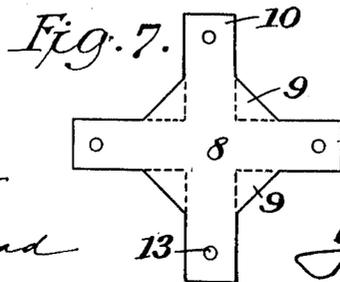
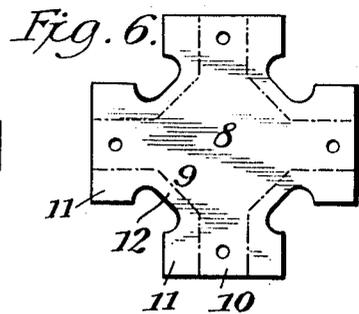
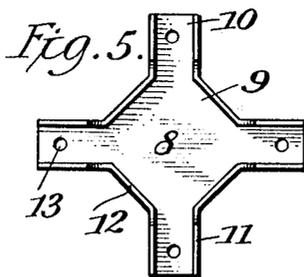
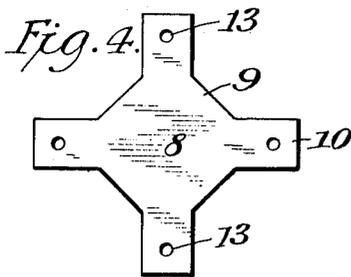
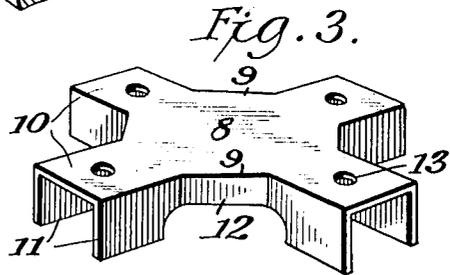
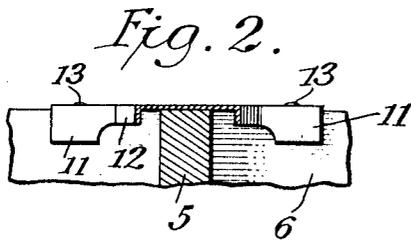
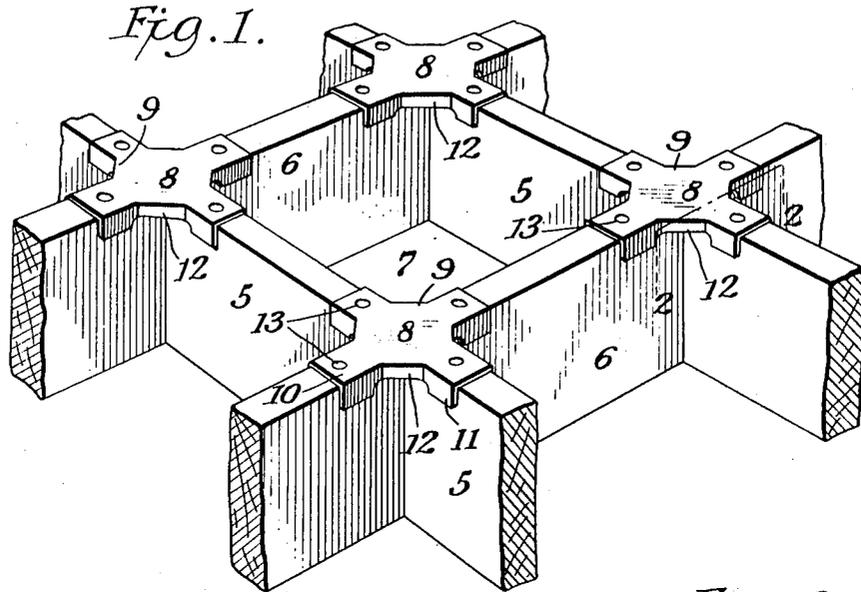


G. C. D. MILLER.
 RETAINER FOR PARTITIONS OF CRATES.
 APPLICATION FILED MAY 8, 1911.

1,048,566.

