J. E. ALLSTEADT.

STORAGE BIN.

APPLICATION FILED MAR. 10, 1915.

1,205,501. Patented Nov. 21, 1916.

Fig. 1.

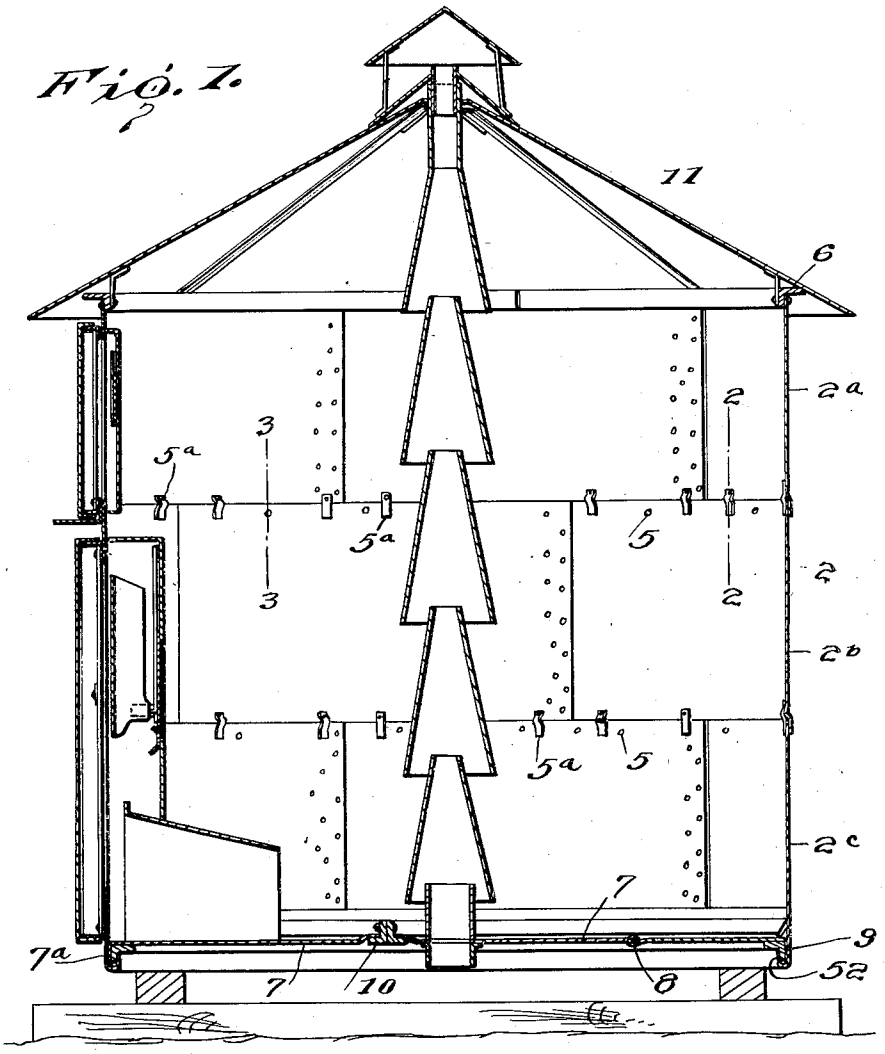


Fig. 2.

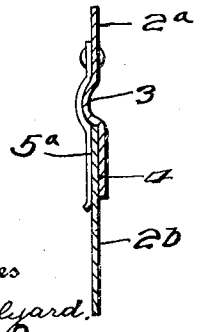


Fig. 3.

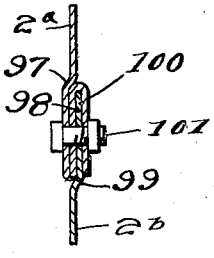
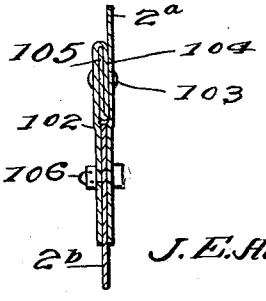


Fig. 4.



Witnesses

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STORAGE-BIN.

1,205,501. Specification of Letters Patent. Patented Nov. 21, 1916.

Original application filed January 28, 1914, Serial No. 814,959. Divided and this application filed March 10, 1915. Serial No. 13,443.

To all whom it may concern:

Be it known that I, JOHN E. ALLSTEADT, a citizen of the United States, residing at Hastings, in the county of Adams and State of Nebraska, have invented certain new and useful Improvements in Storage-Bins, of which the following is a specification.

This application is a division of an application filed by me January 28, 1914, Serial No. 814,959, the present invention relating particularly to the joints formed between the sheet metal sections comprising the vertical walls of the metallic storage bins.

One object of the invention is to so construct the storage bin that it may be formed in readily transportable sections easily connected to each other and easily set up at any desired location and without the necessity of the services of an expert metal-worker.

A further purpose of the invention is the provision of a structure comprising tiers, or courses which are self-supporting and in which the joints constitute reinforcing and stiffening means to assist materially in maintaining the shape of the bin.

