

March 10, 1942.

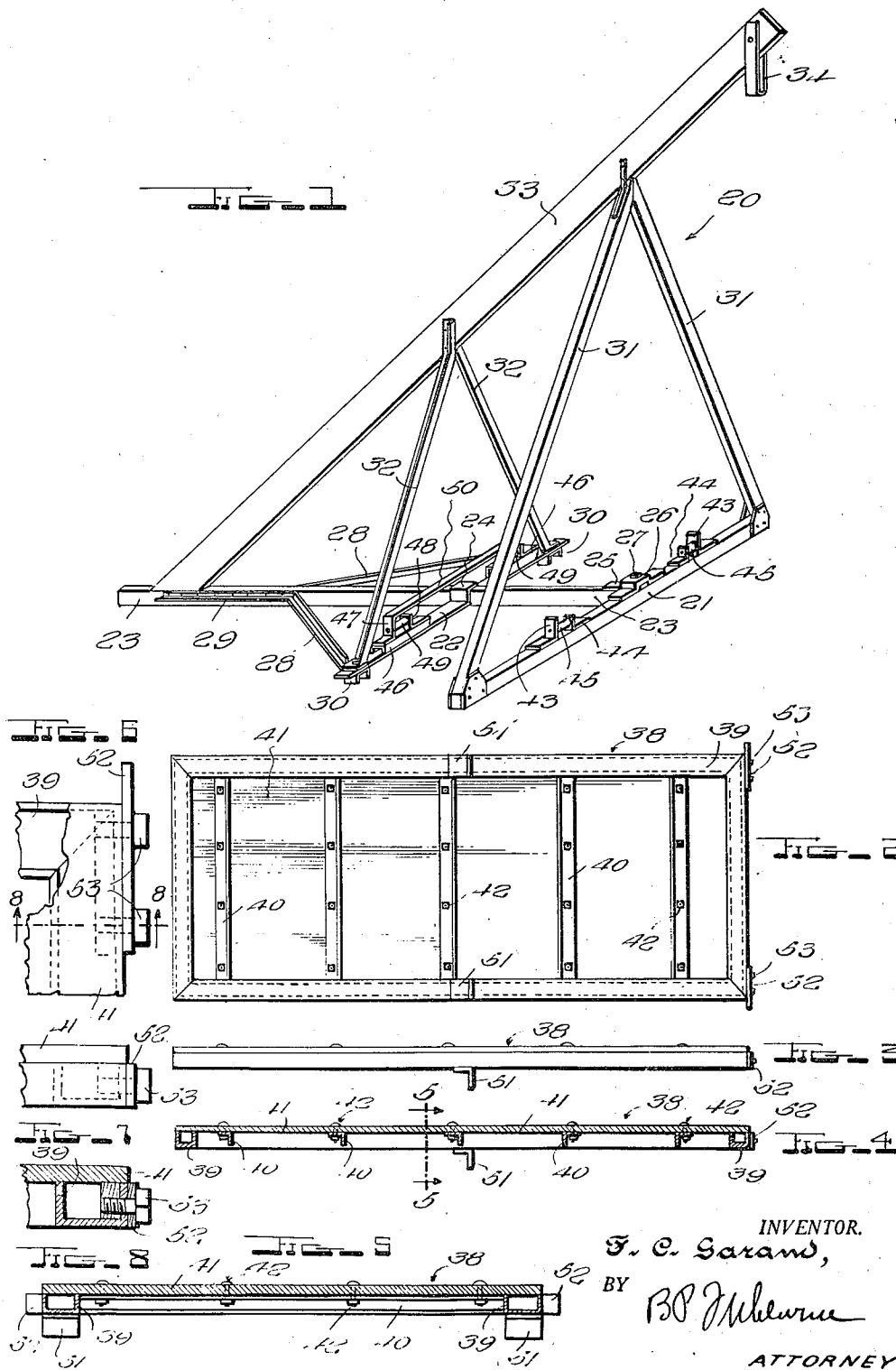
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HOISTING APPARATUS

