

(No Model.)

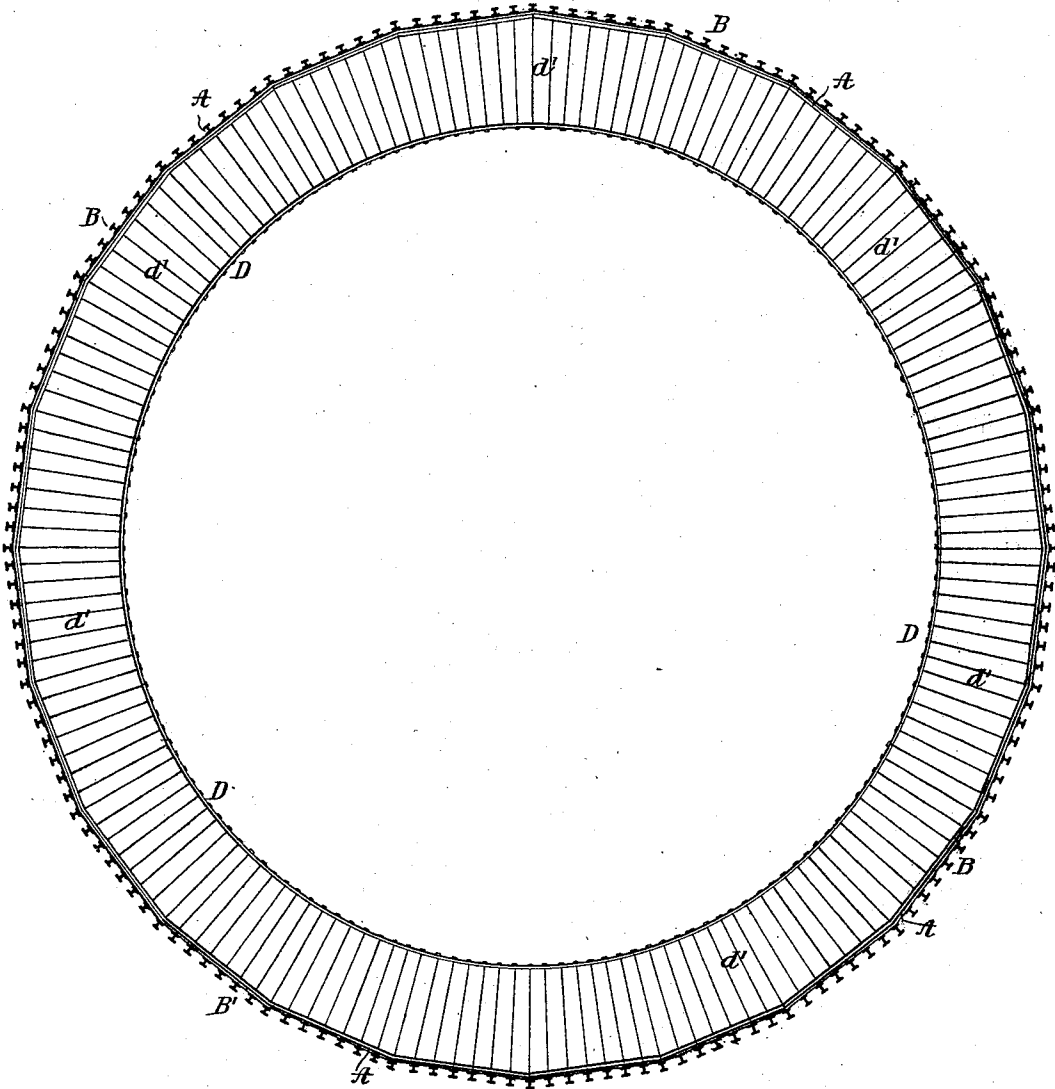
2 Sheets—Sheet 1.

J. M. DODGE.  
STORAGE STRUCTURE.

No. 539,250.

Patented May 14, 1895.

FIG 1



WITNESSES

*R. Schlicher.*  
*Will. A. Bass.*

INVENTOR

*James M. Dodge*  
By his Attorneys

*Hewitt & Howson*

(No Model.)

