Nov. 2, 1943. R. I. MARKEY 2,333,262

PRACTICE RACK FOR BOMBS

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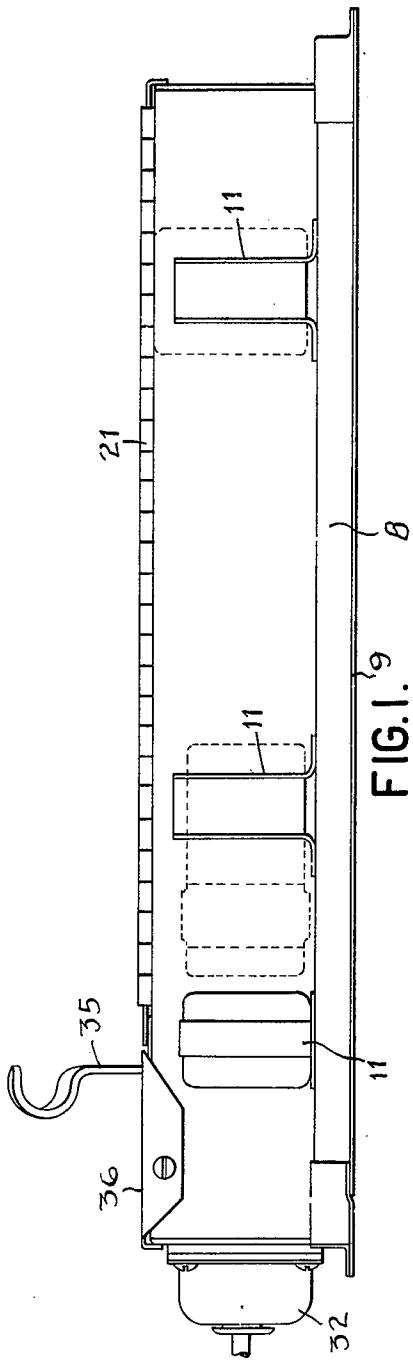


FIG. 1.

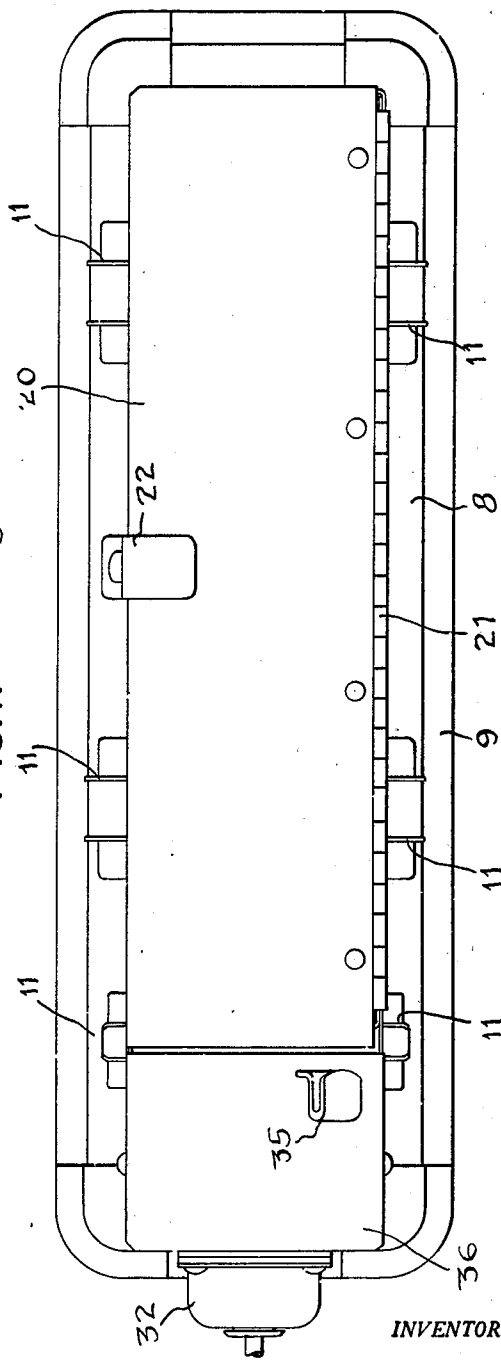


FIG. 2.

