A construction platform includes an inboard portion that attaches to a floor of a building under construction and an outboard portion that extends beyond the floor to allow loading and unloading of material from a crane. A hinged joint extends through both the inboard portion and the outboard portion of the construction platform to allow the construction platform to fold up for storage and transport.
FOLDING CONSTRUCTION PLATFORM

BACKGROUND OF THE INVENTION

[0001] This invention relates to platforms used in construction and in particular to platforms that extend from a building that is under construction to provide an area for loading and unloading material from a crane.

[0002] Construction platforms are widely used in the construction of concrete, reinforced concrete and steel structures. In particular, construction platforms are used in construction of buildings having an outer skin that is not load bearing, and that is not put in place until after the main supporting structure of the building has been finished and its major internal fittings have been installed. Such construction platforms typically comprise an inboard portion, which rests on an edge portion of a building floor, and an outboard portion, including a landing deck, which extends as a cantilever from the inboard portion. The landing deck extends horizontally beyond the edge of the floor and beyond any higher floors. Such a landing deck is generally used for loading and unloading material from a crane.

[0003] Construction platforms include fixed deck platform, which have inboard and outboard portions that are attached together in a fixed manner, and movable deck platforms, which have an outboard portion that is movable relative to the inboard portion so that the outboard portion may be retracted. Fixed deck platforms have the advantage of being simpler, cheaper and generally stronger. Fixed deck platforms are generally staggered in their locations along the face of a building so that a higher platform does not obscure a crane’s access to lower platforms.

[0004] Fixed deck platforms are generally large items which are costly to transport and store. Therefore, there is a need for an improved construction platform.

SUMMARY OF THE INVENTION

[0005] A construction platform according to an embodiment of the present invention includes a hinged joint that runs from the inboard end to the outboard end so that the construction platform can fold along a midline. This allows the construction platform to be efficiently stored and transported. During use, the construction platform may be locked in the unfolded position and secured to a floor of a building.

[0006] A folding construction platform for landing and loading material according to an embodiment of the present invention comprises: an inboard platform portion that has attachment features for attaching the construction platform to a structural feature; an outboard platform portion that has a surface that extends laterally from the structural feature to provide a landing and loading area; and a hinged joint that extends through the surface and provides articulation along a line that runs through both the inboard portion and the outboard portion.

[0007] A folding construction platform for attaching to a floor of a building under construction to load and unload material from a crane according to an embodiment of the present invention comprises: a first platform portion that has a first platform anchoring component for anchoring the folding construction platform to a floor that underlies the anchoring component, the first platform portion also having a second landing surface that extends outwards from the floor; and a hinge joint that joins the first portion to the second portion and provides a range of angular variation between the first landing surface and the second landing surface, the range of angular variation including an unfolded position in which the first landing surface and the second landing surface extend along a common plane and a folded position in which the first landing surface and the second landing surface face in opposite directions.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 shows a construction platform extending from a floor of a building under construction, an inboard portion of the construction platform extending flush with the floor and an outboard portion of the construction platform extending beyond the floor for loading and unloading material from a crane.

[0009] FIG. 2 shows a top view of the construction platform including a hinged joint that runs from the outboard end to the inboard end of a landing deck.

[0010] FIG. 3 shows a side view of the construction platform attached to the floor including the location of a bolt that passes through the floor.

[0011] FIG. 4 shows a bolt passing through the floor and through a clamp plate to secure the construction platform to the floor.

[0012] FIG. 5 shows the construction platform in an unfolded position where two landing surfaces extend along the same plane to form a flat landing surface.

[0013] FIG. 6 shows the construction platform in a partially folded position where two landing surfaces are at an intermediate angle between zero degrees and a hundred and eighty degrees.

[0014] FIG. 7 shows the construction platform in a folded position where the two landing surfaces are facing in opposite directions.

DETAILED DESCRIPTION OF ILLUSTRATED EMBODIMENTS

[0015] FIG. 1 shows a construction platform 100 according to an embodiment of the present invention. Construction platform 100 has an inboard portion 101 that extends over a floor 102 of building that is under construction. Inboard portion 101 includes two beams 103a, 103b that extend inwards from the edge of floor 102. Beams 103a, 103b are held against floor 102 using two mechanisms. Firstly, there are shorting posts 105a, 105b that extend from the inboard portion 101 to a floor above 107, so that they press inboard ends of beams 103a, 103b against floor 102. Secondly, there are clamp plates 109a, 109b that extend over beams 103a, 103b and the clamp plates 109a, 109b are bolted to floor 102. Thus, construction platform 100 is securely attached to floor 102 in a manner that allows a large mass to be supported on an outboard portion 111 of construction platform 100.

