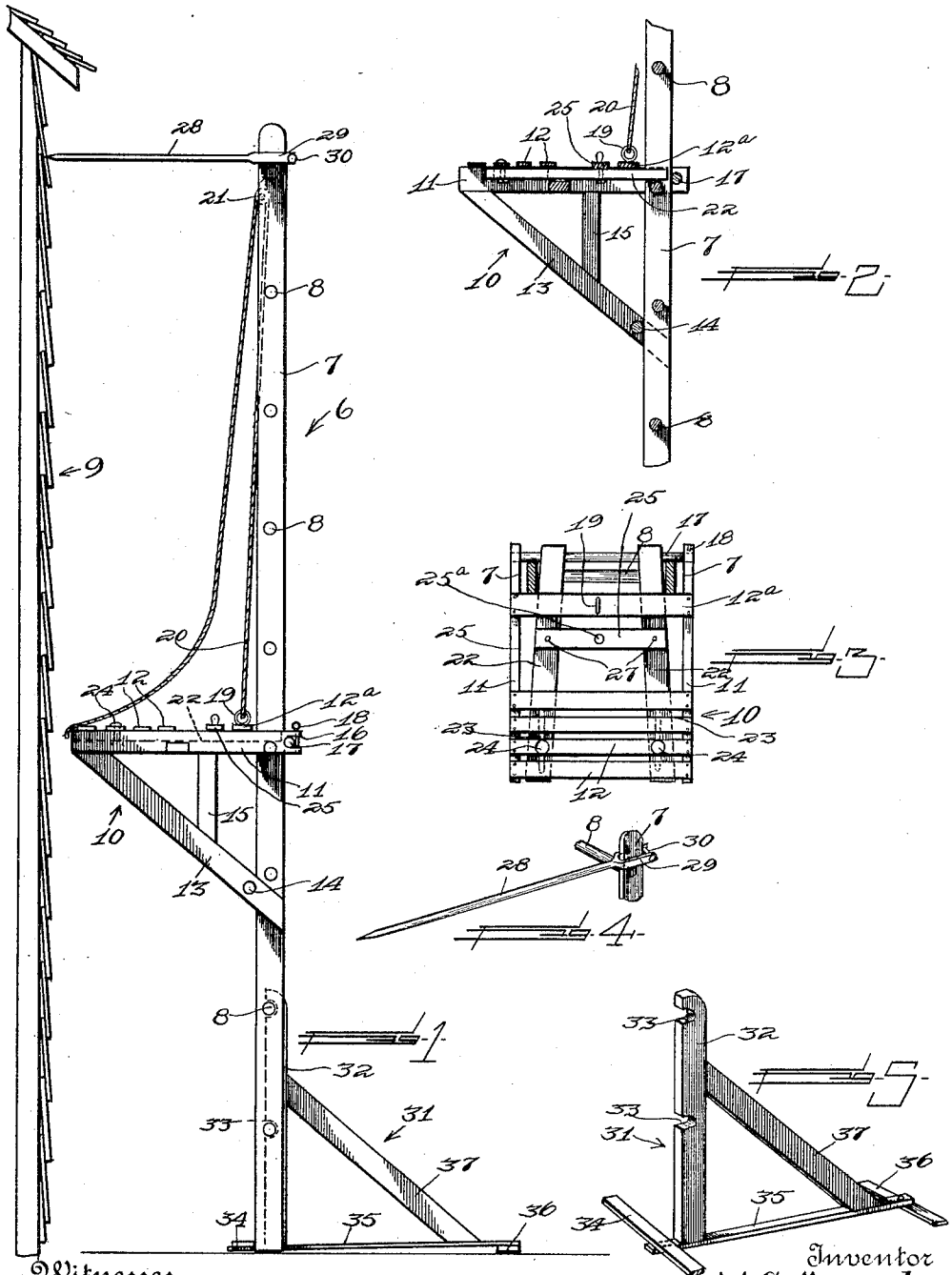
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SCAFFOLD APPARATUS.

APPLICATION FILED MAY 10, 1913.

**1,086,601.** Patented Feb. 10, 1914.




Witnesses

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## SCAFFOLD APPARATUS.

1,086,601. Specification of Letters Patent. Patented Feb. 10, 1914.

Application filed May 10, 1913. Serial No. 766,809.

