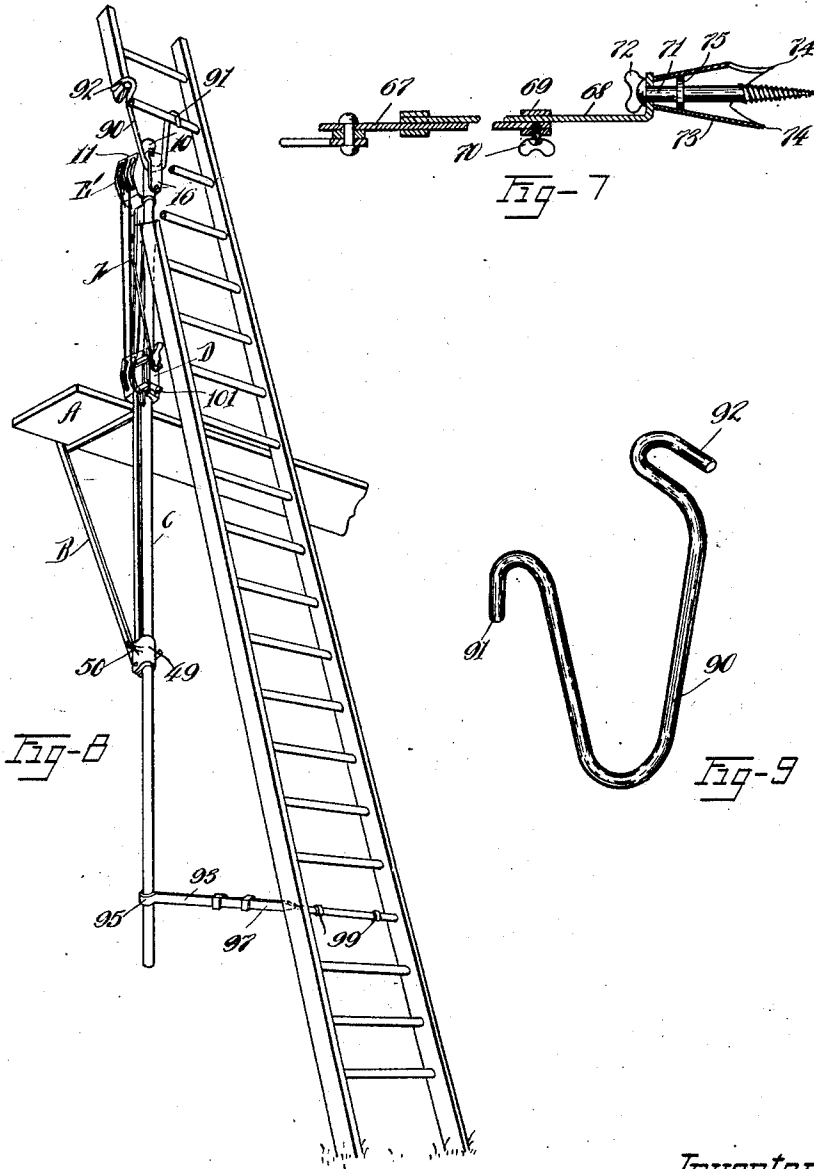


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APPLICATION FILED NOV. 3, 1917.

1,349,426.

Patented Aug. 10, 1920.
3 SHEETS—SHEET 2.

