W. P. STUBBLEFIELD.

STEP MOLD.

APPLICATION FILED FEB. 26, 1912.

1,153,462.

Patented Sept. 14, 1915.

4 SHEETS—SHEET 1.

Fig. 1.

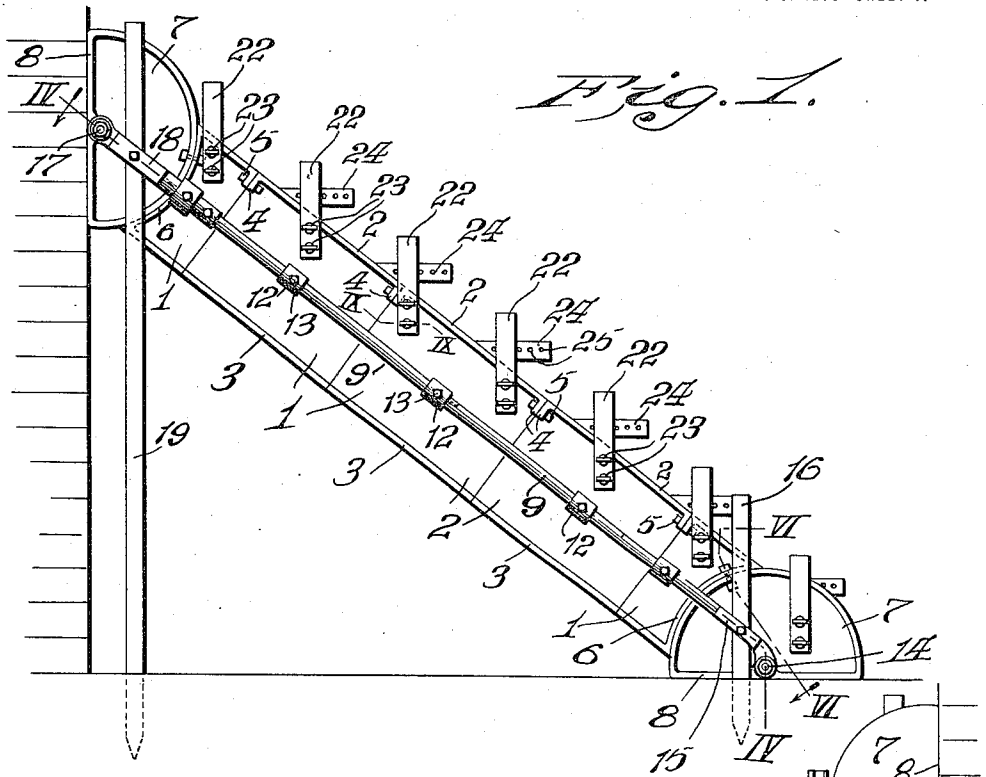
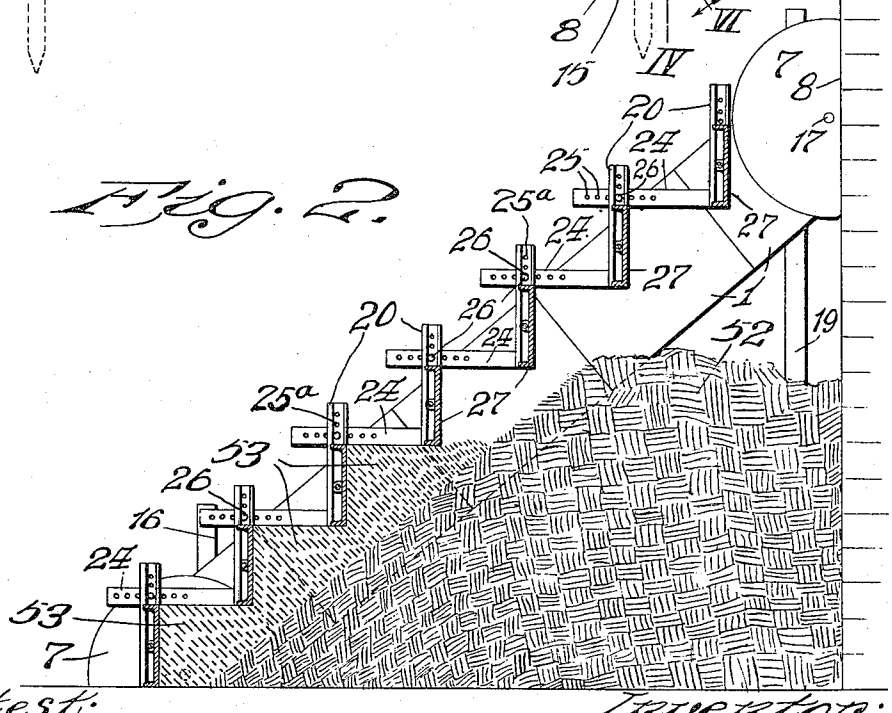


Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 3.

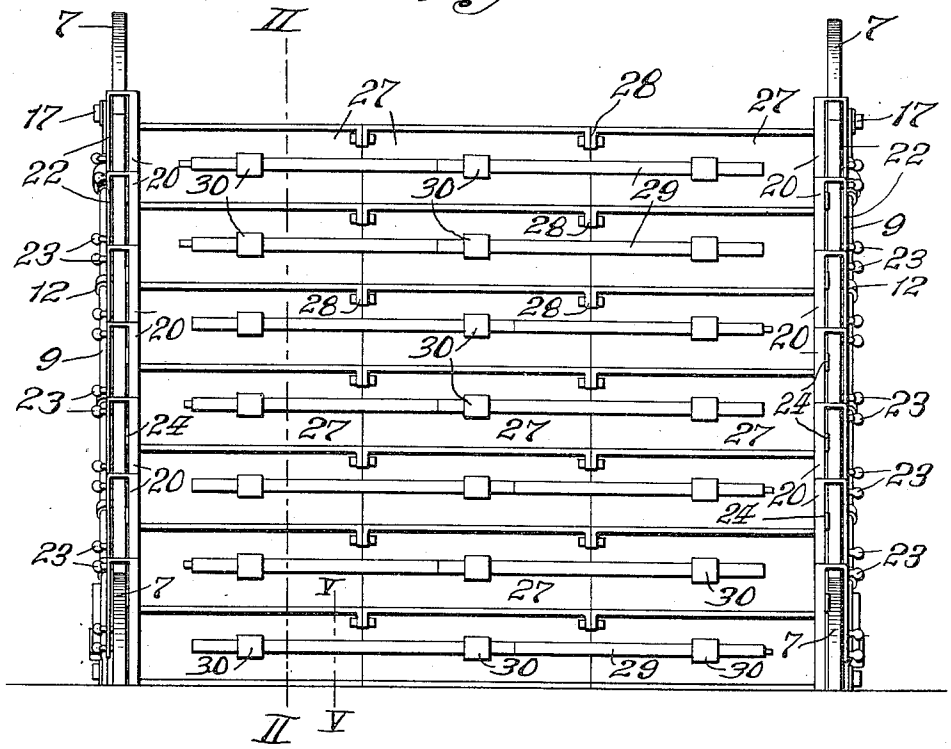


Fig. 4.

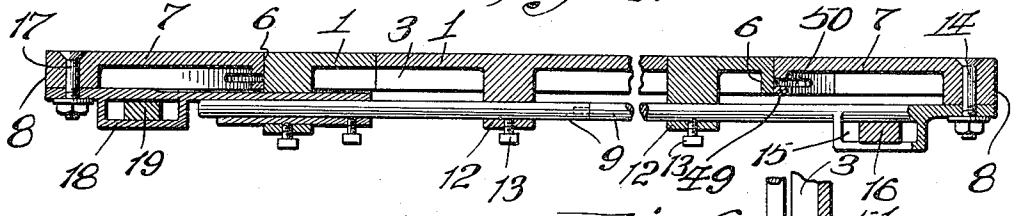


Fig. 5.

