

R. FROMMER.
TRIGGER DEVICE FOR FIREARMS.
APPLICATION FILED NOV. 5, 1907.

985,156.

Patented Feb. 28, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

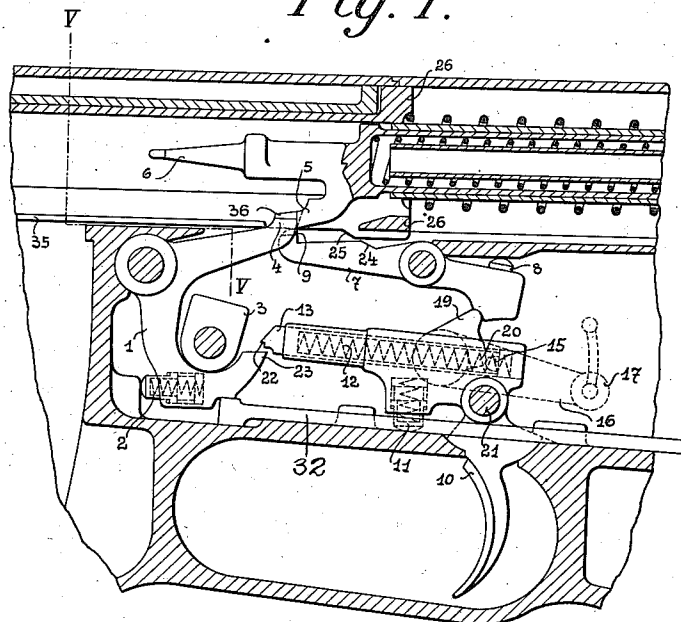


Fig. 3.

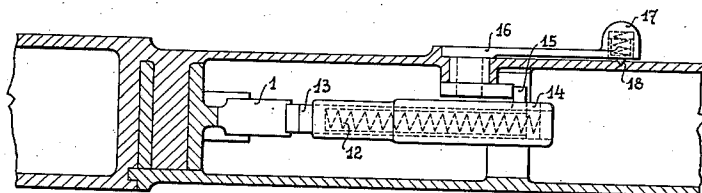
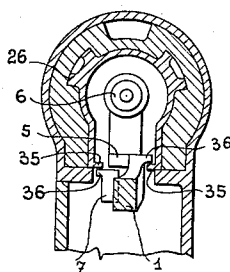


Fig. 5.



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3 SHEETS-SHEET 2.

Fig. 2.

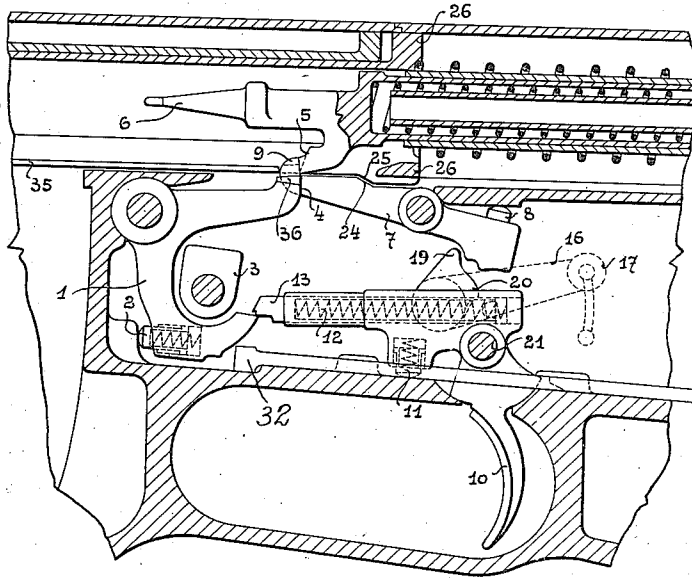


Fig. 4.

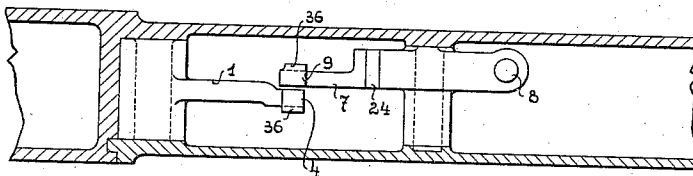
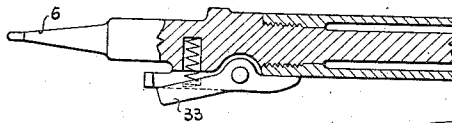


Fig. 10.



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3 SHEETS—SHEET 3.

Fig. 6.