Patented Dec. 31, 1912.



WITNESSES

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RETAINER FOR PARTITIONS OF CRATES.

1,048,566.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed May 8, 1911. Serial No. 625,682.

To all whom it may concern:

Be it known that I, GEORGE C. D. MILLER, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Retainer for Partitions of Crates, of which the following is a specification.

This invention is a retainer for partitions in cases, crates or the like, and is more particularly adapted for crates adapted to transport bottles of liquid, etc., the partitions of which crates are subject to strain of a load, or to sudden force or blows, whereby said partitions are liable to be wrenched apart or torn from their desired positions relative to each other.

The object of the invention is to strengthen the partitions at the points where the greatest strains are exerted thereon, *i. e.*, at the juncture of the crossing partitions, at which points it is customary to mortise said partitions together, or to otherwise fasten them. This object is accomplished in the present invention by a stay or retainer applied to the partitions at their intersection, said retainer being so constructed that the side-wise displacement of the partitions precludes bending the radial arms or the flanges of the retainer.

The retainer of this invention is characterized by the following structural features, namely: a plate the dimensions of which exceed the dimensions of the joint formed by the intersecting partitions, radial arms integral with said plate, said radial arms being provided with flanges adapted to embrace the partitions, and truss flanges positioned intermediate the adjacent flanges of the radial arms.

Other features of novelty and the advantages thereof will appear in the course of the detailed description taken in connection with the drawings.

In the accompanying drawings, I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a perspective view showing several retainers applied to the meeting parts of crossing partitions, such as are com-

monly used in shipping cases for bottles or similar packages. Fig. 2 is a cross section taken through a retainer and one partition, on the line 2—2 of Fig. 1. Fig. 3 is an enlarged perspective view of the retainer detached from the partitions. Fig. 4 is a top plan view of the retainer. Fig. 5 is an inverted or bottom plan view of the retainer. Fig. 6 is a plan view of the blank from which the retainer is formed. Fig. 7 is a diagram, the dotted lines taken in connection with the full line showing of the radial arms, illustrating an ordinary cross shaped retainer, but the webs intermediate the radial arm show a retainer embodying one of the features of this invention.

In the construction of crates or packing cases for bottles, cans and the like, it is customary to employ partitions composed of thin strips of wood, each strip being slotted at intervals intermediate its ends to cooperate with a similarly slotted intersecting strip, said strips or partitions crossing each other at right angles and producing rectangular cells or compartments within the crate or case. The employment of slots in the partitions weakens them to such an extent that the partitions are liable to break at such places or to become displaced with relation to each other when the crate is subjected to hard usage. In Fig. 1 there is shown a portion of two partitions 5, and a portion of two other partitions 6, the latter partitions being arranged at right angles to partitions 5 so as to produce rectangular cells or compartments 7. At the corners of each cell or compartment, *i. e.*, at the meeting or intersecting joint of partitions 5, 6, are positioned the required number of retainers or stays for precluding relative movement between the partitions. The retainer of this invention is composed of a single piece of metal, preferably sheet metal, and in the manufacture of the retainer, a blank of the form shown in Fig. 6 is first produced, said blank being bent so as to result in the complete retainer of Figs. 1 to 5, inclusive.

In Fig. 7 there is shown a cross shaped retainer in full and dotted lines, but said figure illustrates one of the essential features of this invention, to wit, webs of metal between the arms of the cross. To this end, my improved retainer embodies a plate 8,

which is of such dimensions that it exceeds the dimensions of the joint formed by the meeting partitions 5, 6, whereby the plate results in the formation of webs 9 between the radial arms 10. The radial arms of the retainer are provided with depending flanges 11, which are positioned to embrace the side faces of the partitions.

An important feature of the retainer is a truss flange 12 between two adjacent flanges 11, each truss flange 12 being inclined relative to flanges 11. The truss flanges are integral with plate 8 and they depend from the metal 9 thereof.

