

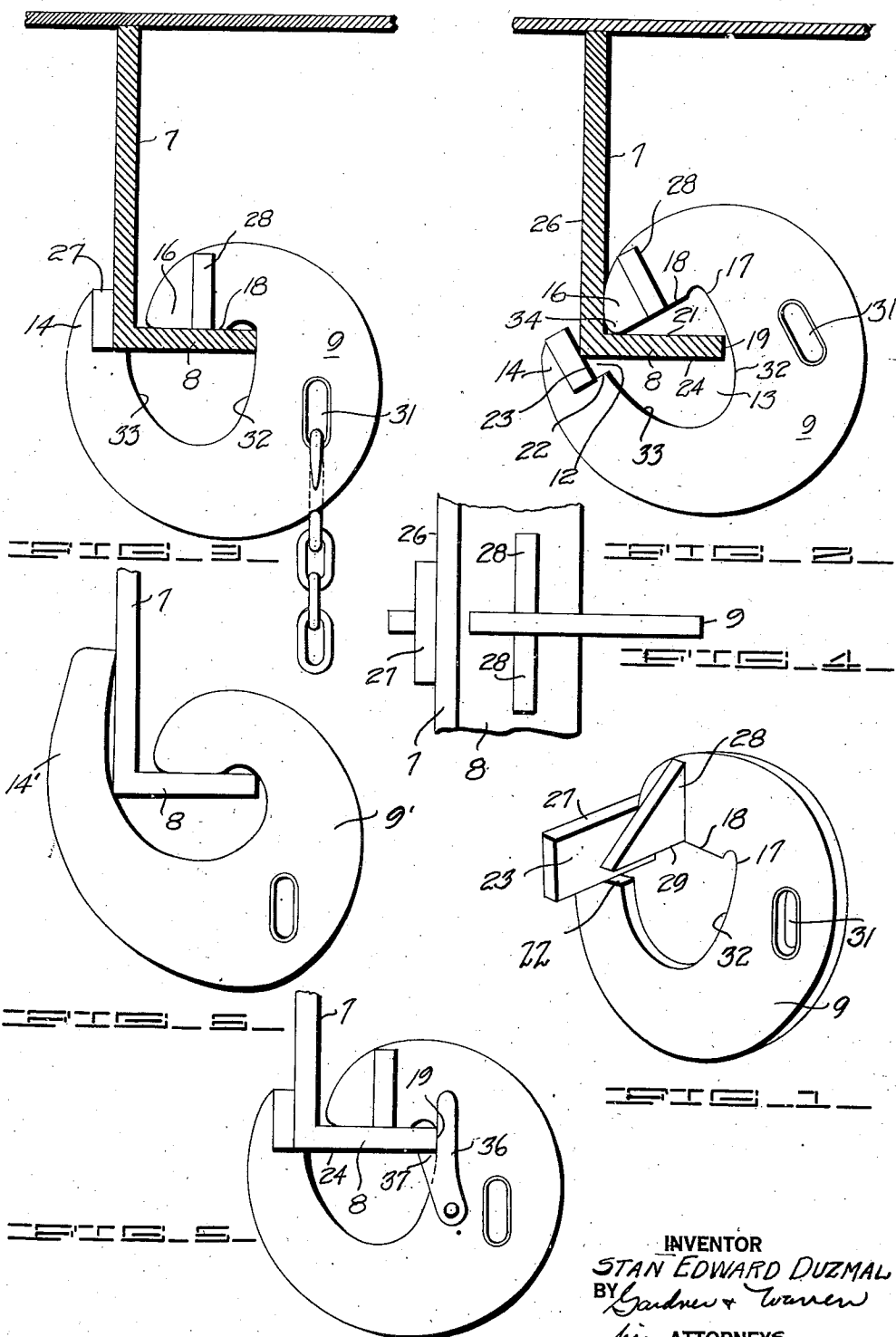
Aug. 1, 1944.

