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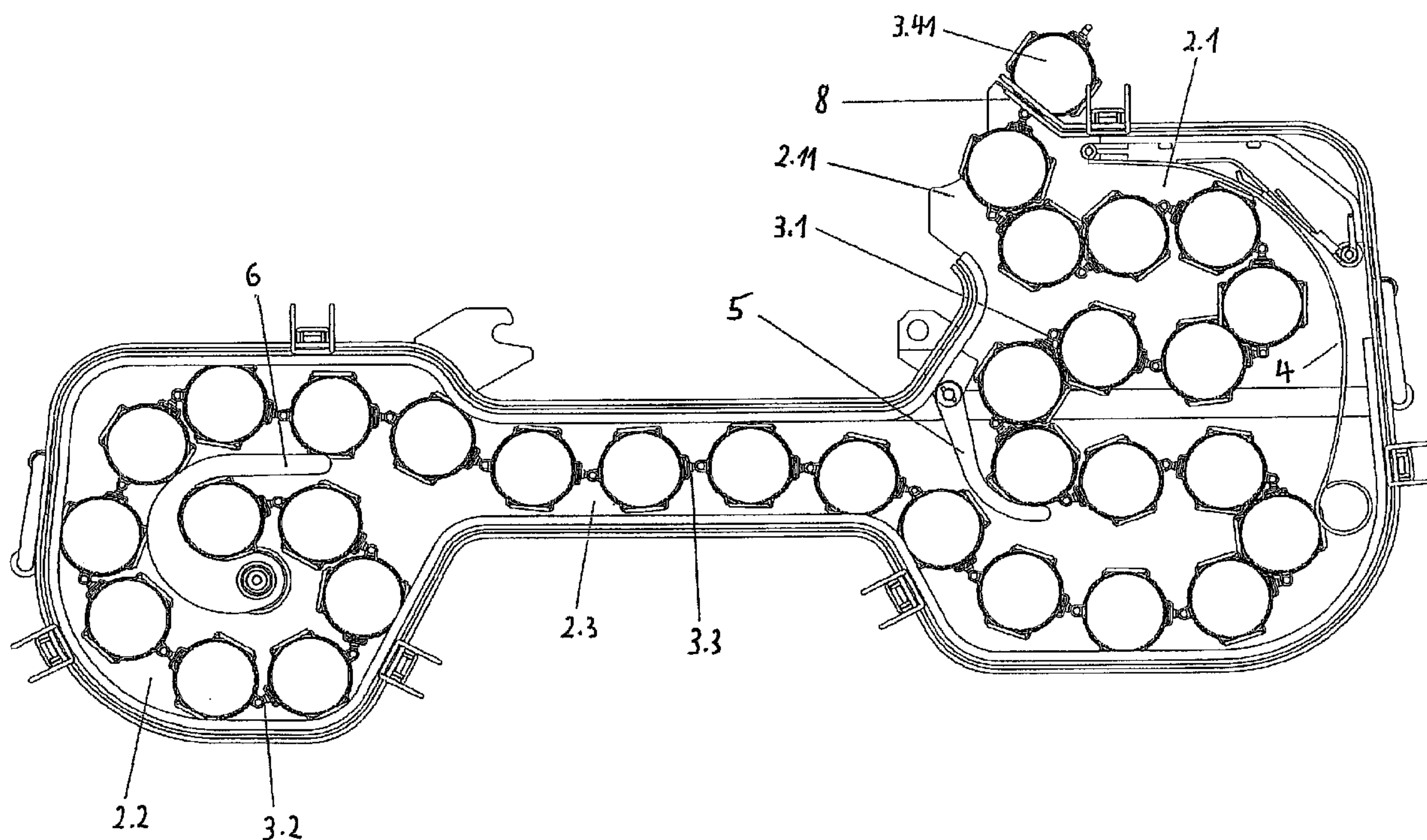
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(54) Titre : CHARGEUR POUR ARME DE LANCEMENT D'OBUS A AFFUT

(54) Title: MAGAZINE FOR AN AUTOMATIC WEAPON WITH A SHELL AND A CARRIAGE



(57) Abrégé/Abstract:

The invention relates to a magazine for an automatic weapon with a shell and a carriage. Said magazine (2) consists of two closed parts (2.1, 2.2) that are interconnected by means of a closed transfer channel (2.3), and can be arranged on the front side of the carriage in such a way that the parts (2.1, 2.2) of the magazine are located on both sides of the weapon. The chain is inserted into the magazine (2) in such a way that, when the magazine is fully loaded, a front meandering section (3.1) of the chain lies in the first part (2.1) of the magazine, located on the chain supplying side of the weapon. A rear helicoidal section (3.2) of the chain lies in the second part (2.2) located on the opposite side of the weapon. A central section (3.3) of the chain is guided through the transfer channel (2.3) from the second part (2.2) of the magazine to the first part (2.1). Corresponding guiding elements (4, 5, 6) in both parts (2.1, 2.2) of the magazine enable the chain to be extracted in a frictionless manner, without damaging the ammunition, and supplied to the weapon.

