to the provision of the urging spring 19, in the corresponding locking hole.

[0033] This operation may be simply performed by holding by a hand the handle and operating by the other hand on the fixed body 2 and deformable plate 20 which, as stated, will merely operate substantially as a simple push-button element.

[0034] It has been found that the invention fully achieves the intended aim and objects.

[0035] In fact, the invention has provided a fitting or attaching device allowing to quickly and easily change the working angle between the shovel or blade and the support therefor, in the disclosed embodiment a handle.

[0036] The fitting device according to the present invention may be used in any types of implement including a shovel or blade and a related support element and in which it is desired to change the shovel or blade inclination with respect to a preferential direction of the support element.

[0037] In a case of a snow shovel implement, as in the illustrated embodiment, the operator may, by simply adjust the shovel either rightward or leftward, move along the path to be shoveled, thereby to displace snow on a side, without a need of raising the implement and accordingly with a great energy saving.

[0038] In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. An adjustable fitting device for a turned material collecting and removing shovel implement, **characterized in that** said fitting device comprises a fixed body, associated with a shovel or blade, and a movable body associated with a support element as a support rod or handle, said movable body being associated with said fixed body through adjustable locking means allowing said movable body to be locked at discrete positions with respect to said fixed body, to cause an angle between said shovel and support to change with respect to a horizontal plane.

2. A fitting device, according to claim 1, **characterized in that** said fixed body comprises a pair of plates, a top plate and a bottom plate, said plates including each a pivot pin hole, the two pivot pin holes of said top and bottom plates being adapted to engage therein a screw pin lockable by a locking nut, said screw pin passing through a hole formed in a parallelepipedal body comprising said movable body.

3. A fitting device, according to claim 1, **characterized in that** said movable body comprises a bushing or other coupling element adapted to engage therein

an end portion of the support rod and handle or other shovel support element, said bushing being made in a single piece with said parallelepipedal body.

4. A fitting device, according to claim 1, **characterized in that** said top plate of said fixed body comprises a plurality of locking holes including a central locking hole and side locking holes arranged on a circle arch having a center thereof at the pin hole.

5. A fitting device, according to one or more of the preceding claims, **characterized in that** said parallelepipedal body comprises a seat housing therein a movable peg which may be axially driven against a resilient biassing element including a coil spring, said coil spring urging said peg toward the top plate of said fixed body thereby causing said peg to interfere against the locking holes of said plate to prevent said movable body from rotating with respect to said fixed body.

6. A fitting device, according to one or more of the preceding claims, **characterized in that**, for disengaging said peg and allowing said movable body to rotate with respect to fixed body, said fixed body comprises a disengagement element including a deformable plate, pivoted to said screw pivot pin and comprising a plurality of projections at said locking holes thereby, by pressing on said deformable plate, a projection will engage said peg to remove said peg from its locking hole thereby disengaging said movable body to allow it to rotate with respect to said fixed body.