The retainers are fastened to the partitions by suitable securing means, such as nails, which pass through apertures 13 in the arms 10 of the retainer so that the nails are embedded in each partition.

In the case of an ordinary cross shaped stay provided with flanges on the radial arms, experience has shown that strain or a blow on the partitions will result in distortion and bending of the cross stay, the same being of very little utility as a means for reinforcing crossing partitions. The present invention overcomes the objections, from a practical standpoint, to which the cross stay is open. The new retainer is characterized, in the first instance by the presence of a certain amount of metal in the form of webs 9 between the arms of the cross, and, in the second instance, by truss flanges 12 depending from the webs 9 and positioned intermediate the depending flanges of the radial arms, said truss flanges being inclined relative to the flanges of the arms. It is apparent that the webs and the truss flanges afford additional strength and rigidity to the arms of the retainer, and, as a matter of fact, the arms are so reinforced, by the presence of metal in the plane of, and at right angles to, the arms, that they cannot become bent or distorted by the pressure, weight, or rough usage to which they are ordinarily subjected. By adding the webs 9 and trusses 12 to the construction, the retainer resists sidewise displacement of the arms 10 and flanges 11, and prevents, also, the rupture of the partitions at the mortised joints, for the reason that the webs 9 form a support or brace to the radial arms in a horizontal plane, whereas the trusses 12 constitute a support or reinforcement for the arms and the depending flanges in a different horizontal plane.

My retainer is simple, strong, durable, easily applied, and economical to manufacture. The blanks of Fig. 6 are cut or stamped without substantial waste from a sheet of metal, and the flanges are bent in a suitable die, at which time the nail holes may be punched in the arms. To apply the stay, it is slipped upon the partitions for the flanges to embrace the side faces

thereof, and nails are driven through the holes 13 to fasten the stay against displacement.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:—

1. A retainer embodying a plate, the dimensions of which exceed the dimensions of the joint to which the retainer is to be applied, a plurality of arms extending radially from said plate, said arms being adapted for engagement with intersecting partitions, and truss flanges integral with said plate, said truss flanges being positioned diagonally to the radial arms, whereby said arms are stayed by the truss flanges against displacement.

2. A retainer embodying a plate, arms extending radially from said plate, each arm being provided with integral depending flanges, and truss flanges integral with the plate and the arms, said truss flanges being disposed diagonally to said arms for the purpose of preventing sidewise displacement of the arms with relation to each other and the plate.

3. A retainer adapted to be applied to intersecting partitions, said retainer embodying a plate, radial arms integral with said plate, flanges depending from each of said arms, and a plurality of webs integral with said plate, said webs being at the intersection of the arms and operating as stays to prevent sidewise displacement of the arms relative to each other and to said plate.

4. A retainer embodying a plate, arms extending radially from said plate, webs integral with said plate and each positioned intermediate two of said arms, flanges depending from each of said arms, said flanges being adapted to engage the sides of a partition, and truss flanges positioned diagonally to the arms and the depending flanges.

5. A retainer embodying a plate, a plurality of arms integral with, and extending radially from, said plate, said plate embodying a plurality of webs which are joined with said arms beyond the lines of intersection between the arms, flanges depending from the arms of said plate, and a plurality of truss flanges depending from the webs of said plate and united to said flanges of the arms.

6. A sheet metal retainer provided with a plurality of arms, webs intermediate said arms, flanges depending from said arms, and truss flanges depending from said webs, each truss flange being positioned diagonally to the adjacent flanges of two of said arms, whereby said webs reinforce said arms in one horizontal plane, and said truss flanges reinforce or stay the arms and the depending flanges in another horizontal plane.

7. A retainer adapted to be applied to

intersecting partitions, said retainer embodying a plate, arms extending radially therefrom and a plurality of webs positioned diagonally to the arms, said webs operating
5 as stays to prevent sidewise displacement of the arms relative to each other and to said plate.

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

GEORGE C. D. MILLER.

Witnesses:

H. I. BERNHARD,

J. F. MOTHERSHEAD.
