June 26, 1945. G. H. LELAND 2,379,364

BOMB RACK

Filed Oct. 13, 1941 2 Sheets-Sheet 1

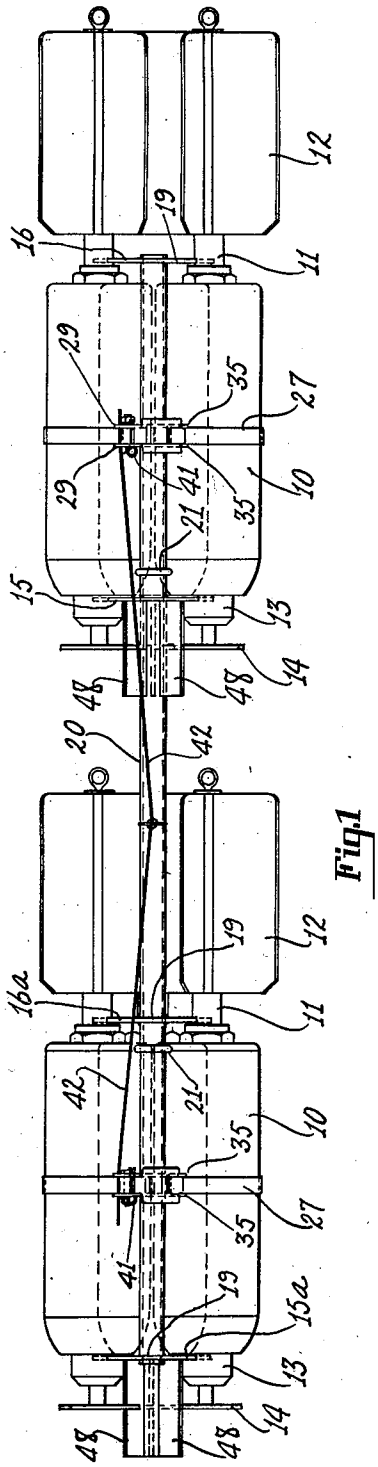


Fig.1

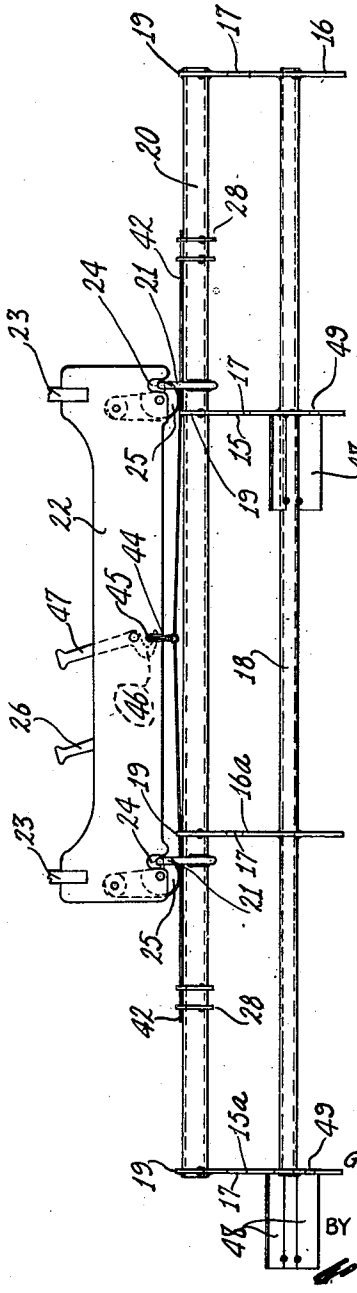


Fig.2

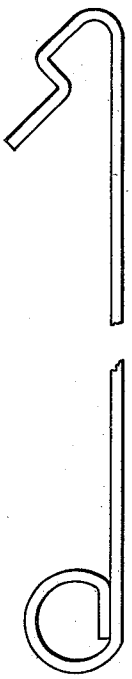


Fig.6

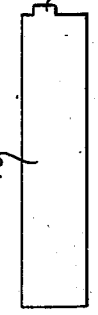


Fig.7

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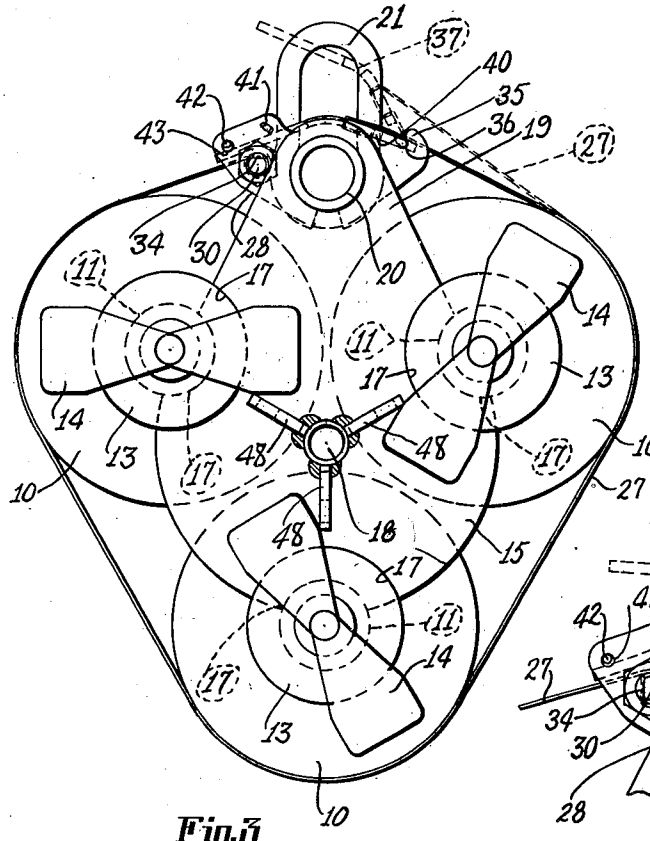


Fig. 3

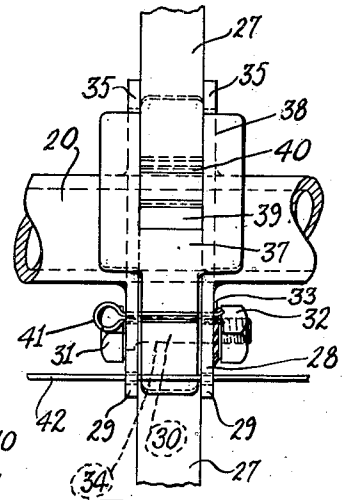


Fig. 4

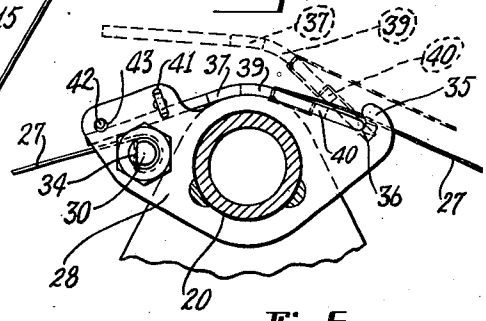


Fig. 5

