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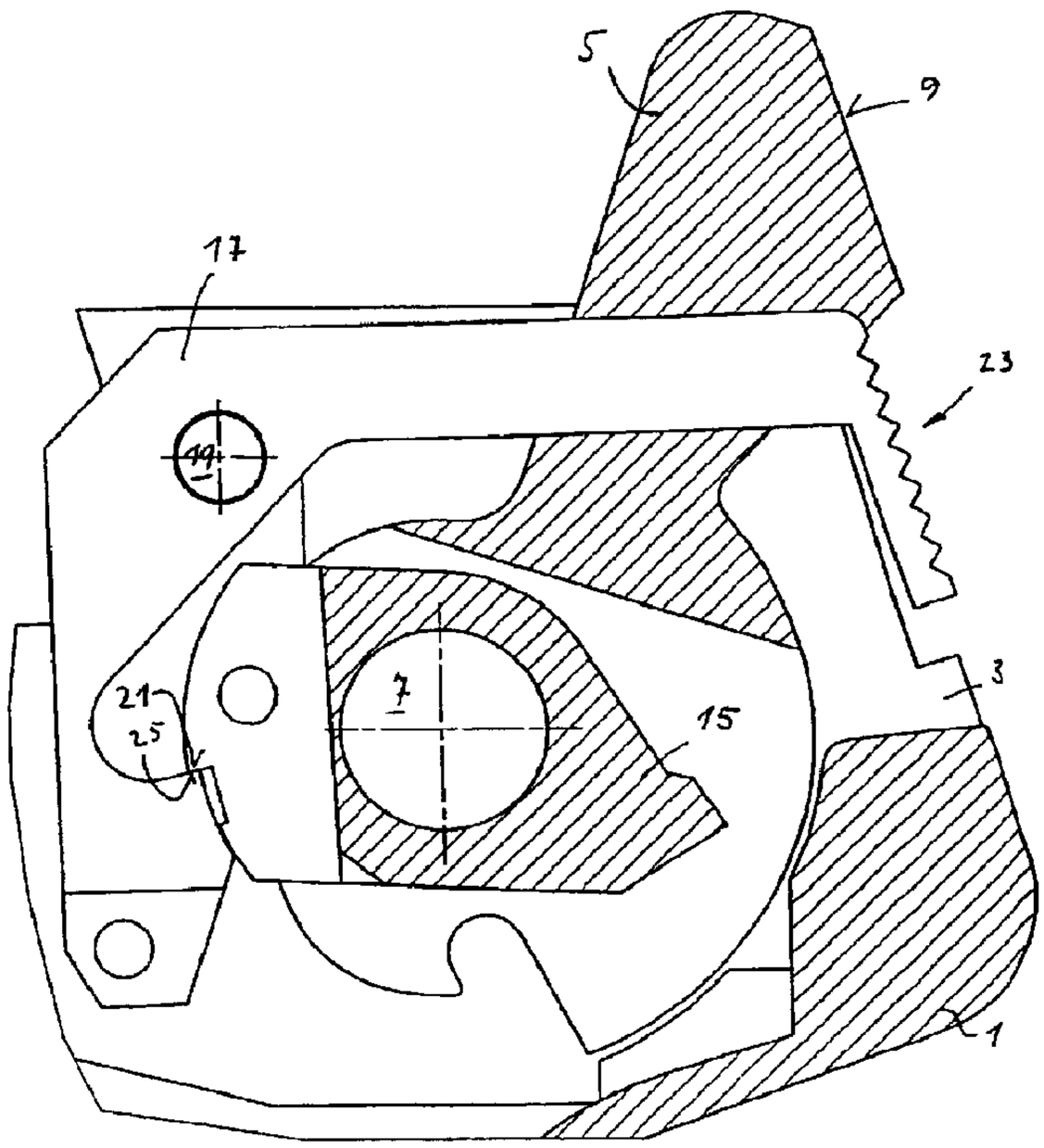
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(54) Titre : ARME DE POING AVEC SECURITE POUR ELEMENT TENDEUR
(54) Title: HAND FIREARM WITH SAFETY DEVICE FOR A TENSIONING ELEMENT



(57) Abrégé/Abstract:
A handgun is described which also has a cocking rod (15) in addition to a trigger mechanism and a cock (5), with a striker spring acting on said cocking rod and driving the cock (5) on the other hand. An additional optional safety mechanism (17) which is independent of the trigger mechanism is provided for the cocking rod (15), optionally securing it. By means of this safety mechanism, the cocking rod (15) can optionally be secured in its cocked position. The safety mechanism (17) preferably has an operating handle (23) which sits next to the handle (9) of the cock (5), so that the safety mechanism (17) can optionally be operated together with the cock (5).