[0016] FIG. 1 shows a large object 113 being lowered by crane onto a landing deck 115 that is part of outboard portion 111 of construction platform 100. Landing deck 115 provides a surface (landing surface) that extends out beyond the edge of the building (beyond the edge of floor 102) so that a crane can lower a load onto landing deck 115 from directly above. Because people may work on a landing deck when loading and unloading material, a barrier may be provided around a
landing deck. FIG. 1 shows barriers 117a, 117b on either side of landing deck 115 but not along the outboard end of the landing deck 115. In other examples a barrier may extend along the outboard end of a landing deck also. Barriers 117a, 117b in this example are formed of vertical posts that are mounted to landing deck 115 and cables strung between posts. Such barriers may be easily reconfigured. For example, a cable may be clipped in place when needed and unclipped when not needed.

FIG. 1 shows construction platform 100 in use. However, during transport and storage, construction platform 100 may be folded up so that it occupies less space and is easier to handle. To allow construction platform 100 to fold, a hinged joint 119 extends through landing deck 115 in a direction perpendicular to the edge of floor 102. Thus, the hinged joint extends in a direction that runs from the outboard end to the inboard end.

FIG. 2 shows a view of construction platform 100 from above including landing deck 115 with hinged joint 119 running from the outboard end to the inboard end. Landing deck 115 may have appropriate contouring to provide a good grip for workers standing on it. Landing deck 115 may be made of steel, aluminum or other metal and may be painted or coated with an appropriate layer to provide protection from corrosion and to provide a non-slip surface.

FIG. 2 also shows beams 103a, 103b that form inboard portion 101 extending into outboard portion 111. Beams 103a, 103b provide the structural strength to construction platform 100 that allows a large load to be supported. In one example, loads of up to 20,000 pounds may be loaded and unloaded on such a landing deck. Additional beams may be provided to give additional strength. The positions 121a-d of attachment bolts used to attach inboard portion 101 to floor 102 are also shown. Two attachment bolts hold each clamp plate 109a, 109b in the present example, with clamp plates 109a, 109b securing beams 103a, 103b respectively. In other examples, more than two attachment bolts may be used to secure a clamp plate and more than one clamp plate may secure a beam. Cupping portions 123a, 123b are provided at ends of beams 103a, 103b. Cupping portions 123a, 123b are portions of beams 103a, 103b that have an opening into which the end of a shoring post may be inserted so that it is securely held and will not slip. Thus, when shoring posts 105a, 105b extend and are used to press beams 103a, 103b against floor 102, shoring posts 105a, 105b cannot be accidentally knocked out of position.

FIG. 3 shows a side view of construction platform 100 attached to floor 102. FIG. 3 shows a barrier 117b that protects workers from falling off the side of construction platform 100. FIG. 3 also shows lifting eyes 125a, 125b that are provided on the top of construction platform 100 to provide attachment points so that construction platform 100 can be lifted into position using a crane or other mechanical device. FIG. 3 also shows the location of a hole 127 in floor 102 where an attachment bolt is located. The attachment bolt goes through floor 102 and through a clamp plate that extends over beam 103b. Thus, the attachment bolt holds beam 103b flush against floor 102.

FIG. 4 shows a close-up side view of an attachment bolt 131 going through floor 102. Holes may be drilled in a floor specifically for attaching a construction platform. After the hole is formed, an attachment bolt, such as bolt 131 with captive nut 133, is passed so that it extends through clamp plate 109b and through the hole in floor 102. Then a safety nut 135 (e.g. 1/8" Nyloc safety nut) is attached to the lower end of bolt 131 and is tightened. A floor sleeve 137 is also provided between bolt 131 and floor 102.

FIG. 5 shows an end view of construction platform 100 that shows hinged joint 119 from the end (i.e. perpendicular to the direction in which the hinged joint 119 extends). FIG. 5 shows the landing deck 115 divided into two (a left landing deck portion 115a and a right landing deck portion 115b). FIG. 5 shows construction platform 100 in its unfolded position in which the construction platform is used. In the unfolded position, the left and right landing deck portions 115a, 115b extend along the same plane to form a single planar surface that is the upper surface of landing deck 115. Securing bolts (confidence bolts) are provided to lock construction platform 100 in this position so that landing deck 115 remains flat during use. Securing bolts extend from under left landing deck portion 115a to under right landing deck portion 115b.

