Sept. 12, 1939. A. G. REX 2,172,409

MATTRESS

Filed Nov. 8, 1937

Fig. 2.

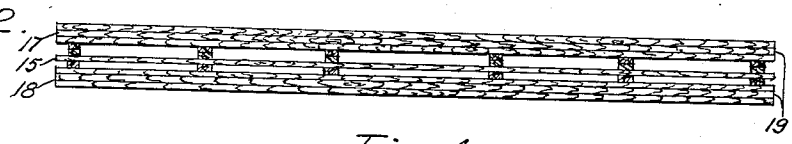


Fig. 1.

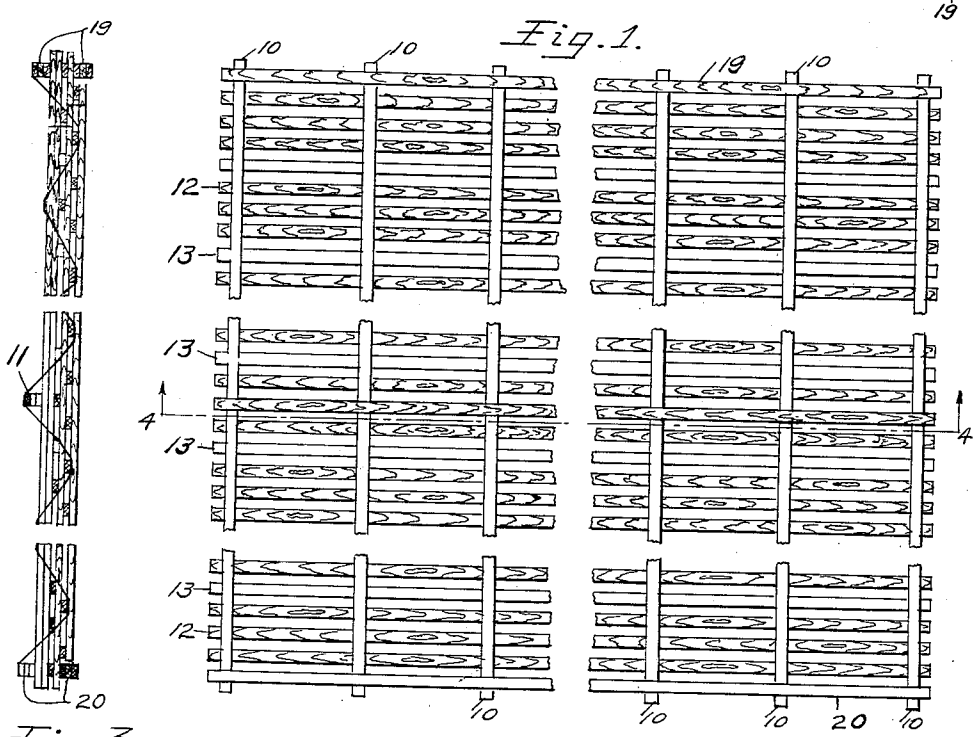


Fig. 3.

Fig. 4.

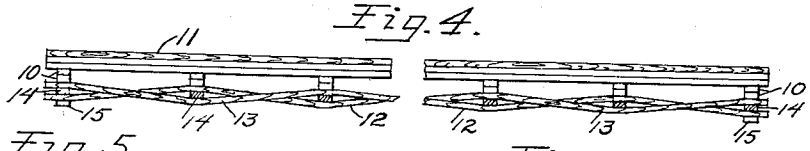
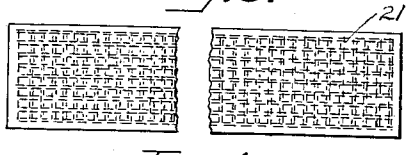


Fig. 5.

Fig. 8.



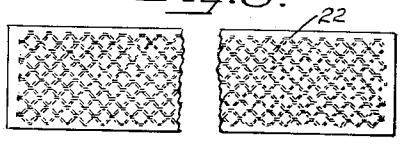


Fig. 6.

