

SCAFFOLDING PLATFORM

FIELD OF THE INVENTION

[0001] The present invention relates to scaffolding platforms, particularly to scaffolding platforms used at shipyards.

BACKGROUND

[0002] Scaffolding is a temporary structure used to support people and material in the construction or repair of buildings and other large structures. Scaffolding platforms provide a working surface for scaffold users. Scaffolding platforms are usually made up of galvanized metal, and support the weight of a person working on it, and whatever materials he may be using. The scaffolding platforms are then secured to the scaffolding by means such as hooks.

[0003] Sandblasting is the act of propelling abrasive blasting material at high velocity to clean or etch a surface. Sandblasting is used in shipyards in the ship building and ship repairing process. Grit is usually the blasting material used for ship sandblasting and is normally made up of cast iron or steel. A sandblaster is used to shoot out the grit.

[0004] Due to the large size of ships, scaffolding is normally used such that the operator of the sandblaster can reach the higher parts of the ship. However, the problem is that the grit has a tendency to get caught in the open undercarriages of the scaffolding platforms. Therefore, time and money would have to be spent to remove this grit. Further, after a sandblasting operation, the grit that has been used is normally recycled or collected such that it can be used again for the next sandblasting operation. If the grit is caught in the open undercarriages of the scaffolding platforms, it would be very difficult to retrieve this grit for its reuse. Time and effort would have to be spent for this retrieval process.

[0005] There therefore exists a need for a scaffolding platform that addresses the above problem or at least provides a novel scaffolding platform.

[0006] It is also vital that the scaffolding platforms must be able to sustain a high failure load to be sufficiently strong to support the weight of the scaffold users and whatever

materials the scaffold users are using for the cleaning work. Another aim of the invention would be to come up with a scaffolding platform design that can support a higher failure load.

SUMMARY OF INVENTION

[0007] According to an embodiment, a scaffolding platform made up of a unitary piece of galvanized metal is described, the scaffolding platform comprising a flat centre portion and two side portions. The centre portion comprises a plurality of grooves including a first groove and a second groove, each of the plurality of grooves being a semi-circular protrusion with a concave bottom surface defining a recess. Each of the two side portions extending downwardly from the center portion and then bending to extend upwardly to contact the center portion and terminate at a free end. Wherein a segment of one of the side portions extends into the recess of the first groove and substantially traces the contours of the bottom surface of the first groove with the free end terminating after the bottom surface of the first groove. And a segment of the other side portion extends into the recess of the second groove and substantially traces the contours of the bottom surface of the second groove with the free end terminating after the bottom surface of the second groove.

[0008] Preferably, the scaffolding platform further comprises a bracket fitted to an end of the scaffolding platform to seal the segments of the two side portions.

[0009] Preferably, the center portion comprises a plurality of perforations.

[0010] Preferably, the scaffolding platform further comprises stiffener plates.

[0011] The invention will now be described in detail with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The accompanying figures illustrate disclosed embodiment(s) and serve to explain principles of the disclosed embodiment(s). It is to be understood, however, that these drawings are presented for purposes of illustration only, and not for defining limits of the application.

[0013] Figure 1 is a perspective view of a scaffolding platform commonly known in the art.

[0014] Figure 2 is a cross-sectional side view of a scaffolding platform commonly known in the art.

[0015] Figure 3 is a perspective view of a scaffolding platform in accordance with the invention.

[0016] Figure 4 is a cross-sectional side view of a scaffolding platform in accordance with the invention.

[0017] Figure 5 is a close up view of section 'A' in Figure 4.

[0018] Figure 6 shows a perspective view of a scaffolding platform in accordance with the invention with a bracket fitted into one of its end.

[0019] Figure 7 shows a perspective underside view of a scaffolding platform in accordance with the invention whose ends are fitted with brackets.

[0020] Exemplary, non-limiting embodiments of the present application will now be described with references to the above-mentioned figures.

DETAILED DESCRIPTION

[0021] Figure 1 is a perspective view of scaffolding platform 100 commonly known in the art. Scaffolding platform 100 has centre portion 101 and side portions 102, 103.

[0022] Figure 2 is a cross-sectional side view of scaffolding platform 100. Side portions 102, 103 extend downwardly from center portion 101 and then bend to extend upwardly to form a substantially U-shaped profile. Side portions 102, 103 terminate at free ends 104, 105. Free ends 104, 105 do not contact center portion 101, resulting in gaps 106, 107. The reason for this is to reduce the amount of metal required and thereby also reduce the weight of scaffolding platform 100. Dirt, dust, and grit are thus able to enter through gaps 106,

107 and collect in side portions 102, 103. Side portions 102, 103 therefore act as an open receptacle for dirt, dust, and grit.

[0023] Referring now to Figure 3, which shows a perspective view of scaffolding platform 200 in accordance with the invention. Scaffolding platform 200 is a single galvanized metal sheet that is bent and shaped to form a flat center portion 201 having a length, flanked by side portions 202, 203 extending across the same length.

[0024] Center portion 201 has grooves 204. Grooves 204 are semi-circular protrusions that extend longitudinally across the length of center portion 201. Grooves 204 projects outwardly from center portion 201. Grooves 204 are preferably spaced some distance apart. Grooves 204 increase the friction and the grip of the scaffold user's footwear, and thus increase the safety of the scaffold user. Center portion 201 also has perforations 208. Perforations 208 puncture through center portion 201 and reduce the amount of metal required and accordingly reduce the weight of scaffolding platform 200.

