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(54) **Automatic cigarette maker**

(57) An automatic cigarette maker comprises a case that is provided with a container therein. The container has an opening at the top thereof. The tobacco leaves in the container are pushed out of a tobacco supply duct by a feeding module. A rotary disc is connected with one end of a linkage arrangement and is provided with a plurality of tubes that are arranged in a form of circular array. Each tube is provided with a cigarette paper therein. Thereby, when the linkage arrangement moves the rotary disc backward relative to the container, a tube covers the tobacco supply duct for filling tobacco leaves. When the rotary disc is moved forward, a cigarette paper is fully filled with tobacco leaves. When being moved relative to the container forward and backward once, the rotary disc is rotated at a constant angle. Consequently, the tubes can cover the tobacco supply duct one after another and tobacco leaves can be filled into each cigarette paper in sequence.

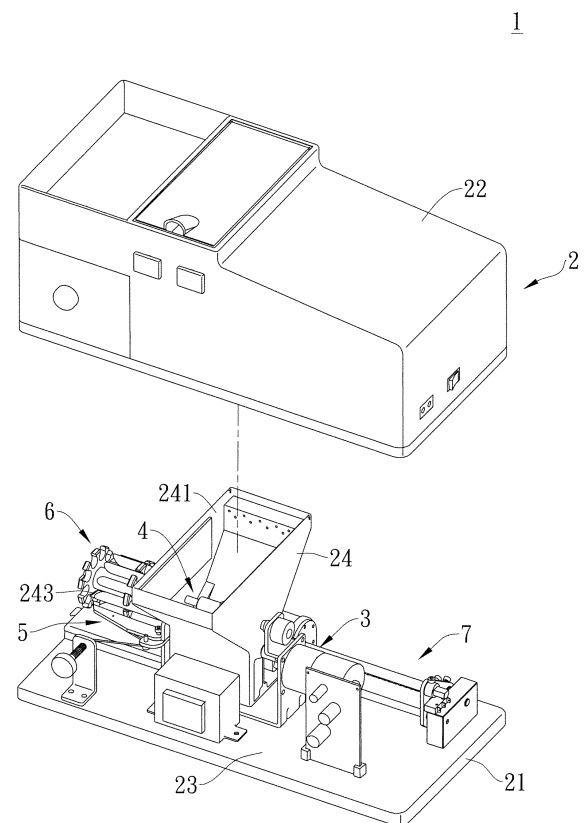


Fig. 1

Description

Technical Field

[0001] The present invention relates to a cigarette maker, and more particularly, to an automatic cigarette maker that is capable of filling tobacco leaves into several cigarette papers continuously.

Background

[0002] A conventional cigarette maker is typically used for the purpose of massive production and includes continuous processing lines. Besides, shredded tobacco leaves are placed into a series of cigarette papers by means of injection method. After that, the cigarette papers filled with tobacco leaves are processed to produce commercial cigarettes. However, it is inconvenient for someone to use above machines to make only one single cigarette each time when he or she has special taste. During the process of making cigarettes under the condition that one single cigarette can be made each time, tobacco leaves should be cut up first and then rolled in cigarette papers or filled into cigarette paper bags. Accordingly, it not only takes a lot of time and work to make cigarettes, but it is also difficult to control the tightness of tobacco leaves in the cigarette paper bags and will result in the problem of uneven taste.

[0003] In order to overcome above shortcomings by providing a cigarette maker that is structurally different from conventional ones, inventor had the motive to study and develop the present invention. After hard research and development, the inventor provides an automatic cigarette maker that is capable of making several cigarettes continuously, meeting the personalized requirements from individuals, and adjusting the tightness of tobacco leaves.

Summary of the disclosure

[0004] An object of the present invention is to provide an automatic cigarette maker, where a rotary disc can be moved forward and backward relative to the front side of a container and rotated at a constant angle. Thereby, tobacco leaves can be filled continuously to make several cigarettes continuously.

[0005] Another object of the present invention is to provide an automatic cigarette maker provided with a pressure regulator for adjusting the pressure exerted to cigarette papers. Thereby, when tobacco leaves are filled into the bags, the tightness of tobacco leaves in cigarette paper bags can be controlled in order to meet personalized preference.

