Aug. 13, 1957 S. MEADOWCROFT ET AL 2,802,397

BOMB AND LIKE CARRIERS FOR AIRCRAFT

Filed July 13, 1954 2 Sheets-Sheet 1

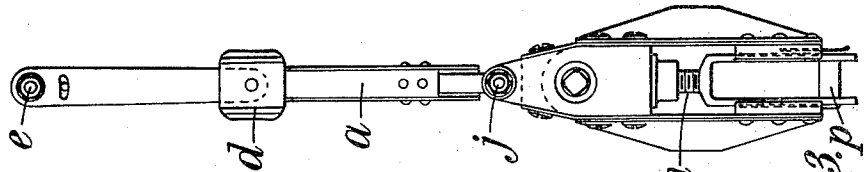


Fig.3.

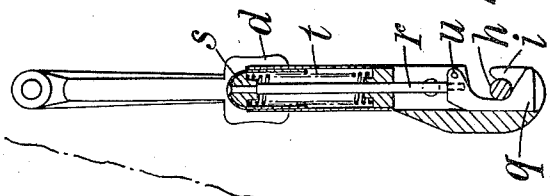


Fig.5.

Fig.1.

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Aug. 13, 1957 S. MEADOWCROFT ET AL 2,802,397

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Filed July 13, 1954 2 Sheets-Sheet 2

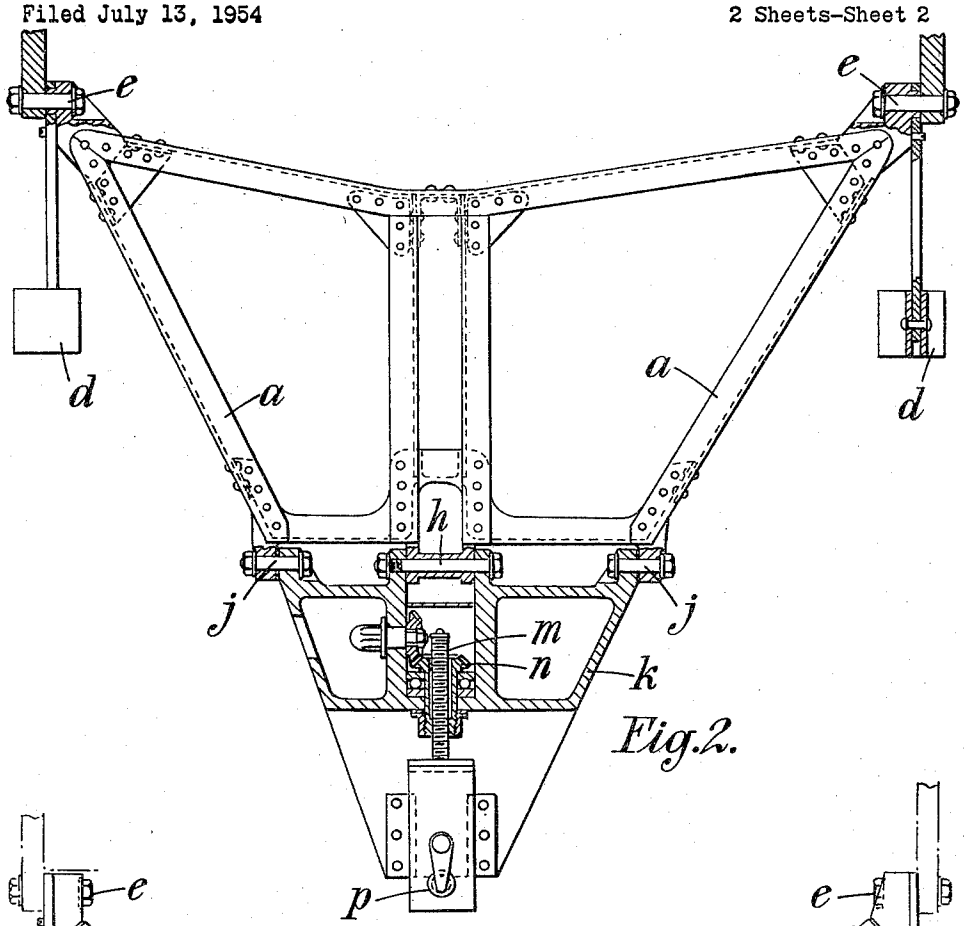


Fig.2.

