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F. KRISTEN

3,071,206

PAINTER'S SCAFFOLD

Filed Dec. 30, 1960

4 Sheets-Sheet 1

FIG. 1

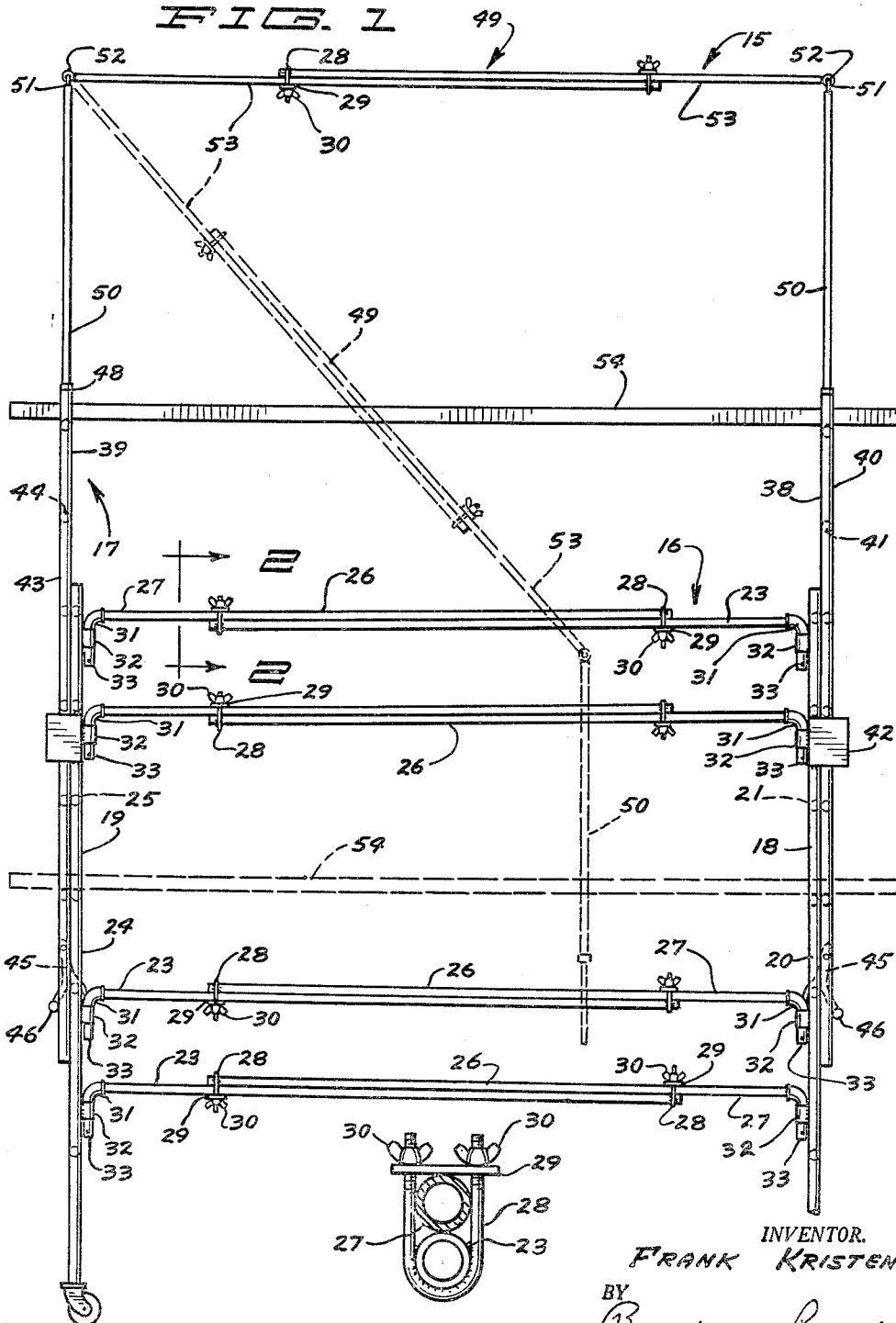


FIG. 2

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FIG. 3

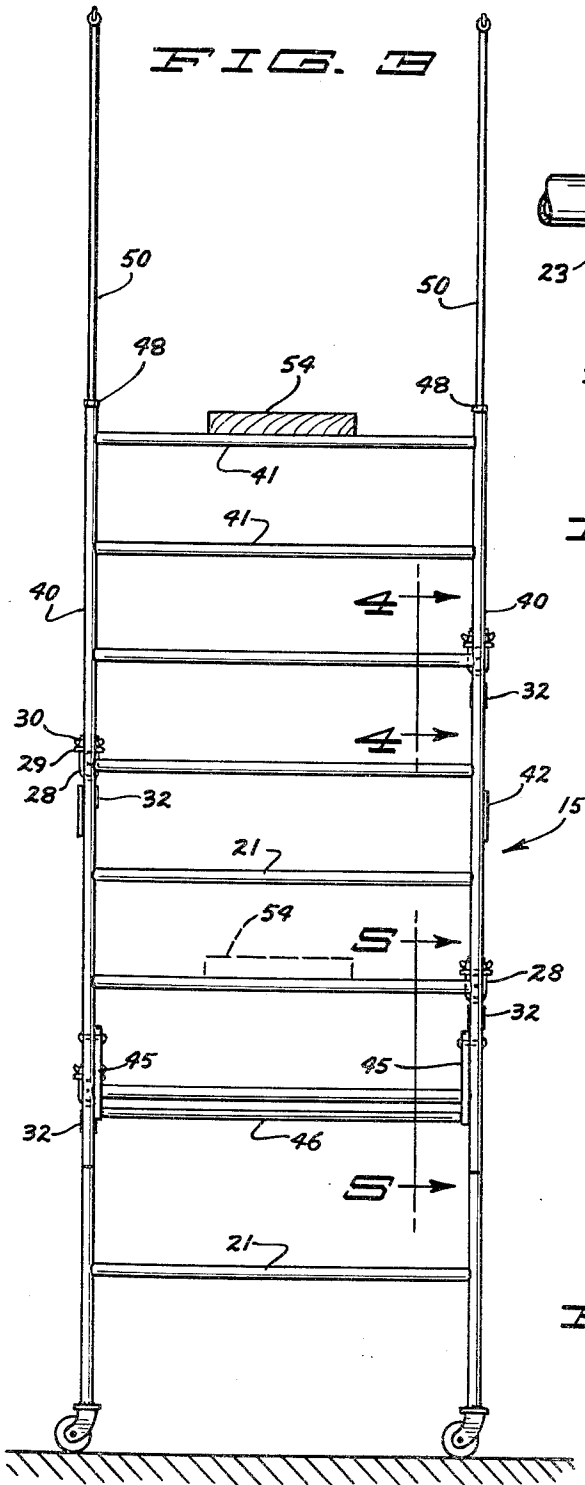
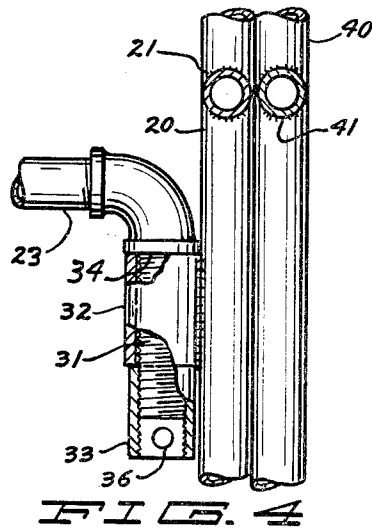
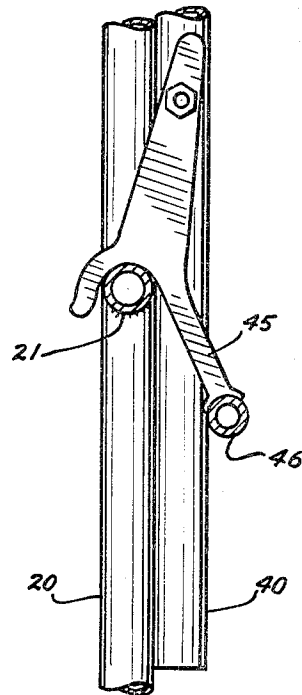