FIG. 6 shows an end view of construction platform 100 in a partially folded position. Attaching bolts, such as bolt 131, used to attach the construction platform 100 to floor 102 and shoring posts 105a, 105b used to maintain construction platform 100 flush with floor 102 are removed prior to folding construction platform 100. Also, securing bolts that are used to lock construction platform 100 in the unfolded position are removed prior to folding. This leaves the hinged joint 119 free so that a range of angular variation is possible between the left landing deck portion 115a and right landing deck portion 115b of construction platform 100. In particular, the left landing deck portion 115a and right landing deck portion 115b no longer extend along the same plane in this view. Instead, left landing deck portion 115a and right landing deck portion 115b form an angle that is intermediate between zero degrees (as in FIG. 5) and one hundred and eighty degrees (as shown in FIG. 7).

FIG. 7 shows construction platform 100 in the folded position with the left landing deck portion 115a and right landing deck portion 115b facing in opposite directions (i.e. one hundred and eighty degrees apart). In the folded position, construction platform 100 takes up much less room than in the unfolded position. Construction platform 100 may be locked in the folded position by bolts or by a catch so that construction platform 100 is not unintentionally unfolded during transportation. In addition, barriers 117a, 117b may be removed so that construction platform 100 is even smaller. In the folded position, construction platform 100 may be stacked or otherwise stored in a space-efficient manner. With its reduced dimensions, construction platform 100 in the folded position may be loaded on a truck, or other vehicle, that would be unable to fit construction platform 100 in the unfolded position.

Although the various aspects of the present invention have been described with respect to certain preferred embodiments, it is understood that the invention is entitled to protection within the full scope of the appended claims.

What is claimed is:
1. A folding construction platform for landing and loading material comprising:
   an inboard platform portion that has attachment features for attaching the construction platform to a structural feature;
   an outboard platform portion that has a landing deck that extends laterally from the structural feature; and
a hinged joint that divides the construction platform into a first side and a second side along a line that runs through both the inboard portion and the outboard portion, the hinged joint providing a range of angular variation between the first side and the second side.

2. The folding construction platform of claim 1 wherein the hinged joint has an angular range of angular variation between the first side and the second side is from zero to one hundred and eighty degrees.

3. The folding construction platform of claim 1 wherein the attachment features include a clamp plate and two or more bolts that extend through the clamp plate to attach the folding construction platform to a concrete floor.

4. The folding construction platform of claim 3 wherein the attachment features further include a cupping feature for cupping a shoring post that extends upwards to a higher floor.

5. The folding construction platform of claim 1 further comprising safety cables mounted on posts to form barriers that extend around the landing deck.

6. The folding construction platform of claim 1 further comprising lifting eyes that provide attachment points for transporting the folding construction platform.

7. The folding construction platform of claim 1 wherein the landing deck has a rectangular upper surface that is rectangular and the hinged joint extends along a midline of the rectangular surface.

8. The folding construction platform of claim 1 further comprising bolts that, when secured, prevent articulation of the hinged joint.

9. A folding construction platform for attaching to a floor of a building under construction to load and unload material from a crane comprising:

a first platform portion that has a first platform anchoring component for anchoring the folding construction platform to a floor that underlies the anchoring component, the first platform portion also having a first landing surface that extends outwards from the floor; and

a hinge joint that joins the first portion to the second portion and provides a range of angular variation between the first landing surface and the second landing surface, the range of angular variation including an unfolded position in which the first landing surface and the second landing surface extend along a common plane and a folded position in which the first landing surface and the second landing surface face in opposite directions.

10. The folding construction platform of claim 9 wherein the first platform anchoring component includes a first beam that extends parallel to the hinge joint to lie on the floor when in the unfolded position and the second platform anchoring component includes a second beam that extends parallel to the hinge joint to lie on the floor when in the unfolded position.

11. The folding construction platform of claim 10 further comprising a first clamp plate and a first plurality of attachment bolts that attach the first beam to the floor and at least a second clamp plate and a second plurality of attachment bolts that attach the second beam to the floor.

12. The folding construction platform of claim 10 further comprising a first cupping portion in the first beam, a first shoring post that engages the first cupping portion at one end, a second cupping portion in the second beam, and a second shoring post that engages the second cupping portion at one end.

13. The folding construction platform of claim 12 further comprising lifting eyes on both the first platform portion and the second platform portion.

14. The folding construction platform of claim 13 further comprising securing bolts that prevent angular variation between the first portion and the second portion when engaged.

15. The folding construction platform of claim 14 further comprising a barrier extending around the first landing surface and the second landing surface.

16. The folding construction platform of claim 15 wherein the first portion is a mirror image of the second portion.

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