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(54) Switching structure used in a toy gun for realistic shooting training

(57) A switching structure (1) used in a toy gun for realistic shooting training is provided in a frame (2) containing a first conductor (21) and a second conductor (22) for connecting to a power source. The switching structure (1) includes a rod (3), a conductor (4) and a pressing piece (3). A top end of the rod (3) is a locking part (31), the conductor (4) can be electrically connected with the first conductor (21) and the second conductor (22), and the pressing piece (5) displaces in the frame (2). By the aforementioned structures, when a new magazine is loaded and a last round of bullet is fired, a bolt handle should be pulled again, allowing the first conductor (21) to electrically conduct with the second conductor (22), such that a problem of a constant supply of power source in a conventional toy gun can be improved, thereby achieving the practicability and progressiveness of simulating a shooting training by emulating operations of a real gun.

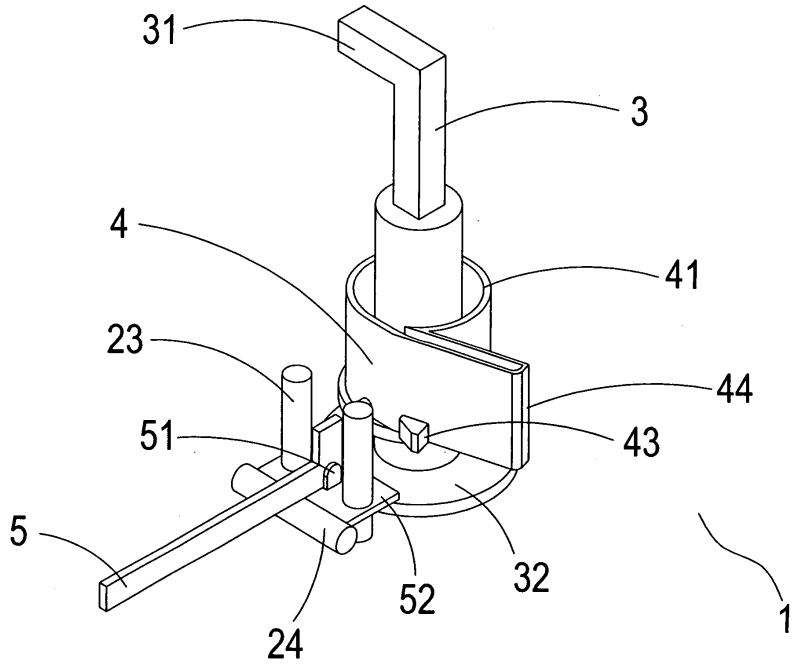

FIG.1

EP 2 144 031 A1

Description

BACKGROUND OF THE INVENTION

a) Field of the Invention

[0001] The present invention relates to a realistic sparring structure 1, and more particularly to a realistic sparring structure 1 which can be used in a shooting training.

b) Description of the Prior Art

[0002] A survival game has been a leisure activity that people will usually be taking nowadays. People can use toy guns in their hands to simulate a real field condition as well as can play team games with others to develop privities of games and to achieve a recreational effect.

[0003] Yet when shooting with a real gun, first a magazine should be loaded and then a bolt handle is pulled to feed bullets. If the magazine is unloaded before being shot empty, then one round of bullet will still remain in a gun bore; whereas, if the magazine is reloaded after firing the remaining bullets, then the bolt handle should be pulled again at this time to feed the bullets.

[0004] On the other hand, electricity is often used as a power source for the toy gun to drive a motor inside a frame, followed by utilizing a gear assembly for transmission to achieve an effect of shooting. When shooting, a player only needs to pull the bolt handle once that the toy gun can shoot continuously due to a constant supply of the power source.

[0005] Nonetheless, in using the aforementioned toy gun, a problem actually exists to be improved, as described below.

[0006] As the conventional toy gun utilizes the electricity as its power source, the bolt handle will not need to be pulled after replacing with a new magazine that the effect of continuous shooting can be achieved. Therefore, a problem of a different operating effect from that of the real gun is resulted.

[0007] Accordingly, how to solve the aforementioned problem and shortcoming of the prior art is an aim of improvement with research and development by the present inventor and related vendors.

SUMMARY OF THE INVENTION

[0008] The primary object of the present invention is to provide a realistic sparring structure used in a shooting training, wherein the realistic sparring structure is provided in a frame within which are installed with a first conductor and a second conductor for connecting to a power source, and the realistic sparring structure includes a rod, a conductor and a pressing piece. The rod is rotatably provided in the frame, a top end of the rod is provided with a locking part, and a bottom end of the rod is provided with an abutting part. The conductor is electrically connected with the first conductor and the second conductor, and is provided with a hole into which a torsion spring is emplaced. In addition, the conductor is sheathed on the rod with the hole and the torsion spring, is fixed on the rod with a fixing bar, and a wall of the conductor is provided with a contact end and an abutting end. The pressing piece can be displaced to be abut and fix the contact end, such that when a user is to assemble a magazine to the frame, the magazine can push up the rod. At this time, the conductor is electrically connected with the first conductor. On the other hand, when the user pulls a bolt handle to displace a handle lever, the handle lever can push the abutting end, further allowing the contact end to be electrically connected with the second conductor. At a same time, the pressing piece will fix the contact end, and the electric connection between the first conductor and the second conductor is accomplished. Furthermore, when the user removes the magazine, as the locking part of the rod is locked at an action, the rod will not descend, such that when a last bullet is fired, the locking part of the rod will release from the action and the rod will descend due to a reciprocal operation of the action. In addition, by the torsion spring in the conductor, the conductor will rotate along an original direction, resulting in that the contact end is disengaged from the second conductor. In a mean time, as the rod is descended, the pressing piece will displace downward, allowing the pressing piece to release the contact end of the conductor. At this time, the power source in the frame is open-circuited. If the user is to load a new magazine, then the bolt handle should be pulled again to operate the handle lever, enabling the first conductor to be electrically connected with the second conductor. Accordingly, by the aforementioned technologies, the problem existing in the conventional toy gun that the power source is supplied constantly can be solved, thereby achieving the practicability and progressiveness of simulating operations of a real gun.

[0009] To enable a further understanding of the said objectives and the technological methods of the invention herein, the brief description of the drawings below is followed by the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

FIG. 1 shows a three-dimensional view of a preferred embodiment of the present invention.

FIG. 2 shows an exploded view of a preferred embodiment of the present invention.

FIG. 3 shows a side view of a preferred embodiment of the present invention.

FIG. 4 shows a first schematic view of an operation of a preferred embodiment of the present invention.

FIG. 5 shows a second schematic view of an operation of a preferred embodiment of the present invention.

