May 25, 1926. 1,586,440

I. V. BILYEU

FORM FOR CONCRETE STEPS

Filed June 30, 1925 2 Sheets-Sheet 1

Fig. 1.

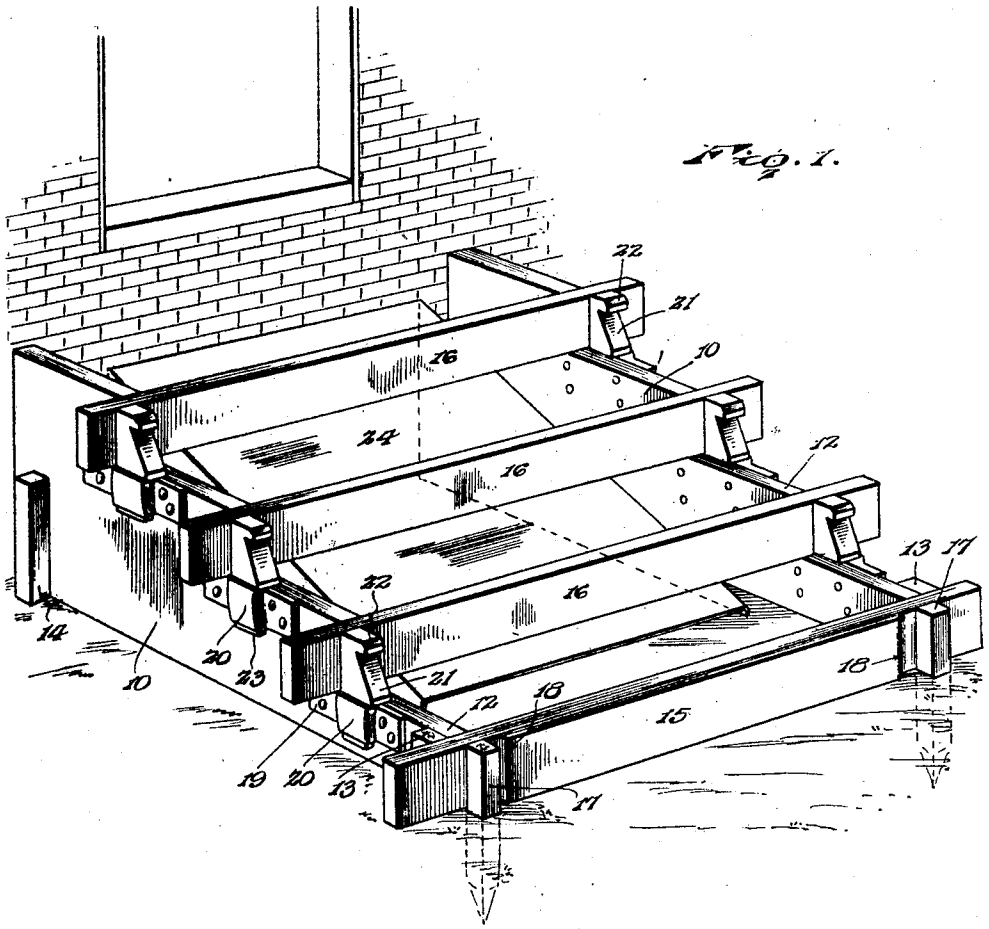
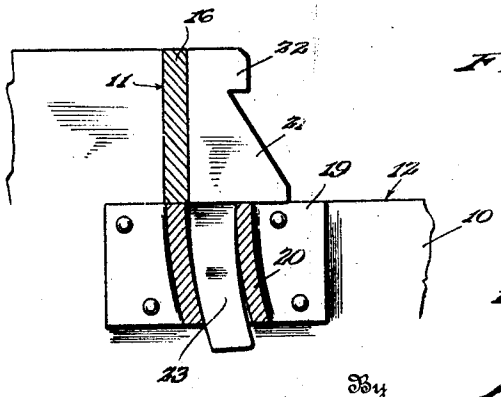



Fig. 4.




