Aug. 12, 1924. 1,504,715

H. O. RUSSELL ET AL

BOMB RELEASING SHACKLE

Filed April 18, 1922

Fig. 2.

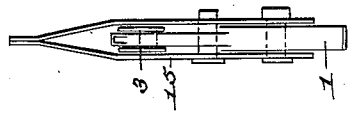
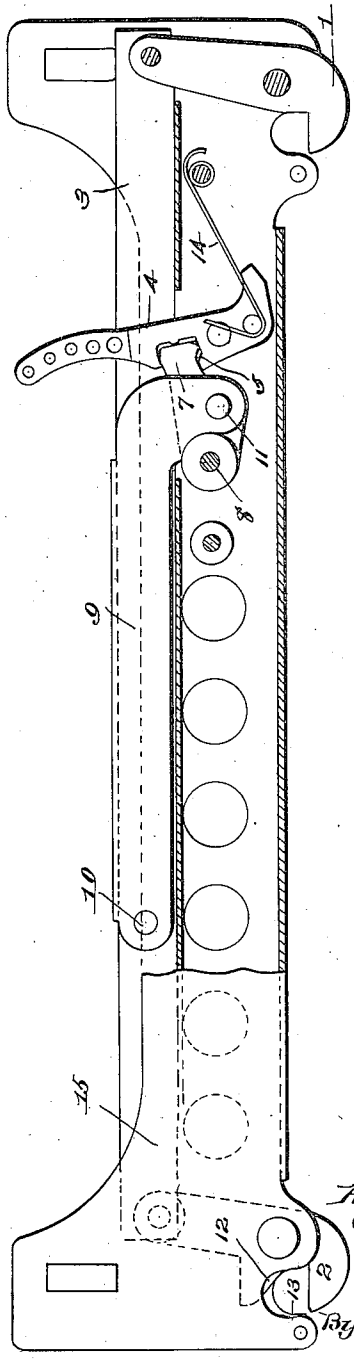


Fig. 1.



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HERBERT O. RUSSELL, OF DETROIT, MICHIGAN, AND CHARLES LEIGH PAULUS, OF DAYTON, OHIO.

BOMB-RELEASING SHACKLE.

Application filed April 18, 1922. Serial No. 555,404.

To all whom it may concern:

Be it known that we, HERBERT O. RUSSELL and CHARLES LEIGH PAULUS, citizens of the United States, residing, respectively, at Detroit and Dayton, in the counties of Wayne and Montgomery, and States of Michigan and Ohio, have invented certain new and useful Improvements in Bomb-Releasing Shackles, of which the following is a specification.

This invention relates to bomb releasing shackles, the object in view being to provide a shackle especially adapted for releasing and dropping heavy bombs and involving the use of two or more bomb holding hooks which are so arranged as to be simultaneously released.

Heretofore with shackles of this character the device for locking and releasing the hooks has had to sustain the weight of the bomb, thus making the trigger very hard to pull. The present invention contemplates making a means for locking and releasing the bomb which will reduce the trigger pull from approximately thirty-eight pounds to approximately three pounds.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement herein fully described, illustrated and claimed.

In the accompanying drawings;

Figure 1 is a side elevation partly in section of the shackle.

Figure 2 is an end view thereof.

The improved shackle embodies two or more hooks 1 and 2 which are interconnected so that they will be simultaneously operable by means of a tie rod 3 which is pivotally connected to the hooks as shown.

The trigger 4 has a camming or wedging surface 5 adapted to cooperate with a camming or wedging surface on the end of a short link 7 of a toggle mechanism, the link 7 being pivoted at 8. A long toggle link 9 is disposed in parallelism with the tie rod 3 when the shackle is locked or set and has one end pivoted at 10 to the tie rod, the other end of the link 9 being extended downwardly as shown so as to pass above, beyond, or partially around the pivot 8 of the short link, the long link 9 being connected by a pivot 11 to the short link. When the shackle is locked, the weight of the bomb tends to turn the hooks 1 and 2 on their pivots. This force is transmitted to the tie rod 3 and acts in a longitudinal direction on the latter. Pull is therefore exerted on the long toggle link 9. This force acts upon a straight line passing through the pivots 11, 8 and 10, and therefore cannot disturb the position of the trigger. Furthermore the leverage is such that in springing the end of the toggle link 9 upwardly to release the bomb, the force applied by the trigger will be very light.

The advantage of the construction shown and described should be clearly apparent. By providing a projection 12 on the hook 2, the shackle will be self-cocking. When the hooks are open, the projection 12 will be disposed in the slot 13 of the shackle frame in such a position that the attaching head of the bomb will engage the same upon being attached to the shackle and will close both hooks and re-set the trigger. The trigger is maintained in engagement with the link 7 by means of a spring 14. All of the mechanism above described is mounted upon a shackle bar or frame 15 adapted to be attached to and mounted upon an aircraft.

Having thus described our invention, we claim:

1. In a bomb-releasing shackle, a supporting bar, bomb-holding hooks pivotally mounted on said bar, a tie rod connecting said hooks to cause simultaneous operation thereof, a link pivoted at one end to said tie rod, a second link pivoted to said support and connected by a pivot to the first named link, and a trigger for holding and releasing said second link, all of the pivots of the links being in a straight line with each other when the shackle is set.

2. In a bomb-releasing shackle, a supporting bar, bomb-holding hooks pivotally mounted on said bar, a tie rod connecting said hooks to cause simultaneous operation thereof, a link pivoted at one end to said tie rod, a second link pivoted to said support and connected by a pivot to the first named link, and a trigger for holding and releasing said second link, all of the pivots of the links being in a straight line with each other when the shackle is set, said trigger being adapted to cam the second named link and throw the pivots out of line thereby releasing the hooks.

3. In a bomb-releasing shackle, a supporting bar, bomb-holding hooks pivotally mounted on said bar, a tie rod connecting

said hooks to cause simultaneous operation thereof, a link pivoted at one end to said tie rod, a second link pivoted to said support and connected by a pivot to the first named link, and a trigger for holding and releasing said second link, all of the pivots of the links being in a straight line with each other when the shackle is set, said trigger and second named link having cooperating cam faces.

In testimony whereof we affix our signatures.

HERBERT O. RUSSELL.
CHARLES LEIGH PAULUS.