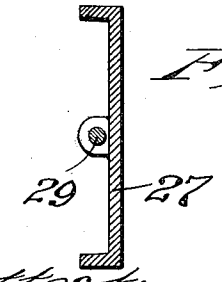
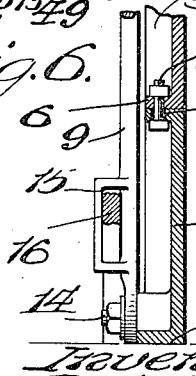


Fig. 6.



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4 SHEETS—SHEET 3.

Fig. 7.

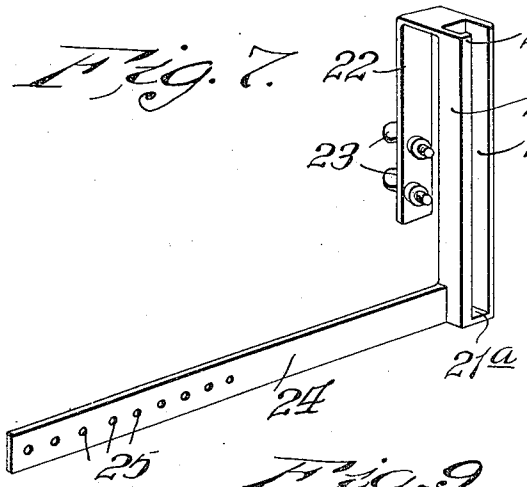


Fig. 8.

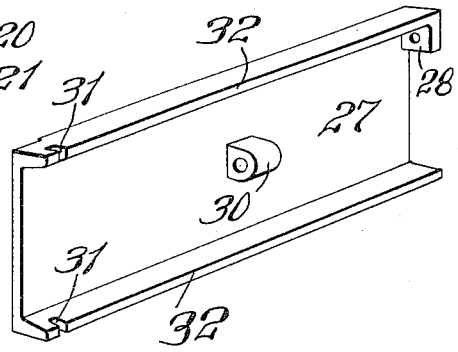


Fig. 9.

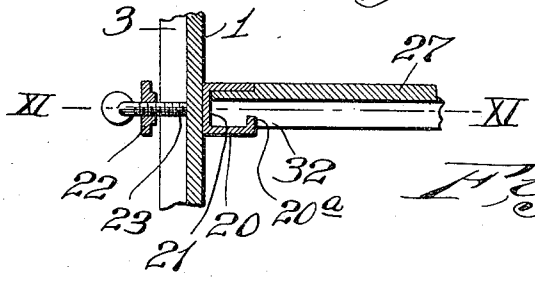


Fig. 10.

Fig. 11.

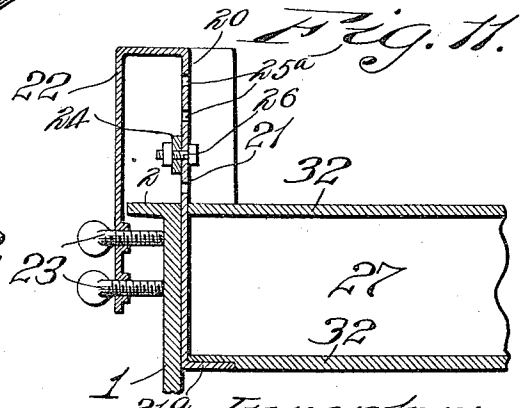
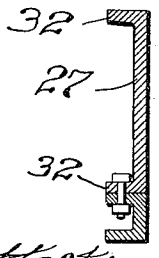


Fig. 12.



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APPLICATION FILED FEB. 26, 1912.

1,153,462.

