June 3, 1924. 1,496,624

D. L. CHRISTOPHER

GRANDSTAND

Filed July 11, 1922

Fig. 1

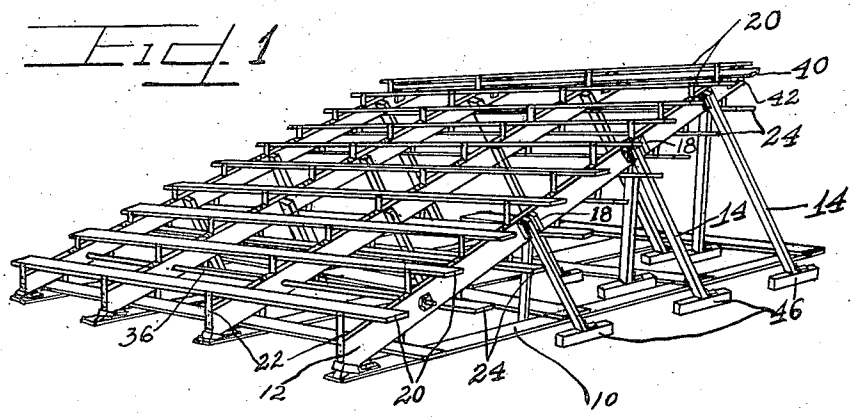


Fig. 4

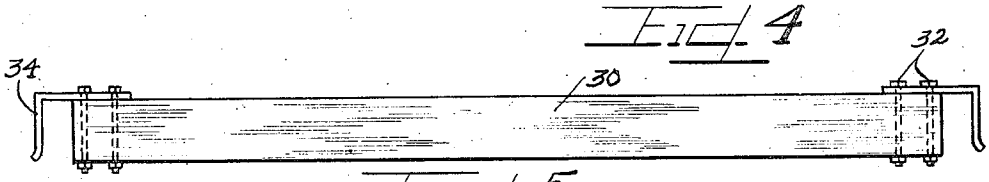


Fig. 5



Fig. 6

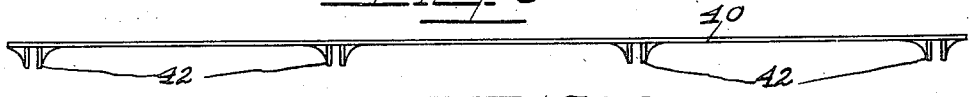


Fig. 7

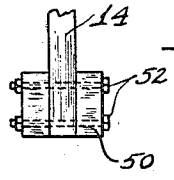


Fig. 8

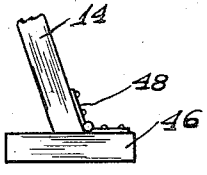


Fig. 3

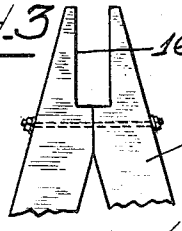
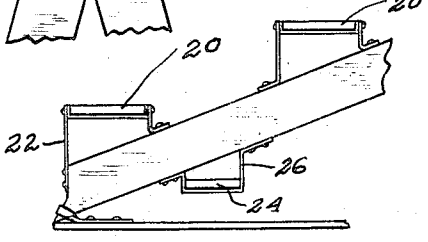


Fig. 2



Inventor

DANIEL L. CHRISTOPHER

By Albert J. Fihe Atty.

Patented June 3, 1924. 1,496,624

UNITED STATES PATENT OFFICE.

DANIEL L. CHRISTOPHER, OF URBANA, ILLINOIS, ASSIGNOR TO LEAVITT MFG. COMPANY, OF URBANA, ILLINOIS, A CORPORATION OF ILLINOIS.

GRANDSTAND.

Application filed July 11, 1922. Serial No. 574,210.

To all whom it may concern:

Be it known that I, DANIEL L. CHRISTOPHER, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Grandstands; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in portable grandstands, and has for its particular object the provision of a reinforced structure of this sort which will not be liable to sagging or collapsing in use even when positioned upon an uneven surface, as rough ground.

One of the main objects of this invention is the provision of a grandstand or bleachers which can be readily assembled and as quickly taken apart.

One of the particular objects of this invention is the use of a reinforcement in connection with a portable grandstand which shall act to distribute the weights or strain upon a group of the supports so that in case one support becomes weakened or is placed upon spongy ground or the like, a collapse will be prevented.

A further object of the invention is the use of an improved bearing surface for the main supports, which will provide a greater area on the bottom thereof, so that sinking into soft or spongy ground will be effectively prevented. This bearing will constitute an integral part of the main support and be so affixed thereto as to be out of the way when the device is disassembled and packed.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawings and following specification:

The invention in a preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a perspective view of the improved grandstand of this invention.

Figure 2 is a detail view showing, in perspective, one of the lower corners of the device.

Figure 3 is a detail view illustrating the top construction of one of the supporting horses or jacks.

Figure 4 is a plan view illustrating the preferred form of reinforcement to be used in bracing the structure against strains or stresses.

Figure 5 is a modified form of the reinforcement.

Figure 6 illustrates another modification.

Figure 7 is a detail view showing the auxiliary foot support for the jacks.

Figure 8 is a modification of this support.