Abstract

The invention relates to a magazine for an automatic weapon with a shell and a carriage. Said magazine (2) consists of two closed parts (2.1, 2.2) that are interconnected by means of a closed transfer channel (2.3), and can be arranged on the front side of the carriage in such a way that the parts (2.1, 2.2) of the magazine are located on both sides of the weapon. The chain is inserted into the magazine (2) in such a way that, when the magazine is fully loaded, a front meandering section (3.1) of the chain lies in the first part (2.1) of the magazine, located on the chain supplying side of the weapon. A rear helicoidal section (3.2) of the chain lies in the second part (2.2) located on the opposite side of the weapon. A central section (3.3) of the chain is guided through the transfer channel (2.3) from the second part (2.2) of the magazine to the first part (2.1). Corresponding guiding elements (4, 5, 6) in both parts (2.1, 2.2) of the magazine enable the chain to be extracted in a frictionless manner, without damaging the ammunition, and supplied to the weapon.

Magazine for an Automatic Shell Firing Weapon Mounted on a Gun Carriage

5 Description:

The present invention relates to a belted magazine for an automatic shell firing weapon mounted on a gun carriage that comprises the features described in the introductory section of claim 1.

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Magazines of the aforementioned kind are generally known. They are usually configured as an open magazine that is located on one side next to the weapon. That results in a disadvantageous distribution of weight and a large rotational diameter of the pivotable weapon. Furthermore, the ammunition is not protected from atmospheric influences and whipping of the belt can damage the shells.

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It is an object of the invention to configure a magazine with the features described in the introductory section of claim 1 in such a way that an optimally balanced distribution of weight and a small rotational diameter are achieved. It should furthermore be possible to guide the belt in such a way that whipping is avoided.

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This object is realized, according to the invention, with the features described in the characterizing section of claim 1. Advantageous embodiments of the magazine according to the invention are described in the dependent claims.

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It is a fundamental concept of the invention to configure the magazine in such a way that the ammunition is essentially distributed evenly on both sides of the weapon. This is achieved in that the magazine is comprised of two closed magazine portions that are connected to each

other by means of a likewise closed transfer channel. The entire magazine is attached below the weapon in such a way that each of the two magazine portions is located on an opposite side of the weapon. Due to that configuration, the magazine requires only little space on the sides of the weapon and enables a reduction of the rotational contour. Since the magazine is closed except for a removal opening, a good protection against atmospheric influences is provided. In a particularly advantageous embodiment, special guide means in the interior of the magazine such as a guide plate, a separation bar, a guide claw and a glide film, which is cushioned for dampening purposes, prevent damaging of the individual shells when the belt is removed. The magazine according to the invention can furthermore be configured and positioned below the weapon in such a way that it doesn't block the viewing of target optics located below the weapon.

The attachment of the magazine can be realized in a simple manner by suspending and locking it in place.

One exemplary embodiment for a magazine according to the invention is described in more detail below in conjunction with the attached drawings, in which:

Fig. 1 shows, in a perspective representation, an automatic shell firing weapon mounted on a gun carriage that has a closed magazine located below the weapon,

Fig. 2 shows a front view of the magazine analogous to Fig. 1 in an open, fully loaded state,

Fig. 3 shows the magazine in a representation analogous to Fig. 2. in an open, partially emptied state,

Fig. 4 shows the magazine in a representation analogous to Fig. 2 in an open, entirely emptied state,

Fig. 5 shows a partial top view of the magazine, enlarged in relation to Fig. 4 and taken from the direction V in Fig. 4,

Fig. 6 shows the magazine in a representation analogous to Fig. 2 in an open and fully loaded state, whereby the first shell is drawn out and arrested, and

Fig. 7 shows the magazine in the area of the removal opening in a perspective, enlarged representation.

Fig. 1 shows an automatic shell firing weapon 1, located on a base plate 11 and mounted on a gun carriage 1.1. A belted magazine 2 is attached to the gun carriage in the area in front of and below the weapon. The magazine 2 is comprised of two magazine portions 2.1 and 2.2 that are connected by means of a transfer channel 2.3. The magazine 2 is attached to the front side of the gun carriage 1.1 in such a way that the magazine portions 2.1 and 2.2 are located on opposite sides of the weapon 1.

The magazine 2 is configured as a closed magazine with a removable cover 2.4 that jointly covers the two magazine portions 2.1 and 2.2 and the transfer channel 2.3.

In the mounted condition according to Fig. 1, the magazine has a recess 9 in the area of the bottom wall of the transfer channel 2.3 between the magazine portions 2.1 and 2.2. The magazine 2 is attached to the gun carriage 1.1 in such a way that the transfer channel is located below the weapon tube and the recess 9 enables the target optics 10 located below the weapon to see through.

The magazine 2 and its manner of operating are described below in more detail with the aid of Figs. 2 through 7.

