Sept. 26, 1933. C. H. FARLEY 1,928,124

WINDOW SCAFFOLD

Filed Dec. 5, 1932 2 Sheets-Sheet 1

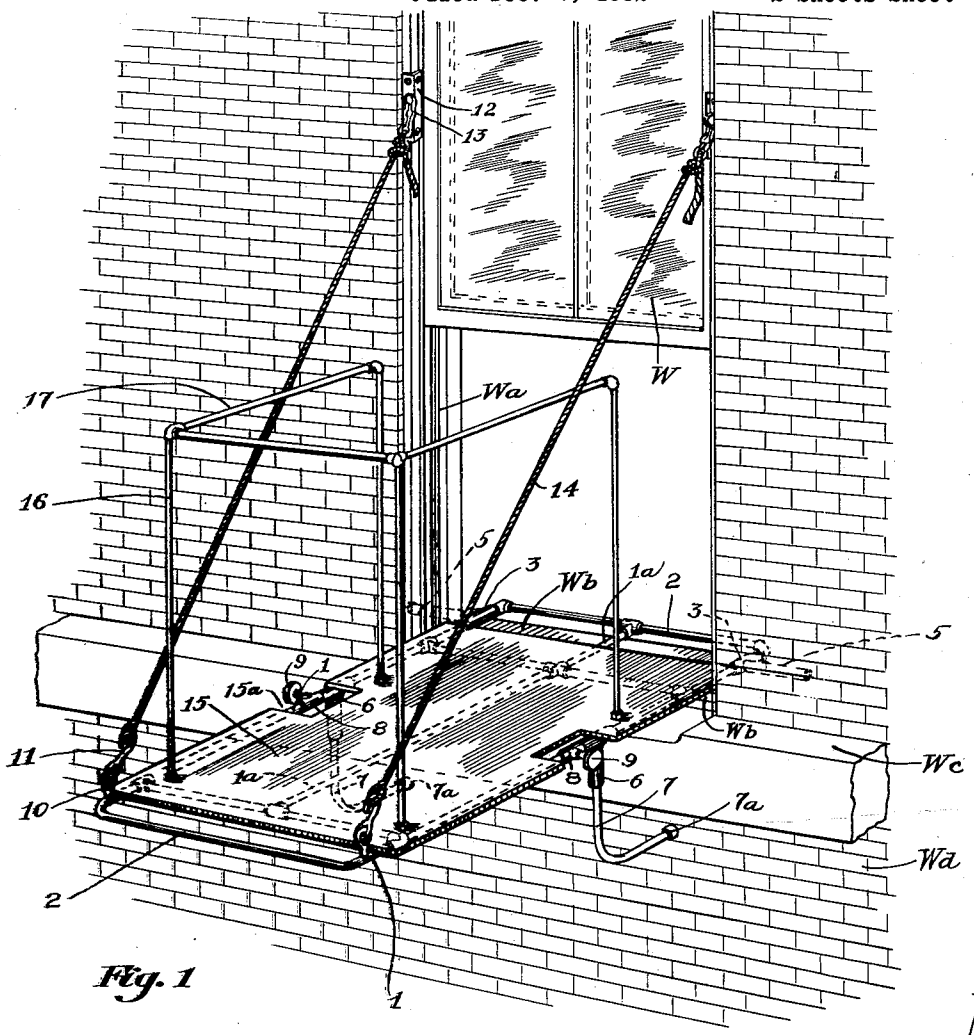


Fig. 1

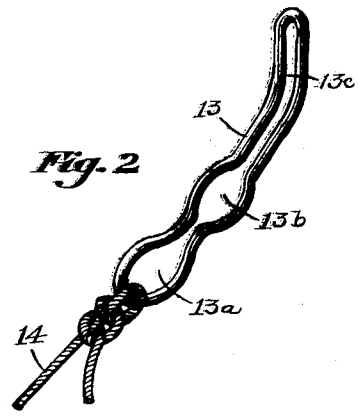


Fig. 2

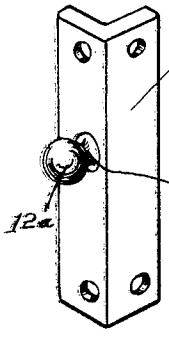