FIG. 5

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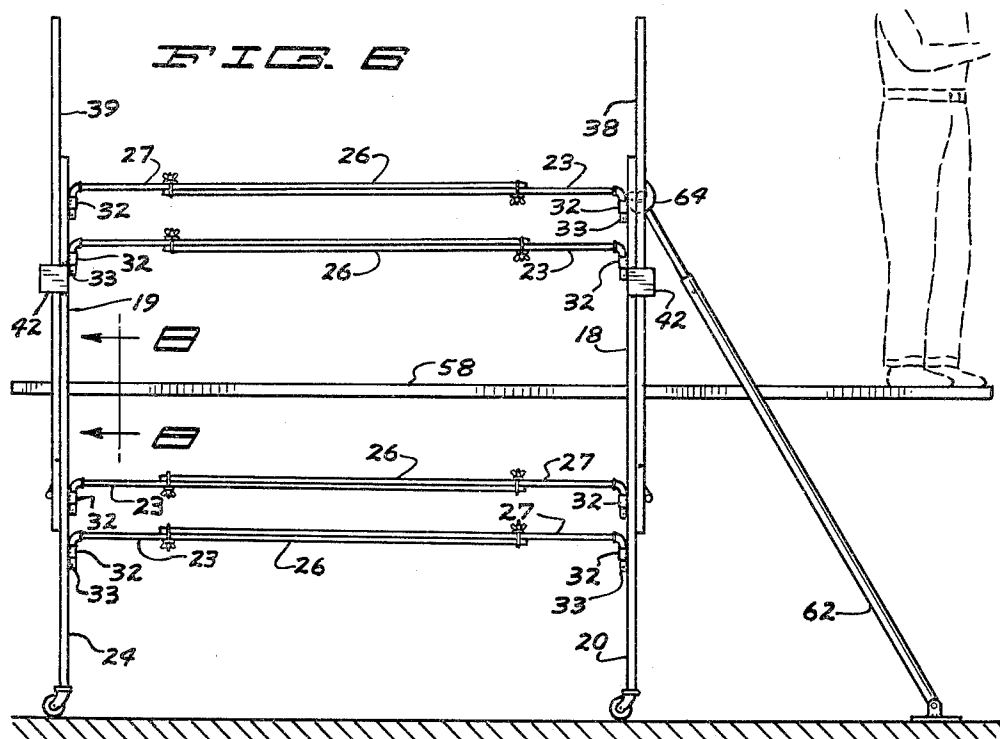
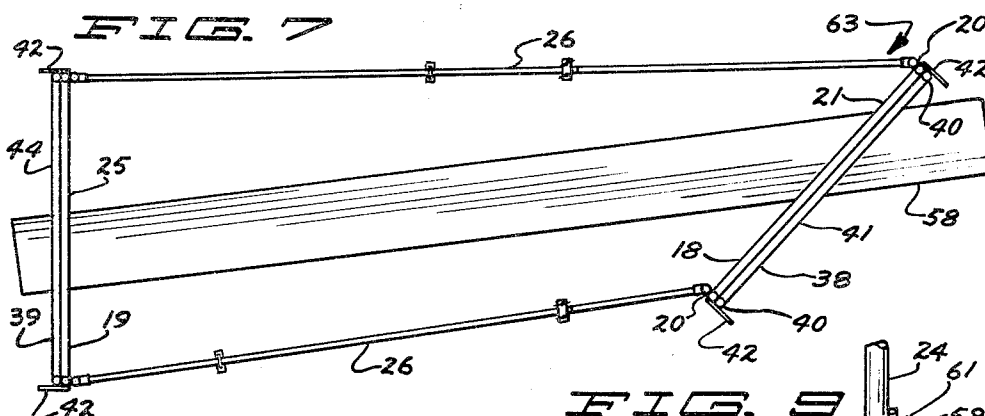
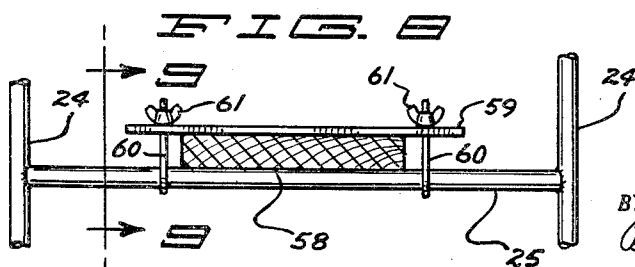
