July 17, 1962 J. H. JACKSON 3,044,573

SCAFFOLD BRACKET

Filed March 28, 1960 2 Sheets-Sheet 1

Fig. 1

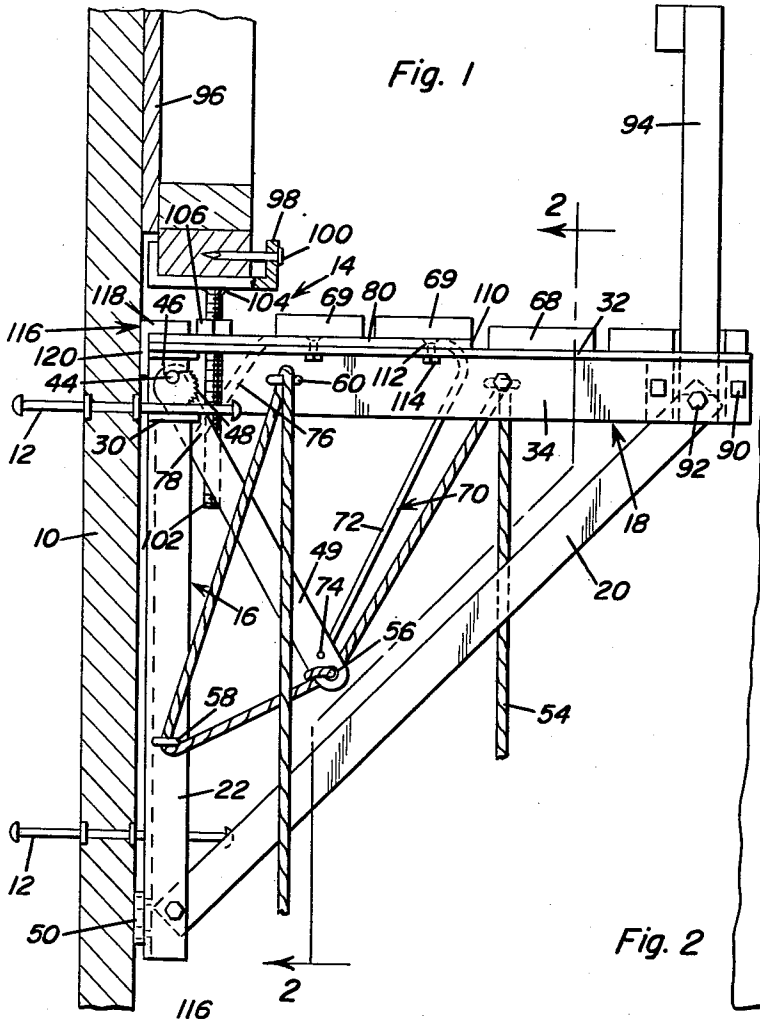


Fig. 2

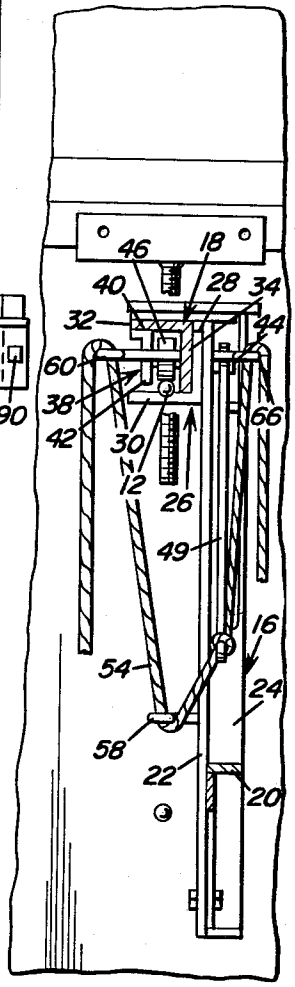
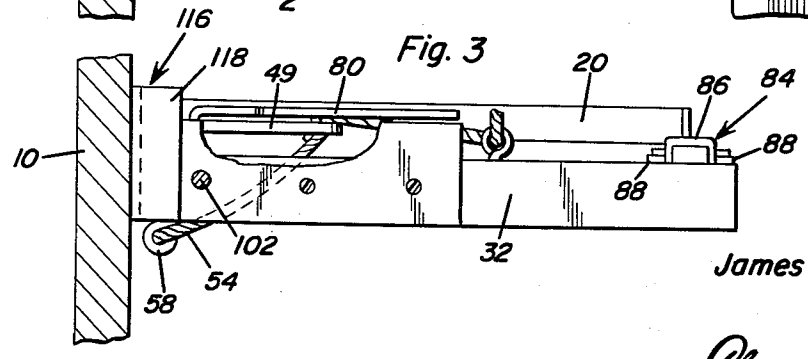


