

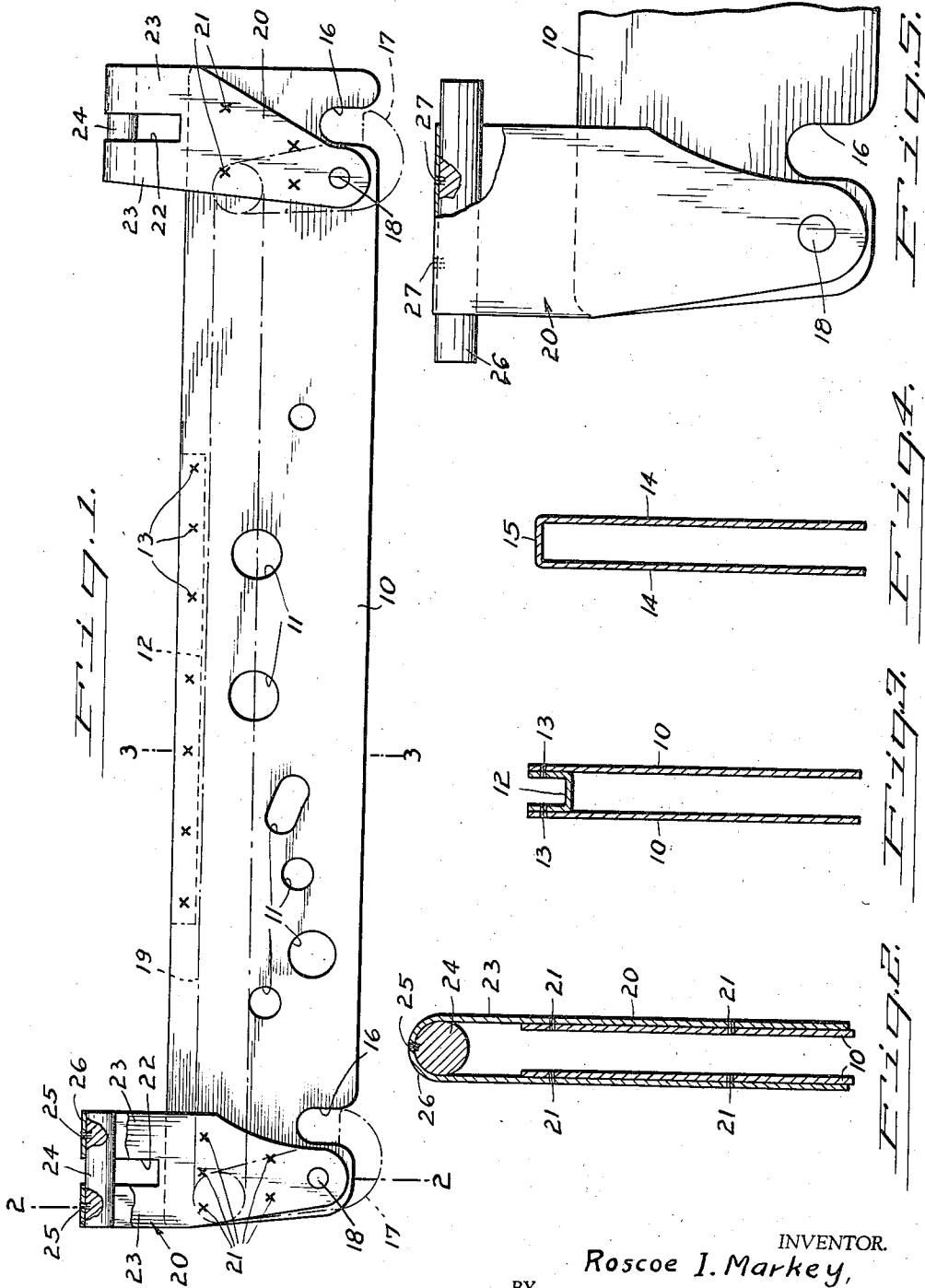
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SHACKLE CONSTRUCTION

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SHACKLE CONSTRUCTION

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4 Claims. (Cl. 89-1.5)

The invention relates to a shackle construction for bomb racks to be used on aeroplanes.

It is well known that weight is an important factor in any device applicable to aeroplane use. Among the objects of the invention is to provide a shackle that is light in weight and yet extremely strong and rugged in construction.

A further object is to provide a shackle having simplicity of construction thus lending itself to economies in manufacture and ease and speed in production.

With the foregoing and other objects and advantages in view the invention will be described in the following specification and illustrated in the drawing forming a part thereof. Referring to said drawing—

Fig. 1 is a side elevational view parts being broken out and in section;

Figs. 2 and 3 are cross-sectional views taken respectively on lines 2—2 and 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view of a slightly modified form; and

Fig. 5 is a fragmentary elevational view of a modified form of end strap and hinge construction.