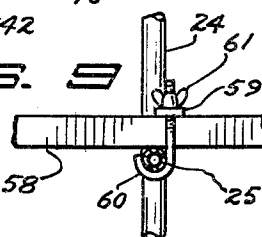
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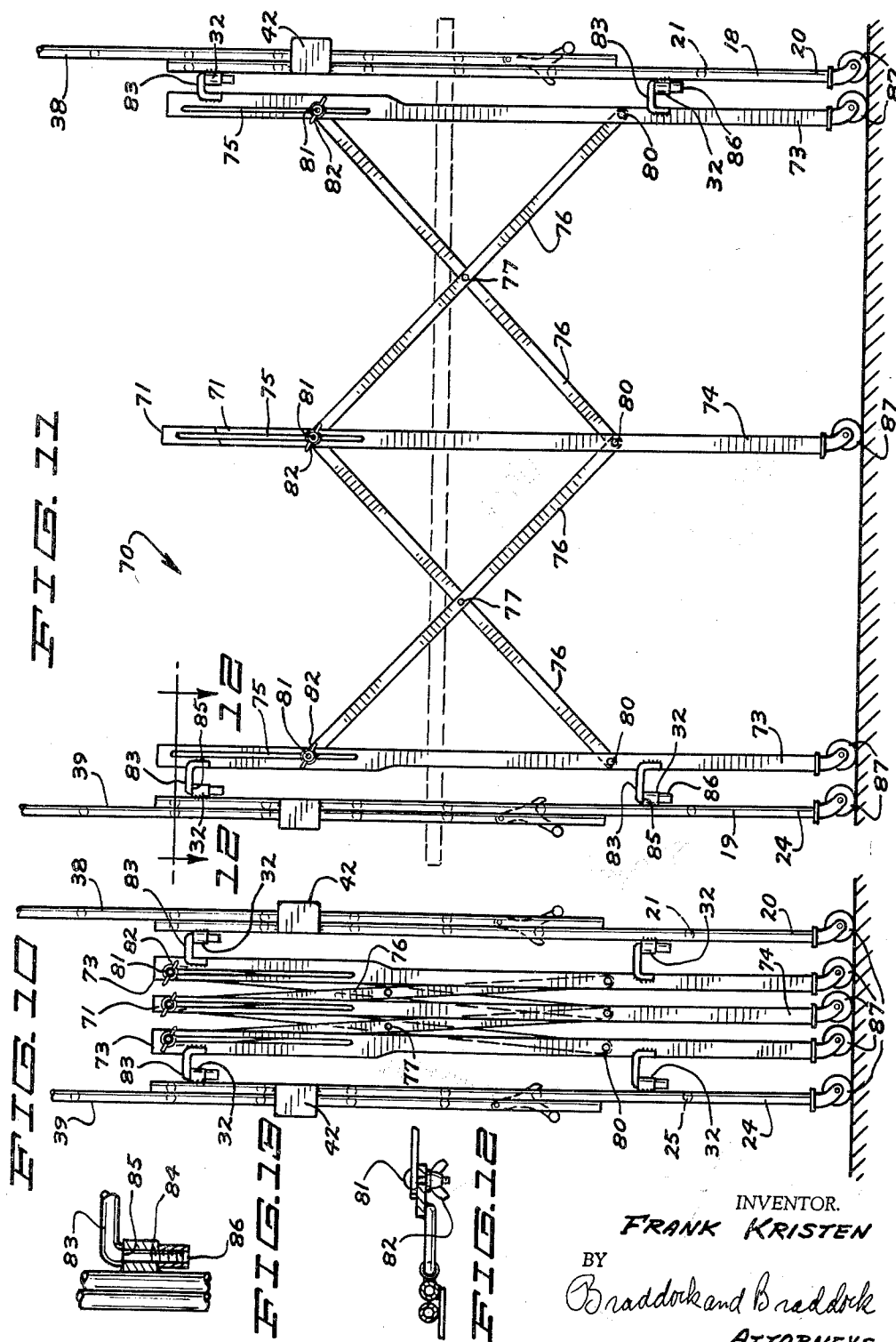
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3,071,206

