March 10, 1964 F. W. ROBINSON 3,124,330

I-BEAM CLAMP

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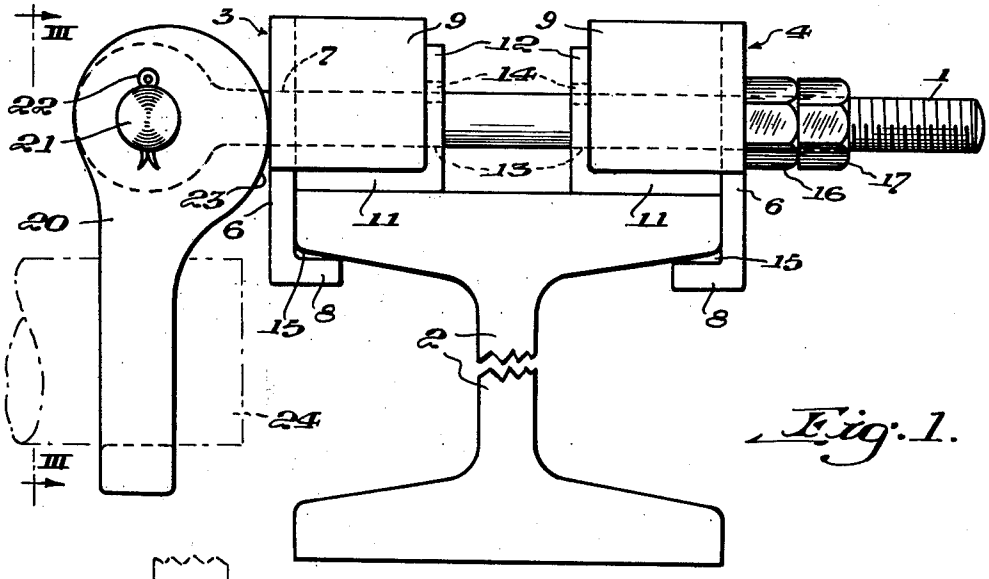


Fig. 1.

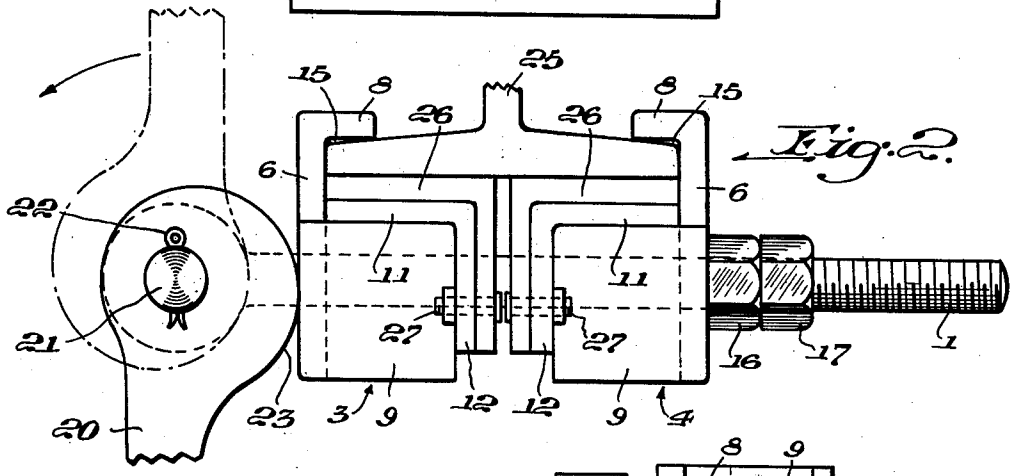


Fig. 2.

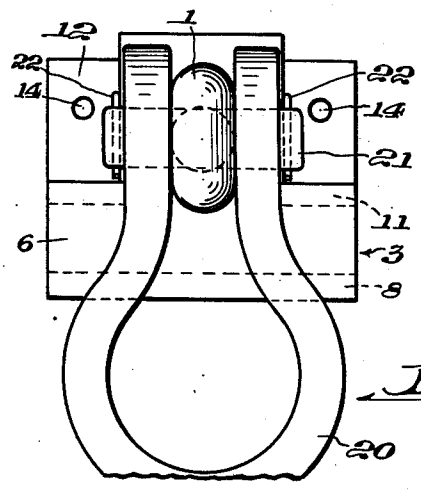


Fig. 3.