Abstract

A handgun is described which also has a cocking rod (15) in addition to a trigger mechanism and a cock (5), with a striker spring acting on said cocking rod and driving the cock (5) on the other hand. An additional optional safety mechanism (17) which is independent of the trigger mechanism is provided for the cocking rod (15), optionally securing it. By means of this safety mechanism, the cocking rod (15) can optionally be secured in its cocked position.

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Figure 2

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Handgun with a Cocking Rod Safety

This invention relates to a handgun with a trigger mechanism, a cock and a cocking rod which is separate from the latter and on which a striker spring acts and which in turn acts on the cock.

Such a handgun is known from German Patent 197 32 857 C1.

Terms pertaining to position, such as "top," "forward," etc. which are used below refer to the weapon in a normal horizontal position; "forward" refers to the direction of shooting.

A gun has recently become known (Daewoo, Korea) in which the cock which has recently become known is designed in two parts and consists of an actual cock and a cocking rod. The cock has a handle which can be gripped for cocking the mechanism. The cocking rod is connected to and driven by the striker spring. The cocking rod acts on the cock. The trigger mechanism of this gun acts on the cock by means of the tension trigger mechanism (double-action device), while the locking mechanism which releases the shot if the weapon has first been cocked (single-action locking mechanism) is arranged on the cocking rod.

Thus, in operation of the tension trigger, the cock is moved to the rear and entrains the cocking rod. In operation of the trigger when the cocking rod has first been cocked, it strikes off and entrains the cock.

The advantage of this arrangement is that when the cocking rod is cocked, the cock can simply move back into its forward end position; it is necessary only to overcome the set frictional resistance. Thus, the cock does not become caught when removing the weapon from an article of clothing, for example. Nevertheless, in shooting, only the low trigger weight of the cocked weapon need be overcome. In forward movement of the cock when the cocking rod is cocked against the set frictional resistance, the trigger moves back into the forward position (double-action position) which corresponds to the uncocked weapon. However, in pulling the trigger, only the aforementioned low frictional resistance need be overcome by the trigger until the trigger then releases the cocking rod

when the cock moves back and thus the shot is released.

In the position just described (cocking rod cocked, cock forward) the trigger is in the forward position (double-action trigger position) and is thus a great distance from the pressure point (single-action trigger position), so that a much greater measure of safety is achieved than with a conventional cocked gun. It is nevertheless conceivable for the cocked cocking rod to be released inadvertently from the locking mechanism (single-action locking mechanism), e.g., due to a heavy vibration such as that when the gun is dropped onto the hard ground. Although then the cocking rod strikes against the cock, which has a considerable mass and is at rest in its forward position after traveling its striking distance, in the worst case it could nevertheless fire a cartridge. Even if the cock were then secured, the cartridge could still be release if the safety were to fail.

This problem has been further intensified by the fact that many users use the tension trigger of the known gun only in the event of a cartridge failure, but do not release the cocking rod in the usual use of the gun but instead they only push the cock forward. Thus, they are carrying the cocked gun. However, this should actually be prevented by the cock.

Against this background, the aim of the present invention is to improve upon the safety of a gun of the type defined in the preamble.

This object is achieved according to this invention by the fact that with such a gun, an additional safety which is independent of the trigger mechanism is provided, securing the cocking rod directly (Claim 1). This eliminates the problem mentioned above.

Such cocking rod safety mechanisms are known, but inasmuch as the cocking rod is a cock with a handle, the entire cock has of course been secured by the cocking rod safety mechanism. It would therefore be self-evident to secure the cock (not the separate cocking rod) with a firing pin piece safety mechanism, as in the known case with the generic gun. In fact, the preferred embodiment, which is illustrated in the accompanying drawing, also has a firing pin piece safety mechanism in addition to the cocking rod safety mechanism according to this invention.
However, the advantage of this invention is that striking the cocking rod is not rendered ineffective, but instead it is prevented from the beginning, so that optimal safety isn guaranteed.

