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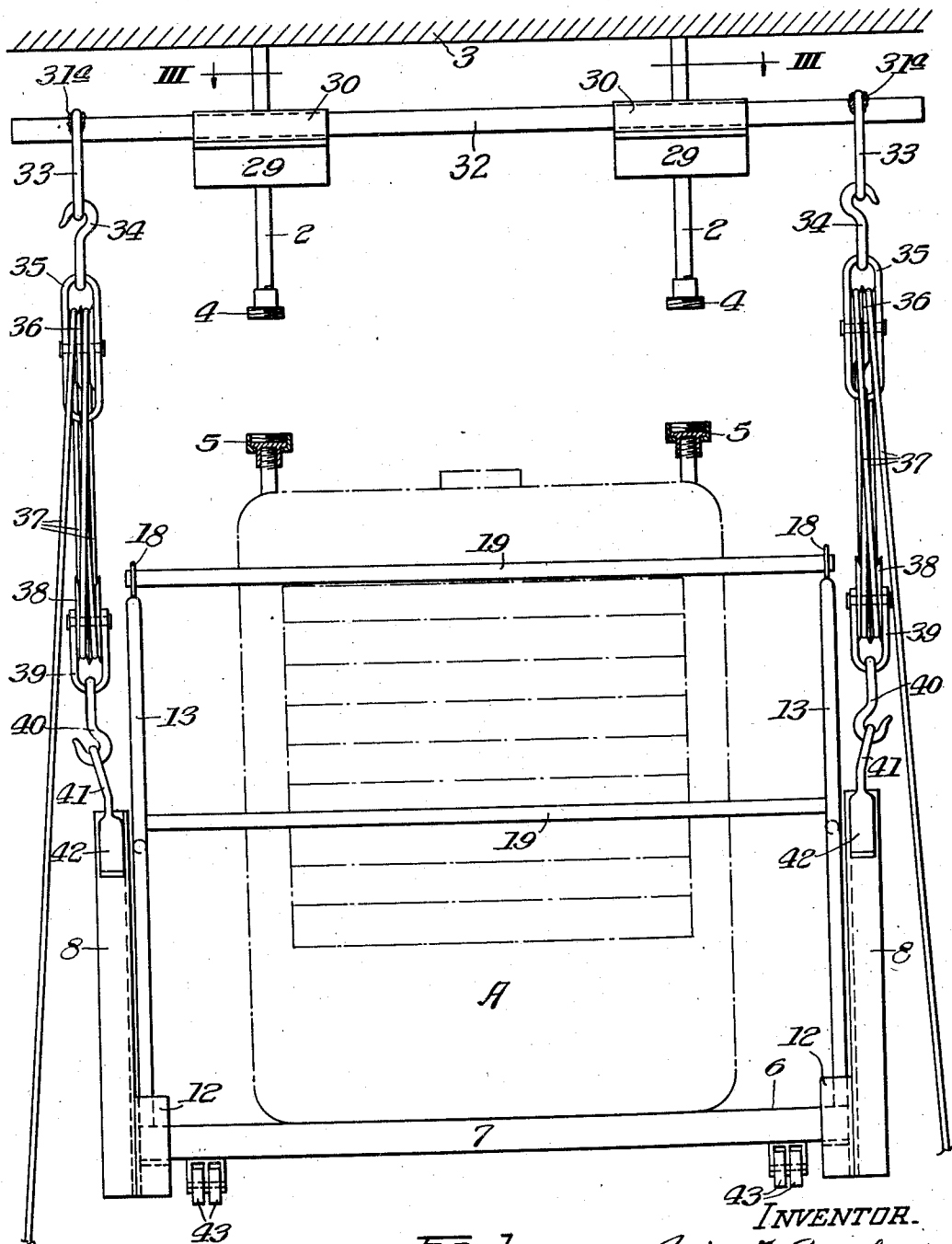
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SUPPORTING AND ELEVATING MEANS FOR OVERHEAD UNITS