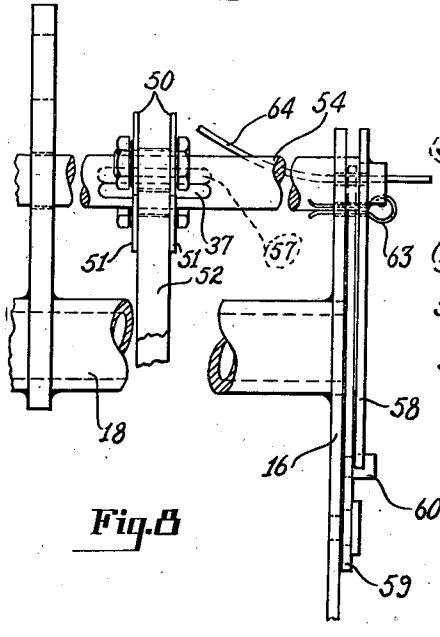


Fig. 8

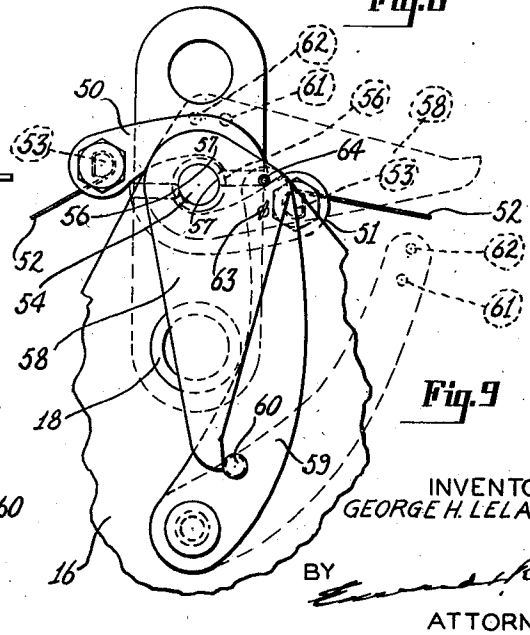


Fig. 9

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Patented June 26, 1945 2,379,364

UNITED STATES PATENT OFFICE

2,379,364

BOMB RACK

George H. Leland, Dayton, Ohio

Application October 13, 1941, Serial No. 414,831

17 Claims. (Cl. 89—1.5)

This invention relates to a bomb rack, or bomb cluster assembly, and is designed primarily to support a plurality of bombs on an airplane and to release the same therefrom.