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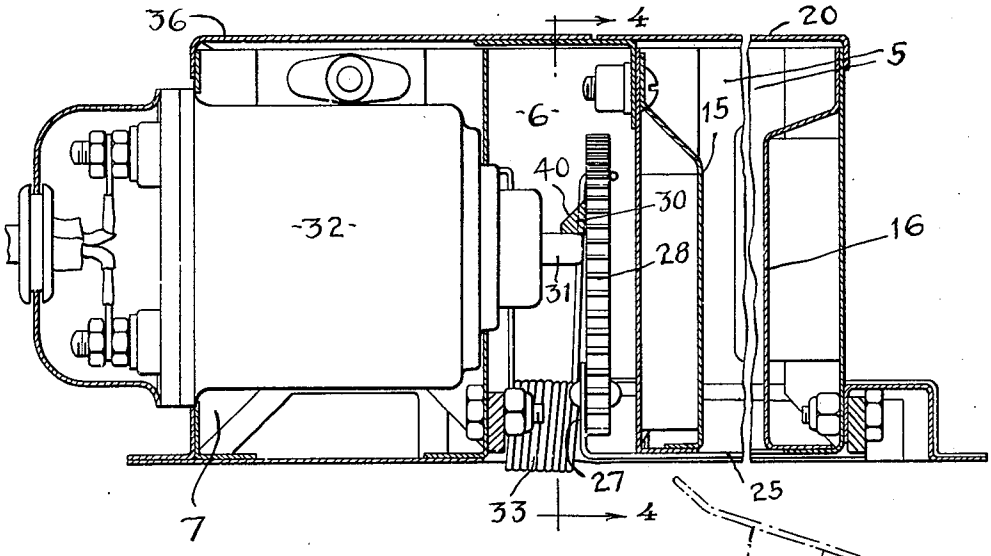


FIG. 3.