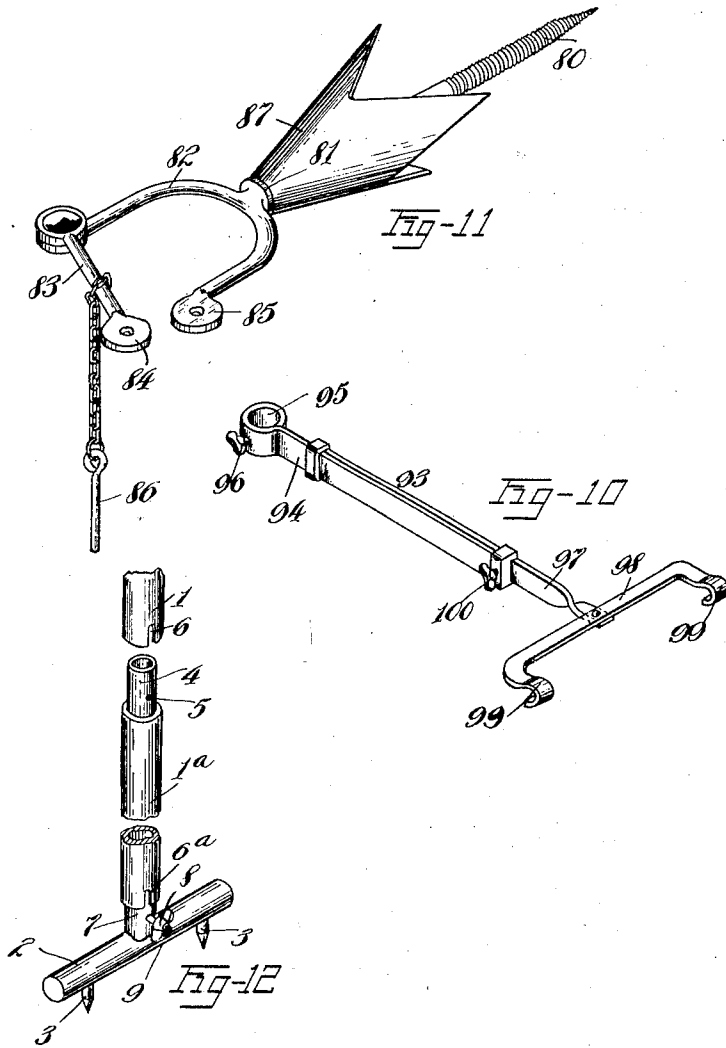


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UNITED STATES PATENT OFFICE.

JOHN J. KITSTEINER, JR., OF CLEVELAND, OHIO.

SCAFFOLD.

1,349,426.

Specification of Letters Patent. Patented Aug. 10, 1920.

Application filed November 3, 1917. Serial No. 200,021.

To all whom it may concern:

Be it known that I, JOHN J. KITSTEINER, Jr., a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Scaffolds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings:

This invention relates to improvements in scaffolds, and particularly to portable scaffolds of the kind used by painters and other workmen who find it necessary in pursuit of their occupation, to reach all parts of buildings and other structures.

The object of the invention is to provide a scaffold of the above character that is very strong; that is comparatively light of weight; that is collapsible and is capable of being folded into a comparatively small space; that can be very easily assembled, disassembled and manipulated; that can be conveniently moved from place to place; and that lends itself readily to all circumstances under which such scaffolds are required to be used. As a further and very important object, the invention provides a construction that insures maximum safety to the user.

More specifically stated, the invention has for its object to provide a scaffold comprising a pair of sectional uprights, with means for maintaining them in substantially vertical position, which uprights are capable of being elongated by the insertion of an additional section or sections, there being means included for preventing angular movement between the sections; a platform supporting bracket slidably connected to each upright by a friction clutch acting automatically to prevent downward movement thereof, the clutch having a latch that may be used to hold it in inoperative position when desired; and mechanism whereby the operator, while on the platform, may elevate or lower the same.

The above and further objects, which will become apparent as the description proceeds, are attained in the scaffold illustrated in the accompanying drawings which form a part hereof, wherein Figure 1 is a perspective view of one end of my improved scaffold, it being deemed unnecessary to show both ends since they are identical; Fig. 2 is a fragmentary end elevation of the scaffold and includes a part of the upright, the platform,

the platform supporting bracket, and the clutch whereby the bracket is locked to the upright; Fig. 3 is a perspective view of a head that is detachably connected to the upper end of each of the uprights; Fig. 4 is a side elevation of the clutch, the same being shown in inoperative position; Fig. 5 is a section on the line 5—5 of Fig. 4; Fig. 6 is a section on line 6—6 of Fig. 5; Fig. 7 is a sectional detail on the line 7—7 of Fig. 2; Fig. 8 is a view, similar to Fig. 1, and shows my scaffold suspended from ladders, only one end of the scaffold being shown for the same reason as explained in connection with Fig. 1; Fig. 9 is a perspective view, of the hanger employed for suspending the upright from a ladder; Fig. 10 is a detail of the adjustable brace, shown in Fig. 8, for maintaining each upright substantially vertical and rigid, when used in connection with a ladder; Fig. 11 is a perspective view of a holder for the upright that is used under certain circumstances; and Fig. 12 is a similar view of the lower end of one of the uprights and foot, the sections being slightly separated, and the foot removed somewhat from its normal position.

