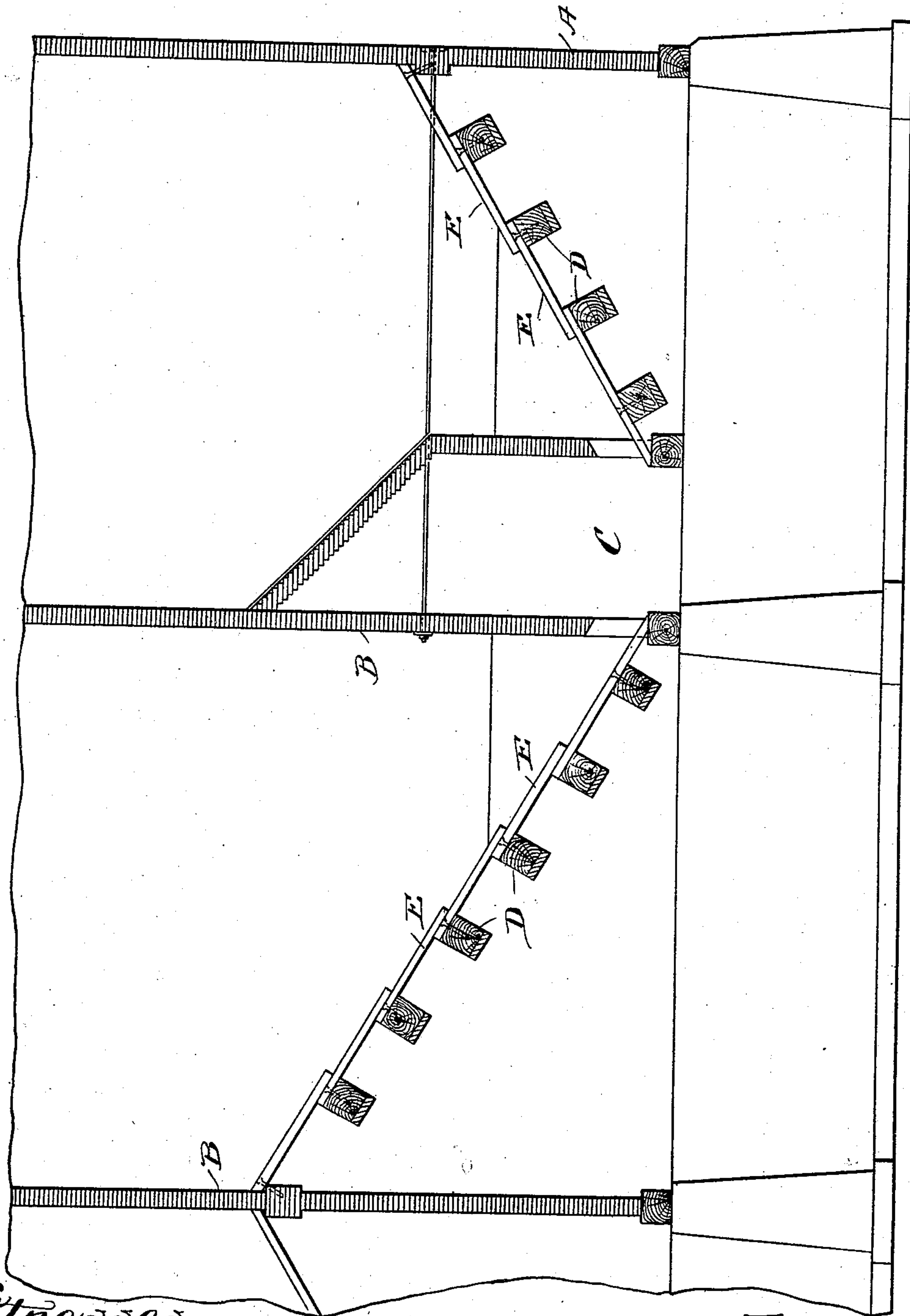


(No Model.)

J. MACDONALD & J. S. METCALF.  
CONSTRUCTION OF HOPPER BOTTOM GRAIN BINS.

No. 507,324.

Patented Oct. 24, 1893.



Witnesses,  
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# UNITED STATES PATENT OFFICE.

JAMES MACDONALD AND JOHN S. METCALF, OF CHICAGO, ILLINOIS, ASSIGN-  
ORS TO THE METCALF-MACDONALD COMPANY, OF SAME PLACE.

## CONSTRUCTION OF HOPPER-BOTTOM GRAIN-BINS.

SPECIFICATION forming part of Letters Patent No. 507,324, dated October 24, 1893.

Application filed July 5, 1893. Serial No. 479,590. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES MACDONALD and JOHN S. METCALF, of Chicago, Illinois, have invented certain new and useful Improvements in the Construction of Hopper-Bottom Grain-Bins, of which the following is a specification.

Our invention relates particularly to the construction of the hopper bottoms of bins in grain elevators; and has for its object to provide such construction of the bin floor as will compensate for the settling of the walls due to the shrinkage of the timbers or other causes without lateral thrust upon said walls.

In the construction of grain elevators it is common to employ timbers spiked flatwise together for the exterior walls of the structure and also for the cross walls to form the bins. There is always more or less settling of these walls due to the drying out of the timbers and as the structures are frequently carried to great heights, the settling amounts often to several inches. The floors of these bins are commonly made to slope so as to discharge all the grain out of the bin by gravity; but heretofore the floors have been rigid and constructed without reference to the shrinkage of the walls and the result has been in many cases that as the settling progresses the floor tends to force the walls out of plumb, thus impairing the stability and security of the structure. We overcome this difficulty by so constructing the floors of the bins as to compensate for this settling of the walls, and this we do by supporting the floors upon girders having their ends embedded in the cross walls of the bin. The floor planks are made in lengths just sufficient to reach from one supporting girder to another, one end only of each plank being secured to the girder and the other end resting on the end of the adjoining plank, whereby as the walls settle these floor planks may move freely upon each other to compensate for such settling, thus relieving the walls from thrust which would tend to throw them out of plumb.

The drawing is a sectional elevation of the lower portion of a grain elevator showing two bins and a third partially broken away.

A represents the exterior wall, and B B bin walls.

C represents the hopper. The floors of the two adjoining bins slope toward this hopper so as to discharge the grain therethrough by gravity.

D represents girders which will have their bearings in the end walls of the bins and will be placed with their upper surfaces in an oblique plane so as to give the proper pitch to the floor.

E represents the floor planks which are secured at one of their ends to the girders E, while their other ends are left free and lap upon the adjoining plank so as to move upon each other, whereby to compensate for the shrinking. These lap joints provide for all settling of the side walls, and the floors exert no lateral strain which would tend to throw them out of plumb.

We claim—

1. In the construction of elevator bins having hopper bottoms, the combination with the floor girders, of covering planks for the floors having an overlapped joint whereby to provide for settling of the vertical walls without lateral thrust, substantially as described.

2. In the construction of elevator bins having hopper bottoms, the combination with the girders of floor planks having one end secured to the girders and their other ends free whereby to provide a lapped joint to accommodate settling of the bin walls without lateral thrust through the floor planks, substantially as described.

JAMES MACDONALD.  
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Witnesses:

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