*To all whom it may concern:*

Be it known that I, WALLIE C. MANGEL, a citizen of the United States, residing at Madison, in the county of Lac qui Parle and State of Minnesota, have invented certain new and useful Improvements in Scaffold Apparatus, of which the following is a specification.

My invention relates to apparatus for use in connection with an ordinary ladder, to provide means in the nature of a scaffold, to be placed in a suitable position with relation to a building or the like, whereby the operator may raise and lower himself and be conveniently supported in a desired position for painting the building or the like, or otherwise repairing the same.

An important object of my invention is to provide apparatus of the above mentioned character, which is adapted for use in connection with ordinary ladders of any size without in any way altering the construction of the same.

A further object of my invention is to provide apparatus of the above mentioned character, embodying a vertically adjustable platform or support, which receives therein the ladder, such platform being provided with a wedge-shaped clamping or locking mechanism, adapted to be moved into engagement with a selected round of the ladder for preventing the downward movement of the platform, such wedge-shaped clamping mechanism being also adapted for movement into engagement with the upstanding side bars of the ladder, for preventing the platform or support from moving horizontally and transversely with relation to the ladder, when the platform is adjacent the upper contracted end of the ladder or when the same is of greater transverse dimension than the ladder.

A further object of this invention is to provide means of the above mentioned character, which are simple in construction, strong, durable, and comparatively cheap to manufacture.

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

In the accompanying drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a side view of the complete apparatus, showing the same in use, Fig. 2 is a central vertical sectional view through the vertically adjustable platform or support, Fig. 3 is a plan view of the same, Fig. 4 is a perspective view of one of the spacing elements or braces, for detachable connection with the upper end of the ladder, and, Fig. 5 is a perspective view of the brace-apparatus for detachable connection with the lower end of the ladder, for preventing the upper end thereof from swinging away from the building.

In the drawings, wherein for the sake of illustration is shown a preferred embodiment of my invention, the numeral 6 designates a ladder as a whole, of any well known or preferred type. This ladder comprises spaced side bars 7, connected by horizontal rounds or steps 8, as is customary. This ladder may taper toward its upper end, as is ordinarily the case. The ladder 6 may be formed in any suitable number of sections.

My invention does not relate to improvements in the ladder 6 *per se*, but rather in apparatus for use in connection therewith, there being no claim to the ladder 6 *per se*, but the same may be claimed, however, in combination with my improved apparatus, coöperating therewith.

The numeral 9 designates a house, which, for the sake of illustration, it will be said, is to be painted.

The numeral 10 designates a vertically adjustable platform or support, comprising upper horizontal spaced beams 11, which are rigidly connected by horizontal transverse strips or boards 12, upon which the operator stands. Connected with the horizontal beams 11 near and spaced from the inner ends thereof is a guide strip or bar $12^a$, as shown. Connected with the outer ends of the horizontal beams 11 are depending diagonal braces 13, connected near and spaced from the lower ends by a transverse guide rod or round 14, as shown. The braces 13 are rigidly connected with the beams 11 by rods or strips 15, as shown. The ladder 6 fits within the vertically movable platform or support 10, the side bars 7 thereof being disposed inwardly of the beams 11 and the braces 13, as shown. These side bars 7 engage the guide strip $12^a$ and the guide round 14. The beams 11 are forked at their inner ends, as shown at 16, for forming openings for receiving a holding rod 17, which is adjustably held in place by cotter pins 18 or the

like. It is thus seen that the platform or support 10 is detachably held upon the ladder 6, and is free to be raised and lowered.

The guide strip $12^a$ has an eye bolt 19, connected therewith, which is connected with a flexible element 20, preferably a section of rope, which extends upwardly to engage a pulley 21, which is detachably mounted upon the uppermost round or step 8, of the ladder. It is obvious that by proper manipulation of the rope 20, the platform or support 10 will be raised.

Means are provided to hold the platform or support 10 in adjustment at desired vertical positions, comprising a wedge-shaped latch apparatus. This wedge-shaped latch apparatus includes converging horizontal latch bars or bolts 22, disposed between the horizontal beams 11 and below the strips or boards 12. These converging latch bars or bolts 22 are longitudinally movable to be brought into engagement with a selected round or step 8, as more clearly shown in Fig. 2. The reciprocatory latch bars or bolts 22 are provided at their outer ends with elongated slots 23, extending longitudinally thereof and parallel with each other. The slots 23 receive bolts 24, rigidly connected with one of the boards 12.

