H. SEE & J. R. FREEZE.

CRATE.

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1,196,989. Patented Sept. 5, 1916.

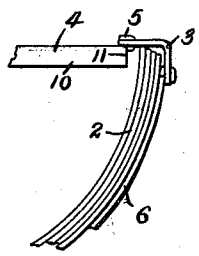


Fig. 5

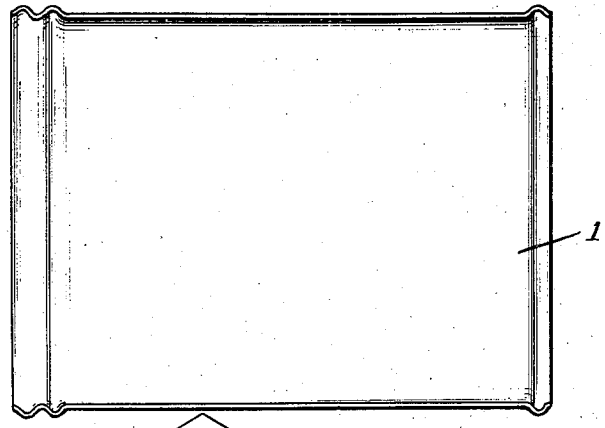


Fig. 1

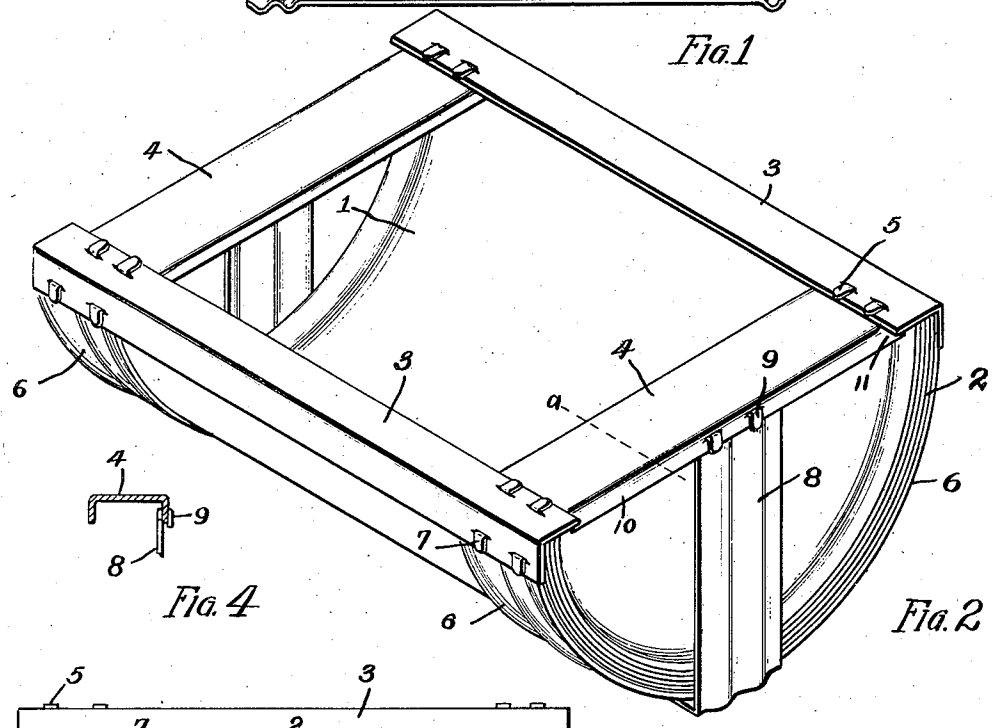


Fig. 2

Fig. 4

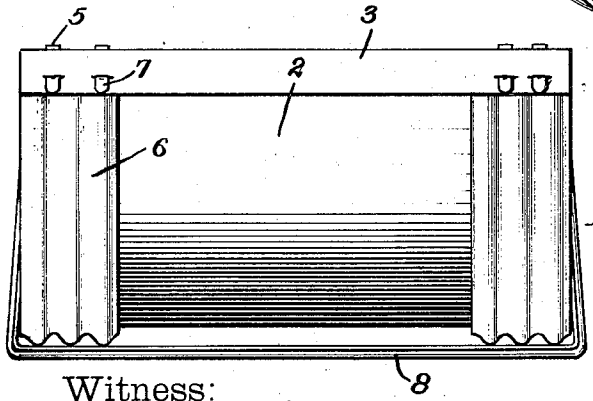


Fig. 3

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UNITED STATES PATENT OFFICE.

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CRATE.

1,196,989. Specification of Letters Patent. Patented Sept. 5, 1916.

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To all whom it may concern:

Be it known that we, HOWARD SEE and JOHNATHAN R. FREEZE, citizens of the United States, residing at Middletown, Butler county, Ohio, have invented certain new and useful Improvements in Crates, of which the following is a specification.

This invention, pertaining to improvements in crates, relates particularly to a construction of crate for employment in packaging articles in the form of troughs of curved cross-section. The crate has been invented with special reference to the packaging of sections of metallic flumes, said sections being on generally circular curves and having at their ends peripheral ribs and grooves to facilitate the forming of joints. It is important to guard the edges and ends of these sections in order that, in the course of shipment, they do not become so marred as to interfere with the sections being readily associated with each other endwise in forming a flume.