Fig. 3



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Fig. 4

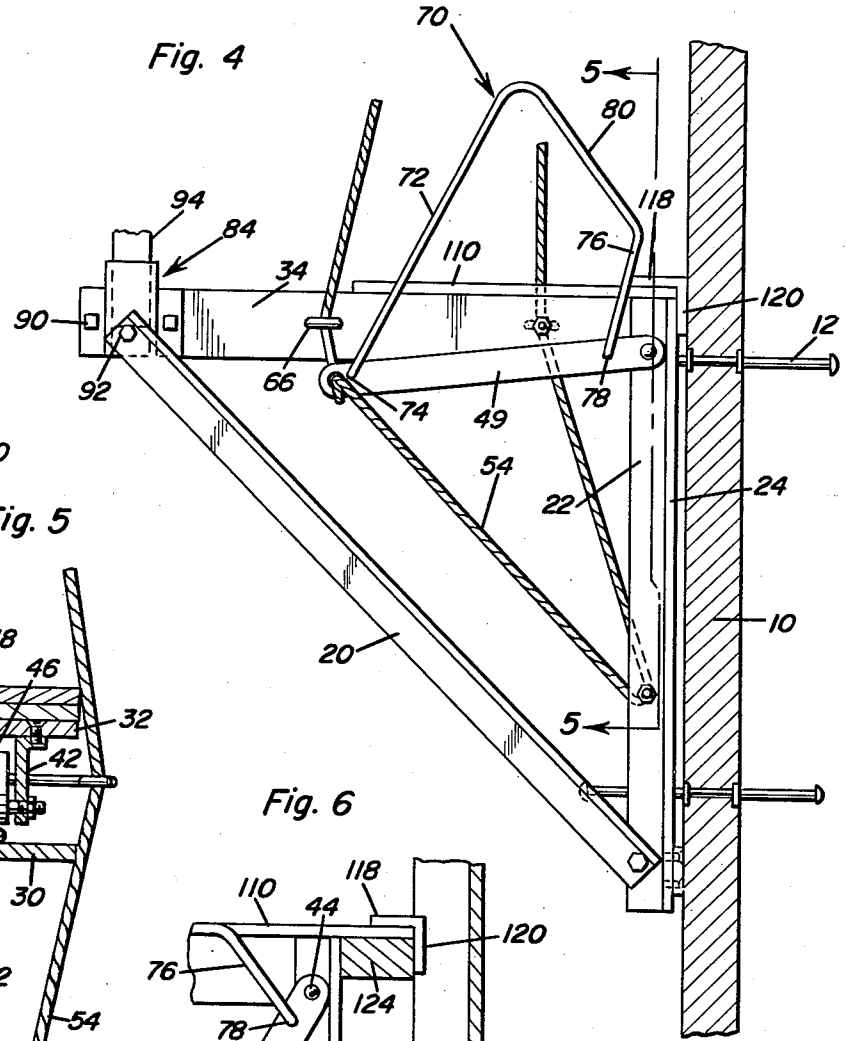


Fig. 5

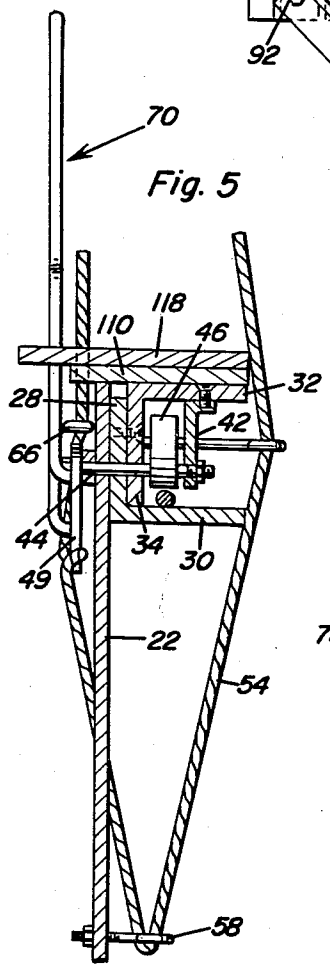


Fig. 6

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SCAFFOLD BRACKET

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13 Claims. (Cl. 182—87)

This invention relates generally to construction equipment and more particularly to a scaffold bracket designed for use in conjunction with wall ties which are used in concrete form work to hold the forms in alignment and which are left in the concrete wall when the forms are stripped from the wall.