FIG. 6 shows a third schematic view of an operation of a preferred embodiment of the present invention.
FIG. 7 shows a fourth schematic view of an operation of a preferred embodiment of the present invention.
FIG. 8 shows a fifth schematic view of an operation of a preferred embodiment of the present invention.
FIG. 9 shows a sixth schematic view of an operation of a preferred embodiment of the present invention.
FIG. 10 shows a seventh schematic view of an operation of a preferred embodiment of the present invention.
FIG. 11 shows an eighth schematic view of an operation of a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] Referring to FIGS. 1 to 4, it shows a three-dimensional view, an exploded view, a side view and a first schematic view of an operation, of a preferred embodiment of the present invention. A realistic sparring structure 1 of the present invention is provided in a frame 2, with interior of the frame 2 being provided with a first conductor 21 and a second conductor 22 that are used for connecting to a power source. The realistic sparring structure 1 comprises a rod 3, which is rotatably provided in the frame 2, a top end of which is provided with a locking part 31, and a bottom end of which is provided with an abutting part 32; a conductor 4, which is electrically connected with the first conductor 21 and the second conductor 22, and is provided with a hole 41 into which a torsion spring 42 is emplaced, with an end of the torsion spring 42 being fixed at the frame 2, the other end being fixed at the conductor 4, the conductor 4 being sheathed on the rod 3 with the hole 41 and the torsion spring 42, the conductor 4 being fixed at the rod 3 with a fixing bar 45, and a wall of the conductor 4 being provided with a contact end 43 and an abutting end 44; and a pressing piece 5, which is displaceable in the frame 2, and is provided on an axis 51, with the axis 51 being fixed on a seat 52, the frame 2 being provided with two pillars 23 and one transversal rod 24, and the seat 52 being sheathed on the pillars 23.

[0012] Referring to FIGS. 2, 4 and 5, it shows an exploded view, a first schematic view of an operation and a second schematic view of an operation, of a preferred embodiment of the present invention. When a magazine 6 is loaded, the magazine 6 will push the rod 3 upward, which results in that an electric connection is formed between the conductor 4 and the first conductor 21. In addition, as the seat 52 is sheathed on the pillars 23 and the bottom end of the rod 3 is provided with the abutting part 32, when the rod 3 ascends, the seat 52 will also be pushed upward by using the abutting part 32.

[0013] Referring to FIGS. 2, 6 and 7, it shows an exploded view, a third schematic view of an operation and a fourth schematic view of an operation, of a preferred embodiment of the present invention. After loading the magazine 6, a user has to pull a bolt handle to displace a handle lever 25. As the conductor 4 is provided with the abutting end 44, the handle lever 25 will push the abutting end 44 toward a direction. In addition, as the conductor 4 is provided with the contact end 43, the conductor 4 can be electrically connected with the second conductor 22 by the contact end 43. At this time, the first conductor 21 will electrically conduct with the second conductor 22 by the conductor 4. Moreover, as the pressing piece 5 abuts and fixes the contact end 43, the first conductor 21 can maintain the electrical connection with the second conductor 22, and at this time, the user can fire freely.

[0014] Referring to FIGS. 2, 8 and 9, it shows an exploded view, a fifth schematic view of an operation and a sixth schematic view of an operation, of a preferred embodiment of the present invention. After taking down the magazine 6, there is still one round of bullet in a bore. As the top end of the rod 3 is provided with the locking part 31, the locking part 31 will be fixed on an action 26. When the last round of bullet is fired out, the action 26 will operate reciprocally after pulling a trigger, which allows the locking part 31 to release from the action 26. In addition, as the conductor 4 is provided with the hole 41, and the hole 41 is emplaced with the torsion spring 42, with one end of the torsion spring 42 being fixed on the frame 2, and the other end being fixed on the conductor 4, the rod 3 will rotate and descend under an elastic operation of the torsion spring 42. At this time, an open-circuit will be formed between the first conductor 21 and the second conductor 22. When the user is to reload the magazine 6, he or she needs to pull the bolt handle again to operate the handle lever 25, thereby enabling the present invention to be provided with the practicability and progressiveness of simulating operations of a real gun.

[0015] Referring to FIGS. 2, 10 and 11, it shows an exploded view, a seventh schematic view of an operation and an eighth schematic view of an operation, of a preferred embodiment of the present invention. If the bullets in the magazine 6 are shot out completely, a push bar 61 in the magazine 6 will eject upward to push up the pressing piece 5, allowing the pressing piece 5 not to abut and fix the contact end 43 of the conductor 4 any more. In addition, as the conductor 4 is provided with the hole 41, and the hole 41 is emplaced with the torsion spring 42, the conductor 4 will rotate to its original position. Moreover, as the rod 3 rotates to its original position too, the locking part 31 of the rod 3 will release from the action 26 and descend. At this time, the open-circuit is formed between the first conductor 21 and the second conductor 22. When the user needs to reload a new magazine 6, he or she has to pull the bolt handle again to operate the handle lever 25, thereby allowing the present invention to be provided with the practicability and progressiveness of simulating the operation of the real gun.

[0016] Accordingly, referring to all the drawings, the

present invention is actually provided with following advantages in comparison with the prior art.

[0017] The realistic sparring structure 1 of the present invention is provided in the frame 2, the interior of the frame 2 is provided with the first conductor 21 and the second conductor 22 for connecting to the power source, and the realistic sparring structure 1 includes the rod 3, the conductor 4 and the pressing piece 5, wherein the rod 3 is rotatably provided in the frame 2, the top end of the rod 3 is provided with the locking part 31, the conductor 4 is electrically connected with the first conductor 21 and the second conductor 22, the conductor 4 is fixed on the rod 3, the wall of the conductor 4 is provided with the contact end 43 and the abutting end 44, and the pressing piece 5 can displace in the frame 2. When the user loads the magazine 6 and takes down the magazine 6 after shooting a few rounds, there is still one round of bullet in the bore. When the last round of bullet is fired, as the action 26 operates reciprocally, the locking part 31 will release from the action 26, and the rod 3 will descend accordingly, resulting in that the open-circuit is formed between the first conductor 21 and the second conductor 22. At this time, if a new magazine 6 is loaded, then the bolt handle should be pulled again. Accordingly, the present invention is able to achieve the practicability and progressiveness of simulating the real gun used in the shooting training by emulating the operation of the real gun.

[0018] It is of course to be understood that the embodiments described herein is merely illustrative of the principles of the invention and that a wide variety of modifications thereto may be effected by persons skilled in the art without departing from the spirit and scope of the invention as set forth in the following claims.

Claims

1. A realistic sparring structure used in a shooting training, with the realistic sparring structure 1 being provided in a frame 2, interior of the frame 2 being provided with a first conductor 21 and a second conductor 22 for connecting to a power source, and the realistic sparring structure 1 comprising:

   a rod 3, which is rotatably provided in the frame 2, a top end of which is provided with a locking part 31, and a bottom end is provided with an abutting end 32;
   a conductor 4, which is electrically connected with the first conductor 21 and the second conductor 22, and is provided with a hole 41, with interior of the hole 41 being emplaced with a torsion spring 42, the conductor 4 being sheathed on the rod 3 with the hole 41 and the torsion spring 42, the conductor 4 being fixed on the rod 3 and a wall of the conductor 4 being provided with a contact end 43 and an abutting end 44; and
   a pressing piece 5 which displaces in the frame 2 to abut and fix the contact end 43.

2. The realistic sparring structure used in a shooting training, according to claim 1, wherein the conductor 4 is fixed at the rod 3 with a fixing bar 45.

3. The realistic sparring structure used in a shooting training, according to claim 1, wherein the pressing piece 5 is provided on an axis 51 which is fixed on a seat 52, and the frame 2 is provided with two pillars 23 and one transversal rod 24, with the seat 52 being sheathed on the pillars 23.