[0006] In order to achieve above objects, the present invention provides an automatic cigarette maker comprising a case, a feeding module, a rotary disc, and a linkage arrangement. The case is provided therein with a container that has an opening at the top thereof and is

used for holding tobacco leaves. The container has an outlet at the front side thereof. A tobacco supply duct is connected to the front side of the container and is in communication with the outlet. The feeding module is provided in the container for pushing tobacco leaves out of the tobacco supply duct. The rotary disc includes a seat and a plurality of tubes, where the tubes are arranged at the peripheries of the seat in a form of circular array and each tube is provided with a cigarette paper therein. The linkage arrangement is positioned within the case. One end of the linkage arrangement is connected with the rotary disc for moving the rotary disc forward or backward relative to the front side of the container and for rotating the rotary disc at a constant angle to move the tubes into the tobacco supply duct one after another. Consequently, the tobacco leaves can be filled into each cigarette paper.

[0007] In practice, the linkage arrangement includes a plurality of pillars, a slide seat, and a linkage element. The pillars are arranged at the peripheries of the rotary disc in a form of circular array. The slide seat is positioned in the case. One side of the slide seat is provided with a tract for receiving and guiding any one pillar, so that the rotary disc is rotated at a constant angle whenever the rotary disc is moved forward and backward once. One end of the linkage element is connected with the rotary disc while another end thereof is connected with the driver for moving the rotary disc forward or backward relative to the outlet of the container.

[0008] In practice, the case is further provided with a pressure regulator therein. The pressure regulator includes a pressure-regulating module and a pressing element. The pressing element is connected with the pressure-regulating module in a way of being relatively movable. Thereby, during the delivering process of tobacco leaves, the pressure produced from the pressing element and exerted to the cigarette papers can be controlled via the pressure-regulating module to control the tightness of the tobacco leaves in cigarette papers.

[0009] The following detailed description describe with examples or embodiments for best understanding accompanying in conjunction with the drawings.

Brief Description of the Drawings

[0010] Fig.1 is an exploded perspective view showing part of an automatic cigarette maker in an embodiment of the present invention.

[0011] Fig.2 is a perspective view showing part of the automatic cigarette maker in the embodiment of the present invention.

[0012] Fig.3 is a perspective view showing a linkage arrangement and a rotary disc in the embodiment of the present invention.

[0013] Fig.4 and 5 are schematic views showing the use of the embodiment of the present invention.

Detailed Description

[0014] Please refer to Fig. 1 that shows an embodiment of an automatic cigarette maker according to the present invention. The automatic cigarette maker 1 comprises a case 2, a feeding module 3, an agitating module 4, a pressure regulator 5, a rotary disc 6, and a linkage arrangement 7. The case 2 is generally in rectangular shape and includes a seat 21 and a cover 22 covering the seat 21. Space 23 is formed between the seat 21 and the cover 22. A container 24 having an opening 241 provided at the top thereof is fixed in the space 23 for holding tobacco leaves. The front side of the container 24 is provided with an outlet 242 and the outlet 242 is in communication with a tobacco supply duct 243 provided at the front side of the container 24 (as shown in Fig. 2).

[0015] As shown in Fig. 2, the feeding module 3 includes a motor 31 and a propulsion shaft 32. The motor 31 is fixed at the rear side of the container 24. The propulsion shaft 32 is preferably a spiral shaft. The rear end of the propulsion shaft 32 is connected with the arbor of the motor 31. The propulsion shaft 32 is provided in the container 24. When the front end of the propulsion shaft 32 passes through the outlet 242 of the container 24 and enters into the tobacco supply duct 243, the tobacco leaves in the container 24 can be moved out of the tobacco supply duct 243 by the force produced from the helical motion of the propulsion shaft 32.

[0016] The agitating module 4 includes an agitator 41 and a motor 42. The agitator 41 is provided within the container 24 and the motor 42 is positioned outside the container 24. The agitator 41 includes a straight bar 411 and a plurality of short pillars 412, where the short pillars protrude radially from the body of the straight bar 411. The front end of the straight bar 411 is positioned at the front plate of the container 24. The rear end of the straight bar 411 is connected with the arbor of the motor 42. Thereby, the tobacco leaves in the container 24 can be agitated by each short pillar 412 when the agitator 41 rotates.