It is often desired to support scaffolds adjacent newly constructed concrete walls for various purposes, among those being the need to support concrete forms for enabling the wall to be extended vertically. Normally, the scaffolds are supported adjacent the concrete wall by a structure which rests on the ground surface. It is apparent that if the wall is extended to a significant height, the construction of a scaffold support which extends from the ground surface to the top of the wall, would require considerable construction time and expense. It is therefore desirable to provide a novel scaffold bracket construction which does not require a ground supporting network. In view of the above, it is the principal object of this invention to provide a novel scaffold bracket construction which is supportable from a constructed concrete wall by locking the bracket to a wall tie which is secured in the wall.

It is a more particular object of this invention to provide a novel scaffold bracket adapted to be supported from a concrete wall at any elevation thereof. The scaffold bracket construction includes eccentric lock means as a portion thereof which locks the bracket to a wall tie. The bracket includes a first horizontal leg and a second vertical leg with the lock being disposed on the bracket approximate the vertex of the right angle formed by the legs. It is a still more particular object of this invention to provide a novel scaffold bracket which may be supported from a concrete wall safely and reliably. The invention contemplates the provision of cables which allow the bracket to be locked on a wall tie adjacent the wall from a position above and remote from the wall tie. The bracket is relatively simple in construction and accordingly may be manufactured in inexpensively. However, the bracket has significant supporting strength and is able to assuredly support a scaffold laden with construction materials.

It is a still further object of this invention to provide a novel scaffold bracket which includes a safety device for assuring that the bracket remains locked to a wall tie as desired, and for preventing the accidental unlocking of the bracket from the tie.

It is a still further object of this invention to provide a novel scaffold bracket which includes alternative support means for permitting the bracket to be utilized in conjunction with construction walers when wall ties are not available or unusuable for some reason.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view of a scaffold bracket illustrating the bracket in locked position on a wall tie and showing how the bracket supports scaffolding, hand rails, and a vertically adjustable form support member;

FIGURE 2 is a sectional view taken substantially along the plane 2—2 of FIGURE 1;

FIGURE 3 is a top plan view of the bracket, partially broken away, showing the bracket in locked position on a wall tie adjacent the wall;

FIGURE 4 is an elevational side view of a bracket showing the side of the bracket opposite to that illustrated in FIGURE 1 and illustrating the bracket in unlocked position;

FIGURE 5 is a sectional view taken substantially along the plane 5—5 of FIGURE 4; and

FIGURE 6 is a fragmentary side elevational view illustrating how the bracket may be supported from a waler used in conjunction with construction forms.

With continuing reference to drawings, numeral 10 indicates a concrete wall which has wall ties 12 secured therein, the wall ties being initially used to hold the concrete construction forms in alignment. Generally, the wall ties 12 which are left in the concrete 10 are broken off flush with the wall 10 after the forms are stripped therefrom. A bracket 14, forming the subject matter of this invention is to be locked to a wall tie adjacent the wall 10.