One object of the invention is to provide a bomb rack of simple inexpensive construction and of light weight.

A further object of the invention is to provide a bomb rack having means whereby the bombs may be quickly and easily secured thereto and may be automatically released therefrom after the rack has been released from the airplane.

A further object of the invention is to provide a bomb rack of the type in which the bombs may be secured thereto by a band extending about the bombs and having means for releasably connecting the ends of said band one to the other and for tightening the band about the bombs.

A further object of the invention is to provide a bomb rack having simple efficient means for normally preventing the operation of the bomb firing mechanism and for releasing the same for operation when the bombs have been released from the rack.

Other objects of the invention may appear as the apparatus is described in detail.

In the accompanying drawings Fig. 1 is a plan view of a bomb rack embodying my invention, with the bombs in place thereon; Fig. 2 is a side elevation of the rack, without the bombs, showing the means for attaching the same to an airplane; Fig. 3 is a front elevation of a bomb rack with the bombs in place thereon; Fig. 4 is a plan view of one of the band connecting devices; Fig. 5 is a side elevation of the band connecting device; Fig. 6 is a side elevation of one of the bands, partly broken away and showing the preformed ends thereof; Fig. 7 is a detail view of one of the stops; Fig. 8 is a side elevation, partly broken away, of a portion of the bomb rack showing a modified form of band connecting device; and Fig. 9 is a side elevation of the band connecting device of Fig. 8.

In these drawings I have illustrated one embodiment of my invention and have shown the same as adapted to support six bombs in two clusters of three bombs each, but it will be understood that the rack may take various forms and that it may be adapted to accommodate any suitable number of bombs arranged in one or more clusters.

The device as illustrated is designed for use with bombs of relatively small size and of the type known as "fragmentation" bombs. Such a bomb usually comprises a cylindrical body 10 having a rearwardly projecting portion 11 of small diameter to which are secured the vanes 12 which control the flight of the bomb. At its front end the bomb has a part 13 of small diameter in which is located the firing mechanism for controlling the explosion of the bomb, this mechanism including a rotatable device 14, similar in shape to a propeller, which, by its rotation, releases the firing control, or fuse, for operation.

In its preferred form the bomb rack includes a frame comprising a supporting structure having means whereby it may be detachably connected with an airplane or other aircraft, and means arranged below said supporting structure for positioning the several bombs of the cluster with relation one to the other. The bombs are secured to said frame by a flexible device extending exteriorly about the cluster of bombs and having means whereby the ends thereof may be connected one with the other and with said supporting structure, and one end of said flexible device may be disconnected from the other end thereof and from said supporting structure to loosen said flexible device and release the bombs for movement with relation one to the other and to said frame. The several parts of the bomb rack may be of any suitable character and for the purpose of illustration I have here shown a form of the rack in which the positioning means is rigidly connected with the supporting structure and provided with seats for the respective bombs, and in which the flexible device or band consists of a single strip of flexible material to the ends of which connecting devices are attached, but obviously it is not essential that the two parts of the frame shall be directly connected one to the other, or that the flexible device shall consist of a single strip of material. In the arrangement shown the frame is adapted to support two clusters of bombs and the positioning means comprises two pairs of plates, 15 and 16, and 15a and 16a. The plates of each pair are provided with outwardly facing recesses 17, the recesses in the two plates being arranged in line to receive the reduced end portions of the respective bombs and form seats therefor, the size of the recesses and the longitudinal spacing of the plates being determined in accordance with the size of the bombs. The several plates, of both pairs, are rigidly connected one to the other and in the form here shown a longitudinal member, such as a rod 18, extends through the several plates and is rigidly connected thereto, as by welding. Each plate is provided with an upwardly extending part 19 through which extends a second longitu-

dinal member or rod 20, which forms the supporting structure and to which the plates are secured, as by welding. Rigidly connected with the rod 20 are suitable attaching members 21 having openings therethrough to receive retaining devices by means of which the rack may be detachably connected with a supporting structure carried by the airplane. This supporting structure is here shown as of a type which is standard with the United States Army Air Corps and is commonly known as a bomb shackle. It is not necessary to describe the bomb shackle in detail but for the present purposes it will be noted that it comprises an elongate body 22 having means 23 whereby it may be secured to the airplane. In its lower edge it is provided with recesses 24 adapted to receive attaching members 21 of the bomb rack. Pivotally mounted adjacent the recesses are hook-shaped retaining devices 25 adapted to extend into the openings in the respective attaching members 21 and thus support the bomb rack on the body 22 of the bomb shackle. The hook-shaped devices are pivotally mounted and are connected, by means not here shown, with a lever 26 by means of which they may be moved into and out of supporting engagement with the attaching members.

