April 11, 1944. H. SWAY 2,346,338

SCAFFOLDING AND APPARATUS THEREFOR

Original Filed Sept. 17, 1940

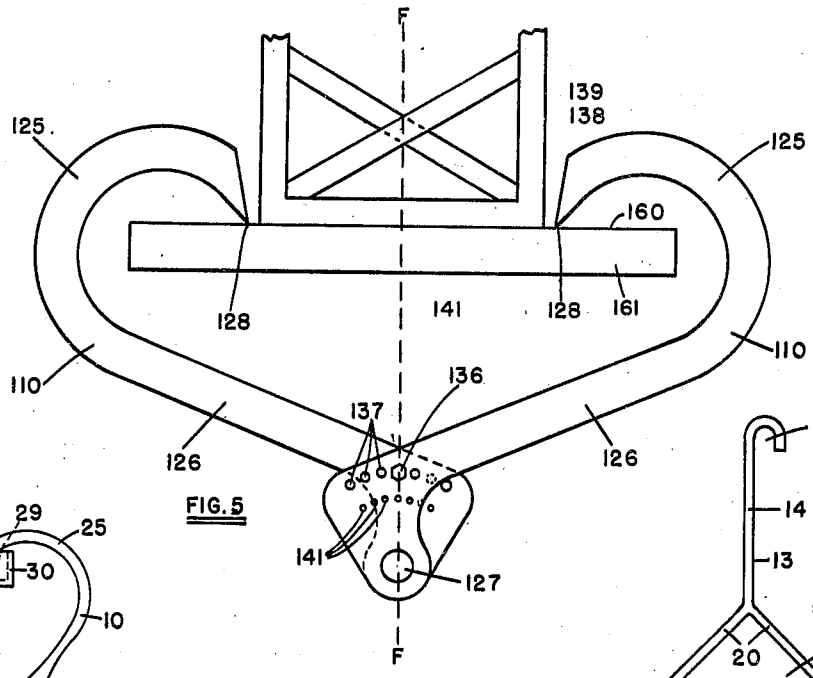


FIG. 5

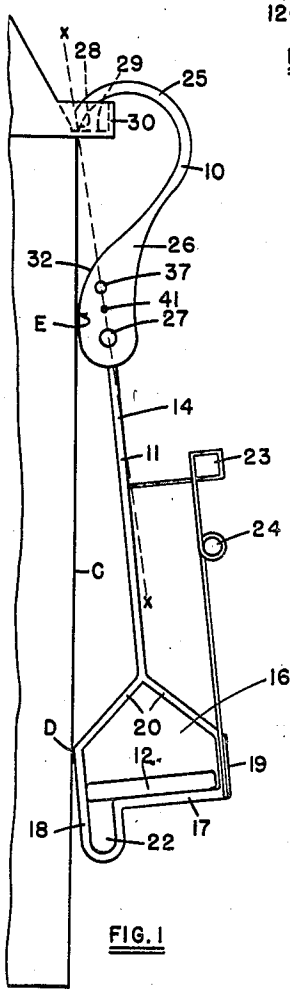


FIG. 1

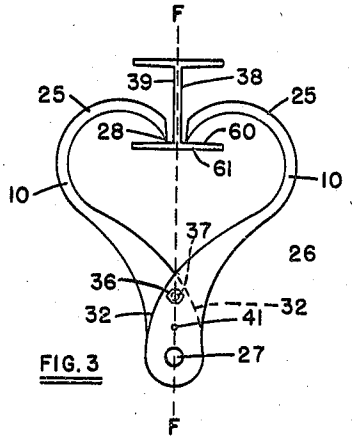


FIG. 3

FIG. 2

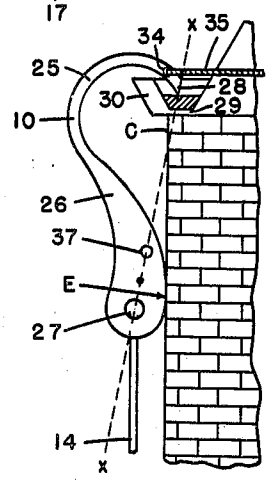


FIG. 4

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SCAFFOLDING AND APPARATUS THEREFOR

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Original application September 17, 1940, Serial No. 357,138, now Patent No. 2,326,983, dated August 17, 1943. Divided and this application January 12, 1943, Serial No. 472,090

2 Claims. (Cl. 304—19)

This invention relates to scaffolding hooks.

An object of the present invention is to provide scaffolding hooks which are adapted to be suspended from and supported by elevated load sustaining members, such as I beams and the like.

Another object of the invention is to provide scaffolding hooks which are adapted to engage a load sustaining member such as a gutter, or the like, which overhangs a vertical wall, and to engage said wall in such a manner as to preclude overbalancing of said hooks incident to the application of heavy loads thereto.

Another object of the invention is to provide improved anchorage means for securely engaging elevated load sustaining members from which scaffolding is suspended.