Patented Sept. 14, 1915.

4 SHEETS—SHEET 4.

Fig. 13.

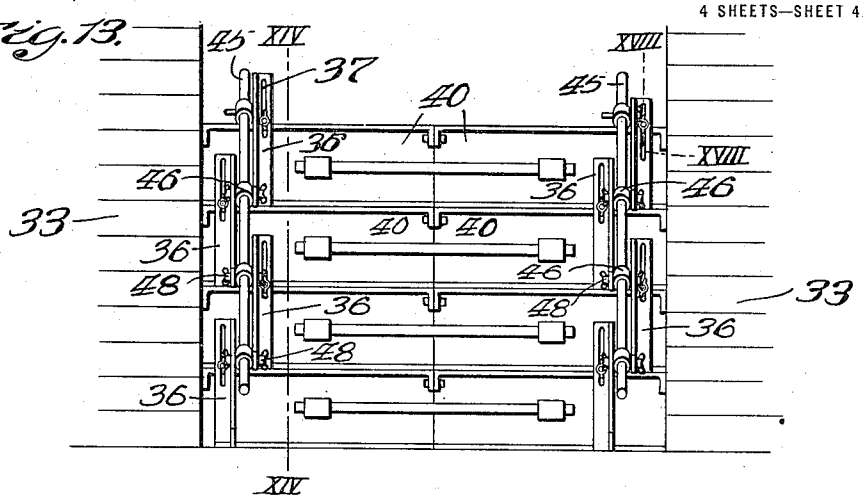


Fig. 14.

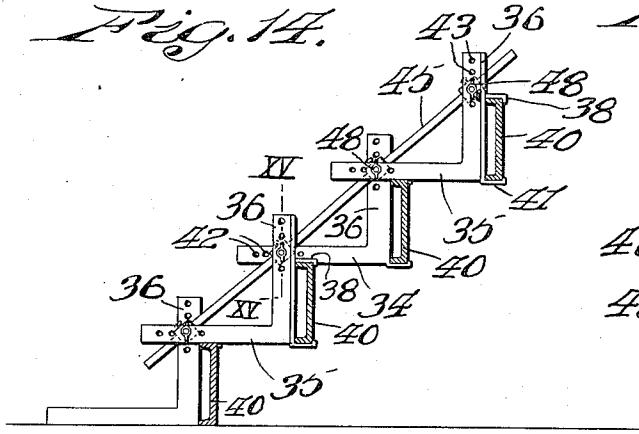


Fig. 15.

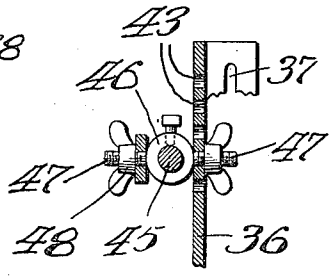
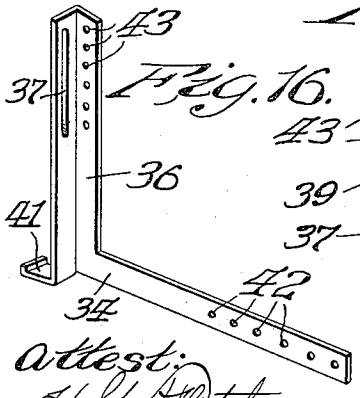


Fig. 18.

Fig. 16.



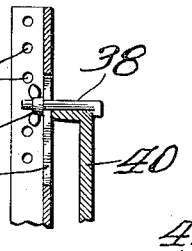
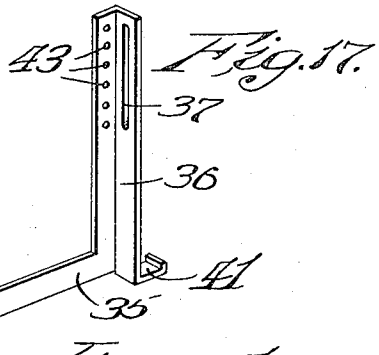


Fig. 17.