4. The realistic sparring structure used in a shooting training, according to claim 1, wherein an end of the torsion spring 42 is fixed on the frame 2, and the other end is fixed on the conductor 4.

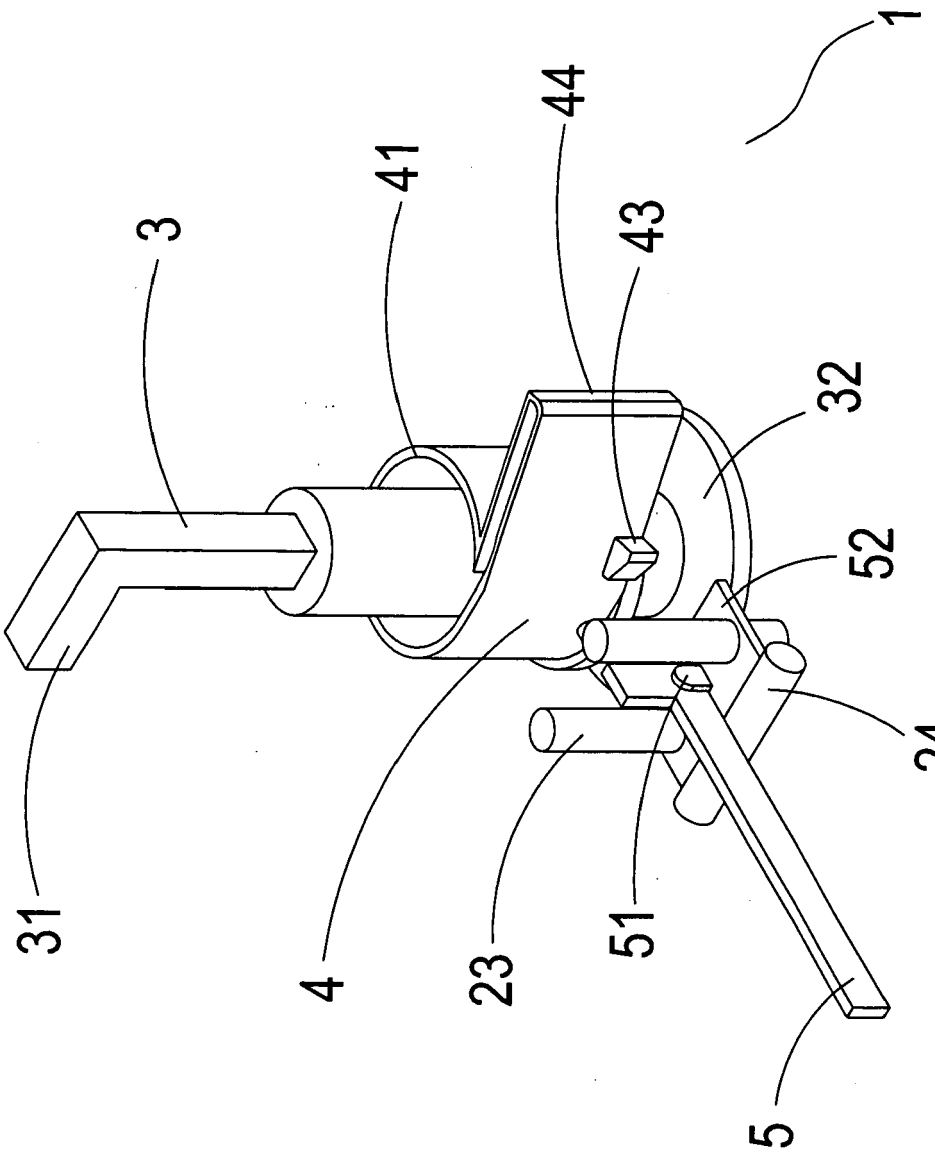

FIG.1

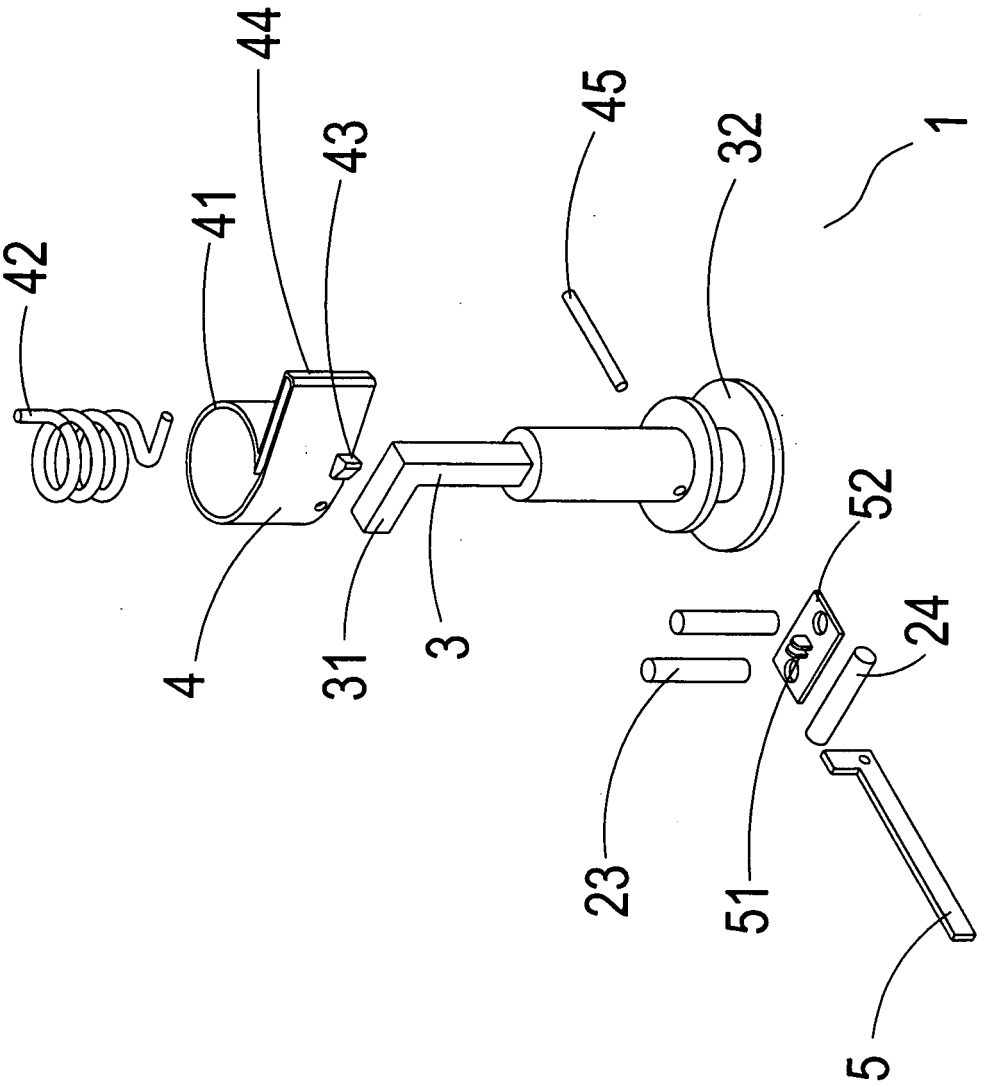

FIG.2