The bombs are releasably secured on the frame by means of a band 27, there being in the present instance one such band for each cluster of bombs but obviously any suitable number of bands may be employed. Each band is provided with means whereby, after it has been placed about the bombs, the ends of the band may be releasably connected one with the other and drawn tight to firmly retain the bombs on their seats until such time as it is desired to release the same. The band connecting means may take various forms and, as here shown, it comprises two members connected with the respective ends of the band and having means whereby the two members may be detachably connected one with the other and with a fixed part of the frame. In the preferred form, as shown in Figs. 3, 4 and 5, the connecting device comprises a member 28 mounted on and rigidly secured to the rod 18, the two ends of the member extending beyond the respective sides of the rod. In the construction shown the member 28 comprises two elements 29 spaced apart a distance slightly greater than the width of the band, which is preferably in the form of a flat metallic strap. Near one end of the member 28 is mounted an attaching device whereby one end of the band may be secured to that member. This attaching device may take various forms but preferably it consists of a rotatable member, such as a bolt 30, extending through and rotatable in the two elements 29 of the member 28, the head 31 of the bolt engaging the outer face of one element 29 and the bolt having at its other end a nut 32 and a lock washer 33 for retaining it in the element 29 and for locking the same against rotation therein. The end portion of the band is wrapped about that portion of the rotatable device or bolt which lies between the two elements 29 and which is provided with suitable means, such as a flat side 34, for preventing the band from slipping thereon. At its other end the two elements of the member 28 are provided with outwardly extending parts 35 having their inner faces recessed at 36 to form a seat. A second member 37 is adapted to be connected with the other end of the band and to engage the seat 36. The second member 37 is here shown in the form of an elongate strip of metal so bent that the end portions thereof extend at an obtuse angle one to the other. One end of the member 37 is of a width greater than the over all width of the member 28, as shown at 38, to enable it to enter the recesses 36 and to be thus supported on the member 28. The end edge of the member 37 is rounded to conform to the curvature of the seat so that it may have pivotal movement thereon. This wider portion of the member 37 is provided with two slots, 39 and 40, of a length slightly greater than the width of the band so that the band may be connected therewith by passing the end portion thereof first through the slot 39, then through the slot 40 and then folding the extreme end portion onto the adjacent face of the member 37. The walls of the slot 40 are provided with sharp corners so that the band will be provided with a sharp bend, at least a right angle and if desired slightly less than a right angle, so as to positively prevent the band from slipping. The other end portion of the member 37 is of a width slightly less than the width of the space between the two elements 29 of the member 28 and the angular shape of the member 37 permits this end portion thereof to be moved downwardly between the upstanding sides of the member 28.

When the band is to be applied to and tightened about the bombs one end portion of the band is wrapped about the rotatable connecting member or bolt 30 and the nut tightened so as to establish an initial connection between the band and the connecting member 28. Preferably the end portion of the band is preformed so as to impart thereto one or more convolutions, thus enabling the same to be connected with the member 28 by placing the formed portion thereof between the two parts of that member, inserting the bolt and tightening down the nut. The other end portion of the band is threaded through the slots 39 and 40 in the second member 37, this end portion also being preferably preformed, and when so attached to the member 37 the latter is placed on the seat 36, in approximately an upright position and then moved about its lower edge to a position in which the other end thereof extends between the two parts of the member 28, this movement of the member 37 serving to draw the band sufficiently tight to retain the bombs on their seats. A temporary locking member, such as a cotter pin 41, is inserted through openings in the elements 29 of the member 28 so that it passes just above the member 37 and thus locks that member against movement on the seat 36. The nut on the bolt 30 is then loosened and the bolt rotated, by means of a wrench or otherwise, in a direction to wrap a further portion of the band about the same, thereby drawing the band more tightly about the bombs, so as to prevent all movement thereof with relation to the frame. When the band has been tightened the nut 32 is again tightened down to lock the bolt against rotation. When the member 37 is in its locked position the lugs 35 and cotter pin 41 will prevent the movement thereof by the pull of the band thereon but it will be noted that the pull of the band is in such a direction that when the member 37 is unrestrained it will be moved upwardly and outwardly about its pivotal mounting on the member 28 and when it reaches substantially an upright position the lower edge thereof will be pulled out of the recesses, thus detaching the member 37 from the

member 38 and disconnecting the two ends of the band so as to fully release the bombs.