2 Sheets—Sheet 2.

J. M. DODGE.  
STORAGE STRUCTURE.

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FIG 2

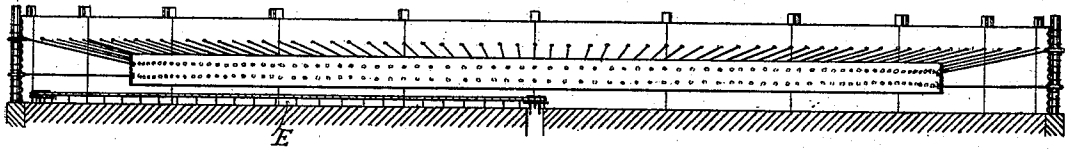


FIG 3

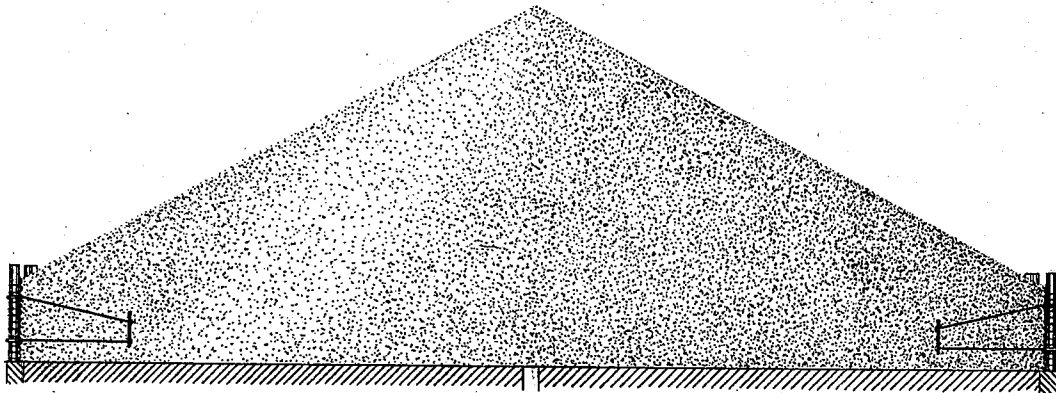
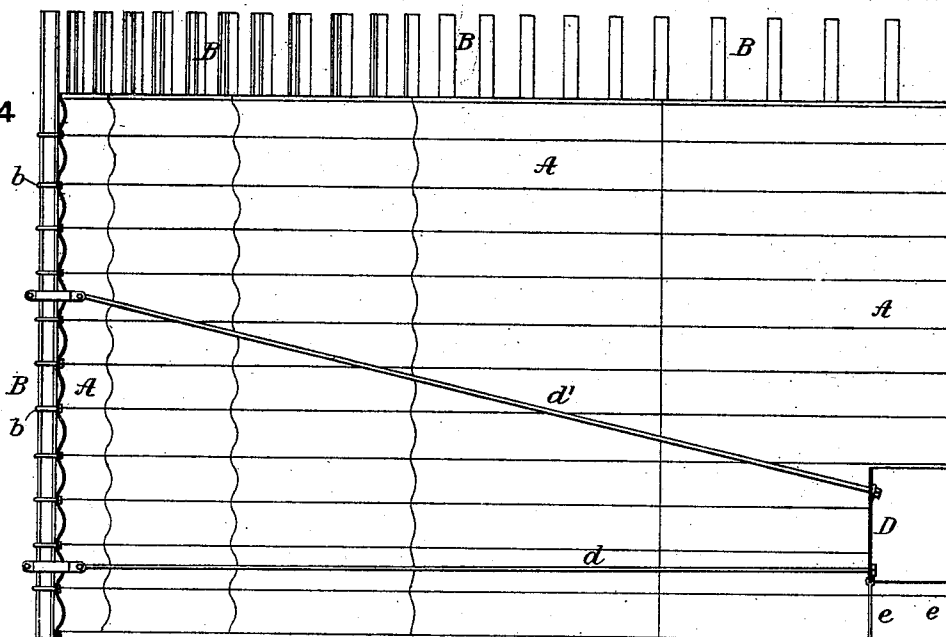


FIG 4



WITNESSES

*R. Schleicher*  
*Will. A. Raw*

INVENTOR

*James M. Dodge*  
By his Attorneys,  
*Howan & Howan*

# UNITED STATES PATENT OFFICE.

JAMES M. DODGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
DODGE COAL STORAGE COMPANY, OF NAUGATUCK, CONNECTICUT.

## STORAGE STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 539,250, dated May 14, 1895.

Application filed May 9, 1894. Serial No. 510,603. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. DODGE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented Improvements in Storage Structures, of which the following is a specification.

The object of my invention is to so construct a bin for storing large quantities of coal or analogous material that it can be made of comparatively light material yet it will be so formed and braced as to withstand the pressure of the material piled within the bin.

