

PATENT SPECIFICATION

(11) 1 294 773

DRAWINGS ATTACHED



1 294 773

- (21) Application No. 41511/71 (22) Filed 19 April 1971
 (62) Divided out of No. 1 294 772
 (31) Convention Application No. 53147 (32) Filed 10 April 1970 in
 (33) Italy (IT)
 (45) Complete Specification published 1 Nov. 1972
 (51) International Classification E02B 3/12 E02D 17/20
 (52) Index at acceptance
 E1H 12

(54) IMPROVEMENTS RELATING TO GABIONS

(71) We, S.P.A. OFFICINE MACCA-FERRI, an Italian Company, of 4 Via Agresti, Bologna, Italy, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

It is known that linings or other protective structures formed from gabions may be used to prevent erosion of, or landslides on, the banks of rivers or lakes, coasts, mountains, and other exposed ground surfaces. Gabions are parallelepipedic boxes or containers, usually formed from metal mesh, and in use are filled with ballast such as gravel, crushed rock, rubble, and the like, before being closed by a lid. The protective linings or structures are formed by connecting a large number of filled and closed gabions together.

This invention relates to gabions of the mattress type. Such a gabion comprises a rectangular container having a number of compartments and is arranged to cover an appreciable area of the ground to be protected without any break in its continuity, rather in the manner of a mattress, hence the name, the container having a height which is considerably less than its length and its width. The container is manufactured from a large sheet of metal mesh which is protected against corrosion and which has such dimensions that it can form the bottom wall of the container and the longitudinal and transverse side walls. In the known form of mattress gabions the container is divided into its compartments by partition walls formed by a number of smaller secondary sheets stitched to the base sheet, the secondary sheets being proportioned and arranged so that, besides the partition walls, they also form lid flaps for closing the compartments after they have been filled with ballast.

The advantage of these mattress gabions over conventional box gabions is that the protective linings obtained by connecting the

filled gabions together have much greater continuity and strength. This advantage derives from the fact that each mattress gabion covers an extent of ground of appreciable dimensions and possesses a continuous bottom wall and continuous longitudinal walls while being divided into a number of separate compartments as is necessary to maintain correct and uniform distribution of the ballast.

The filling of the compartments is however hindered by the lid flaps on the partition walls. This may be overcome by reducing the size of the secondary sheets so that they only form the partition walls, and subsequently closing the container with a further large flat sheet of metal mesh.

According to the invention therefore, a gabion of the mattress type comprises a base sheet which is formed as a single entity into an open topped rectangular container having a bottom, longitudinally extending side walls, and transverse end walls, a number of transverse partition walls which divide the container into a series of compartments, and a flat rectangular sheet which, in use, is attached to the upper edges of the walls of the container after the compartments have been filled with ballast to act as a lid for the whole container.

Although the partition walls may be formed by a number of separate sheets which are stitched to the base sheet, preferably they are formed integrally from the base sheet by means of folds and cuts as described in more detail and claimed in our Application No. 25275/71 (Serial No. 1,294,772).

Preferably, the end, side, and partition walls of the container are all of a height equal to one another.

An example of a gabion in accordance with the invention is illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of part of the gabion filled and almost completed, the sheet forming the lid being only partially fixed to the top of the container; and

[Price 25p]

Figure 2 is a partial perspective view showing a detail of the container of the gabion shown in Figure 1.

The gabion comprises an open topped elongated rectangular container 1 which is divided into compartments 2 by a number of transverse partition walls 3. The container 1 is formed from a rectangular base sheet of wire mesh, the partition walls 3 being formed when the sheet is flat by a series of pinched upstanding folds which extend across the whole width of the base sheet and which are positioned at regular intervals along its length. The pinched folds are stabilised by means of closed stitches 4 which join the two layers 5 and 6 of each fold adjacent the lateral edges of the sheet. The folds are the same height as each other, and each fold is cut from top to bottom at positions spaced inwards from the lateral edges of the sheet by a distance equal to the height of the fold. These cuts divide the fold into a central portion which forms the partition wall 3 and two outer portions 7 and 8.

The base sheet is erected to form the container 1 from a flattened condition by first stretching out the sheet on the ground to be protected and raising the folds perpendicularly to the bottom of the sheet. The longitudinal side walls 9 and 10 of the container are then formed by folding upwards and inwards the marginal sections of the base sheet about fold lines 11 and 12 which extend parallel to the lateral edges of the sheet and intersect the cuts in the pinched folds. The outer sections 7 and 8 of each pinched fold are made to lie on opposite sides of the partition wall 3 formed by the centre section of the fold, one section 7 being connected to the layer 5 and the other section 8 being connected to the layer 6. These connections are effected by stitches 13 near the top of the partition wall, and this serves to stabilise the erected container.