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2 Sheets-Sheet 1



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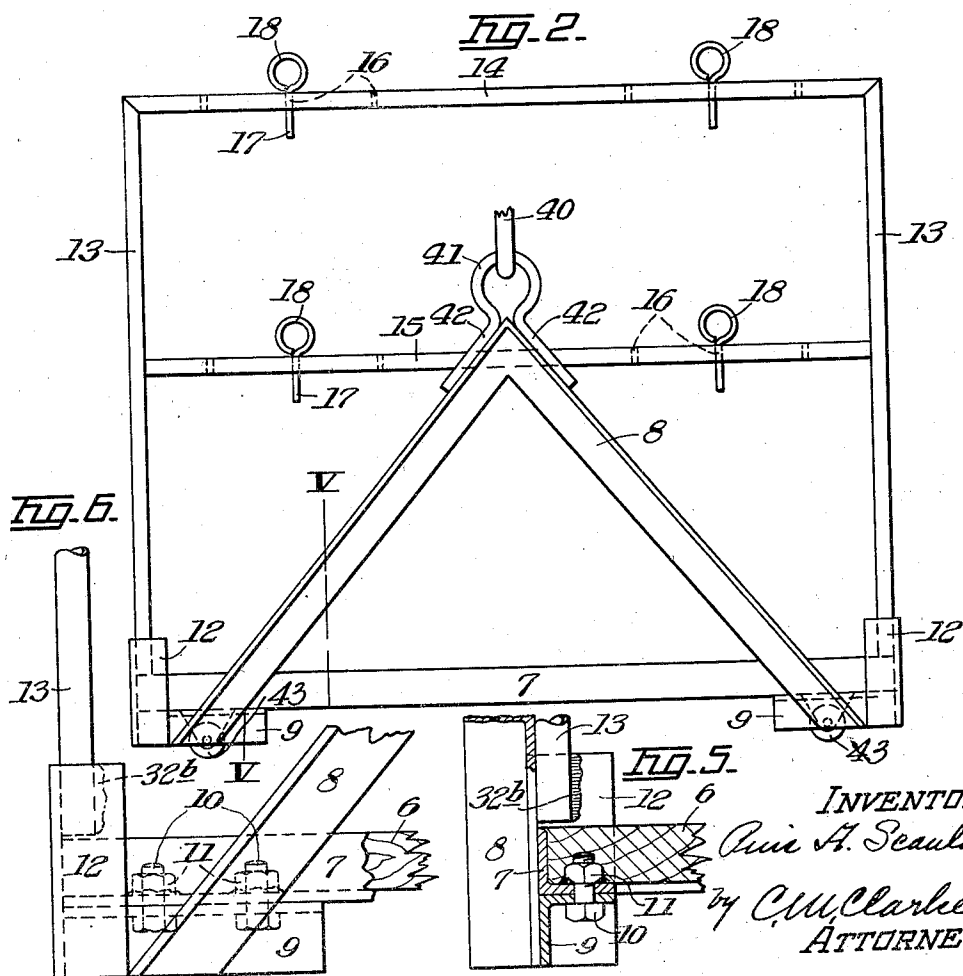
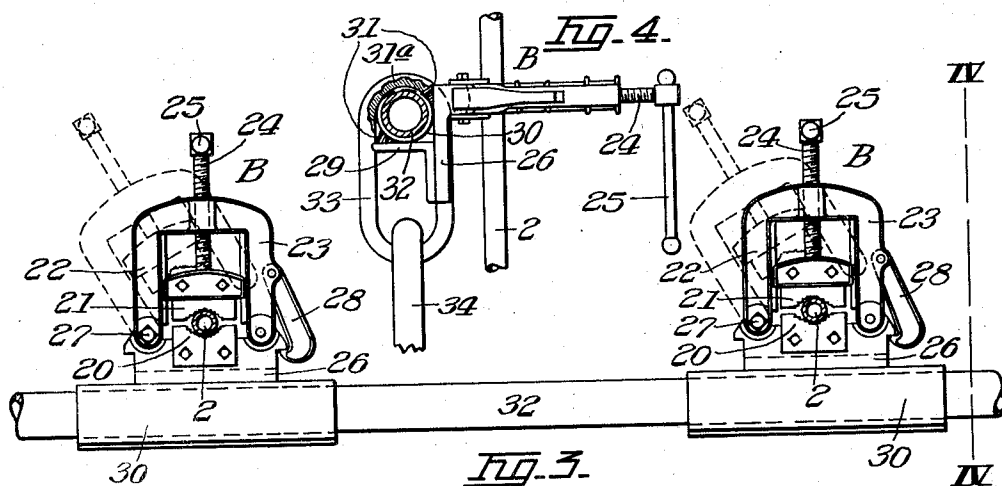
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SUPPORTING AND ELEVATING MEANS FOR OVERHEAD UNITS