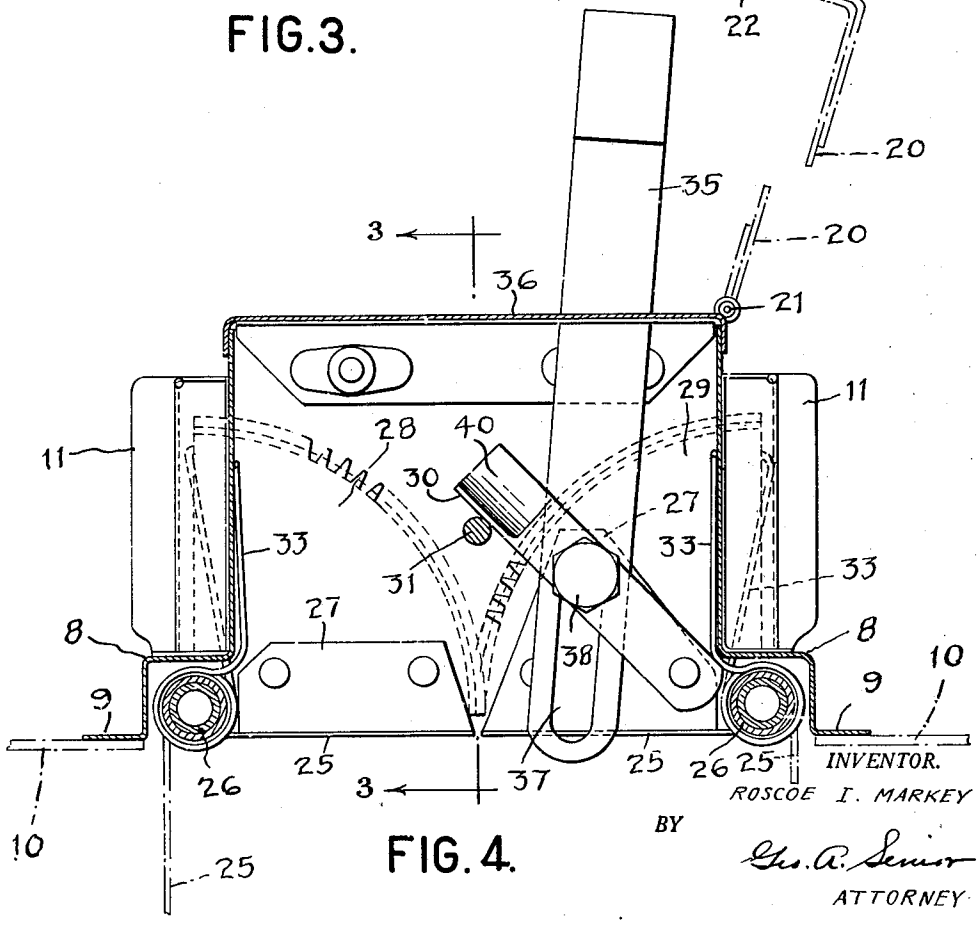


FIG. 4.

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PRACTICE RACK FOR BOMBS

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6 Claims. (Cl. 35—25)

The invention has to do with a practice rack for bombs and has for its principal object to provide a simple, rugged, light weight and inexpensive structure to be used by students or beginners to develop accuracy in dropping bombs from airplanes.

Bomb racks or shackles used in actual engagement are expensive and somewhat delicate in construction and might easily be put out of order in practice work. Another important fact is that under present conditions all the bomb racks or shackles that can be manufactured are needed in active warfare.

In dropping real bombs the bombs are placed in position in the bomb racks or bomb shackles of the plane at the station and before the ship takes off. In dropping dummy bombs in practice work a number of bombs are taken up in the plane and as they are dropped the racks are reloaded with other bombs. The practice bombs may be handled with impunity while the plane is in transit and easily and quickly positioned in the bomb rack made in accordance with the present invention. Another advantage of the present invention is to provide a means in the bomb rack for closing the shell of the airplane from the slip stream during the reloading operation.

Other objects and advantages will become apparent as this specification proceeds. Referring to the drawings forming a part thereof and in which one embodiment of the invention is illustrated:

Fig. 1 is a side elevation of the bomb rack;

Fig. 2 is a top plan view;

Fig. 3 is a longitudinal section on a larger scale with intermediate parts broken out; and

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 3.

Referring again to said drawings it will be noted the device comprises a box-like structure into which the bomb is laid. It is customary in bomb racks used in the field to suspend the loaded bomb from one or more hooks and to provide releasing means for opening the hooks to permit the bombs to be dropped, and in addition numerous other safety features are provided, including means for dropping the bomb armed or unarmed. As the bombs being dropped from the practice bomb rack of the present invention are dummy bombs all the various safety mechanisms may be eliminated and the only mechanism involved is a simple electrical means for releasing the bomb. In accordance with present usage it is customary for the bombardier and his assistants to first thoroughly master the technique of all the safety appliances on the bomb racks and shackles. After that has been learned he takes his lessons for accuracy in sighting and releasing. In actual practice in dropping loaded bombs all the safety appliances are manipulated and set long prior to the time when the targets are to be sighted and the bombs released. The main purpose of the present invention is to provide a practice rack for bombs by means of which the student learns accuracy in sighting and releasing. The rack almost in its entirety is made of light weight sheet metal, suitably reinforced, and lends itself to being assembled largely by resistance welding.

The body is divided into three compartments, the bomb compartment 5, mechanism compartment 6, and solenoid compartment 7. The partitions between these compartments naturally function as reinforcing elements for the body portion. The body portion is further reinforced by flanging the lower part thereof as indicated at 8 and the lower wings 9 of the flanged regions are resistance welded or otherwise secured to the shell of the airplane shown in broken lines at 10 in Fig. 4. In the drawings all parts illustrated form the bomb rack proper with the exception of the showing of the airplane shell indicated in broken lines in Fig. 4. The body of the bomb rack which, as heretofore stated, is of box-like construction, fits over a suitable opening in the shell of the plane. Additional reinforcing members 11 are resistance welded to the side walls and flanged regions of the body portion.

The bomb compartment 5 has stops 15 and 16 at the forward and rear ends respectively thereof and these stops act to position the bomb and also as additional reinforcing elements.

The bomb compartment has a loading door 20 which is hinged to the body portion at 21 and is provided with a catch indicated at 22 in Fig. 2. In loading the rack this door is opened, the bomb placed in the bomb compartment and the door closed.