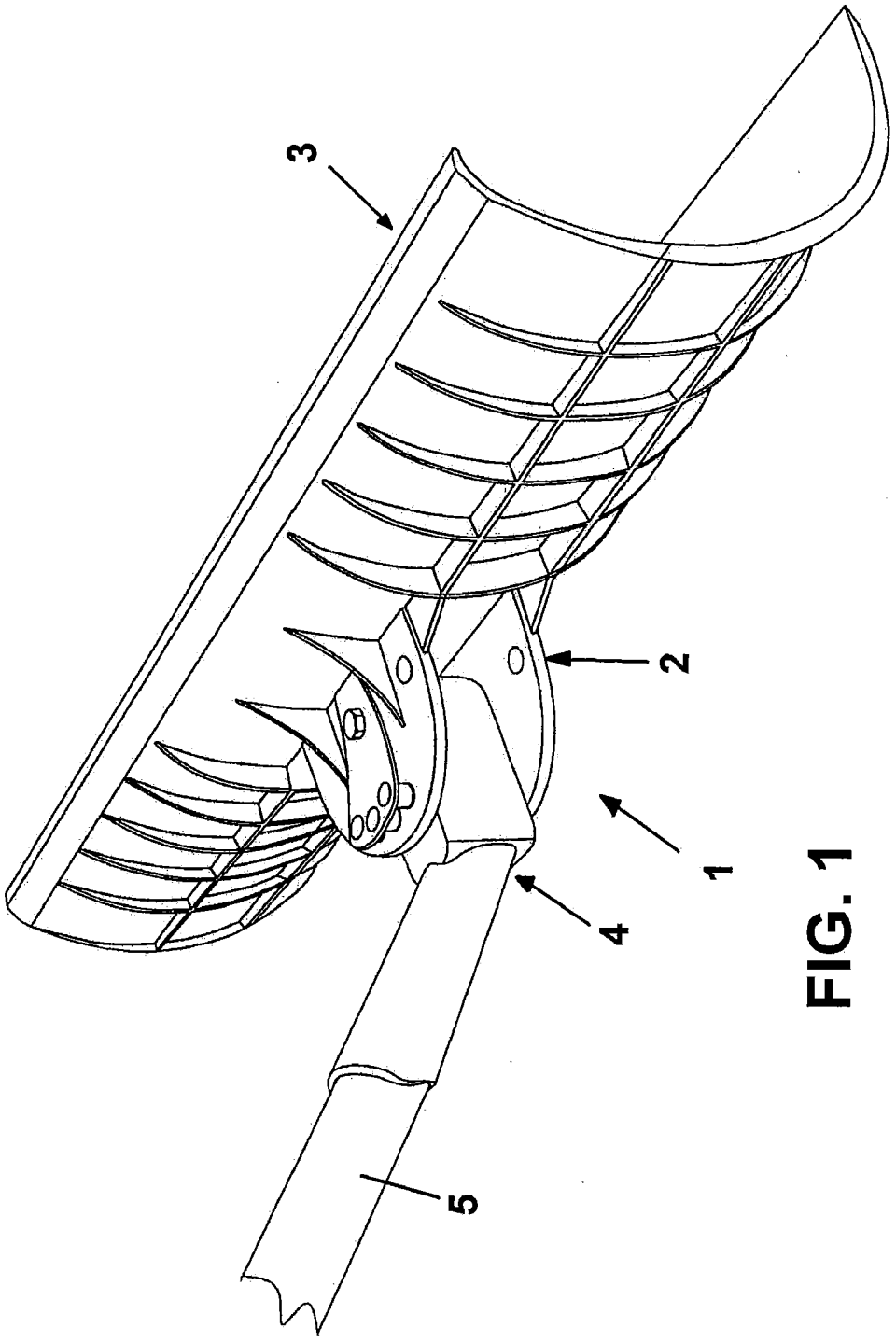


