

(No Model.)

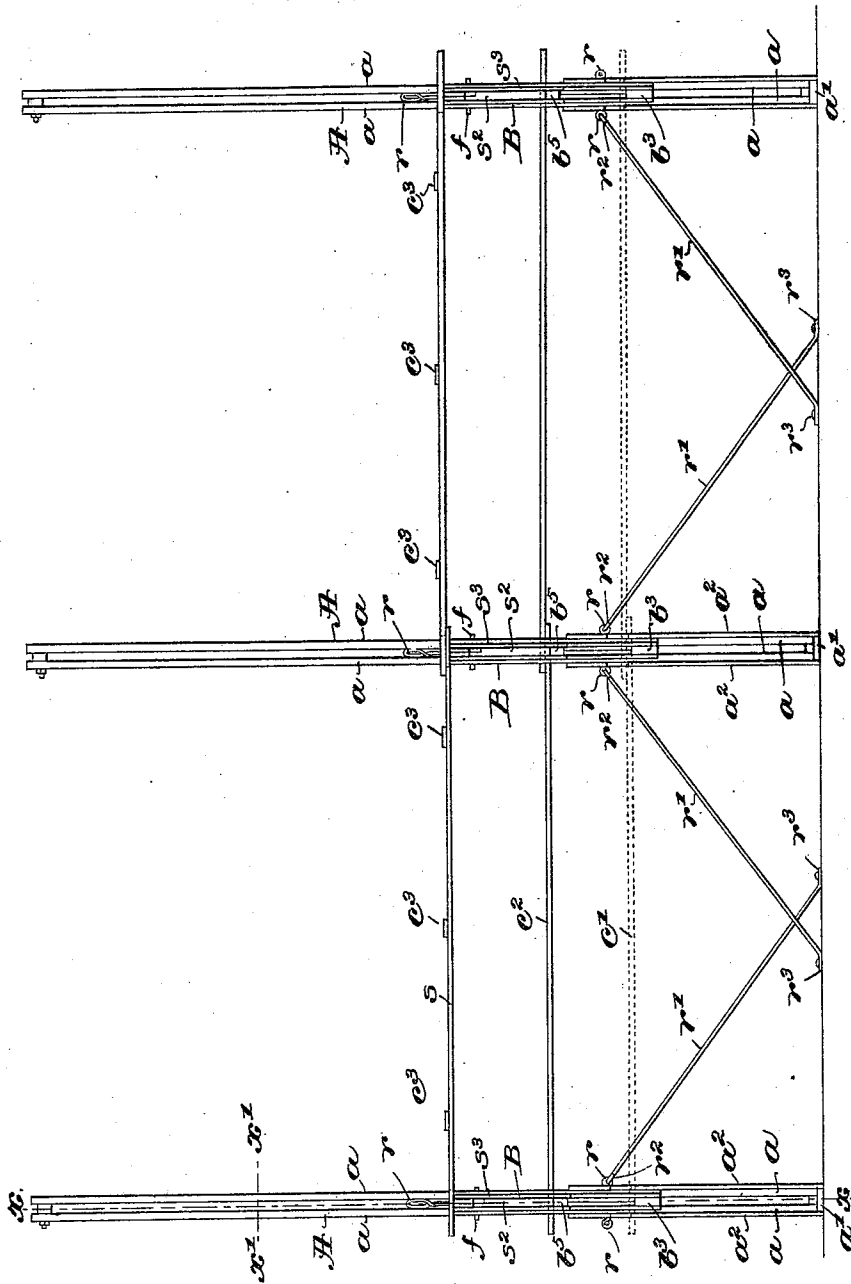
2 Sheets—Sheet 1.

F. B. GILBRETH.
SCAFFOLD.

No. 554,024.

Patented Feb. 4, 1896.

Fig. 1.



