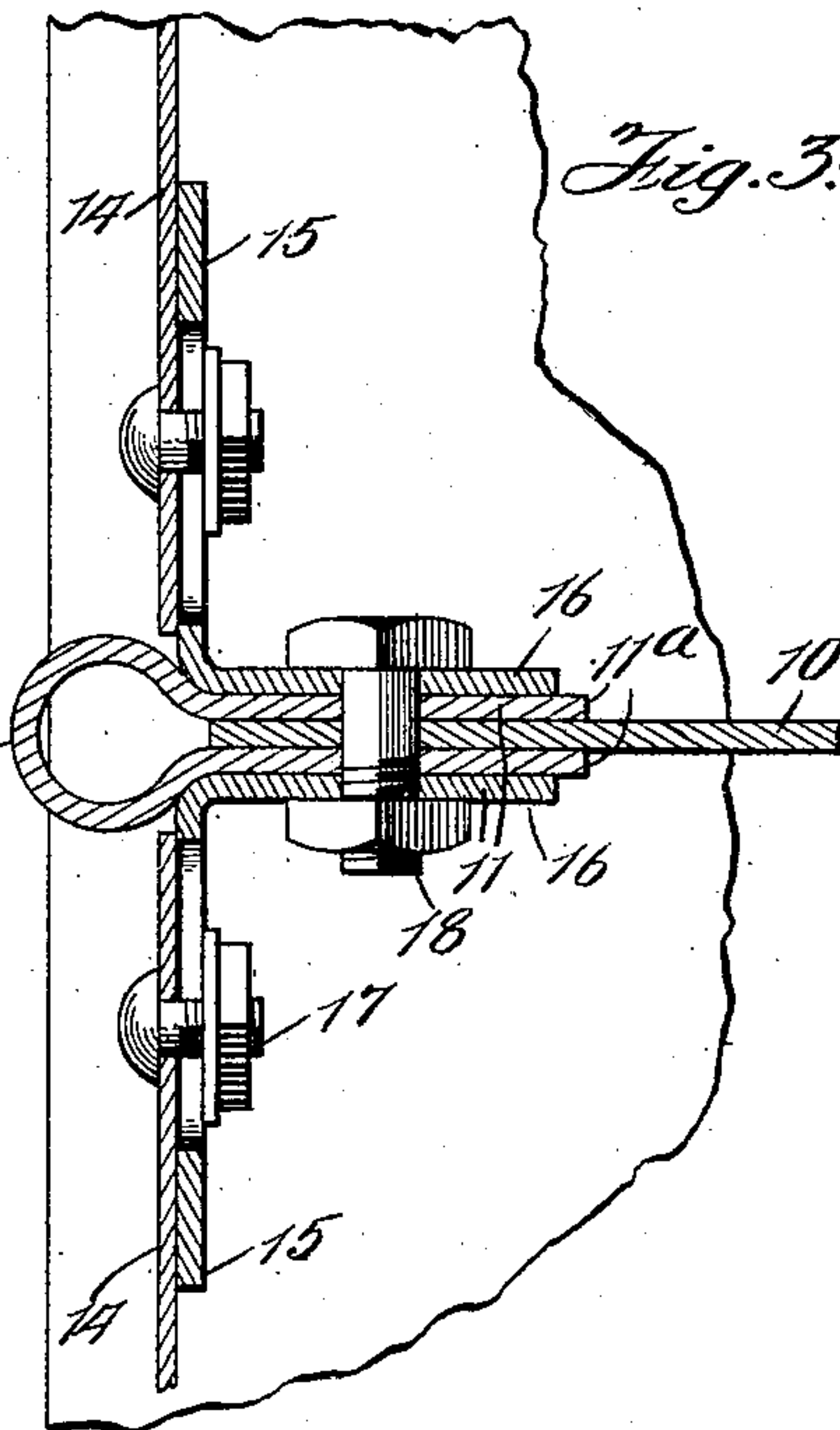