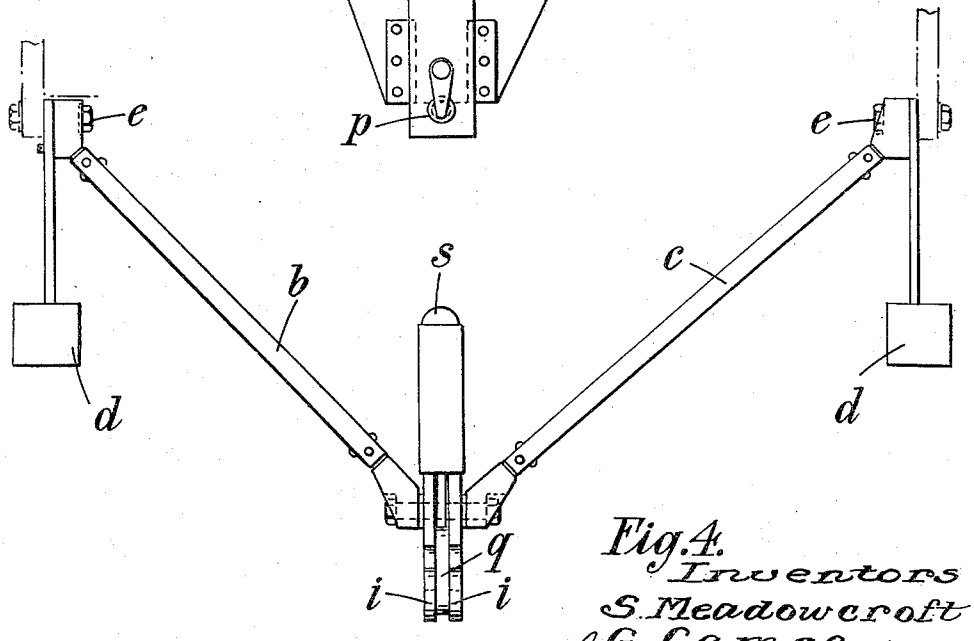


Fig.4.

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BOMB AND LIKE CARRIERS FOR AIRCRAFT

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Application July 13, 1954, Serial No. 442,958

Claims priority, application Great Britain July 20, 1953

5 Claims. (Cl. 89—1.5)

Bomb and like carriers (hereinafter for convenience termed bomb carriers) usually carry two rows of bombs, one below the other, with the bombs in one row staggered with relation to the bombs in the other row, the bombs being suspended from release units suitably electrically interlocked.

The object of the present invention is to provide simple and reliable means by which three or more rows of bombs can be conveniently suspended in the usual bomb carrier which is brought beneath and raised into an aircraft.

The top row of bombs, which may be of any number, and the second row which may be one more or one less in number than the top row are arranged as at present usual.

The invention consists in a bomb carrier for aircraft supporting three rows of bombs, with the bombs in the third row staggered with relation to the bombs in the second row which are staggered with relation to the bombs in the first row, each bomb in the third row being suspended by a release unit from a pivot pin upon a pivoted frame or member suspended from the bomb carrier at one side of a bomb in the first row which is in line with the bomb in the third row which frame is connected by said pivot pin to a hook on a second pivoted frame or member suspended from the bomb carrier at the other side of said bomb in the first row, the two pivoted frames or members passing between the said bomb in the first row and bombs in the second row to the point where the release unit of the third row bomb is suspended and a part associated with said hook which when there is a bomb suspended from the pivot pin in the hook is held inoperative, but when the said bomb is released, is adapted to push said pivot pin out of said hook for the purpose specified.

The invention further comprises a bomb carrier as aforesaid, in which the part associated with the hook is spring loaded, the spring load being insufficient to move the pivot pin in the hook out of the latter, until the third row bomb suspended from the hook has been released.

The invention further comprises a bomb carrier as aforesaid in which the pivoted frames or members have associated therewith crutches which come between the bomb and the first row and the two bombs in the second row which are immediately above the bomb in the third row suspended from the frames or members so as to give stability to the bomb formation when the third row bomb is raised into position.

Referring to the accompanying explanatory drawings:

Figure 1 is a general view showing one form of our improved means for supporting a third row of bombs in a bomb carrier.

Figure 2 is a side view of a frame constituting one of the members supporting a bomb in a third row of bombs, with means which are adapted to come between bombs in the first and second row of bombs.

Figure 3 is a side view of Figure 2.

Figure 4 is a side view of the suspension links which carry the hook supporting a bomb of the third row and

interconnecting the frame shown in Figures 2 and 3 to the bomb. The hook and the automatic disengaging mechanism are shown in a vertical position.

Figure 5 shows in a section the automatic disengaging mechanism in the position it occupies when there is a bomb suspended from the hook.

The triangulated frame *a* shown in Figure 2 and the upper ends of the two links *b*, *c* in Figure 4 are pivotally suspended from the usual bomb carrier frame which is adapted to be raised into an aircraft. The parts *d* which are suspended from the pivotal connections *e* to the bomb carrier act as crutches and come as shown in Figure 1 between bombs in the first and second rows *f* and *g* respectively to give stability to the bomb formation when the third row of bombs are in position.

The triangulated frame *a*, Figures 1, 2 and 3 carries a pin *h* which is adapted to be placed in the hook *i* and to carry in conjunction with the pins *j* a pivotal structure *k* having therein screw and nut mechanism *m*, *n* by which a bomb *o* of the third row mounted on the pin *p* can be elevated and suspended from the hook *i*.

Associated with the hook *i* which comprises two similar hook parts with a gap between is a hook like part *q* which can move in said gap and such hook like part *q* is connected by a rod *r* with a cap *s* which rides on the top of a compression coil spring *t*.