Other objects will appear in the course of the following description.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical diametrical section of a bin constructed in accordance with the invention. Fig. 2 is an enlarged section on the line 2—2 of Fig. 1. Fig. 3 is an enlarged section on the line 3—3 of Fig. 1 showing a modification. Fig. 4 is a sectional detail of a further modified form of joint between the tiers or courses.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to Figs. 1 and 2 it will be seen that the bin is circular in cross-section and comprises upstanding side walls, a conical roof, made in sections, and a bottom made in sections. The sides of the bin are formed of sheets of metal 2, the sheets being fastened to each other by bolts at the vertical joints so as to form bands of metal extending around the bin. The horizontal joints between the sections are formed as illustrated in Figs. 2 and 3. Preferably, the lower edge of each section, as illustrated in Fig. 2, is formed with a lateral offset or bead 3, the metal below the bead being extended outward and then downward as at 4 so as to lap over the upper edge of the next adjacent section 2. As shown, the bin is constructed of three tiers of metallic sections, the upper tier being designated 2^a, the next tier below being designated 2^b and the third or lowest tier being designated 2^c. It will, of course, be understood that any number of sections or tiers may be used, depending upon the height of the structure. The overlapping margin 4 of one section or tier is held to the upper margin of the next adjacent section by means of bolts or rivets 5, disposed at suitable intervals and for the purpose of supporting one tier upon another until the sections have been riveted or bolted to each other by the bolts 5, I provide upon the inside face of the upper section at the lower margin thereof the downwardly projecting cleats 5^a which are preferably made of metal. These cleats extend downward below the lower edge of the upper section and are slightly curved to conform to the bead 3 of the upper section and then extend downward and outward. When an upper section is placed upon a lower section these cleats act to support the superjacent section while the rivets or bolts are being put in place. This permits one man to place the sections one upon another and to rivet or bolt them together without the necessity of having the sheets otherwise supported while the rivets or bolts are being put in place. This construction adds very much to the ease with which the parts may be assembled.

The uppermost tier of sections designated 2^a, is braced, and held rigidly to a circular form by a sectional angle iron 6, the vertical flange of each angle iron extending downward on the inside of the sheet metal side section and the horizontal flange extending outward over the top edge of the section. There may be as many sections of the angle-iron 6 as required, but preferably there are two, each semi-circular in form and of such size that the adjacent extremities of the angle irons overlap so that the angle irons may be bolted or riveted to each other as well as to the upper margin of the wall of the bin.

The bottom of the bin is made in a plurality of sections, preferably two sections, each

of these sections being segmental in form, each section being designated 7. Each section of the floor or bottom may be made of as many pieces or sheets of metal as may be necessary, the sheets being riveted to each other and preferably formed with interlocking joints as at 8. The outer margin of each section 7 is reinforced by a semicircular angle iron section designated 9 which is riveted or bolted to the metal of the section 7 and the inner or diametrical margins of each section 7 are reinforced by means of angle irons 10 riveted or bolted to the sections.

In order to connect the side wall of the bin to the bottom thereof, the lower margin of the lowest tier 2^c of the metallic sections forming the wall is bent underneath the vertical flange of the angle-iron 9 and then bent upward inside this flange as at 52. By this construction it will be seen that the lower edge of the side wall is caused to overlap the downwardly turned margin 7^a of the metal forming the floor section 7, thus entirely closing the joint between the metal of the floor section and the angle iron and forming a joint which will not permit the entrance of insects or small animals of any kind. Of course, the inwardly turned lower margin of the side wall may be riveted or bolted to the vertical flange or angle iron 9, but I have not found that this is necessary in practice.

While I have shown in Fig. 2, a joint which I have found to be particularly practical and efficient for the purpose of connecting one tier of the sections forming the side wall of the next tier, I do not wish to be limited to this as other forms of joint might be used. In Fig. 3, for instance, I show a form of joint which is also thoroughly effective in practice. In this figure 2^a and 2^b designate adjoining sheet metal sections or tiers forming the side wall of the bin. The upper margin of the section 2^b is outwardly deflected or offset as at 98. The lower margin of the section 2^a is inwardly deflected as at 97, then folded upon itself as at 99 and then returned upon itself as at 100. This returned thickness 100 is spaced from the thickness 99 so as to permit the insertion therebetween of the deflected margin 98 of the lower plate 2^b. A socket is thus formed for the upper margin of the lower plate which will act to support the upper plate while the connecting bolts or rivets 101 are being passed through the plate and forced home. The deflected portion 97 and folds 99 and 100 perform all the functions of the bead 3 and cleat 5^a of Fig. 2.

In Fig. 4, I show still another manner of connecting the adjacent sheets. In this figure the sheet 2^a is lapped over the sheet 2^b and a batten 102 is attached to the sheet 2^a by a rivet 103. This batten is formed with a folded margin 104 so as to form the batten of three thicknesses at one end. The rivet 103 is passed through these three thicknesses. The batten 102 corresponds to the cleat 5^a, a socket being formed between the downwardly extending portion of the same and the adjacent face of the plate 2^a within which the upper margin of the plate 2^b is inserted. A bolt 106 is passed through the plates 2^a, 2^b and the downwardly extending margin of the batten 102.

Having thus described the invention, what is claimed as new is:—

1. In a structure of the class described, a wall formed of a plurality of sheet metal sections, one of said sheets being folded near one edge into parallel relation to the body of the sheet and the portion of the sheet in advance of the fold bent to form a socket to receive the adjacent edge of the next sheet, the material of the sheet having the fold and socket being offset and bearing partially over the socket to reinforce the same and resist upward distortion thereof and the material of the contiguous sheet offset to reinforce the folded portion, and fastening devices operating through the folds and through the socket and the material held therein.

2. In a structure of the class described, a wall formed of a plurality of sheet metal sections, one of said sheets being folded near one edge into parallel relation to the body of the sheet and the portion of the sheet in advance of the fold bent to form a socket to receive the adjacent edge of the next sheet, the material of the sheet having the fold and socket being offset and bearing partially over the socket to reinforce the same and resist upward distortion thereof, and fastening devices operating through the folds and through the socket and the material held therein.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. ALLSTEADT. [L. S.]

Witnesses:

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