The bracket 14 includes a first vertical leg 16, a second horizontal leg 18, and a brace 20 which connects the free ends of the legs 16 and 18 to each other. As noted in FIGURES 1 and 4, the legs 16 and 18 are disposed perpendicular to each other. Each of the legs 16 and 18 and brace 20 are formed of structural angle iron. The leg 16 defines a forwardly projecting flange 22 and a laterally projecting flange 24. An angle member 26 has a flange 28 engaged with and fixed to flange 22 and a flange 30 constituting a horizontally disposed jaw extending laterally opposite to the flange 24. The leg 18 has a laterally extending flange 32 and extends parallel to the jaw 30 with a vertical flange 34 in engagement and secured to flange 28. Member 38 is secured by flange 40 to the flange 32 of leg 18. Flange 42 depends from flange 40 spaced from flange 34 of the leg 18. A shaft 44 is rotatably journalled in flange 42, flange 34, flange 28, and flange 22. An eccentric 46 is fixed to shaft 44 between flanges 42 and 34 above jaw 30. The shaft 44 projects beyond flange 22 and a handle 49 is secured thereto. It will be appreciated therefore that rotation of handle 49 causes a rotation of shaft 44 and a consequent rotation of eccentric 46. Eccentric 46 is provided with teeth 48 formed on the perimeter thereof. In order to lock the bracket 14 on a wall tie 12 to secure the bracket on the concrete wall 10, the tie is disposed between the jaw 30 and eccentric 46. By pivoting the handle 49 to the position illustrated in FIGURE 1, the eccentric 46 and teeth 48 thereof engage and grip the wall tie 12 to secure the bracket. A wall pad 50 is fastened to the lower portion of leg 16 on flange 24 and the wall pad 50 engages the wall 10. Of course, it will be appreciated that counterclockwise rotation of the handle 49 will cause the release of the gripping engagement of the eccentric 46 with the wall tie 12.

In order to facilitate the mounting of the bracket 14 on the wall tie 12, means are provided for positioning the bracket 14 on the wall tie 12 from a position some distance above the wall tie. The means include a cable 54 which is terminally secured to the handle 49 by looping the cable 54 through aperture 56 in the handle. One end of the looped cable extends through eye 58 on flange 22 and thence through eye 60 on flange 34. The other end of the looped cable is passed through eye 66 on the side of flange 34 opposed to the side supporting eye 60. By manually manipulating the ends of the cable 54 from a position above the tie 12, the tie 12 may be inserted between the eccentric 46 and the jaw 30. By further manipulation, the handle may be rotated until the eccentric 46 and tooth portion thereof lock on the tie 12.

In order to support scaffolding 68, it is of course neces-

sary to dispose at least two brackets **14** at a distance from each other on the same vertical level. The scaffold boards may then be supported on the flange **32** of the spaced brackets. In order to prevent the locked engagement between eccentric **46** and tie **12** from unlocking, a safety rod **70** is provided. The safety rod **70** has a first portion **72** which is secured to the handle **49** at **74**. A second portion **76** of the safety rod **70** is secured to the handle **49** at **78**. An intermediate safety rod portion **80** joins the portions **72** and **76**. With the handle **49** in a locked position as indicated in FIGURE 1, the intermediate safety rod portion **80** is disposed parallel to the flange **32** of the leg **18**. With scaffolding board **69** supported on flange **32**, the handle **49** is prevented from rotating counterclockwise inasmuch as the intermediate portion **80** of the safety rod **70** engages the scaffolding board **69**. Accordingly, as long as scaffolding boards **69** are in place, the bracket **14** remains locked to the wall tie **12** adjacent the wall **10**.

A hand rail frame **84** includes a U-shaped portion **86** having flared ends **88** which are bolted to flange **34** by bolts **90**. Brace **20** is bolted at **92** to flange **34** immediately beneath the hand rail frame **86**. Hand rail posts **94** are receivable in the U-shaped frame **86** and bear against the brace **20**. By mounting post **94** on each of the spaced brackets, railing may be supported between the spaced posts for acting as a safety rail to prevent workmen from falling from the scaffold.

It is often desirable to provide means for supporting additional concrete construction forms **96** above the portion of the concrete wall already constructed for extending the height of the wall **10**. For this purpose, a support member **98** is utilized which supports the concrete form **96** thereon. Nails **100** may be used to particularly position the form **96** as desired. A spindle **102** is secured to the support member **98** as by welding **104**. The spindle **102** is threaded and extends through flange **32**. A nut **106** threaded on spindle **102** may be supported on flange **32** whereby rotation of the nut **106** will allow for the adjustable elevation of the support member **98**.

If for any reason, the wall ties **12** are not available or it is desired that they not be used for support, the bracket may be supported on construction walers as particularly indicated in FIGURE 6. For this purpose, as shown in FIG. 1, plate **110** is secured to flange **32** by countersunk bolts **112** secured by nuts **114**. An angle member **116** having a first flange **118** overlying the plate **110** has a second flange **120**. When the bracket **14** is utilized in conjunction with wall ties **12**, the plate **110** is secured to the flange **32** in the position indicated by bolts **112** and nuts **114**. If it is desired to support the brackets **14** on walers **124** as indicated in FIGURE 6, the bolts **112** may be removed and the plate **110** moved along the flange **32** so as to enable the flange **120** to abut the waler **124**. The bolts **112** are reinserted to secure the plate **110** in this position. Of course, the plate **110** should be provided with appropriate apertures for passing spindle **102**.