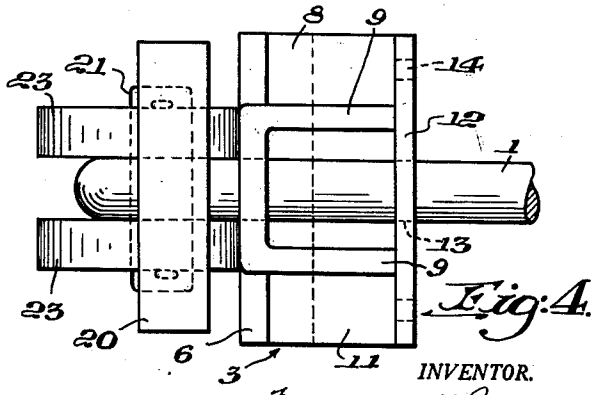


Fig. 4.

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I-BEAM CLAMP

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Substituted for abandoned application Ser. No. 108,083, Aug. 2, 1949. This application July 2, 1962, Ser. No. 213,838

2 Claims. (Cl. 248—228)

This invention relates to clamps which are especially suitable for attachment to I-beams for suspending objects, such as scaffolds, therefrom.

It is among the objects of this invention to provide an I-beam clamp which is strong and durable, which can quickly be clamped on a beam and removed therefrom, which is adjustable for different size beams, and in which the locking member of the clamp cannot be moved out of locking position as long as the object that the clamp supports is suspended from it.

In accordance with this invention, a horizontal rod, which may be circular, rectangular or any other shape in cross section, is adapted to extend across either the top or the bottom of an I-beam. The rod has a pair of jaws mounted on it. The inner or opposed sides of the jaws are notched to receive the adjoining flanges of the beam. Means are provided for holding one of the jaws against movement away from the other jaw, which is slidable along the rod. A suspension member is pivotally connected to the end of the rod adjacent the slidable jaw and is adapted to be swung from one vertical position to another, preferably from an upright position down to a depending position. The pivoted end of the suspension member is provided with a cam surface for pushing the slidable jaw toward the other one when the suspension member is swung down. The suspension member is shaped to support an object, such as a hook, or part of a scaffold, when the suspension member is in its depending position. Preferably, the horizontal rod is an eye-bolt, to the eye of which the suspension member is pivotally connected. The jaws can be formed for reception of filler pieces so that they will fit thinner beam flanges.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which FIG. 1 is a side view of my clamp attached to the top of an I-beam; FIG. 2 is a similar view showing the clamp attached to the bottom of a smaller beam; FIG. 3 is an end view of the clamp taken on the line III—III of FIG. 1; and FIG. 4 is a fragmentary plan view of the clamp shown in FIG. 1, but with the suspension member swung up to its upper position.

Referring to FIGS. 1, 3 and 4 of the drawings, a horizontal rod, in the form of an eye-bolt 1, extends transversely across the top of an I-beam 2 a short distance above it. Slidably and rotatably mounted on the bolt is a pair of jaws 3 and 4. Each jaw is formed in part from an angle bar having a vertical flange or plate portion 6 provided midway between its ends with a hole 7 through which the bolt extends. The angle bar has a lower horizontal flange 8 that projects below one of the upper flanges of the I-beam. These flanges may have different widths for the two jaws, if desired. Between the I-beam and the bolt the vertical plate portion of each jaw is slit horizontally from its opposite ends so that its upper portion can be bent inwardly on opposite sides of the bolt to provide parallel side walls 9. The lower edges of these side walls are spaced a short distance from the top of the I-beam by the horizontal flange 11 of an angle bar whose vertical flange 12 engages the vertical inner edges of the side walls. The flanges of the angle bar just mentioned are welded to side walls 9, and vertical flange 12 is provided with a central opening 13 through which the bolt extends. Beyond the side walls, vertical

flange 12 is provided with a pair of holes 14 for a purpose that will be described presently. The space 15 between flanges 8 and 11 of each jaw forms a notch for receiving the adjoining flange of the I-beam.

The distance that jaw 4 can be moved away from the other jaw can be varied by a nut 16 screwed on the threaded end of the bolt. This nut may be locked in place by a jam nut 17. The nuts are adjustable along the bolt for beams of different widths.