The cotter pin 41 serves to retain the two parts of the connecting device in their connected positions until such time as the rack is mounted upon the airplane. When this has been done a wire 42 is inserted through a second pair of holes 43 in the member 28 and the cotter pin 41 is then removed, the wire 42 extending above the member 37 and constituting the sole means for preventing the relative movement of the two members. This wire is connected at its other end with the airplane so that when the rack has been released from the bomb shackle and moves downwardly with relation to the airplane the wire 42, which is commonly called an arming wire, will be withdrawn and the second member 37 of the connecting device released for movement with relation to and separation from the member 28. There is of course a separate arming wire for each band, and if two or more bands are used on each cluster each of these bands will be provided with a separate connecting device and a separate arming wire. All the wires lead to and are connected with a master arming wire 44 which is provided at its upper end with a loop adapted to extend into a recess 45 in the body portion 22 of the bomb shackle and to be engaged by the hook-shaped portion 46 of a lever 47 mounted on that body portion. When the bomb rack is to be dropped and the bombs released therefrom the lever 47 is moved into a position to engage the hook 46 with the master arming wire 44, and when the hooks 25 are withdrawn, and the rack drops, all the arming wires will be withdrawn and all the bombs released. It is desirable that the arming wires shall not be withdrawn until after the bomb rack has been detached from the airplane but that it shall be withdrawn before the bomb rack enters the slipstream. The timing of the withdrawal of the arming wire and the release of the bombs may be effected in various ways, as by providing a sufficient amount of slack in the wire 42 between the master arming wire and the band connecting device, or by extending the free end of the wire beyond the connecting device such a distance that it will not be completely withdrawn therefrom until the desired movement of the bomb rack has been accomplished. It is sometimes desirable to drop the bomb rack without releasing the bombs and when this is desired the lever 47 is actuated to withdraw the hook from the master arming wire and, consequently, the bomb rack drops away from the airplane without the arming wires being withdrawn and the rack and bombs fall to the ground as a unit.

The rack is also provided with means for normally preventing the operation of the devices which control the firing mechanisms for the bombs, which is here shown as including a propeller like device 14. For this purpose the frame is provided with a part or parts arranged in the paths of rotation of the blades of these controlling devices so that the blades will be held normally against rotation but will be released for rotation as soon as the bomb drops away from the frame. When the blades are of sufficient radial length the longitudinal member or rod 18 may serve as a stop for one or more of the blades but when, as in the present instance, the blades are not of sufficient radial length to engage the rod stops are secured to the rod and extend radially therefrom into the paths of rotation of the respective blades. As here shown, the forward end of the rod 18 is extended some distance beyond the forward seat blade 15a and a plurality of short blades 48 are arranged edgewise about the projecting portion of the rod and rigidly secured thereto, as by welding. Preferably the blades are connected at their rear ends with the adjacent seat plate and to this end they are provided with lugs 49 adapted to extend through the seat plate and to be secured thereto, as by welding or bending. A like series of stops is mounted about the intermediate portion of the rod 18 in front of the seat plate 15. Thus one blade of each of the firing control devices 14 will be in contact with and held against rotation by one of these stops so long as the bombs are on their seats but that as soon as the bombs leave their seats the devices will be released for rotation.