5 As can be seen in the drawings, the interior space of the first magazine portion 2.1 is connected to the interior space of the second magazine portion 2.2 by means of the transfer channel 2.3. The belt that carries the shells is introduced into the magazine 2 in such a way that, when the magazine is fully loaded, a front section 3.1 of the belt is situated in
10 the first magazine portion 2.1, which is located on the belt supply side of the weapon 1. On the side facing the weapon 1, the first magazine portion 2.1 is provided with a removal opening 2.11 through which the belt can be withdrawn and supplied to the weapon. A second section 3.2 of the belt is located in the second magazine portion 2.2, and a
15 middle section 3.3 of the belt, which connects the first section 3.1 and the second section 3.2, is guided from the second magazine portion 2.2 to the first magazine portion 2.1 through the transfer channel 2.3. The first section 3.1 of the belt is positioned in the first magazine portion 2.1 in a meander shaped manner. In order to avoid whipping of
20 the belt when the first section 3.1 of the belt is withdrawn, the side wall 2.12 opposite the removal opening 2.11 of the first magazine portion 2.1 is provided with a guide plate 4 that supports and guides one side of the belt loops in the first magazine portion 2.1. The guide plate 4 extends from the lower part of the first magazine portion 2.1 upwardly
25 to the removal opening 2.11 and can be swiveled about a swivel axis 4.1, which is located in the area of the removal opening 2.11, into the interior space of the first magazine portion 2.1. When the first magazine portion 2.1 is emptied by withdrawing the first section of the belt 3.1, the guide plate 4 is automatically guided inwardly by means of
30 a spring element. In that manner, the guide plate 4 uninterruptedly supports the remaining shells 3.4 that are attached to the belt until it reaches a final position, represented in Fig. 3, in which it is arrested.

Fig. 3 shows the magazine in the state in which the belt loops of the first section 3.1 are withdrawn from the first magazine portion 2.1 and the middle section 3.3 of the belt is guided through the first magazine portion 2.1 directly to the removal opening 2.11. The peripheries of the shells thereby rest against the guide plate 4, which has been swiveled inwardly.

Furthermore, a separating bar 5 for guiding the shells and the belt is located on the side wall 2.13 below the removal opening 2.11 of the first magazine portion 2.1. The separating bar 5 can be swiveled about a swivel axis 5.1, which is located on the side wall 2.13, toward that side wall. When the first magazine portion 2.1 is fully loaded, the separating bar 5 separates the last belt loop of the belt section 3.1, which is positioned in a meander shaped manner, from the belt section 3.3 that enters from the transfer channel 2.3. In that manner, it is avoided that shells lie directly on top of each other. When the first magazine portion 2.1 is emptied, the separating bar 5 automatically swivels into the position represented in Fig. 3 and is thereby converted into a guide means when the separating function is no longer required.

The second portion 3.2 of the belt is positioned in the second magazine portion 2.2 in a spiral shaped manner. A guide claw 6, disposed so as to be pivotable about a swivel axis 6.1 in the direction of retraction of the belt, extends around the end of the belt. The guide claw 6 supports the second section of the belt when it is unrolled from its spiral position and avoids jams.

As shown in particular in Fig. 4, the side walls of both magazine portions 2.1 and 2.2 and of the transfer channel 2.3 are provided with spacer beads 7 that project inwardly and extend in the direction of retraction of the belt. They serve for guiding the shells 3.4.

5 The bottom or base 2.5 of both magazine portions 2.1 and 2.2, of the transfer channel 2.3 and, if required, the inside of the cover 2.4 are lined with a cushioned glide film, so that the shells that are positioned in the magazine 2 in a direction perpendicular to the bottom 2.5 and to the cover 2.4 are guided easily and are not damaged.

10 Behind the respectively first shell 3.41 that is positioned at the supply end, the belt can be suspended in a notch 8, represented in Figs. 5 through 7, which is located in the upper side wall of the first magazine portion 2.1 on the edge of the removal opening 2.11. Therefore, when the belt is removed from the weapon 1 in the partially emptied state of the magazine, the belt does not fall back into the magazine such that the supply end of the belt would not be reachable any more. As can be viewed in Figs. 6 and 7, the end of the belt is arrested on the removal opening 2.11 and cannot fall back into the magazine.

20 When the belt is supplied to the weapon 1, starting with the fully loaded state according to Figs. 2 and 6, the belt is continually drawn out of the magazine 2. Initially, the section 3.1 of the belt that is positioned in the first magazine portion 2.1 in a meander shaped manner is withdrawn until the state represented in Fig. 3 is reached. Subsequently, the middle section 3.3 and the second section 3.2 of the belt from the second magazine portion 2.2 are drawn out through the transfer channel 2.3, until the magazine is emptied entirely, as represented in Fig. 4. With the cover 2.4 removed, the magazine 2 is reloaded with a new belt.

