

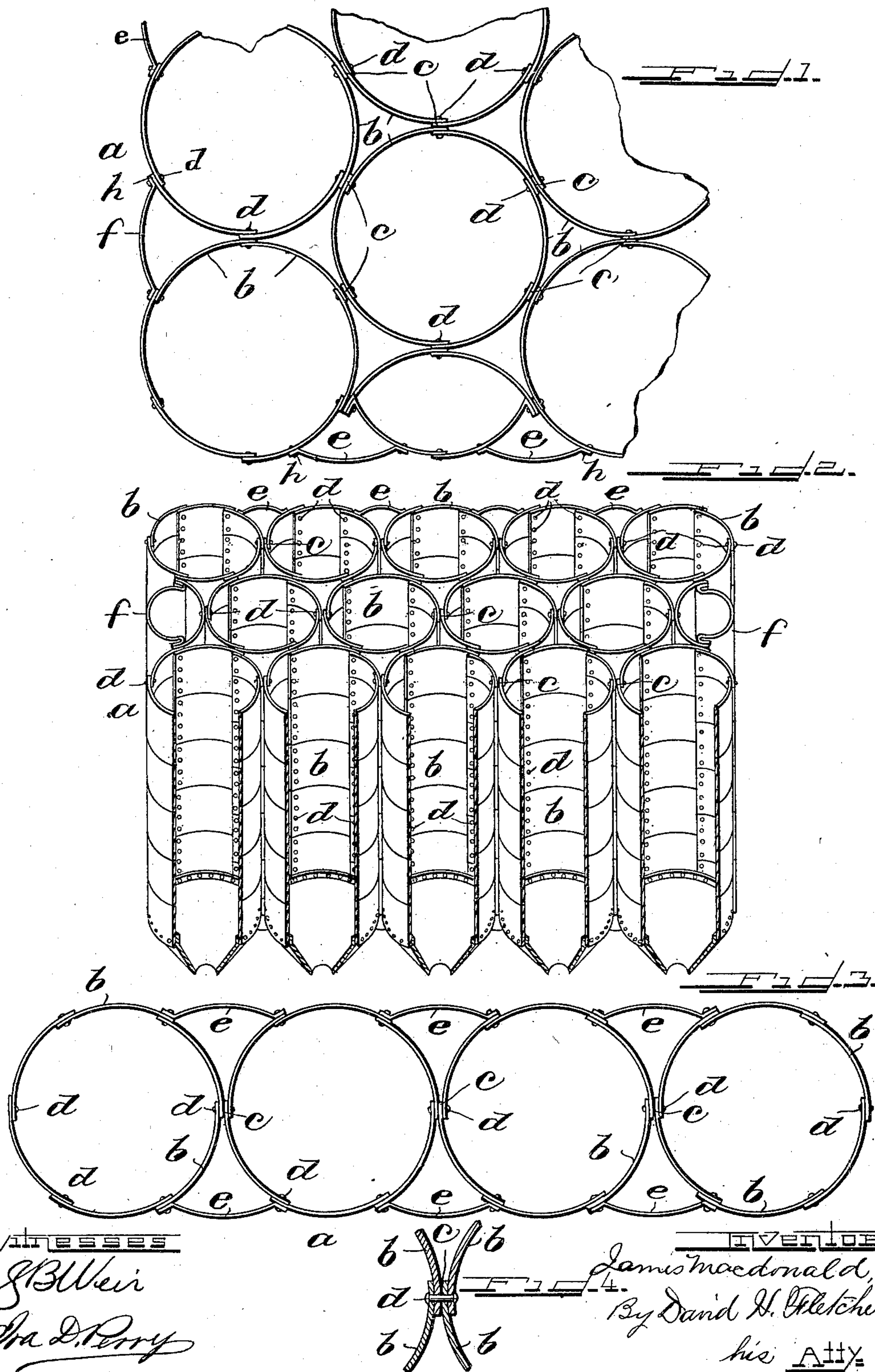
No. 662,452.

Patented Nov. 27, 1900.

J. MACDONALD.
GRAIN BIN.

(Application filed Sept. 17, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

JAMES MACDONALD, OF CHICAGO, ILLINOIS.

GRAIN-BIN.

SPECIFICATION forming part of Letters Patent No. 662,452, dated November 27, 1900.

Application filed September 17, 1900. Serial No. 30,306. (No model.)