S. E. DUZMAL

2,354,746

ATTACHMENT DEVICE

Filed July 12, 1943



INVENTOR
 STAN EDWARD DUZMAL
 BY *Gardner & Warren*
 his ATTORNEYS

UNITED STATES PATENT OFFICE

2,354,746

ATTACHMENT DEVICE

Stan Edward Duzmal, Richmond, Calif.

Application July 12, 1943, Serial No. 494,401

4 Claims. (Cl. 248—228)

The invention relates to an attachment device or hook for suspending heavy objects from a supporting beam.

An object of the invention is to provide a device of this character which can be made as a single part and yet will permit the easy and quick application of the device to the beam, and provide when in operative position on the beam an absolute lock against transverse displacement in both directions independent of any assistance by the load.

Another object of the invention is to provide a device of the character described which may be made of relatively light construction but will afford a maximum amount of stability and be capable of handling relatively heavy loads.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

Figure 1 is a perspective view of the attachment device of my invention.

Figure 2 is a side view of the device showing it being applied to a beam.

Figure 3 is a view similar to Figure 2 but with the device in operative position.

Figure 4 is a top plan view of the device as shown in Figure 3.

Figure 5 is a view similar to Figure 3, but showing a modified form.

Figure 6 is a view similar to Figure 5, but showing a further modified form of the invention.

The attachment device of my invention may be designed for use with many different types of supports or beams, such as I-beams, channel or angle-irons, etc. In the present embodiment the device is particularly adapted for use with a deck-beam having a depending web 7 and an angular flange 8 at the lower edge thereof.

As here shown, the device comprises a body 9 formed relatively thin and flat and preferably of generally circular outline. At a side of the body is a relatively narrow open portion 12 which communicates with a larger open portion 13 located more centrally of the body. Separated by the open portion 12 and in part the portion 13, are body portions or jaws 14 and 16 which are arranged for engaging the different surfaces of

the beam. As will be clear from Figure 3, angularly related surfaces 17 and 18 of the body portion are designed to respectively engage the free edge 19 and upper side 21 of the flange 8, while angularly related surfaces 22 and 23 are formed to engage the under side 24 of the flange and the contiguous side 26 of the web. The surfaces 17 and 23 are spaced to substantially correspond with the distance between the edge 19 and side 26, so that when the device is operatively positioned on the beam the former will be locked against transverse displacement relative to the beam. Preferably in order to permit the ready application of the body to or the removal thereof from the beam, the spacing between surfaces 17 and 23 is such that a small clearance will be provided between the aforesaid interengaging portions of the body and beam, and in order to prevent any side rotation or twist of the body on the beam, the portion of the body defining the surface 23 is in the form of a cross bar 27 which extends perpendicularly from each of the sides 24 of the body. The bar 27 it will be noted is formed as an integral or solid portion of the body and its length is many times the thickness of the body so that a relatively large bearing will be afforded with the side 26 of the beam.

Surfaces 18 and 22 of the body, which are designed to engage the upper and lower sides of the flange 8 are parallel but in offset relation, and in order that the body will be prevented from rocking sidewise on the beam, wings 28 are provided on the body intermediate the ends of surface 18 and extend perpendicular from the sides of the body similar to the portions of the bar 27. The bottom 29 of the wings is coplanar with the surface 18 and provides for a full bearing with the top surface of the flange at points considerably spaced from the main body portion. It will thus be seen that although the body of the device is thin, the form of the beam engaging portions and their position on the body, insure an exceedingly firm grip on the beam. In this connection it will also be noted that the bearing surfaces of the body are all located adjacent the upper and forward part of the body, and that the heavier part of the body is at the rear and bottom portion thereof. In view of this, the body when operatively disposed on the beam will tend to remain in proper position thereon independent of the load. A hole 31, or other means of anchoring the load to the body is provided in the body rearwardly and below the beam engaging surfaces of the body, such positioning of the hole or anchoring means insuring the assistance of

the load in keeping the body in proper position on the beam.