Fig. 9.



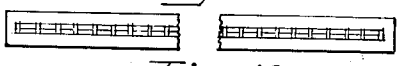
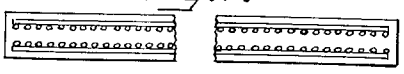


Fig. 7.

Fig. 10.





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2,172,409

MATTRESS

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Application November 8, 1937, Serial No. 173,409

2 Claims. (Cl. 61—38)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates generally to mattresses of the type used for the protection of river banks, but more particularly to a mattress of this type formed of lumber and composition asphalt planks.

One object of the invention is to provide a mattress of the type set forth which will have greater strength in proportion to its thickness.

Another object of the invention is to provide a mattress which will be retained on the river bed without the necessity of using ballast.

Still another object is to provide a mattress which may be easily, quickly and inexpensively constructed.

Other objects of the invention consist of certain novel details of construction and arrangement of parts as hereinafter shown in the drawing, described in the specification and more particularly defined in the accompanying claims.

In the description which follows, reference may be had to the accompanying drawing in which similar parts are indicated by like reference characters and in which—

Fig. 1 is a top plan view of the mattress;

Fig. 2 is an end elevation of the mattress shown in Fig. 1;

Fig. 3 is a side elevation of the mattress shown in Fig. 1;

Fig. 4 is a section taken on the line 4—4 in Fig. 1;

Fig. 5 is a plan view illustrating a type of reinforced asphalt board provided with longitudinal and transverse reinforcing strands;

Fig. 6 is a side elevation of the reinforced asphalt board shown in Fig .5;

Fig. 7 is a side elevation of a reinforced asphalt board having two layers of longitudinal and transverse reinforcing strands;

Fig. 8 is a plan view illustrating a type of reinforced asphalt board provided with diagonal reinforcing strands;

Fig. 9 is a side elevation of the reinforced asphalt board shown in Fig. 8; and

Fig. 10 is a side elevation of a reinforced asphalt board having two layers of diagonal reinforcing strands.

The mattress is formed as a lattice as illustrated in Figs. 1 to 4 inclusive, made up of a plurality of longitudinal runners or top boards, indicated by the numeral 10, which are each formed of two asphalt planks, the details of construction being shown in Figs. 5 to 10 inclusive, and which are retained in spaced relation by attachment to transverse cross-binders 11 placed in parallel relation to each other across the upper surface of the top runners or boards 10. The cross-binders 11 are formed of an upper wooden plank overlying planks or bars of reinforced asphalt composition.

Beneath the lower surface of the top boards 10 are located a plurality of transverse mattress boards or lattice bars 12 and 13 formed respectively of wooden boards and reinforced asphalt slabs or bars, and arranged in series of three wooden lattice bars to one of reinforced asphalt. The mattress boards or lattice bars are interwoven with parallel wooden weavers 14 which underlie the top boards 10. At each side of the mattress the ends of the mattress boards which underlie the weavers 14 are retained in position by lumber drop-boards 15.

At each end of the mattress a transverse spacer 16 is located between the ends of the top boards or bars 10 and the weavers 14, and transversely across the upper surfaces of the top boards 10, and across the lower surfaces of the weavers are located three thicknesses of lumber boards which form the upper and lower sections 17 and 18 respectively of the header clamps 19.

The construction of the mattress is commenced at the shore end by fastening three thicknesses of lumber boards together to form the lower half 18 of the header clamp 19. To obtain a designated header clamp length which is longer than the boards of which it is composed, each layer of the three lumber boards are butt-jointed with respect to the succeeding layer and the three layers nailed and lashed together.

On top of the lower half 18 of the header clamp 19, and transverse thereto, are nailed the shore ends of the weavers 14, and on top of the weavers 14 is nailed a transverse spacer board 16, directly above and parallel to said lower half 18 of the clamp 19.