Container end walls (not shown) which

are the same height as the side walls 9 and 10 are then formed by folding upwards the end portions of the base sheet, strategically placed cuts in the base sheet possibly being necessary to facilitate this, and then applying stitches to connect the end portions to the side walls 9 and 10.

The container 1 thus formed is filled with ballast 14 constituted for example by stones of appropriate weight and size, and the filled container is closed at the top by placing over it a lid 15 constituted by an elongated rectangular sheet of wire mesh. This sheet is connected to the side and end walls of the container 1 and to the top of the partition walls 3, by stitching as illustrated at 16 in Figure 1.

WHAT WE CLAIM IS:—

1. A gabion of the mattress type comprising a base sheet which is formed as a single entity into an open topped rectangular container having a bottom, longitudinally extending side walls, and transverse end walls, a number transverse partition walls which divide the container into a series of compartments, and a flat rectangular sheet which, in use, is attached to the upper edges of the walls of the container after the compartments have been filled with ballast to act as a lid for the whole container.

2. A gabion according to Claim 1, in which the partition walls are formed by a number of separate sheets which are stitched to the base sheet.

3. A gabion according to claim 1 or claim 2, in which the end, side, and partition walls of the container are all of a height equal to one another.

For the Applicants:—
GILL, JENNINGS & EVERY,
Chartered Patent Agents,
51/52 Chancery Lane,
London, WC2A 1HN.

Figure 2 is a partial perspective view showing a detail of the container of the gabion shown in Figure 1.

The gabion comprises an open topped elongated rectangular container 1 which is divided into compartments 2 by a number of transverse partition walls 3. The container 1 is formed from a rectangular base sheet of wire mesh, the partition walls 3 being formed when the sheet is flat by a series of pinched upstanding folds which extend across the whole width of the base sheet and which are positioned at regular intervals along its length. The pinched folds are stabilised by means of closed stitches 4 which join the two layers 5 and 6 of each fold adjacent the lateral edges of the sheet. The folds are the same height as each other, and each fold is cut from top to bottom at positions spaced inwards from the lateral edges of the sheet by a distance equal to the height of the fold. These cuts divide the fold into a central portion which forms the partition wall 3 and two outer portions 7 and 8.

The base sheet is erected to form the container 1 from a flattened condition by first stretching out the sheet on the ground to be protected and raising the folds perpendicularly to the bottom of the sheet. The longitudinal side walls 9 and 10 of the container are then formed by folding upwards and inwards the marginal sections of the base sheet about fold lines 11 and 12 which extend parallel to the lateral edges of the sheet and intersect the cuts in the pinched folds. The outer sections 7 and 8 of each pinched fold are made to lie on opposite sides of the partition wall 3 formed by the centre section of the fold, one section 7 being connected to the layer 5 and the other section 8 being connected to the layer 6. These connections are effected by stitches 13 near the top of the partition wall, and this serves to stabilise the erected container.

Container end walls (not shown) which

are the same height as the side walls 9 and 10 are then formed by folding upwards the end portions of the base sheet, strategically placed cuts in the base sheet possibly being necessary to facilitate this, and then applying stitches to connect the end portions to the side walls 9 and 10.

The container 1 thus formed is filled with ballast 14 constituted for example by stones of appropriate weight and size, and the filled container is closed at the top by placing over it a lid 15 constituted by an elongated rectangular sheet of wire mesh. This sheet is connected to the side and end walls of the container 1 and to the top of the partition walls 3, by stitching as illustrated at 16 in Figure 1.

WHAT WE CLAIM IS:—

1. A gabion of the mattress type comprising a base sheet which is formed as a single entity into an open topped rectangular container having a bottom, longitudinally extending side walls, and transverse end walls, a number transverse partition walls which divide the container into a series of compartments, and a flat rectangular sheet which, in use, is attached to the upper edges of the walls of the container after the compartments have been filled with ballast to act as a lid for the whole container.

2. A gabion according to Claim 1, in which the partition walls are formed by a number of separate sheets which are stitched to the base sheet.

3. A gabion according to claim 1 or claim 2, in which the end, side, and partition walls of the container are all of a height equal to one another.

For the Applicants:—
GILL, JENNINGS & EVERY,
Chartered Patent Agents,
51/52 Chancery Lane,
London, WC2A 1HN.

