No. 677,825. Patented July 2, 1901.

C. H. VAN ORDEN & E. B. COOMBS.

BEACH PROTECTOR.

(Application filed Oct. 25, 1900.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

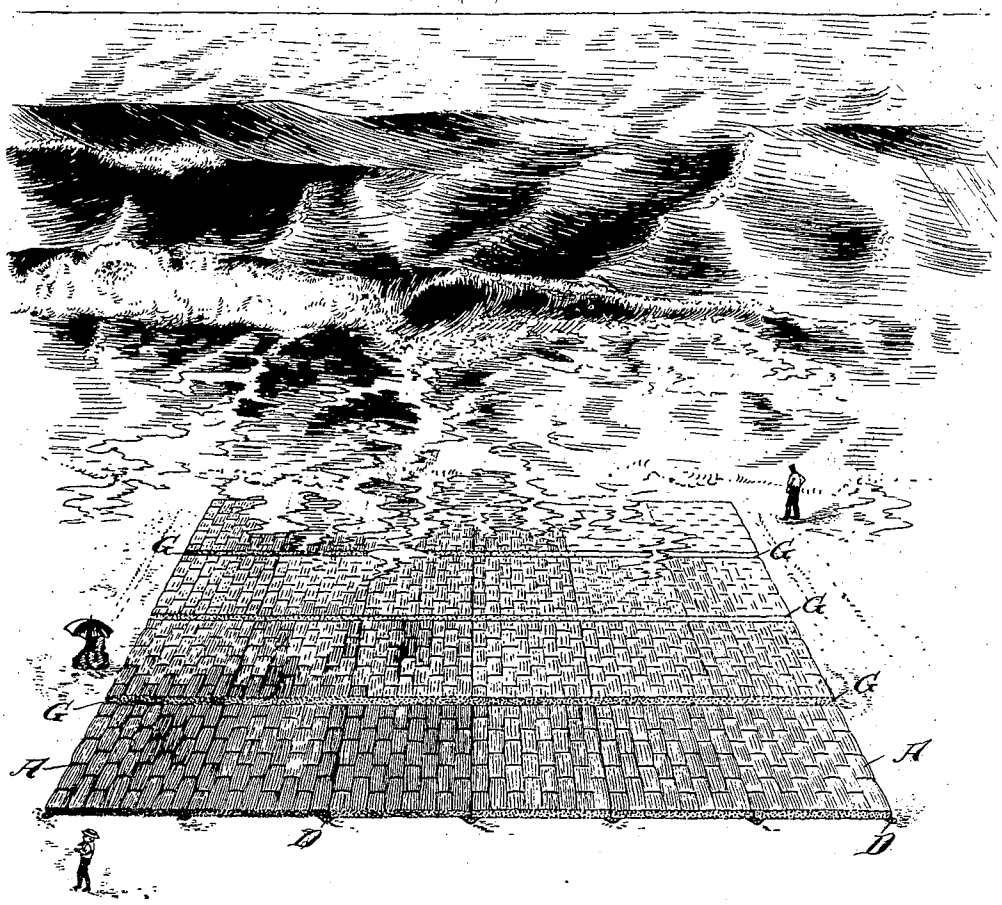
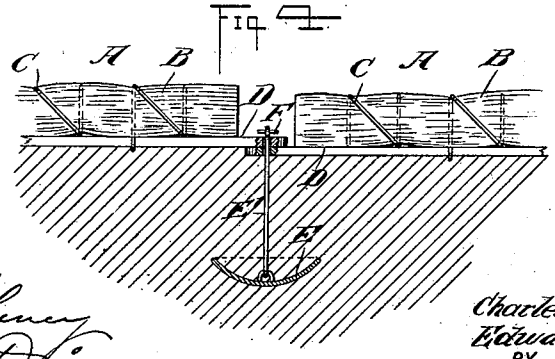


FIG. 2.



