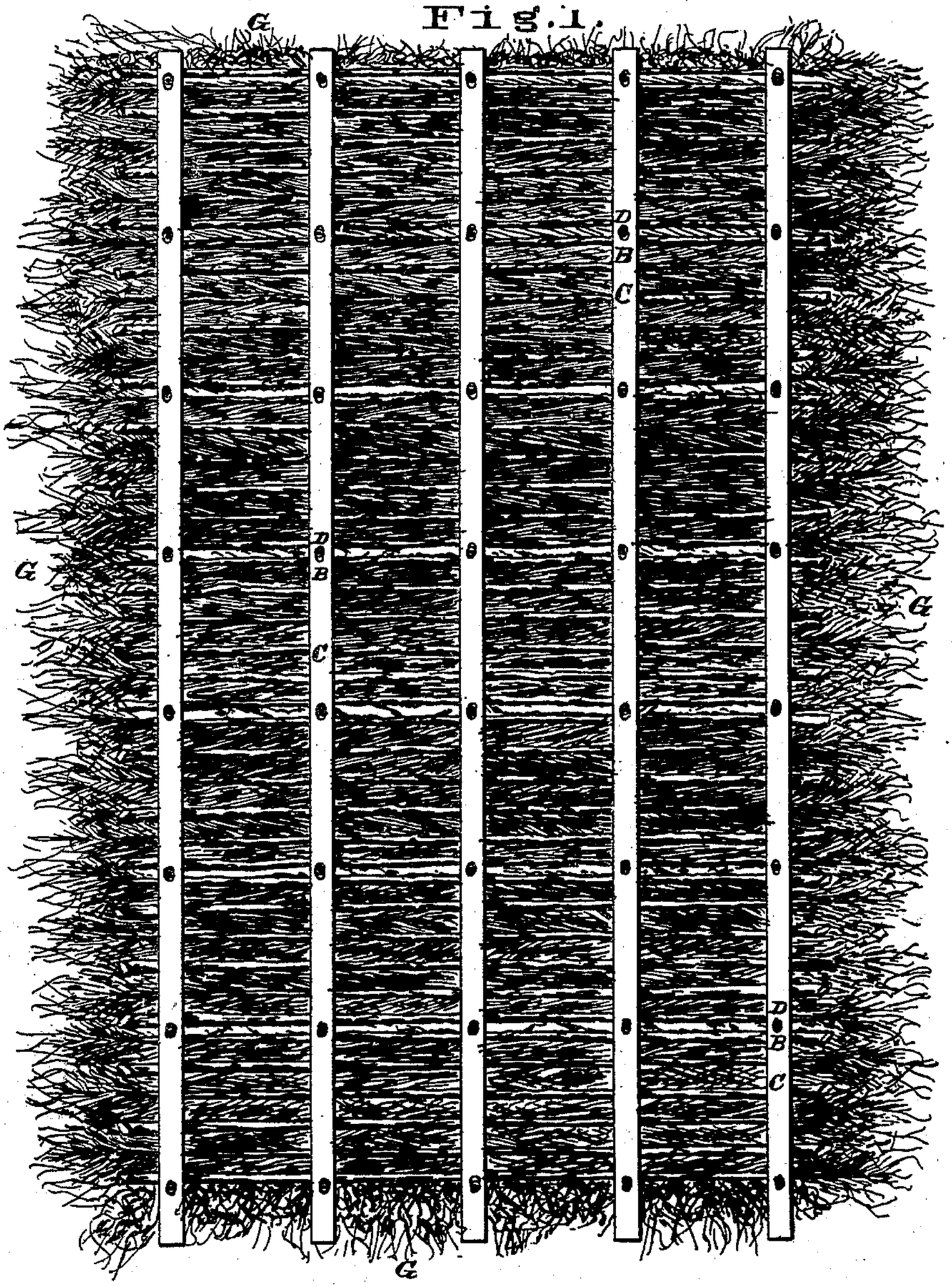
3 Sheets—Sheet 1.

J. B. EADS & J. ANDREWS.

MATTRASS FOR FORMING EMBANKMENT.

No. 170,832. Patented Dec. 7, 1875

Fig. 1.



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3 Sheets—Sheet 2.

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MATTRASS FOR FORMING EMBANKMENT.

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Fig. 2.

