Dec. 24, 1929. E. PITOU 1,740,958

LANDING STAGE

Filed Jan. 20, 1928 2 Sheets-Sheet 1

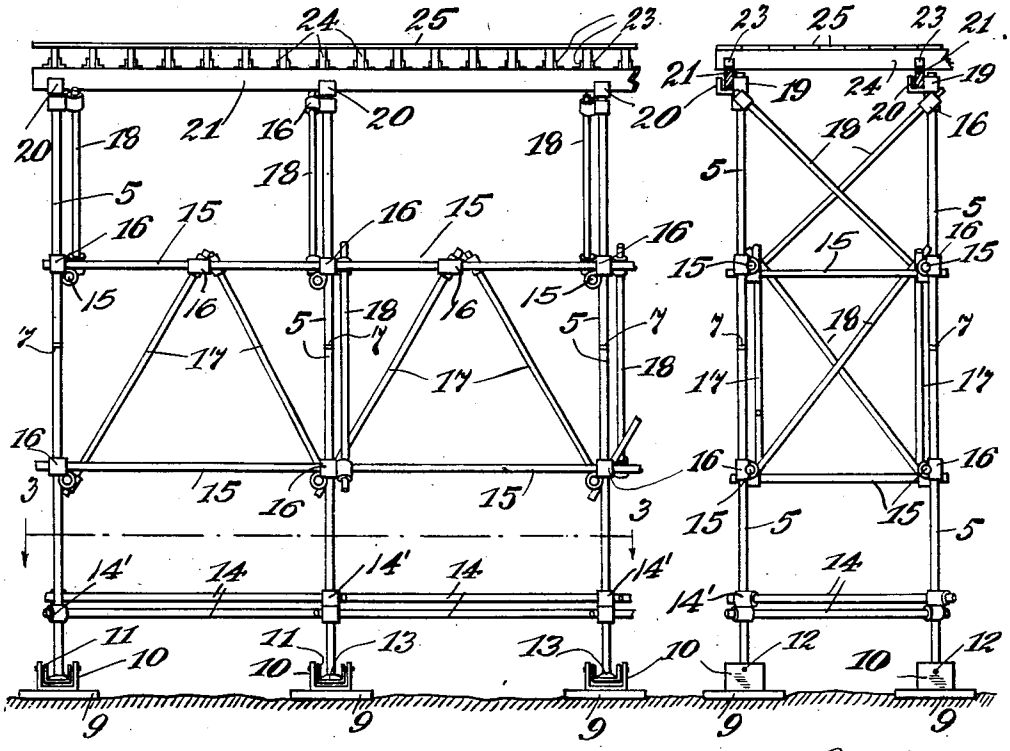


Fig. 1.

Fig. 2.

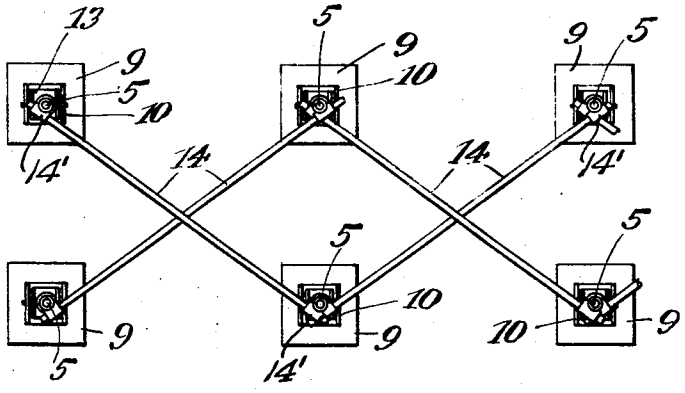


Fig. 3.

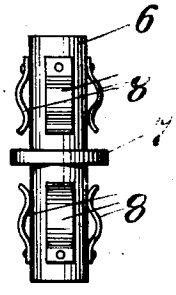


Fig. 6.