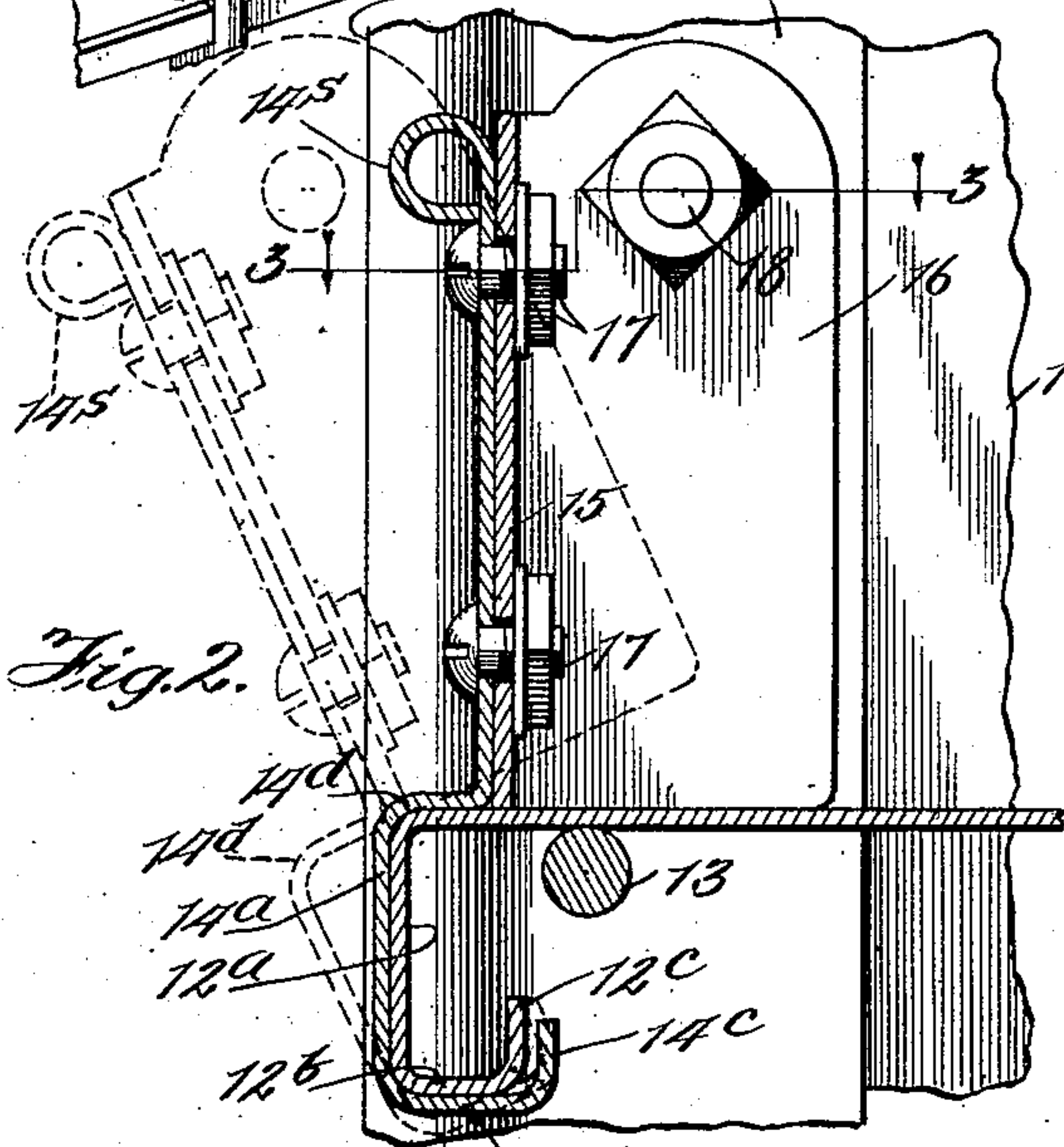