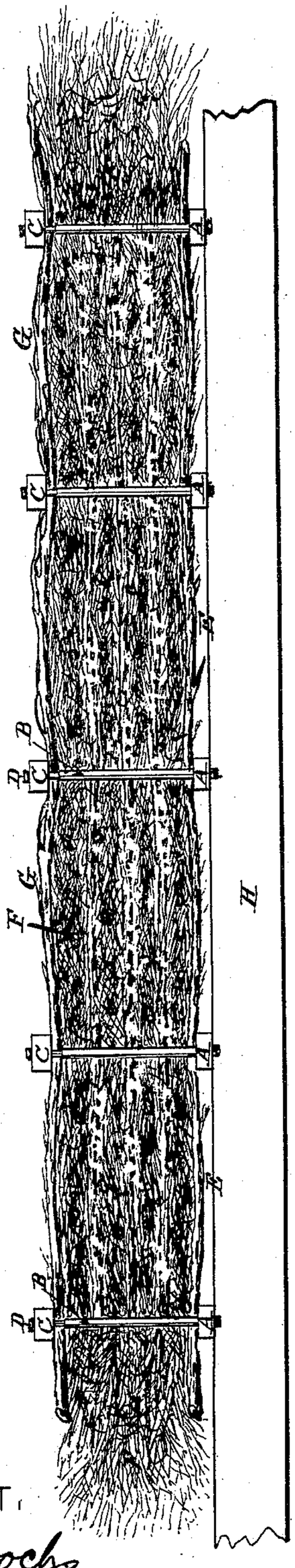
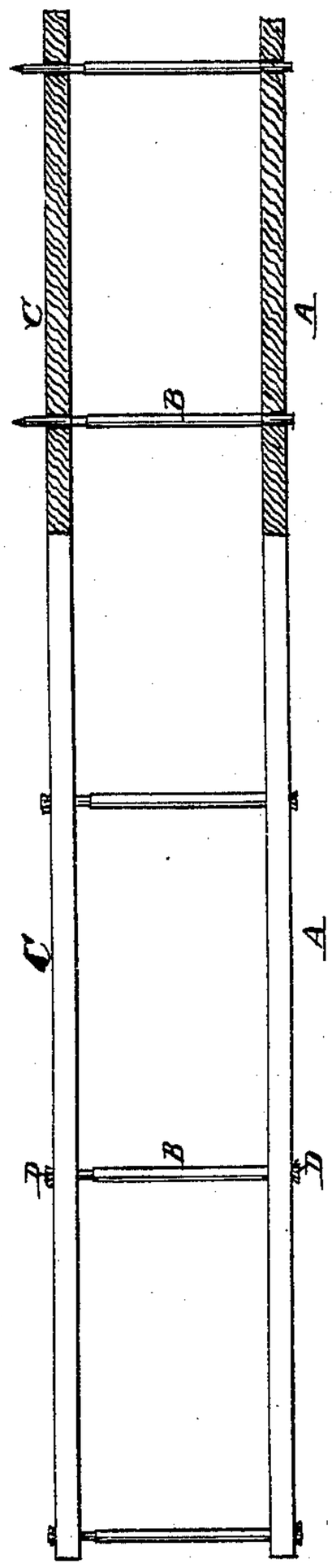


Fig. 3.



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J. B. EADS & J. ANDREWS.

MATTRASS FOR FORMING EMBANKMENT.

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Fig. 4.