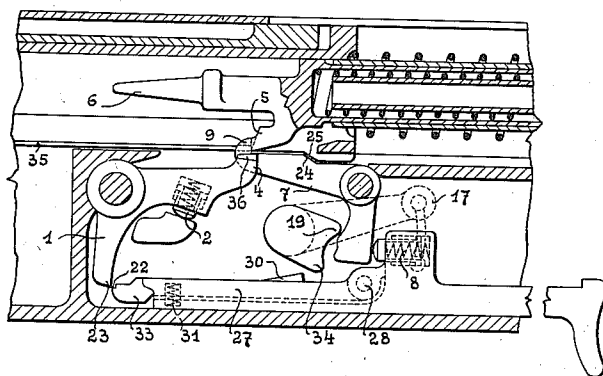


Fig. 7.

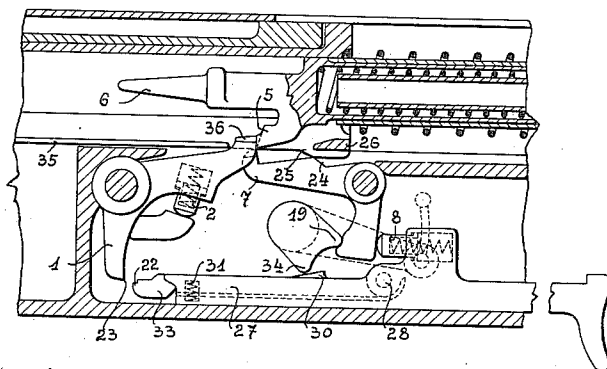


Fig. 8.

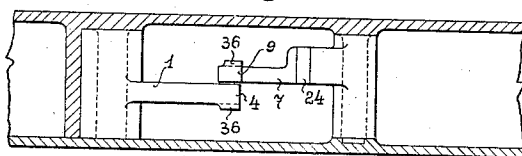
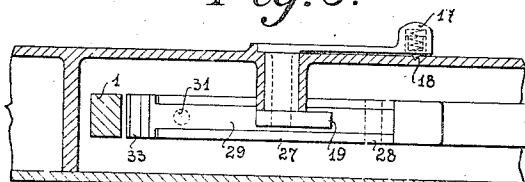


Fig. 9.



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UNITED STATES PATENT OFFICE.

RUDOLF FROMMER, OF BUDAPEST, AUSTRIA-HUNGARY.

TRIGGER DEVICE FOR FIREARMS.

985,156.

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Application filed November 5, 1907. Serial No. 400,815.

To all whom it may concern:

Be it known that I, RUDOLF FROMMER, manager, subject of the King of Hungary, residing at Budapest, Austria-Hungary, have invented certain new and useful Improvements in or Relating to Trigger Devices for Firearms, of which the following is a specification.

This invention relates to a trigger device for fire arms by means of which either a single shot can be fired by pressing the trigger or the firing continued as long as the pressure on the trigger is kept up, as desired, either of the two results being obtained by suitably operating a change part.

The invention further relates to a safety device which makes it possible to fire only when the breech-bolt is completely closed.

The trigger device which can be of different constructions is shown in the accompanying drawings in two constructions. First for fire arms in which the trigger is operated by pulling with the curved finger and then for fire arms in which the firing is effected by means of a pressure exercised for instance on a knob. It goes without saying that the device arranged for operation by pulling can be easily applied for operation by pressure, and vice versa.

Figure 1 shows the trigger device with pulling movement put in for single firing. Fig. 2 shows the same adjusted for continuous firing. Fig. 3 is a view of the trigger mechanism from the under side, also showing the setting lever. Fig. 4 shows the sear and the tumbler in plan and part of the frame in section. Fig. 5 is a cross section on line V—V of Fig. 1. Fig. 6 shows the trigger device for pressure movement set for continuous firing. Fig. 7 shows the same set for single firing. Fig. 8 shows the plan of the sear and tumbler, and portion of the frame in section, this construction being a modification of that shown in Fig. 4. Fig. 9 is a plan of the trigger arm and the setting lever and a partial section of the frame. Fig. 10 is a detail view of the head of the firing pin of another construction.

In the construction shown in Figs. 1-5, the sear 1 is pressed by the spring 2 against a stop 3, the nose 4 of the sear being in front of a projection 5 of the firing pin 6. The tumbler 7 is controlled by a spring actuated pin 8 in such manner that its nose 9

is pressed in front of the projection 5. The two noses 4 and 9 are arranged side by side (Fig. 4) in such manner that the firing pin 6 can be held fast by the two noses simultaneously.

As will be seen from Figs. 1 and 2, the sear 1 can be secured by a safety rod 32, the latter engaging under the sear, so that the latter cannot swing out.