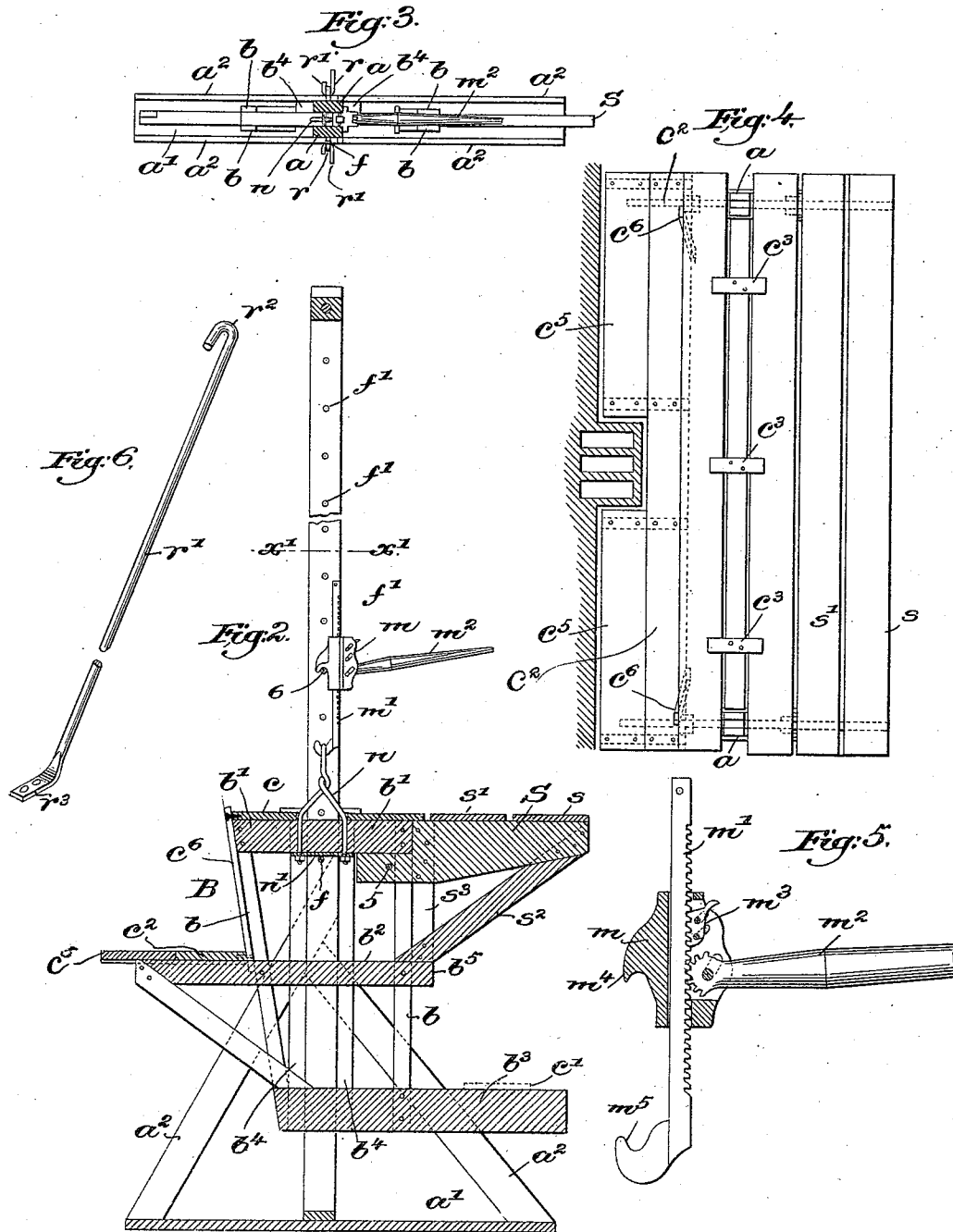
Witnesses.
Edward F. Allen.
Thomas J. Drummond.

Inventor.
Frank B. Gilbreth
by Crosby Gregory attys.

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UNITED STATES PATENT OFFICE.

FRANK B. GILBRETH, OF BROOKLINE, MASSACHUSETTS.

SCAFFOLD.

SPECIFICATION forming part of Letters Patent No. 554,024, dated February 4, 1896.

Application filed June 4, 1894. Serial No. 513,345. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. GILBRETH, of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Scaffolds, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

United States Patent No. 479,591, granted me July 26, 1892, shows a scaffold, the distinctive features of which are, first, a single line of standards for supporting the vertically-adjustable frame carrying the stock-planks; second, vertically-adjustable frames having platform-supports arranged at three different levels, the middle platform being the highest and adapted to carry the stock, the mason's platform at one side and at such distance below the stock-platform as to make it convenient for the mason standing upon his platform to take the material from the stock-platform, and the hod-carrier's platform at that side of the frame opposite the mason's platform and arranged below the latter and at such distance below the stock-platform as will enable the hod-carrier to most conveniently deposit the material from his shoulder upon the stock-platform. In my said patent the platform-carrying frames rest upon and are supported by jacks arranged between the parallel members of the several standards and supported upon pins passed through the latter.

