E. WHITNEY.

ADJUSTABLE SUSPENDED SCAFFOLDING.

APPLICATION FILED AUG. 31, 1915.

1,244,670. Patented Oct. 30, 1917.

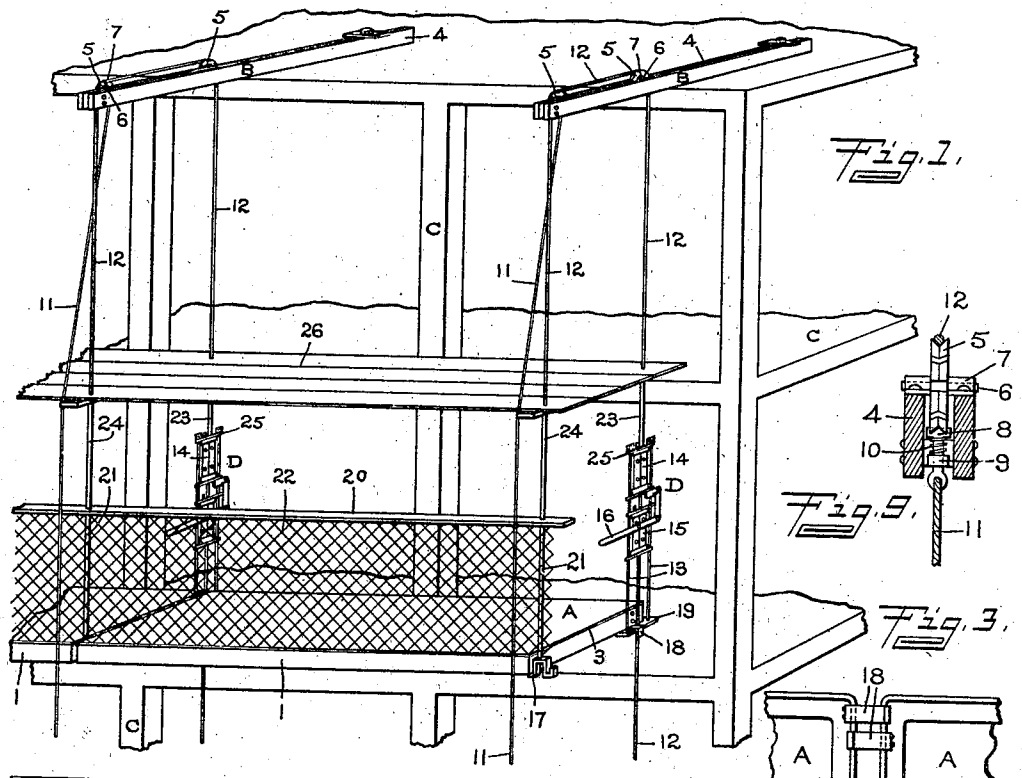


Fig. 1.

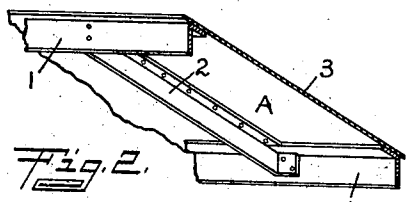


Fig. 2.

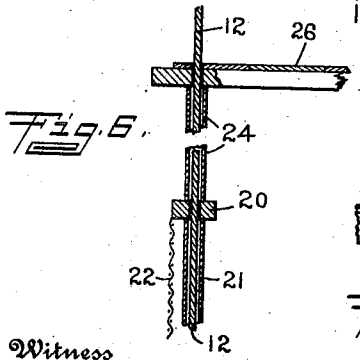


Fig. 6.

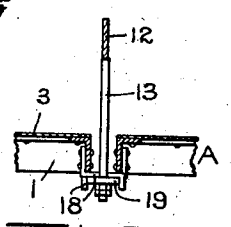


Fig. 7.