The cocking rod safety mechanism according to this invention can be combined with another safety mechanism, so that in operation of this conventional safety mechanism, the cocking rod safety

mechanism according to this invention is also inserted or released. The cocking rod safety mechanism according to this invention could also be combined with the magazine shaft, for example, and could act as a magazine safety mechanism, so that it is automatically engaged when the magazine is removed.

The cocking rod safety mechanism according to this invention is designed to secure the entire cocking rod. However, it can be modified so that it can also be used to secure the uncocked cocking rod and prevent the cock from being pulled back and thus prevent the breech movement in the case of a gun designed in this way, such as an automatic pistol. If the cocking rod safety mechanism according to this invention is operated by a breech bolt or a similar device which protects the gun from unauthorized use, then locking of the uncocked cocking rod also at the same time prevents the gun from being loaded or unloaded.

According to an advantageous embodiment of this invention, the cocking rod safety mechanism according to this invention is provided with its own operating handle, so that it can be operated and released independently of other safety mechanisms (Claim 2). This does not rule out the possibility that it might also be combined with other safety mechanisms and engaged automatically, for example, when the magazine is removed.

This operating handle may be designed as a conventional safety wing or as a handle safety clip, so that the weapon is automatically secured when taken out of the hand and the safety is automatically released when the grip, the front shaft or the like is gripped securely with the hand.

However, an especially advantageous embodiment of this invention is based on the fact that the operating handle of the cocking rod safety mechanism according to this invention is mounted in the area of movement of the cock or a handle of the cock (Claim 3). When the person using the gun grips it with his thumb toward the cock to bring it into its forward position with the cocking rod cocked, then he can optionally also operate the operating handle with his thumb and thereby engage the cocking rod safety mechanism according to this invention. Conversely, when the person using the gun grips toward the cock to retract it and thus move the trigger into the single-action position, he can also grip the operating handle and thus make the cocking rod safety mechanism ineffective or deactivate the safety mechanism.

The cocking rod safety mechanism may also be designed as a cam shaft which passes laterally through the handle and reaches under a projection on the cocking rod when turned. Then the cocking rod can

even be lifted out of the locking mechanism, so that there is no risk of the cocking rod firing in removing the safety mechanism.

In a preferred embodiment, the operating handle sits on the end of an angle lever which can be pivoted about a transverse axle, and the other end of the angle lever can be engaged with a projection on the periphery of the cocking rod (Claim 4). The angle lever engages around the cocking rod and thus reaches a position where there is a good possibility for the arrangement of the projection. On the other hand, the angle lever with the operating handle reaches the especially favorable area of the range of movement of the handle of the cock. This operating handle can also be designed as a narrow grooved projection which is arranged next to the cock and can be operated easily with the tip of the user's thumb, even when wearing heavy gloves.

The length of the two legs of the angle lever is selected to yield an appropriate movement distance for the handle. The design of the two legs is such that their weight, based on the distance from the transverse axle, is essentially the same, so that an inertial force applied to the gun (e.g., when striking a hard substrate) cannot cause a tilting movement in the angle lever.

With regard to the position of the transverse axle, it is preferably between the axis of the cocked cocking rod and a tangent to the periphery of the cocking rod in the projection (Claim 5). The force exerted by the projection on the angle lever which engages behind the projection thus has a component which tends to pull the angle lever toward the cocking rod. Thus, an especially reliable safety engagement is guaranteed.

The operating handle is preferably located at the side next to the cock and the axis of the angle lever is preferably above that of the cocking rod (Claim 6); thus, a position is found for the angle lever at the side next to the parts of the trigger mechanism and the striking mechanism, which does not limit their design. In addition, the direction of operation of the operating handle corresponds to the movement of the cock; the arc-shaped movement forward and upward causes the safety locking, and the reverse movement releases the safety.

By an appropriate arrangement of its transverse axle, the angle lever can be prevented from being released from the projection on the cocking rod because it is pressed into engagement with it. However, the angle lever could be engaged from its released position to the position behind the projection if it could move too easily.

This problem could be prevented by imparting a certain frictional resistance to the angle lever to prevent the angle lever from being moved inadvertently.

In a preferred embodiment, however, at least one locking mechanism is provided for the angle lever (Claim 7), securing it at least in the released position (unsecured position). The angle lever can preferably also be secured in the safety position by a locking mechanism. This would prevent the position of the angle lever from being altered inadvertently, e.g., due to grazing the clothing when drawing the gun. The angle lever may instead or additionally be loaded by a spring which always presses it against the cocking rod. This spring is preferably designed as a plate spring and can thus be used in an extremely tight space.