[0017] The pressure regulator 5 includes a pressure-regulating module 51 and a pressing element 52. The pressure-regulating module 51 includes a first fixing seat 53, a second fixing seat 54, an elastic element 55, and an adjusting element 56. In this embodiment, the first fixing seat 53 is fixed at the L-shape plate of the seat 21; the second fixing seat 54 is a flat plate; the elastic element 55 is a U-shape spring; and the adjusting element 56 is a tap bolt. The adjusting element 56 is screwed and positioned at the upright plate of the first fixing seat 53. Two ends of the elastic element 55 are respectively connected with one end of the adjusting element 56 and the pressing element 52. One end of the pressing element 52 is pivotally connected to the second fixing seat 54. Thereby, when users turn the head of the adjusting element 56, one end of the elastic element 55 is pushed to elastically move the pressing element 52. Accordingly, by moving the pressing element 52, it is able to adjust the pressure

exerted to the cigarette papers 9 in order to control the tightness of the tobacco leaves in the cigarette papers 9.

[0018] As shown in Fig. 3, the rotary disc 6 includes a seat 61 and a plurality of tubes 62. The seat 61 is provided with plural positioning plates 63 that are spaced from each other and a support plate 64. The peripheries of each positioning plate 63 are provided with positioning recesses 631 that are arranged in a form of circular array and used for positioning tubes 62 respectively. The support plate 64 is provided thereon with a plurality of positioning holes arranged in a form of circular array for positioning the rear ends of the tubes 62 respectively. Consequently, the tubes 62 are arranged in a form of circular array at the peripheries of the seat 61.

[0019] The linkage arrangement 7 is positioned in the space 23 within the case 2. The linkage arrangement 7 includes a plurality of pillars 71, a slide seat 72, and a linkage element 73. The pillars 71 are arranged in a form of circular array and connected to the peripheries of the support plate 64 of the seat 61. One side of the slide seat 72 is provided with a tract 721. The tract 721 is used for receiving and guiding any one pillar 71 and includes a tract for moving forward 722 and a tract for moving backward 723 that is parallel to the tract for moving forward 722.

[0020] The linkage element 73 includes a worm screw 731, a linkage plate 732, a linkage axis 733, a limit switch 734, a limit rod 735, and a limit element 736. The worm screw 731, the linkage axis 733, and the limit rod 735 are parallel to each other. The front end of the worm screw 731 is connected with a driver 74 and the driver 74 is a motor. The rear end of the worm screw 731 is screwed into a threaded hole 737 provided on the linkage plate 732, so that the linkage plate 732 can be moved forward or backward relative to the worm screw 731 when the worm screw 731 rotates. The rear end of the linkage axis 733 is connected to the linkage plate 732 while the front of the linkage plate 733 is connected with the seat 61 of the rotary disc 6. Moreover, the limit switch 734 is fixed on the rear side of the linkage plate 732. The limit switch 734 and limit element 736 are respectively in electrical connection with the driver 74. The limit rod 735 is connected with the limit switch 734 and protrudes forward from the front side of the linkage plate 732.

[0021] Please refer to Figs. 2 and 4. When the present invention is put into practice, cylindrical cigarette papers 9 are first placed into the tubes 62 of the rotary disc 6. At this moment, one tube 62 of the rotary disc 6 covers the tobacco supply duct 243. When the switch is turned on, the agitator 41 in the container 24 is driven to rotate and agitate tobacco leaves. The propulsion shaft 32 of the feeding module 3 is also driven to rotate and push the tobacco leaves out of the tobacco supply duct 243 into the cigarette paper 9.