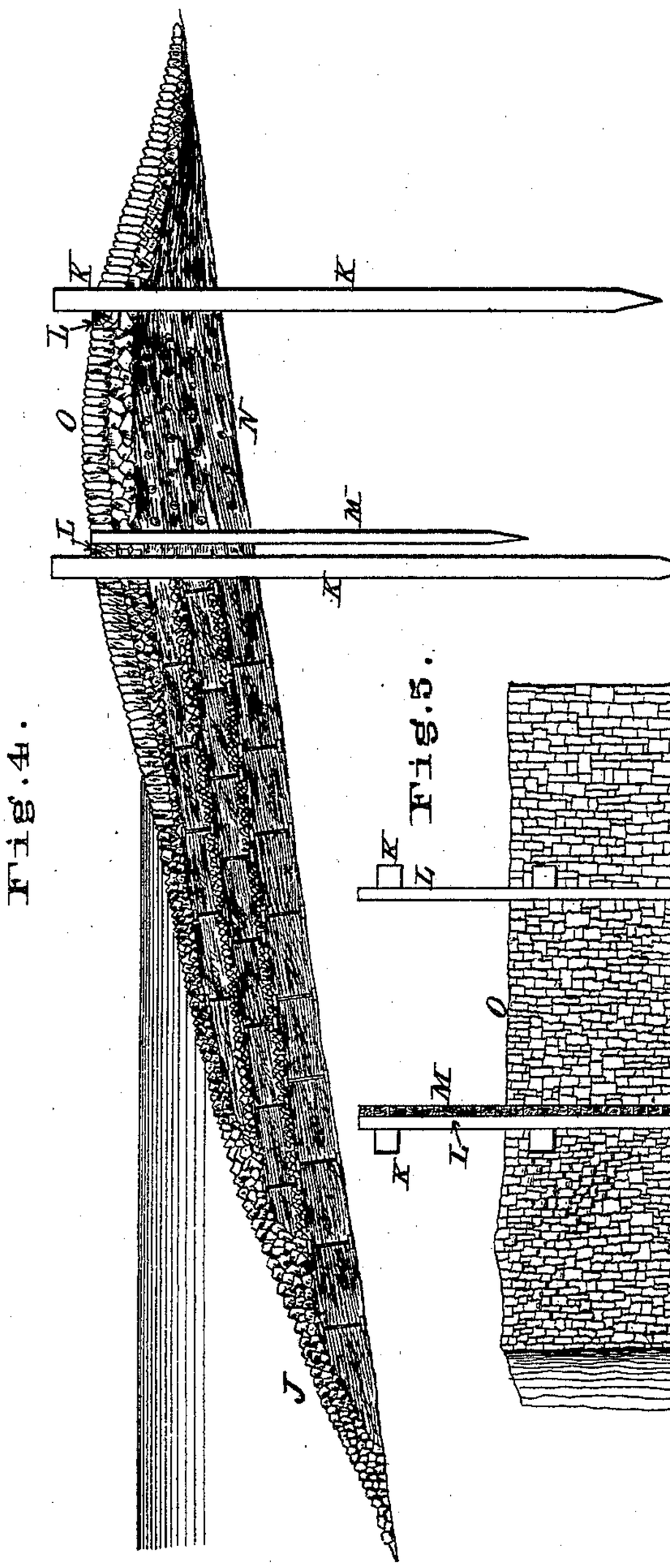
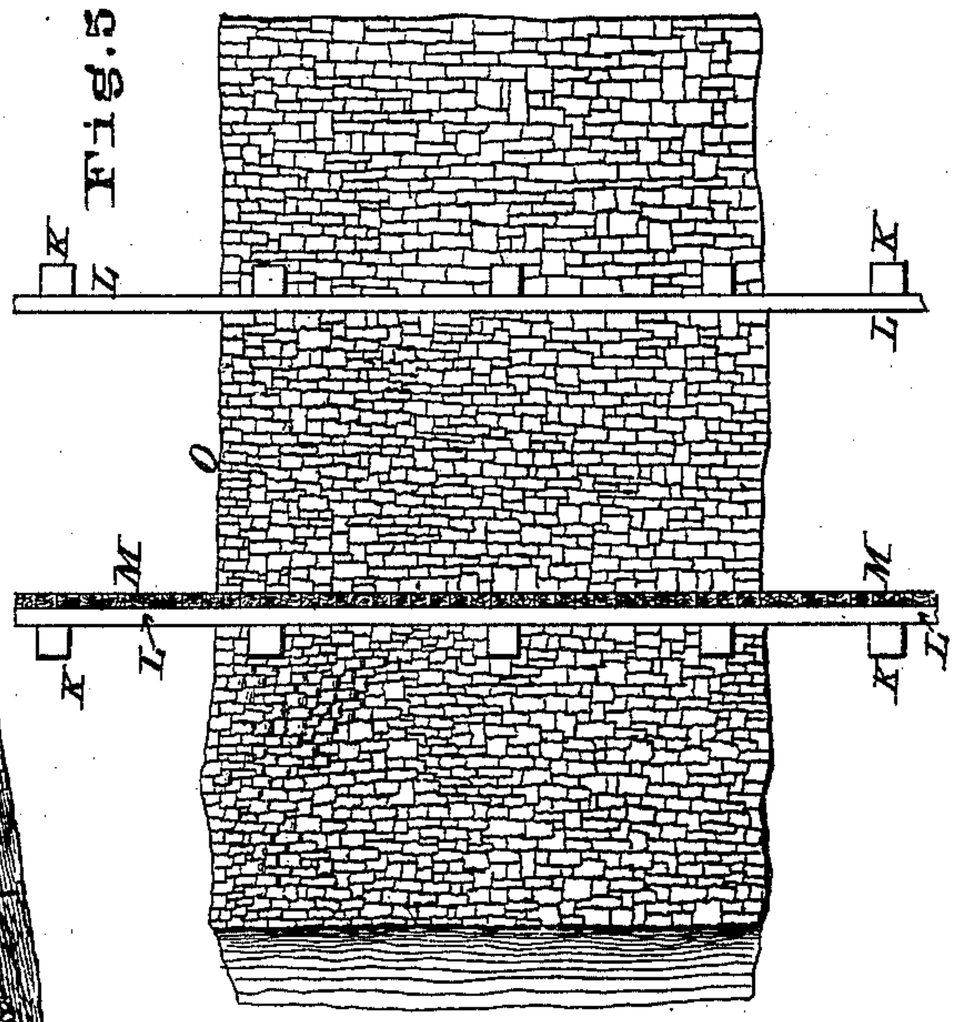


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES B. EADS, OF ST. LOUIS, MISSOURI, AND JAMES ANDREWS, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN MATTRESSES FOR FORMING EMBANKMENTS.