Patent claims

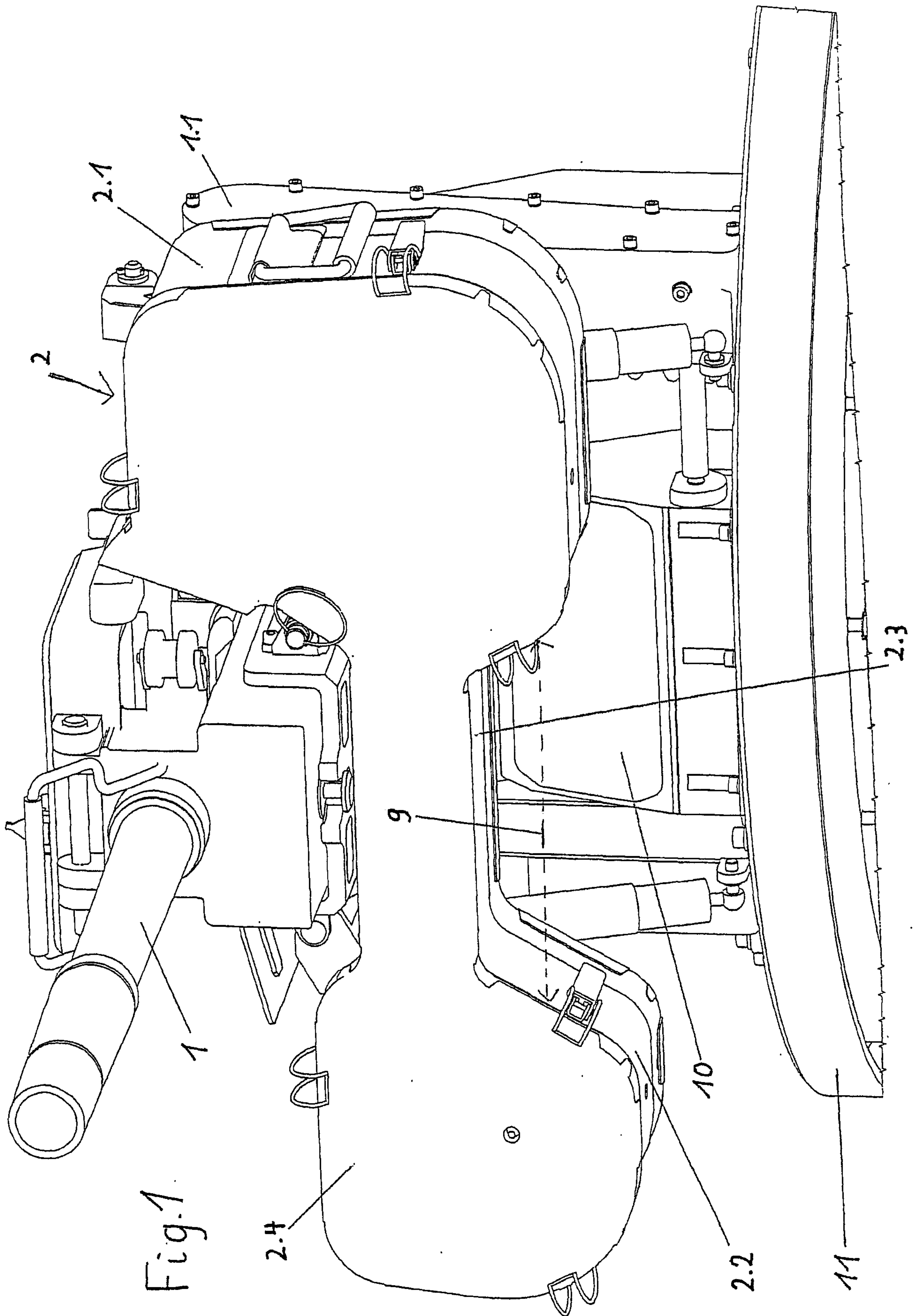
1. A belted magazine for an automatic shell firing weapon mounted on a gun carriage, whereby at least one section of the extent of the belt is positioned inside the magazine in a meander shaped and/or spiral shaped manner, and whereby the belt is withdrawn from the magazine and supplied to the weapon on the top side of the magazine that is attached to the weapon, characterized in that the magazine (2) is comprised of two closed magazine portions (2.1, 2.2) that are connected to each other via a transfer channel (2.3), whereby said magazine (2) is disposed on the front side of the gun carriage (1.1) in such a way that said magazine portions (2.1, 2.2) are located on opposite sides of the weapon (1) and whereby the belt is introduced into said magazine (2) in such a way that, when said magazine (2) is fully loaded, a front section (3.1) of the belt lies in said first magazine portion (2.1) that is located on the belt supply side of said weapon (1) and, in its upper part, is provided with a removal opening (2.11) that faces said weapon (1), whereas a rear section (3.2) of the belt rests in said second magazine portion (2.2) that is located on the opposite side of said weapon (1), and a middle section (3.3) of the belt is guided through said transfer channel (2.3) from said second magazine portion (2.2) to said first magazine portion (2.1).
2. A magazine according to claim 1, characterized in that said magazine (1) is closed with at least one removable cover (2.4) on the side that faces to the front when said magazine is attached to said gun carriage (1.1).

