Nov. 12, 1940. G. V. GLADVILLE 2,221,133

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Filed Feb. 9, 1940 2 Sheets-Sheet 1

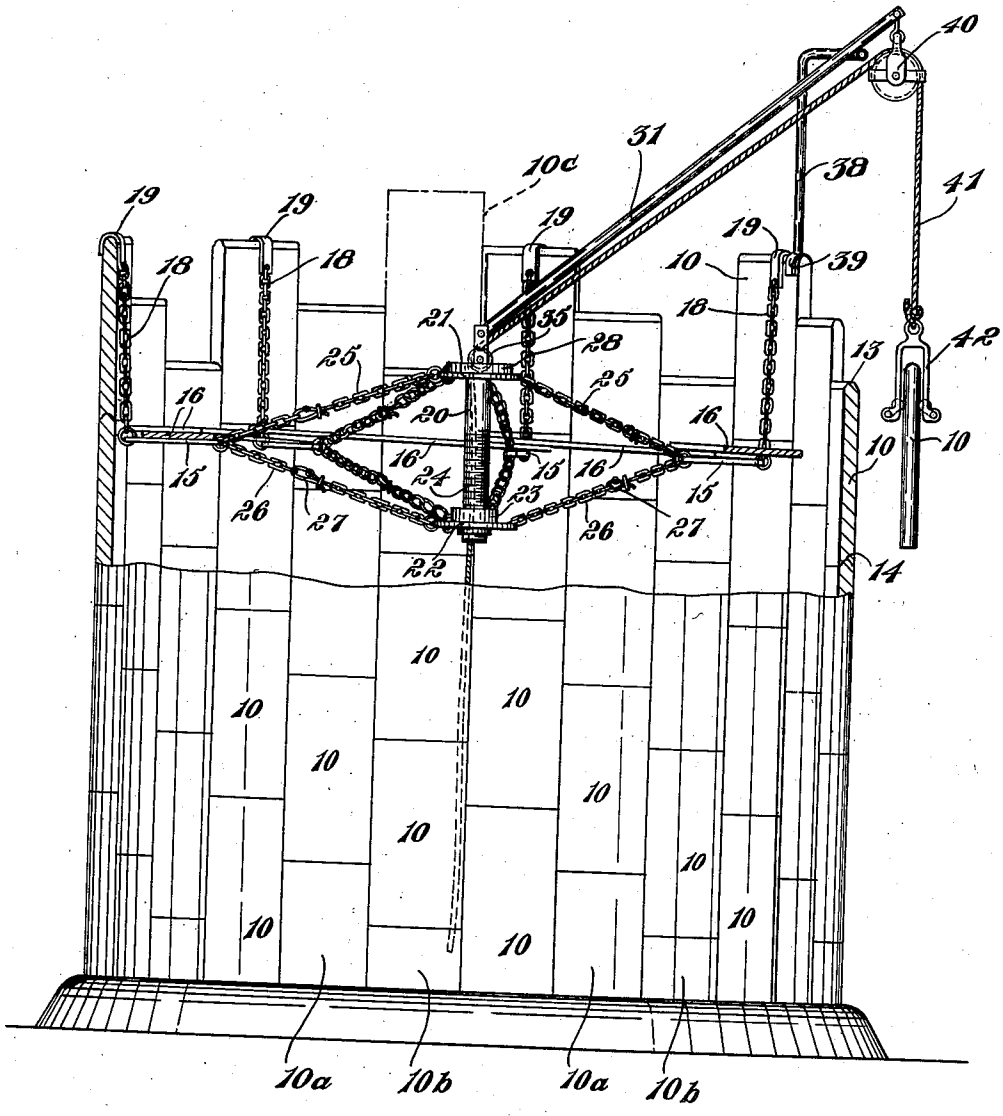


Fig. 1

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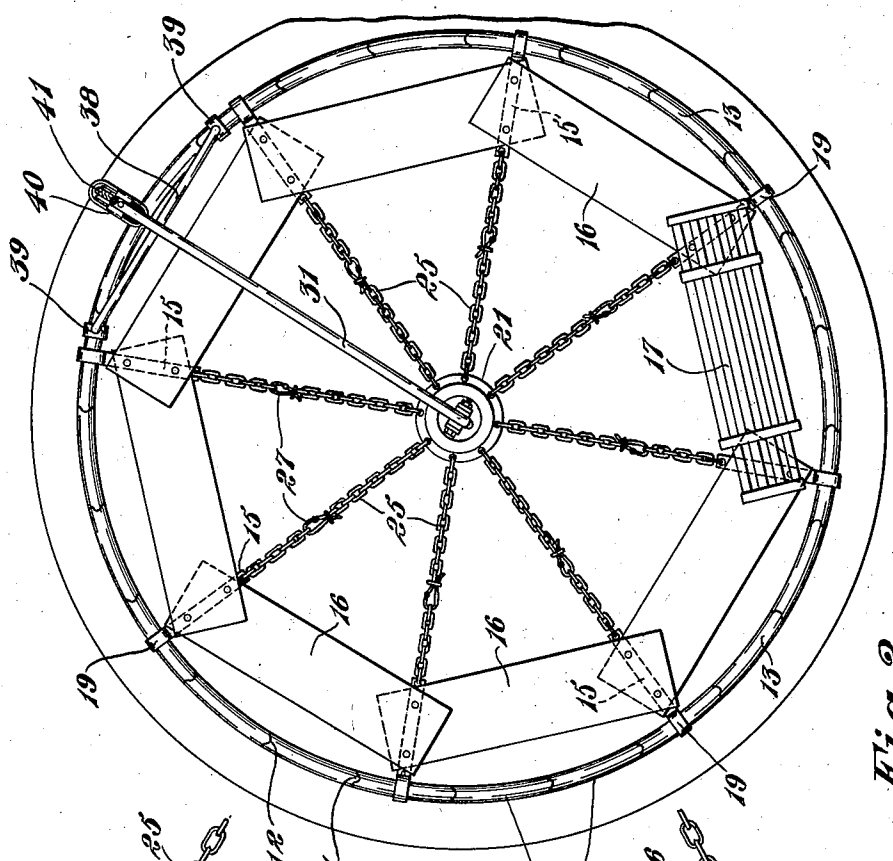


Fig. 2

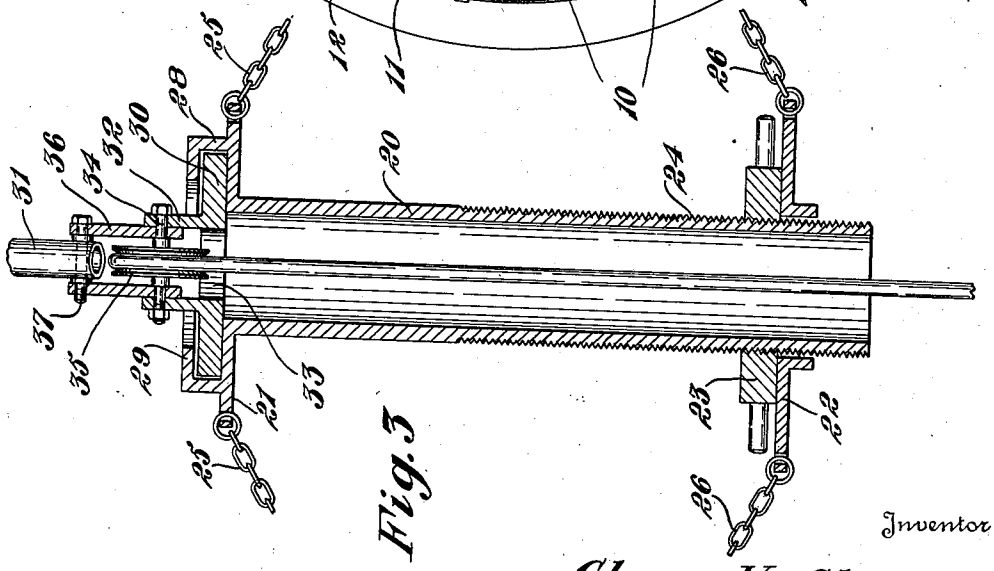


Fig. 3

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Patented Nov. 12, 1940 2,221,133

UNITED STATES PATENT OFFICE

2,221,133

SCAFFOLD

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Application February 9, 1940, Serial No. 318,064

6 Claims. (Cl. 304—12)

The invention relates to scaffolds, and more particularly to a combined scaffold and derrick especially adapted for building silos and similar structures of slabs or blocks of cement or the like.

