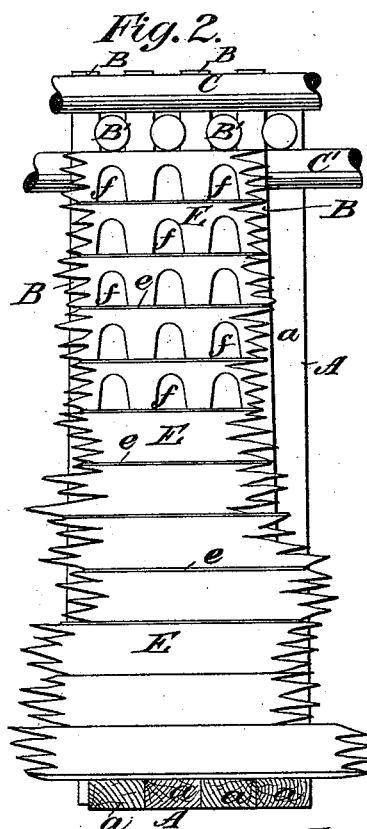
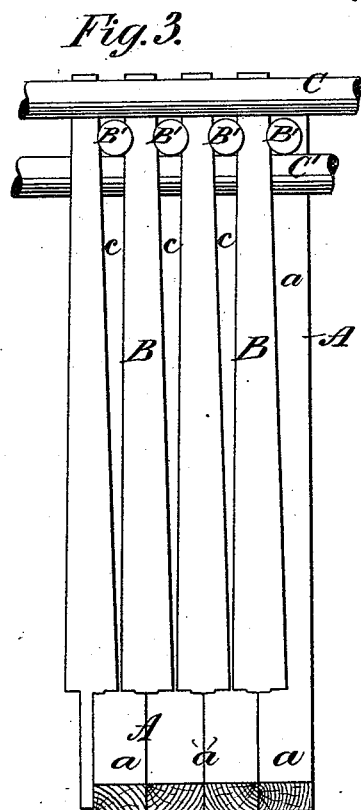
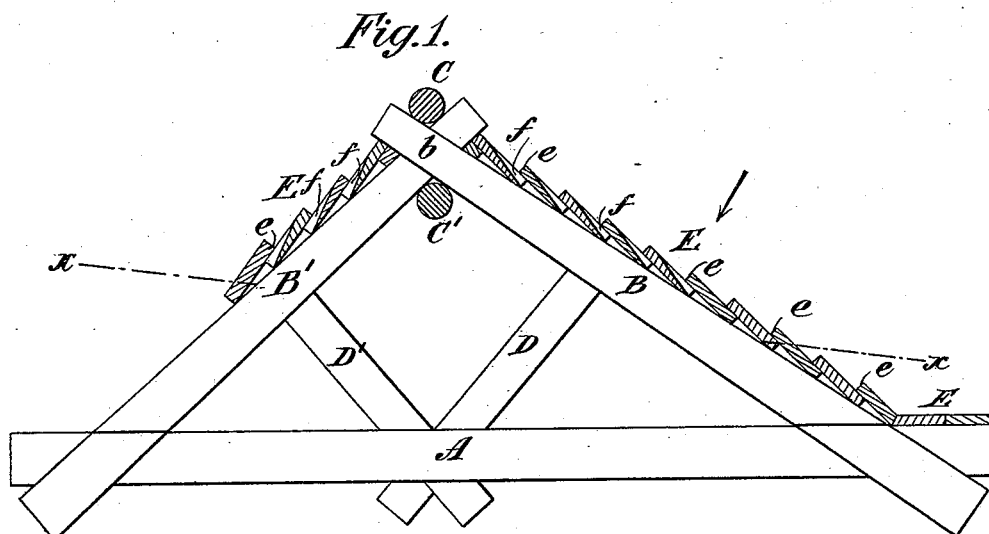


(No Model.)

J. SUTHERLAND.
MEANS FOR MAKING BEACH.

No. 421,631.

Patented Feb. 18, 1890.



Witnesses:-
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UNITED STATES PATENT OFFICE.

JAMES SUTHERLAND, OF PARKVILLE, NEW YORK.

MEANS FOR MAKING BEACH.

SPECIFICATION forming part of Letters Patent No. 421,631, dated February 18, 1890.

Application filed November 5, 1889. Serial No. 329,358. (No model.)

To all whom it may concern:

Be it known that I, JAMES SUTHERLAND, of Parkville, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Means for Making Beach, of which the following is a specification.

My improvement relates to means for causing the accumulation and retention of sand which may be washed up upon the sea-beach by the action of the waves, the operation being usually termed "making beach."

I will describe in detail my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a structure embodying my improvement. Fig. 2 is a face view of the same broken away to save space and looking in the direction of the arrow, Fig. 1. Fig. 3 is a view similar to Fig. 2, certain planking with which the structure is faced being removed.