FIG. 1

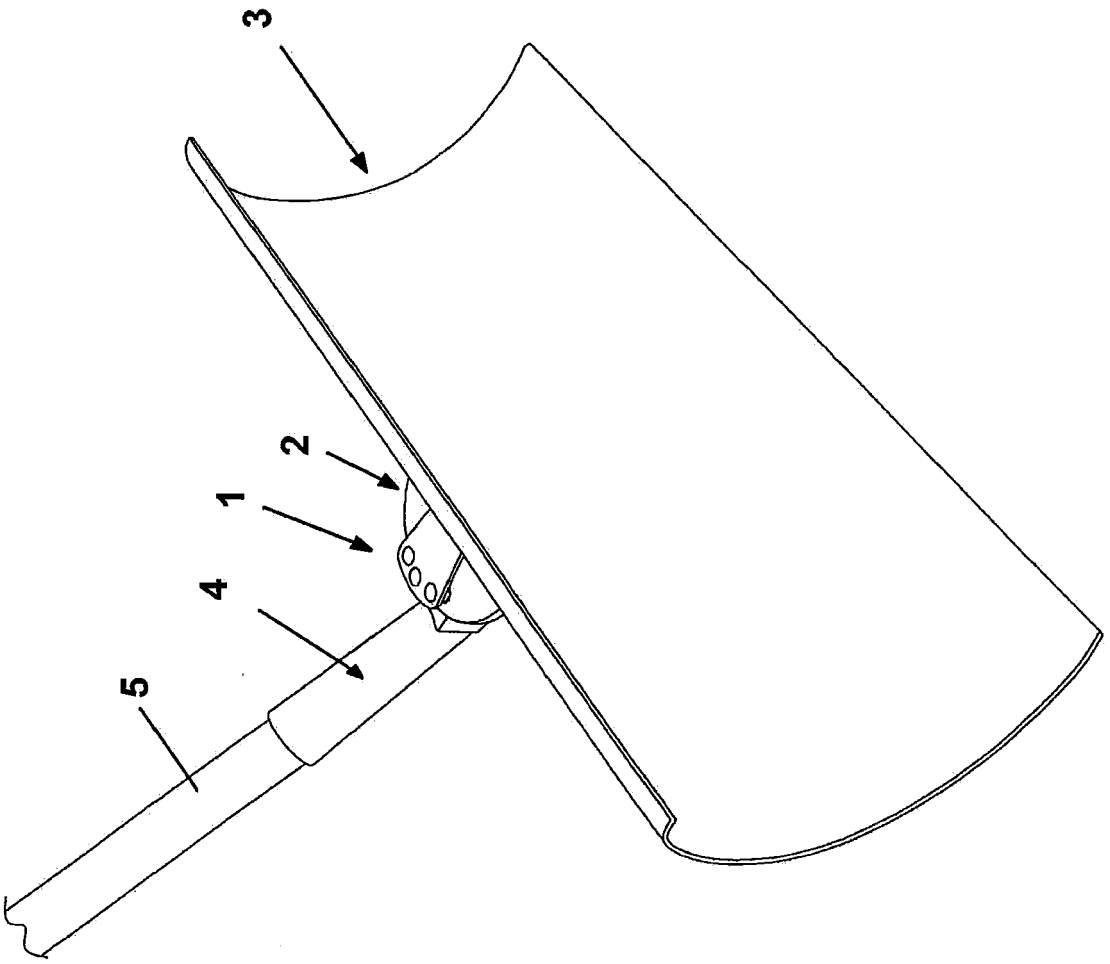