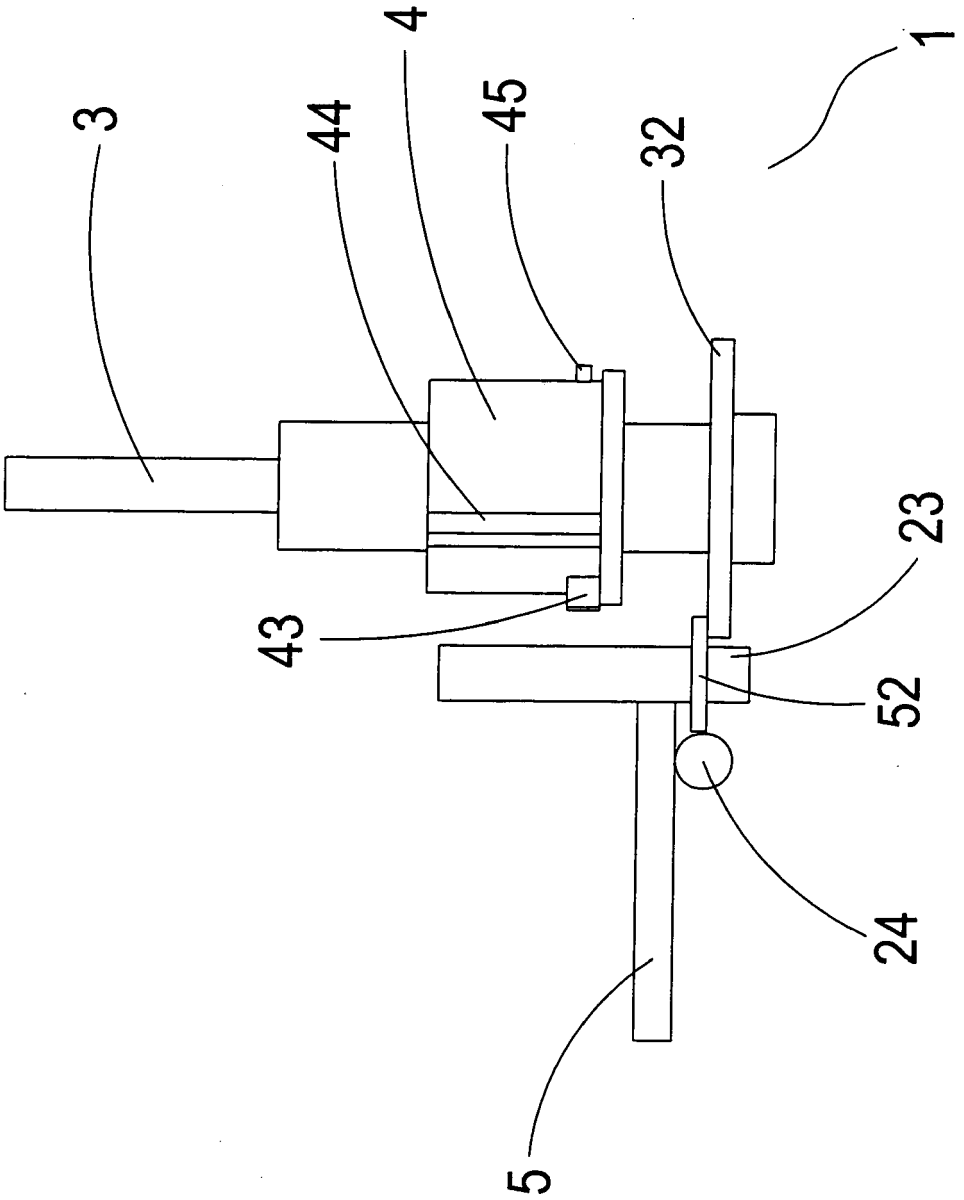

FIG.3

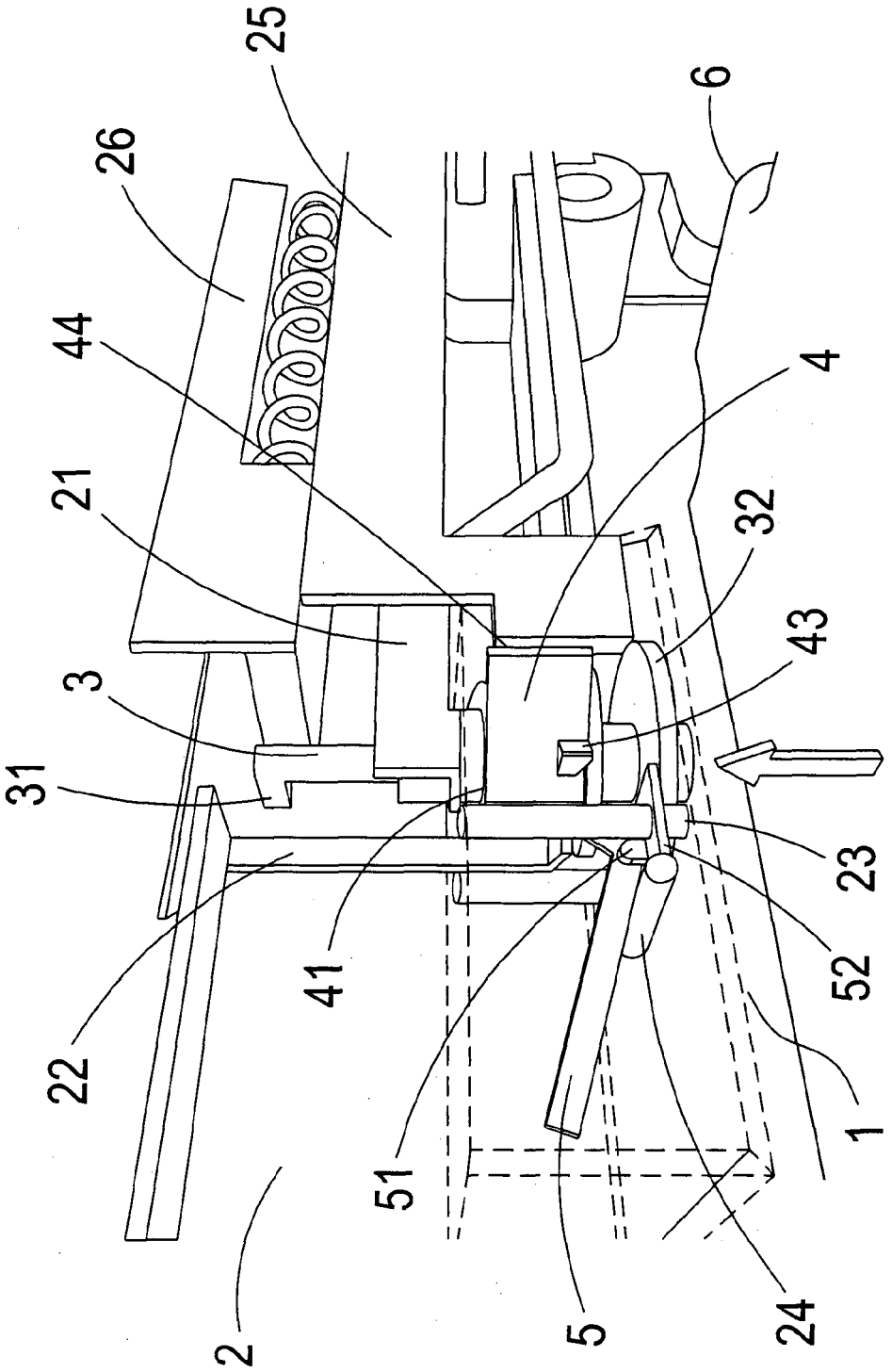

FIG.4

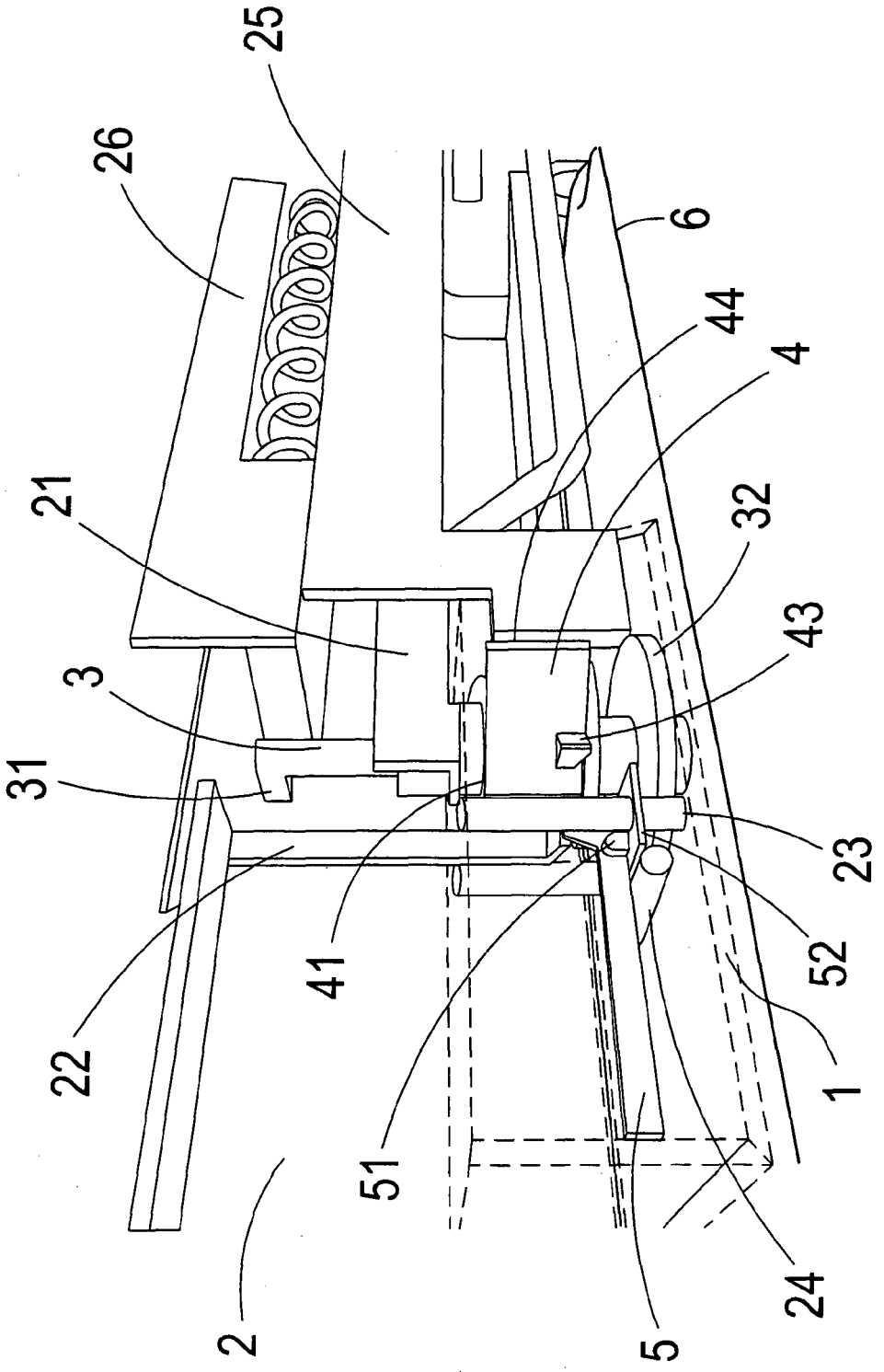

FIG.5

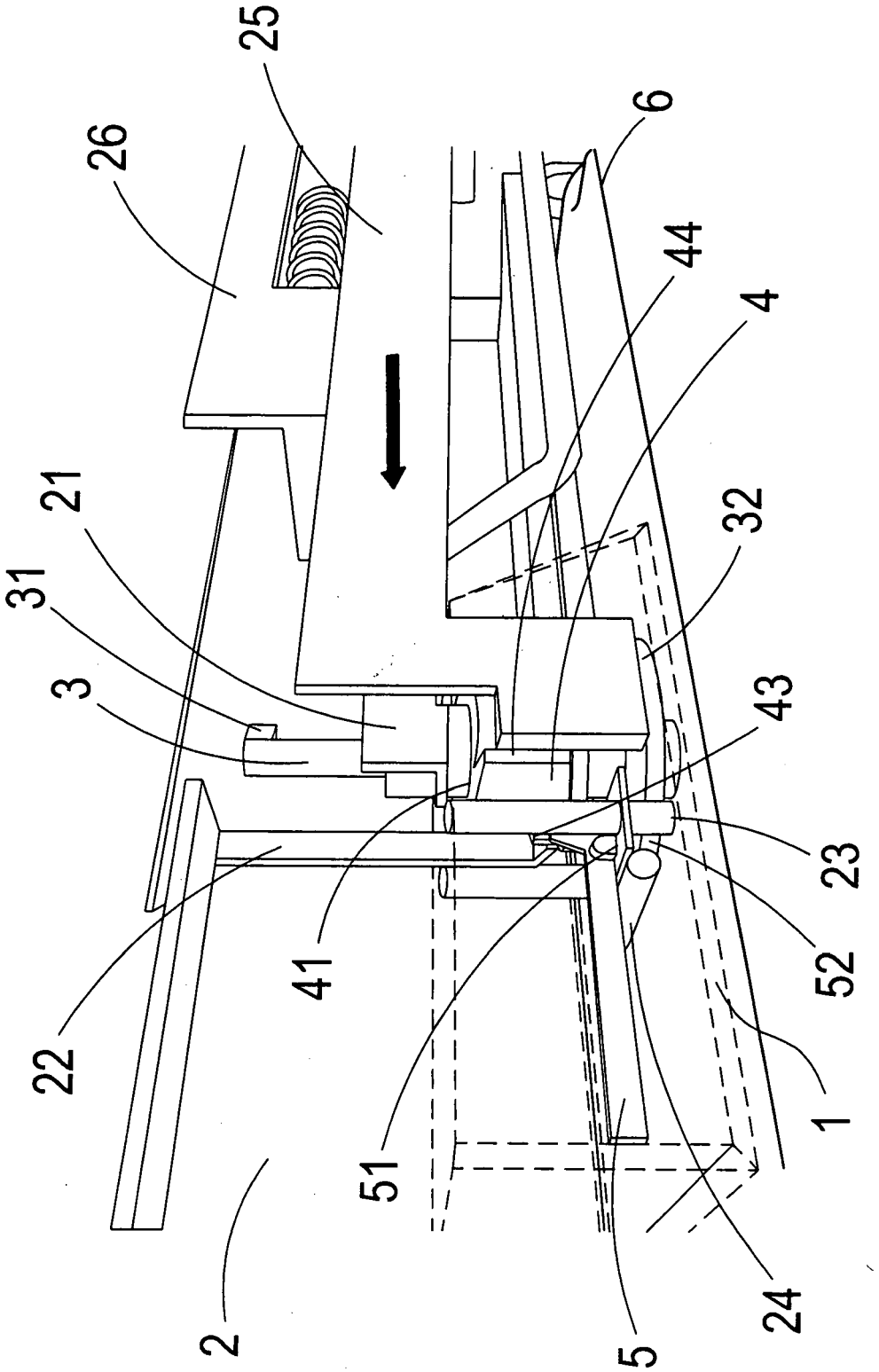

FIG.6

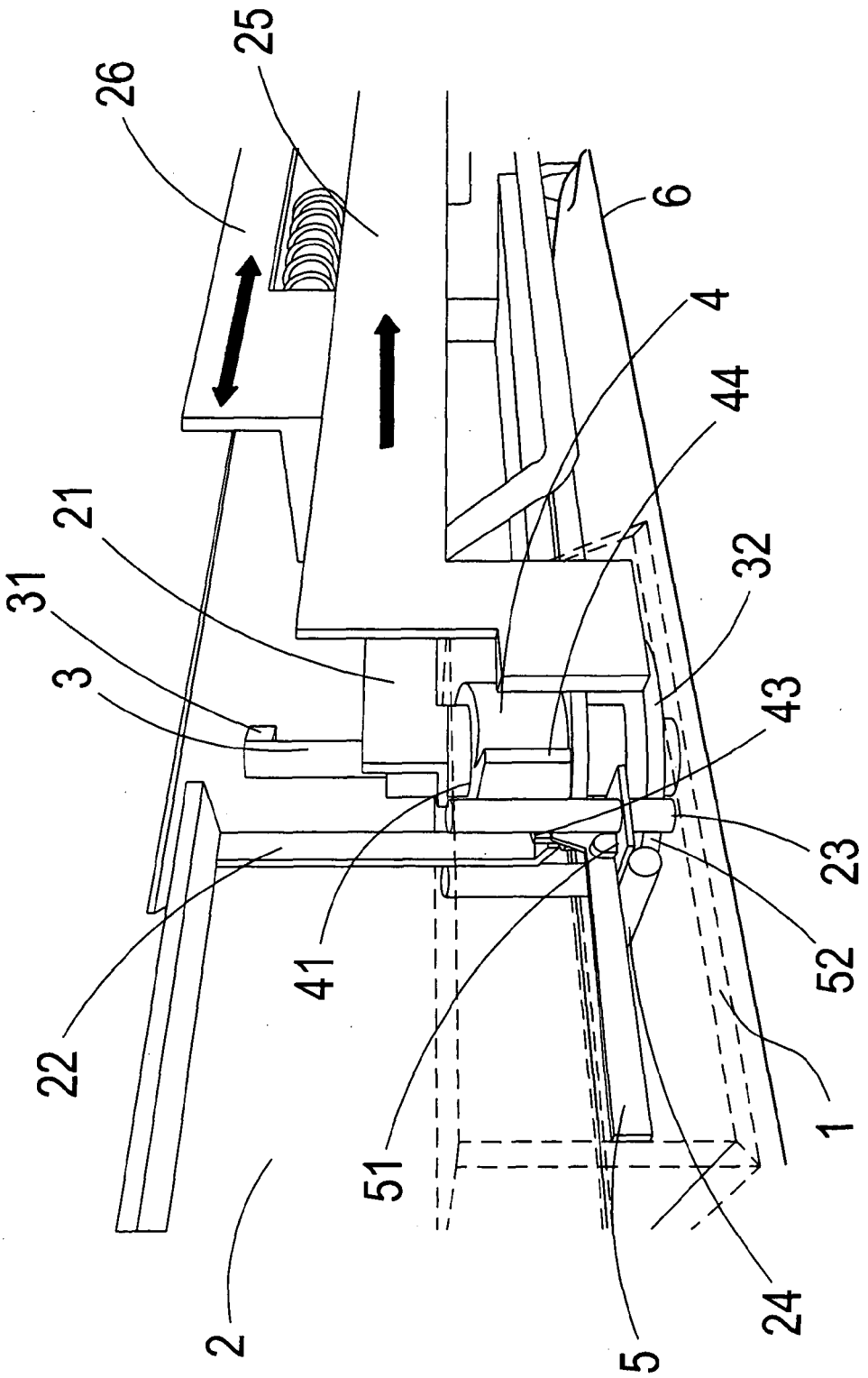

FIG.7

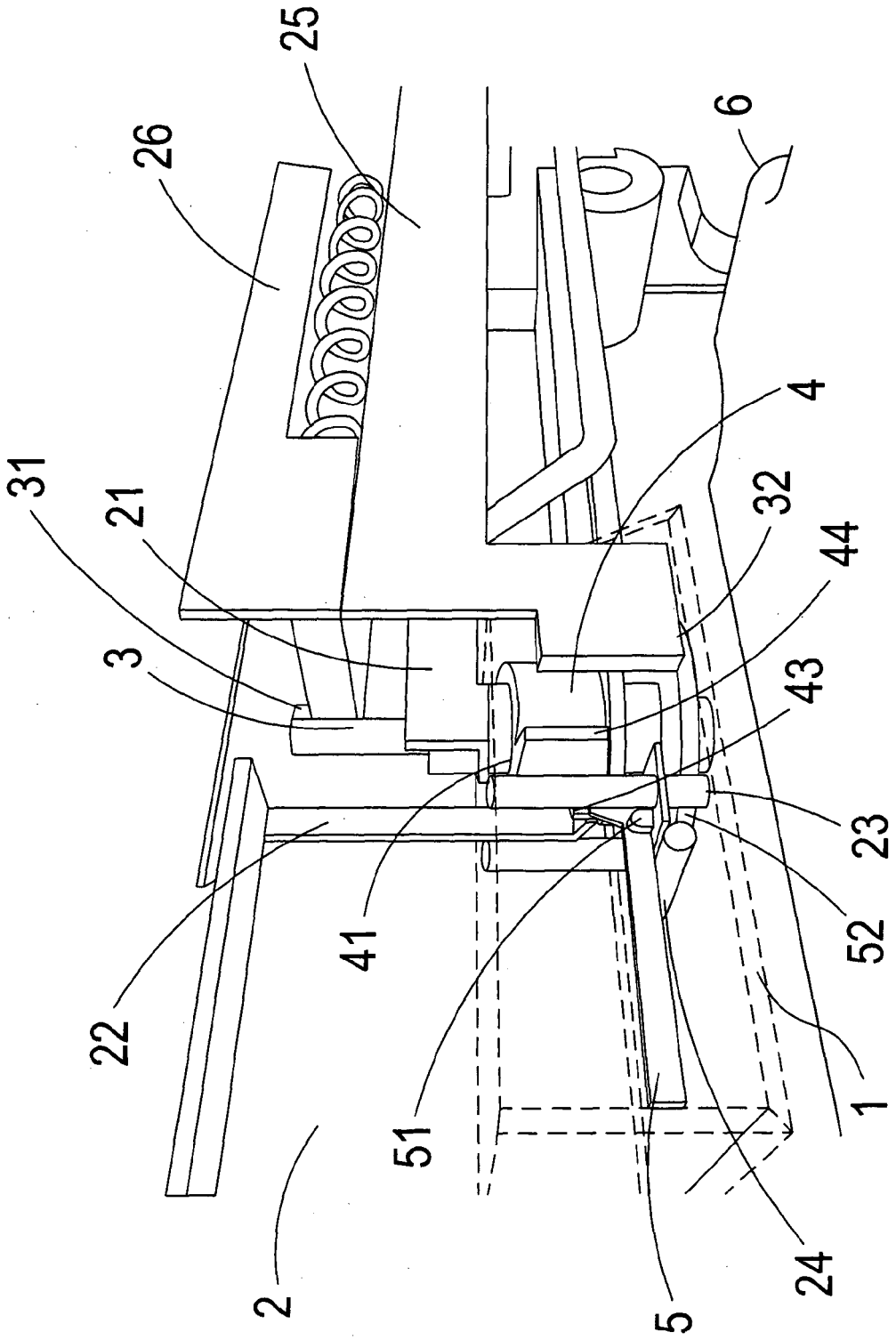

FIG.8