Fig. 3

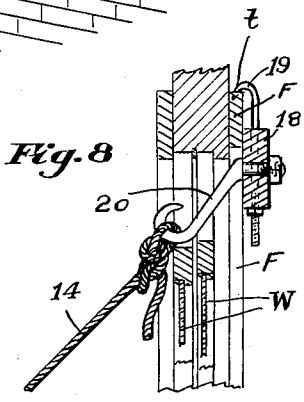


Fig. 8

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WINDOW SCAFFOLD

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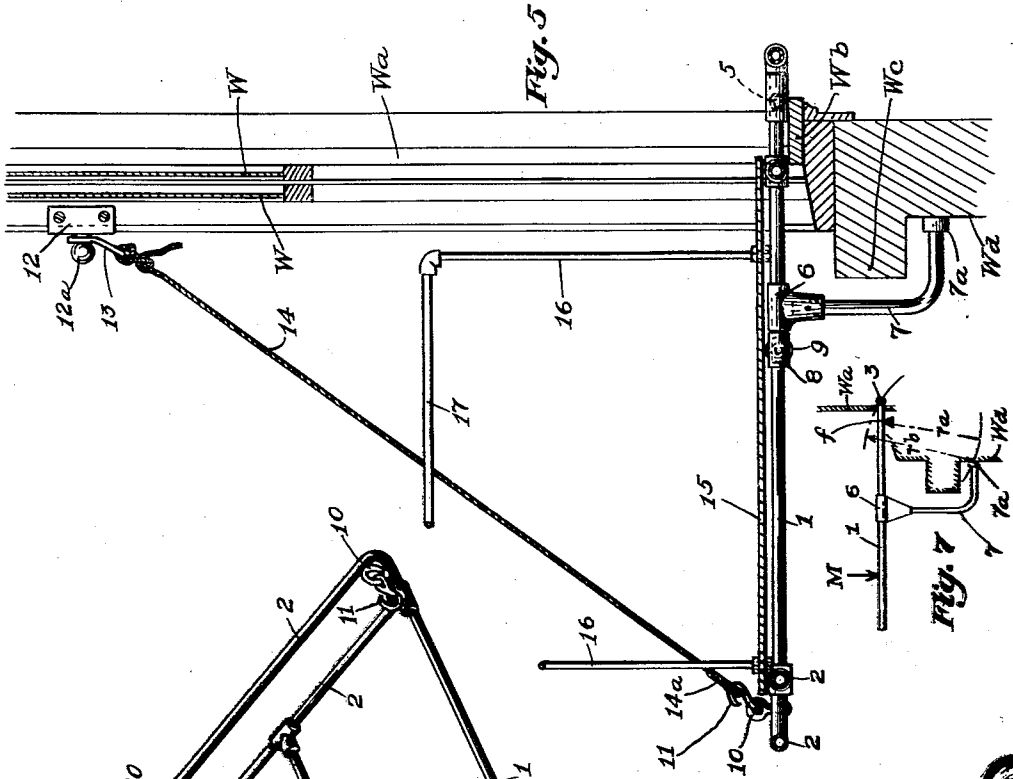