Thus, this invention creates an additional safety device which ensures an additional safety in special generic guns without making operation of these guns disproportionately difficult or delaying operation in an emergency.

The object of this invention is explained in greater detail below on the basis of one example. The schematic drawings included here show:

Figure 1: a longitudinal section through the rear portion of the handle of an automatic pistol with the cocking rod released, but some parts have been omitted here for the sake of simplicity, and

Figure 2: the longitudinal section of Figure 1, but with the cocking rod cocked and simplified even further.

In both figures, the rear portion of a handle 1 of an automatic pistol is shown in a longitudinal section. This handle 1 has a recess 3 in which the cock 5 can engage with a pivoting movement about an axis 7 of the cock. For the sake of simplicity, the axis 7 of the cock is not shown with hatching. The cock 5 has a handle 9 which projects to the rear beyond the handle when the cock 5 is pivoted back into the recess 3 and can be gripped by the user's hand when holding the handle 1 in the shooting position in the hand.

With a pivoting movement forward, the cock 5 can strike a firing pin 11 and thus fire a cartridge (not shown). However, the drawing does shows the cock 5 secured in a position that is not so far forward. The cock 5 sits on a catch 13 which prevents the cock 5 from being able to reach the firing pin 11. This catch 13 forms a "firing pin piece safety mechanism" such as that known previously in the related

art.

In a lower recess in the cock 5 sits a cocking rod 15 which can also be pivoted about the axis 7 of the cock. The cocking rod 15 is loaded by a striker spring (not shown) in the striking direction of the cock 5. In the cocked position, the cocking rod 15 can be engaged in a trigger catch (not shown here) in the cocked position. In Figure 1, the cocking rod is uncocked and therefore sits in the recess on the cock 5.

An angle lever 17 having two legs of approximately equal length arranged approximately at a right angle to one another sits pivotably on a transverse axle 19 which is mounted in the handle in front of and above the axis 7 of the cock, but in parallel with it. The angle lever 17 is provided with a bore approximately in the area of the angle between the two legs and sits pivotably with it on the transverse axle 19.

The angle lever 17 is under a constant load by a plate spring (not shown) in the direction toward the cocking rod 15.

On its rear edge, the one leg of the angle lever 17 pointing downward has a catch projection 25 which is set up to engage in a projection 21 on the cocked cocking rod 15 (see Figure 2). On the end of the other leg of the angle lever 17 pointing toward the rear there is a web which is provided with grooving and is angled downward on the outside, serving as an operating handle 23.

The approximately horizontal leg of the angle lever 17 pointing toward the rear is shown with a break in Figure 1 to illustrate the catch 13.

The angle lever 17 is secured in the position shown in Figure 1 by a catch mechanism (not shown) so that the pivoting movement of the cocking rod 15 is not hindered.

In the uncocked position of the cocking rod 15 shown in Figure 1, the angle lever 17 is secured in the position shown. Therefore, the operating handle 23 cannot be moved.

However, if the cocking rod 15 is cocked, then its projection 21 is exactly behind the catch projection 25. Then if the operating handle is pushed upward, the catch projection 25 extends beneath projection 21 and thus holds the cocking rod 15 securely (as shown in Figure 2).

If for some reason the cocking rod 15 is released, then the projection 21 attempts to pull the catch projection 25 toward the cocking rod 15. The catch projection 15 [sic; 25] therefore remains in its cocked position. In addition, a catch mechanism (not shown) may also be provided to further secure the engagement between catch projection 25 and projection 21.

The operating handle 23 is only a narrow grooved web arranged in the recess 3 next to the handle 9 of the cock 5, but it hardly projects out of it to the rear. This ensures that the operating handle will not be operated inadvertently in handling the gun, e.g., when drawing the gun out of clothing or a pocket. On the other hand, the operating handle can be operated easily with the user's thumb, optionally in operating the handle 9 of the cock 5, even if the user is wearing a heavy glove on the hand operating it.

The cocking rod safety mechanism shown here is installed in a handgun in the present example, but it could also be used equally well in a long gun. It need not be an automatic gun, as in the example shown here, but instead could equally be a repeating gun or a single loader or a gun with multiple barrels.

