

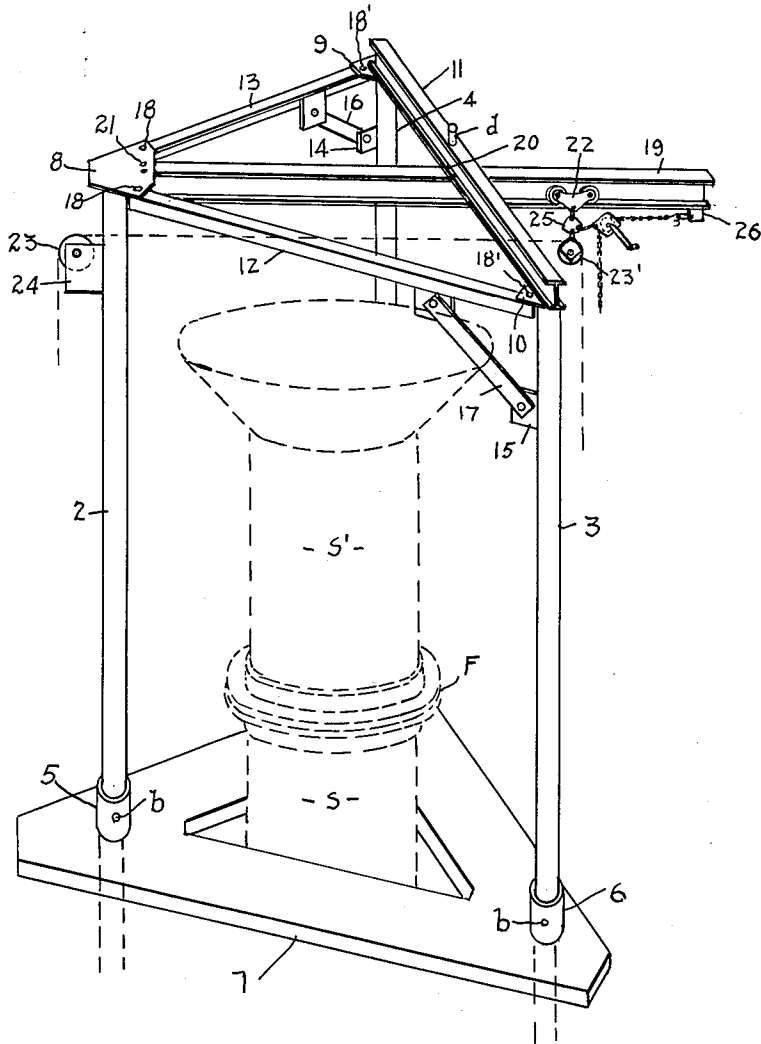
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PARTIAL TAKE-DOWN STACK SCAFFOLD

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PARTIAL TAKE-DOWN STACK SCAFFOLD

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2 Claims. (Cl. 212—71)

In installations in chemical industries where the top of a flare stack is subjected to corrosion and heat, it is necessary to replace the flare tip or top section at intervals. This has been time-consuming and involved much expense, as such sections are large and very heavy, and it has been necessary to erect a strong scaffold about the stack top, laboriously hoisting and assembling piece by piece, and thus put the structure together; then after the stack top is replaced, the scaffold has in reverse order been dis-assembled piece by piece and lowered to the ground. By the present invention a short-cut is now made possible. A rig is provided with some elements mounted in permanent position such as not to be in the way, and other elements are connected such as to be positionable for use or by change of position be out of the way between times of usage. Other objects and advantages of the invention will be apparent from the following description.

To the accomplishment of the foregoing and related ends, said invention then comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

The sole figure is a perspective view of a scaffold structure in accordance with the invention.

In general, the structure involves strong posts which need not be removed and which support the weight of the other elements and of the stack top when it is being lowered and replaced, and connected to these posts are other elements of the scaffold structure which are positionable for their working relation, or in non-operating relation being unobtrusive and out of the way. Thus, as in the form shown in the drawing, metal posts 2, 3, 4 are set in receiving-openings as 5, 6, etc., in the top of the permanent platform 7 which is customarily a part of the equipment about a fume stack S. Pins or bolts *b* secure the columns in position. The top section of the stack S', usually several feet in length, and which is connected to the main stack by bolt flange connection F, is then accessible for manipulation. On the top of the columns are suitably secured plates 8, 9, 10, and bridging the tops of columns 3 and 4 an I-beam 11 is secured, as by bolting through its flange. This provides a top brace for these two posts, besides affording support for other structure as hereinafter pointed out. On the beam 11 a davit-socket *d* permits the support of a davit for the hoisting of auxiliaries. Braces between post 2 and respectively posts 3 and 4 are positionable in horizontal relationship for the operation of stack replacement. Such braces are preferably in the form of angle-irons 12, 13 and have links 16, 17, between post-lugs 14, 15 and respective lugs on the braces. This arrangement, for working position involves the placement of the angle-braces 12, 13 in horizontal position as illustrated in the