Fig. 5

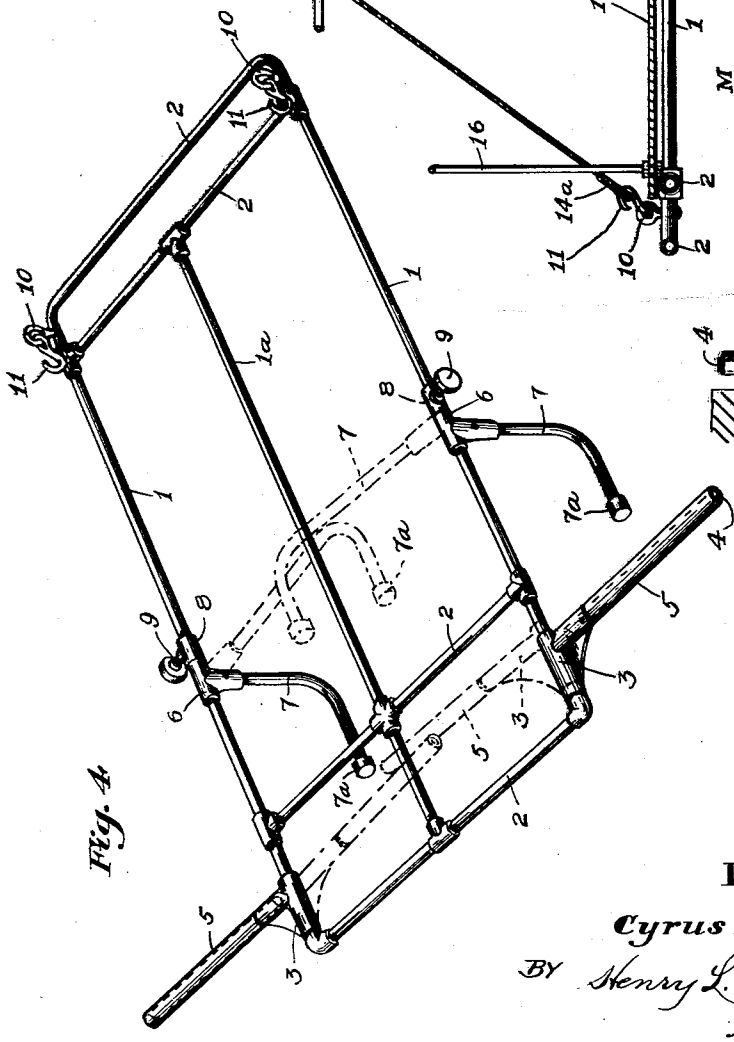


Fig. 4

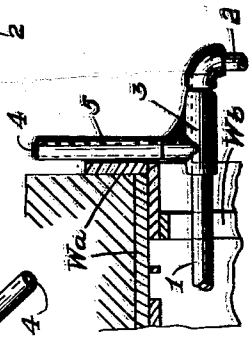


Fig. 6

Fig. 7

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UNITED STATES PATENT OFFICE

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WINDOW SCAFFOLD

Cyrus H. Farley, Portland, Maine

Application December 5, 1932. Serial No. 645,668

4 Claims. (Cl. 304—27)

My invention relates, in general terms, to apparatus employed for supporting workmen in an elevated position outside of buildings, and in the present instance I have elected to illustrate and describe it in its application to and adaptability for window washing purposes.

The cleaning of the outside of windows, particularly in high buildings, is a precarious occupation, and anything which will add to the safety and security of life of the workman is useful and desirable.

In my present conception I have sought to provide a portable scaffold having the necessary safeguards to insure against accident to the worker, and further, of such simple construction as will permit of its being easily and quickly attached to and detached from the window frame of a building. Another object is to provide foldability to the apparatus so that in transporting it there will be less bulk and inconvenience in handling it.

Briefly, the device comprises a tubular frame of skeleton construction, with two lateral arms extending from the frame to engage the inside finish on each side of the window frame, and two legs depending from the side members of the scaffold frame adapted to abut on the outside of the wall of the building.

A wooden platform, with railing around three of its sides, is mounted on the scaffold frame, and for further security two guy ropes connect hooks fixed on the outer end of the scaffold frame with permanently attached cleats on the window frame finish.

The apparatus is adjustable for use in window frames varying more or less in width, the lateral arms being made long enough for this purpose. The longitudinal adjustability of the depending legs accommodates them to varying overhangs of window sills.

I have illustrated my invention in the accompanying drawings in which,—

Fig. 1 is a perspective view of the apparatus shown mounted in a window frame;

Figs. 2 and 3 represent, respectively, the two upper securing members to which the guy ropes are attached;

Fig. 4 is a perspective view of the tubular scaffold frame, shown in full lines as it would be seen on a building and in dotted lines where the parts can be folded for transportation;

Fig. 5 is a sectional elevation of the frame mounted in a window frame;

Fig. 6 is a fragmentary plan view showing one of the lateral arms abutting on the window frame finish;

Fig. 7 shows, diagrammatically, the method of suspending the scaffold, and

Fig. 8 is a modification in the method of attaching the upper ends of the guy ropes.

Similar reference characters indicate and identify like parts in all views of the drawings.

Referring to the drawings W represents a window in the window frame W*a*; W*b* is the window stool and W*c* the window sill of some building, say an office or factory structure.