[0022] As shown in Fig. 5, when the driver 74 drives the worm screw 731 to rotate, the linkage plate 732, the linkage axis 733, and the rotary disc 6 can be moved forward synchronically via the relative motion of the link-

age plate 732 and the worm screw 731. Consequently, one pillar 71 at the peripheries of the support plate 64 moves forward along the tract for moving forward 722 of the slide seat 72 and rotates. When one end of the limit rod 735 gets in touch with the limit element 736, the driver 74 will inversely rotate to move the linkage plate 732, the linkage axis 733, and the rotary disc 6 backward. At this moment, the pillar 71 moves backward along the tract for moving backward 723 of the slide seat 72 and the rotary disc 6 continues to rotate so as to have another tube 62 cover the tobacco supply duct 243 for receiving tobacco leaves.

[0023] The rotary disc 6 is rotated at a constant angle whenever the rotary disc 6 is moved relative to the container 24 forward and backward once. Thereby, the tubes 62 of the rotary disc 6 can cover the tobacco supply duct 243 one after another for receiving tobacco leaves therefrom.

[0024] Therefore, the present invention has following advantages:

[0025] 1. According to the present invention, several cigarettes can be made continuously so that it is time-saving for making cigarette.

[0026] 2. According to the present invention, the tightness of the tobacco leaves in the cigarette papers can be effectively adjusted so as to meet individual requirements according to their preference.

[0027] 3. According to the present invention, before being filled into cigarette papers, the tobacco leaves can be effectively agitated and shredded in order to keep the cigarette-making process smooth and to ensure the quality of the cigarette-making process.

[0028] As disclosed in the above description and attached drawings, the present invention can provide an automatic cigarette maker that is capable of making several cigarettes continuously, ensuring the quality of the cigarette-making process, and meeting different requirements from individuals according to their preference. It is new and can be put into industrial use.

[0029] Although the embodiments of the present invention have been described in detail, many modifications and variations may be made by those skilled in the art from the teachings disclosed hereinabove. Therefore, it should be understood that any modification and variation equivalent to the spirit of the present invention be regarded to fall into the scope defined by the appended claims.

Claims

1. An automatic cigarette maker, comprising:

a case, provided therein with a container that has an opening at the top thereof and is used for holding tobacco leaves, where the container has an outlet at the front side thereof; a tobacco supply duct is connected to the front side of the

container and is in communication with the outlet;

a feeding module, provided in the container for pushing tobacco leaves out of the tobacco supply duct;

a rotary disc, including a seat and a plurality of tubes, where the tubes are arranged at the peripheries of the seat in a form of circular array and each tube is provided with a cigarette paper therein; and

a linkage arrangement, positioned within the case, where one end of the linkage arrangement is connected with the rotary disc for moving the rotary disc forward or backward relative to the front side of the container and for rotating the rotary disc at a constant angle to move the tubes into the tobacco supply duct one after another, so that the tobacco leaves can be filled into each cigarette paper.

2. The automatic cigarette maker as claimed in claim 1, wherein the feeding module includes a motor and a propulsion shaft, where the motor has an arbor; one end of the propulsion shaft is connected with the arbor while another end thereof protrudes out of the outlet of the container so as to push the tobacco leaves out of the tobacco supply duct.

3. The automatic cigarette maker as claimed in claim 2, wherein the propulsion shaft is a spiral shaft.

4. The automatic cigarette maker as claimed in claim 1, further comprising an agitating module; the agitating module includes an agitator provided within the container and a motor positioned outside the container; one end of the agitator is connected with the arbor of the motor for agitating the tobacco leaves in the container.

5. The automatic cigarette maker as claimed in claim 1, further comprising a pressure regulator; the pressure regulator is fixed in the case and includes a pressure-regulating module and a pressing element; the pressing element is connected with the pressure-regulating module in a way of being relatively movable.

6. The automatic cigarette maker as claimed in claim 5, wherein the pressure-regulating module includes a first fixing seat, a second fixing seat, an elastic element, and an adjusting element; the first and the second fixing seats are fixed on the case; the adjusting element is positioned on the first fixing seat; one end of the pressing element is pivotally connected to the second fixing seat; one end of the elastic element is connected with the pressing element while another end thereof is connected with another end of the adjusting element.