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LANDING STAGE

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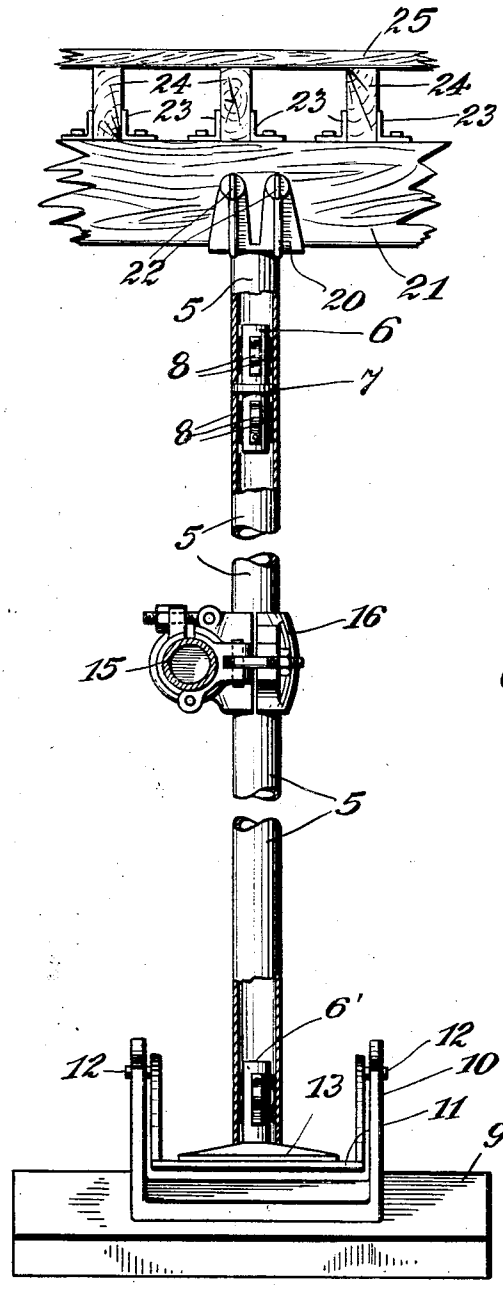


Fig. 5.

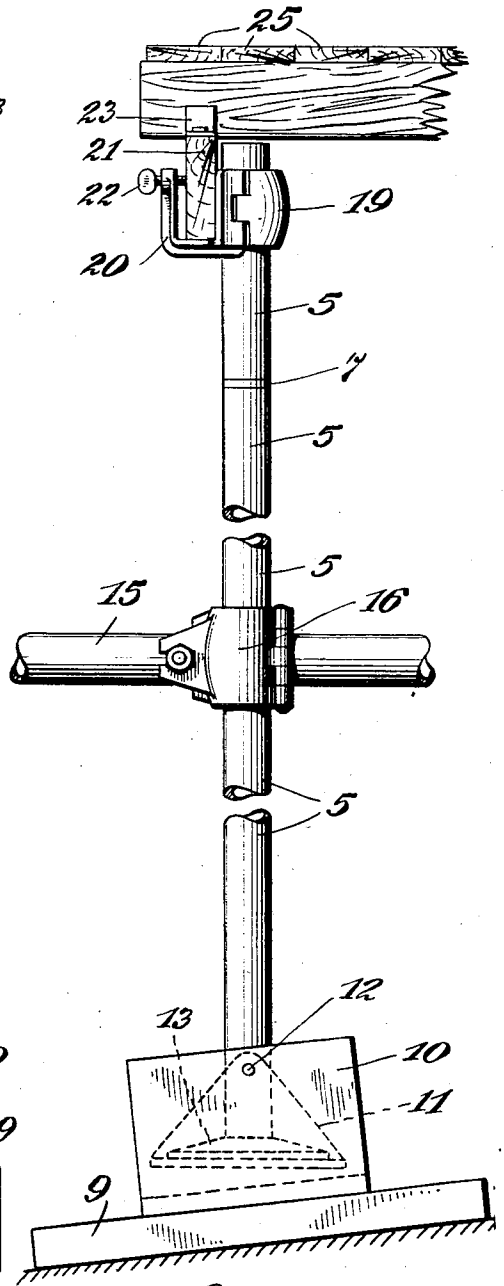


Fig. 4.

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UNITED STATES PATENT OFFICE

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LANDING STAGE

Application filed January 20, 1928. Serial No. 248,131.

This invention relates to a landing stage, and has for its primary object and purpose to provide an improved form and construction of structural units which can be easily and quickly assembled to provide a stage structure whereby troops may be landed from a transport or ship upon the shore, and which may also be readily erected to provide a temporary bridge across rivers, ravines and other places.