PAINTER'S SCAFFOLD

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Robert A. Timm, St. Paul, Minn.
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8 Claims. (Cl. 182—152)

This invention has relation to a scaffold and more particularly to a scaffold for use by painters when they are painting interiors or exteriors of buildings.

The painters' scaffolds that are presently on the market are cumbersome and very hard to raise and lower to permit painting from various levels. Present models of scaffolds also do not allow the scaffold to be partially folded to a parallelogram shape and used in this position to paint in corners or to clear obstructions. The present scaffolds are either permanently in a rectangular shape or if they are foldable are not held stable in any other shape than rectangular. Present scaffolds generally do not provide for the outward extension of a support plank beyond the scaffold base itself to allow a painter to paint in an area above objects which can not be moved or dismantled.

The present invention discloses a painter's scaffold that has an upper extension section that is easily raised or lowered by one man to support the scaffold plank at the desired height. The scaffold is also easily lengthened or shortened to conform to the size of various areas to be painted.

The scaffold base consists of two end frames, each of which is composed of two upright posts with horizontal support rungs extending between said posts. The two end frames are joined together with longitudinal side support members or rails that are pivotally attached to aligning upright posts and may be lengthened or shortened to vary the size of the scaffold. With the side rails and the end frames pivotally fastened together the scaffold base may be parallelogrammed or folded flat to pass through doors or to be stored. When the scaffold is to be used each of the side support rails has means provided to fixedly position it with respect to the support posts to which it is attached. This allows the scaffold base to be held in any desired quadrilateral shape. The upper extension section of the scaffold has two end frames similar to the end frames of the base. The upper end frames are vertically positionable with respect to the end frames of the scaffold base and are joined together adjacent the top portions thereof with a pair of longitudinal side rails that are pivotally fastened to the upper end frames.