Extended use of scaffolds constructed in accordance with my Patent No. 479,591, above referred to, has developed various improvements, which form the subject-matter of this present application.

My present invention, therefore, comprehends, first, hanging the frames from suspending jacks, instead of resting the frames on supporting-jacks, as in my former patent, for in the latter construction it is inconvenient to operate the jacks until the frames have been raised to a considerable distance above the floor.

In my new construction the jacks being always above the frames are in a convenient position to be operated by the workman standing upon one of the platforms of the scaffold,

whether the platforms are close down to the floor-level or are elevated to a considerable height on the standards.

In my Patent No. 479,591 the three platforms are arranged at different levels, the hod-carrier's platform being the lowest, such being the proper arrangement where the stock is conveyed to the stock-platform in hods. In many sections, however, it is the prevailing custom for tenders to carry the stock to the stock-platform in wheelbarrows, in which case the tender's platform, corresponding to the hod-carrier's platform in my said patent, must be on a level substantially with that of the stock-platform.

My present invention, therefore, comprehends a bracket adapted to be secured to the platform-carrying frame at that side corresponding to the hod-carrier's platform in my former patent. Those brackets upon the several frames constitute supports for the platform, upon which the wheelbarrow carrying the stock may be wheeled. These brackets are preferably removable, to enable the elevated platforms carried by them to be dropped to and upon the hod-carrier's platform supports, (shown in my former patent,) when the staging has been raised to such a height that a tender cannot conveniently wheel the barrow upon the elevated platform provided for it on account of insufficient head-room or when the inclination of the plank leading to the platform becomes so great as to render it impractical to wheel a barrow thereupon.

My invention further comprehends various details of construction to be hereinafter fully described and set forth in the claims.

In the drawings, Figure 1 is a side elevation of a section of a scaffold embodying my present invention; Fig. 2, a vertical sectional detail, taken on the dotted line $x x$, Fig. 1, and on an enlarged scale, the jack being shown in elevation; Fig. 3, a horizontal sectional detail on the dotted line $x' x'$, Fig. 1; Fig. 4, a detail looking down upon the top of scaffold, showing the preferred means for supporting the middle plank of the stock-platform, and a peculiar construction of mason's platform to adapt it for working around chimneys, &c.; Fig. 5, a sectional detail on en-

larged scale showing the preferred construction of jack, and Fig. 6 a perspective view of the preferred form of end stay or brace.

Referring to the drawings in the particular construction there shown to illustrate my invention, the standards A A each preferably consists of two like members a a , arranged upon suitable bases a' , stiffened by suitable angular braces a^2 , substantially as in my Patent No. 479,591 referred to. These standards are preferably provided at opposite sides with eyes r r , with which co-operate the lateral stays r' (herein shown as metallic rods) hooked at their upper ends at r^2 to engage the said eyes and to enable the said stays to be readily detached therefrom, the said stays at their opposite ends being suitably formed (herein shown as by flattening their ends, as at r^3 ,) and perforated to receive one or more nails or spikes driven into the floor to secure the said stays to the floor.

It will be noticed that the eye r and the hook r^2 constitute in effect a substantially universal connection—*i. e.*, one which enables the stay to be swung in different directions—to be secured to the floor and at different angles or levels, as may be most convenient under the particular circumstances of each case. Each eye is preferably arranged in a vertical plane, as shown, for I have found that if the said eye be in horizontal plane the angularity of the stay permits a considerable play of a hook therein, but that with a vertical eye there is no such play, except when the stay is swung into a horizontal plane for unhooking or detachment. This type of connection also enables the stay to be folded or turned back against any part of the standards when the latter are to be moved, a most important feature from a practical standpoint.

By providing the hook-and-eye connection, as described, the stay may be readily detached for application to the opposite side of the standard or for detachment.