Directly over each weaver 14, two thicknesses of reinforced asphalt top boards or bars 10 are nailed to the spacer boards 16. The upper section 17 of the header clamp 19 is made like the lower half 18, and is placed directly over the lower half 18, on the upper surface of the runners or top boards 10, and spiked to the same at each intersection. The upper section 17 and the lower section 18 of the header clamp 19 are lashed together with mattress lashing throughout their entire length.

Clamps 20 which are similar in construction

to the header clamp 19, with the exception that in these clamps the upper section is formed of reinforced asphalt boards, are located at the mattress end or at the end of each section of the mattress.

The main body of the mattress is constructed of lumber and reinforced asphalt lattice bars designated respectively by the numerals 12 and 13. Every fourth lattice bar is of reinforced asphalt and is placed on top of and transverse to the weavers 14 and nailed thereto.

All lattice bars are spaced apart and each lumber lattice bar 12 is bent alternately over and under each weaver. At the intersection of a weaver 14 with a lumber lattice bar 12 which is woven under it, are the two nailed together. Each mattress board is made continuous for the entire width of the mattress by lap splicing one board over another, and the lap lashed with mattress lashing and nailed.

All weavers are formed of lumber boards made continuous throughout the length of the mattress by lap splicing and lashing and nailing the lap. The top-boards 10 are of composition asphalt boards with the exception of that portion of the bank protection mattress covered by the compact layer of lumber boards. The top boards or bars are placed on the mattress boards at right angles thereto, directly above the weaver. Top board laps are butt-jointed and the top layer boards lap those of the lower layer, one half the length of the boards used. The complete top board is secured to the mattress with nails driven vertically through the top board, mattress board and weaver at intersections where the mattress board is woven over the weaver and is lashed to the weaver with mattress lashing.

Cross-binders are constructed of two thicknesses of lumber boards and one thickness of composition asphalt boards for the entire width of the mattress and positioned transverse to the top boards. The cross-binders are lashed and nailed to the mattress lashing at each intersection with the top boards 10.

To strengthen the upstream and downstream mattress the lower drop-boards 15 are placed continuously underneath the end weavers and are securely nailed and lashed with mattress lashing.

The mattress is strengthened with a system of longitudinal and transverse strands of wire which are wound around the headers, weavers, top boards and cross-binders, and which are made continuous the length and width of the mattress. Each strand is drawn taut by mechanical means and fastened at each turn. Each strand end is passed around the mattress end and clamped to itself with a clip.

The composition boards used in the mattress which are illustrated in Figs. 5 to 10 inclusive, are composed of various types of wire mesh enclosed within rectangularly formed asphalt strips. The wire mesh reinforcing may be imbedded within the asphalt in one or more layers. In the illustrations a mesh comprising interwoven longitudinal and transverse wires is indicated by the numeral 21, and another type of mesh which is formed of diagonally interwoven wires is indicated on the numeral 22.

The composition asphalt boards constitute the sole ballast necessary to sink the mattress and retain it on the river bed.

Although in the foregoing certain elements have been described as best adapted to perform the functions allotted to them, nevertheless it is to be understood that certain changes may be resorted to without departing from or sacrificing any of the principles of this invention.

Having described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A flexible self-ballasting mattress of lattice construction comprising longitudinal and transverse cross-members formed of flexible boards of wood and of asphalt, said asphalt members being reinforced by a centrally embedded wire mesh, and means for flexibly interconnecting said lattice members.

2. A flexible self-ballasting mattress of lattice construction including longitudinally extending flexible reinforced asphalt runners and flexible wooden weavers, and transversely disposed flexible mattress boards composed of wooden boards and reinforced asphalt boards interwoven with said weavers, said asphalt boards being disposed at regular intervals in the length of the lattice construction, and means for interconnecting said longitudinal and transverse members.

ALFRED G. REX.