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T. S. GRIMES

2,040,374

FASTENING MEANS

Original Filed Aug. 29, 1933

Fig. 1.

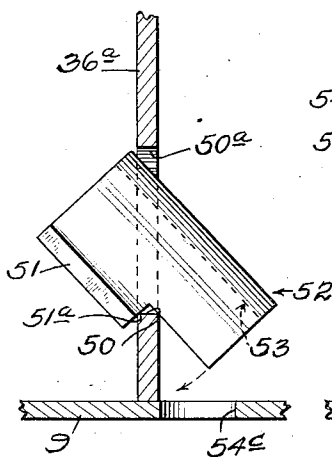


Fig. 2.

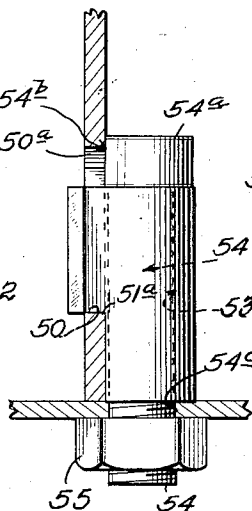


Fig. 3.

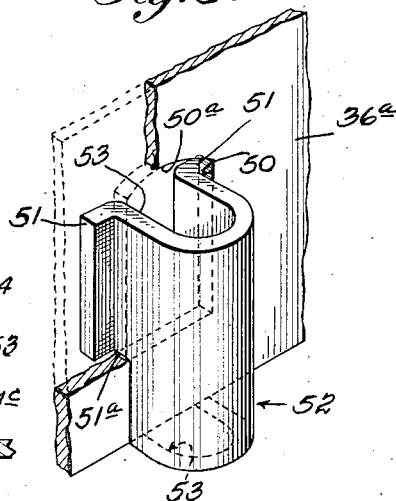


Fig. 4.

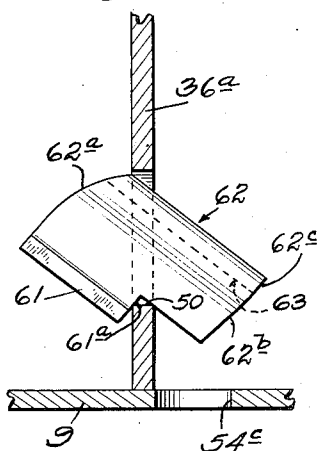


Fig. 5.

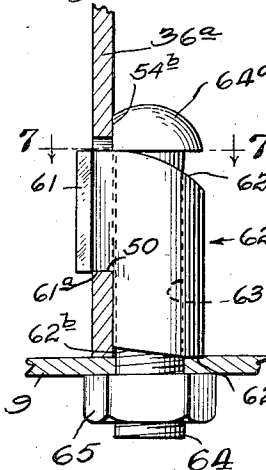
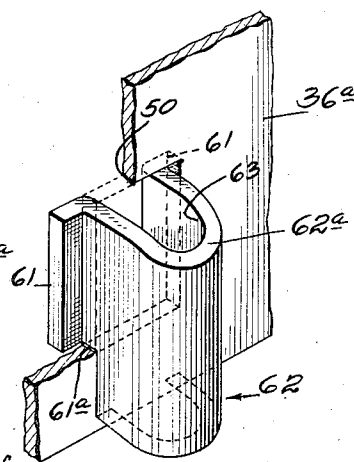


Fig. 6.

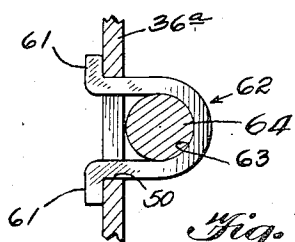


Fig. 7.

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UNITED STATES PATENT OFFICE

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FASTENING MEANS

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Original application August 29, 1933, Serial No.
687,364. Divided and this application June 29,
1934, Serial No. 733,204

13 Claims. (Cl. 189—36)

My invention relates to improvements in fastening means for securing assembled partitions, walls, beams, troughs, and for other purposes,—the present invention being a division of my co-

pending application Ser. No. 687,364, filed August 29, 1933, for Huller feeder, or the like.

Briefly stated, the present invention has among its objects (1) to provide a fastening means which will be very efficient for holding in rigid assembly partitions, walls, beams, troughs, and the like, such as are incorporated in cotton gins, feeders, etc., and which will eliminate the necessity of using angle iron brackets or providing securing flanges on the parts; (2) to furnish a device as characterized which is simple, inexpensive, strong, durable and easy to install; and (3) the provision of a fastening means the use of which leaves no undesirable openings in the partitions between adjacent compartments.

The foregoing and other objects are attained by means of the novel combination and arrangement of parts to be hereinafter described and claimed, reference being had to the accompanying drawing forming a part of this specification.

While the drawing and the following description are directed to particular examples of the invention, it is to be understood that same is susceptible of other mechanical expression within the spirit and scope of the subject matter claimed hereinafter.

In the drawing, wherein the same reference characters have been used to designate the same parts in all views.