As shown in the drawings:

The structure of this invention comprises a plurality of supporting boards or sleepers 10 adapted to be laid upon the ground in the place where the grandstand is to be erected. Adapted to cooperate with these supporting sleepers are a number of stringers 12 which extend at an angle of about from 25 to 40 degrees with the sleepers 10. Adapted to support the stringers in angular position is a plurality of jacks or the like 14, each composed of two members at an angle to each other and connected at their top. As shown in Figure 3 a slot or notch 16 is provided at the top of the jack 14 in order to receive the stringers 12, and locking means 18 in the form of blocks nailed or otherwise secured to the stringers 12 are provided to receive the jacks 14.

In the ordinary construction four sleepers 10 and four stringers 12 are employed for one set of the portable grandstand, and a corresponding number of jacks is provided as shown in the drawings. Extending longitudinally across the stringers 12 and at right angles thereto, is a number of planks 20 which constitute seats. As shown in Figure 2, these seats are supported by stanchions or brackets 22. A number of footboards corresponding to the number of seats but one less in number are provided, as shown at 24, these being likewise supported by brackets 26 extending downwardly from the stringers 12. The planks constituting the seats and footboards are removable from the stanchions 22 and brackets 26, thereby providing for an easy dismantling of the entire structure.

It has been found in practice that when-

ever one of the sleepers 10 or one of the jacks 14 was placed upon soft ground, or when the entire structure was positioned upon an uneven surface, the strain was unequally distributed, which resulted in danger to the structure and possible collapse. In order to guard against such a contingency the reinforcement shown in Figure 4 is provided. This consists of a beam 30 or the like, which may be of wood or metal, and has attached thereto at its ends by means of bolts or other fasteners 32 an L-shaped hook 34. The space between the end of the bar 30 and the inner side of the L-shaped hook 34 is such as to exactly fit the width of the stringer 12, so that the stringer is tightly gripped and maintained in a vertical position and any tendency to displace the same, owing to undistributed weight, is resisted, and the strain transmitted through the beam 30 to the hook 34 at its other end and thence to the corresponding stringer which, being positioned upon a solid foundation, is maintained in the desired vertical position.

It is evident that other forms of reinforcement may be used as bars passing through the stringers 12, as shown in Figure 5, and which may be three times the length of the beam shown in Figure 4 to correspond with the structure illustrated in Figure 1, by extending completely across the same, and through corresponding aligned holes in the stringers. Further, a chain, rope or cable may be used to connect the stringers if only a tensile stress is desired to be transmitted. This connection may be made by means of removable bolts and hooks, or the like. Any shape of beam may also be used as an angle bar slotted to fit over the stringers, an I-beam or the like.

Another modification of the reinforcement is shown in Figure 6. This consists of a horizontally extending bar 40, having attached to the lower side thereof a plurality of gripping means, brackets or the like 42. These brackets are so attached to the bar as to correspond to the distance between the stringers 12 and the space between any two brackets of one set is just sufficient to accommodate the width of a stringer. It will be seen that this form of reinforcement can be readily positioned at practically any point in the structure after the same has been assembled and will act to support either the ends or the middle pieces if the foundation gives way at any point. Any or all of the forms of re-inforcements may be used as desired.

In order to prevent the sinking of the feet of the horses 14 into soft ground, an auxiliary foot support in the form of a block 46 is provided, which provides for a greater base and a correspondingly better supporting area. This block 46 may be hinged to the bottom of the jack 14 by an ordinary hinge 48. If desired, the form of auxiliary foot support shown in Figure may be provided, which consists simply of one or more blocks of proper material as wood or the like 50 affixed by means of nails or bolts 52.

It will be seen that herein is provided a structure which can be readily built up to accommodate a large number of persons, and which when not in use is adapted to occupy a comparatively small space for convenience in transportation and storage. Further, by means of the improved reinforcements provided there is no possibility of any undue strain and resulting breaking of the structure due to its being positioned upon uneven ground or from the sinking of the main supports into soft or spongy ground, this being prevented by the improved auxiliary foot supports of the invention.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. In a portable grandstand, a series of sleepers adapted to be placed on the ground, a corresponding number of stringers mounted on said sleepers at an angle thereto, a plurality of jacks for supporting the stringers, said jacks being readily removable therefrom, a plurality of upwardly extending stanchions spaced along each stringer, a plurality of downwardly extending brackets on each stringer positioned alternately with the stanchions, and a rigid reinforcing means extending between and connecting a plurality of said stringers, said means including brackets to engage the stringers and maintain them in desired position with respect to each other and with respect to the remaining members.

2. A portable grandstand comprising a plurality of floor boards, a corresponding number of angularly extending stringers removably mounted on said floor boards, reinforcing means adapted to extend across and join a plurality of said stringers, said re-inforcing means comprising a bar, rigid gripping members thereon adapted to contact with the stringers on at least two sides thereof, and jacks supporting said stringers at right angles thereto and having the stringers removably mounted thereon.

3. A portable grandstand comprising a plurality of floor boards, angularly extending stringers having one end removably mounted on said floor boards, removable jacks supporting the other ends of said stringers, a re-inforcing means adapted to

extend between and connect a plurality of the stringers, said re-inforcing means comprising a bar and rigid gripping means on the ends of said bar adapted to grip the stringers between themselves and the ends of the reinforcing bar.

4. A portable grandstand comprising floor boards, removable stringers, and removable jacks in assembled relation, horizontally extending seat boards and foot rests removably mounted on the assembled floor boards, stringers, and jacks, and re-inforcing means extending between and connecting a plurality of stringers, said re-inforcing means comprising a bar and rigid brackets on said bar adapted to grip the stringers on at least two sides thereof.

In testimony whereof I affix my signature.

DANIEL L. CHRISTOPHER.