Still another object of the invention is to provide improved anchorage means for engaging overhung load supporting ledges and the like without becoming overbalanced under load, the component parts of which anchorage means are structurally strong, simple in structure and inexpensive in cost.

A further object of the invention is to provide a scaffolding hook which may be used singly as a scaffold hook, or which may be used in pairs wherein each hook comprises one leg of a pair of tongs which are adapted to selectively engage the flange of an I beam on opposite sides of the web.

These and other objects are attained by the means described herein, and disclosed in the accompanying drawing, in which:

Fig. 1 is a side elevational view of a wall scaffold embodying the teachings of the present invention, suspended against a vertical wall from an overhanging, load-sustaining member, to wit, the gutter.

Fig. 2 is a side elevational view of a so-called ceiling hanger, as contrasted from the wall hanger of Fig. 1.

Fig. 3 is a front elevational view of my improved anchorage means in the form of a hanger hook or a pair of hanger tongs comprising a detail of the invention, operatively associated with a horizontal load support member in the form of an I beam.

Fig. 4 is a side elevational view of one of the legs of the pair of hanger tongs of Fig. 3, operatively associated with an overhanging load sustaining member.

Fig. 5 is a side elevational view of a pair of bridge-beam tong hooks, which comprise a detail of the invention, operatively associated with the lower flange of a bridge I beam.

With reference to Fig. 1, it will be noted that the scaffolding of the present invention comprises broadly speaking, anchorage or support-surface-engaging means 10 and hanger means 11 suspended therefrom. Suitable platform forming material, such as a board 12 is adapted to engage and be supported between a pair of spaced hangers 11, as shown. Hangers 11 comprise what will hereinafter be referred to as a wall hanger or wall stirrup 11, as contrasted from the ceiling hanger or stirrup 13 of Fig. 2, and comprises a shank portion 14 the upper end of which terminates in a hook-shaped attachment member 15 (see Fig. 2) and the lower end of which terminates in a closed loop 16.

The closed loops 16 of the hangers of Figs. 1 and 2, comprise a bottom element 17, a front element 18, a rear element 19 and a pair of upwardly convergent top elements 20. A scaffold board, denoted generally by the numeral 12 is adapted to be introduced, end first, through loop 16 of each of a pair of spaced hangers so as to rest upon bottom element 17 between the front and rear elements 18 and 19, as shown.

As disclosed in Figs. 1 and 4, the hangers may be secured to a load sustaining member, such as gutter 30, by means of hook 10 which may be fabricated from a single piece of stock whereby to include a curved hook-shaped upper portion or jaw 25 and an intermediate or recurved body portion 26, the lower end of which terminates in a load bearing eyelet 27. The free end of jaw 25 terminates in a load-bearing tip 28.

As illustrated in Fig. 1, the point or load-bearing top 28 of jaw 25 engages the bottom 29 of a gutter 30, or other overhanging support member, at a point disposed in substantial alignment with the plane of outer face C of vertical wall 31. A portion of the intermediate or recurved body portion 26 of the hook immediately above and adjacent eyelet 27 extends forwardly of, that is, to the left of a straight line x—x, which extends from the load-bearing tip 28 through the center of the load bearing eyelet 27 so as to provide a wall engaging face 32, which is adapted to abut against wall at E. By reason of such construction, the vertical component of a load applied to eyelet 27 causes the hanger hook to snugly abut wall 31 as eyelet 27 seeks to become vertically aligned below tip 28. In this manner, the lower portion 32 of hook 10 normally bears against the outer face of the wall, thereby effec-

tively eliminating all danger of the hook becoming overbalanced under load.

With reference to Fig. 4, it will be noted that if desired a hole 34 may be provided in the hook or jaw portion 25 of hanger hook 10, through which a rope 35, cable or the like may be passed for the purpose of securing or anchoring said hook against accidental or unintentional outward disengagement from gutter 30. Such eyelet likewise provides attachment means through which a rope, or the like, may be passed to facilitate hoisting of the hanger hook from the ground up to the overhanging load bearing support member.

In those instances where it is desirable or necessary to suspend equipment, scaffolding, or the like, such as the ceiling hanger of Fig. 2 from a substantially horizontal load-sustaining surface or member, such as the flange of an I beam or the like, the tongs disclosed in Fig. 3 are particularly useful. Such tongs may comprise a pair of identical or corresponding hanger hooks 10 which are turned relative to one another so as to provide a left and a right hook pivotally interconnected by means of a bolt 36 which passes through aligned bolt holes 37 provided one through the body portion 26 of each hook member intermediate eyelet 27 and jaw 25.

It should be noted that the centers of the bolt holes 37 are on a straight line F—F passed through the center of the load bearing eyelet 27 and the center of web 38 of I beam 39 with which said tongs are adapted to be associated. By reason of this relationship it is seen that eyelets 27 of the pivotally joined hooks 10 are disposed in register only when the load bearing tips 28 are spaced apart by a distance approximately equal to the width of the web 38 of I beam 39. It has been found that by designing each pair of hooks so that the eyelets 27 will be in registry when the lateral distance between adjacent hook tips 28 is five-eighths of an inch for a jaw having a radius of three inches, such a pair of tongs will accommodate standard I beams having a flange width up to and including six inches.