In the accompanying drawings, Figure 1 is a plan view illustrating my improved storage-bin for coal and analogous materials. Fig. 2 is a sectional view. Fig. 3 is a sectional view showing the coal piled in the bin. Fig. 4 is an enlarged sectional view of a portion of the bin.

My improved bin is especially adapted for use in connection with apparatus for piling large storage piles of coal.

In the accompanying drawings A is the wall of the bin, made of metal or wood, preferably corrugated sheet metal, supported at intervals by a series of posts B made of I-beams, in the present instance, which are connected to the sheet metal by U-shaped bolts b, but it will be understood that other shapes of beams may be used and that wood may be used in the construction when feasible. This wall is mounted on a suitable foundation and is preferably polygonal in form. The coal is piled within the wall and is preferably piled in conical form, as shown in Fig. 3. Some distance from this annular wall A is a cylindrical anchor D tied to the wall A by two series of strainer rods d d'. The strainer rods d extend preferably in a horizontal line from the wall to the anchor some distance from the ground, while the strainer rods d' extend upward at an angle from the anchor to the upper portion of the wall. The anchor is arranged some distance above the level of the ground so that a removing conveyer E can be swung under the anchor, as shown in Fig. 2, to remove the coal within the bin. By this arrangement I am enabled to pile a large quantity of coal in a comparatively small space and without the expense of heavy retaining walls.

As the coal is piled within the bin it will pack around the anchor first before it reaches the wall and when there is sufficient coal within the bin to create great pressure the anchor is so thoroughly embedded within the coal that it will resist any strains put upon the wall as the strain upon the wall is taken by the anchor through the straining rods.

In some instances the wall may be circular in form and the anchor may be made of a series of sections, but I prefer to make the anchor in a complete circle as it will hold its position when the bin is empty.

By making the anchor annular in shape each section of the wall may be independent being held to the anchor by the straining rods so that if at any time it is desirable to remove one or more of the sections of the walls the remaining portions will not be disturbed or weakened to any great degree.

The anchor may be supported by posts e mounted under the anchor and I preferably pivot these posts to the anchor as shown in Fig. 4, so that when the remover E is used it will simply push away the posts which will fall back to their normal position when the remover has passed.

I claim as my invention—

1. The combination in a storage structure, of an outer wall, an anchor connected thereto, said anchor being situated within the structure above near the floor so that it will be embedded by the material stored before great pressure is applied to the outer wall, substantially as described.

2. The combination of a bin wall and an anchor plate within the bin and suspended from the wall and situated above the floor, said anchor plate being in a position to be embedded in the coal or other material stored within the bin before great pressure is applied to the wall, substantially as described.

3. The combination in a storage bin, of an outer wall made in sections, with a continuous anchor plate within the bin and coupled to the wall sections, substantially as described.

4. The combination in a storage bin, of an annular outer wall, an annular anchor within the bin above the floor and connected to the wall, substantially as described.

5. The combination in a storage bin, of a

5 wall, an anchor less in height than the wall, with two sets of rods one above the other extending from the anchor to the wall and supporting the anchor above the floor so that the said anchor will be embedded by the material stored before great pressure is applied to the wall, substantially as described.

10 6. The combination of the annular wall of a storage bin, an annular anchor within the bin some distance from the wall, and suspended therefrom, with strainer rods extending from the wall to the anchor, so as to allow for the passage of a removing conveyer under the anchor, substantially as set forth.

15 7. The combination in a storage bin, of an annular wall, an annular anchor within the bin and two sets of straining rods, one set extending from the bottom of the anchor to the wall, and the other set extending from the

top of the anchor to the wall, substantially as described. 20

8. The combination of a polygonal wall, and an annular anchor arranged within said wall, each section of the latter being connected to the anchor by straining rods, substantially as described. 25

9. The combination of the wall, the anchor connected thereto and situated within the wall and above the floor and movable supports for the anchor, substantially as described. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES M. DODGE.

Witnesses:

WILL A. BARR,  
JOSEPH H. KLEIN.

Correction in Letters Patent No. 539,250.

It is hereby certified that in Letters Patent No. 539,250, granted May 14, 1895, upon the application of James M. Dodge, of Philadelphia, Pennsylvania, for an improvement in "Storage Structures," an error appears in the printed specification requiring the following correction: In line 83, page 1, the word "near" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 21st day of May, A. D. 1895.

[SEAL.]

JNO. M. REYNOLDS,  
*Assistant Secretary of the Interior.*

Countersigned:

JOHN S. SEYMOUR,  
*Commissioner of Patents.*