Our invention will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a plan of a sheet-metal flume section: Fig. 2 a perspective view of a number of such sections nested and packed in our improved crate: Fig. 3 a side view of the package: Fig. 4 a transverse section of one of the cross-pieces in the plane of line *a* of Fig. 2: and Fig. 5 an end view at one upper corner of the package.

In the drawing:—1, indicates a section of a metallic flume, the section being provided with peripheral corrugations at its ends to facilitate the making of joints between sections associated endwise: 2, a series of such sections nested within each other for shipment: 3, angle-bars extending along the upper edges of the nested sections and having members resting on the upper edges of those sections and having other members engaging outside the edges of the outer one of the sections: 4, channeled cross-pieces extending across from angle-bar to angle-bar at each end of the package: 5, claws provided at the ends of the cross-pieces and projecting up through appropriate mortises in the angle-bars and turned down to clench the cross-pieces to the angle-bars: 6, a strap engaging the outer surface of the outermost one of the nested sections, there being one of these straps at each end of the package, the upper ends of these straps passing under the vertical members of the angle-bars: 7, claws securing the ends of these straps to the vertical members of the angle-bars: 8, a longitudinal strap extending lengthwise under the outermost one of the nested sections and having, at the ends of the package, upturned ends engaging the cross-bars: 9, claws connecting the upturned ends of the longitudinal strap with the cross-pieces: 10, the downwardly projecting flanges of the cross-pieces: and 11, the ends of these flanges disposed near the inner surface of the innermost section of the nested series.

The straps 6 and 8 are preferably to be corrugated in order to stiffen them, and the illustrated claws for effecting the juncture of the crate members are a preferable mode of fastening. The number of sections nested together in the crate will vary with conditions, and it may be well to here state that, for flume purposes, these sections are curved on circles varying from eighteen inches to twelve feet in diameter.

The angle-bars fully guard the longitudinal edges of the sections and the straps 6 adequately protect the ends of the sections. The cross-pieces 4, acting tensionally, prevent the separation of the angle-bars and any outward deformation of the sections, while the ends 11 of the flanges of the cross-pieces prevent any material inward movement of the upper edges of the sections. The ends 11 of the flanges of the cross-pieces do not need to make contact with the inner one of the nested sections but should be sufficiently near thereto to prevent serious inward movement of sections. The longitudinal strap 8 prevents damage to the lowermost surfaces of the sections, and the vertical members of this strap aid in guarding the ends of the sections and in preventing the bulging of the cross-bars in case of sidewise knocks or pressure on the package. The straps 6 serve not only in guarding the sections at their ends but in preventing deformation of such peripheral corrugating or ribbing as the sections may be provided with to facilitate the joining of the sections together. Deformation of such corrugating or ribbing, in the course of transportation of the sections, involves a serious amount of field labor in putting the sections into condition for use.

A package formed by means of our improved crate will withstand a very considerable degree of rough usage in loading, shipping, etc.

We claim:—

1. A crate comprising, a pair of angle-bars adapted to engage over and outside the longitudinal edges of nested trough-sections, cross-bars disposed at the ends of the angle-bars and having their ends secured to the angle-bars, and curved straps disposed at the ends of the angle-bars and adapted to engage the exterior of nested trough-sections and having their ends secured to the angle-bars, combined substantially as set forth.

2. A crate comprising, a pair of angle-bars adapted to engage over and outside the longitudinal edges of nested trough-sections, cross-bars disposed at the ends of the angle-bars and having their ends secured to the angle-bars, curved straps disposed at the ends of the angle-bars and adapted to engage the exterior of nested trough-sections and having their ends secured to the angle-bars, and a strap disposed parallel with the angle-bars and having upturned ends connected with the cross-bars, combined substantially as set forth.

3. A crate comprising, a pair of angle-bars adapted to engage over and outside the longitudinal edges of nested trough-sections, cross-bars disposed at the ends of the angle-bars and having their ends secured to the angle-bars and having end portions disposed below the horizontal members of the angle-bars and adapted to limit the inward movement of the edges of the trough-section, and curved straps disposed at the ends of the angle-bars and adapted to engage the exterior of nested trough-sections and having their ends secured to the angle-bars, combined substantially as set forth.

4. A crate comprising, a pair of angle-bars adapted to engage over and outside the longitudinal edges of nested trough-sections, channeled cross-bars disposed at the ends of the angle-bars and having their ends secured to the angle-bars, curved straps disposed at the ends of the angle-bars and adapted to engage the exterior of nested trough-sections and having their ends secured to the angle-bars, and a strap disposed parallel with the angle-bars and having upturned ends connected with the flanges of the cross-bars, combined substantially as set forth.

5. A crate comprising, a pair of angle-bars adapted to engage over and outside the longitudinal edges of nested trough-sections, cross-bars disposed at the ends of the angle-bars and having their ends secured to the angle-bars, and a strap disposed parallel with the angle-bars and having upturned ends connected with the cross-bars, combined substantially as set forth.

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