In order to enable the firing pin 6 to be cocked even when the sear is at half cock, the projection 5 can be made into a spring pawl 33 (Fig. 10) in such a manner that the said pawl 33 moves out of the way of the sear into the half cock position during the cocking of the firing pin. The release of the sear 1 is effected by the trigger 10 controlled by a spring 11 and provided with a trigger pin 13 operated by a spring 12. The said trigger pin is provided with a part 15 projecting laterally from the trigger and guided in a slot 14 of the trigger. Laterally of the trigger is arranged the setting lever 16 which is held fast in two positions by means of a spring controlled locking pin 18 arranged in its knob 17. The setting lever is provided inside the gun casing with two projections 19 and 20 which can be brought into engagement with the tumbler 7 or with the projection 15 of the trigger pin.

If it is desired to fire single shots by means of the trigger device, the setting lever 16 is placed into the position shown in Fig. 1, its projection 19 forcing the tumbler 7 out of reach of the firing pin projection 5 and holding it fast in this disengaged position. The projection 20 comes into engagement with the projection 15 of the trigger pin 13, whereby the latter is slightly forced back against the action of the spring 12. Owing to this forcing back of the trigger pin, the length of the trigger from the axis of rotation 21 to the operative edge 22 is shortened to such an extent that, on the trigger being pulled, the edge 23 of the sear 1 springs back from the edge 22 as soon as the nose 4 releases the firing pin, so that the sear 1 under the influence of the spring 2 comes back to its position of rest after the firing pin 6 has been released. In that way the result is obtained that the sear 1 is at once ready again to seize the firing pin and not to release it before again being pulled.

If the trigger 10 is again released after firing a shot, the trigger pin 13 which is moved against the action of the spring 12, can again return to its original position, so that a new shot can be fired.

If it is desired to fire continuously with the said trigger device, the setting lever 16 is brought into the position shown in Fig. 2, its projection 19 becoming disengaged from the tumbler 7, so that the latter is brought by its spring actuated pin 8 into engagement with and placed in front of, the firing pin projection 5. The firing pin 6 is, therefore, held simultaneously both by the nose 4 of the sear and the nose 9 of the tumbler, as long as the trigger is not pulled. The tumbler 7 has a cam surface 24 which is depressed by a corresponding cam surface 25 of the breech-bolt 26, whereby the tumbler 7 is released as soon as the breech-bolt is brought into the closed position. Accordingly when the bolt is completely closed the firing pin 6 is held only by the sear 1.

Owing to the shifting of the position of the setting lever 16 its projection 20 also became disengaged from the projection 15 of the trigger pin 13 which is no longer limited by the projection 15 but expands a little, comes out from the trigger and is limited only by the slot 14 provided in the trigger. If the trigger is pulled, a shot is fired, as, owing to the completely closed breech-bolt, the tumbler 7 is in the disengaged position and by pulling the trigger, the sear is released. The edge 23 of the sear 1 can, however, no longer spring back from the edge 22 of the trigger pin 13 as the length of the trigger has been slightly increased from the axis of rotation 21 to the edge 22, owing to the release of the projection 15. The sear 1 is, therefore, held out of engagement with the projection 5 of the firing pin as long as the pressure on the trigger continues. After firing a shot, the breech-bolt, and with it also the cam surface 25, move backward, the tumbler is therefore again brought by its spring actuated pin 8 into the engaged position, it holds the firing pin fast again and is again automatically released by the cam surface 25 when the breech-bolt is completely closed. This is repeated as long as the pressure on the trigger continues. On the trigger being released the sear comes into the path of the firing pin 6, and the firing stops.

The trigger device shown in Figs. 6-9 for pushing the trigger is substantially the same as hereinbefore described, only the trigger is constituted by an adjustable trigger arm. The corresponding parts are marked in the drawings with the same reference numerals as in the first construction. The trigger arm 27 is provided with a tongue 29 (Fig. 9) rotatable about a pin 28 and provided with a cam surface 30. The

tongue 29 is pressed upward by a spring 31 and can be pressed slightly downward against the pressure of the said spring.

If it is desired to set the gun for single firing, the setting lever 16 is brought into the position shown in Fig. 7. In that way the tumbler 7, like in the first construction, is brought by the projection 19 of the setting lever out of reach of the firing pin projection 5. At the same time a projection 34 of the setting lever is brought into the path of the cam surface 30 of the tongue 29. When the trigger arm 27 is pushed forward for the purpose of firing a shot, the sear is turned by the projection 33, so that the nose 4 releases the firing pin, and a shot is fired. When arm 27 is now pushed forward, the tongue 29 is slightly depressed by the projection 34 which slides along the cam surface 30, so that the edge 23 of the sear springs back from the edge 22 of the projection 33 the moment the nose 4 has released the firing pin. The sear is then brought again by its spring 2 in the well known manner to its position of rest in which it is ready to catch the firing pin in the well known manner. When the trigger arm 27 is pulled back, the edge 22 moves back in well known manner, the projection 33 being turned downward about the pin 28. The sear thus holds the firing pin fast, as long as it is not pulled back again.