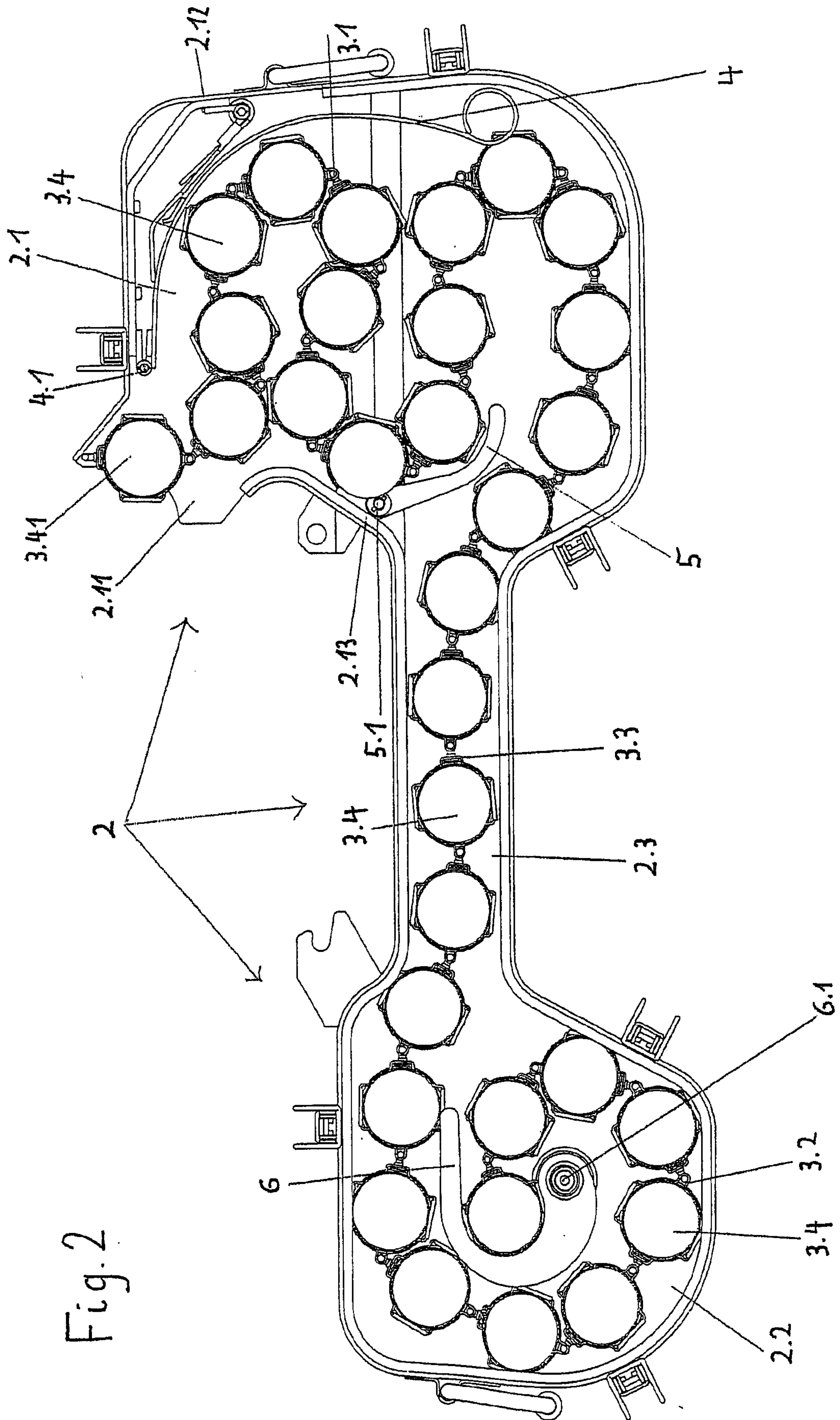
3. A magazine according to claim 2, characterized in that said removable cover (2.4) is formed by a part that covers said first and said second magazine portions (2.1, 2.2) and said transfer channel (2.3).
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4. A magazine according to one of the claims 1 through 3, characterized in that said first and said second magazine portions (2.1, 2.2) as well as said transfer channel (2.3) are dimensioned in such a way that, when said magazine (2) is fully loaded, the shells (3.4) are essentially evenly distributed on both sides of said weapon.
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5. A magazine according to one of the claims 1 through 4, characterized in that said frontal section (3.1) of the belt is positioned in said first magazine portion (2.1) in a meander shaped manner and that a guide plate (4), which supports and guides one side of the belt loops in said first magazine portion (2.1) and extends from the lower part of said first magazine portion (2.1) to said removal opening (2.11), is located on the side wall of said first magazine portion (2.1) opposite to said removal opening (2.11), whereby said guide plate (4) can be swiveled into the interior space of said first magazine portion (2.1) about a swivel axis (4.1) that is located in the area of said removal opening (2.11) until reaching a final position in which said section (3.3) of the belt that comes out of said transfer channel (2.3) is guided along said guide plate (4) directly to said removal opening (2.11).
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6. A magazine according to claim 5, characterized in that said guide plate (4) is automatically swiveled inwardly and arrested in the final position when the first magazine portion (2.1) is emptied.