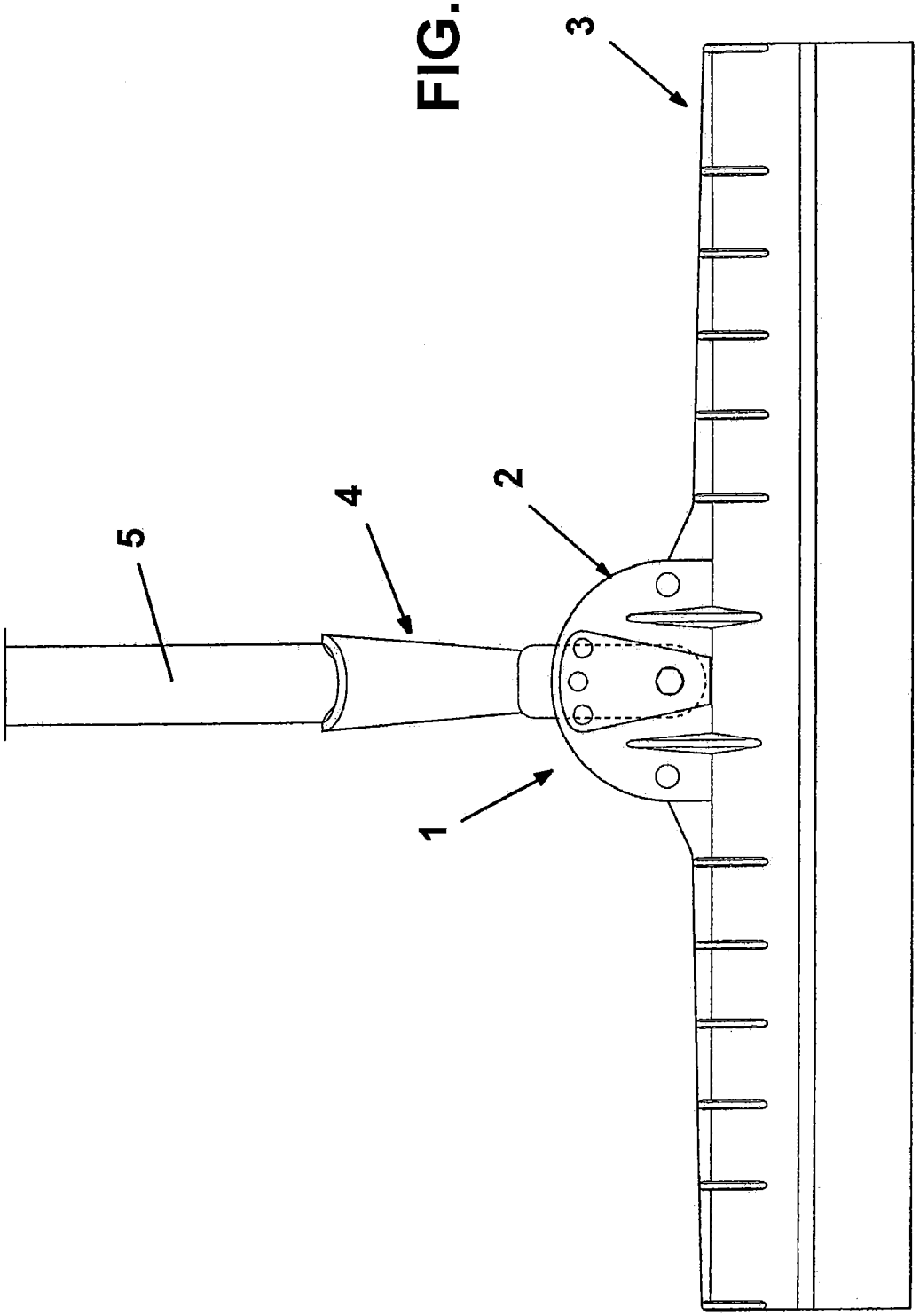