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UNITED STATES PATENT OFFICE.

WILLIAM P. STUBBLEFIELD, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD TO GEORGE BAPTISTE, OF ST. LOUIS, MISSOURI.

STEP-MOLD.

1,153,462. Specification of Letters Patent. Patented Sept. 14, 1915.

Application filed February 26, 1912. Serial No. 680,100.

To all whom it may concern:

Be it known that I, WILLIAM P. STUBBLEFIELD, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Step-Molds, of which the following is a specification.

This invention relates to step molds, and has for its primary object to provide an improved construction, combination and arrangement of parts in a device of this character whereby it can be made adjustable angularly in length, breadth and pitch.

A further object is to provide certain adjustable portions of improved construction which, when assembled, constitute an improved knock-down construction for concrete steps of various sizes and forms.

More specifically, my invention contemplates the provision of adjustable sectional side boards, riser panels, tie rods for said side boards and panels, and improved adjustable supports for said side boards.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings exemplifying the invention, and in which,

Figure 1 is a side elevation of one embodiment of my invention. Fig. 2 is a section on the line II—II, Fig. 3. Fig. 3 is a front elevation of the embodiment shown in Fig. 1. Fig. 4 is an enlarged detail section on the line IV—IV, Fig. 1, parts being broken away. Fig. 5 is an enlarged section on the line V—V, Fig. 3. Fig. 6 is an enlarged fragmentary section on the line VI—VI, Fig. 1. Fig. 7 is an enlarged detail perspective view of one of the gage brackets for mounting the step riser panels. Fig. 8 is a perspective view of one of the riser panel sections. Fig. 9 is an enlarged fragmentary detail section on the line IX—IX, Fig. 1. Fig. 10 is an enlarged perspective view of one of the tie rods. Fig. 11 is an enlarged fragmentary detail section on the line XI—XI, Fig. 9. Fig. 12 is a section of a modified form of a riser panel, illustrating the method of varying the height of said panel. Fig. 13 is a front elevation of a modified embodiment of my invention, adapted for constructing cement steps between adjacent walls. Fig. 14 is a section on the line XIV—XIV, Fig. 13. Fig. 15 is a detail section on the line XV—XV, Fig. 14. Fig. 16 is a perspective view of the left-hand bracket for this modified embodiment. Fig. 17 is a similar view of the right-hand bracket. Fig. 18 is an enlarged detail section on the line XVIII—XVIII, Fig. 13.

Referring more particularly to the drawings, and first of all to the embodiment shown in Figs. 1 to 12, inclusive: My invention contemplates a pair of side boards constructed in sections 1, each of said sections being provided with a top flange 2, a bottom flange 3, and a lug 4 at each end, said lugs adapting the sections to be detachably secured together by means of bolts 5 or other suitable fastening devices. The top and bottom sections of each side board are preferably provided with arcuate flanges 6 to adapt them to bear upon the flanged peripheries of the adjustable segments or supports 7 which, as shown in Fig. 1, are provided respectively with flat edges 8 to adapt them to rest solidly against the horizontal and vertical surfaces while supporting the side boards at any desired angle. In order to provide improved adjustable means for tying the segments 7 to the sections 1, I preferably employ a tie rod (see Fig. 10) consisting of sections 9, each of said sections being provided at one end with a threaded socket 10, and at its other end with a threaded stud 11. Projecting from the outer face of each section 1, is a bearing lug 12 through which the tie rod extends, said bearing being provided with a set screw 13 for rigidly clamping said tie rod therein. The lowermost section of the side board tie rod is pivotally mounted on the stud 14 carried by the segment 7, and is provided with a pocket 15 for the reception of the setting stake 16. The uppermost section of said tie rod is pivotally mounted on the stud 17, and is provided with a pocket 18 for a setting stake 19. With the construction thus far described, the pitch of the steps to be formed can be predetermined at any desired angle of pitch. The length is arranged for by embodying more or less of the sections 1. Obviously, said sections 1 can be made of any desired width. In order to provide suitable means for mounting a plurality of facing boards for forming the risers of the steps, I preferably employ a