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2 Sheets-Sheet 2



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SUPPORTING AND ELEVATING MEANS FOR
OVERHEAD UNITS

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8 Claims. (Cl. 214—95)

My invention consists of an improvement in supporting and elevating means for overhead units. It has in view to provide means capable of temporary attachment to the supporting elements of a suspended unit or load, in combination or connection with a supporting platform or stage whereby the unit may be raised for final connection with such permanent supports.

Specifically, as herein illustrated and described, the invention is shown as applied to the vertical adjustment of a heater for overhead supporting attachment, and provides for removable connection with the permanent supports of such means, as hereinafter described.

Generally stated, it comprises a pair of clamps capable of such attachment and removal, having supporting sleeve guides and a transverse shaft mounted therein, from which depends the raising and lowering gear, as pulley blocks or the like, connected with the vertically movable platform, for adjustment of the heater to final connecting position. The construction is such as to permit easy, rapid and convenient connection and disconnection, while the platform or stage itself is capable of partial separation for convenience in transportation or packing.

In the drawings illustrating one preferred embodiment of the invention:

Fig. 1 is a general view in front elevation showing the platform and its load supported from and in upward progress toward the permanent supports;

Fig. 2 is a similar view in side elevation of the platform or stage;

Fig. 3 is an enlarged transverse plan view partly in section on the line III—III of Fig. 1;

Fig. 4 is a vertical sectional view on the line IV—IV of Fig. 3;

Fig. 5 is a vertical sectional detail view on the line V—V of Fig. 2;

Fig. 6 is a detail face view showing the corner framing of the platform and its supporting framework.

Ordinarily, in the usual practice of mounting such overhead heaters, they are elevated by means entirely independent of the spindles themselves, as by supports extending upwardly from the floor. Such means may be trestle work, lifting jacks, etc. and involving the use of cumbersome and heavy apparatus, in connection with stepladders or the like for use by the operatives in making the connections, after the heater has been thus elevated to position.

The use of such apparatus requires its transportation and setting up, and disassembling for

removal, involving considerable time and expense, which is largely avoided in the present case.

Referring to the drawings 2—2 represent spindles, shafts, or tubing firmly supported in the upper flooring of a building in any suitable manner and depending below the ceiling surface 3 thereof to a suitable distance for connection with the unit or heater A. Such heater is of any standard construction now in common use and ordinarily mounted in the upper portion of a ware room, shop, or other portion of a building. It is generally located at sufficient height to avoid interference below and has the usual fuel supply, as gas connection, and a suitable outlet 15 flue, following ordinary practice. The supporting spindles 2 are also of standard form, for connection by any suitable means as coupling terminals 4 adapted to be brought into firm supporting connection with corresponding terminals 20 5 of the heater, as will be readily understood.

The unit or heater A is first placed on the platform surface 6 of the supporting floor or stage. The latter, which may be of oak planking or the like, is firmly supported in a rectangular frame 25 consisting of angle bars 7 or other suitable structural form, preferably welded or otherwise secured together at the four corners, and provided with lifting supports 8 at each side, for connection with the elevating and lowering mechanism hereinafter described.

Members 8 are conveniently made of angle sections extending downwardly from a middle terminal portion and welded or otherwise secured to short angle sections 9 at each opposite corner 35 portion. Sections 9 are removably secured to the main angle members 7 by means of bolts 10 extending upwardly into receiving nuts 11 which are firmly welded to the upper faces of the bottom flange of angle members 7, as clearly shown 40 in Figs. 5 and 6.