If it is desired to set the gun for continuous firing, the setting lever 16 is turned into the position shown in Fig. 6. In that position of the setting lever, the projections 19 and 34 become disengaged respectively from the tumbler 7 and the cam surface 30. In that way the tumbler 7 is brought by its spring 8 within reach of the firing pin projection 5, the said tumbler, like in the first construction being automatically brought into action by the cam surfaces 25 and 24. At the advance of the trigger arm 27, the tongue 29 is, however, no longer pressed down since the projection 34 is not in engagement with the cam face 30. The edge 22 will not, therefore, move out of the way of the edge 23, so that the sear 1 remains disengaged, and the firing, as already stated, will be automatically continued as long as the pressure on the trigger arm continues.

In the trigger device according to this invention, there is further provided a safety device which insures that the firing shall be possible only when the breech-bolt is completely closed. To that end, the bottom edge of the breech-bolt is provided with two inward longitudinal ribs 35 or the like (Figs. 1, 2, 5, 6 and 7) cooperating with two small laterally projecting ledges 36 or the like of the sear nose 4 and of the tumbler nose 9. When the sear and the tumbler are in engagement with the firing pin projection 5,

the ledges 36 are situated above the ribs 35 and prevent the noses 4 and 9 from being pulled down. The ribs 35 are interrupted at the point where the noses 4 and 9 are situated when the breech-bolt is closed, so that the noses 4 and 9 can come out from the breech-bolt at this point. In that way neither the sear nor the tumbler can release the firing pin unless the breech-bolt is completely closed. This safety device can of course be applied to any kind of fire arms.

In order that the sear and tumbler, after a shot has been fired, can regain their original position to intercept the firing pin on the forward movement of the latter with the bolt, the ribs 35 are also recessed at their extreme forward end, so that when the breech-bolt returns to its forward open position, the said recesses in the rib 35 will lie over the noses 4 and 9, permitting the same to be returned by their springs to their position in which they again engage with the projection 5 of the firing pin.

In case the trigger device has only one part releasing the firing pin, it can be provided on both sides with ledges 36 or the like, or only on one side, the longitudinal ribs 35 or the like being provided on the breech-bolt only at that point.

I claim—

1. Trigger device, comprising in combination with the trigger, a breech-bolt, a firing pin, a sear and a tumbler, the said sear and tumbler having means to engage with the said firing pin, the sear being adapted to be disengaged from the firing pin by the trigger, and a cam-face on the breech-bolt adapted to cooperate with a corresponding cam-face on the said tumbler to disengage the latter from the firing pin.

2. Trigger device, comprising in combination with the trigger and a movable spring-controlled trigger-pin, a firing-pin, a sear having means to engage with the said firing pin, a projection on said trigger pin and a setting lever adapted to engage with said projection, to retract the said trigger-pin and shorten the same.

3. Trigger device comprising in combination with the trigger and a movable, spring controlled trigger pin, a firing pin, a sear having means to engage with the said firing pin and lock the same in cocked position, a

projection on said trigger-pin, and a setting lever adapted to engage with said projection to retract the said trigger-pin and shorten the same, the trigger pin engaging the said sear with an edge so as to release the said sear and become disengaged therefrom upon each pulling of the trigger.

4. Trigger device comprising in combination with the trigger and a movable, spring-controlled trigger pin, a breech-bolt, a firing pin, a sear, a tumbler, the said sear and tumbler having means to engage with the said firing pin, locking it in cocked position, means on said trigger pin to engage with the said sear and withdraw it from its locking position, means on said breech-bolt to engage upon the closing of the breech-bolt with said tumbler and withdraw it from its locking position, and a setting lever having a projection adapted to engage with said tumbler and permanently withdraw it from its locking position.

5. Trigger device comprising in combination with the trigger and a movable, spring-controlled trigger pin, a breech bolt, a firing pin, a sear, a tumbler, the said sear and tumbler having means to engage with the said firing pin, locking it in cocked position, means on said trigger-pin to withdraw the said sear from its locking position, means on said breech-bolt, to withdraw, when closed, the said tumbler from its locking position, and means on said breech-bolt and the said sear and tumbler respectively to prevent the withdrawal of either the said sear or tumbler from their locking positions except upon the breech-bolt being completely closed.

6. A trigger-device comprising in combination with the trigger and a movable trigger-pin, a firing pin having a projection and a sear having means to engage with said projection and lock thereby said firing pin in its cocked position, the said projection comprising a spring pawl adapted to move out of the way of the sear.

In testimony whereof I affix my signature in presence of two witnesses.

RUDOLF FROMMER.

Witnesses:

LILLIAN FUIOP,
LESLIE SLSASZ.