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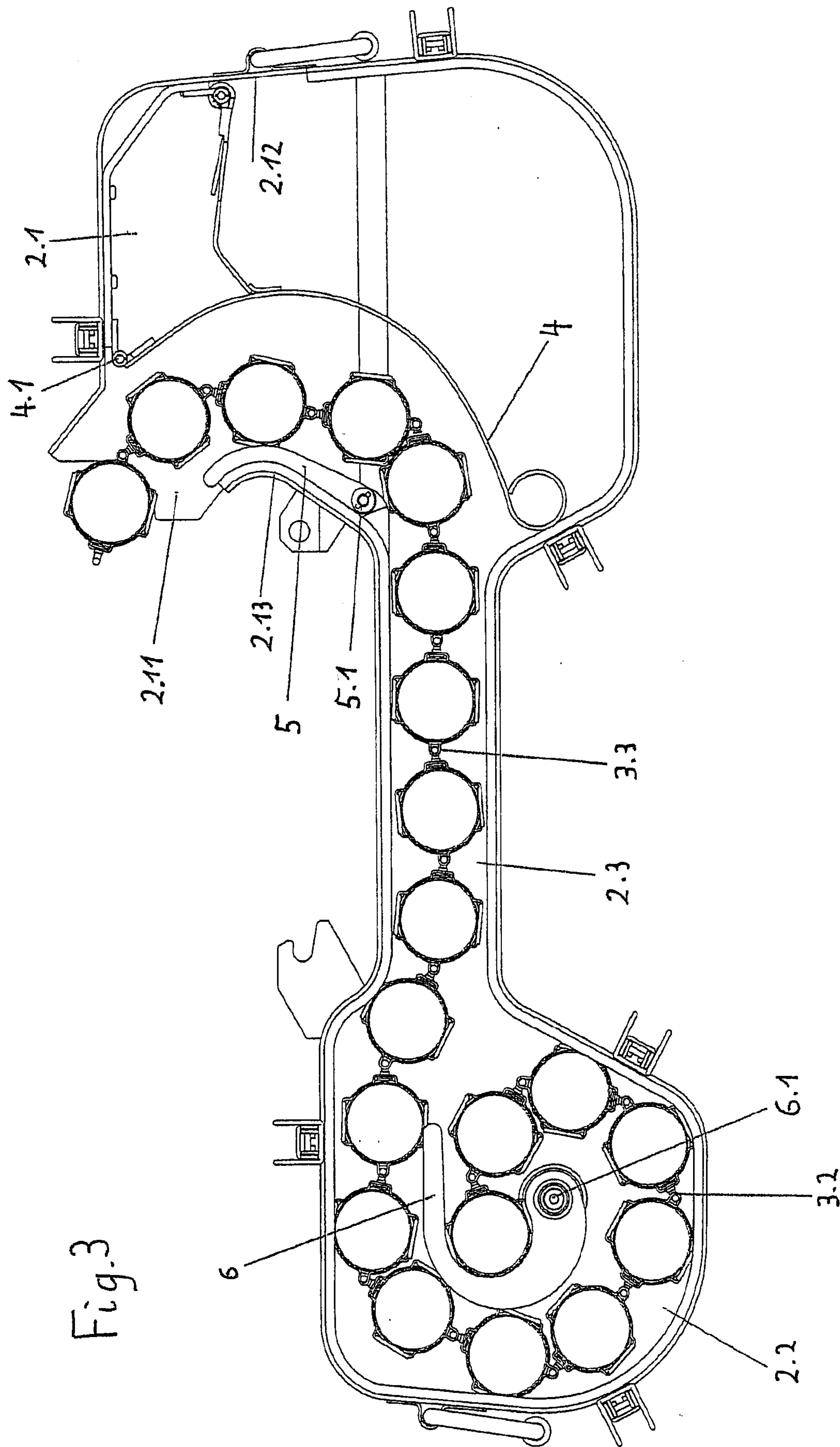
- 5 7. A magazine according to claim 5 or 6, characterized in that the side wall (2.13) below said removal opening (2.11) in said first magazine portion (2.1) is provided with a separating bar (5) that can be swiveled towards said side wall (2.13), whereby, when said first magazine portion (2.1) is fully loaded, said separating bar (5) separates the last belt loop of said belt section (3.1) that is positioned in said first magazine portion (2.1) in a meander shaped manner from said belt section (3.3) that enters from said transfer channel (2.3) and, in the final position of said guide plate (4), said separating bar (5) rests against said side wall (2.13) below said removal opening (2.11) and forms a belt guiding means.
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- 15 8. A magazine according to one of the claims 1 through 7, characterized in that the belt is positioned in said second magazine portion (2.2) in a spiral shaped manner and that said second magazine portion (2.2) is provided with a guide claw (6), which extends around the end of the belt and is
- 20 pivotable in the direction of withdrawal of the belt.
- 25 9. A magazine according to one of the claims 1 through 8, characterized in that, for the purpose of guiding said shells (3.4), the side walls of both of said magazine portions (2.1, 2.2) and of said transfer channel (2.3) are provided with spacer beads (7) that project inwardly and extend in the direction of withdrawal of the belt.
- 30 10. A magazine according to one of the claims 2 through 9, characterized in that the bottom of both of said magazine portions (2.1, 2.2) and of said transfer channel (2.3) and/or said cover (2.4) are lined with a cushioned glide film (2.5).