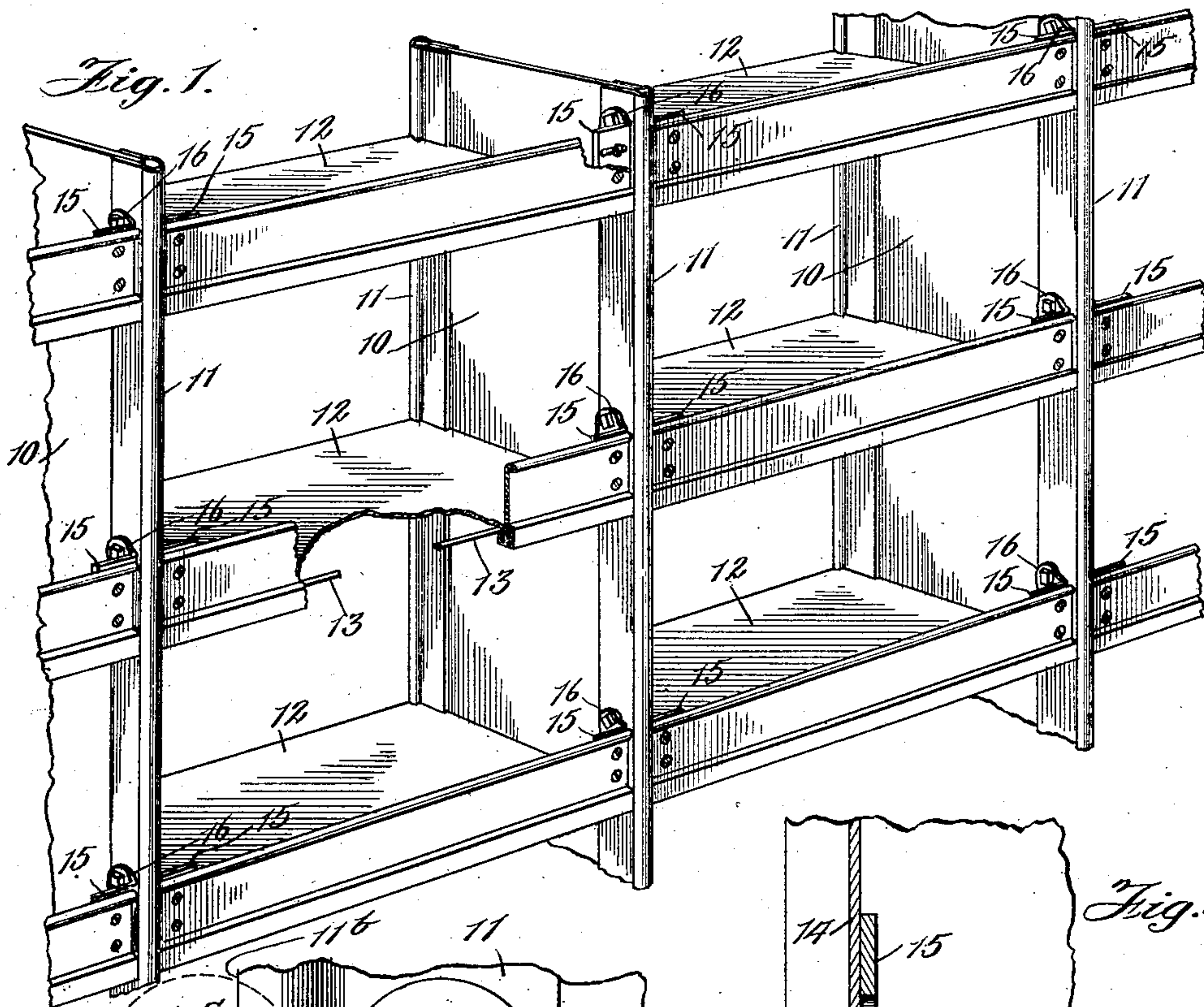