A support plank may be placed on the horizontal rungs of the end frames and supported between the two end frames of either the upper extension section or the base of the scaffold. As the end frames of both the extension and the base have a plurality of horizontal support rungs the support plank can be positioned at any desired level. In addition, the extension end frames of the scaffold may be moved vertically to reach high surfaces.

If a painter desires to paint a surface above an object that is difficult or impossible to move, the support plank may be extended beyond the scaffold and fastened to each of its supporting horizontal rungs of the scaffold end frames with a strap extending across the top of the plank and a pair of J bolts extending through the strap and engaging the rail with which it is associated. The weight of the painter on the outer end of the plank may be counteracted by the weight of the scaffold itself or the scaffold may have an added counter weight to insure that the painter will not fall.

The horizontal side rails of the scaffold each have depending legs attached at their end portions and each of

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the legs extends downwardly through a sleeve attached to the corresponding upright post of the end frame of the scaffold base to which it is attached. The lower portion of each of the depending legs of the side rails is threaded and a nut is clamped against the sleeve through which the leg extends. This effectively clamps the post with respect to the side rails and thus allows the scaffold members to be held in any desired angular position. The scaffold may also be mounted on casters to allow easy movement from place to place.

A second form of the present invention as shown, includes side members that are pivotally fastened to the end frames in a similar manner to the side members of the first form. Each of the side members of the second form includes three upright columns that rest on the floor. A separate end column is positioned adjacent each of the end frames and one column is positioned between the end columns. The columns are joined together with a pair of crossed rails that extend between each set of adjacent columns. Each of the rails is pivotally mounted adjacent a lower end of one of the columns and extends upwardly to slidably engage the upper portions of the next adjacent column. The upper ends of the rails may be fixed with respect to the columns with which they are associated by means of a bolt and wing nut.

The side members can be lengthened or shortened by loosening the wing nuts and moving the end frames toward or away from each other. As the columns move together the upper ends of the rails will slide upwardly. The side members are of configuration so the columns will move to position next adjacent each other, thus making a very compact unit.

Any tendency of the end frames to move during use will be resisted by the crossed rails and the columns so the scaffold will be very stable. The scaffold may be parallelogrammed to any position as in the previous form of the invention.

In the drawings:

FIG. 1 is a side elevational view of a painter's scaffold made according to a first form of the present invention;

FIG. 2 is a sectional view taken as on line 2—2 in FIG. 1;

FIG. 3 is an end elevational view of the device of FIG. 1 as viewed from a right end thereof;

FIG. 4 is a view taken substantially on line 4—4 in FIG. 3 with parts in section and parts broken away;

FIG. 5 is a sectional view taken as on line 5—5 in FIG. 3;

FIG. 6 is a fragmentary side elevational view of the device of FIG. 1 showing a plank in position to support a person outside of a scaffold frame;

FIG. 7 is a top plan view of a painter's scaffold made according to a first form of the present invention showing the parts positioned to permit access to a confined space;

FIG. 8 is a sectional view taken as on line 8—8 in FIG. 6;

FIG. 9 is a sectional view taken as on line 9—9 in FIG. 6;

FIG. 10 is a side elevational view of a second form of the present invention showing side members in a compression position;

FIG. 11 is a side elevational view of the device of FIG. 10 with the side members in an extended position;

FIG. 12 is a sectional view taken as on line 12—12 in FIG. 11; and

FIG. 13 is a fragmentary side elevational view of a member used for joining a side member and an end frame of the scaffold together with parts in section and parts broken away.

Referring to a first form of the present invention shown in FIGS. 1 through 9 and the numerals of reference thereon, a painter's scaffold indicated generally at 15 includes a base 16 and a top section 17. Base 16 is comprised of a first end frame 18 and a second end frame 19. First end frame 18 has a pair of corner posts 20, 20 and a plurality of horizontal rungs 21 extending between said posts and fixedly attached thereto. Second end frame 19 has a pair of corner posts 24, 24 and a plurality of horizontal rungs 25 extending between said posts and fixedly attached thereto. The end frame 18 and 19 are joined together with a plurality of horizontal side members or rails 26 that are made from a first rail section 23 and a second rail section 27. Each of the rail sections has a U-bolt 28 welded adjacent a first end thereof and is held against the other rail section by clamping the U-bolt 28 onto the other section with a clamping plate 29 and a pair of wing nuts 30, 30. Each of the rail sections 23 and 27 of side rail 26 has a leg 31 adjacent second ends thereof and the legs 31 are each of dimension to slide into a sleeve 32 that is fixedly attached at its desired position to one of the corner posts 20 or 24.