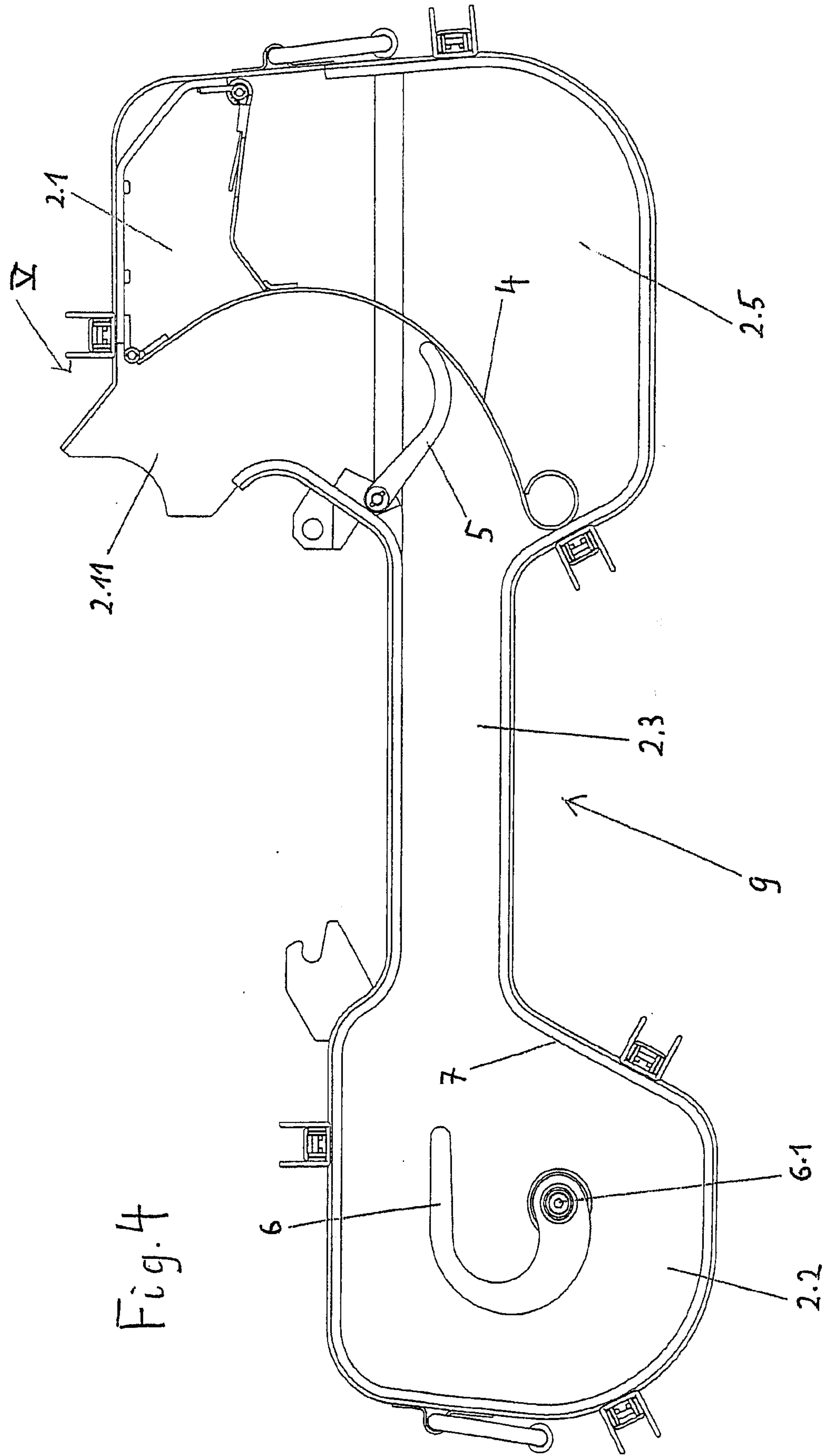
- 5 11. A magazine according to one of the claims 1 through 10,
characterized in that the upper side wall of said first
magazine portion (2.1) on the edge of said removal opening
(2.11), is provided with a notch (8) for suspending the belt
behind the respectively first shell (3.41) of the belt.
- 10 12. A magazine according to one of the claims 1 through 11,
characterized in that said magazine (2) has a recess (9) in
the area of the – in the mounted condition – bottom wall of
said transfer channel (2.3) between said first and said
second magazine portions (2.1, 2.2), and that said magazine
(2) can be attached to said gun carriage (1.1) in such a way
that said transfer channel (2.3) is located below the weapon
15 tube and enables the target optics (10) located below the
weapon to see through.