Similar letters of reference designate corresponding parts in all the figures.

A designates a sill for the structure. This sill is made up, as shown more clearly in Figs. 2 and 3, of a number of beams or planks *a*, which are placed in this instance close together.

B B' designate inclined timbers. The timbers B are, as shown more clearly in Fig. 3, mortised in between the planks of the sill A, near one of the ends of said planks, and extend downwardly for a distance below said planks. The timbers B' are similarly mortised between the other end portions of the planks of the sill. The timbers B B' converge, and, as shown, overlap each other near their upper ends, as at *b*. The lower end portions of the timbers B B' may be pinned, bolted, or otherwise secured to the sill. Where they overlap each other I provide a horizontally-extending binding pole or timber C, placed above the point where the timbers B B' overlap. Beneath said overlapping point I place a similar binding pole or timber C'. These binding poles or timbers are secured to the timbers B B' by pins, bolts, or otherwise, as may be desired.

I have shown struts D D' extending be-

tween the timbers B B' and the sill A, which struts may be mortised into the sill in the manner previously described, and may be secured both to the sill and the timbers B B' by pins, bolts, or otherwise. In the example illustrated the lower ends of the struts D D' extend somewhat below the sill A.

I prefer that the timbers B shall be somewhat longer and extend at a somewhat more acute angle than the timbers B', it being intended in practice that the timbers B shall face the sea.

It will be observed by reference more particularly to Fig. 3 that the timbers B are of gradually lessening width from their lower to their upper ends. This is for the purpose of affording spaces *c* between said timbers. This construction is also true of the timbers B', although not so illustrated in the drawings. Instead, however, of making the timbers of lessening width, they may be separated by separating pieces or blocks, so as to leave spaces *c* between them, or they may be separated in any other suitable manner.

Where the timbers B B' overlap each other near their upper ends, they may be recessed somewhat to receive each other, as shown more clearly in Figs. 2 and 3. Such an arrangement tends to strengthen the structure.

The timbers B are faced with planks E. The planks E overlap each other near their edges, so that the upper edges of the planks will form a series of grooves or ridges *e*, extending horizontally along the face of the structure, which ridges will be one above another. Certain of the planks E have formed in them upon their uppersides grooves or recesses *f*, which grooves or recesses increase in depth from their upper to their lower ends, as shown more clearly in Fig. 1, and substantially vanish at the lower edges of the planks. The upper edge of each of the planks extends over the lower end portions of the grooves or recesses in the next adjacent plank above it, so that there are formed a number of openings in each plank which afford communication between the upper and lower sides of the planking. These openings are so arranged as to be above the spaces *c* between the timbers B. A similar construction and arrangement of planking is shown upon the timbers B', although I have

not illustrated so many of the planks E upon such timbers as upon the timbers B. Certain of the planks E, or those nearest the sill A, I have not shown provided with the grooves or
5 recesses *f*, for the reason that it is not wholly essential that communication should be afforded between the upper and the lower sides of these planks.

Although I have illustrated the planks E as
10 overlapping each other, so as to form a series of ridges, they need not necessarily so overlap, but their edges may abut against each other and holes or openings may be bored or otherwise formed in them opposite the
15 spaces *c*. The planks E are secured to the timbers B B' by pins, bolts, or otherwise.

It will be observed that the structure has a hollow interior and that it presents a closed lower portion to the sea. It may be made in
20 sections of any desired length.

In operation the lower portion of the structure is embedded for a distance in the sand, say to about the depth of the dotted line *x*, Fig. 1. The incoming waves carry with them
25 a quantity of sand which they wash up along the inclined plane forming the face of the structure. Sand accumulates upon the ridges *e* and falls down through the openings made by the grooves or recesses *f* into the interior
30 of the structure. Such sand as may pass over to the rear side of the structure will be accumulated upon the ridges formed by the planking upon that side and will pass downwardly through the openings to the interior. Thus
35 the space within the structure will be gradually filled with sand and the whole will be-

come firmly and permanently embedded and will effectively resist the encroachment of the sea and consequent washing away of the beach.

By placing a series of structures of the character described one in advance of the other beach may be rapidly made, as the accumulated sand cannot be again carried out to sea by the returning waves.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A hollow structure having a bottom and faced upon one side with planks, so as to present an inclined surface and a closed lower
50 portion to the sea, certain of said planks being provided with openings affording communication with the interior of the structure, substantially as and for the purpose specified.

2. A hollow structure faced upon one side
55 with planks, so as to present an inclined surface to the sea, certain of said planks overlapping each other to form ridges and being provided with openings affording communication with the interior of the structure, substantially as and for the purpose specified.

3. A hollow structure comprising the closed sill A, timbers B, having spaces between them, timbers B', and planks E, secured upon the
65 timbers B and provided with openings affording communication with the interior of the structure, substantially as and for the purpose specified.

JAMES SUTHERLAND.

Witnesses:

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