Supported at one of its ends on the window stool is a tubular scaffold frame having longitudinal side members, 1, 1, a central longitudinal member 1*a* and transverse members 2, 2, etc., interconnecting the longitudinal elements.

Rotatively mounted on each of the members 1, is a side arm; comprising a body portion 3 bored to fit the member 1 closely, and an extended shaft portion 4 which, for the purpose of protecting the finish on the window casing, I preferably cover with a rubber tube 5.

Also revolubly mounted on each of the members 1 is a depending leg consisting of a T portion 6 and an angularly bent pipe or rod 7, the offset portion being arranged to point toward, and adapted to abut against the wall W*d* of the building when the apparatus is installed in a window opening.

Outwardly of each of the elements 6 is a collar 8 provided with a handle set screw 9 by which to secure the collar on the member 1 in close relation to the element 6; the collar acts as a stop to prevent outward movement of the depending leg structure.

At the extreme outer end of the scaffold frame, on the members 1, 1, are two eye-bolts 10, and on each of the eye-bolts is a hook 11.

Secured permanently to any convenient portion of the window frame finish, near the upper end and at both sides of the window frame, is a cleat 12 having an outwardly projecting knob 12*a* with an interconnecting neck portion 12*b*. An elongated ring element 13 hangs from the cleat and through its lower opening 13*a* a guy rope 14 is made fast.

In mounting the member 13 on the cleat 12, the knob 12*a* is first inserted in the opening 13*b* which permits the neck portion 12*b* to slide along in the narrow slot 13*c* until it reaches the end of the slot; the knob prevents displacement of the ring from the cleat while thus positioned.

The lower end of the guy rope has a spliced eye 14*a*, which engages the hook 11 on each side of

the scaffold frame. On the scaffold frame is positioned a platform 15, rising from which are standards 16 which support the railing 17. The platform has portions cut away on each side to provide openings 15*a*, making access to the collar screws 9 possible.

By reference to Figs. 5 and 6 the positions of the scaffold frame and connecting parts relative to the window frame structure will be noted and the function of each of the elements clearly understood.

The inner end of the scaffold frame rests on the window stool casing and the arms 3 swung outwardly of the side members 1 in a horizontal position, the rubbers 5 engaging the finish of the window casing (shown in plan view in Fig. 6), on the interior side of the building. The legs 7 are then drawn toward the window until the caps 7*a* abut firmly against the wall W*d*, the bent portion of the leg clearing the window sill W*c*, as shown.

The collars 8 are now moved into contact with the ends, respectively, of the portions 6 of the depending legs 7 and locked to the side members 1 by the screws 9; after this has been done the platform is placed in position, the guy ropes 14 secured, and the scaffold is ready for service.

The design of the scaffold is such that it is capable of supporting a man of maximum weight in safety, even without the use of the guy ropes. The diagrammatical view shown in Fig. 7 illustrates the principle involved in the suspension of my scaffold frame in a window space without resort to screws, bolts or clamping paraphernalia.

The scaffold frame might be considered as fulcrummed on the point *f* (where it bears on the window stool), and the weight which would tend to lower the outer end of the frame applied on its top at, say the point M—this weight being that of the workman engaged in window washing.

Now it is quite evident that the arms 3 will hold the frame against outward displacement from the window space and, provided the frame remains in contact with the point *f*, that the leg at point 7*a* must first give way before the outer end of the frame can lower—the point 7*a* swinging, or rather, in the assumed case it must swing in an arc described by the radius *ra*. Of course this situation could not develop because the wall of the building obviously prevents the point 7*a* swinging, and the arms 3 hold the frame from moving out of the window space—and we have already assumed that it is in contact with the fulcrum point *f*.

But suppose we attack the subject from a different viewpoint and consider that the point 7*a* is the fulcrum and that weight applied at M tends to slightly lower the outer end of the frame. As the swinging movement must center at 7*a* the arc described by the radius *rb* and cutting the side arms 3 would clearly demonstrate that no appreciable amount of downward movement could be observed in the frame as the resistance to outward movement of the frame by the arms 3 would preclude the possibilty of its occurring, the point 7*a* being so much lower than the point 3. The action is somwhat analogous to that of the jaws of a monkey wrench as they straddle the rim of a pulley in the act of rotating the latter. All that is required to accomplish the object sought is to construct the parts of sufficient strength and stability.