FIG. 2

FIG. 3



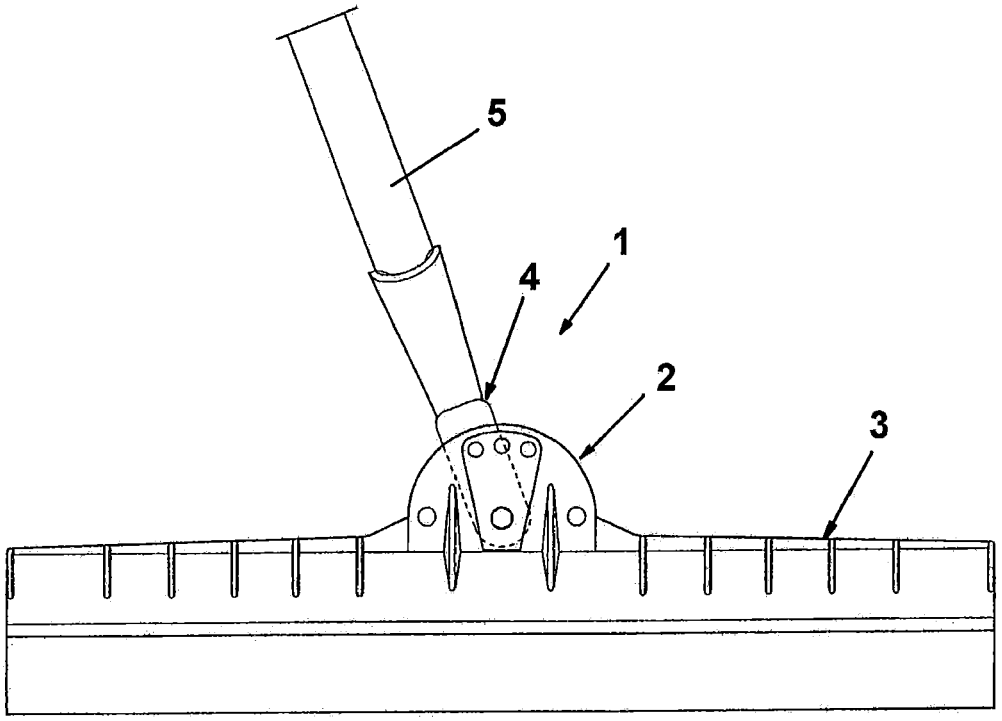


FIG. 4

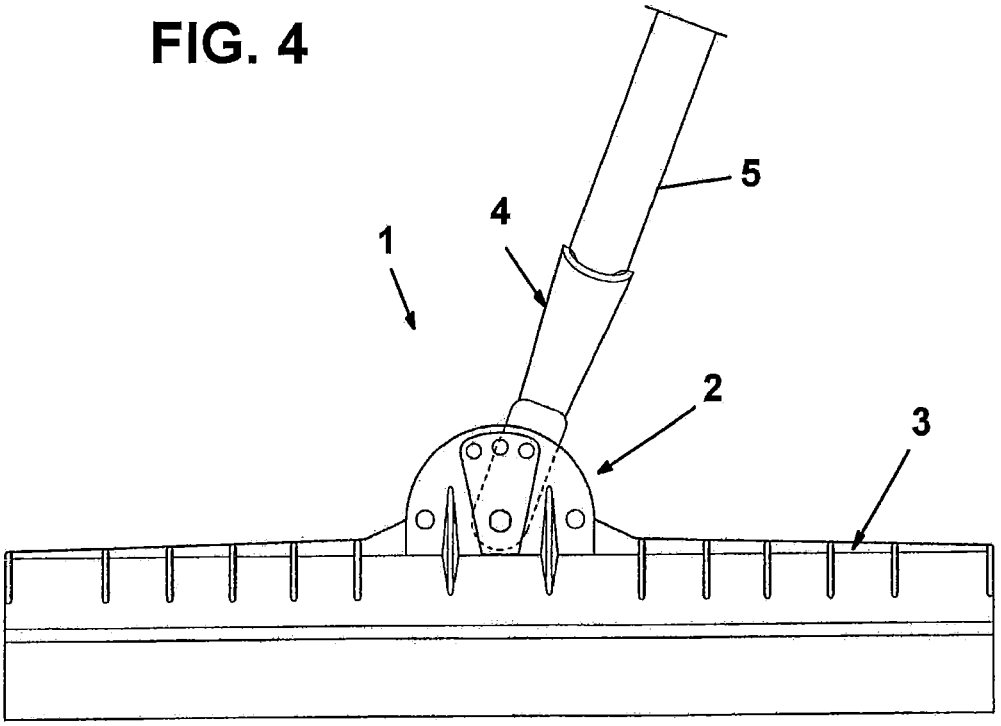