In the preferred embodiment of the invention, a small hole 41, having its center on line F—F, is provided through each of the hooks or tong leg members 10, between bolt holes 37 and eyelets 27.

After the tips 28 of the respective jaws of a pair of tongs have been closed over the upper face 60 of the lower flange 61 of an I beam, a pin, nail, or the like, may be passed through the aligned holes 41 whereby to positively, though temporarily, lock the jaws of the tongs relative to the I beam until the attachment member 15 of a hanger or other member to be suspended can be introduced through the aligned and registered load-bearing eyelets 27. It is preferable, though not absolutely necessary, to withdraw the temporary locking means from holes 41 after the hangers have been suspended from the registered eyelets 27, in order to have but one jaw locking means operative. In those instances where the eyelets 27 are not in complete registry, the greater the load applied to said eyelets by means of a hanger attachment member 15, the tighter the jaw tips 28 will be drawn together against web 38, thereby increasing the bond between the tongs and the load sustaining member.

The pair of tongs disclosed in Fig. 5 are fundamentally and structurally similar to the tongs of Fig. 3, being distinguishable therefrom in size only. The tongs of Fig. 5 are particularly adapted for use in large structures such as bridges, and the like, wherein web 138 may be of a dimension ranging from three inches to several feet in width. Those parts of Fig. 5 which correspond to similar parts of Fig. 3 bear the same numerals, raised however, by one hundred. It should be noted that the load bearing eyelets 127 are on a vertical axis F—F dropped from the center of web 138 and that the pivot bolt 136 passes through those registered pivot holes 137 which are disposed on said vertical axis F—F. In this manner the load is evenly distributed to each leg of the tongs, whereby the pull on flange 161 on opposite sides of web 138 is equalized.

When the hooks comprising a pair of hanger tongs are separated, they provide a pair of hanger hooks each of which are adapted to engage an overhanging load bearing support member from which a wall hanger may be suspended without danger of said hook being unbalanced when subjected to load.

It should be noted that in the event a load in excess of the yield point of a hanger hook be applied thereto, the hook cannot become overbalanced and twist about its vertical plane and snap off as occurs when a painter's scaffold hook is overloaded. Hanger hook 10, will under an excess load, merely be drawn downwardly as the loop or jaw portion is straightened out, during which process the body portion 32 will remain in contact with the wall as at point E of Fig. 1. Therefore, it is apparent that even though my hanger hooks be overloaded, they will never become overbalanced.

It should be understood that the hanger tongs of Fig. 3 may be anchored from a wooden beam or rafter by merely drilling a pair of holes in opposite faces thereof to provide a grip for the jaw tips 28.

It should likewise be understood that various modifications and changes in the structural details of the various basic devices may be made, within the scope of the appended claims, without departing from the spirit of the invention.

It will be observed that the centers of bolt holes 137 and pin holes 141 of the tong disclosed in Fig. 5 are located on arcs whose respective centers are coincident with the center of the load bearing eyelets 127, whereby said eyelets will be in registry for any one of a plurality of settings of the load bearing tips 128.

This case is a division of application Serial No. 357,138, filed Sept. 17, 1940, now Patent No. 2,326,983, granted Aug. 17, 1943.

What is claimed is:

1. As a new article of manufacture, a scaffold tong comprising a pair of similar legs pivotally interconnectable whereby to selectively engage the lower flange of I-beam structures having webs of varying widths, each leg comprising a single length of metallic stock formed to provide a curved hook-shaped upper portion and a recurved lower or body portion, the free end of said upper portion terminating in a load bearing flange engaging tip, the free end of said lower portion terminating in a load bearing eyelet, said lower portion provided with a plurality of spaced holes whose centers are located on an arc whose center is coincident with the center of said eyelet, a bolt removably insertable through corresponding holes in said hooks, said eyelets adapted to be in registry for each engagement of the bolt with a corresponding set of bolt holes whereby the tips of said hooks will be spaced apart by predetermined amounts for accommodating webs of varying widths.

2. As a new article of manufacture, a scaffold

tong comprising a pair of similar legs pivotally interconnectable whereby to selectively engage the lower flange of I-beam structures having webs of varying widths, each leg comprising a single length of metallic stock formed to provide a curved hook-shaped upper portion and a recurved lower or body portion, the free end of said upper portion terminating in a load bearing flange engaging tip, the free end of said lower portion terminating in a load bearing eyelet, said lower portion provided with a plurality of spaced holes whose centers are located on an arc whose center is coincident with the center of said eyelet, a bolt removably insertable through corresponding holes in said hooks, said eyelets adapted to be in registry for each engagement of the bolt with a corresponding set of bolt holes whereby the tips of said hooks will be spaced apart by predetermined amounts for accommodating webs of varying widths, and pivot forming means located between said eyelets and bolt holes for temporarily locking the legs relative to one another with the eyelets in registry for each engagement of the bolt with a corresponding set of bolt holes.

HENRY SWAY.