The vertically-adjustable frames B (see Fig 2) each consists of outside upright members b b , connected by the cross members or supports b' , b^2 , and b^3 , the cross member b' constituting a support for the stock-platform c , the cross member b^2 projecting laterally beyond the said upright members at one side of the frame to form a support for the mason's platform c^2 , while the cross member b^3 projects beyond said members at the side of the frame opposite the platform c^2 to constitute a support for the hod-carrier's or wheeler's platform c' , all of which may be substantially as in my prior patent referred to, said platforms, as a rule, being simply laid upon their respective supports and not nailed or otherwise securely attached thereto. In my said patent, however, the frames B are guided in their vertical sliding movement by notches cut in the cross members of the frames to receive one of the members of the standards. In this my present invention, however, each frame B is guided by two guide-strips b^4 , ex-

tending from the top to the bottom cross members of the frame and at opposite sides respectively of one of the members of the standard, as herein shown, or two of the said strips may be provided at each side of the said frame B to thereby act upon both members of the standard if desired. By this means a continuous guide of a length equal to the height of the frame is provided at each side of the standard. As previously referred to, however, it is sometimes desirable to deposit the stock upon the stock-platform c directly from a wheelbarrow, and in such case the platform upon which the wheelbarrow runs must be at substantially the level of the stock-platform. My present invention, therefore, comprehends providing each of the vertically-adjustable frames B with a side bracket S, (see Fig. 2,) upon which the planks s for the wheeler's platform may be laid to provide a wheeler's platform at a high level, substantially that of the stock-platform. These brackets S, in the preferred construction, are made removable from the main frame B in order that they may be removed when the frames B have reached such a height as to give insufficient head-room to the tenders on said platform, the tenders at such time transferring the planks s to or laying other planks upon the supports b^3 at a lower level, corresponding to the hod-carrier's platform c' in my said patent referred to and so indicated in dotted lines and lettered in the drawings, Fig. 2.

Each bracket S in the present construction comprises the horizontal member s' and the angular brace s^2 connected by the parallel vertical members s^3 , one at each side of the said members s' s^2 . The inner end of the horizontal member s' is shown extended between the parallel vertical members of the frame B, and is perforated to receive a retaining-pin 5 , shown as passing at the back or inner side of the said vertical members b to prevent the bracket S being withdrawn from the said frame B, said bracket at its lower end being supported upon the projecting end b^5 of the intermediate cross member b^2 of the main frame.

If desired, the bracket S, or a similar bracket, may be applied at the opposite side of the frame B to raise the mason's platform.

When the bracket S is removed and the platform c' is in use, the projecting end b^5 of the intermediate cross member b^2 forms a convenient step to enable the tender to step from the lowest to the stock platform.

In the drawings, Fig. 2, the upright member b at the left of the frame B is shown as inclined inwardly toward the bottom to thereby give greater width of platform for the masons without lengthening the projecting end of the intermediate cross member b^2 .

Referring now particularly to Figs. 2 and 3, the standards A are perforated at intervals, as at f' f' , as in my prior patent.

In this my present invention, instead of

arranging the lifting-jacks below the frame B, as in my prior patent, I suspend the same from pins inserted in one or another of the perforations f' f' above the said frame B, as best illustrated in Fig. 2. In said figure, m is the body of the jack, the same containing the sliding rack-bar m' , the teeth of which are acted upon in usual manner by the lifting-lever m^2 , the said rack-bar being held in adjusted position by the dog m^3 . This body m has, in accordance with this present invention, a lateral ear or hook m^4 adapted to be hooked upon a pin 6 inserted in one of the perforations f' in the standard, and the rack-bar at its lower end is provided with a hook m^5 adapted to engage a bail or hanger n on the topmost cross member of the adjustable frame.

When the scaffold is to be raised, a workman, standing upon any of the platforms on the frame B, may conveniently operate the handle m^2 to raise the frame and its platforms to the required level.

While I prefer to employ a jack constructed substantially as herein shown, yet my invention is not restricted in this respect, for any jacks of whatever construction which may be hung above the adjustable frame B, and at its lower end hooked or connected to the said adjustable frame or platform-support either directly or by means of a bail or hanger, as herein shown, and which when operated will raise the said frame or support, is within the scope of my invention. A great advantage of suspending the platform-support in this manner instead of supporting it from below is that it is not necessary to raise the frame or support above the floor in order to get the jack between it and the floor, for the jack is always in operative position above the frame or support, and it matters not what may be the height of the frames on the standards, the jacks are always in convenient position to be operated by workmen while upon the platforms.

