July 21, 1964 G. V. SAVIOLI 3,141,254

AUXILIARY TRIGGER DEVICE WITH SAFETY

Filed April 18, 1962 2 Sheets-Sheet 1

Fig. 1

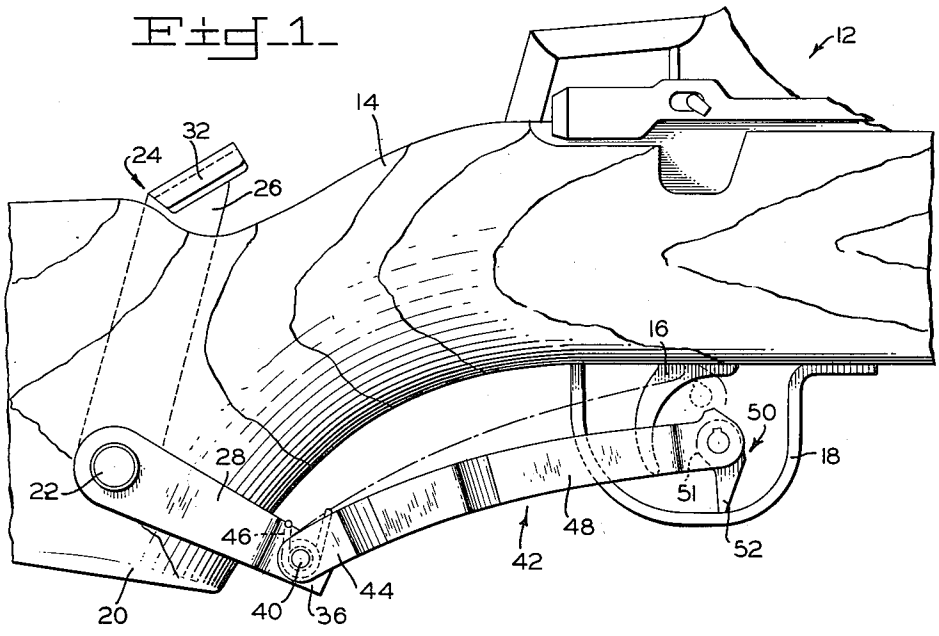
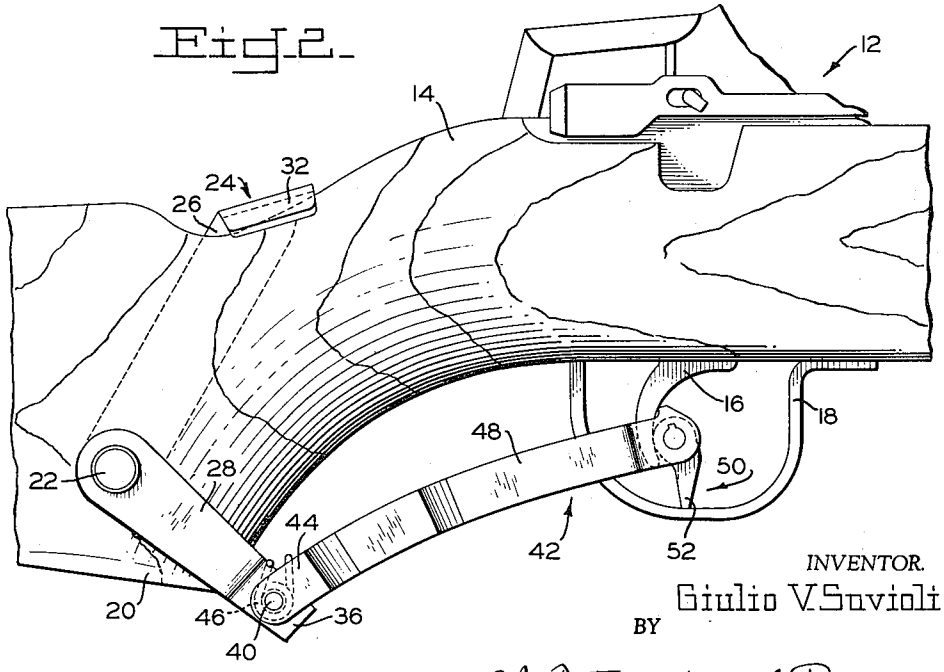