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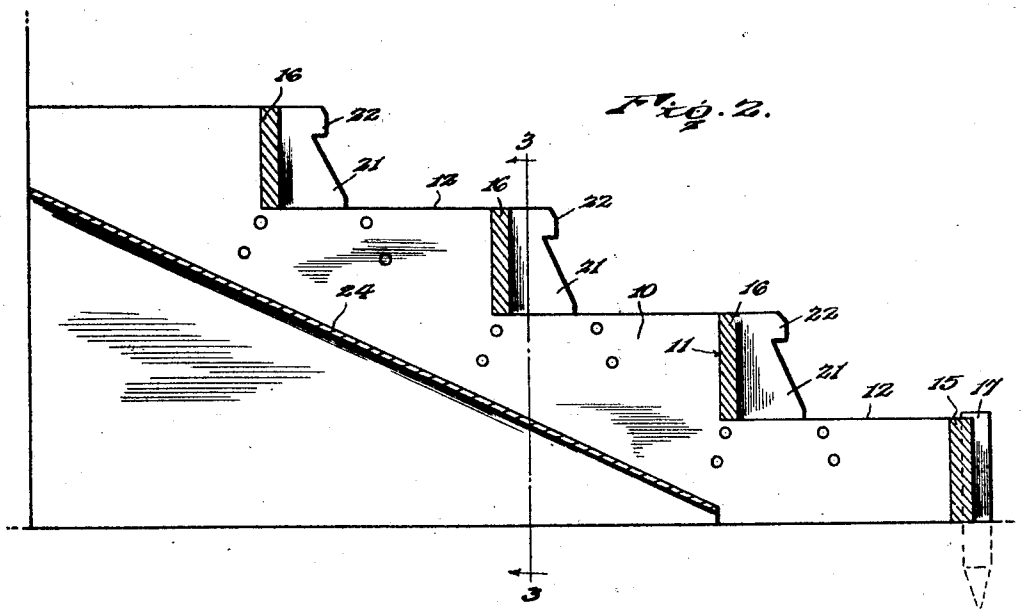
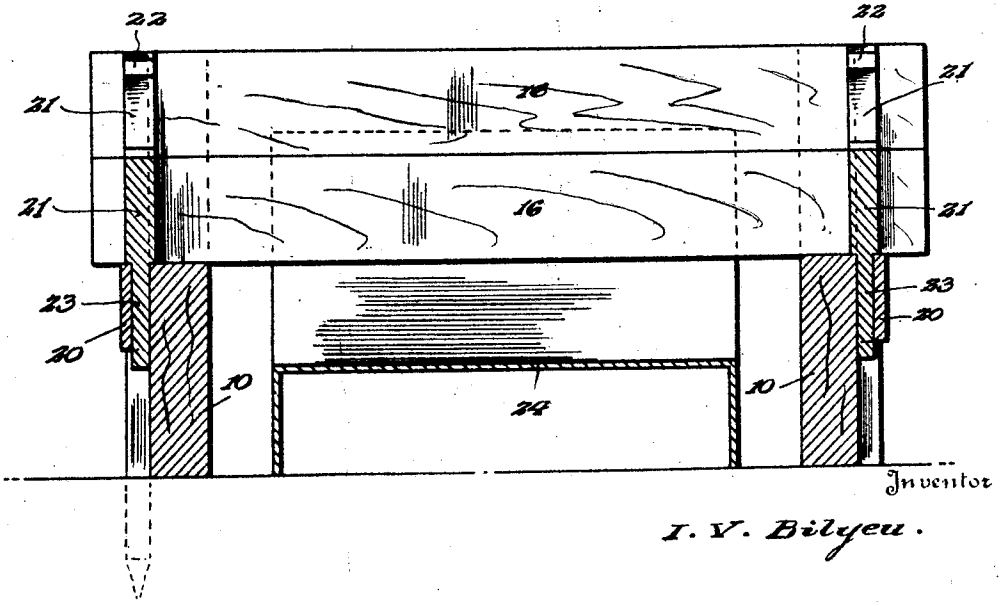



Fig. 2.

Fig. 3.




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# UNITED STATES PATENT OFFICE.

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## FORM FOR CONCRETE STEPS.

Application filed June 30, 1925. Serial No. 40,620.

This invention relates to an improved form for cement steps and seeks, among other objects, to provide a form which may be readily erected and which may be as easily removed after use.

The invention seeks, as a further object, to provide a form embodying novel means for removably securing the face members of the form in position upon the stepped side members thereof.