Filed Oct. 16, 1941

2 Sheets-Sheet 1



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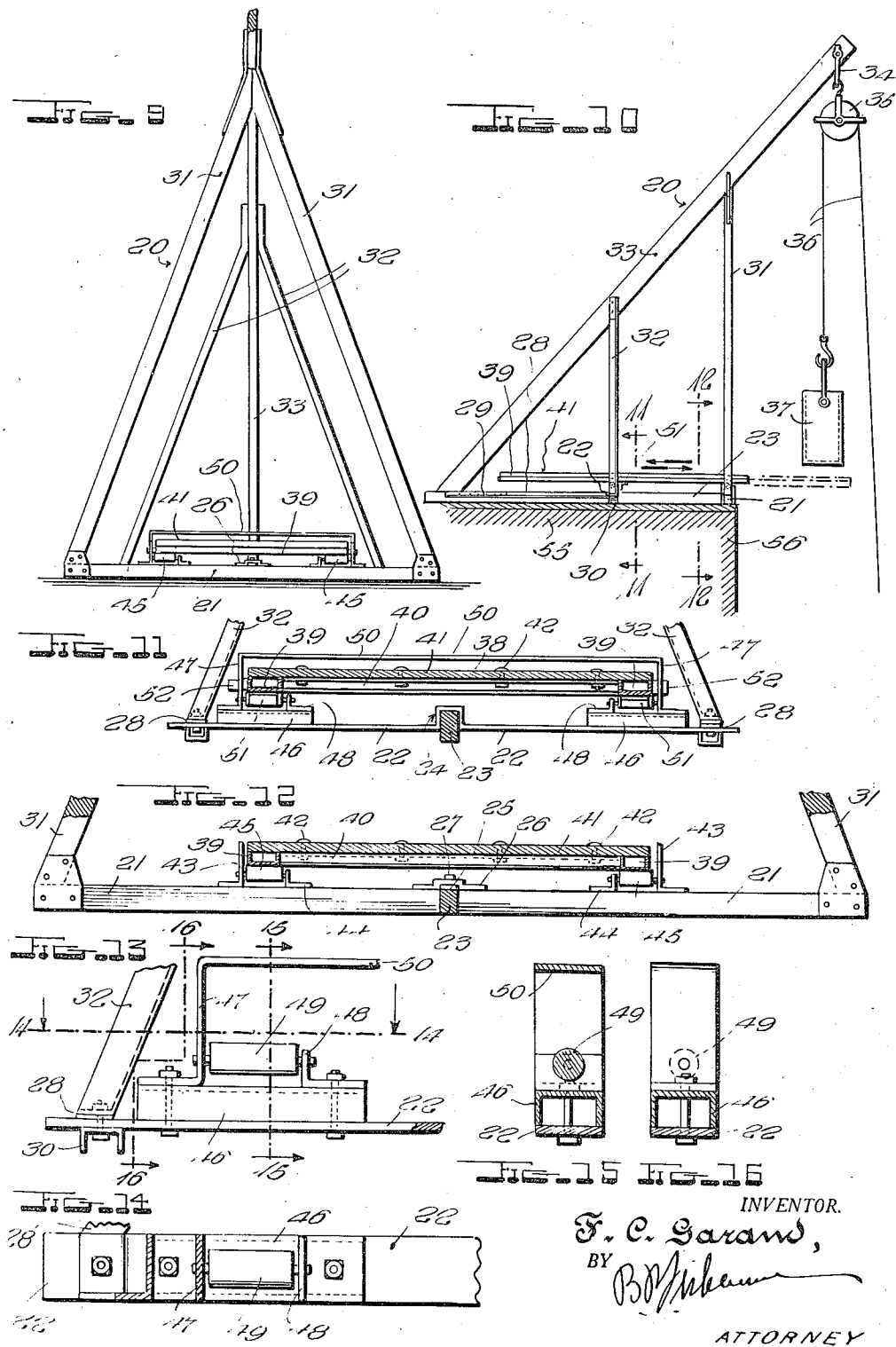
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HOISTING APPARATUS

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8 Claims. (Cl. 212-71)

My invention relates to hoisting apparatus.

An important object of the invention is to provide apparatus of the above-mentioned character which may be arranged upon the deck of a building or other structure, and which may be manipulated to elevate and receive a load from a lower elevation, without the workman upon the deck being required to lean or reach out beyond the deck.

A further object of the invention is to provide apparatus of the above-mentioned character, having a platform which may be projected outwardly beyond the deck of the building or the like to receive the raised load, and then shifted inwardly to transfer the load upon the deck.