Sleeves 32 are attached to the corner posts in a manner so that opposite side rails 26 do not horizontally align. As the side rails on opposite sides of the scaffold base are not on a horizontal plane but are staggered vertically with respect to each other the scaffold base is given more stability. In addition, when the scaffold is folded flat the side rails will not interfere with each other but will rest one above the other. The end portion of each of the legs 31 that extends through its respective sleeve 32 is threaded. A tubular nut 33 is threaded onto the lower end of each of the legs 31 and the sleeve through which the leg extends may be clamped between a shoulder 34 on the leg and the nut 33. A provided hole 36 in each of the nuts 33 allows for the insertion of a lever to tighten the nuts firmly down onto their associated sleeves. In this manner the side members or rails 26 can be prevented from rotating with respect to the end frames 18 or 19.

The side rails 26 can be extended or shortened by loosening nuts 30 and clamp plate 29, thereby allowing the sections 23 and 27 to slide with respect to each other. When the desired rail length is reached the wing nuts 30 can be again tightened and the side rails held clamped in this position.

Top section 17 of the scaffold includes a first extension end frame 38 and a second extension end frame 39. First extension end frame 38 has two spaced support posts 40, 40 and a plurality of horizontal rungs 41 extending between the posts. First extension end frame 38 is substantially the same width as base end frame 18 and the rungs 41 are spaced the same vertical distance apart as the rungs 21 of base frame 18. First extension end frame 38 is slidable vertically with respect to end frame 18 of the base 16 and is supported against side sway with guide plates 42, 42 that are fixedly attached to the corner posts 20, 20 of first end frame 18.

Second extension end frame 39 is similar to first extension end frame 38 and has two support posts 43, 43 and a plurality of horizontal rungs 44 extending between said posts. Second extension end frame 39 is slidably mounted with respect to second base end frame 19 and is positioned with pair of guide plates 42, 42 that are fixedly attached to posts 24 of frame 19. Posts 43, 43 of frame 39 and posts 24, 24 of frame 19 are the same distance apart as are rungs 44 and rungs 25.

The extension end frame 38 and 39 are each held in position with a pair of hooks 45, 45 one of which is pivotally mounted with respect to each of the support posts of its respective extension end frame. A cross rod 46 is fastened between the hooks 45, 45 and permits lifting both of the hooks at once. Hooks 45 are each of configuration to engage the same rung of the respective base end frame with which they are associated. In this

manner the extension end frames may each be raised or lowered and held in their respective vertical positions by placing the hooks 45, 45 into engagement with one of the rungs of one of the base end frames.

One of a pair of safety side rails 49, 49 is vertically supported on each side of the scaffold above the extension end frames with a pair of support posts 50, 50 each of which is slidably fitted into one of the corner posts of the extension end frames. An eye 51 is fixedly attached with respect to the upper ends of each of the support posts 50 and safety rail 49 has an eye 52 fixedly attached to each end thereof and pivotally engaging the eye of one of the posts 50. Safety rail 49 is composed of two identical sections 53, 53 that are joined together in the same manner as the sections of side rails 26. Each of the safety rails 49 and its attached support posts 50 are free to pivot with respect to each other. The safety rails operate to keep the extension end frames from separating when under load. If the safety rails are not used, a pair of side rails 26 can be used to join the extension end frames together by inserting the depending legs of the side rails into aligning corner posts of the extension end frames.

A plank 54 may be positioned on top of horizontally aligned rungs of the base end frames or of the extension end frames. The vertical height of plank 54 may be adjusted by moving the extension end frames vertically or the plank may be set at a lower level supported by one of the rungs of each of the base end frames as illustrated in dotted lines in FIG. 1.

Referring specifically to FIG. 6, a scaffold is shown supporting a man on a plank 58 that extends outside of the scaffold itself. The plank will be held in this position with means shown in FIGS. 8 and 9. A strap 59 is placed over the top of the plank 58 and two J-bolts 60, 60 are extended through the strap adjacent the outer edge portions of the plank and extend to engage the end frame rung on which the plank is resting. A wing nut 61 is used to retain the strap 59 on each of the bolts 60. This will take the vertical reaction on the end of the plank opposite from the painter. The plank then will be very stable and will not lift off the rungs when the painter stands on the outwardly extending end. The scaffold can be weighted to counteract the weight of a man at the outer end of the plank.