Referring again to the drawing and particularly to Figs. 1 to 3, the shackle comprises a pair of side plates 10—10 suitably spaced apart and secured together. The side plates are formed of stampings made from flat stock and when they are being blanked suitable openings may be punched therein for lightness or through which certain parts of the operating mechanism (not shown) may extend. Such openings are indicated at 11.

The side plates 10—10 may be spaced apart in numerous different ways. As shown in Figs. 1, 2 and 3 a channel 12 is positioned between the plates and its side walls are resistance welded at 13 to the plates. In the form illustrated in Fig. 4 the side plates 14—14 are formed as part of a U-shaped member, the connecting portion 15 of which may extend for all or part of the length of the side plates.

Adjacent either end the side plates are formed with openings 16 for the reception of supporting rings (not shown) from the bomb. The supporting rings are suspended on hooks 17 indicated in broken lines in Fig. 1 and these hooks close the openings 16. The hooks are pivoted at 18 and are connected together by a lever 19 to permit of simultaneous operation. Suitable operating mechanism is provided for moving the hooks away from the openings 16. However this operating mechanism, the hooks and their con-

necting member form no part of this invention.

Suspension means are provided at either end of the shackle for engaging supporting hooks (not shown) to carry the shackle and its bomb.

5 The suspension means is of novel construction and in addition to its main function acts as a substantial reinforcement for the shackle construction.

The suspension means comprises end straps 20—20 which are U-shaped and have their side walls resistance welded at 21 to the side plates. The end straps extend above the side plates and have a bifurcated portion 22 for the reception of the supporting hooks heretofore mentioned.

15 The bifurcated portion 22 forms two ears 23 and a hinge pin 24 is resistance welded at 25 to these ears or what might be termed the connecting portion 26 of the end straps.

In Fig. 5 in which similar parts are designated by similar reference numerals the end straps 20 are formed without the bifurcations and the hinge pins 26 extend beyond the limits of the straps and are resistance welded to the strap as indicated at 27.

25 From the foregoing it will be apparent that a simple and extremely strong and rugged shackle construction has been provided. All castings have been eliminated and no bolts and nuts or rivets have to be utilized.

30 Such changes in details of construction and arrangement of parts as would occur to one skilled in the art are to be considered as coming within the spirit of the invention as defined by the appended claims.

35 I claim:

1. A light-weight shackle construction for bomb racks including parallel, metal stampings that are spaced from one another and that comprise side plates of the shackle, connecting structure between the side plates for holding them parallel and spaced from one another, a pivot near each end of the shackle, each of said pivots extending through aligned openings in the side plates, a bomb-supporting hook fulcrumed on each pivot between the side plates, separate straps for supporting the opposite ends of the side plates, each of said straps comprising a metal element with end portions in surface contact with the respective side plates, and extending down on the side plates to the pivots, and integrally secured to said side plates at regions across a substantial width of the area of surface contact, and an inverted U-shaped loop connecting the upper ends of the end portions of each strap, and a hinge pin for connecting each of the straps with an

airplane, each pin fitting within and being rigidly secured to the loop of one of the straps and having a width approximately equal to the distance between the surfaces of the side plates.

2. A shackle construction as called for by claim 1 in which the loop portion of each strap is slotted in the direction of the circumferential extent of the pin to form a pair of ears between which the pin extends at the top of the strap.

3. A shackle construction as called for by claim 1 in which the length of each pin is longer than the width of that part of the strap that forms the loop and both ends of the pin extend beyond the edges of the strap.

4. A light-weight shackle construction for bomb racks including parallel, metal stampings that are spaced from one another and that comprise side plates of the shackle, connecting structure between the side plates for holding them parallel and spaced from one another, a pivot near each end of the shackle, each of said pivots extending through aligned openings in the side plates, a bomb-supporting hook fulcrumed on

each pivot between the side plates, separate straps for supporting the opposite ends of the side plates, each of said straps comprising a metal element with end portions in surface contact with the respective side plates and integrally welded to said side plates at regions across a substantial width of the area of surface contact, said straps extending down on the side plates beyond the pivots and having openings through which the pivots extend so that the end portions of the straps reinforce the metal stampings that comprise the side plates and relieve the side plates of a part of the load at the pivots, and an inverted U-shaped loop connecting the upper ends of the end portions of each strap, and a hinge pin for connecting each of the straps with an airplane, said pin fitting within and being rigidly secured to the loop of one of the straps and having a width approximately equal to the distance between the surfaces of the side plates to which the strap is welded.

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