Before a bomb is placed in the hook *i*, the part *q* may be held in a lowered position, with the spring *t* compressed, by a pin passed through holes *u* in side members of the hook *i* and through the part *q*. When a bomb is supported in the hook *i*, the said pin is removed so that the pressure of the spring *t* holds the hook like part *q* firmly against the pin *h*, but the weight of the bomb suspended from the hook prevents the part *q* from displacing the pin *h* from the hook. When, however, the suspended bomb *o* is released by the usual automatic bomb release gear, the pressure of the spring *t* acting through the part *q* is sufficient to force the pin *h* out of the hook *i*, so that when the bombs *g* of the second row are released, the triangulated frame *a* and the interconnected links *b*, *c* can move clear of one another into vertical positions, so clearing the way for the bomb *f* of the first row to be released.

What we claim is:

1. A bomb or like carrier for aircraft for supporting three superposed, horizontally arranged rows of mutually spaced bombs with the bombs in the top and bottom rows in vertical alignment and the bombs in the middle row laterally staggered with relation to the bombs of the other rows so that two adjacent bombs in the middle row are on opposite sides of the vertical plane passing through the longitudinal axes of vertically aligned bombs of the top and bottom rows, said carrier including a main frame means, a release unit suspending each bomb in the bottom row, a pivoted frame suspended from the main frame means at one side of a bomb in the top row which is in vertical alignment with the suspended bomb on the bottom row, a pivot pin carried at the end of said pivoted frame and pivotally connecting said release unit therewith, a second pivoted frame suspended from the frame means at the opposite side of said bomb in the top row, a hook means carried by said second frame for coupling engagement with said pivot pin to connect the frames in positions passing between the said bomb in the first row and the adjacent bombs in the middle row, said release unit lying between said adjacent bombs, pin disengaging means operatively associated with said hook, and means maintaining said disengaging means inoperative as long as a bomb is suspended from the release unit and said last mentioned means being operative upon release of a suspended bomb to disengage said pin from said hook whereby when the said adjacent bombs in the middle row are released, said pivoted

frames move to a position on opposite sides of said bomb in the top row so that the release path thereof is unobstructed.

2. A bomb carrier as claimed in claim 1 in which said pin disengaging means comprises a movable cam, spring means opeartively associated with said cam and normally urging the same to movement to pin disengaging position and said spring means loading said cam for movement to pin disengaging position being ineffective to disengage the pin from the hook until a bomb suspended from the release unit that is coupled with said hook has been released.

3. A bomb carrier as claimed in claim 1 and further including supporting crutch members movable with the pivoted frames for engaging between a bomb in the top row and the two adjacent bombs in the middle row, said release unit including means for raising a bomb into engagement with said adjacent bombs and said crutch members stabilizing the bomb formation while the bomb in the bottom row is being raised.

4. A bomb carrier for aircraft for supporting mutually spaced bombs in three superposed, horizontal rows with the bombs of the bottom and top rows in vertical alignment and the bombs of the middle row laterally staggered relative to the bombs in the other rows whereby two adjacent bombs in the middle row are on opposite sides of the vertical plane passing through the longitudinal axes of vertically aligned bombs in the top and bottom rows, said carrier including a frame means, a first pivoted frame depending therefrom on one side of a bomb in the top row, a second pivoted frame depending beneath said frame means on the opposite side of the same bomb, said pivoted frames being movable toward and away from each other and lying between the said bomb in the top row and the subjacent pair of adjacent bombs in the middle row, releasable coupling means carried at the respective free ends of said pivoted frames for connecting the same together, a release unit pivotally connected to one of said pivoted frames and disposed between the said adjacent bombs in the middle row, said release unit including means for suspending a bomb in the bottom row in vertical alignment with said bomb in the top row and said releasable coupling means including bomb-weight actuated components for maintaining the connection between the pivoted frames as long as the bomb in the bottom row is suspended and said components being operative upon release of the bomb in the bottom row to release the coupling means whereby when the adjacent bombs in the middle row are released, said pivoted frames move to a position clear of the release path of said bomb in the top row.

5. In a bomb carrier a pair of frame components spaced apart a distance to accommodate a horizontally arranged bomb therebetween, means for suspending horizontally positioned bombs beneath each said component, a frame member pivotally connected to each of said components for movement about axes parallel to the bomb axes and toward and away from one another beneath the position occupied by a bomb disposed between said two components, one of said frame means carrying a pivot pin means, the other of said frame means including a hook engageable with said pivot pin means whereby said frame means are connected together beneath the position occupied by a bomb that is between said components, a bomb release unit pivotally connected to said pivot pin means, said release unit being positioned between the positions occupied by adjacent bombs suspended beneath the respective components, said release unit including components for suspending a bomb therefrom and pin disengaging means operatively associated with said hook for disengaging the pivot pin means from the hook when a bomb suspended from the release unit has been released whereby when bombs are no longer in positions beneath said components said frames can swing apart to be clear of the space between and beneath said components.

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