Specification forming part of Letters Patent No. **170,832**, dated December 7, 1875; application filed August 19, 1875.

To all whom it may concern:

Be it known that we, JAMES B. EADS, of the city and county of St. Louis, and State of Missouri, and JAMES ANDREWS, of the city and county of Allegheny, and State of Pennsylvania, have invented a new and useful Mattress for Forming Embankments, Dikes, and Jetties, and for protecting the banks of rivers or sea-shores, and of which the following is a specification:

The first part of our improvement relates to the mattress itself, which consists of a body of brush, hay, bagasse, straw, or other suitable material, inclosed between two or more layers of saplings or stems of trees or sawed strips of lumber, and the whole confined by rails or sawed strips of lumber or saplings laid transversely to the stems, and secured by pins traversing the body. Our invention consists, second, in constructing a mattress for jetties, &c., by securing upon a compressible body of brush, or its equivalent, an upper and under course of rails or bars by means of pins passing through the body and rails, and by wedges driven into the ends of the pins transversely to the rails.

In the accompanying drawing, Figure 1 is a plan of one mattress. Fig. 2 is an end view of the same. Fig. 3 is a side view of the binding-frame of the mattress, part in section. Fig. 4 is a cross-section, showing the construction of the embankment. Fig. 5 is a plan of the same.

A A are rails lying parallel to each other, and, say, four feet apart. These rails may be made of any suitable length, and may be, say, three inches by six inches in section. At regular distances are vertical pins B B, extending upward and passing through rails C C, similar to those A A. The ends of the pins are secured in the rails by wedges D, placed transversely to the rails, so as to spread the pin-ends endwise of the rails, to avoid tendency to split the rails. The rails C C are in a plane parallel to that of A A, say at a distance of two feet therefrom. The space between the rails is filled in with willow saplings and brush, or other material, in the following manner: First, a layer of small saplings, E, is laid transversely upon the base-rails A A. The saplings are laid with their tops extending alternately in opposite directions, so as to impart uniform strength to the mattresses, and make a foundation on which to lay twigs, bunches of suitable trees, bagasse, hay, &c., to form the main body of the mattress. When the rails have been covered with this layer of saplings, then brush and small limbs, and twigs F of willow or other trees, hay, bagasse, or other suitable material, are thrown on promiscuously to the required depth, and being made moderately level on top. This is then covered with a top layer of saplings, G, similar to E, and laid in the same direction. The upper course of rails is then put on, the pins B B passing through holes in them, previously bored, and being secured by wedges, as before stated, driven into the upper ends of the pins, or by nails, pins, or other suitable and economic means. The rails A A and C C impart stiffness to the mattress in one direction, and the saplings E and G stiffen it in a direction transverse to the rails. Diagonal saplings may likewise be laid beneath the top rails to give additional strength. The top rails may be laid transversely to the bottom ones, and the top course of saplings may be then laid transversely to the bottom one. The saplings may be substituted by sawed strips of lumber, or rails placed in their stead.

We prefer to make the pins B B with ends of reduced diameter, so as to leave shoulders, which, at the lower end, have firm bearings on the rails A A, which prevent the pin from being driven downward in inserting the upper wedge.

The mattresses will be most conveniently built on launching timbers or ways H, from which they are launched into the water, and thence floated to the place where they are to be sunk.

The mattresses are weighted down after being launched, and sunk to the bottom by depositing earth or sand on them by means of sand-pumps, dredges, or other suitable means, and when once sunk the accumulation of sediment in them will retain them in their position; or they may be weighted with stone also, as shown at I, Fig. 4. They are associated together in any suitable manner—for instance,

as illustrated in Fig. 4—and covered with rip-rap, stone, or by pumping or throwing earth or sand on them, J.

In Figs. 4 and 5, K K represent piles; L L, longitudinal timbers; and M, sheet piling of the higher part of the jetty, which may have a body, N, built up of willows or other woods, to increase its width, and which may be loaded down with stones, O.

We claim as our invention—

1. A mattress for the formation of jetties or embankments formed of an upper and an under layer of poles or saplings E G, compressed on an interposed body, F, of brush by means of rails A C and pins B, as herein shown and described.

2. The combination, with the compressible body F G, rails A C, and pins B, of the wedges D, driven into the ends of the said pins in positions transverse to rails A C, as shown.

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Witnesses:
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