An object of the invention is the provision of a scaffold adapted to hang upon the wall under construction and arranged to centrally support the derrick by means of which the slabs or blocks, of which the wall is being constructed, may be raised.

Another object is the provision of novel means for supporting the derrick upon a plurality of diverging pairs of chains connected to the scaffold or platform, with means for placing the chains under tension.

A further object is the provision of such a structure in which a threaded tube or pipe is centrally supported by said chains, one chain of each pair being fixed to one end of the tube, the other chain of each pair being connected to a ring slidably mounted upon the tube and engaged by a nut threaded upon the tube for placing the chains under tension.

A still further object is the provision of a ring plate swivelled upon the upper end of the tube supporting the derrick in adjustable condition for swinging around the structure to the desired position.

Another object is to provide means whereby the cable or rope of the derrick may extend down through said tube to a hoist or the like centrally located within the bottom of the structure.

A further object of the invention is to provide a combined scaffold and derrick which may be easily raised to adjust it to the height of the wall under construction, and in which the derrick may be quickly and easily moved around the wall for hoisting slabs or blocks at any desired point.

The above objects, together with others which will be apparent from the drawings and following description or which may be later referred to, may be attained by constructing the improved scaffold and derrick in the manner illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of a silo or similar structure which is represented as being under construction, a portion of the wall being broken away to illustrate the improved scaffold and derrick to which the invention pertains;

Fig. 2, a top plan view of the structure shown in Fig. 1; and

Fig. 3, an enlarged, vertical sectional view of the threaded tube and associated mechanism for centrally supporting the derrick.

Similar numerals refer to similar parts throughout the several views.

In the drawings a cylindrical structure such as a silo or the like formed of slabs of cement or similar material is shown in the process of construction for the purpose of illustrating the use of the improved scaffold and derrick.

The structure is shown as formed of slabs 10 each having a rib 11 and a groove 12 on opposite side edges and a rib 13 and a groove 14 on opposite end edges for interlocking with similar ribs and grooves upon adjoining slabs.

In building the wall, these slabs are placed on their ends and full length slabs 10, two-third length slabs 10*a* and one-third length slabs 10*b* are placed alternately as shown in Fig. 1 in starting the structure.

For the purpose of supporting the workmen near the top of the wall under construction, so that they may be in position to place the slabs upon the partially completed wall, a scaffold is supported on the upper edges of certain of the slabs.

This scaffold includes the plurality of radially disposed bars 15 upon which are mounted planks 16 forming a substantially circular platform upon which the workmen may stand.

As shown in Fig. 2, each plank 16 is bolted at each end to the adjacent radial bars 15.

For the purpose of adjusting the size of the platform to accommodate the interior of the structure being built, one section of the platform may be longitudinally adjustable as indicated at 17.

The scaffold or platform is supported near the top of the structure by means of chains 18 connected to the outer ends of the bars 15 and provided at their upper ends with hooks 19 engaged over the upper ends of certain of the slabs or blocks 10.

The threaded tube or pipe 20 is centrally supported within the structure for mounting a derrick by means of which the slabs or blocks may be raised to the top of the structure.

This tube has a flange plate 21 fixed to one end thereof and a flange ring 22 slidably mounted around the other end portion thereof and arranged to be adjusted longitudinally of the tube as by the nut 23 mounted upon the external threads 24 on this end portion of the tube.

Chains 25 are connected to the flange plate 21 and to the inner ends of the several radial bars 15 of the scaffold and similar chains 26 are connected to the ring flange 22 and to the bars 15.

Thus, a diverging pair of chains is connected

to the inner end of each bar 15, one chain of each pair being connected to the fixed flange 21 and the other chain to the movable flange 22, whereby the chains may be all simultaneously tightened or placed under tension by operating the nut 23 against the ring flange 22.

Chain tightening hooks 27 of any well-known design may be provided in each of the chains 25 and 26 for the purpose of taking up any unnecessary slack in said chains prior to the operation of the nut 23.