A further object of the invention is to provide apparatus of the above-mentioned character so constructed that the operator may stand upon the platform and shift the same in opposite directions.

A further object of the invention is to provide apparatus of the above-mentioned character, having means to permit of the free reciprocating movement of the platform and to positively limit such movement in both directions.

A further object of the invention is to provide apparatus of the above-mentioned character which is of simple construction and may be manufactured relatively cheaply.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective view of the tower or supporting structure of the apparatus, the reciprocatory platform being omitted,

Figure 2 is a bottom plan view of the reciprocatory platform,

Figure 3 is a side elevation of the platform,

Figure 4 is a central vertical longitudinal section through the platform,

Figure 5 is a transverse vertical section taken on line 5-5 of Figure 4,

Figure 6 is a fragmentary plan view of the rear corner of the platform, upon an enlarged scale, showing a stop element,

Figure 7 is an edge elevation of the same,

Figure 8 is a vertical section taken on line 8-8 of Figure 6,

Figure 9 is a front elevation of the apparatus,

Figure 10 is a side elevation of the same,

Figure 11 is a transverse section taken on line 11-11 of Figure 10,

Figure 12 is a similar view taken on line 12-12 of Figure 10,

Figure 13 is a front elevation of one of the rear rollers and associated elements, parts broken away,

Figure 14 is a horizontal section taken on line 14-14 of Figure 13,

Figure 15 is a transverse section taken on line 15-15 of Figure 14,

Figure 16 is a transverse section taken on line 16-16 of Figure 13.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 20 designates a tower or supporting structure, as a whole. This tower comprises a base including a forward horizontal beam 21 and a rear horizontal beam 22. The beam 21 is preferably formed of wood while the beam 22 is preferably formed of metal. The numeral 23 designates a longitudinal horizontal beam, preferably formed of wood, and arranged at points equidistantly spaced from the ends of the transverse beams 21 and 22. The beam 23 passes through an inverted U-shaped socket 24, formed in the beam 22, and the beam 23 is provided at its forward end with a metal strap 25, rigidly secured thereto, for insertion within a socket 26, rigidly attached to the forward transverse beam 21. The metal strap is rigidly clamped in place within the socket 26 by a set screw 27 or the like. Rigidly connected with the opposite ends of the rear transverse beam 22 are horizontal diagonal braces 28, preferably formed of angle irons, and these braces have longitudinal extensions 29, arranged upon opposite sides of the beam 23 and rigidly secured thereto. The beam 22 has channel-feet 30 disposed beneath the same adjacent to its opposite ends, and rigidly secured thereto.

The upper portion of the tower or supporting structure which is arranged upon the base includes a pair of upwardly converging legs 31, preferably formed of wood, and rigidly secured at their lower ends to the ends of the beam 21. This upper portion further comprises a rear pair of upwardly converging legs 32, preferably formed of angle irons, and having their lower ends rigidly secured to the ends of the transverse beam 22. The numeral 33 designates a longitudinal diagonal beam extending upwardly toward the forward end of the tower. The lower rear end of the diagonal beam 33 is rigidly secured to the beam 23 near its rear end and the beam

33 extends over the meeting ends of the pairs of legs 31 and 32 and is rigidly secured to these ends. The beam 33 projects forwardly beyond the base and the forward pair of legs 31 for a substantial distance and at its forward end the diagonal beam 33 carries a loop 34, for supporting a pulley 35, about which a flexible element 36 is passed for raising a load such as a bucket 37, Figure 10.

The apparatus includes a horizontal platform 38 and this platform includes a rectangular metal frame 39, formed of channel-iron, and the sides and ends of this frame are preferably welded together. Transverse horizontal angle irons 40 are arranged between the sides of the frame 39 and are preferably welded thereto. The platform includes a top 41, preferably formed of ply wood, and this top is secured to the angle irons 40 by bolts 42. The platform thus described is mounted upon the base of the tower, in a manner to be described.