To all whom it may concern:

Be it known that I, JAMES MACDONALD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Storage-Bins for Warehouses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

My invention has for its object to provide a sheet-metal storage structure the bins or compartments of which shall be so constructed that the whole may possess the maximum of strength and rigidity coupled with cheapness and simplicity, while it enables the entire storage area to be utilized, all of which is hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a plan view of a portion of a structure embodying the features of my invention. Fig. 2 is a perspective view of such a structure in which a series of bins or compartments are broken away upon one side to show the interior. Fig. 3 is a plan view showing a modified construction, and Fig. 4 is a detail view showing the manner of joining the sheets composing adjacent bins.

Referring to the drawings, *a* represents a storage structure consisting of a series of vertical cylindrical compartments or bins the walls of each of which in any given cross-section are made up of curved sheet-metal plates *b* so arranged that the vertical joints *c* of any given cylinder coincide and are connected with the corresponding joints of the adjacent cylinders by means of suitable bolts or rivets *d*, which pass through the four members, as shown in Figs. 1 to 3 and in enlarged detail in Fig. 4. It will be seen that the four joints, constituting, as they do, four thicknesses of interlocking plates, are equivalent to vertical posts, and inasmuch as there are six of these posts in each cylinder, each of which is tied and braced laterally by the diverging plates forming the structure, the strength and simplicity of the construction are at once apparent.

The horizontal joints of the plates *b* are preferably broken as they are built up—that is to say, the top of each alternate one is upon a given level, which is half-way between the top and bottom of the adjacent plates, as clearly shown in Fig. 2.

It will be seen by reference to Fig. 1 that all of the plates of which the structure is composed, barring a portion of those upon the outside, are duplicates one of the other, except that at the bottom and top, respectively, of alternate tiers plates of half-width are used in order to “break joints,” as described. The fact of making the plates of like size and curvature, having corresponding rivet-holes, thus rendering them interchangeable, tends to greatly simplify and cheapen the construction; but the novelty and advantage of my invention do not lie so much in the fact that the plates shall be made of such a length as that six may serve to complete the circle as that the joints of the juxtaposed cylinders are interlocked in the manner described, so as to form the equivalent of six posts in each cylinder having the requisite lateral bracing, while permitting the intermediate three-sided spaces to be utilized for storage. While less desirable and more expensive, it is obvious that this result may be accomplished by increasing the number of plates, the curvature only remaining constant.

The bottom of each compartment, whether circular or otherwise, may be either flat or of the usual hopper shape, as shown in Fig. 2, and the structure may be supported upon any suitable foundation of masonry or framework.

Inasmuch as the structure is made up of interposed cylinders, it is desirable upon two sides to interpose plates *e* in order to fill out the space between the cylinders, while upon the other two sides plates *f* are arranged in the manner shown. The plates *e* and *f* differ from the plates *b* in that both edges of the plates *e* are flanged outwardly, as shown at *h*, in order to fit the curve of the connecting-cylinders.

In Fig. 3 I have shown a modified construction in which the bins are arranged in a single row, the spaces lying between the adja-

cent cylinders being inclosed by the plates *e*, thus forming two small three-sided bins between each pair of adjacent cylinders.

It will be seen that the entire area of the structure above described may be utilized for storage purposes. Each compartment, whether circular or otherwise, is self-sustaining independently of the others and yet helps to support and is supported by those to which it is joined.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a structure of the class described, the combination of a series of juxtaposed cylindrical compartments, each composed in any given horizontal section of metal plates of equal curvature overlapping at their adjacent ends and where said ends are in contact with the adjacent bin, the compartment-sections of the several bins being secured together at such points of contact by vertical rows of rivets or bolts extending through, and uniting the overlapping portions of the sec-

tions composing said bins and thereby forming lateral ties and vertical supports for said bins.

2. In a structure of the class described, the combination of a series of juxtaposed cylindrical compartments, each composed in any given horizontal section of six metal plates of equal length and curvature overlapping at their adjacent ends in the surface of contact with the adjacent bin, the compartment-sections of the several bins being secured together at such points of contact by vertical rows of rivets or bolts extending through, and uniting the overlapping portions of the sections composing said bins and thereby forming lateral ties and vertical supports for said bins.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 10th day of September, 1900.

JAMES MACDONALD.

Witnesses:

D. H. FLETCHER,

DWIGHT B. CHEEVER.