The bomb is supported by a pair of releasable trap doors 25 pivoted in the body portion of the bomb rack at 26. The forward ends of the trap doors have upwardly extending ears 27 which are secured to meshing segmental gears 28 and 29. The doors are urged to their open position by springs 33.

In order to maintain the trap doors in their closed position to support the bomb the segmental gear 29 has a latch member 30 secured to it. In the closed or locked position of the doors this latch member rests against the upper side of a pin 31 which is integral with or formed as part of the

core of a solenoid 32 suitably mounted in the body portion. It will thus be apparent the doors cannot be moved while the latch member 30 is in engagement with the pin 31.

Immediately upon the solenoid being energized the pin 31 will be withdrawn from under the latch member and the trap doors will fly open under the urge of the springs 33 and the weight of the bomb and the bomb will be dropped.

Means are provided for closing the trap doors and this means comprises a door closing lever 35 which passes through a suitable aperture in a cover plate 36 for the solenoid and mechanism compartments. The lever 35 is slotted at 37 and a shouldered set screw 38 passes through this slot and is threaded into the latch member and segmental gear 29. When the trap doors are in their open position as indicated by the broken lines in Fig. 4 the door closing lever 35 is grasped and pulled upwardly to close them.

The solenoid 32 is of a conventional type in which the pin 31 is spring urged to its outward position and is retracted when the solenoid is energized. The end of the latch member 30 is beveled as indicated at 40 in Figs. 3 and 4. When the trap doors are being closed the beveled end of the latch member will cam the pin 31 out of its way in order to permit the parts to move to the closed or locked position.

After a dummy bomb has been dropped the trap doors 25 are closed as heretofore described. The loading door 20 is opened and another bomb is positioned in the rack. Thus during the loading operation while the plane is in transit the shell of the airplane is closed from the slip stream.

Changes in details of construction and arrangements of parts such as would occur to one skilled in the art are to be considered as coming within the spirit of the invention as set forth in the appended claims.

I claim:

1. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair of releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, means housed in said body portion for locking said trap doors in the closed position to support the bomb, means for releasing said locking means so said doors will open and the bomb will be dropped, and means for closing said doors so that the bomb will be supported and the opening in the shell of the aircraft will be closed from the slip stream during the reloading operation.

2. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair of releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, means for urging said trap doors to their open position, solenoid operated means housed in said body portion for locking said trap doors in the closed position to support the bomb and for releasing said locking means so said doors will open and the bomb will be dropped, and mechanical means for closing said trap doors prior to placing another bomb in the rack.

3. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair of releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, a pair of meshing segmental gears secured to said trap doors, solenoid operated means for locking said trap doors in the closed position to support the bomb and for releasing said locking means so said trap doors will open and the bomb will be dropped, and a door closing lever mounted on one of said segmental gears for mechanically closing said trap doors.

4. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair of releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, a pair of meshing segmental gears secured to said trap doors, a latch member mounted on one of said segmental gears, solenoid operated means cooperating with said latch member for locking said trap doors in the closed position to support the bomb and for releasing said locking means so said trap doors will open and the bomb will be dropped, and mechanical means for closing said trap doors.

5. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair fo releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, a pair of meshing segmental gears secured to said trap doors, a latch member mounted on one of said segmental gears, a solenoid pin cooperating with said latch member for locking said trap doors in the closed position to support the bomb and for releasing said locking means so said trap doors will open and the bomb will be dropped, and a mechanically operated door closing lever mounted on one of said segmental gears.

6. A practice rack for bombs having in combination a body portion of box like construction dimensioned for carrying a single bomb and mounted wholly within the aircraft and located over an opening in the shell of the aircraft, a loading door for the top side of said body portion, a pair of releasable trap doors pivoted on and closing the under side of said body portion for supporting a bomb, a pair of meshing segmental gears secured to said trap doors, a latch member mounted on one of said segmental gears, solenoid operated means cooperating with said latch member for locking said trap doors in the closed position to support the bomb and for releasing said locking means so said trap doors will open and the bomb will be dropped, mechanical means for closing said trap doors, and spring operated means for urging said doors to their open position.

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