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SHELVING.  
APPLICATION FILED AUG. 4, 1908.

Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses:  
*Ed. Perry*  
C. J. Christoffel

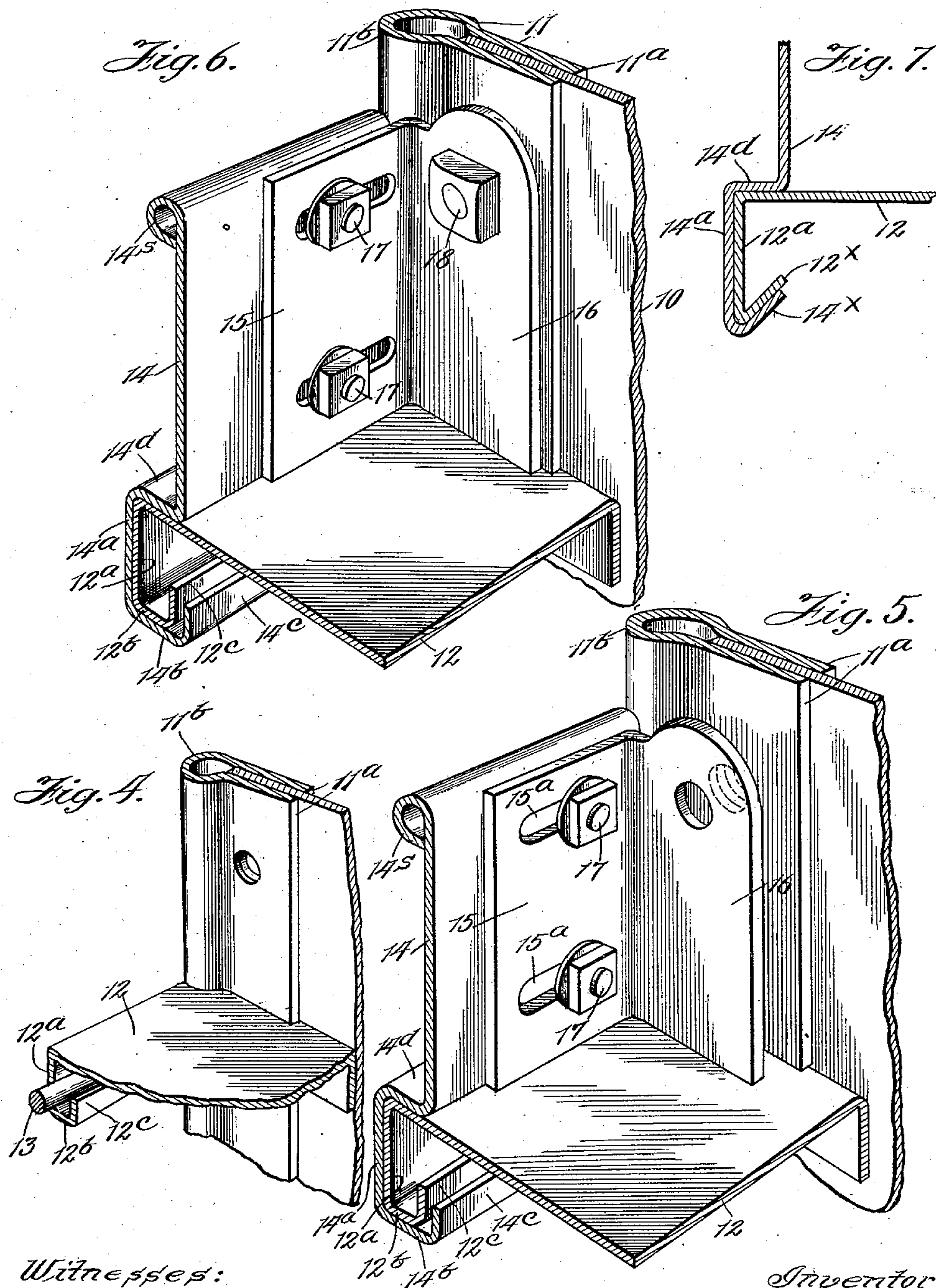
Inventor:  
Beverly L. Waters  
By Cheever & Cox  
*Atty.*

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# UNITED STATES PATENT OFFICE.

BEVERLY L. WATERS, OF AURORA, ILLINOIS.

## SHELVING.

No. 914,685.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed August 4, 1908. Serial No. 447,002.

*To all whom it may concern:*

Be it known that I, BEVERLY L. WATERS, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented a certain new and useful Improvement in Shelving, of which the following is a specification.

My invention relates to shelving, more particularly that used in stores, warehouses and similar places where a simple, strong shelving is required which may be constructed and erected at a comparatively low cost, but which must withstand great weight and hard usage. Shelving of this class is sometimes called upon to support boxes, cases, cans, or other packages, which will hold themselves in position upon the shelves, but this class of shelving is at other times called upon to support goods in bulk. For example, in a hardware store or warehouse it may be desired to store loose bolts, nuts, nails, or other objects which are heavy and yet require special retaining means to keep them properly upon the shelf. When a shelf is thus provided with special retaining means, it acquires the nature of a bin and the retaining means may be referred to as a "bin shelf attachment".

The object of my invention is to provide a bin shelf attachment which may be readily attached and detached and which when attached will be secured not only at the ends but continuously throughout its entire length.