In Figs. 8 and 9 I have shown a modified form of band connecting device which may be preferable for some purposes, particularly where a large number of bombs are included in one cluster. As there shown, connecting members 50 and 51 are connected with the respective ends of the band 52 by rotatable attaching devices 53 similar to the attaching device 40 above described. These connecting members extend in opposite directions across a rotatable member, such as a rod 54 mounted in the upper part of the seat plates above the supporting rod 18. In the present arrangement the connecting member 50 is arranged above the rotatable rod 54 and the connecting member 51 is arranged below that rod. Each member is curved about the rod and is provided at its free end with an inwardly extending part 56 adapted to enter a recess 57 in the rod 54, there being two of these recesses formed in opposite sides of the rod. The rod is retained normally in such a position that the recess engaged by the upper member 50 will be just above the horizontal diameter of the rod and the recess engaged by the member 51 will be just below that diameter. Consequently the pull of the band upon the connecting members will tend to rotate the rod to a position in which the connecting members will pull out of the recesses and thus release the band. This rotation by the pull of the band is normally prevented by suitable releasable means. As here shown, this means comprises an arm 58 rigidly secured to the rod 54 so as to rotate therewith and when the rod is in its normal position, in which the connecting members are seated in the respective recesses, the arm will extend downwardly, as shown in Fig. 9. This arm 58 is mounted on the rod 54 adjacent to one of the seat plates 16 and mounted on this seat plate below the arm 58 is a second arm 59 having secured thereto a stop pin or lug 60 which is movable into and out of the path of rotation of the arm 58. Both arms are provided with spaced openings 61 and 62 so arranged that when the arms are in their normal positions, as shown in Fig. 9, the openings of each pair will be in line one with the other, the openings 61 being adapted to receive a temporary retaining device or cotter pin 63 and the openings 62 being adapted to receive an arming wire 64. So long as the cotter pin or arming wire is in the openings the rod 54 will be locked against rotation and the connecting devices 50 and 51 will be firmly connected one with the other and with the frame so as to hold the band tightly about the bombs. When the arming wire is withdrawn the pull of the band on the connecting members will tend to rotate the rod and the arm 58 and that arm

will act on the arm 59 to move the lug 60 to an inoperative position, thus releasing the arm 58 and permitting the rod to rotate to a position to release the connecting members.

While I have shown and described one embodiment of my invention, together with a modification thereof, I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, means for supporting a cluster of bombs on said structure including a flexible device to extend exteriorly about said cluster of bombs, means for connecting the ends of said flexible device one with the other and for drawing said flexible device tightly about said cluster of bombs, said connecting means including a member which is movable to disconnect the ends of said flexible device and release said bombs for movement with relation one to the other, and means normally preventing the movement of said movable member and including a part adapted to be connected with said aircraft, and a second part carried by said structure and releasably engaging the first mentioned part, said second part being movable out of engagement with said first mentioned part by the downward movement of said structure with relation to said aircraft.

2. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, means for positioning a plurality of bombs with relation one to the other, a flexible device to extend exteriorly about said plurality of bombs and retain the same in engagement with said positioning means, means for connecting the respective ends of said flexible device with said structure and for drawing said flexible device tightly about said bombs, at least one of said connecting means being operable to disconnect the corresponding end of said flexible device from said structure and thus release said bombs for movement with relation one to the other, and means to normally prevent the operation of said operable connecting means and to release the same for disconnecting operation including a part adapted to be connected with said aircraft, and a second part carried by said structure, releasably engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

3. A bomb rack comprising a structure having means whereby it may be supported by an aircraft and released for downward movement with relation thereto, means for positioning a plurality of bombs with relation one to the other including a flexible device to extend about said plurality of bombs, means for connecting one end of said flexible device with said structure, a member connected with the other end of said flexible device and pivotally connected with said structure for movement to a position substantially in the line of pull of said flexible device on said member to connect the corresponding end of said flexible device with said structure and movable by the pull of said flexible device to another position to disconnect said corresponding end of said flexible device from said structure, and means to normally retain said member in said connecting position and to release the same for movement to said disconnecting position including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

4. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, a device carried by said structure for positioning a plurality of bombs with relation one to the other, a flexible device to extend exteriorly about said plurality of bombs and retain the same in engagement with said positioning device, means for connecting the ends of said flexible device one with the other and for drawing said flexible device tightly about said bombs including a member having one end thereof connected with one end of said flexible device, and a second member connected between its ends with the other end of said flexible device and detachably mounted on the first mentioned member for pivotal movement to a position lengthwise of the latter to connect the last mentioned end of said device with said first mentioned member and to a position transverse to said first mentioned member to detach said second member therefrom and thereby disconnect said last mentioned end of said flexible device from said first mentioned member, and means to normally prevent the disconnecting movement of said second member and to release the same for such movement including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

5. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, a device for positioning a plurality of bombs with relation one to the other, a flexible device to extend exteriorly about said plurality of bombs and retain the same in engagement with said positioning device, means for connecting the respective ends of said flexible device one with the other and drawing said flexible device tightly about said bombs including a member connected with said structure, having adjacent one end thereof means for connecting the same with one end of said band and having a seat adjacent the other end thereof, a second member having at one end thereof a part adapted to be removably supported on said seat of the first mentioned member for movement about an axis transverse to said flexible device and having means whereby the other end of said flexible device may be secured thereto at a point spaced from said end thereof, said seat and said part of said second member being so arranged with relation one to the other that when said second member has been moved about said axis to one position it will be retained on said seat by the pull of said flexible device and when moved about said axis to another position it will be free to move out of engagement with said seat and thus release said flexible device, and means to normally retain said member in the first mentioned position and release the same for movement to the last mentioned position including a part adapted to be connected with said air-