Fig. 2



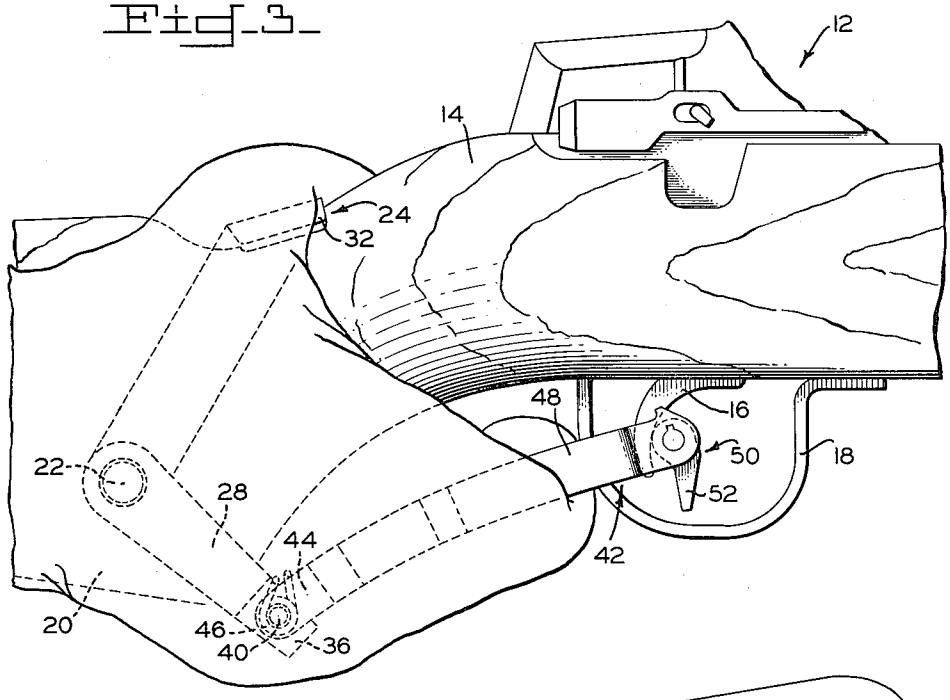
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Filed April 18, 1962 2 Sheets-Sheet 2

Fig. 3



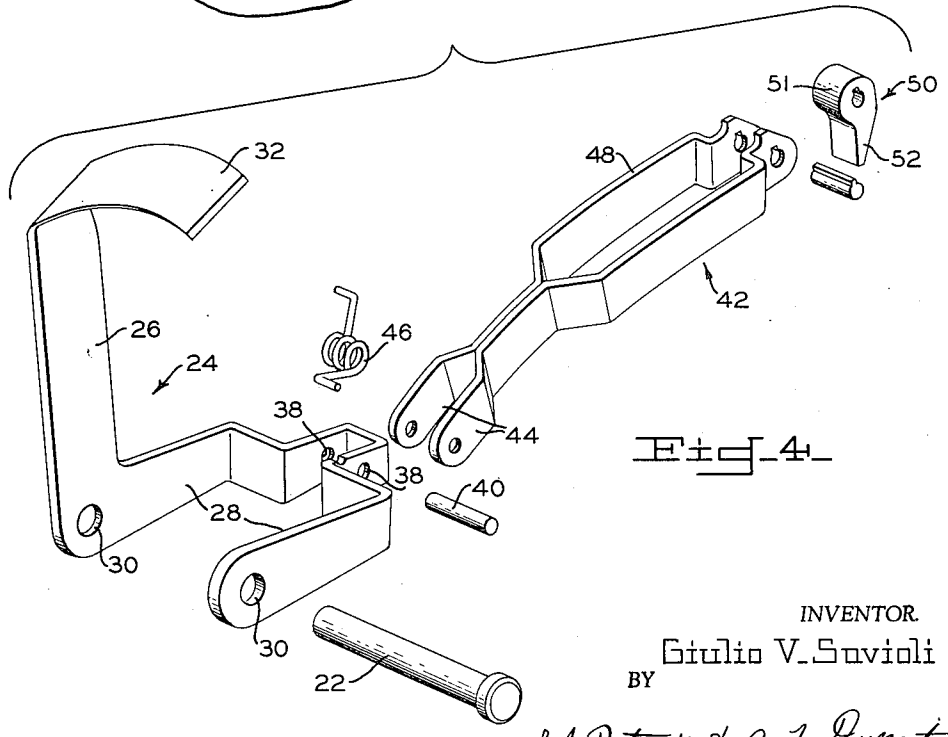


Fig. 4

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AUXILIARY TRIGGER DEVICE WITH SAFETY

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(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to firearms and more particularly to auxiliary trigger devices which are added so that the firearm may be fired by one wearing heavy mittens.

Heretofore, the auxiliary triggers which are provided so that a firearm may be fired by a mittened hand have not had any means whereby the auxiliary trigger is prevented from being accidentally actuated and thereby cause the firearm to fire if the firearm safety is actuated to the fire position. This causes a hazardous condition as the auxiliary triggers are necessarily quite large and cannot be protected by a guard.