In a practical embodiment of the invention, I provide tubular supporting columns for the landing stage of sectional construction, and it is one object of the invention to provide a simple means whereby these column sections may be easily and quickly coupled together and to also provide detachable means for connecting with the spaced sectional columns horizontally and diagonally extending bracing members whereby the spaced columns will be substantially braced and fixedly held against movement relative to each other.

It is a further object of the invention to provide novel means for removably mounting upon the upper ends of the vertical columns spaced joists upon which the stage flooring is adapted to be arranged.

Another important object of the invention resides in the provision of a novel supporting base for each of the vertical columns whereby each column may assume an upright or perpendicular position notwithstanding unevenness of the surface upon which said column bases are engaged.

With the above and other objects in view, the invention consists in the improved landing stage and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated one simple and practical embodiment of the invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is an end elevation illustrating one embodiment of my improved landing stage;

Fig. 2 is a fragmentary side elevation of the stage structure;

Fig. 3 is a horizontal sectional view taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged elevation showing one of the vertical columns and other parts of the structure associated therewith, and

Fig. 5 is a similar view looking at right angles to Fig. 4 and certain of the parts being shown in section,

Fig. 6 is a detail sectional view on an enlarged scale illustrating the coupling means between the column sections.

The supporting structure for the stage flooring consists of structural units with means for detachably connecting the same with each other so that when not in use, these units together with the necessary parts for the stage flooring may be very compactly assembled together so that they will occupy a minimum of space in transportation. To this end, the supporting structure includes a plurality of upright columns, each of which is composed of the required number of cylindrical tubular sections 5. These column sections may be thin walled and comparatively light in weight. The opposed ends of adjacent column sections are detachably coupled together in the manner shown in Fig. 6 of the drawings wherein a cylindrical metal member 6 is illustrated having a central annular flange 7 adapted to act as an abutment or stop for contact with the ends of the opposed column sections. To each end of this member 6 a plurality of longitudinally exteding leaf springs 8 are riveted or otherwise securely fixed at one of their ends. As the end of the member 6 is engaged in the open end of the column section, the springs 8 are compressed and frictionally bear against the wall of the column section and offer sufficient resistance to relative movement of said sections to prevent their separation merely by the gravity pull of one column section relative to the other.

A supporting base is provided for each of the upright columns, and as herein shown, this base may consist of a comparatively

broad bearing slab 9, preferably of wood upon which is secured a rectangular U-shaped metal supporting member 10. A cradle 11 also of U-shaped form is provided on the upper ends of its spaced side portions with the pivots or trunnions 12 which are journalled in the opposite side portions of the supporting member 10. To the intermediate portion of this cradle, there is suitably fixed a plate 13 centrally formed with a coupling stud 6' similar to one end portion of the coupling member 6 and adapted for engagement within the lower end of the lower column section 5. It will be apparent that by providing supporting bases of this construction for the spaced vertical columns, in the event that the bed of the river or other surface upon which the bearing slabs 9 are disposed, is rough or uneven, these bearing slabs may assume various angular positions relative to each other, and owing to the fact that the cradle 11 may rock freely in the supporting members 10, the columns will maintain perpendicular positions in parallel relation to each other.

The vertical columns above described are adapted to be arranged in spaced rows, the columns in each row being suitably spaced apart. The columns in the adjacent rows are connected with each other near their lower ends by the diagonally extending tubular bracing members 14 arranged in a horizontal plane and detachably connected with said columns by suitable clamping devices indicated at 14'. The corresponding columns in the spaced rows are also connected with each other by the longitudinally and transversely extending tubular bracing members 15 likewise detachably connected with said vertical columns by the clamping devices 16. In addition to the braces 14 and 15, I may also provide the diagonally extending tubular members 17 between the spaced vertical columns in each row and transversely disposed crossed members 18 connected at their opposite ends with the vertically spaced bracing members 15 by means of additional detachable clamping devices 16. In this manner, it will be evident that the spaced vertical supporting columns are rigidly connected and substantially braced against relative angular displacement from their perpendicular positions.

