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TO : A.J. GREENE
FROM : H.W. YOUNG
SUBJECT : INVENTIONS REPORT IT-24
SUBJECT : FIRE CONTROL
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Descriptions:

The accompanying drawing, LA-65, illustrates a fire control in which a connector is provided to eliminate trigger shock and reduce the trigger movement after sear release is initiated, and which is carried solely by the trigger.

The sear is provided with a projection which engages a notch in the cocking piece. The contacting surfaces of the sear and notch are so inclined that the sear is urged downward by the cocking piece when in the cocked position. The connector, carried by the trigger engages the sear and holds the latter in engagement with the notch in the cocking piece. An adjustable trigger stop screw limits the forward movement of the upper portion of the trigger while an adjustable engagement screw similarly limits the rearward movement.

The connector has an opening through which the stop screw freely passes and a trigger spring urges the connector against the trigger and consequently urges the upper portion of the trigger rearwardly.

When the cocking piece is moved back the sear spring urges the sear into the notch in the cocking piece and the trigger spring moves the connector under the sear as shown in the "cocked position" in the drawing.

When the trigger is pulled it is free to move until it engages the stop screw. As the trigger approaches the stop screw and reaches a point only a minute distance from

the screw the connector is disengaged from the sear allowing the cocking piece to force the sear down.

Although the trigger is stopped practically simultaneously with the initial release of the sear the connector is free to move an additional distance to allow it to pass over the slight radius of the points of the connector and sear.

Theoretically it should be possible to have these points of corners so sharp and definite that when the release is initiated no appreciable further forward movement of the blocking member would be necessary. However, in practice no such perfection is attained and if the trigger is employed to directly block the sear sufficient overtravel must be provided to assure the complete disengagement of the parts and provide ample clearance to prevent binding after disengagement.

When this amount of travel is provided after disengagement is initiated an appreciable shock or "jink" is felt by the shooter and is a source of annoyance.

In the present structure the trigger is stopped as soon as the connector starts to disengage and the connector is allowed to continue in its movement to complete the disengagement. (The "fired position" view in the drawing shows the position of the parts after flying in which the connector is slightly separated from the trigger at the top).

The drawings show the connector as having its lower end contacting the trigger at a point below the trigger pin. This construction causes the trigger proper to be held back after firing.

An alternate construction using a shorter connector, would place the lower end of the connector above the trigger pin and would urge the lower end of the trigger forward after firing, and prior to recocking. The weight of this trigger pull after firing would be less than the normal trigger pull and could be diminished to any amount down to zero depending upon the location of lower end of the connector with respect to the trigger pin.

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It may be possible that this alternate structure would support patent claims in the event the first embodiment is not patentable.

While it is desirable with guns having safety members which block the trigger directly to have the trigger held back after firing, such is not necessarily the case with guns in which the safety blocks the sear as in bolt action guns (and as shown in the accompanying drawing). With fire controls such as the present disclosure there is insufficient movement in the trigger to accommodate a trigger safety of the cross pin type.

Due to the fact that the trigger pivot pin is located approximately at the center of gravity of the assembled trigger and connector, danger of accidental jar-off is reduced to a minimum.

Prior Practice and Prior Art:

So far as we know the "Sweeney" fire control used in our M/37 is the nearest approach to this structure and a notable difference lies in the fact that in the Sweeney structure the member that blocks the sear is supported and guided independently of the trigger; and the blocking member being of considerable proportions adds sufficient weight to the top part of the trigger to substantially overbalance the latter in a manner that may permit jar-off under certain conditions.

Status, Importance & Urgency:

We are contemplating using this structure in some of our guns if it proves satisfactory after proper testing. A model has been made up and appears to function correctly.

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Research Section

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