Also shown in FIG. 6 is a method for retaining the scaffold when it is placed on an inclined surface. A support pole 62 is pivotally attached to the surface on which the scaffold stands. A hook 64 is fixedly attached to the pole 62 and engages one of the rungs of the scaffold end frames. This will keep the scaffold from rolling down an inclined surface when it is in use. It should be noted that the support pole 62 is shown in FIG. 7 for illustrative purposes only and will not be normally used in connection with the scaffold when it is on level surfaces.

FIG. 7 shows how the scaffold may be partially folded to allow it to be placed into a corner or other hard to get at area. The side rails 26 on a first side of the scaffold are shortened and the first base end frame 18 will be positioned at an angle with respect to the second base end frame 19. This will allow the corner of the scaffold indicated at 63 to extend into a corner or recess in the building and allow the painter to reach normally inaccessible areas. The scaffold can be held in this position by tightening down the nuts 33 onto sleeves 32 to fixedly position the side rails 26 with respect to the end frames. The nuts 33 may be loosened and the scaffold may be parallelogrammed to allow it to be moved through doorways. The scaffold may also be folded flat for storage.

A painter can vertically adjust the scaffold alone as the cross rod 46 attached to the hooks 45 that support the extension end frames allows him to manipulate both of the hooks at the same time and thus he can move the extension end frames vertically without aid from another person. The two hooks 45, 45 on each of the extension

end frames will pivot as a unit and will not have to be moved individually.

When the safety rail is to be positioned, one of safety rail support posts 50 is inserted into the top end of a support post for one of the extension end frames and is vertically positioned with a collar 48 that is integral with the leg 50 and that rests on the top edge of the extension end frame support post. As illustrated in dotted lines in FIG. 1 the safety rail 49 and the second support post 50 may hang downwardly. The second of the posts 50 may then be positioned by the operator in the aligning support post for the opposite extension end frame. In this manner the safety rail may be installed or removed easily by one man.

The entire scaffold may be folded flat by loosening the nuts 33 to allow the legs 31 of the side rails to pivot in their associated sleeves 32. The scaffold may then be parallelogrammed to a flat position. The scaffold may also be easily disassembled by removing the nuts 33 entirely and lifting the side rails 26 out of their respective support sleeves.

Referring to FIGS. 10 through 13, in a second form of the invention, a scaffold base 70 includes a first end frame 18 and a second end frame 19, both of which are identical to the base end frames 18 and 19 used in the first form of the invention. The first end frame 18 has two corner posts 20, 20 and a plurality of substantially horizontal rungs 21 extending between the posts. The second end frame 19 has two corner posts 24, 24 with a plurality of substantially horizontal rungs 25 extending between said posts. The corner posts have a plurality of fixedly attached sleeves 32 as in the first form of the invention.

A pair of identical side support members 71, 71 extend between the end frames. Each of the side support members has two upright end columns 73, 73 and an upright center column 74. Each of the columns has a vertical slot 75 defined therein. A pair of crossed rails 76, 76 extend between adjacent columns and are pivotally fastened together as at 77. The lower end of each of the rails 76, 76 is pivotally fastened to one of the upright columns as at 80. The rails each extend diagonally upward in opposite directions and a separate bolt 81 extends through the rails and slidably engages the slot 75 in the vertical column that is next adjacent the column to which the lower end of the rail is attached. A wing nut 82 is threadably mounted on each of the bolts 81 and may be tightened to lock the upper end of each of the rails 26 with respect to its associated column.

The upper portions of the end upright columns 73, 73 are wider than the center column. The end columns 73, 73 each have a pair of arms 83 fixedly attached thereto and each of the arms has a depending leg 84 that slidably engages one of sleeves 32. The legs 84 each have a shoulder 85 that rests on the top edge of the sleeve with which it is associated and a nut 86 is threadably attached to the lower end of each of the legs. The legs may be clamped and held from turning by tightening the nuts 86. The legs are free to pivot in the sleeves when the nuts are loosened.

A caster 87 is mounted on the lower end of each of the upright columns and engages the surface on which the scaffold is resting.

Extension end frames 38 and 39 may be mounted on base 70 in the same manner as they are mounted on base 16 in the first form of the invention. The extension end frames may also be vertically adjusted in a similar manner.