To the upper end of each vertical column a clamping device 19 is attached and is provided with an offset bracket 20. These brackets in the clamping devices on the spaced columns of each row are adapted to receive and support the beams 21 which are rigidly held in position in said brackets by suitable set screws 22. Upon the upper edges of these beams at properly spaced intervals, the pairs of angle plates 23 are secured, said plates being suitably spaced apart and between the upwardly extending flanges of these plates the ends of the transversely positioned floor joists 24 are arranged to rest upon the beams 21. Upon these floor joists, the flooring planks indicated at 25 are laid to provide the stage platform.

From the foregoing description considered in connection with the accompanying drawings, it will be seen that I have devised a landing stage having a supporting structure, the several parts of which may be easily and quickly assembled and which will be particularly advantageous for various purposes. The fixed portion of the supporting structure may be assembled upon a shipboard and then lowered over the side until the column bases rest upon the bed of the stream. The beams 21 and joists 24 with the flooring 25 are then arranged in position upon the upper ends of the vertical columns and additional columns are then erected in position and connected with those previously erected, so that the stage platform may be progressively laid until it reaches the shore. After the device has been used, the several parts of the platform and the elements of the supporting structure may be readily disassembled and compactly stored. While the structure herein described is primarily designed for the purpose of facilitating the landing of troops, or for use as a temporary bridge structure, it will be evident that the invention might also be advantageously employed for various other analogous purposes. Also, no claim is herein made to the particular means for detachably clamping the several columns and bracing elements of the supporting structure with each other, as in so far as the novel features of the present disclosure are concerned, various types of such clamps might be employed. Likewise as to the other detail features of my present improvements as herein described, the same are susceptible of various modifications and changes, and I therefore, reserve the privilege of incorporating the invention in various other alternative structures as may be fairly embodied within the spirit and scope of the appended claims.

I claim:

1. A structure of the character described including a plurality of tubular metal columns adapted to be arranged in spaced rows, means for removably supporting a platform upon the upper ends of said columns, and a base for each column comprising a U-shaped member, a cradle pivotally mounted in said member for rocking movement, and means for detachably coupling the lower end of the column with said cradle.

2. A structure of the character described including a plurality of tubular metal columns adapted to be arranged in spaced rows, means for removably supporting a platform upon the upper ends of said columns, and a base for each column comprising a U-shaped member, a cradle pivotally mounted in said member for rocking movement, and coupling means fixed to the cradle and adapted to be

engaged within the lower end of the tubular column.

3. A structure of the character described including a plurality of tubular supporting columns each consisting of a series of sections, means for detachably coupling the column sections with each other, means for removably supporting a platform upon the upper ends of said columns, a base for each column, and means for pivotally and detachably mounting the lower end of the column upon said base.

4. A structure of the character described including a plurality of tubular supporting columns each consisting of a series of sections, means for detachably coupling the column sections with each other, means for removably supporting a platform upon the upper ends of said columns, a base for each column, means for pivotally and detachably mounting the lower end of the column upon said base, diagonally extending tubular bracing members connecting the columns in the spaced rows with each other, additional tubular bracing members extending at right angles to the vertical columns and connecting the corresponding columns in the spaced rows, and removable clamping devices for detachably connecting said bracing members with the vertical columns.

5. A collapsible scaffold structure including a plurality of vertical supporting columns adapted to be arranged in spaced rows, a plurality of horizontal members extending between the columns in each row, and means for detachably connecting said members to the respective columns, means on the upper ends of the columns in each row for removably supporting a scaffold platform, said platform including longitudinal beams rigidly fixed by said means upon the upper ends of the columns, transverse joists upon which the platform floor boards are adapted to be positioned, and spaced means secured to said beams to be removably engaged by the ends of said joists and retain the latter in spaced relation to each other.

6. A collapsible scaffold structure including a plurality of vertical supporting columns adapted to be arranged in spaced rows, a plurality of horizontal members extending between the columns in each row, and means for detachably connecting said members to the respective columns, means on the upper ends of the columns in each row for removably supporting a scaffold platform, said platform including longitudinal beams rigidly fixed by said means upon the upper ends of the columns, transverse joists upon which the platform floor boards are adapted to be positioned, spaced means secured to said beams to be removably engaged by the ends of said joists and retain the latter in spaced relation to each other, a base for each column, and means for adjustably mounting the lower end of the column upon said base.

7. In a scaffold structure, a plurality of platform supporting columns adapted to be arranged in spaced rows, means on the upper end of each column for supporting a platform, a base for each column, and means for pivotally supporting the lower end of the column in said base.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

EUGENE PITOU.