It is, therefore, an object of this invention to provide for firearms an auxiliary trigger device with an integral safety which prevents actuation of the auxiliary trigger unless the safety is actuated therewith.

It is a further object of this invention to provide an auxiliary trigger and cooperating safety which may both be encircled by a mittened hand and actuated thereby so that the auxiliary trigger may be released for firing the firearm without extra movement by the operator and time loss.

It is another object of this invention to provide an auxiliary trigger which is normally biased out of contact with the firearm trigger and is displaced thereagainst for actuation thereof by the safety.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawings in which:

FIG. 1 is an elevational view of a fraction of a rifle showing the installation of the auxiliary trigger device mounted thereon with the safety in the safe position and the trigger bar in the clear position.

FIG. 2 is a view similar to FIG. 1 but showing the safety in the fire position; and

FIG. 3 is a view similar to FIGS. 1 and 2 but showing the safety actuated to the fire position and the trigger bar displaced to the elevated position by a mittened hand encircling the safety depressor and trigger bar at the pistol grip.

FIG. 4 is an exploded view of the auxiliary trigger device of the invention.

Shown in the figures is a rifle 12 with a stock 14 and a depending trigger fingerpiece 16 which is actuatable from a normal to a firing position and is protected by an encircling trigger guard 18. Stock 14 is of conventional design with a pistol grip portion 20 which is gripped by the hand used to actuate fingerpiece 16 and fingerpiece 16 is of conventional arcuate configuration.

Extending transversely through stock 14 immediately rearward of pistol grip portion 20 is a shaft 22 which pivotally mounts, as hereinafter described, a safety 24 which is essentially of a bellcrank configuration. Safety 24 includes an upper arm 26 which angularly joins a lower arm 28 and a hole 30 is provided through the safety at the junction to receive the left end of shaft 22, looking towards the front end of rifle 12 from the rear thereof, so that the safety is pivotal on the shaft between a safe and a fire position.

Upper arm 26 extends upwardly and forwardly from shaft 22 and is provided with a depressor portion 32 which extends over the top of pistol grip portion 20 so that, when the pistol grip portion is encircled by a mittened hand, the depressor is also encircled so as to be depressed thereby, to actuate safety 24 to the fire position, when the mittened hand is tightened.

Lower arm 28 extends downwardly and forwardly from shaft 22 and is bent around the underside of pistol grip portion 20 and up along the right-hand side of stock 14 so that a hole 34 in the end of the lower arm receives the right end of shaft 22. That portion of lower arm 28 which is bent under stock 14 is provided with a forwardly extending bracket 36 of a U-shaped configuration. A pair of orifices 38 are provided through the side portions of bracket 36 to matingly receive a lateral pin 40.

Pivotally mounted on pin 40 is a trigger bar 42 provided at the rear end with a pair of laterally spaced arms 44 which receive bracket 36 therebetween and which are bored to receive the opposite ends of pin 40. A coiled torsional spring 46 is mounted on pin 40 and is operationally disposed between trigger bar 42 and bracket 36 to bias the trigger bar relative to safety 24 in a clockwise direction, looking towards the right side of rifle 12 as shown in FIG. 1. The front end of trigger bar 42 is provided with a pair of flanges 48 which are laterally spaced so as to straddle trigger guard 18 and the trigger bar includes a cam 50 fixedly mounted between the flanges forwardly of fingerpiece 16. Cam 50 is of tear drop configuration and includes a cylindrical surface 51, which is contactable with the front face of fingerpiece 16, and a tail section 52 which is slidingly engageable with the inside surface of trigger guard 18. With tail section 52 in contact with trigger guard 18, cylindrical surface 51 is positioned for contact with fingerpiece 16. That portion of trigger bar 42 which lies between arms 44 and flanges 48 is positioned so as to be inclosed, with depressor portion 32, by the mittened hand which encircles pistol grip portion 20. Thus, trigger bar 42 is displaceable by safety 24 from a forward position relative to fingerpiece 16 to a rearward fingerpiece engaging position and is actuatable, relative to the safety, by the mittened hand from a normal position wherein tail section 52 is in contact with trigger guard 18 to an elevated position wherein fingerpiece 16 is actuated by cam 50 to the firing position. The bias of spring 46 against bracket 36 and trigger bar 42 presses the trigger bar resiliently downward to the normal position thereof and depressor portion 32 is, at the same time, pressed resiliently upward to its normal position wherein the bent portion of lower arm 28 is in contact with the underside of pistol grip portion 20.