Referring to Fig. 4, the stock-platform, as shown, consists of three planks, two of which are outside the central line of standards, the third being interposed between the standards and the outside planks and sustained by two or more cross-bars c^3 , which overlie and rest upon the outside planks, as shown. By this construction the three planks composing the stock-platform are always at the same level.

Should it for any reason become desirable to raise the frame B from below, as in my former patent, a jack constructed substantially like that herein shown may be used equally as well, for the lateral ear or hook m^4 may be supported upon a pin passed through one of the perforations f' below the frame, and the frame supported upon the upper end of the rack-bar, the jack being operated precisely as when used above the frame, as previously described.

I prefer to employ a hanger n , substantially as herein shown, and consisting of two arms or members resembling a bail or handle, the

said arms or members being passed through the upper cross member, b' , of the adjustable frame B and through a washer-plate n' , as shown best in Fig. 2, and secured by retaining-nuts at the under side thereof in order that the supporting-pin f upon which the frame rests, when in use, may be passed through a perforation in the standard directly below the said top member, b' , and the plate n' , which latter receives the wear.

In ordinary practice in building straight walls the standards are so positioned that the outer edge of the mason's platform is parallel with and usually separated from the inner face of the wall by a space of three or four inches. When, however, the wall projects inwardly beyond the straight face—as, for instance, in the case of an inwardly-projecting chimney—it is impossible to position the standards so that the outer edge of the mason's platform will come nearer the face of the straight wall than the projection of the chimney, leaving an undue space between the platform and the wall, over which the mason must reach in laying the brick.

Referring to Fig. 4, I have provided the mason's platform with an extension-plank c^5 adapted to reach across this space between the edge of the usual platform and the face of the straight wall, which extension-piece is secured in suitable manner to the mason's platform-plank c^2 , resting upon the extended ends of the cross member b^2 of the adjustable frame. This extension-piece enables the workman to stand close to the wall, as usual; but said extension-piece projects beyond the end of the said intermediate cross member b^2 and, with its connected mason's platform c^2 , would be liable to tip up when the mason steps upon its outer edge beyond the ends of the extended cross members b^2 of the frames. To obviate this tipping I provide the arms c^6 , preferably pivoted to the inner edge of the mason's platform and adapted to be turned into a vertical position and at their upper ends secured, as by nails, to the edge of the stock-platform above or to the frames B to keep the said mason's platform and its extension-piece from tipping up, for it cannot then tip without also raising the stock-platform with its weight of stock, &c.

This invention is not restricted to the particular shape or construction of parts herein shown, for it is evident the shape and construction of the parts may be varied without departing from the spirit and scope of the invention as claimed.

The brackets S may be applied to the opposite sides of the frames B, if desired, to raise the level of the mason's platform.

I claim—

1. In a scaffold, the combination with a series of supporting-standards, of a series of adjustable platform-carrying frames provided with masons' and stock platform-supports, one frame for each standard, each of said platform-carrying frames being provided at

one side with a wheeler's platform-support, and a removable platform-carrying bracket arranged above said wheeler's platform-support and at the same side said frame, whereby
5 said wheeler's platform may be carried at a high altitude upon the said brackets or at a lower altitude on the said supports beneath without readjustment of said frame, to there-
10 by meet different stages of the work, the said brackets being removed when the said supports beneath are utilized, substantially as described.

2. The combination with a standard provided with a series of perforations adapted to
15 receive a pin, and a vertically-adjustable platform-carrying frame, of a jack consisting of a body, a rack, and means to move the same in and with relation to said body, said rack and body provided with hooks for engage-
20 ment with said pin and frame, substantially as described.

3. In a scaffold, the combination with a standard comprising two parallel members

perforated to receive a pin crossing the opening between; a platform-carrying frame adjustable on said standard; and a supporting-pin adapted to be inserted also through said
25 perforations to support the said frame independently of said first-named pin, of a suspending and lifting jack arranged above said frame and sustained from and by said first-named pin; and a bail-like hanger on the said
30 frame and to be engaged by said jack to support said frame, said bail-like hanger permitting said supporting-pin to be inserted in the
35 perforations, within the limits of the said hanger, to support the said frame centrally, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
40 two subscribing witnesses.

FRANK B. GILBRETH.

Witnesses:

FREDERICK L. EMERY,
LAURA T. MANIX.