number of gage brackets of the form shown best in Fig. 7. Each of said brackets comprises a vertically disposed portion 20 which is hollowed interiorly to provide a socket 21 for receiving the ends of said riser forming facing boards. Each bracket is moreover provided with a clamping arm 22 which depends on the outer face of the side board and preferably serves to mount a pair of clamping screws 23 which adapt the bracket to be rigidly secured to a side board at any desired point. A bracket arm 24 projects upwardly from each of the uprights 20 and is provided with a plurality of spacing apertures 25 which are adapted to be brought into register with corresponding apertures 25ª formed in the vertical portion 20 of the gage bracket next below (see Fig. 2). By means of this arrangement bolts 26 can be passed through the registering apertures 25 and 25ª to secure said brackets in positions, adapting them to hold the riser panels or facing boards in positions for molding steps of any desired tread and rise. As shown in Fig. 3, each riser panel may be constructed in any desired number of sections 27 releasably joined at their abutting ends 28, sectional tie rods 29 being preferably provided for holding them against relative displacement. For this purpose, each of the sections 27 is provided with a socket 30 for the rod 29. Referring now to Figs. 7 and 8, each end section 27 of the riser panel is preferably provided with notches 31 which engage a lip or flange 32, thus serving to maintain the panel in position. A convenient form for the panel sections is the channel shown on the drawings, the notches 31 being cut in the flanges 32.

Referring now to the embodiment shown in Figs. 13 to 18, inclusive, should it be desired to construct an improved knock-down form for concrete steps to be used between parallel walls 33, or the like, my invention contemplates a plurality of spaced left-hand brackets 34, and right-hand brackets 35, each of said brackets being provided with angular uprights 36, in one flange of which is formed a slot 37 for the reception of a clamping screw 38 which may be releasably secured by a thumb nut 39 to hold a riser panel 40. The lower flange of the panel 40 is adapted to rest in the stirrup 41 projecting rearwardly from the upright 36. The horizontal arm of each bracket is provided with apertures 42 which are adapted to be brought into register with corresponding apertures 43 formed in one of the flanges of the upright 36 to adapt the brackets to be secured together in a manner similar to that employed in the other embodiment. In this embodiment, the riser panels 40 abut directly against the walls 33. The riser panels when mounted in their respective brackets 34 are held at their proper height and distance apart by a pair of tie rods 45 which, as shown best in Fig. 15, are passed through a series of spaced collars 46 from opposite sides of which project studs 47 which are adapted, respectively, to be passed through the apertures 42 and 43 formed in the adjacent brackets. Thumb nuts 48 provide a handy means for detachably but rigidly connecting the several parts together. The elevated ends of the rods 45 are held in their elevated positions in any suitable manner (not shown).