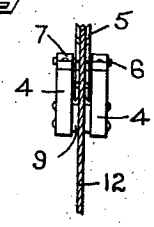


Fig. 4.

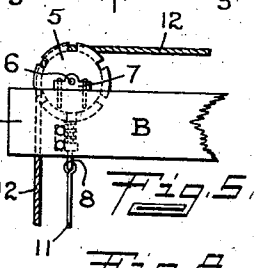


Fig. 3.

Fig. 5.

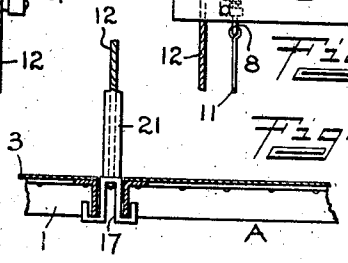


Fig. 8.

Fig. 9.

Witness

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ADJUSTABLE SUSPENDED SCAFFOLDING.

1,244,670. Specification of Letters Patent. Patented Oct. 30, 1917.

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To all whom it may concern:

Be it known that I, EGBERT WHITNEY, a citizen of the United States, and a resident of Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Adjustable Suspended Scaffolding, of which the following is a specification.

My invention relates to scaffolding of the class particularly adapted for use in the construction of high buildings, wherein a frame of structural steel, reinforced concrete or the like is first erected, and walls of masonry or the like afterward built onto such frame. It is the object of my invention to provide a safe and durable scaffolding having a wide platform suitable for the use of masons and capable of supporting quantities of the materials used in buildings, as well as being adapted for the passage of workmen carrying such materials to the masons; to provide substantially integral all-metal platform-sections; to provide overhead protecting means for the working platforms; to provide simple and efficient hoisting means for the raising and lowering of the platforms; and to provide various other novel and useful constructions and combinations of parts as will be more fully set forth hereinafter.

In the accompanying draws Figure 1 is a perspective view of a section of scaffolding embodying my invention, the same being in position ready for use upon the frame of a building, Fig. 2 is a detail perspective view, from beneath, of a portion of one of the platform-sections, Fig. 3 is a detail bottom view of the devices for connecting the platform-sections to the hoisting machines, Fig. 4 is a detail end view of one of the outriggers, Fig. 5 is a detail side view of a part of the same, Fig. 6 is a detail transverse vertical sectional view of parts of the guard-rail and overhead covering and the supports therefor, Fig. 7 is a detail longitudinal sectional view showing certain of the connecting devices, Fig. 8 is a similar view showing the platform and cable-end connections, and Fig. 9 is a detail transverse section of one of the outriggers, showing the sheave-lock.

In carrying out my invention I employ any required number of platform-sections A, each of which is substantially integral and is made of metal throughout, and comprises, preferably, a continuous rectangular frame 1 of angle section, intermediate transverse angle-bars 2 of which the ends are fixedly and permanently secured to the longitudinal portions of the frame 1 as shown in Fig. 2, and a covering or floor 3 of sheet-metal which is fixedly and permanently secured to the frame formed by the members 1 and 2. The said platform-sections A are made up in convenient lengths, such as ten or twelve feet, and are of such width that when in use there is ample transverse space thereon for the masons, for building material for their use, and for the passage of other workmen in conveying the building material to place.

When in use the platform-sections are suspended from suitable outriggers B which are secured to the upper parts of the building-frame C, projecting out beyond the sides thereof at intervals the same as the length of the platform-sections, as shown in Fig. 1. For a single platform-section two of the outriggers are required, but when a plurality of the sections are disposed continuously along the side of a building there is needed but one more of the outriggers than the number of platform-sections, since each of the intermediate outriggers will serve to support the adjoining ends of two of the platform-sections.