The numeral 25 designates a transverse operating bar or rod, provided near its ends with transverse bolts 27, connecting the same with the latch bars or bolts 22. This operating bar 25 is provided with an upstanding knob $25^a$, as shown. It is obvious that when the operating bar 25 is moved toward the ladder 6, for bringing the converging latch bars 22 into engagement with and above the selected round or step 8, said latch bars 22 will also be brought into clamping engagement with the side bars 7 of the ladder. As hereinabove stated, the ladder 6 tapers toward its upper end, whereby there may be spaces between the beams 11 and the side bars 7 of the ladder, depending upon the elevated position of the platform. If the latch bars 22 did not converge whereby they may have clamping engagement with the side bars 7, it is obvious that the platform or support 10 would be capable of partaking of restricted horizontal lateral movements with relation to the ladder.

The numeral 28 designates spacing elements or braces preferably formed of iron or the like, which have their outer ends forked, as shown at 29, for receiving the upper end of each of the side bars 7, (there being two of the spacing elements 28). The forked end 29 is provided with a clamping bolt 30. As clearly shown in Fig. 1, the spacing elements or braces 28 engage the sides of the house 9, thus preventing the upper end of the ladder from swinging toward the same.

Disposed at the lower end of the ladder 6 is a brace apparatus 31, for preventing the upper end of the ladder from swinging away from the house 9. This brace apparatus comprises an upstanding standard 32 provided with openings or notches 33, for receiving the lower rounds 8 of the ladder. Rigidly connected with the lower end of the standard 32 is a transverse foot 34, adapted to be disposed to one side of and inwardly of the side bars 7, as shown. Attention is called to the fact that the standard 32 is disposed upon one end of the ladder, and the foot 34 upon the opposite side thereof. Connected with this transverse foot 34 and with the lower end of the standard 32 is a horizontal strip or bar 35, connected with a transverse outer foot 36, as shown. A diagonal brace 37 serves to rigidly connect the horizontal strip 35 and the upstanding standard 32, as shown. It is obvious that the brace apparatus 31 is detachably connected with the ladder 6, and serves to prevent the upper end of the ladder from swinging away from the building.

In the use of the apparatus, the spacing elements 28 are connected with the upper ends of the side bars 7 of the ladder, and the ladder is moved to its vertical position as shown in Fig. 1. The brace apparatus 31 is now placed adjacent the lower end of the ladder 6 and outwardly of the same. The ladder 6 is now slightly raised so that the ends of the side bars 7 may be placed outwardly of transverse foot 34, the lower rounds 8 of the ladder fitting within the openings 33. It is thus seen that the upper braces 28 prevent the upper end of the ladder from swinging toward the building while the brace apparatus 31 prevents such upper end from swinging away from the building. The vertically movable platform or support 10 and associated elements may be suitably mounted upon the ladder 6, before or after the same has been moved to its vertical position. This platform or support is raised and lowered by proper manipulation of the rope 20. When the platform 10 is raised to the desired position, the operating bar 25 is moved toward the ladder 6, whereby the latch bars or bolts 22 are moved longitudinally in the same direction to engage above a selected round 8 and with the side bars 7 of the ladder, as clearly shown in Fig. 3.

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 certain changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having described my invention, I claim:—

1. The combination with a ladder, of a support slidably mounted thereon to move

longitudinally thereof, means to move the support in one direction, a pair of spaced reciprocatory bars disposed below the support with their corresponding ends arranged between and converging toward the side bars of the ladder to have clamping engagement therewith while supported by a round of the ladder, means rigidly connecting the converging reciprocatory bars, and means to connect the same with the support.

2. The combination with a ladder, of a substantially horizontal support slidably mounted thereon to move longitudinally thereof, means to move the support in one direction, a tapered reciprocatory latch mechanism to engage above one of the rounds of the ladder and having clamping engagement with the side bars thereof, and means connecting the reciprocatory latch mechanism with the support.

3. The combination with a ladder, of a support slidably mounted thereon to be moved longitudinally thereof, means to move the support in one direction, spaced reciprocatory bars disposed to one side of the support with corresponding ends thereof arranged between and converging toward the side bars of the ladder to have clamping engagement therewith while supported by a round of the ladder, means connecting the spaced converging reciprocatory bars for holding them against lateral movement toward each other, means connecting the reciprocatory bars with the support, and common means to move the reciprocatory bars.

In testimony whereof I affix my signature in presence of two witnesses.

WALLIE C. MANGEL.

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