The base end frames may be moved together or apart by loosening wing nuts 82. The upper ends of the crossed rails 76 may then slide in their respective slots as the end frames are moved. The base end frames can be moved to position with the unit compressed as shown in FIG. 10 or may be extended. The unit can also be held with the end frames in any intermediate position by

tightening the wing nuts 82 to clamp the crossed rails 76 with respect to the upright columns. The side members 71 hold the scaffold very rigid. Any tendency for the end frames to sway longitudinally is transferred to the arms 83, to the end columns and is counteracted by the crossed rails, which transmit the load to the center upright column 74. The center column 74 is resting on the scaffold supporting surface which resists this load, and the end frames are not allowed to move.

The entire scaffold can be folded longitudinally to make a very compact unit and as it is mounted on casters it can be readily moved. The scaffold can parallelogram when using the side members 71 just as in the first form of the invention, as the legs 84 are free to pivot in their associated sleeves when the nuts 86 are loosened.

What is claimed is:

1. A scaffold including a pair of spaced apart upstanding end frames each having a pair of spaced upright corner posts and a plurality of spaced horizontal rungs extending between said posts, a plurality of sleeves fixedly attached with respect to each of said posts, an upright end column associated with each of said corner posts of said frames, a plurality of outwardly extending arms fixedly attached to said end columns, each of said arms having a depending leg, each of said depending legs being positioned to engage one of said support sleeves, a pair of center upright columns one positioned substantially midway between corresponding end upright columns of opposite upstanding end frames, a separate pair of crossed rails extending between each center column and each of its associated end columns, each of said rails being pivotally mounted to the other rail of said pair at center portions thereof, each rail being pivotally fastened at its lower end to a lower portion of one of said columns, and each being slidably mounted at its upper end with respect to the upper portions of the column to which the lower end of the other rail of the pair is attached, and means for fixedly positioning the upper end of each of said crossed rails with respect to its associated column.

2. The combination as specified in claim 1 and a pair of extension end frames each having a pair of spaced corner posts and a plurality of spaced horizontal rungs extending therebetween, each of said extension end frames being associated with one of said upstanding end frames, and means for vertically positioning each of said extension end frames with respect to its associated upstanding end frame.

3. The combination as specified in claim 2 and means to keep the extension end frames from moving outwardly with respect to each other.

4. The combination as specified in claim 3 wherein said means to keep said extension end frames from moving outwardly with respect to each other includes a pair of safety side rails, each pivotally attached with respect to an upper end of one of said corner posts of each of the opposite extension end frames.

5. A scaffold including a pair of spaced apart upstanding end frames each having a pair of spaced upright corner posts and a plurality of spaced horizontal rungs extending between said posts, a plurality of sleeves fixedly attached with respect to each of said posts, an upright end column associated with each of said corner posts of said end frames, a plurality of outwardly extending arms fixedly attached to each of said end columns, a depending leg fixedly attached with respect to each of said arms, each of said depending legs being positioned to removably slidably engage one of said sleeves, a separate pair of crossed rails extending between associated end columns, each of said rails being pivotally mounted to the other rail of said pair at center portions thereof, each rail being pivotally fastened at a lower end thereof to a lower portion of one of said columns, and each rail being slidably mounted at its upper end with respect to the upper portions of the column to which the lower end of the

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other rail of the pair is attached, and means for fixedly positioning the upper end of at least one of said crossed rails of each pair with respect to its associated column.

6. The combination as specified in claim 5 and means for fixedly positioning each of said depending legs with respect to its associated support sleeve.

7. The combination as specified in claim 5 wherein each of said depending legs extends through its respective support sleeve and has a support shoulder resting on said support sleeve, and one of a plurality of nuts threadably attached to each of said depending legs and engaging a lower edge portion of its associated support frame.

8. A scaffold including a pair of spaced apart upstanding end frames each having a pair of spaced upright corner posts and a plurality of spaced horizontal rungs extending between said posts, a separate upright end column associated with each of said corner posts of said frames, a plurality of outwardly extending arms fixedly attached to each of said end columns, each of said arms having a depending leg, means to pivotally attach said depending legs to their associated corner posts, a pair of center upright columns, one positioned substantially midway between corresponding upright end columns of opposite upstanding end frames, a separate pair of crossed rails ex-

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tending between each center column and each of its associated end columns, each of said rails being pivotally mounted to the other rail of said pair at center portions thereof, each rail being pivotally fastened at its lower end to a lower portion of one of said columns, and each rail being slidably mounted at its upper end with respect to the upper portions of the column to which the lower end of the other rail of the pair is attached, and means for fixedly positioning the upper end of each of said crossed rails with respect to its associated column.

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