In the structure illustrated the outriggers each consist of two parallel beams 4 which are spaced slightly apart, enabling sheaves 5 to be mounted between them on the projecting end-portions thereof, the sheaves being carried on shafts 6 of which the ends are held in boxes 7 secured on the upper edges of the beams, as shown in Figs. 5 and 9. The sheaves on each outrigger are so spaced, longitudinally of the beams, as to be above the desired location of the respective inner and outer sides of the platform-sections to be suspended therefrom. One of the sheaves, or both if desired, is provided with means for locking the same to prevent rotation thereof. A suitable locking means for the sheaves is illustrated in Figs. 5 and 9, and consists in the provision of a series of notches in the peripheral portion of the sheave, a movable latch or plunger 8 disposed on a guide-block 9 secured between the beams, a spring 10 normally pressing the

latch toward the sheave to engage the end thereof in one of the notches, and a cord 11 or the like connected with the latch and hanging therefrom, so that by pulling the cord the latch may be disengaged from the sheave and the latter left free to rotate. The sheaves are provided peripherally with V-shaped grooves, such that a cable of suitable size will tend to bind therein and not slip relatively thereto when passed over the same.

The platform-sections are suspended from the supporting outriggers by cables 12 of which one end of each is connected with the sections near the outer edges thereof, passing upwardly therefrom and around the outer sheave of the respective outrigger, thence horizontally to the inner sheave, thence around the latter and downwardly to a hoisting machine D by which it is connected with the inner edges of the platform-sections.

The hoisting machines employed are preferably of the type shown in Letters Patent No. 1,114,832, issued to me October 27, 1914. Each of said hoisting machines comprises, briefly, a frame having vertical rods 13 on which are mounted two clutch-devices 14 and 15, the first being fixedly connected with the frame, the other being vertically slidable on said rods 13, and a lever 16 which is connected with the slidable clutch for moving it relatively to the other. The cable passes vertically through the clutch-devices and the upper and lower cross-bars 25 and 19 of the machine-frame, and may extend on down below the machine indefinitely.

For connecting the ends of the cables 12 with the outer parts of the platform-sections, said ends of the cables have secured thereon bars 17 of which the ends form hooks, each adapted to engage the depending flange at the end of the frame 1 of a platform-section, as shown clearly in Figs. 1 and 8. Near the opposite or inner sides of said frames 1 there are secured on the ends thereof the Z-bars 18 which are adapted to engage the lower cross-bars 19 of the hoisting machines, as shown in Figs. 1 and 7. The Z-bars on adjoining ends of the platform-sections are offset transversely from each other as shown in Fig. 3, so that one of the bars will be at each side of the depending portion of the cable 12 when both Z-bars are engaged with the cross-bar 19 of the same hoisting-machine.

In nearly all instances it is desirable to provide a guard-rail 20 at the outer side of the working platform. When said guard-rail is used it is preferably supported by means of tubular standards 21, formed by pieces of ordinary iron pipe, the same being disposed around the cables 12 and having their lower ends resting on the hook-bars 17, as shown in Fig. 8. The guard-rail is provided with openings for the cables, and rests on the upper ends of the pipes 21, as shown in Fig. 6. A screen or guard 22, of wire netting or the like, is secured to the guard-rail and extends down therefrom to the outer edge of the platform, as shown in Fig. 1.

It is also desirable in nearly all instances to provide a covering or overhead shield, to protect workmen on the main or working platform-sections A from injury by objects falling upon them from above. Such a covering is conveniently supported by means of tubular standards or pipes 23 and 24 disposed around the inner and outer vertical portions of the cables 12, the outer pipes 24 resting on the guard-rail as shown in Fig. 6, the inner pipes 23 resting on the upper cross-bars 25 of the hoisting-machine frames, and the length of said pipes being such that their upper ends are at the same level. The covering or overhead shield 26 rests upon the upper ends of said pipes 23 and 24, being provided with openings for the passage of the cables through it, and the body-portion of the shield being of any desired material and construction.