Patent Claims

1. A handgun with a trigger mechanism, a cock (5) and a cocking rod (15) separate from the latter, said cocking rod having a striker spring acting on it and in turn acting on the cock, characterized by a safety mechanism (17) which is independent of the trigger mechanism and optionally secures the cocked cocking rod (15).

2. The handgun according to Claim 1, characterized in that the safety mechanism (17) has an operating handle (23).

3. The handgun according to Claim 2, characterized in that the operating handle (23) is arranged closed to a handle (9) of the cock (5).

4. The handgun according to Claim 3, characterized in that the operating handle (23) sits on the end of an angle lever (17) which can be pivoted about a transverse axle (19), and the other end of the angle lever (17) can be brought into engagement with a projection (21) on the cocking rod (15).

5. The handgun according to Claim 4, characterized in that when the cocking rod (15) is cocked, the transverse axle (19) is between the axis (7) of the cocking rod (15) and a tangent to a circle about the axis and through the projection (21), with the tangent being tangent to this circle in the projection (21).

6. The handgun according to one of Claims 4 or 5, characterized in that the operating handle (23) is located at the side next to the cock (5), and the transverse axle (19) of the angle lever (17) is above the axis (7) of the cocking rod (15).

7. The handgun according to one of Claims 4 through 6, characterized in that at least one of the end positions of the angle lever (17) is secured by a catch mechanism.