From the foregoing, it should be appreciated that the invention provides an improved scaffold bracket for enabling scaffolding to be supported from a wall at any height without employing grounds support means. The brace disclosed can be locked on the wall tie ready for scaffold boards manually in a minimum of time. The speed of installation is significantly faster than any of the known methods of scaffolding. The bracket can be lowered into place, hooked over the tie and locked, ready for scaffold boards within ten seconds by a person who is hanging the bracket from 10 feet above the tie. A 30 pound tug on the cable locks the eccentric lock with a heavier load on the bracket increasing the locking effect of the eccentric lock. Tests have proven that after placing the bracket by a cable about 8 feet below the person placing it, 2000 pounds may be supported by the bracket two feet from the wall without showing any signs of breaking. However, inasmuch as wall ties are designed for 3000 pounds, the supporting capabilities of the brackets for scaffolding are limited. The tests were made with a bracket utilizing angles of aluminum or mild steel. It is contemplated that the bracket extend approximately two and one-half feet from the wall tie both horizontally outward and vertically downward.

The strength of the ties may be tested after the bracket is attached thereto by lifting upwardly the outer end of angle **34** and pivoting the bracket about the upper corner of angle **120** whereby a highly leveraged force will be applied to the tie.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle integrally joined to said eccentric and extending therefrom for effecting rotation thereof.

2. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, said eccentric defining teeth rigidly fixed on the arcuate perimeter thereof, said teeth engaging said wall tie when said wall tie is locked between said eccentric and said jaw member.

3. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle joined to said eccentric and extending therefrom for effecting rotation thereof, said second vertical leg extending substantially parallel to and in engagement with said wall, said first

horizontal leg extending perpendicularly from said wall, a safety rod secured to said handle, said safety rod defining a straight intermediate portion, said intermediate rod portion carried above said horizontal leg when said handle is rotated to an unlocking position and immediately below and parallel to said horizontal leg when said handle is rotated to a locking position, scaffold boards supported on said horizontal leg above said intermediate rod portion when said handle is in said locking position whereby said safety rod and said handle are prevented by said boards from moving out of said locking position.

4. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle joined to said eccentric and extending therefrom for effecting rotation thereof, said second vertical leg extending substantially parallel to and in engagement with said wall, said first horizontal leg extending perpendicularly from said wall, and a vertically adjustable form support member carried by said bracket adjacent said wall.

5. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle joined to said eccentric and extending therefrom for effecting rotation thereof, said second vertical leg extending substantially parallel to and in engagement with said wall, said first horizontal leg extending perpendicularly from said wall, and a flat bar superposed on said horizontal leg for slidable movement therealong, bolt means for securing said bar in selected positions on said horizontal leg, said bolt means extending through vertical holes in the flat bar and horizontal leg and a depending right angle abutment terminally secured to said bar abuttable with a waler on a side of said waler remote from said bracket for suspending said bracket from said waler.

6. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle joined to said eccentric and extending therefrom for effecting rotation thereof, said second vertical leg extending substantially parallel to and in engagement with said wall, said first horizontal leg extending perpendicularly from said wall, a safety rod secured to said handle, said safety rod defining a straight intermediate portion, said intermediate rod portion carried above said horizontal leg when said handle is rotated to an unlocking position and immediately below and parallel to said horizontal leg when said handle is rotated to a locking position, scaffold boards supported on said horizontal leg above said intermediate rod portion when said handle is in said locking position whereby said safety rod and said handle are prevented by said boards from moving out of said locking position, and flexible cable means connected to said handle extending to a location remote from said handle for causing selective rotation of said handle from said remote location.

7. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, said last named means including a horizontally disposed jaw member carried by said bracket proximate the vertex defined by said first and second legs, and an eccentric disk rotatably supported by said bracket opposed to said jaw member, said wall tie receivable between said jaw member and said eccentric whereby said eccentric is rotatable into engagement with said wall tie for locking said wall tie between said eccentric and said jaw member, and a handle joined to said eccentric and extending therefrom for effecting rotation thereof, said second vertical leg extending substantially parallel to and in engagement with said wall, said first horizontal leg extending perpendicularly from said wall, a safety rod secured to said handle, said safety rod defining a straight intermediate portion, said intermediate rod portion carried above said horizontal leg when said handle is rotated to an unlocking position and immediately below and parallel to said horizontal leg when said handle is rotated to a locking position, scaffold boards supported on said horizontal leg above said intermediate rod portion when said handle is in said locking position whereby said safety rod and said handle are prevented by said boards from moving out of said locking position, and flexible cable means connected to said handle extending to a location remote from said handle for causing selective rotation of said handle from said remote location, and a hand rail frame terminally secured to said horizontal leg remote from said wall, a hand rail post detachably received in said hand rail frame.

8. A scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon having a straight upper surface for supporting the scaffold and a straight vertical surface for abutting the wall, a horizontal surface fixed to the bracket adjacent the upper portion of said vertical surface, an eccentric pivoted to the bracket adjacent said horizontal surface for clamping the tie between the eccentric and horizontal surface, an operating lever fixed to said eccentric and urged by gravity in a direction whereby said eccentric grips said tie.

9. A scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon having a straight upper surface for supporting the scaffold and a straight vertical surface for abutting the wall, a horizontal surface fixed to the bracket adjacent the upper portion of said vertical surface, an eccentric pivoted to the bracket adjacent said horizontal surface for clamping the tie betwen the eccentric and horizontal surface, an operating lever fixed to said eccentric and urged by gravity in a direction whereby said eccentric grips said tie, and said lever extending away from said vertical surface and beneath the scaffold whereby anyone stepping on or anything falling upon the lever will urge it downwardly in the tie clamping direction.

10. A scaffold bracket adapted to be locked to a wall

tie for supporting a scaffold thereon having a straight upper surface for supporting the scaffold and a straight vertical surface for abutting the wall, a horizontal surface fixed to the bracket adjacent the upper portion of said vertical surface, an eccentric pivoted to the bracket adjacent said horizontal surface for clamping the tie between the eccentric and horizontal surface, an operating lever fixed to said eccentric and urged by gravity in a direction whereby said eccentric grips said tie, said eccentric comprising a circular member having pointed teeth on a portion of its periphery.

11. A scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon having a straight upper surface for supporting the scaffold and a straight vertical surface for abutting the wall, a horizontal surface fixed to the bracket adjacent the upper portion of said vertical surface, an eccentric pivoted to the bracket adjacent said horizontal surface for clamping the tie between the eccentric and horizontal surface, an operating lever fixed to said eccentric and bisecting the angle formed between said upper and vertical surfaces, an elongated flexible member connected intermediate its ends to the free end of said lever, one portion of said flexible member extending upwardly through an eye fixed to the bracket adjacent said upper surface and the other portion of said flexible member extending laterally toward and through an eye fixed to said bracket adjacent said vertical surface whereby said lever may be operated in either direction from either above or below the bracket.

12. A scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon having a straight upper surface for supporting the scaffold and a straight vertical surface for abutting the wall, a horizontal surface fixed to the bracket adjacent the upper portion of said vertical surface, an eccentric pivoted to the bracket adjacent said horizontal surface for clamping the tie between the eccentric and horizontal surface, an operating lever fixed to said eccentric, a safety rod secured to said

handle at its free end, said safety rod defining an intermediate portion extending upwardly from the free end of said handle, said rod having a free upper end which lies in the plane of said upper surface when the handle is rotated downwardly for gripping said tie, scaffold boards supported on said upper surface above the upper end of the rod when the handle is in gripping position whereby said handle and rod are prevented from moving out of said gripping position.

13. For use in combination with wall ties extending from and retained by concrete walls, a scaffold bracket adapted to be locked to a wall tie for supporting a scaffold thereon comprising a pair of perpendicular legs including a first horizontal leg and a second vertical leg and means carried by said bracket lockingly engageable with said wall ties, a diagonally extending member connected to the free ends of said legs by bolt means, a U-shaped clamp also fixed to an outer surface of the free end of said horizontal leg adjacent said bolt means whereby said bolt means intersects a passage formed between the U-shaped clamp and said surface, a vertically extending rail post having its lower end snugly fitting within said U-shaped clamp and resting on said bolt means whereby said lower end has slidable bearing contact only with said bolt means.

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