7. The automatic cigarette maker as claimed in claim 1, further comprising a driver, where the driver is connected with another end of the linkage arrangement for moving the rotary disc forward or backward relative to the outlet of the container and for rotating the rotary disc at a constant angle. 5
8. The automatic cigarette maker as claimed in claim 7, wherein the linkage arrangement includes a plurality of pillars, a slide seat, and a linkage element; the pillars are arranged at the peripheries of the rotary disc in a form of circular array; the slide seat is positioned in the case; one side of the slide seat is provided with a tract for receiving and guiding any one pillar, so that the rotary disc is rotated at a constant angle whenever the rotary disc is moved forward and backward once; one end of the linkage element is connected with the rotary disc while another end thereof is connected with the driver for moving the rotary disc forward or backward relative to the outlet of the container. 10 15 20
9. The automatic cigarette maker as claimed in claim 8, wherein the linkage element includes a worm screw, a linkage plate, and a linkage axis; one end of the worm screw is connected with the driver while another end thereof is connected with the linkage plate in a way of being relatively movable; one end of the linkage axis is connected to the rotary disc while another end thereof is connected with the linkage plate, so that the linkage plate, the linkage axis, and the rotary disc are moved forward synchronically when the worm screw is turned. 25 30
10. The automatic cigarette maker as claimed in claim 9, wherein the linkage element further includes a limit rod and a limit switch; the limit rod is connected with the limit switch and protrudes forward from one side of the linkage plate; the limit switch is electrically connected with the driver. 35 40
11. The automatic cigarette maker as claimed in claim 7, further comprising an agitating module; the agitating module includes an agitator provided within the container and a motor positioned outside the container; one end of the agitator is connected with the arbor of the motor for agitating the tobacco leaves in the container. 45
12. The automatic cigarette maker as claimed in claim 7, further comprising a pressure regulator; the pressure regulator is fixed in the case and includes a pressure-regulating module and a pressing element; the pressing element is connected with the pressure-regulating module in a way of being relatively movable. 50 55
13. The automatic cigarette maker as claimed in claim 12, wherein the pressure-regulating module includes a first fixing seat, a second fixing seat, an elastic element, and an adjusting element; the first and the second fixing seats are fixed on the case; the adjusting element is positioned on the first fixing seat; one end of the pressing element is pivotally connected to the second fixing seat; one end of the elastic element is connected with the pressing element while another end thereof is connected with another end of the adjusting element.