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Fig 2

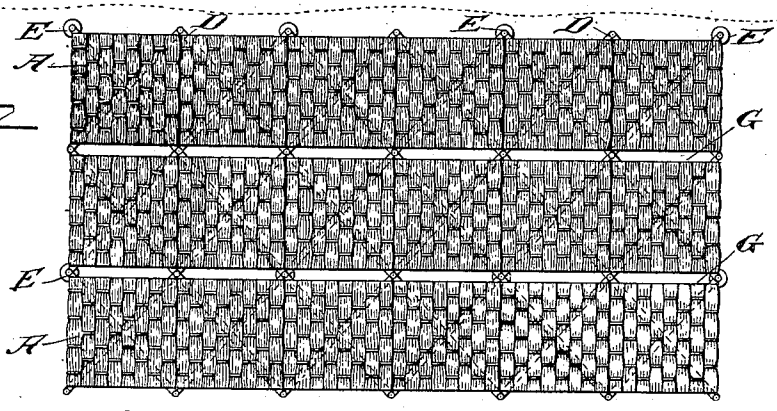


Fig 3

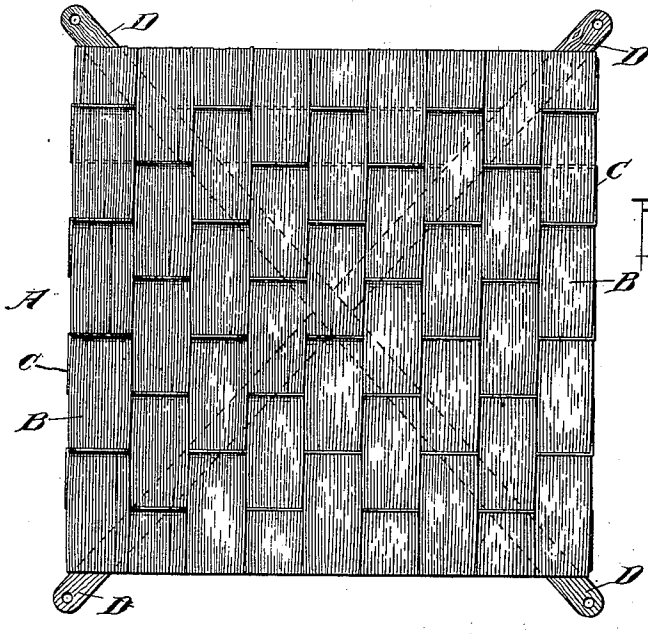
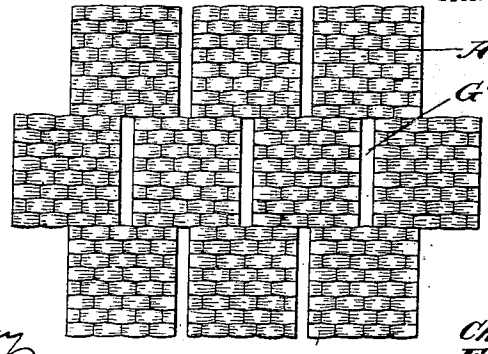


Fig 5



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UNITED STATES PATENT OFFICE.

CHARLES H. VAN ORDEN, OF CATSKILL, AND EDWARD B. COOMBS, OF NEW YORK, N. Y.

BEACH-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 677,825, dated July 2, 1901.

Application filed October 25, 1900. Serial No. 34,308. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. VAN ORDEN, a resident of Catskill, in the county of Greene, and EDWARD B. COOMBS, a resident of the city of New York, borough of Manhattan, in the county of New York, State of New York, citizens of the United States, have invented a new and Improved Beach-Protector, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in beach-protection by the use of mattresses for the preservation and protection of sand beaches and whereby the surf is prevented from washing away the sand from the beach and destroying valuable property, and at the same time the mattresses form a barrier to break the force of the surf and a means for the deposition of the sand carried by the water for reclaiming the land.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the improvement as applied. Fig. 2 is an enlarged plan view of the improvement, showing a plurality of mattresses fastened together and anchored to the beach. Fig. 3 is an enlarged plan view of a single mattress. Fig. 4 is an enlarged side elevation of the improvement as applied and with parts in section, and Fig. 5 is a plan view of a modified form of the improvement.