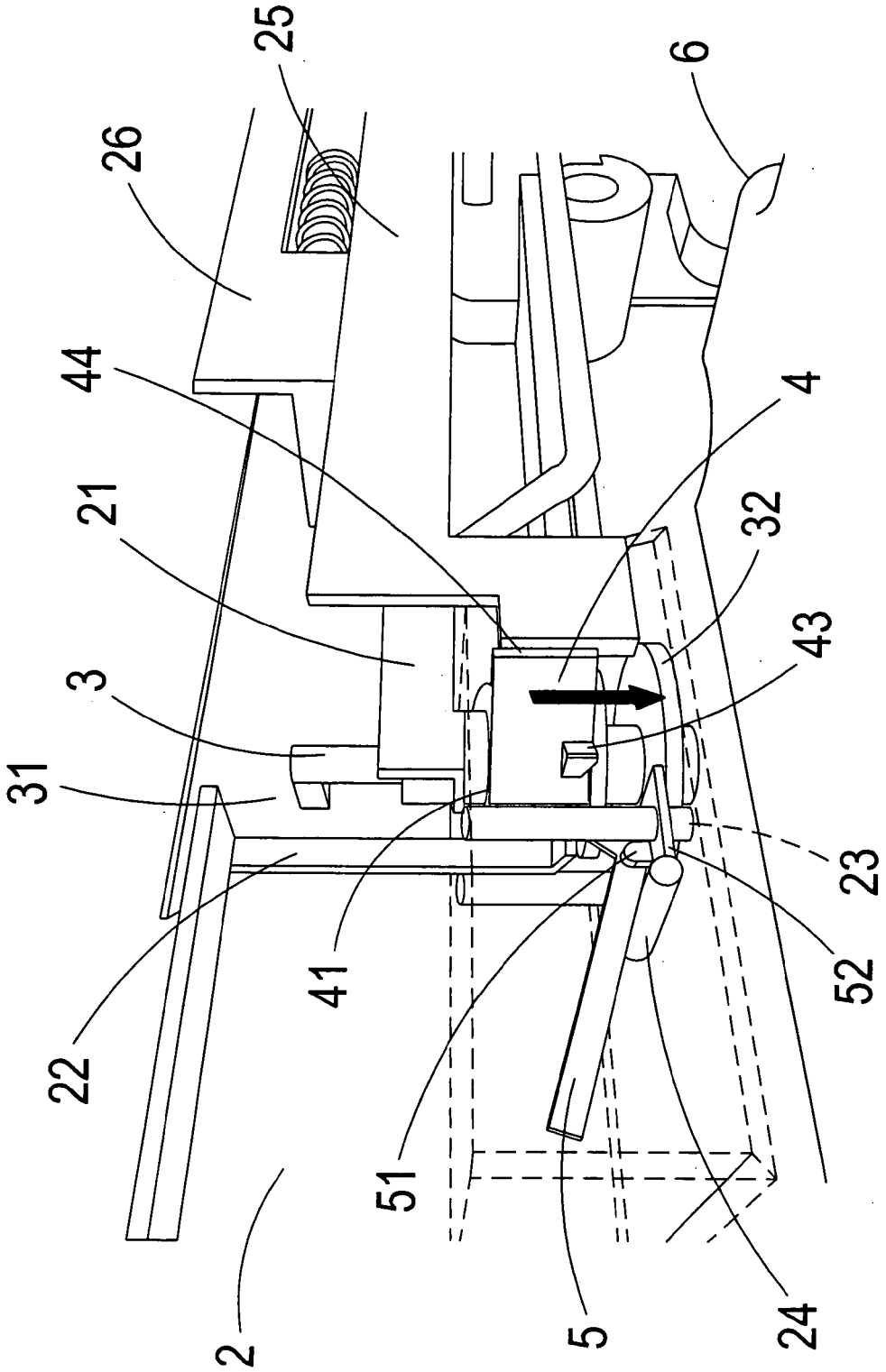

FIG.9

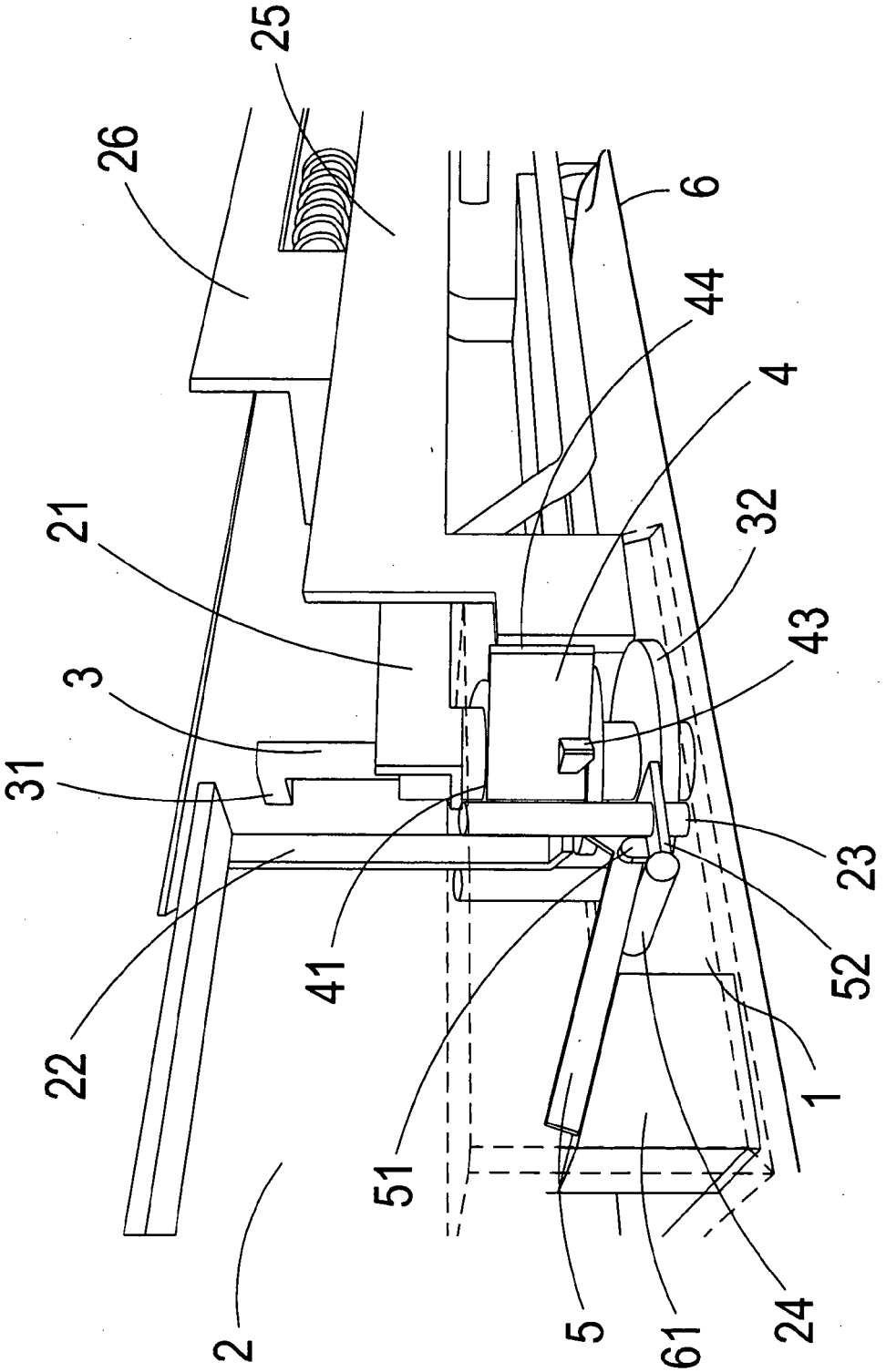

FIG.10

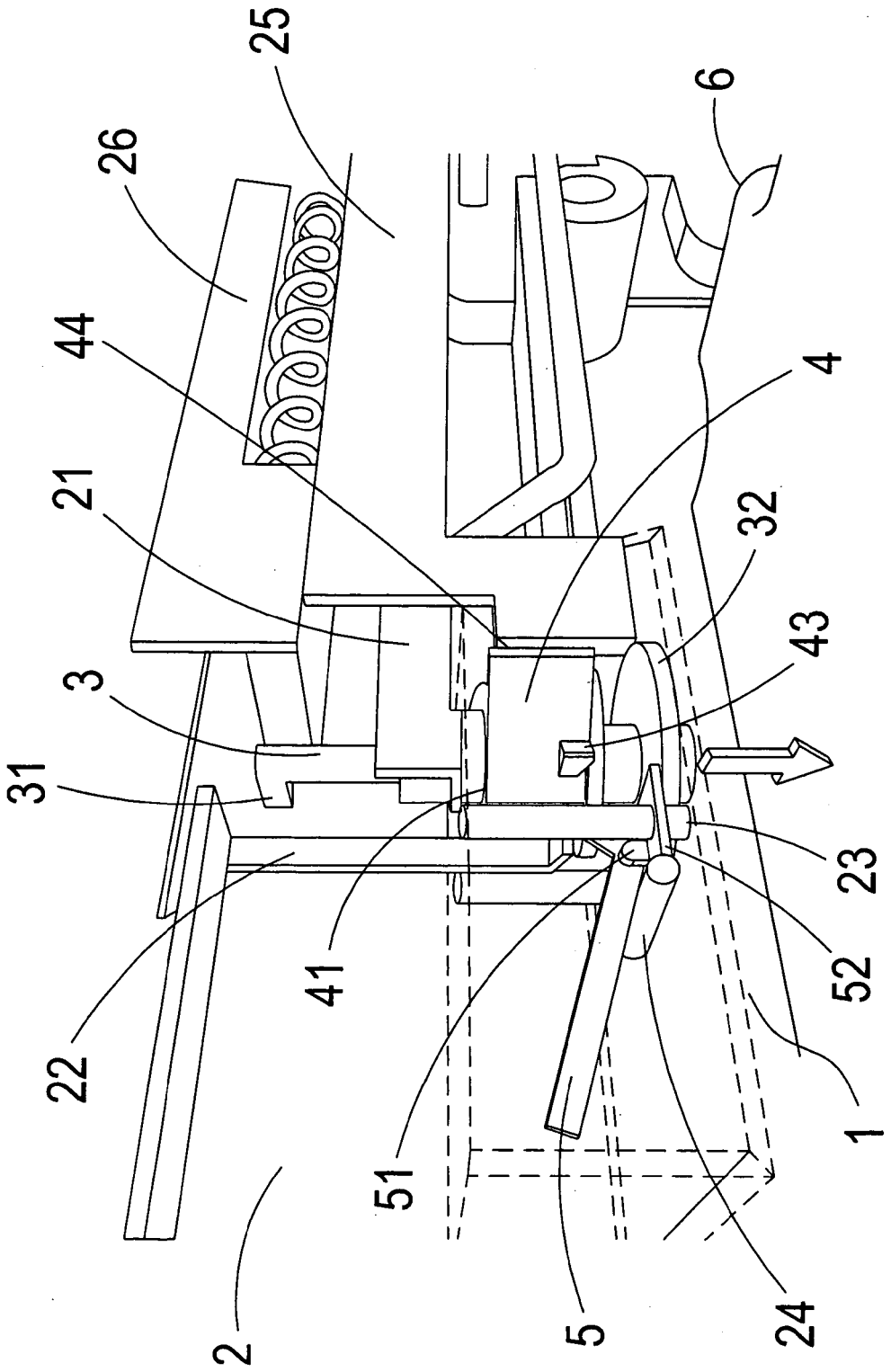

FIG.11

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EUROPEAN SEARCH REPORT

Application Number
EP 08 01 2247

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	GB 2 259 559 A (WATKINS JONATHAN MARTIN ROBERT [GB]) 17 March 1993 (1993-03-17) * abstract; figures 1,4 * * page 5, line 27 - page 9, line 15 *	1	INV. F41A33/00
A	US 2008/155875 A1 (IWASAWA TATSUO [JP]) 3 July 2008 (2008-07-03) * abstract; figures 1-4 * * paragraph [0024] - paragraph [0027] *	1	
A	GB 2 268 252 A (BRITISH AEROSPACE SIMULATION L [GB]) 5 January 1994 (1994-01-05) * abstract; figure 3 * * page 7, paragraph 3 - page 9, paragraph 1 *	1	
A	US 4 079 525 A (LINTON JOHN D ET AL) 21 March 1978 (1978-03-21) * abstract; figures 6,7 * * column 2, line 10 - line 17 * * column 7, line 49 - column 8, line 56 *	1	TECHNICAL FIELDS SEARCHED (IPC) F41A

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	18 December 2008	Schwingel, Dirk

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 01 2247

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18-12-2008

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