It will be noted that the open portion 12 is just wide enough to permit the flange and base portion of the web of the beam to be moved there-through, and in this connection it will be seen by reference particularly to Figures 2 and 3, that the rear side 32 of the open position 13 extends downwardly from the surface 17 in an arc more or less with a center adjacent the outer end of surface portion 18. At the same time the forward side 33 of open portion 13 is cut back far enough so that when the body is inserted over the flange with the portions 14 and 16 respectively above and below the flange, the body may be moved forwardly coplanar to the flange until the nose 34, that is the forward end of the portion 14, contacts the web 7. With this arrangement, when the body has thus been engaged with the beam, complete operative positioning of the body on the beam may be effected by permitting the body to swing downwardly with the rounded nose 34 pivoting against the web and flange as shown in Figure 2, until engagement of the sides 23 and 32 centers the body and the surface 18 comes to a full rest upon the top of the flange as shown in Figure 3. With the device thus engaged with the upper and lower side of the flange and with the side 26 of the web and end 19 of the flange, and the weight of the body and that of the load being exerted to keep the body in such engagement, a very firm grip of the device with the beam will be assured and there will be practically no danger of the device rocking or slipping thereover in any direction. As will be clear to release the device, it is merely necessary to tilt the body upwardly, as shown in Figure 2, until the bar 27 lies below the flange, at which time the body may be retracted until clear of the flange end 19.

Should it be desired in some instances to provide for an auxiliary lock of the body in operative position, a latching arm 36 may be pivoted to the body so as to assume a tilted position, as shown in Figure 5, and formed with a notched end 37 for simultaneously engaging the end and bottom surfaces 19 and 24 of the flange.

In Figure 6, I have shown a somewhat modified form of the device. In this embodiment, the body 9' is preferably formed entirely flat, and the portion 14' is arranged to engage the web of the beam both at the bottom and at a point considerably above the flange.

I claim:

1. In an attachment device of the character described a one-piece body having substantially opposed beam engaging portions connected by a continuous body portion and spaced by an opening at the periphery of the body, said engaging portions being one inward of the other and having substantially parallel beam engaging surfaces, said inward portion having a beam engaging wing extending transversely from the body, and said outward portion having a beam

engaging face angular to the first of said engaging surfaces.

2. In an attachment device for a beam having a web and a flange extending angularly therefrom, a one-piece body having substantially opposed beam engaging jaws connected by a continuous body portion and separated by an opening at the periphery of the body extending inwardly for the width of and forming a receiving space for the entire flange, said jaws having offset parallel surfaces for engaging opposite parallel sides of the flange, and said jaws each having associated with the parallel surface a beam engaging portion angularly disposed relative to the parallel surface, a load attaching portion on said continuous body portion, one of said jaws having a fulcrum point at the outer end positioned to engage the web of the beam while the flange is inserted in said opening and disengaged from one of said parallel surfaces.

3. In an attachment device for a beam having a web and a flange extending angularly therefrom, a one-piece body having substantially opposed beam engaging jaws connected by a continuous body portion and separated by an opening having a portion at the periphery of the body and a portion inwardly thereof forming a receiving space for the entire flange, said jaws having parallel surfaces for engaging opposite sides of the flange, one of said jaws being offset inwardly of the other jaw, and said jaws each having associated with the parallel surface thereof a beam engaging portion at right angles thereto, a load anchoring portion on said continuous body portion, said inwardly offset jaw being formed with a rounded nose to provide a fulcrum engageable with the web of the beam when the flange is fully inserted within the open portion of the body, and a latch member secured to said continuous portion of the body and having a notch portion engageable with said flange.

4. In a one-piece attachment device for a beam having a web and a flange extending angularly therefrom, a body of relatively thin flat material and having opposing jaws spaced by an opening at the outer edge of the body and having a portion within the central portion of the body, said opening being of such form and size that the body may be moved transversely of the beam and thereby receive within said opening the entire flange and the contiguous portion of the web, one of said jaws being offset inwardly with respect to the other jaw and having angularly related portions engageable with a side and free end of the flange, the other jaw having angularly related portions engageable with the web of the beam and the opposite side of said flange, and said inwardly offset jaw having its outside end formed to provide a fulcrum with said web adjacent said flange when the flange is inserted within said opening, and a load anchoring portion on said body adjacent said inwardly offset jaw.

STAN EDWARD DUZMAL.