Cam 50 is positioned relative to fingerpiece 16 so that, when safety 24 is in the safe position and trigger bar 42 is in its clear position, the cam is displaced forwardly out of contact with fingerpiece 16 so that, if the trigger bar should be accidentally displaced to the fingerpiece engaging position thereof, the displacement will not be transferred to the fingerpiece. Cam 50 is also positioned relative to fingerpiece 16 so that, when safety 24 is actuated by depressor portion 32 to the fire position, the cam is moved rearwardly, through the bellcrank configuration of safety 24, to the fingerpiece engaging position wherein cylindrical surface 51 is in contact with the fingerpiece. Thus, when trigger bar 42 is squeezed to the elevated position, the upward movement of cylindrical surface 51 along fingerpiece 16 causes it to be cammed rearwardly to the firing position. As long as depressor portion 32 is held depressed so that safety 24 is maintained in the fire position, fingerpiece 16 is actuatable by trigger bar 42, which is displaceable relative to the safety, but upon the release of the depressor portion, which permits the safety

to be returned to the safe position, any displacement of the trigger bar is not transferable to the fingerpiece.

From the foregoing it is seen that there is provided herein an auxiliary trigger device in which trigger bar 42 cannot be accidentally actuated against fingerpiece 16 and in which the trigger bar can be made operative thereagainst without extra movement on the part of the operator and consequential time loss.

Although a particular embodiment of the invention has been described in detail herein, it is evident that many variations may be devised within the spirit and scope thereof and the following claims are intended to include such variations.

I claim:

1. In a firearm, the combination including a trigger fingerpiece actuatable from a firing position, a safety pivotally mounted for manual displacement from a safe to a fire position, a trigger bar joined to said safety for displacement thereby into camming contact with said fingerpiece when said safety is displaced to the fire position and for manual displacement relative to said safety to an elevated position, means on said safety for actuating said trigger bar to a position in camming contact for said fingerpiece when said safety is in the firing position and to a position clear of possible contact with said fingerpiece when said safety is in the safe position, means for normally biasing said trigger bar to the clear position away from camming contact with said fingerpiece, and means when said trigger bar is in camming contact with said fingerpiece for converting displacement of said trigger bar to the elevated position to displacement of said fingerpiece to the firing position.

2. In a firearm having a stock with a pistol grip, the combination including a trigger fingerpiece displaceable to a firing position, a manually actuated trigger bar cammingly contactable with said fingerpiece for displacement thereof to the firing position, a manually actuated safety arranged for mounting said trigger bar so as to be encircled by a mittened hand gripping the pistol grip and so that said trigger bar is actuatable between a position in contact with said fingerpiece and a position away from possible contact with said fingerpiece responsive to displacement of said safety, means disposed between said trigger bar and safety for effecting displacement of said trigger bar to the position away from contact with said fingerpiece so as to be inoperable thereagainst, and depressor means on said safety disposed so as to be encircled by the mittened hand gripping the pistol grip and

be manually displaced to actuate said safety for displacing said trigger bar into contact with said fingerpiece.

3. In a firearm having a stock with a pistol grip, the combination including a trigger fingerpiece displaceable to a firing position, a trigger guard encircling said fingerpiece, a safety of bellcrank configuration mounted on said stock rearwardly of said pistol grip for pivotal displacement between a safe and a fire position, a depressor portion on said safety positioned adjacent the pistol grip so as to be manually actuated thereat to displace said safety to the fire position, a trigger bar pivotally mounted on said safety so as to be actuated thereby from a clear to an engaging position when said safety is displaced to the fire position and so as to be pivotally displaceable relative to said safety between a normal and an elevated position, means disposed between said safety and said trigger bar and in cooperation with said trigger guard and pistol grip for simultaneously biasing said trigger bar from the engaging to the clear position thereof and said safety to the safe position, and cam means disposed on said trigger bar so as to have camming contact with said fingerpiece when said trigger bar is actuated by said safety to the engaging position and to be positioned away from possible contact with said fingerpiece when said trigger bar is in the clear position, said cam means having cooperation with said fingerpiece to effect actuation thereof to the firing position when said trigger bar is manually displaced to the elevated position.

4. The combination as defined in claim 3 wherein said cam means is of tear drop configuration having a cylindrical surface disposed for sliding contact with said fingerpiece when said trigger bar is in the engaging position, and a tail section having sliding contact with said trigger guard when said trigger bar is in the normal position thereof, said tail section being designed to position said cylindrical surface for contact with said fingerpiece when said trigger bar is in the normal and engaging positions thereof.

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