To move jaw 3 inwardly on the bolt a locking member, which also serves as a suspension member for any object that is to be supported by the clamp, is pivotally connected to the eye of the bolt. The locking member preferably is in the form of a clevis 20; that is, it is of general U-shape. The parallel ends of the clevis are provided with aligned holes through which a pivot pin 21 extends. This pin also extends through the eye of the bolt and is held in place by cotter pins 22 or any other suitable means. The clevis thus can be swung in a vertical plane between upright and depending positions. The parallel ends of the clevis also are widened on one side of the clevis more than on the other side to provide cam surfaces 23 that engage the outer surface of the adjoining jaw 3 and push it inward on the bolt when the clevis is swung down to the position shown in FIG. 1. When the clevis is swung up to upright position, the cam surfaces face away from the jaw so that it can be pulled out to the eye. This permits the jaws to be slipped over the upper flanges of the I-beam to apply the clamp to the beam or to remove it therefrom. While the clevis is in its lower locking position, the jaws cannot move away from each other. Accidental upward swinging of the clevis is prevented by gravity and also by the weight of the object that is supported by the clevis. This may be a hook suspending a chain from the clamp, or it may be one of the horizontal supports of a scaffold, such as a rod or tube projecting through the loop of the clevis as indicated at 24 in FIG. 1. It will be seen that with this arrangement it is impossible for the clamp to be disconnected from the I-beam accidentally.

By merely rotating the jaws on the bolt 180 degrees, the jaw notches 15 will be shifted to the top of the clamp so that it can be attached to the lower flanges of an I-beam 25, as shown in FIG. 2. This figure also illustrates how the clamp is fitted to an I-beam which is smaller than the one shown in FIG. 1. Lock nuts 16 and 17 are screwed inward on the bolt to shorten the distance between the two jaws. When the I-beam is small so that notches 15 would be too large for the beam flanges, the jaws may be provided with filler members to decrease the height of the notches. Each filler member is in the form of an angle bar 26 which overlies the adjoining jaw flanges 11 and 12 and is detachably connected to vertical flange 12 by bolts 27 extending through the holes 14 in it. A set of filler angles made of material of different thicknesses may be provided so that the sizes of the notches can be varied any desired amount. When the clamp is attached to the bottom of an I-beam, the jaw 3 adjacent the eye of the bolt is moved toward the other jaw by swinging the clevis downward in the same manner as described in connection with FIG. 1.

This application is a substitute for forfeited application Serial Number 108,083, filed August 2, 1949.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A clamp adapted to be attached to I-beams for

suspending an object therefrom, comprising a horizontal eye-bolt adapted to extend across an I-beam, a pair of jaws slidably mounted on the bolt with their inner sides notched to receive flanges of the beam, a nut screwed on the bolt and engaging one of the jaws, a clevis straddling the eye of the bolt, and a pivot pin extending through the eye and pivotally connecting the clevis to the bolt so that the clevis can be swung from an upright position down to a depending position, the pivoted end of the clevis being provided with cam surfaces for engaging and pushing the slidable jaw toward the other jaw when the clevis is swung down to its depending position, and the opposite end of the clevis forming a loop for receiving and supporting said object when the clevis is in depending position.

2. A clamp adapted to be attached to I-beams for suspending an object therefrom, comprising a horizontal rod adapted to extend across an I-beam, a pair of jaws mounted on the rod, means holding one of the jaws against movement away from the other jaw, said other jaw being slidable along the rod, and a suspension member pivotally connected to the end of the rod adjacent said slidable jaw and adapted to be swung from an upper position down to a depending position, the pivoted end of the suspension member being provided with a cam surface for pushing the slidable jaw toward the other

jaw when said member is swung down, and the suspension member being shaped to support said object when said member is in said depending position, each jaw having a vertical plate portion provided with a hole receiving the rod and with inwardly extending side walls on opposite sides of the rod, said plate portion extending vertically away from said side walls and having an inwardly projecting flange spaced vertically from the side walls to form a notch for receiving a flange of the I-beam, and each jaw including a horizontal angle member secured thereto with its vertical flange engaging the inner edges of said side walls and with its horizontal flange engaging the notch side of the side walls, said vertical flange being provided with a hole receiving said rod.

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