FIG. 5

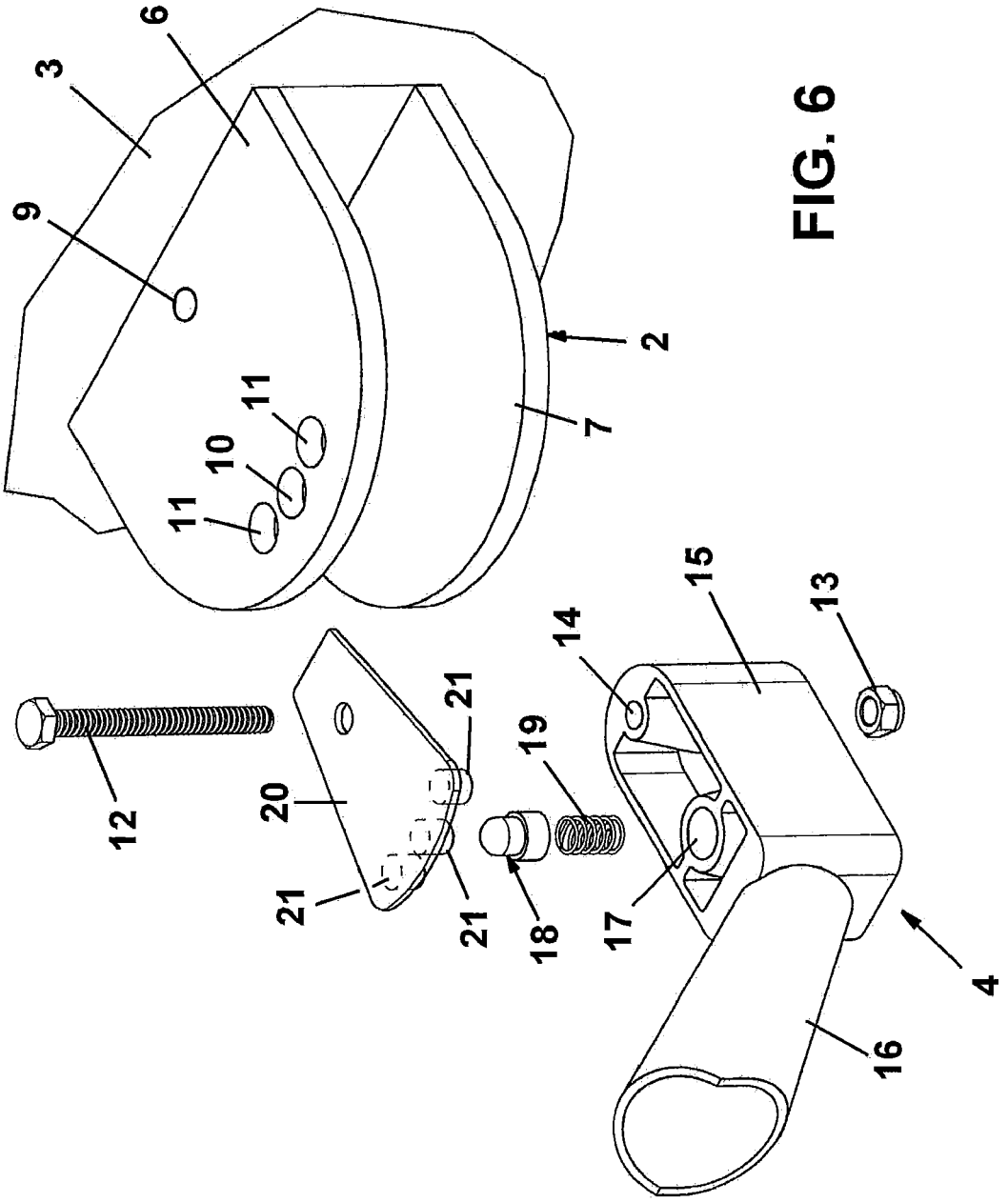


FIG. 6