Throughout the following description, reference letters will be used to designate the various general parts of the scaffold, and reference numerals will be employed to point out the structural details of each general part.

Each end of the platform A is supported upon a bracket B that is slidably connected to an upright C, and is adapted to be locked or clamped thereto, at any desired elevation, by a clutch D. E is a head that is removably secured to the upper end of each of the uprights, and incorporated within the head is a pulley block, a similar block being embodied in one of the members of the clutch D. A tackle-fall or rope F is fastened to the block of the clutch and is trained over the pulleys of the two blocks, in the customary manner, and by means of the rope, a person upon the platform may elevate or lower himself.

Each upright C comprises a principal section 1, that is preferably formed of metallic tubing, and to the lower end of which may be applied one or more extension sections 1^a, which are similar to the principal section 1. To the bottom of the upright is applied a foot 2 having spurs 3 extending downward from its underneath side, one located adja-

cent each of its ends, which prevent the foot from slipping. Except under peculiar circumstances, the foot 2 extends parallel to the platform A. As will be seen clearly from Fig. 12, the sections of the uprights are detachably connected by means of shanks 4, which rise from the upper ends of the extension sections 1^a, and are of a size to fit, rather snugly, the lower ends of the principal sections 1. A pin 5 projects from the side of each of the shanks 4 and is arranged to be received by a notch 6 that is formed in the bottom of the next higher section. It may be stated at this time, that the pin 5 is of a length equal to or less than the thickness of the material from which the notched section is made, so that said pin will not extend beyond the surface of the upright and interfere with the movement of the bracket B along the uprights. The foot 2 has a shank 7 that is adapted to enter the lower end of the upright, and be locked thereto by a thumb nut 8 that is threaded upon a stud 9 which projects from the side of the shank. The stud 9 is arranged to be received by the notch of the principal section, when no extension sections are used, or by the notch of the lower section of an elongated upright. By means of the stud 9 and the pins 5, with the cooperating notches, the foot and the various sections of the uprights are locked against angular movement.

Each head E is preferably formed of a casting which comprises a sleeve 10, from one side of which extends a block 11, wherein are housed the pulleys 12, and from the opposite side of which extends a boss 13, having a plane face that is provided with a straight, transverse channel 14, and a curved groove or channel 15. The open sides of the channel and groove are arranged to be closed by a plate 16 that is pivoted upon a screw 17, threaded into the lower end of the boss 13, and said plate is arranged to be held in a position to close the channel and groove, or against the face of the boss, by a latch 18 that is pivoted to the side of the boss near its upper end, and is arranged to cooperate with a notch 19 that is formed in one of the upper corners of the plate 16. The sleeve 10 fits over the upright and may be fastened thereto by a set screw 20 which is threaded through the side of the sleeve.