Another object, subsidiary to the first, is to provide a corner piece adjustable in such manner that it will always make a tight connection between the end of the attachment and the upright partitions at the ends of the shelves. The purpose of this is to make a tight connection so that in case the attachments come somewhat short of the requisite length (which may sometimes happen by reason of variation in the length of the attachment or in the length of the shelves) there can be no leakage even when material such as bran, seeds, etc. are stored in the shelving.

I accomplish my objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a general perspective view of shelving embodying my invention. Fig. 2 is a vertical sectional view taken from front to rear of the shelving through the corner piece and bin shelf attachment. The full lines in this figure show the attachment in place,

while the dotted lines show the same during the act of attachment. Fig. 3 is a plan sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is a fragmentary perspective showing a portion of the shelf at the partition, the bin attachment being absent. Figs. 5 and 6 are perspective views showing the back of the bin attachment and the inside of the corner pieces. Fig. 5 shows the corner piece retracted ready for attachment, and Fig. 6 shows it in attached position. Fig. 7 is a vertical sectional detail, showing a modification of the form of flange on the shelf and bin attachment.

Similar numerals refer to similar parts throughout the several views.

The shelving in general consists of upright partitions 10 spaced apart and consisting preferably of sheet metal. In the preferred design these partitions are finished and reinforced at their front and rear edges by means of stiffening strips 11 which as clearly shown in Figs. 3 to 6 are provided with parallel flanges 11<sup>a</sup>, 11<sup>a</sup>, integral with a tube-like portion 11<sup>b</sup> which is greater in diameter than the extreme thickness of the strip at said flanges. Extending between the partitions are the shelves 12 supported by means of rods 13 or in any other suitable manner. The shelves are of special design at the edge where there are stiffening flanges consisting in this particular design of the downwardly extending part 12<sup>a</sup>, the inwardly extending part 12<sup>b</sup>, and the upwardly extending part 12<sup>c</sup>. The particular configuration of the stiffening flange of the shelf however is not essential, the point being that they extend along the edge of the shelf practically from one end to the other thereof.

The bin attachment 14 consists of a metallic strip of any desired height in the best form being provided at its upper edge with a stiffening beading 14<sup>s</sup>. The principal characteristic of this bin attachment so far as the invention is concerned lies in the fact that it has means for engaging the stiffening flange on the shelf so that when the bin attachment is subjected to pressure from the inside it will bear against the flange on the shelf and take advantage of the latter to resist said pressure. The preferred form of bin attachment flange, whereby this result is obtained, is clearly illustrated in the drawings where it will be seen that the bin attachment has at its lower edge a depending portion 14<sup>a</sup>, the inwardly extending portion 14<sup>b</sup> and an upwardly ex-



tending portion 14<sup>c</sup>. A horizontal bend 14<sup>d</sup> is formed at the foot of the main body of the bin attachment and permits the attachment to bear upon the shelf. The portion 14<sup>a</sup> of the bin attachment is of approximately the same depth as the shelf portion 12<sup>a</sup> so as to fit over the same and, where the rectangular design is employed as illustrated, the horizontal portion 14<sup>b</sup> is slightly wider than the horizontal portion 12<sup>b</sup> to avoid binding of the parts when the attachment is being put in place as shown in dotted lines Fig. 2. This characteristic however, is not essential and the parts might be constructed as shown in Fig. 7, in which the horizontal portions 12<sup>b</sup> and 14<sup>b</sup> are omitted and replaced by flanges 12<sup>x</sup> and 14<sup>x</sup> extending obliquely upward and inward. In either of these constructions if a strong pressure be exerted against the inner surface of the bin attachment the flanges 14<sup>c</sup> or 14<sup>x</sup> will bear against the flanges 12<sup>c</sup> or 12<sup>x</sup> and thus be relieved of a portion of the strain. Moreover, since the bin attachment engages both the upper and lower edges of the shelf the shelf itself will be stiffened. In other words, as a result of the interengagement of the shelf and bin attachment, there will be a mutual bracing and stiffening so that the shelf is stiffened against vertical strains and the bin attachment is stiffened against lateral pressure both from the inside and from the outside.

I will now describe the particular means which I prefer to employ to secure the ends of the bin attachments to the upright partitions or marginal stiffening strips thereof.