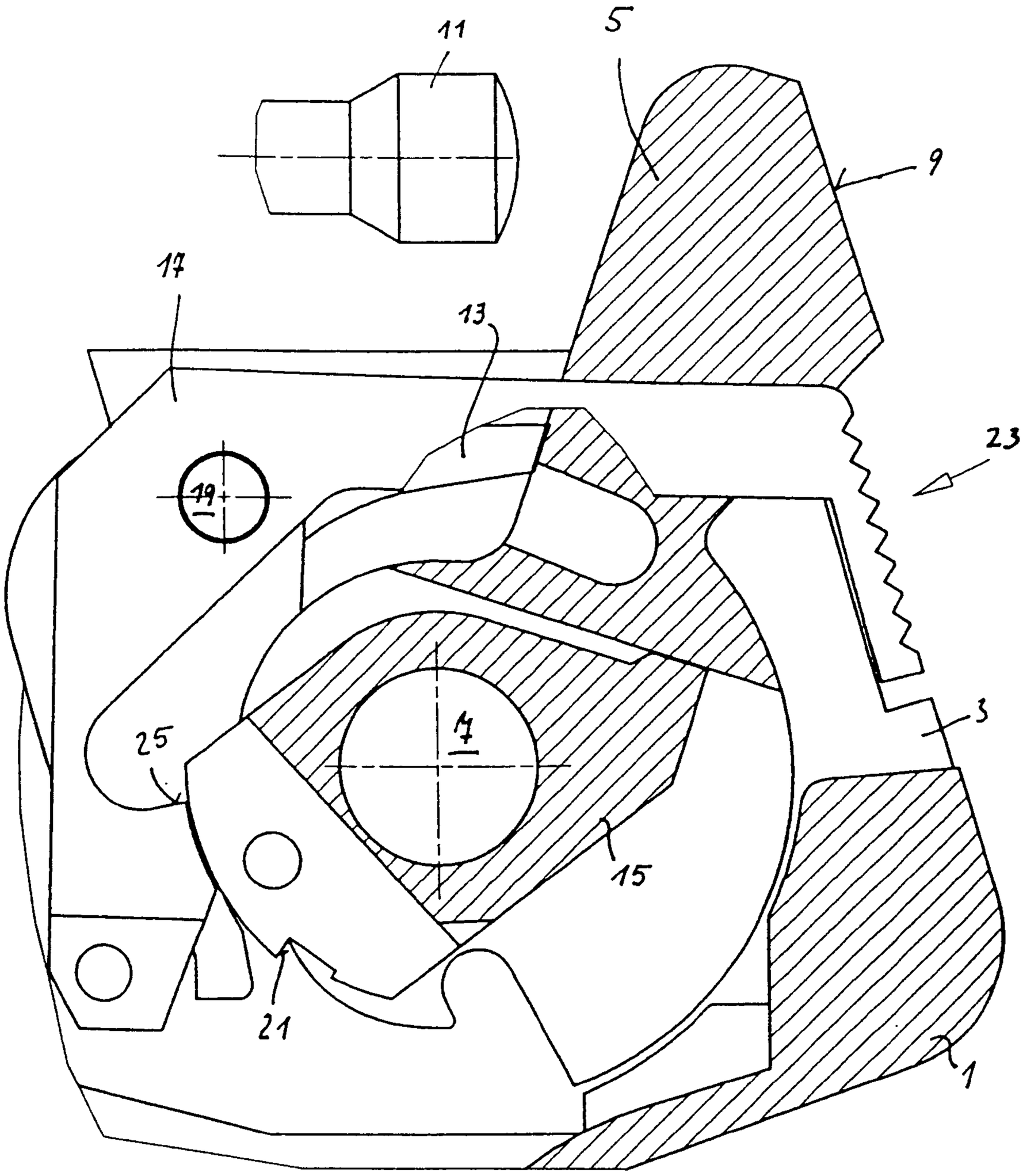


Fig.1

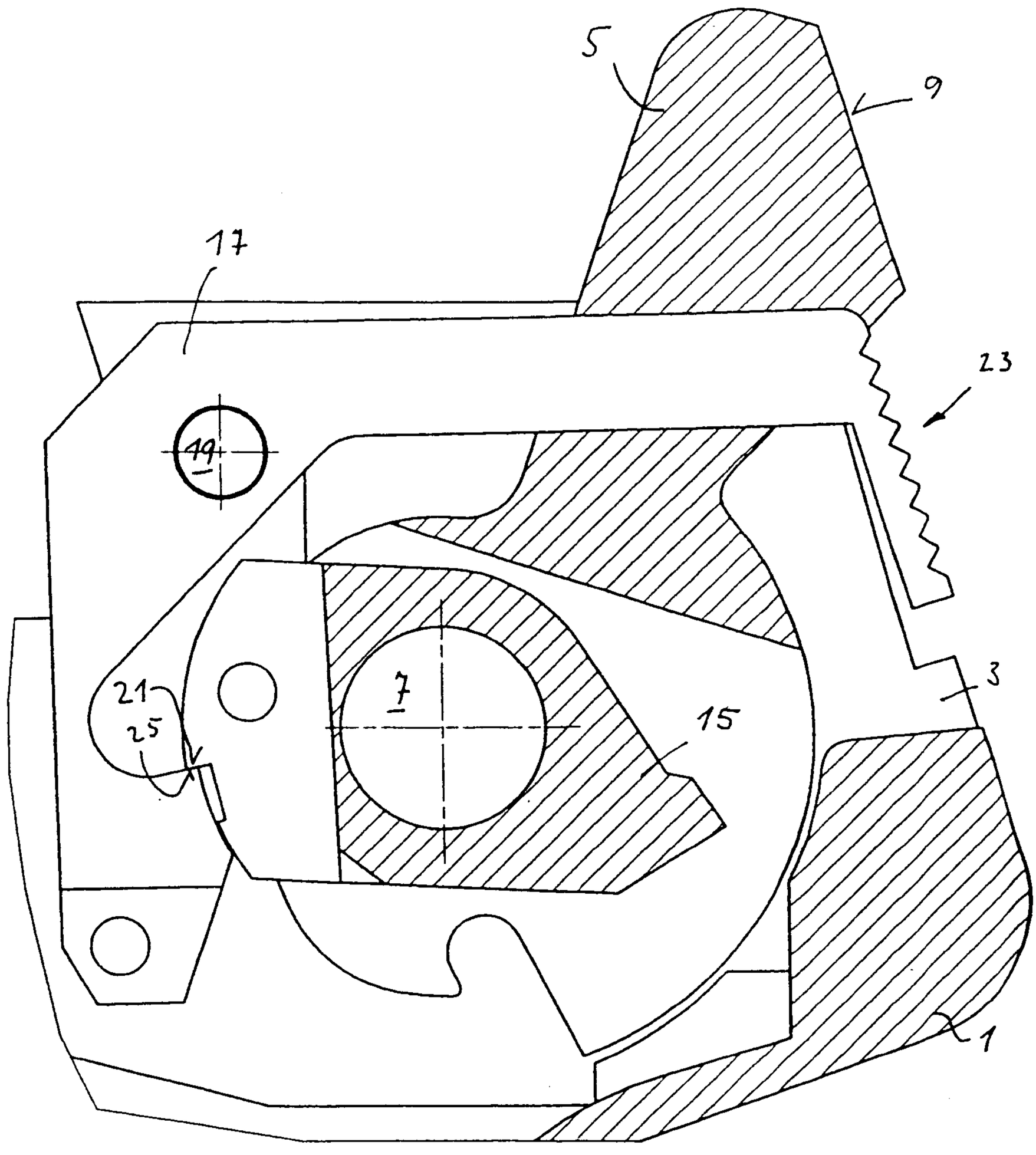