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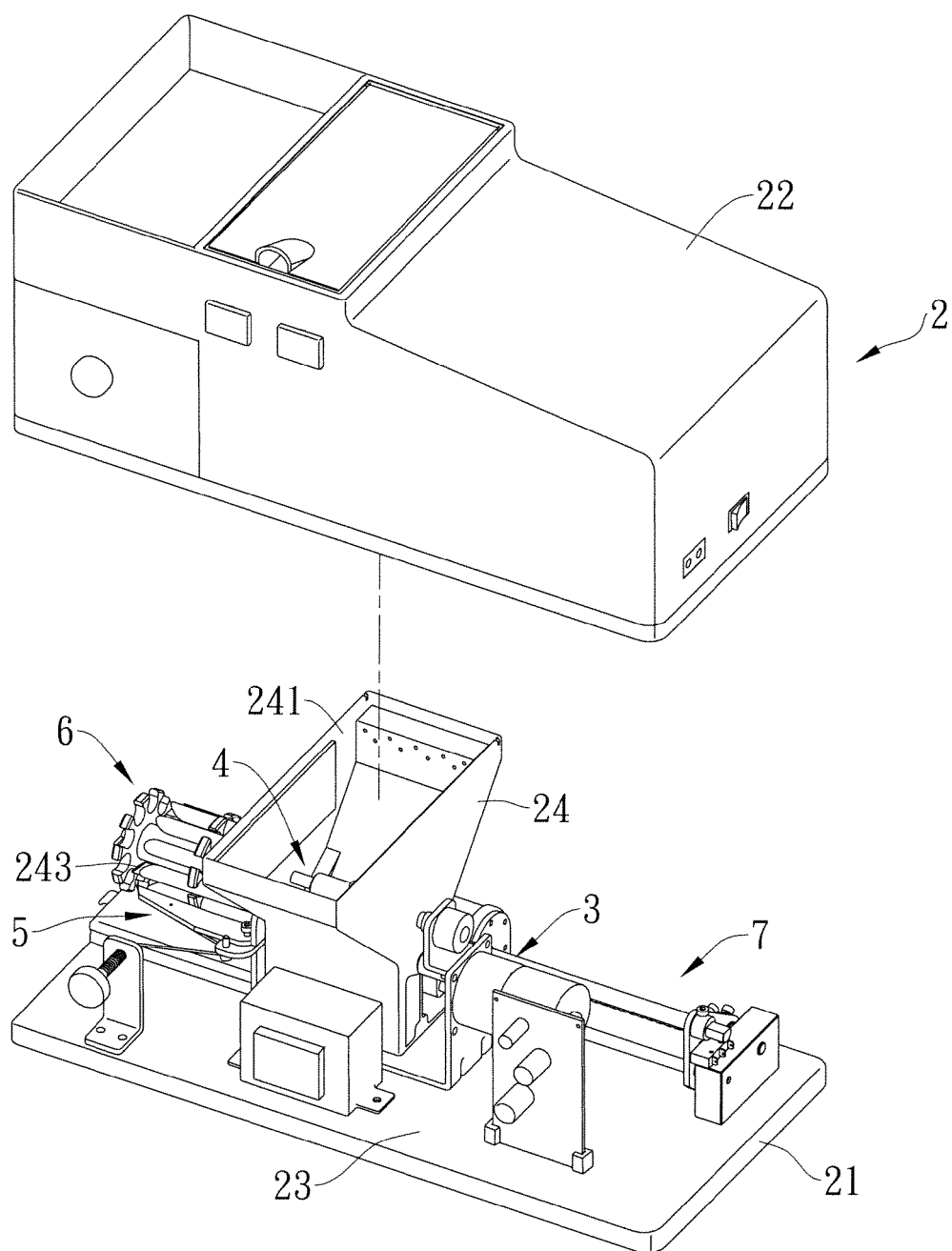