craft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

6. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, means for positioning a plurality of bombs with relation one to the other including a flexible device to extend exteriorly about said plurality of bombs, means for connecting the respective ends of said flexible device one with the other and drawing said flexible device tightly about said bombs including a member connected with said structure, having adjacent one end thereof means for connecting the same with one end of said band and having a seat adjacent the other end thereof, a second member having at one end thereof a part adapted to be removably supported on said seat of the first mentioned member for movement about an axis transverse to said flexible device and having means whereby the other end of said flexible device may be secured thereto at a point spaced from said end thereof, said seat and said part of said second member being so arranged with relation one to the other that when said second member has been moved about said axis to one position it will be retained on said seat by the pull of said flexible device and when moved about said axis to another position it will be free to move out of engagement with said seat and thus release said flexible device, said means for connecting said first mentioned member with said flexible device comprising a rotatable element about which the end portion of said band is wrapped and means for locking said element against rotation, and means to normally retain said member in the first mentioned position and release the same for movement to the last mentioned position including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

7. A bomb rack comprising a structure having means whereby it may be supported by an aircraft and released for downward movement with relation thereto, a device carried by said structure for positioning a plurality of bombs with relation one to the other, a flexible device to extend about said bombs and retain the same in engagement with said positioning device, a member having adjacent one end thereof means for connecting the same with one end of said flexible device and having adjacent the other end thereof a seat, a second member having at one end thereof a part adapted to be removably supported on said seat of the first mentioned member for movement about an axis transverse to said flexible device and having adjacent said end a plurality of openings through which the other end of said flexible device may be passed to connect the same with said second member, said seat and said part being so arranged that when said second member is moved about said axis in one direction to a position substantially in line with said flexible device the pull of said flexible device thereon will retain the same in engagement with said seat and when said second member is moved about said axis in the other direction to a position transverse to said flexible device the pull of said flexible device will remove the same from said seat, and means to normally retain said member in the first mentioned position and release the same for movement to the last mentioned position including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

8. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, parts carried by said structure and having seats for a plurality of bombs, a flexible band to extend about said bombs and secure the same on said seats, a member supported by said structure and comprising two substantially parallel laterally spaced elements, said elements having near one end thereof a seat, means carried by said member near the other end thereof for adjustably connecting one end of said band therewith, a second member having means for connecting the other end of said band therewith and having one end thereof arranged to support the same on said seat of the first mentioned member for pivotal movement to a position in which it extends lengthwise of the first mentioned member and between the two elements thereof or to an outwardly extending position in which it is removable from said first mentioned member by the pull of said band, and means for normally retaining said second member in said lengthwise position and operable to release said second member for movement to said removable position, said means including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

9. A bomb rack comprising a structure having means whereby it may be supported by an air craft and released for downward movement with relation thereto, parts carried by said structure and having seats for a plurality of bombs, a flexible band to extend about said bombs and secure the same on said seats, a member mounted on said structure and comprising two substantially parallel laterally spaced elements, said elements having a seat near one end thereof, a device rotatably mounted on said member and having a part between the elements of said member about which one end portion of said band may be wrapped by the rotation of said device and having means for locking the same against rotation, a second member having means for connecting the other end of said band therewith and having one end thereof arranged to engage said seat and support said second member for pivotal movement to a position in which a portion thereof lies between the two elements of the first mentioned member or to an outwardly extending position in which it is removable from the first mentioned member by the pull of said band there-on, and an arming device extending through the first mentioned member on the outer side of said second member to retain the latter in its first mentioned position and adapted to be connected with said aircraft and to be withdrawn to release said second member when said rack moves downwardly with relation to said aircraft.

10. A bomb rack having means whereby it may be supported by an aircraft, and released for

downward movement with relation thereto, said rack comprising a frame having a plurality of bomb seats, a flexible device to extend about said plurality of bombs and secure the same on said seats, means for connecting the ends of said flexible device one with the other including a rotatable member carried by said frame, connecting members attached to the respective ends of said flexible device and extending on opposite sides of said rotatable member, said connecting members and said rotatable member having cooperating parts so arranged that said connecting members will be held in connecting engagement with said rotatable member by the pull of said flexible device and said pull will tend to rotate said rotatable member in a direction to disengage said parts and thereby disconnect the ends of said flexible device, releasable means for locking said rotatable member against rotation by said connecting members, said releasable means including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