The clutch D comprises two jaws 25 and 26 that are connected, and maintained parallel to each other, by links 27. A spring 28 has one of its ends connected to the upper stud or pin 29 of the jaw 25, and its other end attached to the lower stud or pin 30 of the jaw 26, and said spring tends to swing the jaw 26 upward with respect to the jaw 25, and into contact with the side of the upright. 31 is a latch plate which has its lower end pivoted upon the lower stud or pin 29 of the clutch jaw 25, and a segmental slot 32, which is concentric to the pivotal point of the plate, plays upon the upper pin or stud 29. The latch plate has a hook 33 for cooperation with the upper pin or stud 30 of the jaw 26, and when said hook embraces said pin, the jaw 26 is held downward against the tension of the spring 28 and in substantially the plane of the jaw 25 in which position the clutch is free to move in either direction upon the upright. The links 27 are preferably grouped in pairs, as shown in Fig. 5, and the latch plate 31 is guided between the links of the upper pair on the corresponding side of the clutch. The latch plate 31 may be actuated from the platform to disengage it from the pin or stud 30, by the operator engaging the portion 34 with his foot. In Fig. 2 the clutch is shown as unlatched and in clamping position, while in Fig. 4, the clutch is shown as being held in inoperative position by the latch plate 31. It will be seen from Fig. 5 that the inner, opposed surfaces of the clutch jaws are recessed for the reception of strips of friction material 36, the strips on the jaw 26 being adjustable for the purpose of taking up wear, by screws 37 which are threaded through the jaw and bear against metallic strips 38 that form backings for the strips of frictional material. A pulley block 39 is preferably cast integral with the jaw 25, and within the block are journaled the pulleys 40, upon the screw 41, which passes through the block and is threaded into the body portion of the jaw 25, as clearly shown in Fig. 5.

Between two ears 44 which depend from the bottom of the block 39, is pivoted, upon a bolt or rivet 45, one end of each of the bars 46 and 47. The bar 47 depends from the block and has its lower end secured between the forwardly projecting ears 48 of a sleeve 49 that is slidable upon the upright. A step 50 projects laterally from each side of the sleeve 49, for a purpose which will be explained hereinafter. Pivoted between the ears 48, upon one of the bolts or rivets, that secures the lower end of the bar 47 in place, is the lower end of the diagonal bar 51, which has its upper end provided with a series of perforations 52 through any one of which may be placed a bolt 53, whereon the free end of the aforesaid bar 46 is secured, by a wing nut 54. The bars 46, 47 and 51 comprise the platform supporting bracket B; and the adjustment between the ends of the bars 46 and 51 is provided for the purpose of maintaining the platform substantially horizontal when the upright D is inclined more or less from a vertical position.

55 is an eye that is carried by the pulley block 39, and to which one end of the tackle-fall or rope F is secured. From here the rope or fall is led up over one of the pulleys

of the upper block, thence downward over one of the pulleys of the lower block then over the second of the upper pulleys, from where it is led over the second pulley of the lower block, and, after being passed over the last pulley of the upper block, its free end may be hitched about the cleat 56 on the clutch jaw 26, as a safeguard against any possible slippage of the clutch.

It will be understood from the foregoing that when the operator wishes to elevate the platform, he may stand thereon and pull the free end of the rope or fall. In this manner he may hoist the platform to the desired height, the clutch acting in the meanwhile under the influence of the spring 28, to prevent any downward movement of the platform during the intermittent rise thereof. When he has finally gained the desired elevation, he hitches the end of the rope or fall about the cleat 56, as above described and as clearly shown in Fig. 1. Now when the operator wishes to descend, he unloosens the rope or fall and, placing his foot upon the upper end of the jaw 26, depresses the same with respect to the jaw 25, thereby unclamping the clutch from the upright, and by paying out the rope, may descend as rapidly or slowly as he wishes. During this operation, should he lose his balance or should anything occur to cause him to remove his foot from the jaw 25, the clutch will act automatically to stop the descent of the platform. On the other hand, if he is descending for a considerable distance and does not wish to hold his foot upon the clutch jaw 26, he may lock the jaw down by means of the latch plate 31, as above described.

The assembly shown in Fig. 1 is intended to stand against the side of a building, where the foot 2 may rest upon the ground, or other satisfactory foundation, such as the roof of a porch. The upper end of the upright is spaced from the side of the building by an A-frame 60. This frame is formed of a strap or bar of metal which has its end portions turned into a substantially horizontal plane, or at right angles to its central vertical portion 61, and said central portion is arranged to occupy the channel 14 in the head E, the plate 16 acting to retain the frame in place. The ends of the frame are connected and spaced apart by the bar 62, and are each cut diagonally to provide barbs 63 which engage the surface of the wall to prevent the frame and the upright, from shifting sidewise. I previously mentioned the fact that, except under peculiar circumstances, the foot 2 is parallel to the platform. When working in such places as above porch roofs, for instance, where the ridge of the roof is at right angles to the wall, it is advantageous to turn the foot at right angles to the wall; and to

accomplish this, the entire upright, together with the foot and head are turned through about 90°, and the bracket B is turned to the opposite or outer side of the upright.