And the invention seeks, as a still further object, to provide a form wherein the face members will be tightly wedged against the vertical riser edges of the side members, and wherein the keys provided for securing the face members may be readily removed so that, when desired, the form may be quickly taken down.

Other and incidental objects will appear hereinafter.

In the accompanying drawings:—

Figure 1 is a perspective view showing my improved form erected adjacent a building.

Figure 2 is a longitudinal sectional view taken medially through the form.

Figure 3 is a transverse sectional view on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Figure 4 is a detail sectional view particularly showing one of the locking keys for the face members.

In carrying the invention into effect, I employ a pair of side members 10 stepped to form vertical riser edges 11 and horizontal tread edges 12. As suggested in Figure 1 of the drawings, the wider rear ends of said side members are arranged to abut the building or wall at the location at which it is desired to form the steps, and said side members are disposed at the desired distance apart in parallel relation. Driven into the ground adjacent the forward ends of the members 10 are stakes 13, and driven into the ground adjacent the rear ends of said members are somewhat longer stakes 14. The stakes 13 and 14 are disposed at the outer sides of said members and will support said members against spreading movement. Additional stakes for the purpose may, of course, be employed if found necessary.

Abutting the vertical riser edges 11 of the side members 10 at the forward ends thereof is a transversely extending face member 15, and abutting the other riser edges of said members are similar face members 16. The upper edges of the members 15 and 16 lie flush with the tread edges 12 of the side members and driven into the ground in alinement with said side members are stakes 17 retaining the face member 15 in position as well as retaining the side members in abutting relation to the building wall. As shown in Figure 1, the member 15 is provided with shoulders 18 to coact with the stakes 17 for limiting said member against endwise movement. Screwed or otherwise fixed to the outer faces of the side members 10 are keepers 19 which lie flush with the tread edges 12 of said members and, as shown in Figure 4, are formed with vertically disposed arcuate sockets 20 curved from top to bottom thereof toward the riser edges 11 of said members and provided with eccentric front and rear walls. Removably engaged with said keepers are substantially triangular-shaped keys 21 for retaining the face members in position. The keys are provided with straight forward edges and inclined rear edges so that the keys are tapered toward their upper ends and formed on the keys at the upper ends thereof are rearwardly overhanging heads 22. Depending from the base ends of the keys, at the forward edges thereof, are medially disposed arcuate tongues 23 which are received through the sockets 20 of the keepers. As shown in Figure 4, the tongues are of less width than the width of the sockets and are provided with eccentric front and rear edges. Accordingly, as the tongues are inserted through the sockets, the forward edges of the tongues will coact with the front walls of the sockets near the lower ends thereof while the rear edges of the tongues will coact with the rear walls of the sockets near the upper ends thereof for rocking the keys 21 forwardly so that the keys will thus be caused to bind against the face members 16 and tightly wedge said members in position against the riser edges of the side members 10. As will be observed, the base ends of the keys are adapted to seat flat against the tread edges 12 of said side members as well as against the upper edges of the keepers 19 for sustaining a portion of the thrust on the keys and preventing the fracture of the tongues.

Disposed between the side members 10 is an inverted channel-shaped core 24 of triangular configuration. This core may be of sheet metal and the rear end of the core

is disposed to abut the building wall while the forward end of the core terminates short of the forward ends of the side members 10, the core being centered between said members.

In use, the side members 10 of the form are first erected in position, when the face member 15 is arranged in place. The core 24 is then disposed between the side members, when the lace members 16 are arranged in position and secured by the keys 21. The cement is than poured in to form the steps and, of course, the face members 15 and 16 will confine the plastic material to produce the risers of the steps while the material is smoothed off level with the tread edges 12 of the side members 10 to provide the treads of the steps. After the cement has set the keys 21 are withdrawn, when the face members 15 and 16 are removed and, in this connection, it is to be observed that the heads 22 of the keys will materially facilitate the withdrawal of said keys. The side members 10 are then displaced and the stakes 13, 14 and 17 taken up, thus completing the removal of the form. In the event the steps are built against a wall, as in the instance illustrated, the core 24 is permitted to remain. However, where possible, the core is withdrawn and is thus made available for further use.

Having thus described the invention, what I claim is:—

1. A form for concrete steps including companion side members stepped to define riser edges, face members extending between said side members and abutting said edges, keepers carried by the side members and provided with sockets, and keys removably fitted into said sockets and having upstanding portions engaging the face members to secure the face members in engagement with the riser edges of said side members.