Rigidly mounted upon the forward transverse beam 21 are pairs of upstanding brackets 43 and 44, and these brackets carry horizontal rollers 45, disposed between them and rotatably mounted thereon. The inner brackets 44 have their inner ends terminating at the elevation of the upper surface of the rollers 45 while the outer brackets 43 extend above the rollers 45 to engage with the outer longitudinal edges of the platform 38 and thereby serve as guide means for the platform. The sides of the frame 39 rest upon the rollers 45. Channel-blocks 46, Figures I and II, are rigidly mounted upon the transverse beam 22 and have pairs of brackets 47 and 48 rigidly mounted thereon. Rollers 49 are arranged between these pairs of brackets and are rotatably mounted thereon and support the sides of the frame 39. The inner brackets 48 terminate at the elevation of the upper portion of the rollers 49 while the outer brackets 47 extend above these rollers and these brackets serve as guides for the platform. The brackets 47 extend above the platform for a short distance and are rigidly connected by a transverse horizontal bar 50, which is spaced a slight distance from the top 41 of the platform to permit of the proper clearance of the heads of the bolts 42. The bar 50 prevents the forward end of the platform from tilting downwardly to any considerable extent, but permits the forward end of the platform to be raised, as will be further explained.

Rigidly attached by welding to the sides of the frame 39, upon their lower surfaces, and at points equidistantly spaced from their ends, Figures 2, 3, 4, and 10, are inverted L-shaped stops 51. These stops are arranged between the rollers 45 and 49, and these rollers are in the path of travel of these stops, and hence the stops 51 limit the forward and rearward movement of the platform. Since these stops are permanently attached to the lower surface of the platform, in assembling the platform upon the base, the forward end of the platform is suitably raised so that the stops 51 will clear the forward rollers 45 while the rear end of the platform is being inserted beneath the bar 50 and the sides of the frame are placed upon the rollers 49. After the stops 51 have cleared the forward rollers 45 and are positioned rearwardly of them the forward end of the platform is lowered so that the platform assumes a horizontal position. The stops 51 will always limit the rearward movement of the platform and also the forward movement of the platform unless its forward end

should be raised. Additional stops are provided to limit the forward movement of the platform which are applied to the platform after it is assembled upon the base. These additional stops are in the form of horizontal stop bars 52, see more particularly Figures 2, 6, and 11. These stop bars are rigidly attached to the ends of the frame 39 by bolts 53 having screw-threaded engagement with a bar 54, arranged within the channel of the end of the frame 39 and welded to such end. The horizontal stop bars 52 project laterally beyond the sides of the frame 39 and the outer brackets 47 are in the path of travel of these horizontal stop bars and hence it is impossible for the platform to move beyond the selected forward position.

The operation of the apparatus is as follows:

The base of the supporting structure is arranged upon the deck 55 of the building or the like and the forward transverse beam 21 is near or at the side wall 56 of the building so that the upper end of the diagonal beam 33 projects beyond this side wall for a considerable distance. The base of the tower or supporting structure is suitably large so that there will be no tendency for the tower to tip over upon its transverse or longitudinal axes, due to the action of the load, but if desired, any suitable means may be employed to secure the base to the deck. The operator or workman stands upon the platform between or near the pairs of legs 31 and 32 and by holding on to the legs 31 or 32 he shifts the platform 38 forwardly so that it projects over and beyond the side wall 56. The platform may thus have its forward end projected beneath the load 37 which has been previously hoisted from the lower elevation. This load may now be lowered so that it will rest upon the platform and the operator standing on the platform will now shift the platform inwardly to the inner position whereby the load is transferred to a position over the platform 55. The load may now be disconnected from the flexible element 35 and removed from the platform, as is obvious. It is thus seen that the operator may remain within the limits of the platform 55 such as between the pairs of legs 31 and 32, and the load 37 when hoisted to the raised position, may be brought inwardly over the platform, without the necessity of the operator leaning or reaching outwardly beyond the side wall 56.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, what I claim is:

1. In a hoisting apparatus, a supporting structure including a base and a supporting member arranged above the base and extending outwardly beyond the base, hoisting means mounted upon the outer end of the supporting member, roller means mounted upon the base, a platform mounted upon the roller means to be shifted outwardly toward the hoisting means, and means to limit the outward movement of the platform.