Referring particularly to Figs. 2, 3, 5 and 6 the fastening means consists of a corner piece or plate having two flanges 15 and 16, the flange 15 being adapted to contact the inside of the bin attachment 14, and the flange 16 being adapted to contact the adjacent side of the upright stiffening strip 11. Flange 15 has horizontal slots 15<sup>a</sup> for receiving bolts 17 which pass through apertures in the bin attachment for the purpose of adjustably holding the parts together. The corner piece is secured to the strip 11 by means of bolts 18 or similar fastening means. The purpose in thus providing horizontal adjustment of the corner piece with reference to the bin attachment 14 is to permit the flange 16 of the corner piece to always make close contact with the partition 10 or its stiffening strip 11. This not only increases the bearing surface of the cooperating parts and thus increases the rigidity of the structure, but makes a non-leaking connection and furthermore permits the bend in the corner piece to enter behind the bulge 11<sup>b</sup> of the stiffening strip in case a stiffening strip of this cross section be employed. In such case the bend or corner may be made to fit snugly against the stiffening strip behind the bulge therein and thereby take advantage of said strip to

supplement the holding action of the bolt 18. This feature is clearly apparent by reference to Fig. 3 of the drawings.

In operation if it is desired to attach a bin attachment, the bolts 17 are loosened to permit free horizontal movement of the corner pieces with reference to the attachment 14. The attachment is then applied by hooking the lowest flanges under the flanged edge of the shelf in the manner shown in dotted lines in Fig. 2, after which the attachment is swung to vertical position as shown in full lines in Figs. 2 and 5. The corner pieces 15, 16, at each end of the attachment are slipped outward as far as they will go toward the upright partition 10 after which the bolts 17 and 18 are tightened. The structure then becomes rigid to stand various stresses and strains as already pointed out in this specification. It will be seen that as a result of the construction of the cooperating flanges on the shelf and shelf attachment interbracing action is obtained without the necessity of puncturing or otherwise cutting away any of the material either on the shelf or bin attachment. The mutual stiffening is therefore obtained without any countervailing weakening by reason of the removal of metal.

Having thus described my invention, I claim:

1. In shelving, the combination of upright partitions, a shelf extending from one to the other and a bin shelf attachment, said shelf and attachment having interfitting flanges for resisting outward bulging of the attachment.

2. In shelving, the combination of upright partitions, a shelf extending from one to the other, a depending flange on the edge of said shelf, a bin shelf attachment consisting of a strip adapted to stand substantially upright along the edge of the shelf and a flange on said attachment adapted to engage both the inner and outer sides of the flange on said shelf to thereby prevent horizontal movement of the attachment in either direction transversely to the shelf.

3. In shelving, the combination of upright partitions, a shelf extending from one to the other, a flange along the edge of the shelf, a bin attachment consisting of a strip adapted to stand vertically and extend practically from one partition to the other and a flange on said attachment having a horizontal foot or bend adapted to rest upon the upper surface of the shelf at the edge thereof, a depending portion adapted to engage the outside of the flange on said shelf and a bend connected to and integral with the depending portion of said strip for engaging the inside of the flange of the shelf for the purpose described.

4. In shelving, the combination of upright partitions, a shelf, a flange on said shelf, a bin attachment consisting of a strip having a



flange adapted to engage the flange on the shelf whereby said strip is detachably attachable to the shelf, and means located at the end of the strip and adjustable lengthwise thereof for attaching the ends of the strip to the partitions, corner plates at the ends of the strip adjustable lengthwise thereof and each having a flange adapted to be attached to the partition and bear against the same for stiffening the structure and preventing leakage at the end of said strip.

5. In shelving, the combination of upright partitions, having marginal stiffening strips at their vertical edges, said stiffening strips having parallel flanges for engaging the main body of the partition, said flanges being con-

nected by a bulging tube like portion, a shelf, a bin attachment adapted to stand approximately upright near one edge of the shelf and a corner piece for holding the bin attachment in position, said corner piece being adjustable lengthwise of said attachment and having a bend therein adapted to fit behind the bulge in said stiffening strip for the purpose described.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

BEVERLY L. WATERS.

Witnesses:

HOWARD M. COX,  
C. J. CHRISTOFFEL.