2. A form for concrete steps including companion side members stepped to define riser edges, face members extending between said side members and abutting said edges, keepers carried by the side members, and provided with sockets, and keys securing the face members against said edges and provided at their lower ends with tongues received through said sockets to coact therewith for wedging the keys against said face members.

3. A form for concrete steps including companion side members stepped to define riser edges, face members extending between said side members and abutting said edges, keepers carried by said side members and provided with arcuate sockets, and keys securing the face members against said edges and provided at their lower ends with arcuate tongues received in said sockets and coacting with the walls thereof for wedging the keys against said face members.

4. A form for concrete steps including companion side members stepped to define riser edges, face members extending between said side members and abutting said edges, keepers carried by said side members and provided with sockets, and substantially triangular-shaped keys securing said face members in position and provided at their upper smaller ends with rearwardly overhanging heads for removing the keys, the keys being formed at their lower ends with tongues engaging in said sockets and anchoring the keys.

5. A form for concrete steps including companion side members stepped to define tread and riser edges, an inverted channel-shaped core of substantially triangular configuration disposed between said side members, face members extending between the side members and abutting said riser edges, the upper edges of the face members being disposed flush with said tread edges, keepers carried by the side members, and keys engaging said keepers and wedging said face members against said riser edges.

6. A form for concrete steps including companion side members stepped to define riser edges and tread edges, face members extending between said side members and resting upon said tread edges with their inner side faces abutting against said riser edges, keepers carried by said side members and provided with sockets extending from the outer side faces of the side members in advance of said riser edge, and upstanding keys fitted into said sockets and having portions extending upwardly from the sockets and engaging the outer side faces of said face members to secure the face members in contacting engagement with the riser edges of said side members.

7. A form for concrete steps including companion side members stepped to define riser edges and tread edges, face members extending between said side members and resting upon said tread edges with their inner side faces abutting against said riser edges, keepers carried by said side members and provided with arcuate sockets having their forward and rear walls curved vertically and eccentric to each other, and keys fitted into said sockets and each having engagement with the upper end portion of one curved wall of its socket and the lower end portion of the other curved wall of its socket to cause wedging engagement of the keys with said face members and retain the face members in engagement with the riser edges of said side members.

8. A form for concrete steps including companion side members stepped to define riser edges and tread edges, face members

extending between said side members and resting upon said tread edges with their inner side faces abutting against said riser edges, keepers carried by said side members and provided with arcuate sockets having their forward and rear walls curved vertically and eccentric to each other, and keys to hold said face members in engagement with the riser faces of said side members, said keys having depending tongues fitted into said sockets and having arcuate forward and rear edge faces eccentric to each other, the forward edge faces of said tongues contacting with the upper end portions of the forward walls of the sockets and the rear edge faces of the tongues contacting with the lower end portions of the rear walls of the sockets to cause the keys to be moved towards the riser edges of the side members as the tongues are forced downwardly into the sockets and hold said face members in engagement with the riser faces of the side members.

9. A form for concrete steps including companion side members stepped to define riser edges and tread edges, face members extending between said side members and resting upon said tread edges with their inner side faces abutting against said riser edges, keepers carried by said side members and provided with sockets open at their upper and lower ends, and keys for holding said face members in engagement with the riser edges of said side members having portions engaging the face members and depending tongues fitted into said sockets and having faces cooperating with faces of the sockets to move the keys into wedging engagment with the face members.

10. A form for concrete steps including companion side members stepped to define riser edges and tread edges, face members extending between said side members and resting upon said tread edges with their inner side faces abutting against said riser edges, keepers carried by said side members and provided with sockets open at their upper and lower ends, and keys for holding said face members in engagement with the riser edges of said side members having portions engaging the face members and depending tongues fitted into said sockets and curved longitudinally with their arcuate forward and rear edge faces eccentric to each other, the forward edge faces of the tongues having engagement with the upper end portions of the forward walls of the sockets and the rear edge faces of the tongues having engagement with the lower end portions of the rear walls of the sockets to cause the keys to be moved into wedging engagement with said face members when the tongues are forced into the sockets.

In testimony whereof I affix my signature.

ISAAC VELANDINGHAM BILYEU. [L. S.]