Fig. 1

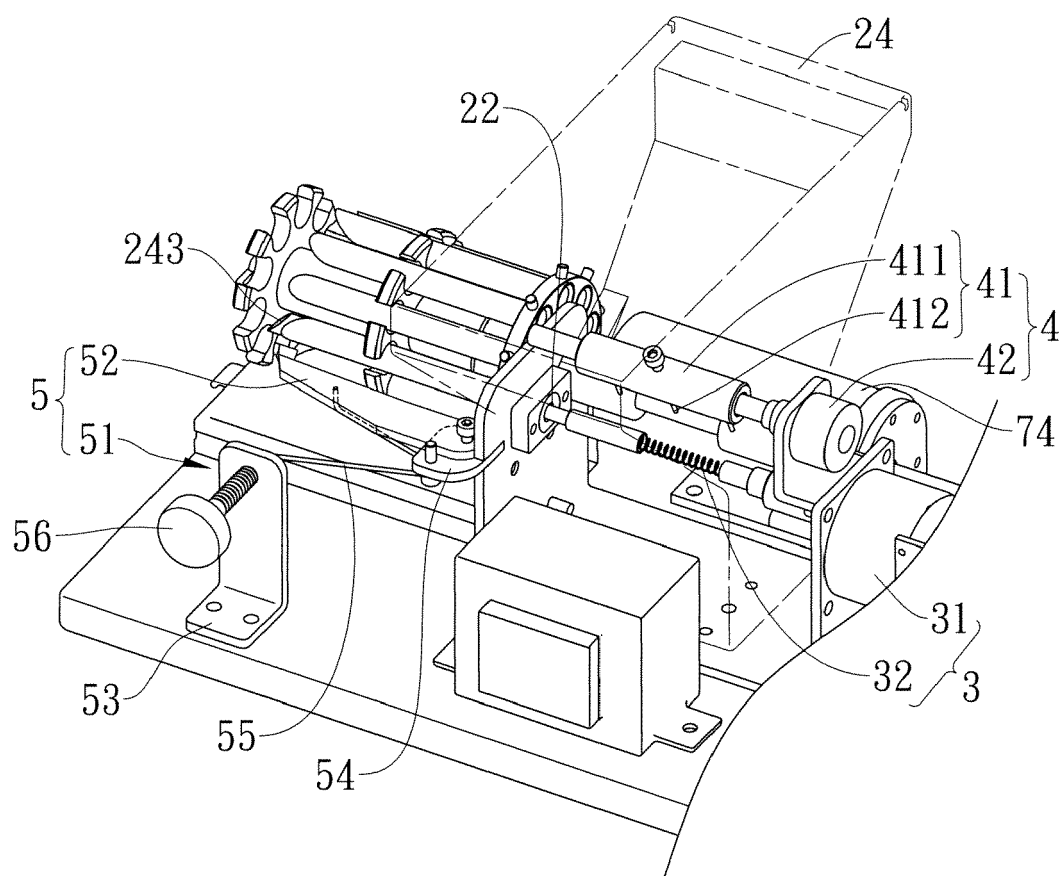


Fig. 2

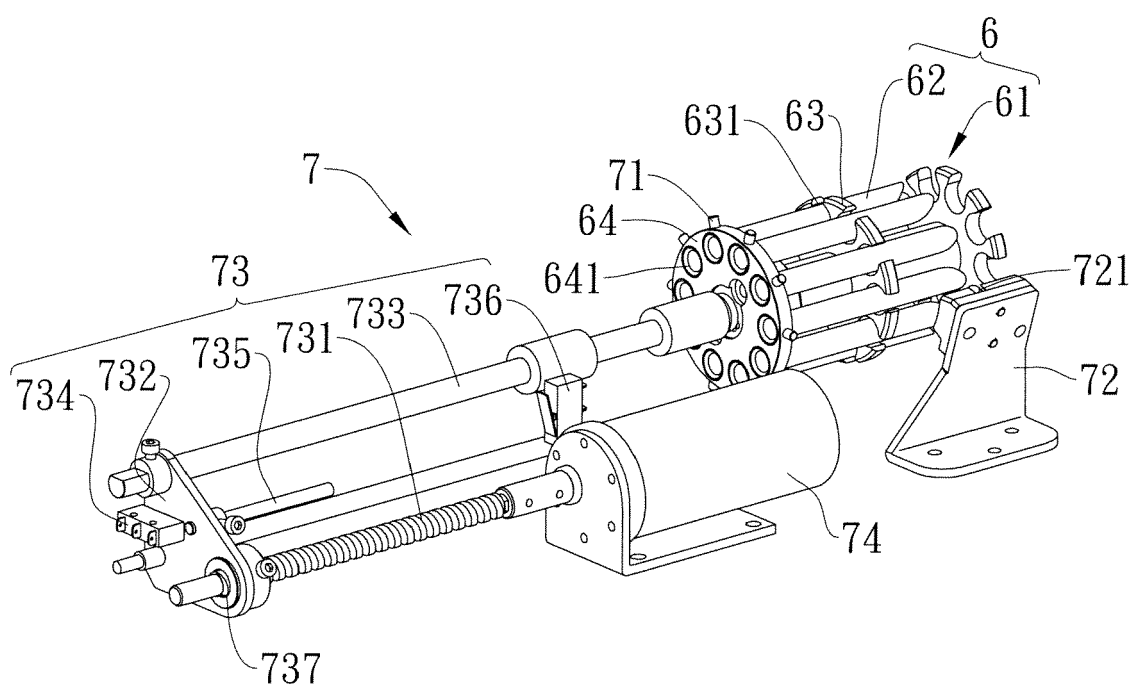


Fig. 3

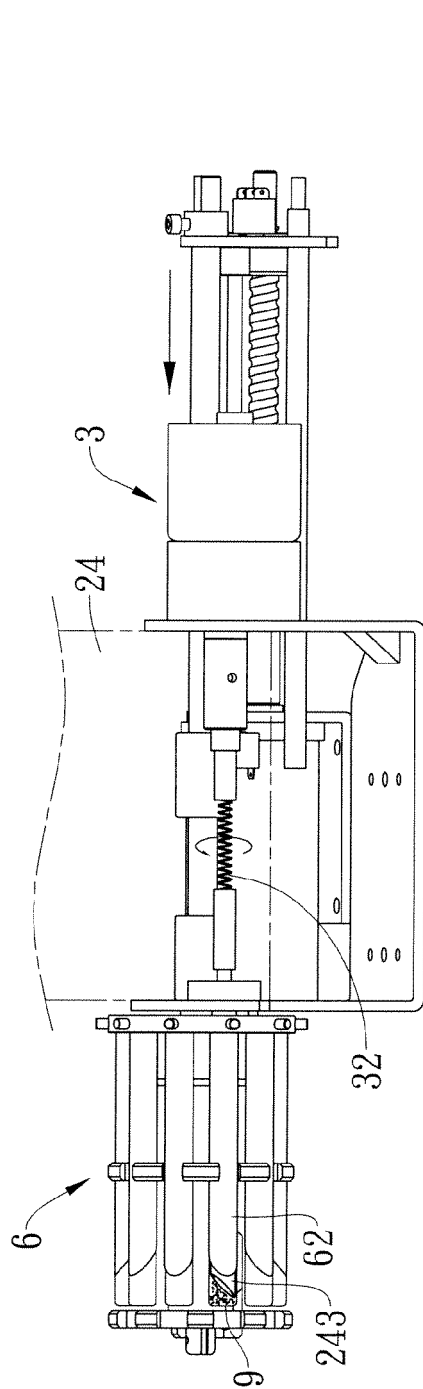


Fig. 4

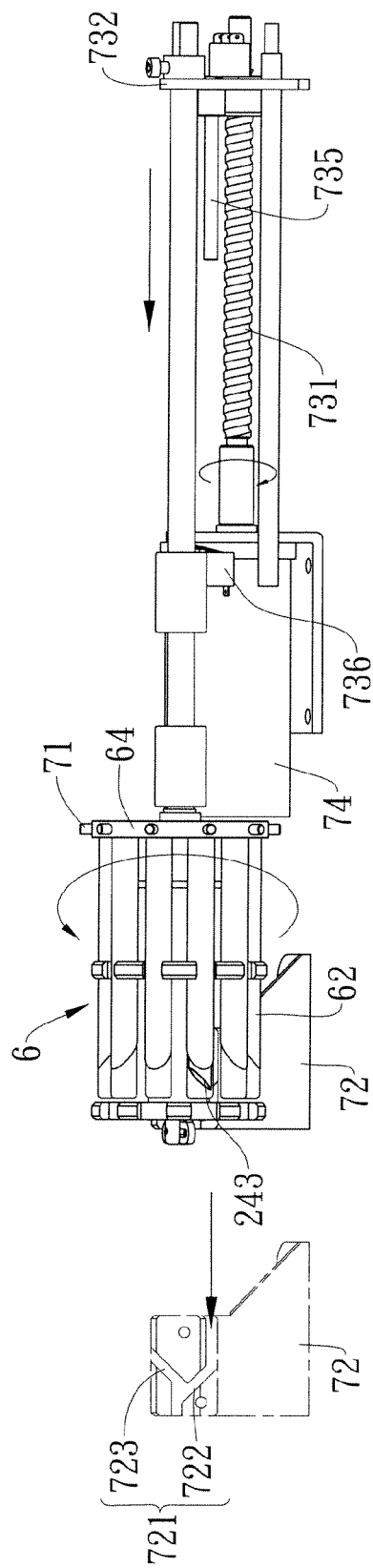


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 1445

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	EP 0 111 713 A1 (HARTING ELEKTRONIK GMBH [DE]) 27 June 1984 (1984-06-27) * abstract; figures 1,8,9,10 *	1-13	INV. A24C5/02
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A	DE 180 446 C (AIVAZ JACOB) 17 January 2006 (2006-01-17) * the whole document *	1	
A	US 2 633 133 A (HIGGINS EARL H) 31 March 1953 (1953-03-31) * page 1, lines 1-22; figures *	1	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) A24C
Place of search Munich		Date of completion of the search 17 January 2011	Examiner Kock, Søren
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 17 1445

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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