The improved beach-protector (illustrated in Figs. 1, 2, 3, and 4) consists, essentially, of a plurality of mattresses A, each consisting of a fibrous material B, such as willow, straw, or the like, arranged lengthwise and woven together transversely by wires or other binding-warps C, as is plainly indicated in Fig. 3, corner-bars D being preferably fastened to the under side of the mattress by the binding-warps, said bars D projecting beyond the sides of the mattress to permit of fastening together the projecting bar ends of adjacent mattresses by rivets, bolts, or like devices. The mattresses are placed on the beach at low tide and are anchored to the beach by suitable anchors, preferably mushroom-anchors E, having their shanks E′ extending through the overlapping projecting ends of adjacent mattresses, a key F engaging the upper end of each shank and resting on the top of the uppermost bar D.

As shown in Figs. 1 and 2, the mattresses are placed with the fibers arranged transversely of the beach, and the mattresses are arranged in longitudinal rows spaced apart to form longitudinal spaces G, in which sand is deposited by the surf as the latter breaks over the jointed mattresses. In case the surf breaks longitudinally on the beach we prefer to place the mattresses apart, as shown in Fig. 5, so that the spaces G′ extend transversely of the beach and receive the sand by the surf breaking laterally over the mattresses. In this case the fiber material of which the mattresses are formed is arranged lengthwise of the surf—that is, in the direction in which the surf is breaking over the mattresses. It is evident that by engaging the fiber material in the manner described it offers a great resistance to the inrushing water and is not liable to be destroyed by the force of the waves, as would be the case if the fiber material were otherwise placed.

By the arrangement described the beach to be protected is carpeted by mattresses, the several mattresses being securely held in position on the beach by the mushroom-anchors, as described, it being understood that as many anchors are employed as are necessary—that is, say, for every four mattresses an anchor is provided at each corner.

When it is desired to reclaim land, a second layer of mattresses is placed on the first layer after the latter has been covered with sand—that is, has been embedded in sand—and this operation may be repeated as often as necessary until the desired height of land is attained.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A beach-protector, comprising a plural-

ity of mattresses each formed of a fiber material bound in place by warps and bars attached to each mattress to stiffen the same and provide a means for fastening the mattresses together, as set forth.

2. A beach-protector, comprising a plurality of mattresses connected with each other and having spaces between the mattresses, and means for anchoring the mattresses to the beach, as set forth.

3. A beach-protector, comprising a plurality of mattresses arranged in rows with spaces between the rows, means for connecting the mattresses with each other, and means for anchoring the connected mattresses to the beach, as set forth.

4. A beach-protector, comprising a plurality of mattresses each formed of a fiber material bound in place by warps and bars attached to each mattress to stiffen the same and provide a means for fastening the mattresses together, and anchors engaging sundry of the said bars, to secure the mattresses in place on the beach, as set forth.

5. A beach-protector, provided with a mattress formed of a fiber material bound in place by warps, the fiber material being arranged lengthwise in the direction of the current, and bars secured to the mattress by said warps, to stiffen the mattress, the bars being arranged diagonally to the mattress, as set forth.

6. A beach-protector having a mattress formed of a fibrous woven material, and crossing-bars attached to the mattress and projecting beyond the sides thereof, for connection with the projecting ends of the bars of adjacent mattresses, as set forth.

7. A beach-protector, comprising a plurality of mattresses of a fibrous woven material, bars attached to said mattresses and projecting beyond the sides thereof, the projecting ends of the bars adjacent to the mattresses being fastened together, and anchors for anchoring the mattresses to the beach, the anchors engaging sundry of the bars at the connected ends thereof, as set forth.

CHARLES H. VAN ORDEN.
EDWARD B. COOMBS.

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Witnesses to the signature of Edward B. Coombs:

EVERARD BOLTON MARSHALL,
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