The operation of raising and lowering the scaffolding will be readily apparent. By suitable manipulation of the hoisting machines D the same may be caused to move upwardly or downwardly upon the portions of the respective cables which pass through them, as fully explained in the Letters Patent for said machines, hereinbefore referred to. In raising or lowering the scaffolding it is preferable that the machines at opposite ends of any particular platform-section be operated alternately, so that first one end of the section and then the other is moved to raise or lower it a moderate amount, such as ten to twenty inches. During the operation of any of the machines D, the latch 8, for locking the sheave 5 on the respective outrigger, is released by pulling on the cord 11, so that the sheaves are free to turn and thus enable the cable to run over them. Then as the inner corner of the platform-section is moved by the raising or lowering of the machine, the outer corner at the same end is automatically kept at the same level by the running of the cable over the sheaves. This automatic transverse leveling of the platform-sections at the end that is being adjusted, is insured by keeping the other end of the section stationary and level transversely during such adjustment. When this is done, any tendency of the inner side or corner at the moving end of the section to go to a higher or lower level than the outer corner, causes a torsional stress in the body of the section, and, as the rigid integral structure of the sections prevents torsional deflections thereof, an actuating force is transmitted to the outer corner such as to insure the cable running over the sheaves on

the outrigger, sufficiently to equalize the vertical movements of the inner and outer corners of the section at the end being adjusted.

Now, having described my invention, what I claim and desire to secure by Letters Patent is:

1. In apparatus of the class described, supporting outriggers extending horizontally, a cable for each outrigger, each cable having a horizontal portion extending parallel with the outrigger and vertical portions depending from said horizontal portion, means movably connecting the cables and outriggers, a wide substantially rigid platform-section disposed beneath the outriggers and having one of the depending portions of each cable immovably connected therewith at one side, adjusting means for connecting the other depending portion of each cable in varying relations to the other side of the platform, and releasable means for preventing movement of the cables relatively to the outriggers.

2. In apparatus of the class described, outriggers, cables connected therewith and depending from longitudinally-spaced parts thereof, platforms carried by said cables, tubular standards disposed around the cables above the platforms, and guard-rails having openings through which the cables pass, the guard-rails resting upon and being supported by said tubular standards.

3. In an apparatus of the class described, outriggers, cables connected therewith and depending from longitudinally-spaced parts thereof, platforms carried by the cables, tubular standards disposed around the cables above the platforms, and an overhead covering for the platforms, having openings through which the cables pass and resting upon the upper ends of said tubular standards so as to be supported thereby in spaced relation to the platforms.

4. In an apparatus of the class described, rigid integral substantially rectangular platform-sections disposed with the ends thereof adjacent to each other, supporting outriggers disposed above the adjacent ends of the platform-sections and extending parallel with said ends, continuous cables extending from one side of the platform-sections vertically to the respective outriggers, thence along the outriggers to points above the other sides of the platform-sections, and thence downwardly to the latter sides of the platform-sections, hoisting devices movable vertically upon the cables and connecting the last-named portions of the cables with the adjacent portions of the platform-sections, and releasable means for preventing movement of the cables relatively to the outriggers to maintain the transverse level of the platform-sections.

5. In apparatus of the class described, a series of platform-sections, disposed with the ends thereof adjoining each other, supporting outriggers disposed above the adjacent ends of each pair of platform-sections, a cable for each outrigger, means for detachably connecting one end of each cable with the respective platform-sections at points near one side thereof, hoisting devices detachably connected with said platform-sections near the other side thereof, the cables extending continuously from the detachably connected ends thereof over the outriggers and thence to the respective hoisting devices, the cables being movable over the outriggers, and means for controlling movements of the cables and maintaining the transverse level of the platform-sections.

6. In an apparatus of the class described, a platform, vertically extending cables connected with and supporting said platform, shielding means disposed adjacent to said platform, and means for supporting said shielding means comprising parts loosely engaging the cables but retained in position laterally thereby.

EGBERT WHITNEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."