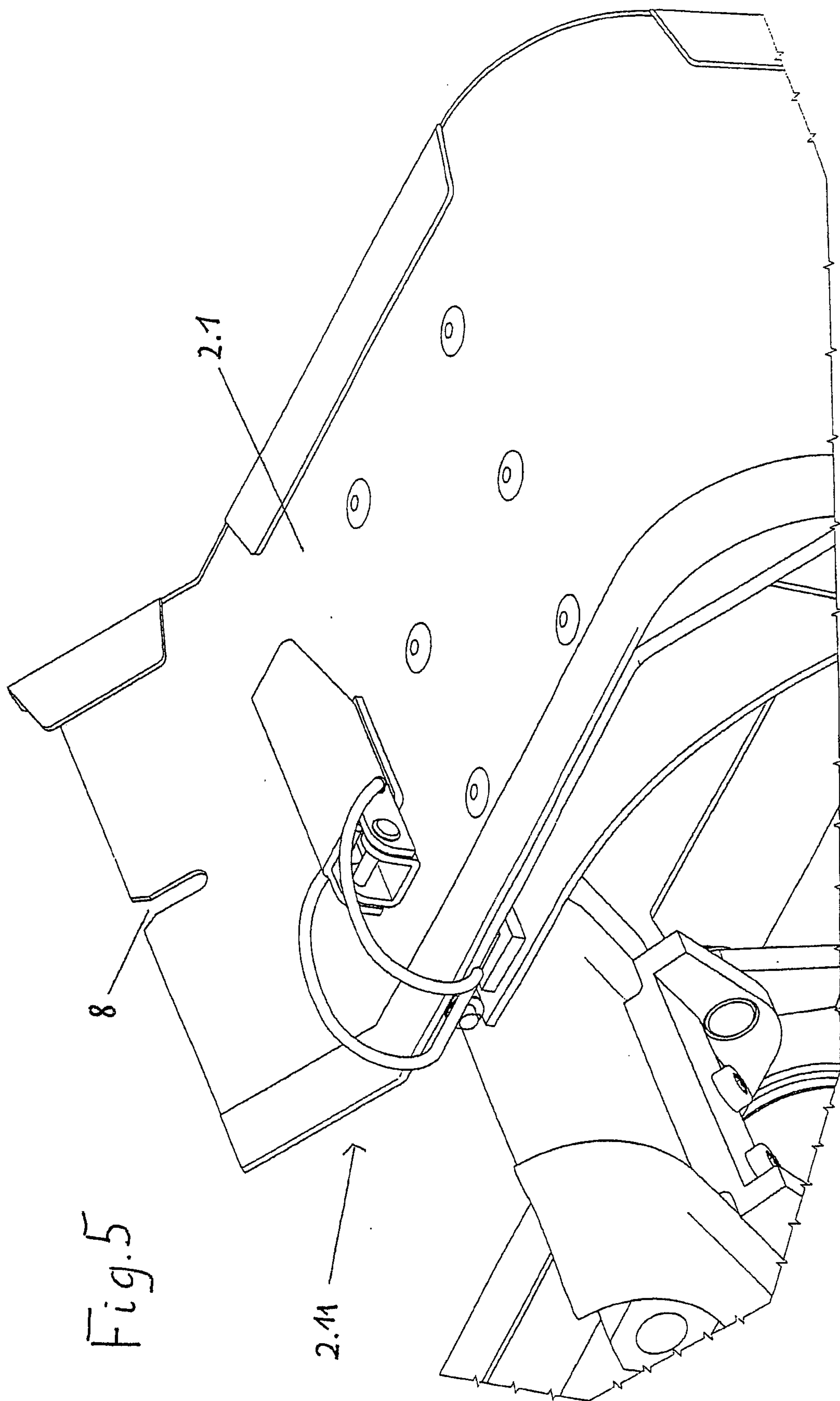
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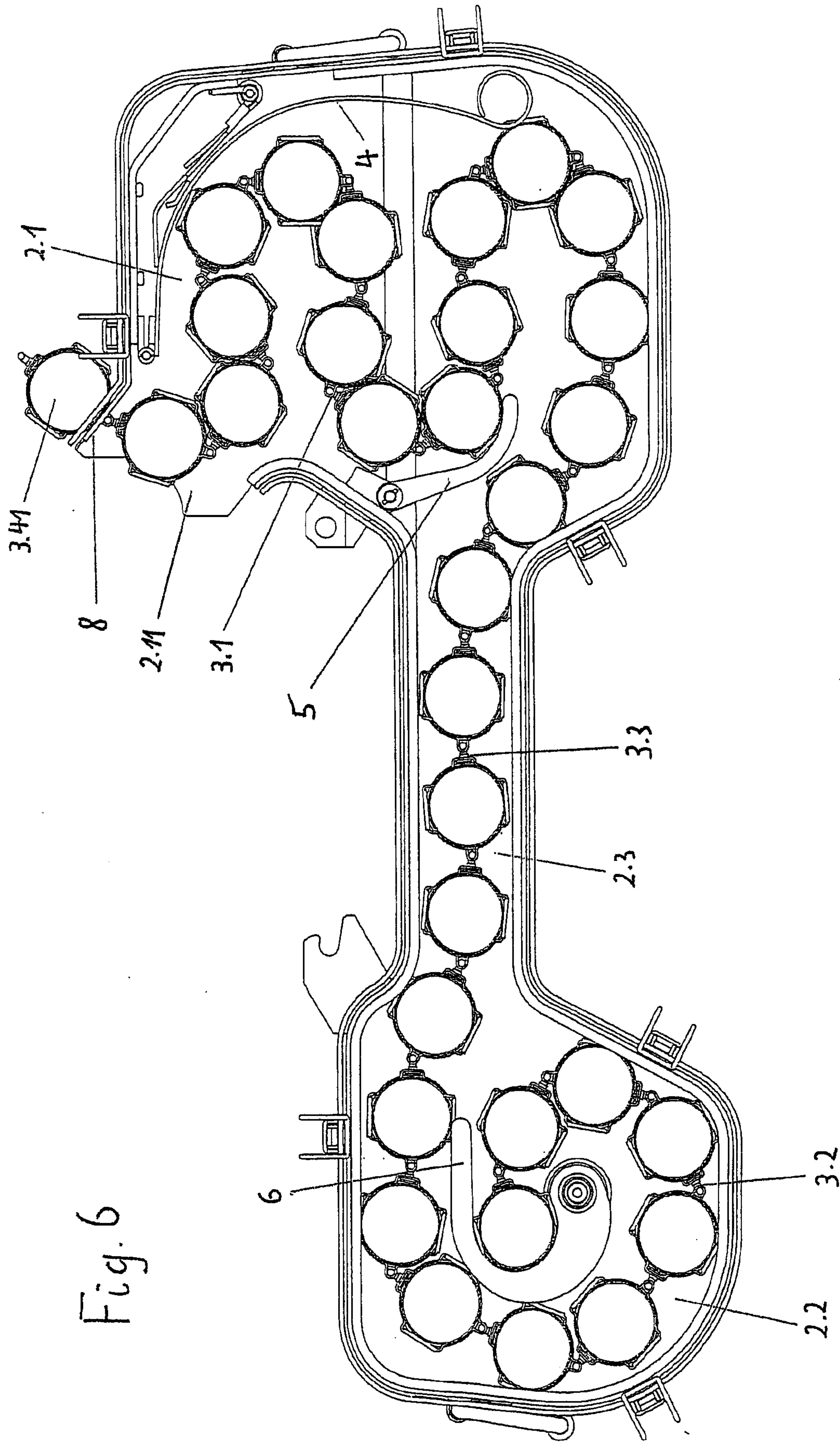


Fig. 6

