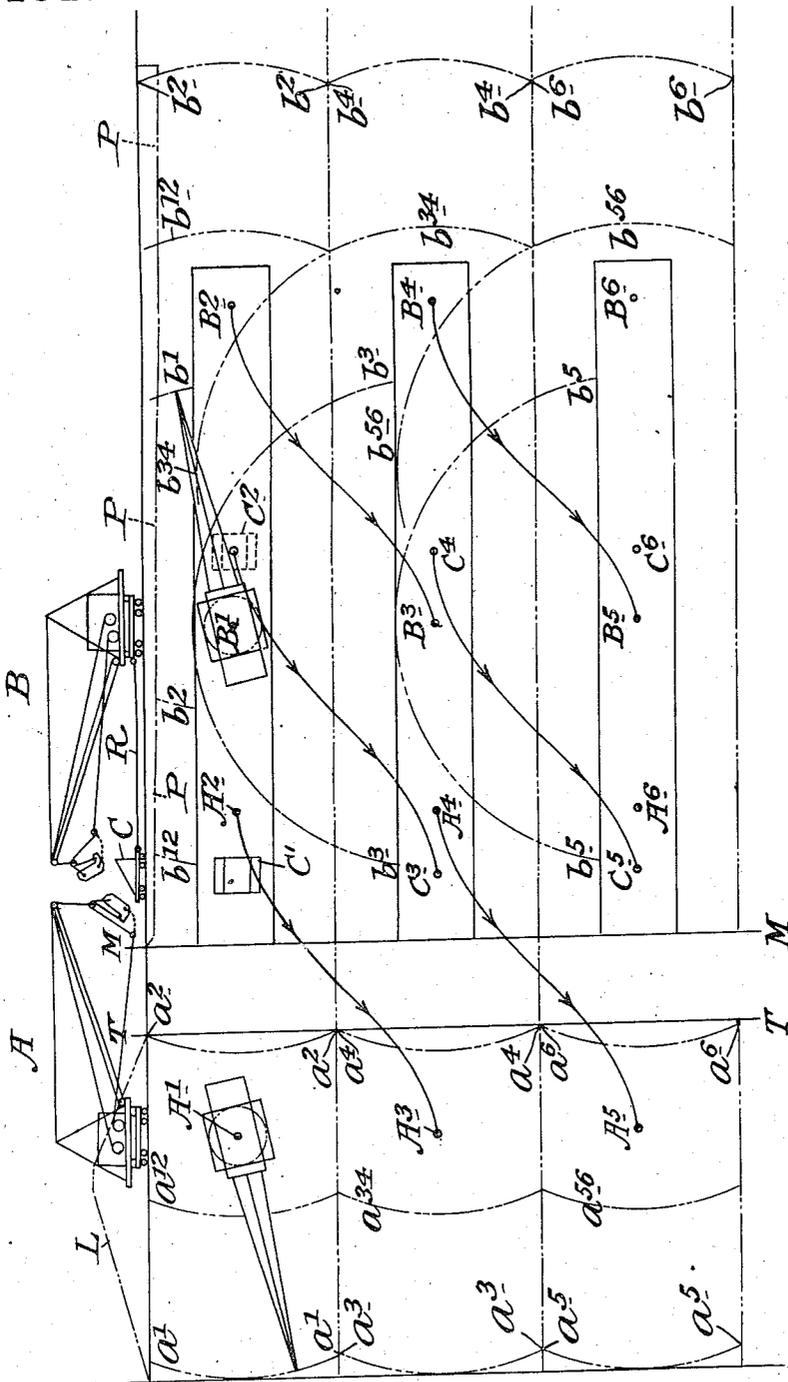


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 METHOD OF BUILDING LEVEES AND EMBANKMENTS.  
 APPLICATION FILED OCT. 14, 1915.

1,279,151.

Patented Sept. 17, 1918.



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# UNITED STATES PATENT OFFICE.

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METHOD OF BUILDING LEVEES AND EMBANKMENTS.

1,279,151.

Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed October 14, 1915. Serial No. 55,780.

To all whom it may concern:

Be it known that I, ARSÈNE PERRILLIAT, a citizen of the United States, residing at New Orleans, Orleans parish, State of Louisiana, have invented certain new and useful Improvements in Methods of Building Levees and Embankments, the following being a full, clear, and exact disclosure of the one form of my invention which I at present deem preferable.

For a detailed description of the present form of my invention, reference may be had to the following specification and to the accompanying drawings, which illustrate my invention.

My invention relates to a method of building a levee or embankment out of material excavated from an adjacent borrow-pit which is of great width and shallow depth. In brief I excavate progressively along lines transverse to the line of the levee or embankment, operating from a series of centers along said transverse lines by means of a derrick boom type of excavator which digs in an arc around its point of location as a center. The material thus excavated is delivered by the excavator to a movable transfer device consisting of an inclined chute mounted on skids or wheels, and after falling down this chute by gravity the material is taken up by a following machine of the same general type and deposited on the levee or embankment. Both machines and also the intermediate chute are moved at the same time from point to point along the said transverse excavating route, so that their normal spacing is preserved, and, after the end of one transverse route is reached, the three devices are moved diagonally to a similar succeeding excavating route parallel to the former one. Then the said excavating and transporting operation is repeated along this second route including the digging up of the trackway over which the machines have traveled in making their first excursion and in proceeding thence to the next succeeding route.