At each corner portion of the main platform are short vertical angle members 12 welded to members 9, fitting by their flanges around each corner of the platform and providing by their 45 upper end portions partly embracing sockets for the bottom portions of the corner posts 13. Such posts, which may be conveniently made of piping, terminate slightly above the platform corners and are fixedly secured as by welding 32b 50 to the angle members 12. They are provided with transverse similar bars 14 and 15, for the purpose of providing means for securing and holding the heater A in place during the operation.

Cross bars 14 and 15 are provided with a series of vertical sockets 16 into which may be inserted the elongated stems 17 of rings 18. The latter are used for the purpose of engaging holding straps 19 or the like which are tightly drawn around through them and against the sides of the heater in one or more windings, as in Fig. 1, to hold the unit A firmly on the platform 6.

By such construction it will be observed that the opposite side members (including the posts and their cross bars, the supporting V shaped members 8, the brackets 12, and the sections 9, may be entirely removed by disengaging the bolts 10, leaving the main platform as a separate slab-like member, capable of being again assembled for further use.

For the purpose of shifting the supporting platform or stage, it is provided with rollers or casters 43 for convenient movement over the floor surface to any desired position.

As above stated the spindles 2 provide the entire supporting means for the elevating and adjusting mechanism including the supporting platform and its unit, heater A.

In order to thus utilize these spindles during such adjustment, I use a pair of standard pipe vises generally indicated by the letter B. Such vises are provided with clamping jaws 20 and 21, jaw 21 being mounted for outward and inward movement between the side arms 22-23 under control of the usual adjusting screw 24 and its actuating handle or bar 25.

One side 22 of the double arm frame is pivoted to the base 26 of the vise as at 27, and is capable of being thrown over sideways for clearance as indicated in dotted lines Fig. 3. The other side arm 23 is provided with a pivotally mounted locking arm 28 adapted to be thrown into holding connection with a lug or abutment on the base, or to be thrown outwardly therefrom for opening. Such construction is of standard form and well understood.

The base 26, of flange formation, has secured to it by riveting or welding, an angle bracket 29, to the outwardly extending flange of which is welded or otherwise secured a cylindrical sleeve 30, which may be readily made of a section of pipe or tubing. Such section is welded to the bracket 29 and the adjacent flange base as indicated at 31, whereby the sleeve is firmly connected with and made a part of the clamping vise.

With two such equipments, the two spindles 2 are firmly engaged, one by each vise, at the same level and with the sleeves 30 in alinement. A transverse bar 32, which may also be of pipe or tubing, or even solid, extends through both sleeves and outwardly at each end sufficiently far for connection therewith of depending rings 33. Such rings or links are preferably fixed in position as by welding at 31a, to the outer end portions of bar 32, at proper distances apart to correspond generally with the outer width of the main supporting platform equipment.

As thus made the pair of vises, their sleeves, and the inserted supporting bar, together with the rings 33, constitute a complete equipment capable of being attached or removed as a whole to or from the spindles 2. When thus attached, as indicated in Fig. 1, the rings 33 are engaged by the hooks 34 of the elevating and lowering mechanism for vertical adjustment of the platform and its load.

In the construction shown hooks 34 are connected with the yokes 35 of pulleys 36, one at

each side, connected by suitable ropes, cables, or chains 37, with similar lower pulleys 38.

Each of the lower pulleys of such block and tackle equipment is connected by its yoke 39 and hook 40 with a ring or loop 41 connected by any suitable means, as diverging arms 42, with the middle top portion of carrying arms 8.

Such elevating mechanism is also of well known construction and readily separable and applied by use of the hooks 34 and 40, at each side. Having been thus placed in position, and with the supporting platform and its load resting upon the floor, as by casters 43, the heater A is adjusted as closely as possible when thus resting on the platform, or after being elevated slightly in swinging position, to bring the pairs of couplings 4 and 5 into registering alinement position.

Thereupon the platform is elevated by operation of the block and tackle, bringing the connecting terminals 4 and 5 together, for being thus connected and tightly secured. The heater A is then in its final usable position at any properly defined elevation above the floor. The gas and flue connections may then be made by the workman, suitable stepladders or the like being utilized, whereupon the supporting platform may then be lowered, leaving the unit thus suspended.

The elevating gear may then be disconnected and the entire supporting equipment is removed from the spindles by releasing the jaws and then throwing the frames outwardly for removal, whereupon such entire assembled mechanism may be lowered to the floor for further use.