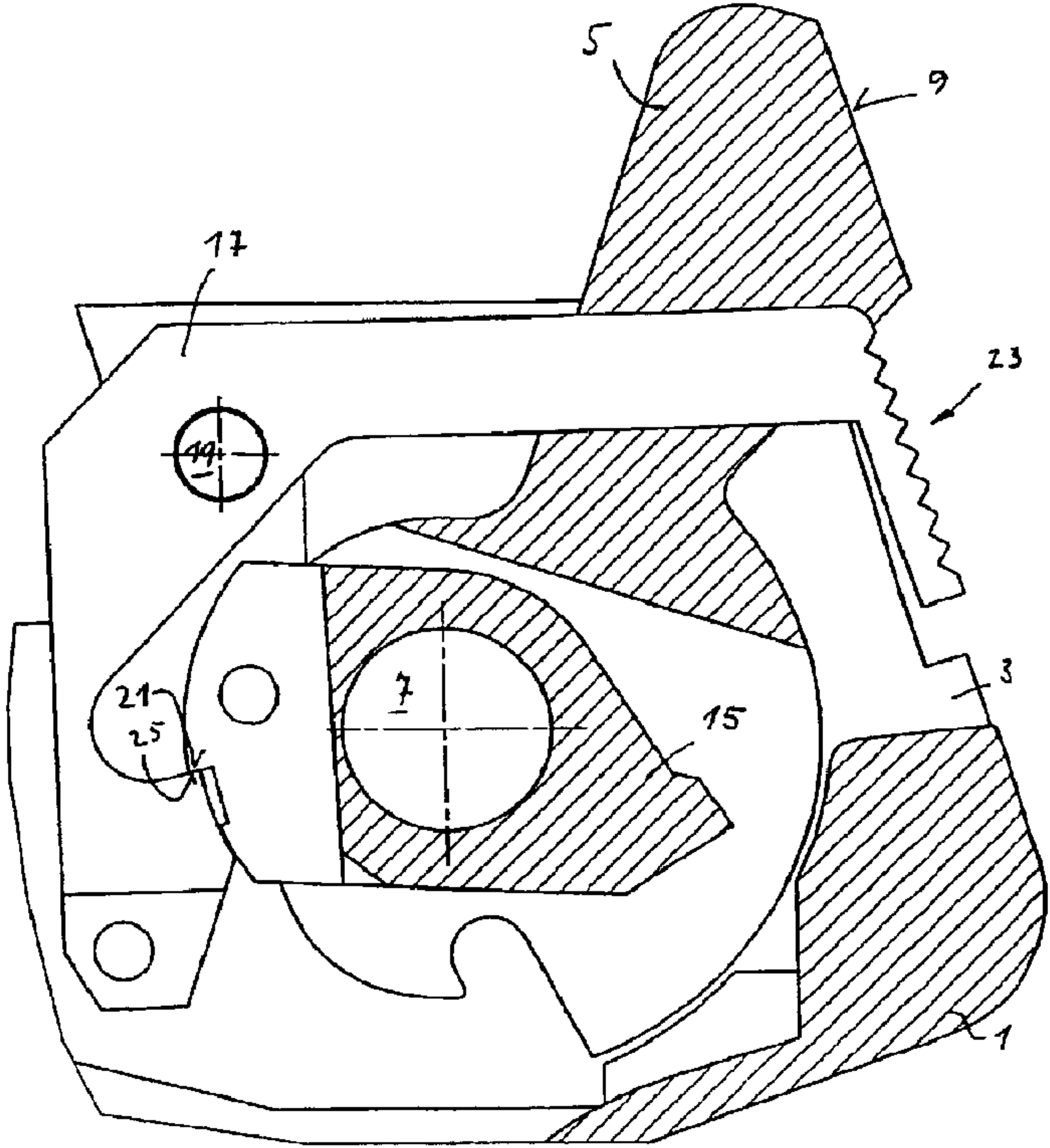


Fig. 2


5
9
17
23
19
21
25
7
15
3
1