11. A bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, means for supporting a cluster of bombs on said structure including a flexible device to extend exteriorly about said cluster of bombs, means for connecting the ends of said flexible device one with the other and for drawing said flexible device tightly about said cluster of bombs, said connecting means including a device connected with one end of said flexible device and movable by the pull of said flexible device thereon to disconnect the ends of said flexible device and release said bombs for movement with relation one to the other, and means to normally prevent the disconnecting operation of said movable device and to release the same for operation including a part adapted to be connected with said aircraft, and a second part carried by said structure, releasably engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

12. In a bomb rack comprising a structure having means whereby it may be supported on an aircraft and released for downward movement with relation thereto, a flexible device to extend exteriorly about a cluster of bombs and including a band of flexible material arranged to have supporting contact with at least a part of said bombs, means for connecting one end of said band with said structure, a connecting device detachably connected with said supporting structure, attached to the other end of said band and so arranged with relation to said structure and said band that the pull of said band thereon will tend to detach the same from said supporting structure, and means to normally prevent the movement of said connecting device by said band and to release the same for such movement including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

13. A bomb rack comprising a structure having means whereby it may be supported by an aircraft, and released for downward movement with relation thereto, means for supporting a plurality of bombs on said structure comprising a flexible device to extend about said plurality of bombs, means for connecting the ends of said flexible device one with the other including a movable member connected with one end of said flexible device thereon to disconnect said ends, and a part operable to draw said flexible device tightly about said bombs, and means to normally prevent the movement of said movable member and to release the same for disconnecting movement by said flexible device including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

14. A bomb rack comprising a supporting structure having means whereby it may be supported by an aircraft and released for downward movement with relation thereto, said supporting structure having separate seats for each of a plurality of bombs, a flexible device to extend about said plurality of bombs and retain the same on said seats, members attached to the respective ends of said flexible device and having means for connecting the same one with the other, at least one of said members when unrestrained being movable with relation to the other of said members to disconnect said members and thereby release said bombs, said member when in connecting position being biased toward disconnecting position, means operable while said members are connected one with the other to tighten said flexible device about said bombs, and means to normally prevent the movement of said movable member and to release the same for movement including a part adapted to be connected with said aircraft, and a part carried by said structure, releasably engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

15. A bomb rack comprising a structure having means whereby it may be supported by an aircraft and released for downward movement with relation thereto, said structure having seats for a plurality of bombs, a flexible device to extend about said bombs and secure the same on said seats, means for connecting the ends of said flexible device one with the other and for drawing said flexible device tightly about said bombs including a member connected with one end of said flexible device, a second member connected with the other end of said flexible device and removably mounted on the first mentioned member for movement to a position to connect the corresponding end of said flexible device with said first mentioned member or to a position in which said corresponding end of said flexible device may be disconnected from said first mentioned member, said second member being biased toward disconnecting position, and means to normally retain said second member in connecting position and to release the same for movement to disconnecting position including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft.

16. A bomb rack comprising a structure hav-

ing means whereby it may be supported by an aircraft and released for downward movement with relation thereto, said structure having seats for a plurality of bombs, a flexible device to extend about said bombs and secure the same on said seats, a member fixed with relation to said structure and connected with one end of said flexible device, a second member connected with the other end of said flexible device and removably mounted on the first mentioned member for movement to a position to connect the corresponding end of said flexible device with the first mentioned member or to a position in which the corresponding end of said band will be disconnected from said first mentioned member, means to normally retain said second member in connecting position and to release the same for movement to disconnecting position including a part adapted to be connected with said aircraft, and a second part carried by said structure normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft, the connection between one of said members and said flexible device including means for tightening said band about said plurality of bombs.

17. A bomb rack comprising a structure having means whereby it may be supported by an aircraft, and released for downward movement with relation thereto, means for positioning a plurality of bombs with relation one to the other including a flexible device to extend about said plurality of bombs, means for connecting one end of said flexible device with said structure, a member connected with the other end of said flexible device and pivotally connected with said structure for movement into a position substantially in line with the pull of said flexible device on said member to connect the corresponding end of said flexible device with said structure and movable by the pull of said flexible device to another position to disconnect said corresponding end of said flexible device from said structure, and means to normally retain said member in said connecting position and to release the same for movement to disconnecting position including a part adapted to be connected with said aircraft, and a second part carried by said structure, normally engaging the first mentioned part and movable out of engagement therewith by the downward movement of said structure with relation to said aircraft, said means for connecting the first mentioned end of said flexible device with said structure including a device operable after said connecting member has been moved to connecting position to tighten said flexible device about said bombs.

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