Under conditions where the uprights are of considerable height and are substantially vertical, I provide a brace for securing the structure to the wall to render the scaffold more rigid. The brace is shown at 65, and is pivoted at 66 to the diagonal bar 51 of the bracket B. The brace comprises a pair of overlapping bars 67 and 68, one end of each bar having a loop 69 which surrounds the body portion of the other bar. A set screw 70 passes through the loop of the bar 67 and bears against the adjacent face of the bar 68, to hold said bars in any adjusted position with respect to each other (see Fig. 7). The free end of the bar 68 is turned at right angles to its body portion and is perforated for the reception of a screw 71, having a winged head 72 whereby said screw may be turned. A frusto conical shell 73 surrounds the screw, and its smaller end bears against the turned over portion of the bar 68 while its larger end is notched to provide points 74. The shell is held upon the screw by means of a washer 75 that is pushed upon the screw and toward the reduced end of the shell 73. It will be understood that when the scaffold is set up alongside a wall, with the barbed ends of the A-frame bearing against the wall, that the brace just described may be turned outward from the bracket B, as shown in Fig. 2, and the screw 71 screwed into the surface of the wall until the points 74 of the shell 73 are firmly embedded therein. The adjustment of the brace being thus obtained the brace may be locked against elongation by the set screw 70. The brace will then act to hold the structure rigid and prevent vibration.

Under some conditions, the uprights extend above the cornice of a building, and under such circumstances, the A-frame may be dispensed with. The overhang of the cornice may then answer to space the upright from the wall, and to prevent the upright from falling away from the cornice, the holder that is shown in perspective in Fig. 11 is used. This holder comprises a screw 80, to the head 81 of which is attached a yoke 82, that is adapted to receive the upright and within which the upright may be held by the link 83 which has one of its ends pivoted to one end of the yoke and its opposite end provided with an eye 84 that is arranged to cooperate with an eye 85 formed on the opposite end of the yoke, said eyes being adapted to be held together by a pin 86, that may be inserted through said eyes. The screw 80 has swiveled on it a shell 87, similar to the shell 73 of the previously described brace 65. A holder of this kind is also employed when it is necessary to place

the uprights very close to the surface of the wall, and locate the brackets B and the platform A on the side of the uprights remote from the wall.

5 It is sometimes advantageous to support the uprights of my scaffold from ladders which are inclined against the side of a wall. When used in such connection, the hanger, shown in Fig. 9, is attached to the
10 head E by inserting the central curved portion thereof in the curved groove 15 of the head and locking it therein by the plate 16. The curvature of the hanger prevents it from turning within the groove. One
15 branch of the hanger is provided with a hook 91 that is arranged to be placed over the rung of a ladder, while the hook 92, that forms the upper end of the other branch is arranged to extend over the same rung and
20 embrace the stile of the ladder, as clearly shown in Fig. 8. The lower end of the upright is held rigid by a brace 93, shown in Fig. 10. The brace comprises a bar of metal 94, one end of which is formed into a loop
25 95 which surrounds the upright, and is arranged to be locked thereto by a thumb screw 96. The bar 94 of the brace is slidably connected to the bar 97, and to the free end of the latter bar is attached a cross
30 member 98, the ends of which are formed into hooks 99 that are adapted to embrace a rung of the ladder. The slidable connection between the two bars of the brace is accomplished in the same manner as that described in connection with the brace 65 and
35 they are arranged to be held in any adjusted position by the thumb screw 100 that is threaded through the end of the strap 94 and bears against the strap 97.

40 The steps 50 which extend laterally from the sleeves 49 of the brackets B are used by the workmen to stand on while adjusting, placing, or removing the platform.

The scaffold may be collapsed for storage or transportation by dismembering the uprights and disconnecting the ends of the bars 46 and 51 of the brackets B from each other and folding said bars into proximity to the uprights.