However, as an added safeguard, and particularly to take advantage of the psychological effect on the workman's mind when he is assured of absolute safety while engaged in his window-washing duty, I have thought it best to incorporate the guy ropes as a part of my scaffold-supporting said securing structure.

The apparatus while built strong and rigid is, nevertheless characterized by its skeleton form, and thereby accomplishes one desirable object, lightness in weight. Another feature which appeals to those obliged to use the device is its compactness when the arms 3 and legs 7 are folded—as shown in dotted lines, Fig. 4. The rails 17 and standards 16 may also be dissembled from the platform 15, and in this condition the parts require but a very shallow box or container for transporting or storing.

In Fig. 8 I show a slightly different arrangement from which the upper ends of the guy ropes are slung.

A cross-bar 18, extending transversely across the window frame, is equipped with suspension hooks 19 which engage the top of the finish F, at *t*. On the cross-bar are two hooks 20 to which the guy ropes 14 are attached, the windows W being slightly lowered to permit of this being done.

The cross-bar abutting on the window frame finish and held in place by the suspension hooks, provides a strong and safe method of securing the ropes; furthermore, it is a portable affair and no permanent attaching elements are required on the window frame.

The window-washing application of my invention forms but one of several other adaptations of the apparatus. In house painting, clapboarding, shingling and in fact various other operations connected with construction and repair work on the outside of buildings my apparatus will be found very advantageous and convenient.

For instance, a scaffold frame might be placed in each of two adjoining window frames and a staging arranged between the two; with this combination workmen would be enabled to perform many duties in line of repairs to walls or finish of buildings in general.

What I claim is:

1. A device of the character described comprising a tubular frame having two longitudinal side members, an arm revolubly mounted on each of said side members, at one end of said frame, a depending leg revolubly and slidably mounted on each of said side members, outwardly of said arms, a collar on each of said side members outwardly of said legs, and means to secure said collars at predetermined points along the length of said side members.

2. A device of the character described comprising a rectangular, tubular frame having two longitudinal, side members, a plurality of transverse members joining said side members, a central longitudinal member interconnecting said transverse members, a side arm revoluble on and disposed near the inner end of each of said side members, a shaft extending from said side arms, a rubber sleeve on each of said shafts, a depending leg revolubly and slidably mounted on each of said side members, an offset portion on said legs, pointing inwardly—or toward said arms, means to secure said legs against outward movement on said side members at predetermined positions thereon, and a platform superimposed on said rectangular frame and adapted to cover substantially its whole surface.

3. A scaffold adaptable for use in the window frame of a building comprising a rectangular

frame having two longitudinal side members, a plurality of cross-wise members interconnecting said side members, an arm revoluble on and extending laterally and outwardly from each of said side members, said arms adapted to impinge, respectively, on the casings on both sides of said window frame interiorly of said building, a depending leg, having a rearwardly extending portion, revolubly and slidably mounted on each of side members, said rearwardly extending portion adapted to be brought into abutting relation with the exterior side of the wall of said building, means to lock said depending legs in various positions on and lengthwise of said side members, a platform on said rectangular frame, two guy ropes, one end of each of which is secured at the outer corners, respectively, of said rectangular frame, and means to secure the opposite ends of said guy ropes to opposite sides of said window frame.

4. A scaffold adapted to be secured in the window opening of a building comprising a rectangular frame structure having two longitudinal side members the inner ends thereof resting on the window seat in said opening, arms projecting outwardly from each side, respectively, of said frame and adapted to engage the interior portions of the window casings around said opening, legs on the said side members extending downwardly to impinge on the wall of said building, exteriorly thereof, and contacting therewith at a point lower in elevation than the contacting point of said arms with the window casings, said arms and said legs being revoluble on said side members whereby they may be folded to lie in a plane substantially coincident with that in which lies said rectangular frame, when said scaffold is not in service, means to secure said legs in various positions, longitudinally of said side members, whereby they may accommodate themselves to various thicknesses of wall of the building, and a platform, having a railing thereon, superimposed on said rectangular frame.

CYRUS H. FARLEY.