2. In hoisting apparatus, a supporting structure including a base and a supporting member arranged above the base and extending outwardly beyond the base, the outer end of the supporting member being adapted to carry hoisting means, roller means mounted upon the base, a recipro-

catory platform mounted upon the roller means and movable outwardly toward the hoisting means, means to limit the outward movement of the platform, and means to limit the downward movement of the platform when it is shifted to the outer position.

3. In hoisting apparatus, a supporting structure including a base and a supporting member extending outwardly beyond the base and arranged above the same, the supporting member being adapted to carry hoisting means, forward roller means mounted upon the base, rear roller means mounted upon the base, a platform mounted upon the roller means to be shifted thereon toward and from the hoisting means, a stationary bar arranged near the rear roller means and positioned above the platform to limit the upward movement of the rear end of the platform, and means to limit the forward movement of the platform.

4. In hoisting apparatus, a supporting structure including a base and a supporting member above the base and extending outwardly beyond the base, the supporting member being adapted to carry hoisting means, forward roller means mounted upon the base, rear roller means mounted upon the base and spaced from the forward roller means, a platform mounted upon the forward and rear roller means and shiftable toward and from the hoisting means, a stationary bar arranged near the rear roller means and disposed above and spaced slightly from the platform to limit the upward movement of the rear end of the platform, and a depending stop element permanently secured to the platform and positioned between the forward and rear roller means to engage therewith and limit the forward and rear movements of the platform, the stop element being placed in position by the passage of the rear end of the platform beneath the stationary bar while raising the forward end of the platform, the platform being subsequently moved to the horizontal position.

5. In hoisting apparatus, a supporting structure including a base and a supporting member above the base and extending outwardly beyond the same, the outer end of the supporting member being adapted to carry hoisting means, roller means including stationary elements and rollers carried thereby, the stationary elements projecting above the rollers, a platform mounted upon the rollers and having its edges guided by the stationary elements, and a stop secured to the rear end of the platform to contact with one stationary element to limit the forward movement of the platform.

6. In hoisting apparatus, a base including forward and rear spaced transverse beams, a longitudinal beam connected with the transverse beams and extending rearwardly beyond the rear transverse beam, a pair of upwardly converging legs mounted upon the forward transverse beam, a pair of upwardly converging legs mounted upon the rear transverse beam, a diagonal beam

extending upwardly in a forward direction and secured at its rear end to the horizontal beam and to the upper ends of the forward and rear legs and projecting forwardly beyond the forward legs, the forward end of the diagonal beam serving to support hoisting means, brackets secured to the forward transverse beam, rollers connected with the brackets, the brackets extending above the rollers, brackets secured to the rear transverse beam, rollers connected with the last named brackets which extend above such rollers, a platform mounted upon the rollers and guided by the upper ends of the brackets, a stop element mounted upon the platform to engage with one of the rear brackets to limit the forward movement of the platform, and a bar secured to the rear brackets and arranged above the rear portion of the platform to limit the upward movement of such rear portion.

7. In hoisting apparatus, a base separate from and adapted to be arranged upon the deck of a building without projecting substantially outwardly beyond the deck, laterally spaced upstanding members mounted upon the base, a supporting member secured to the upper ends of the upstanding members and having its forward end extending beyond the forward end of the base to project outwardly beyond the deck, the supporting member being adapted to carry hoisting mechanism, and a manually operated reciprocatory platform mounted upon the base, the upstanding members being arranged adjacent to the sides of the manually operated platform, the arrangement being such that the operator may stand upon the platform and grasp the upstanding members in his hands and shift the platform by the action of his body so that the forward end of the platform will project outwardly beyond the deck.

8. In hoisting apparatus, a base separate from and adapted to be arranged upon the deck of a building without projecting substantially outwardly beyond the deck, forward and rear supporting units mounted upon the base and spaced longitudinally thereof, each supporting unit comprising laterally spaced upstanding members, a supporting member secured to the upper ends of the upstanding members and having its forward end extending beyond the forward end of the base to project outwardly beyond the deck, the supporting member being adapted to carry hoisting mechanism, and a manually operated reciprocatory platform mounted upon the base, said platform being free from operating means and therefore freely shiftable, the upstanding members being arranged adjacent to the sides of the manually operated platform, the arrangement being such that the operator may stand upon the platform between the upstanding units and grasp the upstanding members in his hands and shift the platform by the action of his body so that the forward end of the platform will project outwardly beyond the deck.

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