[0025] Scaffolding platform 200 has two ends. Referring now to Figure 4, which shows a cross-sectional side view or one end of scaffolding platform 200. Side portions 202, 203 extend downwardly from center portion 201 and then bend to extend upwardly to contact center portion 201. Side portions 202, 203 terminate at free ends 206, 207. Each groove 204 has bottom surface 205. Bottom surface 205 has a concave shape which defines a recess of groove 204.

[0026] Preferably, side portions 202, 203 extend upwardly till a segment of side portions 202, 203 contact bottom surface 205 of one of grooves 204. Preferably this groove 204 is the groove nearest to the corresponding side portions 202, 203. Figure 5 shows a close up view of section 'A' in Figure 4. A segment of side portion 202 extends into the recess of groove 204. Preferably, a segment of side portion 202 substantially traces the contours of bottom surface 205 with free end 206 terminating after bottom surface 205. The resultant design has a kidney-like shape as shown in figure 5. It is apparent that side portion 203 can have the same design as side portion 202.

[0027] There is no gap between side portion 202 and bottom surface 205 as a segment of side portion 202 contacts bottom surface 205. To completely seal side portions 202, 203, a

bracket (not shown) can be fitted into one end of scaffolding platform 200. With this, dirt, dust, and grit can no longer enter and collect in side portions 202, 203.

[0028] Figure 6 shows a perspective view of scaffolding platform 200 with bracket 209 fitted into one end of scaffolding platform 200. Though not shown in figure 6, the other end can also be fitted with a second bracket 209. Bracket 209 is usually made up of metal and is hollow. The dimensions and design of bracket 209 are complementary to one end of scaffolding platform 200 such that bracket 209 becomes flush with side portions 202, 203 and completely seals side portions 202, 203.

[0029] Figure 7 shows a perspective underside view of scaffolding platform 200 with both ends of scaffolding platform 200 fitted with brackets 209. Scaffolding platform 200 has stiffener plates 210 placed along its underside. This is to increase the structural strength of scaffolding platform 200.

[0030] Another advantage conferred by the design of scaffolding platform 200 is that good maximum failure load can be achieved. Table 1 show the defection and load bearing values recorded after having subjected five samples of scaffolding platform 200 to deflection and bending trials.

[0031]

Table 1

Sample No.	Deflection (mm) of 3 meters scaffolding platform at mid span under 0.94 kN	Maximum Failure Load (kN)
1	6.14	4.87
2	6.26	4.83
3	6.36	4.84
4	6.43	4.83
5	5.76	4.88

[0032] In comparison, a standard scaffolding platform under similar test conditions exhibited a deflection value of 5.80mm and a maximum failure load of 3.16 kN. Scaffolding platform 200 therefore exhibit superior maximum failure load values. Also, to comply with safety regulations, for a 3 meters scaffolding platform at mid span under 0.94 kN, the deflection value cannot exceed 10mm and the maximum failure load must exceed 2.35 kN. It is evident from the trials that scaffolding platform 200 satisfies the safety regulations.

[0033] The steps for fabricating scaffolding platform 200 are as follows:-

[0034] Step 1: Take a raw galvanized metal sheet, and pack it in a coiled form. The weight of the coiled metal sheet is typically between 3 to 5 tons.

[0035] Step 2: The coiled metal sheet is loaded onto a un-coiler machine, which will uncoil the metal sheet and feed it into a die punch machine.

[0036] Step 3: The die punch machine punches a series of holes to form perforations 208, and the metal sheet less the extruded material is forwarded to the rolling station.

[0037] Step 4: In the rolling station, a series of rollers form and fold the metal sheet into the desired shape of scaffolding platform 200. The shapes of center portion 201, side portions 202, 203 and grooves 204 are formed in this step. The scaffolding platform 200 is then cut to the desired size.

[0038] Step 5: Brackets 209 are then fitted and welded to each of the two ends of the scaffolding platform 200.

[0039] Step 6: Stiffener plates 210 are then welded to the underside of scaffolding platform 200.

[0040] In the application, unless specified otherwise, the terms "comprising", "comprise", and grammatical variants thereof, intended to represent "open" or "inclusive" language such that they include recited elements but also permit inclusion of additional, non-explicitly recited elements.

[0041] It will be apparent that various other modifications and adaptations of the application will be apparent to the person skilled in the art after reading the foregoing disclosure without departing from the spirit and scope of the application and it is intended that all such modifications and adaptations come within the scope of the appended claims.

Claims

1. A scaffolding platform made up of a unitary piece of galvanized metal, the scaffolding platform comprising :-
a flat centre portion and two side portions;
the centre portion comprising a plurality of grooves including a first groove and a second groove, each of the plurality of grooves being a semi-circular protrusion with a concave bottom surface defining a recess;
each of the two side portions extending downwardly from the center portion and then bending to extend upwardly to contact the center portion and terminate at a free end;
wherein a segment of one of the side portions extends into the recess of the first groove and substantially traces the contours of the bottom surface of the first groove with the free end terminating after the bottom surface of the first groove, and a segment of the other one side portions extends into the recess of the second groove and substantially traces the contours of the bottom surface of the second groove with the free end terminating after the bottom surface of the second groove.
2. The scaffolding platform of any one of the preceding claims further comprising a bracket fitted to an end of the scaffolding platform to seal the segments of the two side portions.
3. The scaffolding platform of any one of the preceding claims wherein the center portion comprises a plurality of perforations.
4. The scaffolding platform of any one of the preceding claims further comprising stiffener plates.