Turning to the drawings, the two excavators A and B together with the intermediate chute C are shown at the top of the figure in their working relation, the tips of the booms of the two excavators being maintained a short distance apart because of the chute to permit them to swing independently of each other. The chute C is about midway between the two excavators and may be con-

nected with the excavator B by a cable R so as to follow that excavator at a certain distance as the machines are advanced from one working point to another. The three devices being in this relation the excavator B will dig all the material within its working radius, excepting the trackway along which the machines move transversely to the line of the embankment and the trackways along which they move to the next succeeding transverse trackway. The material thus excavated is delivered by machine B to chute C down which it falls by gravity. Then it is taken up by machine A and delivered on the levee or embankment.

L represents the form of the levee or embankment to be built which has its inner edge along the line T—T, there being also a berm extending to the line M<sup>P</sup>—M. It will be assumed, for purposes of description, that the progress of the transverse excavation is from left to right, although it may be from right to left if desired. Under this assumption the digging machine B will be first located at B<sup>1</sup>, the chute C will be located at C<sup>1</sup> close to the berm line M—M, and the transporting machine A at A<sup>1</sup>. Then machine B will excavate all the material of the borrow-pit that is within its radius of action—*i. e.* between the arcs  $b^1$ —excepting the trackways, such excavation being indicated in the upper part of the figure at P, P. The material will be delivered by machine B to the chute and then taken up by machine A and delivered on the levee or embankment along the arc  $a^1$ — $a^1$ . When this work is completed the machines will all be moved a distance to the right or away from the levee along the transverse excavating route. In this new position the material will be excavated between the arcs  $b^{12}$  by machine B and finally delivered on the levee or embankment along the arc  $a^{12}$ . Finally the machines will reach the outermost position, machine B being then stationed at B<sup>2</sup>, the chute at C<sup>2</sup> and machine A at A<sup>2</sup>. Then the material between arcs  $b^2$  will be excavated and delivered on the levee or embankment along the arc  $a^2$ . Thereupon the machines will be moved diagonally, as indicated by the arrow lines, to the respective positions A<sup>3</sup>, C<sup>3</sup> and B<sup>3</sup> and the operation above described will be repeated, the material between arcs  $b^3$  being first excavated and delivered on the levee or embankment along the arc  $a^3$ , the material between arcs  $b^{34}$  being delivered along the arc

$a^{34}$  and the material between arcs  $b^4$  along the arc  $a^4$ . The three devices have now reached the respective positions  $A^4$ ,  $C^4$ ,  $B^4$  and will thence be again moved diagonally to the respective positions  $A^5$ ,  $B^5$ ,  $C^5$  and the described operations again repeated. In each case the trackways ahead of the three devices will be left unexcavated until after the machines have passed, when they will be included in the excavation behind or in the rear of the machines. The chute C serves to definitely locate the material brought in by the bucket of machine B and also to space the machines A and B so that their booms will not interfere with each other and the operator will be free to work his machine without need of care to dodge the boom of the other machine. On the transverse trackways the chute rope R will be attached to machine B as shown, but on the diagonal trackways will be attached to machine A, which, as it moves, will draw the chute after it. The arcs of excavation will be non-concentric since the digging machine B works at successive stations or excavating centers, such stations or centers being at different distances from the levee or embankment along the transverse routes or trackways. The succeeding transverse routes or trackways will be parallel with one another and a distance apart no greater than the radial reach of the boom so that the trackway behind the machine can be reached and excavated by the machine after it has passed on.

What I claim as new and desire to secure by Letters Patent is:

1. The method of building a levee or embankment which comprises progressively excavating an adjacent borrow-pit in a series of successive, non-concentric arcs, transporting the excavated material to and depositing it at a series of points between the levee or embankment and the points of excavation and at progressively different distances from the said levee or embankment, and transporting the material from said points of deposit and delivering it on the levee or embankment at progressively different points corresponding to changes in location of said points of deposit.

2. The method of building a levee or embankment which comprises progressively excavating an adjacent borrow-pit in a series

of successive, non-concentric arcs, transporting the excavated material to and depositing it at a series of points between the levee or embankment and the points of excavation and at progressively different distances from the said levee or embankment, and transporting the deposited material from said points of deposit and delivering it upon said levee or embankment at progressively different distances from said points of deposit and in a series of non-concentric arcs.

3. The method of building a levee or embankment which comprises progressively excavating an adjacent borrow-pit in a series of successive, non-concentric arcs, depositing the material as it is excavated and guiding the deposited material to definite locations which progress to new positions for each arc of excavation, and transporting the material from said points of deposit and delivering it on the levee or embankment at progressively different distances conforming to the changes in location of the points of deposit of the originally excavated material.

4. The method of building a levee or embankment which comprises progressively excavating an adjacent borrow-pit in a series of successive, non-concentric arcs which succeed one another in a direction transverse to the line of the levee or embankment, leaving unexcavated a track-way for the apparatus employed, transporting the excavated material and depositing it at a series of points between the levee or embankment and the points of excavation and at progressively different locations corresponding to the respective arcs of excavation, transporting the deposited material and delivering it on the levee or embankment in a series of non-concentric arcs at progressively different points corresponding to changes in location of the points of deposit, shifting the apparatus diagonally to a new position along the line of the levee or embankment, and repeating the excavating, depositing and delivering steps in a direction parallel to the line of centers of the non-concentric excavating arcs and so as to include the previously unexcavated track-way.

In witness whereof I have hereunto set my hand, this eighth day of October, 1915.

ARSÈNE PERRILLIAT.