50 I have found that in the raising and lowering of the platform, even with the clutch latch in inoperative position, there is a certain amount of drag of particularly the lower end of the member 26, and to obviate
55 this I employ an adjustment screw 101 which is threaded through the lower end of said member and bears against the upright C.

Having thus described my invention, what
60 I claim is:—

1. In a scaffold of the character set forth, the combination of an upright whereon a bracket is slidably mounted, a member secured to the upper end of the upright and
65 having formed integral with it a pulley

block and having a flat face that is provided with a channel adapted to receive a portion of a supporting member, the channel and such portion being so shaped as to prevent turning with respect to each other, and a
70 plate arranged to close the open side of the channel, the aforesaid bracket being adapted to be slid along the upright by a flexible member having connections with the bracket and passing over the pulley of the afore-
75 said pulley block.

2. In a scaffold of the character set forth, the combination of an upright, a member secured to the upper end thereof, said member comprising a sleeve having a boss extending from one of its sides, said boss
80 having a flat face that is provided with a transverse channel adapted to receive a portion of a supporting member, the channel and such portion being so shaped as to prevent turning with respect to each other, a
85 plate pivoted to the flat face of the boss and arranged to close said channel, and a latch for retaining the plate in closed position.

3. In a scaffold of the character set forth, the combination of an upright whereon a bracket is slidable, said bracket having a pulley block, a member secured to the upper
90 end thereof, said member comprising a sleeve having a pulley block extending from one of its sides and a boss from its other side, said boss having a flat face that is provided with a transverse channel adapted to receive a portion of a supporting member, the channel and such portion being so
95 shaped as to prevent turning with respect to each other, a plate pivoted to the flat face of the boss and arranged to close said channel, and a latch for retaining the plate in closed position, the aforesaid bracket
100 being adapted to be slid along the upright by a tackle-fall that has one of its ends attached to one of the pulley blocks and is trained over the pulleys of the two blocks.

4. In a scaffold of the character set forth, the combination of an upright, means for spacing the upper end thereof from a substantially vertical surface, a bracket connected to and slidable with respect to the
110 upright, and a brace for connecting said bracket to the aforesaid surface, said brace comprising a bar that is pivotally connected to the bracket, a second bar slidably connected to the first, and attaching means carried by the free end of the latter bar.
120

5. In a scaffold of the character set forth, the combination of an upright, a bracket for attachment thereto, and means for holding the upright in fixed relation to a substantially vertical surface, said means comprising a screw, a frusto conical shell swiveled to and surrounding said screw, the enlarged end of the shell being notched to provide points which extend in the direction of the point of the screw.
125
130

6. In a scaffold of the character set forth, the combination of an upright having a tubular lower end, a bracket connected thereto and slidable with respect to the upright, means for sliding the bracket, and a foot for application to the lower end of the upright, said foot comprising a body portion from which depend spurs and from the central portion of which rises a shank that is adapted to be inserted into the lower end of the tubular upright, a stud extending from the side of the shank and threaded to receive a nut, the lower end of the upright being notched for the accommodation of said stud.

7. In a scaffold of the character set forth, the combination of an upright, a clutch slidable along the upright and comprising a pair of jaws which engage both sides of the upright, said jaws being connected by links which maintain them substantially parallel but permit movement from and toward each other, a platform supporting

bracket attached to one of said jaws, a spring for elevating the other jaw with respect to the one to which the platform supporting bracket is attached, and an adjustment screw which passes through the spring elevated jaw and bears against the upright.

8. In a scaffold of the character set forth, the combination of an upright, a clutch slidable along the upright and comprising a pair of jaws which engage both sides of the upright, said jaws being connected by links which maintain them substantially parallel but permit movement from and toward each other, a platform supporting bracket attached to one of said jaws, means for elevating the other jaw with respect to the one to which the platform-supporting bracket is attached, and further means for maintaining the lower end of the last mentioned jaw out of contact with the upright.

In testimony whereof, I hereunto affix my signature.

JOHN J. KITSTEINER, JR.