An annular flange 28 is welded or otherwise fixed upon the top of the flange 21 and has at its upper end an inturned annular flange 29 welded or otherwise fixed thereto forming a bearing within which the ring 30 may be rotatably mounted for supporting the lower end of a derrick indicated generally at 31 so that the derrick may be turned in a full circle.

A pair of upturned ears 32 may be formed or fixed upon the ring 30 at opposite sides of the central opening 33 therein for supporting a short shaft 34 upon which is journaled a pulley 35.

Links 36 may be supported upon the shaft 34 and connected to the lower end of the derrick 31 as by a bolt 37.

An inverted U-shaped support 38 is connected to the upper or outer end portion of the derrick 31 and provided at its lower end with the hooked members 39 for engagement over the upper ends of certain of the blocks 10.

A pulley or sheave 40 is connected to the upper or outer end of the derrick 31 in such position that a cable or rope passed over the same, as indicated at 41, will support a grapple 42 at a point spaced outside of the wall being constructed.

A cable 41 after passing over the sheave 40 may be passed over the pulley 35 and then down through the tube 20 to a hoisting engine or the like which may be located within the lower end of the structure being built.

As shown in Fig. 1, the hooks 19 upon the chains 18 which support the platform are hooked over the top edges of the highest course of slabs 10.

In building the wall the next slabs placed in position will be placed upon the top of the lowest of the three courses assuming the position shown at 10c in dotted lines in Fig. 1.

When all of this course of slabs have been placed in position the platform is then raised, the hooks 19 being engaged over the top edges of the new high course.

To accomplish this the workmen may place one foot on top of the wall and raise one hook 19 at a time and engage it over the next higher slab.

The slabs are raised one at a time in the grapple 42 of the derrick and as each slab is raised and placed in position the workmen may raise the U-shaped frame 38 and swing the derrick 31 around to the position where the next slab is to be placed, the swivel ring 30 permitting the derrick to swing to any desired position around the circle.

I claim:

1. In a building scaffold for use in a cylindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform, a ring flange slidably mounted around one end portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flange and the other flexible member of each pair being connected to the opposite end of the tube, means for adjusting the ring flange longitudinally upon the tube to place said flexible members under tension, and a derrick supported upon the tube.

2. In a building scaffold for use in a cylindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform and having screw threads on one end portion, a ring flange slidably mounted around the threaded portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flang and the other flexible member of each pair being connected to the opposite end of the tube, a nut upon the tube for adjusting the ring flange longitudinally upon the tube to place said flexible members under tension, and a derrick supported upon the tube.

3. In a building scaffold for use in a cylindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform, a ring flange slidably mounted around one end portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flange and the other flexible member of each pair being connected to the opposite end of the tube, means for adjusting the ring flange longitudinally upon the tube to place said flexible members under tension, a derrick supported upon the tube, a cable carried by the derrick and extending down through the tube.

4. In a building scaffold for use in a cylindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform and having screw threads on one end portion, a ring flange slidably mounted around the threaded portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flange and the other flexible member of each pair being connected to the opposite end of the tube, a nut upon the tube for adjusting the ring flange lonngitudinally upon the tube to place said flexible members under tension, a derrick suported upon the tube, and a cable carried by the derrick and extending down through the tube.

5. In a building scaffold for use in a cyindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform, a ring flange slidably mounted around one end portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flange and the other flexible member of each pair being connected to the opposite end of the tube, means for adjusting the ring flange longitudinally upon the tube to place said flexible members under tension, and a ring swivelled upon the upper end of the tube and a derrick

supported upon said swivelled ring and movable in a circle around the structure.

6. In a building scaffold for use in a cylindrical structure, a substantially circular platform, hooked members connected to the outer edge of the platform for engagement over the upper edge of the cylindrical structure, a vertical tube located centrally of the platform and having screw threads on one end portion, a ring flange slidably mounted around the threaded portion of the tube, diverging pairs of flexible members connected to the inner edge of the platform, one flexible member of each pair being connected to said ring flange and the other flexible member of each pair being connected to the opposite end of the tube, a nut upon the tube for adjusting the ring flange longitudinally upon the tube to place said flexible members under tension, and a ring swivelled upon the upper end of the tube and a derrick supported upon said swivelled ring and movable in a circle around the structure.

GLENN V. GLADVILLE.