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drawing, and the respective ends of the angle-braces are then directly under the plates 8, 9, 10, and bolts 18, 18' through the plates and brace-ends secure the top structure. The links 16, 17, are actually combined braces and links between the columns and the angle-braces. For the lowering and hoisting of a stack section, a monorail 19 is secured to the I-beam 11 as by bolts 20 and its one end positions under the plate 8 at the top of post 2 and may be bolted by bolts 21 through the monorail flange, and the other end of the monorail projects out free from the scaffold structure, whereby a trolley 22 travelling on the monorail can provide latitude of movement from a position over the stack to a position off-side in clearance for lowering the old stack section and hoisting the new section. The trolley 22 has an adjustable hold-back to hold it in position desired on the monorail, in known manner such as a coffin hoist or block and falls attached to the end of monorail 19. For hoisting and lowering, a cable from a winch on the ground may pass over a sheave 23 on a bracket 24 secured to post 2, the cable being thence connected as desired with tackling block arrangement, as from hook 25 on the trolley. A stop 26 at the end of the monorail prevents disengagement of the trolley from its rail.

As understood from the foregoing, with the permanent posts 2, 3, 4 and beam 11, and the angle-braces 12, 13 turned up into their horizontal position, and the monorail 19 being secured to the beam 11 and top of post 2, the stack section S' may be disconnected and be lowered by the cable and winch, and a new section be hoisted and be secured in place. Then, for the interval of disuse, the monorail 19 is taken down from its position over the stack, and on removal of the bolts 18, 18', and loosening of the bolts in the lugs holding the links 16, 17 the angle-braces 12, 13 are swung down alongside their posts 3, 4, and are unobtrusive and out of the way, ready for repositioning on the occasion of the next time of usage.

If desired, the pins *b* can be withdrawn to permit the posts to be lowered in the openings 5, 6, to a further out of the way position during disuse. And by a series of appropriate holes in the posts the height of the rig is adjustable in any case.

The structure provides a particularly strong and inter-braced scaffold capable of withstanding the very heavy strains and weights encountered in usage, and withal relatively little labor is involved in putting it into condition for usage or into resting position.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A partially dismountable scaffold adapted for use in work upon the top portion of a stack and the like, comprising a rigid structural frame adapted to be horizontally disposed in spaced surrounding relation to such stack and permanently supported as thus arranged a predetermined distance below the top of the stack, said frame being provided with a number of socket members spaced thereabout at the upper surface of the frame, a plurality of vertical support posts having their lower ends respectively received and held in said socket members, the posts being of such extent as to project above the top of such stack, a series of horizontal braces interconnecting said posts at the upper end portions of the latter with each brace being supported at its respective ends by two adjacent posts thus to form an upper horizontal frame, one of said braces being permanently secured to the posts supporting the same, the other of said braces each being releasably secured at one end and pivotally

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secured at the other end respectively to the posts associated therewith, the pivotal connections of such other braces providing swinging movement thereof upon release of their removably secured ends to substantially vertical positions, a rail releasably secured at one end to such upper horizontal frame at a point thereon generally opposite the permanently attached brace and disposed to intersect this brace with its other end projecting therebeyond, the rail being releasably secured to such permanently attached brace at the intersection of the two, and a trolley adapted to support hoist means mounted by said rail for movement along the same, the rail and associated trolley being removable from the scaffold when not in use and such other horizontal braces being swingable to their substantially vertical positions further to dismount the scaffold to be unobstructive in periods of non-use.

2. A partially dismantlable scaffold as set forth in claim 1, characterized further in that three such vertical support posts are provided, whereby the horizontal braces define an upper triangular frame, the braces mounted for swinging movement having their pivotal

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connections at the ends of the same respectively secured to the two posts to which the permanently attached brace is secured and their other ends releasably secured to the remaining post of the three, said rail having its inner end likewise releasably secured to such remaining post.

References Cited in the file of this patent

UNITED STATES PATENTS

644,327	Knox	Feb. 27, 1900
963,030	Balch	July 5, 1910
985,471	Tarrant	Feb. 28, 1911
1,065,979	Spencer	July 1, 1913
1,552,333	Mosher	Sept. 1, 1925
1,856,384	Haber	May 3, 1932
1,917,764	Howie	July 11, 1933
2,060,436	Wetzel	Nov. 10, 1936
2,303,428	Black	Dec. 1, 1942
2,361,614	Dugan	Oct. 31, 1944
2,593,386	Dirks	Apr. 15, 1952

FOREIGN PATENTS

626,553	Germany	Feb. 28, 1936
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