The platform itself may be then shifted on its casters to another position for further use, or may be taken apart as described for shipment to another location. The entire mechanism is comparatively simple and inexpensive. It avoids the use of cumbersome supporting and elevating means, expedites the work of erection of heaters or other similar units, and effects a large saving of time and labor.

Its construction and manner of operation will be readily understood and appreciated from the foregoing description by all those familiar with such operations. It may be changed or varied in detail construction by the skilled mechanic to adapt it to various uses, sizes of load, etc., but all such changes are to be understood as within the scope of the following claims.

What I claim is:

1. Means for elevating a unit having coupling terminals for connection with the terminals of supporting spindles comprising in combination with said spindles, a unit supporting platform, an upper transverse bar having endwise links, block and tackle elevating and lowering means removably connected with said links and with opposite side portions of the platform, and removable means connected with the spindles provided with tubular supports for the transverse bar.

2. Means for elevating a unit having coupling terminals for connection with the terminals of supporting spindles comprising in combination with said spindles, a unit supporting platform, means adjustably and removably connecting the platform with the outer portions of an upper supporting bar, means including tubular bearings for said bar adapted to be removably secured to the supporting spindles, said connecting means being adapted to bring the coupling terminals of the unit into registering coupling con-

nection with the terminals of the supporting spindles.

3. Means for elevating a unit having coupling terminals for connection with the terminals of supporting spindles comprising in combination with said spindles, a cross bar, a unit supporting platform, means on the platform for holding the unit in position thereon with its coupling terminals in registering relation with the spindle terminals, means adjustably connecting the platform with the cross bar, and means removably secured to the supporting spindles embodying tubular supports for the cross bar.

4. Means for elevating a unit having coupling terminals for connection with the terminals of supporting spindles comprising in combination with said spindles, a unit supporting platform, means on the platform for holding the unit in position thereon, side connecting means on the platform, a pair of depending supporting spindles having connecting terminals in alinement with the coupling terminals of the unit for connection therewith, a transverse bar, supporting means for the bar removably connected with the spindles, and raising and lowering means connecting the side connecting means of the platform with the transverse bar.

5. Means for elevating a unit having coupling terminals for connection with the terminals of supporting spindles comprising in combination with said spindles a unit supporting platform, removable framing on the platform for holding the unit in position thereon, removable supporting arms at opposite sides of the platform, a pair of depending supporting spindles having connecting terminals in alinement with the coupling terminals of the unit for connection therewith, a transverse bar, tubular supporting means for the bar removably connected with the spindles, and raising and lowering means connecting the platform with the transverse bar.

6. Means for elevating a unit having coupling terminals for connection with the coupling terminals of supporting spindles comprising in com-

bination with said spindles, a unit supporting platform, removable supporting arms at opposite sides of the platform, a pair of depending supporting spindles having connecting terminals in alinement with the coupling terminals of the unit for connection therewith, a transverse bar, supporting means for the bar removably connected with the spindles, and raising and lowering means connecting the supporting arms of the platform with the transverse bar.

7. In supporting and elevating means for overhead units, the combination with a pair of upper vertical spindles having coupling terminals and a unit supporting platform having opposite side supports provided with connecting terminals, of a pair of separable clamping vises engaging the spindles each having a fixedly connected bar supporting sleeve, a transverse bar extending through said sleeves having at its outer portions supporting links, and raising and lowering means removably connected with said links and with the connecting terminals of the platform whereby to bring coupling terminals of a unit supported on the platform into vertical register with the coupling terminals of the spindles.

8. In supporting and elevating means for overhead units, the combination with a pair of upper vertical spindles having coupling terminals and a unit supporting platform having opposite side supports provided with connecting terminals and side framing provided with variably located guides for unit holding straps or the like, of a pair of separable clamping vises engaging the spindles each having a fixedly connected bar supporting sleeve, a transverse bar extending through said sleeves having at its outer portions supporting links, and raising and lowering means removably connected with said links and with the connecting terminals of the platform whereby to bring coupling terminals of a unit supported on the platform into vertical register with the coupling terminals of the spindles.

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