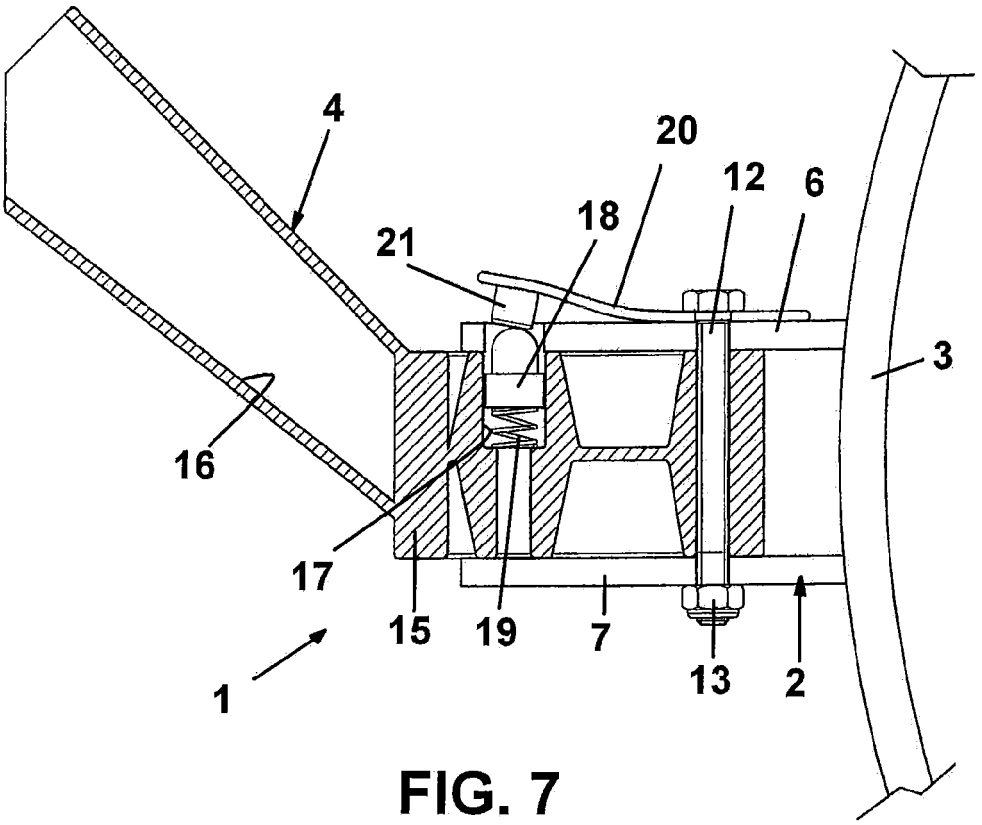


FIG. 7

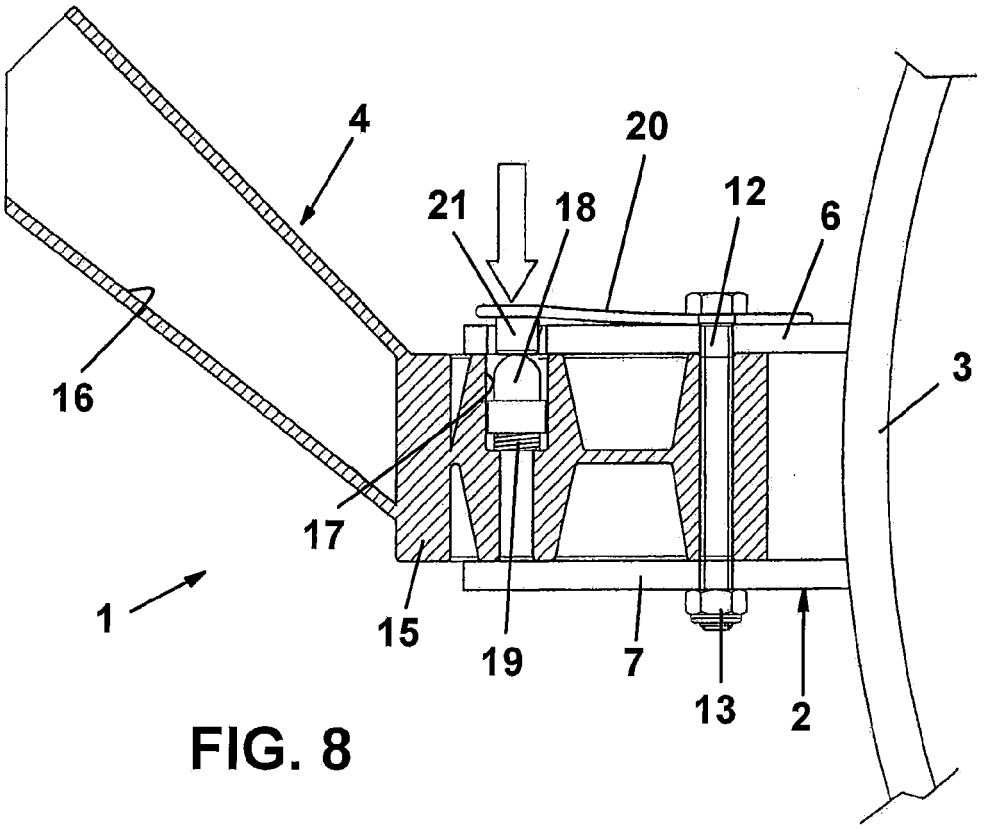


FIG. 8