In the operation of the embodiment shown in Figs. 1 to 12, when a side board has been constructed the desired length by mounting a series of sections 1 together on their respective tie rods 9, the flat edge 8 of the upper segment 7 is placed against the wall of the building for which the steps are to be constructed. Then, when the side board has been adjusted to the desired angle, the locking bolt 51, carried by the arcuate flange 6 of the lowermost section 1 of the side board (said locking bolt being slidably mounted in the circumferential slot 50 of the peripheral flange 49 of the bottom segment 7), is locked, thus holding the side board at the desired angle. The stakes 16 and 19 are then placed in their respective pockets 15 and 18 and driven into the ground, as shown in Figs. 1, 4 and 6. As these side boards are used in pairs, the other side board is assembled and alined similarly to the one just mentioned. After these side boards have been set up, gage brackets (as shown more clearly in Fig. 7) are mounted thereon. These brackets are made right and left-hand, and the vertical portion 20 and clamping portion 22 thereof are adapted to straddle the side boards, as shown in Figs. 1, 2, 3, 9 and 11. Each bracket is clamped to the side board by the clamping screws 23 carried by the clamping portion 22. In mounting these brackets, the horizontal arm 24, which projects from the vertical portion 20, is engaged against the outside of the vertical portion 20 of the next adjacent bracket. The elected aperture 25 of said arm 24 is brought into register with the elected aperture 25ª of the vertical portion 20. Then a bolt 26 is passed through the registering apertures and locked. After these brackets have been secured to the side boards, each end of the riser panels, which are composed of a number of sections 27 secured together, is engaged in the socket 21 of each vertical portion 20 of each bracket. It, of course, is understood that each bracket on one of the side boards is in alinement with the bracket on the other side board.

The forms having been adjusted to the desired position in the manner indicated in the foregoing description, a foundation 52 of cinders or other suitable material, is filled in underneath the forms and extended up

between the side boards of the mold. This foundation having been roughly completed on an incline, as shown, the self-hardening material can be introduced successively through the open horizontal panels into the form shown in Fig. 2, the tread surfaces of the steps being finished off as the steps are built. When this process is completed, a flight of steps 53 will have been formed. Obviously, by means of this apparatus these steps can be made of any desired pitch, rise and tread.

What I claim is:

1. In a device of the character described, the combination with adjustably mounted side boards, of panel supporting brackets adjustably mounted on said side boards, said brackets comprising vertical and horizontal branches, and means adjustably connecting each horizontal branch to the vertical branch of an adjacent bracket.

2. In a device of the character described, the combination with adjustably mounted side boards, of panel supporting brackets adjustably mounted on said side boards, said brackets comprising vertical and horizontal branches, and means adjustably connecting each horizontal branch to the vertical branch of an adjacent bracket; said brackets being provided with panel receiving sockets.

3. In a device of the character described, the combination with spaced side boards, panel supporting brackets adjustably mounted on said side boards, said brackets comprising vertical and horizontal branches and means for adjustably connecting said brackets to said side boards, said vertical branches being provided with sockets adapted to support riser panels of different breadths.

4. A step mold comprising side boards, adjustable brackets mounted on said side boards, each of said brackets comprising a vertical and a horizontal branch, said brackets adapted to be oppositely disposed on said side boards, each of said vertical branches supporting one end of a riser panel, each of said horizontal branches adapted to be secured to a vertical branch of an adjacent bracket.

5. A step mold comprising side boards, adjustable brackets mounted on said side boards, each of said brackets comprising a vertical and a horizontal branch and a clamping arm, said brackets adapted to be oppositely disposed on said side boards, each of said vertical branches adapted to support one end of a riser panel, each of said horizontal branches adapted to be releasably secured to the vertical branch of an adjacent bracket, said clamping arms providing means for securing said brackets to said side boards.

6. In a step mold, a bracket supporting member, brackets mounted on said member, each of said brackets adapted to support a riser panel, said brackets being slidably mounted on said member, said brackets being adjustably related to each other and to said member.

7. A step mold comprising inclined bracket supporting members, riser panel supporting brackets slidably mounted on said members, said brackets adapted to be rigidly secured to said members, each opposing pair of said brackets being for the support of a riser panel.

8. A step mold comprising a pair of inclined bracket supporting members, L-shaped riser panel supporting brackets slidably mounted on said members, the vertically arranged portion of each of said L-shaped brackets having a riser panel support formed thereon, the horizontally arranged portion of each of said L-shaped brackets being adjustably connected to the vertical portion of an adjacent bracket, means for rigidly securing said brackets to said members, and a riser panel adapted to be supported by each opposing pair of said brackets.

WILLIAM P. STUBBLEFIELD.

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