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GABION FOR PROTECTIVE WATERWORK.
APPLICATION FILED OCT. 20, 1913.
Patented Dec. 21, 1915.

1,165,194.

Fig. 1.

Fig. 2.

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To all whom it may concern:

Be it known that I, GAEFTANO MACCAFERRI, a subject of the King of Italy, and residing Zola Predosa, near Bologna, in the Kingdom of Italy, have invented certain new and useful Improvements in Gabions for Protective Waterwork, of which the following is a Specification, reference being had therein to the accompanying drawing.

The invention refers to protective waterwork, both sea and river work, consisting in a riprap of stone or cement matter, and it has for its object to provide a method by which such defensive work may be constructed with great economy of time and expense and at the same time be given a great stability.

According to the invention, the stone or cement matter is thrown into special gabions of wire netting suitably arranged along the banks to be protected. In some cases, the riprap of stone or cement matter may be protected by coating the walls of the gabions with cement or the like. The gabions remain in the structure and form the skeleton thereof. These gabions forming the main object of the invention are made of pieces or blanks of wire netting of any desired mesh prepared and shaped so that by bending them the gabions or frames of wire netting will be formed, having the shape of a parallelepiped or of a truncated pyramid or any other similar shape, and provided, or not, with flanges projecting therefrom. According to circumstances and to requirements, these gabions may be finished in the manufactories, or the blanks of wire netting may be sent to the works and there be formed into gabions, by bending them.

The gabions are arranged side by side and one on top the other along the banks to be protected, so as to form the skeleton of the structure, and they are successively filled with stone or cement matter appropriated for such defensive work. They are of course shaped and arranged so that the skeleton forms one whole and has no interruptions and that the walls of each frame may thus be securely connected to the walls of the neighboring frame. If necessary, the walls of each frame are laced together along the edges formed through bending the blank of wire netting, preferably by means of wire or the like, or in case the frames are made ready for use in the manufactory, these edges may be formed when weaving the netting. In some cases, the edges of each frame may be laced to those of the neighboring frame, also by means of wire or the like. In order to increase the strength of these gabions, it may be advisable that the borders of the blanks and the lines on which they are bent and which form the edges of the gabion, should be provided with small rods made of the same material as the netting, and similar rods or stays may connect the edges of the gabions which remain free.

In order that the invention may be readily understood it will be here described by way of example by referring to one form of constructing these gabions.

In the accompanying drawings: Figure 1 is a detached perspective view of two gabions which are adapted to be used in pairs. Fig. 2 is a top plan of a blank from which the gabion shown in Fig. 1 is formed.

Referring now to the drawings in detail in which like reference numerals designate similar parts, 1 and 2 represent the side walls of a rectangular enclosure formed of a wire netting. Between the walls 1 and 2 is a bottom 3 integral with the said walls. The bottom 3 carries end walls 4 and 5. The length of the side wall 2 is twice as long as the wall 1 whereby when the blank is formed into a rectangular inclosure as shown in Fig. 1 an extension 6 will be formed of a length equal to the length of the wall 1 or 2. The edges or lines upon which the blank is formed is strengthened by means of rods 7 secured to the said edges.

In assembling the gabions the rectangular structures are placed end to end with their projecting extensions oppositely arranged whereby a third gabion 8 of approximately the same size of as the other two is formed between them. This third gabion 8 however, has no top or bottom. The blanks are folded and assembled in the usual manner the abutting edges being joined by wire thread or any suitable equivalent.

It will easily be seen that by suitably combining a plurality of frames or gabions constructed as above described, and by successively filling them with stone or cement matter, a very strong structure will be obtained, as the skeleton or framing of wire netting will present an interlocking reinforcing element. The gabions may of course be shaped and arranged in the most varied other ways, according to circumstances and to requirements.
All the structures shown in the drawing are relative to gabions in the form of a parallelepiped; in some cases, for example, when constructing along curves, differently shaped gabions may be required, having, for example, the form of a truncated pyramid or the like. The formation of these gabions may however easily be deduced from that of the gabions above described, as it is sufficient to alter the shape of the blank from which the gabion is to be made.

What I claim is:

1. A protective covering for river banks or the like comprising a plurality of intersecting units suitably arranged, said units comprising folded blanks having five folds whereby rectangular boxes without tops are formed, one of the side folds of the boxes projecting beyond the body portion, the projecting folds of the adjacent boxes oppositely arranged whereby a box without top or bottom is formed between two adjacent body portions.

2. A protective covering for river banks or the like comprising a plurality of intersecting units suitably arranged, said units comprising folded blanks having three long folds and two short folds forming the sides, bottom and ends respectively of a rectangular structure, stiffening rods arranged at the lines of the said folds, one of the side folds of the boxes projecting beyond the body portion, the projecting folds of adjacent boxes oppositely arranged whereby a rectangular inclosure is formed between two adjacent boxes.

3. A protective covering for river banks or the like comprising a plurality of intersecting units suitably arranged, said units comprising folded blanks having three long folds and two short folds forming the sides, bottom and ends respectively of a rectangular structure, one of the side folds of the boxes twice as long as the other side and projecting beyond the body portion of the rectangle, the projecting folds of adjacent rectangles oppositely arranged, whereby a rectangular inclosure of approximately the same size as the rectangles is formed between adjacent units.

4. A structure for the purpose substantially as described comprising a plurality of rectangular wire mesh receptacles adapted to be fastened together and filled with suitable solid material, said receptacles comprising wire mesh blanks having five portions bent at right angles to each other, one side of each receptacle being twice the length of the opposite side, said receptacles thereby forming an additional space between each other when placed end to end.

In testimony whereof I have signed my name in the presence of two subscribing witnesses the 4th day of October 1913.

GAETANO MACCAFERRI.

Witnesses:

GIOVANNI VALATELLI,
TORELLO FAUBERG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."