Figure 1 is a sectional view through a pair of angularly disposed wall or partition members and illustrating one element of my securing means partially in place;

Figure 2 is a sectional view similar to Figure 1, but showing the complete fastening means in operative position;

Figure 3 is a perspective view of a wall or partition member partly broken and partly in section, showing one element of my fastening means in place;

Figure 4 is a view similar to Figure 1 but disclosing a slightly modified form of the invention;

Figure 5 is a view similar to Figure 2 but disclosing the modified form of Figure 4;

Figure 6 is a view similar to Figure 3 but directed to the form of device of Figures 4 and 5; and

Figure 7 is a cross-sectional view taken on the line 7—7 of Figure 5.

Referring to the drawing by reference characters, and turning first to Figures 1-3, inclusive, 9 designates a portion of what may be an end wall of a cotton gin while 36^a designates what may be an angularly disposed partition or the like. Heretofore, the securing of these, or sim-

ilar, elements in rigid assembly has required that one of such elements be formed with attaching flanges, or some special seat for the other member; or, alternatively that angle iron brackets be employed. By the present invention I am enabled to do away with the foregoing, and thus effect considerable economy in cost of material; also in time required to assemble a machine such as, for instance, a cotton cleaner.

In carrying out the invention according to Figure 1-3, inclusive, I employ the securing element 52, which is preferably substantially U-shaped in cross-section, as indicated in Figure 3, to provide an elongated channel 53 which is adapted to receive the shank 54 of a bolt as indicated in Figure 2. The member 52 is preferably of metal and may be either a stamping or a casting whose walls at the open side of the device are cut away inwardly from one end to provide opposite shoulders 51^a. Adjacent the opposite end of the device the laterally projecting flanges are provided as indicated at 51.

Securing element 52 is designed to be anchored to one of the partition or wall members 9, 36^a, and to this end, as shown in the drawing, I provide the partition member 36^a with the cutout 50, which will be sufficiently wide to admit of the passage therethrough of the lower or small end of the fastener 52 from the left of partition 36^a, as shown in Figure 1; but not wide enough to permit passage of the side flanges 51.

Such opening or cutout 50 may be of any length but for reasons which will presently appear, it will preferably be made no longer than actually necessary to admit of fastener element 51 being rocked into place about the lower end wall of such opening as a fulcrum for the opposed shoulders 51^a of such element 51. Preferably the upper end wall of opening 50 will be arched as at 50^a to generally approximate the contour of the rear or bight portion of member 52 to reduce, as much as possible, the width of the upper end of such opening, which is not actually occupied by member 51 when it is in place as shown in Figure 2.

The fastening member 52 having been assembled in the opening 50 of partition 36^a, as described, the bolt 54 is inserted in the channel 53 from the inner end thereof. Bolt 54 is made longer than the channel 53 so that its end will project through the hole 54^c in the other wall or partition member 9 to receive the nut 55. As shown, the bolt 54 has the head 54^a which engages the inner end of member 52 so that when the nut 55 is tightened up against the outer surface of wall 9, the shoulders 51^a will be drawn tightly into engagement with the adjacent end of opening 50 so as to draw the inner end of partition 36^a tightly into engagement with the proximate surface of the wall or partition 9. In order that the outer end of member 52 shall engage

wall 9 to furnish what might be termed a lateral or seating projection of wall 36^a (after the fashion of a flange) to make for a more rigid assembly,— I provide that the distance from shoulders 51^a to the outer end of member 52 be approximately equal to the distance from the plane end of opening 50 to the adjacent end of partition 36^a.

In many constructions such as cotton cleaners and the like, the substantially airtight sealing of certain compartments from one another is a thing of importance. By restricting the length of my opening 50 in the wall or partition member 36^a, and further by arching the upper end thereof as at 50^a to about conform to the contour of the rear or bight portion of member 52, I leave but a small arched space (see Figures 2 and 3) above the upper end of member 52 when same is in place. The head 54^a of bolt 54 is flattened at one side as at 54^b and is made sufficiently thick and wide that its flat side 54^b will completely overlie and close this space as indicated in Figure 2. By making the opening 50 as short as possible and by arching its upper end, I am able to keep down the dimensions of the head 54^a of the bolt 54.

Figures 4-7, inclusive, are, as heretofore indicated, directed to a slightly modified form of the invention. Here, instead of member 52 with its plane upper end which makes a right angle with the body of the device, I employ the member 62 whose upper end wall is beveled downwardly and rearwardly in a curve as indicated at 62^a. This formation obviates the necessity of arching the upper end of the opening 50' like at 50^a in the first described form of invention. Fastener member 62 provides the shoulders 61^a and lateral flanges 61 corresponding to parts 51^a, 51 of Figures 1-3, but its lower end instead of being plane or substantially so is cut inwardly on an upward bias from its rear or bight portion, as best shown in Figure 5, so that only the rear point 62^c makes contact with the face of the wall 9.

Bolt 64 differs from bolt 54 in that its head 64^a is enabled to be made thinner than head 54^a of bolt 54 because the curving of the upper end of 62 as at 62^a leaves a smaller space to be covered by the bolt head when 62 is in place. It has a flat side 64^b corresponding to the similar formation 54^b of bolt 54.

The operation of the device of Figures 4-6 produces an action by way of addition to that of the Figure 1 device by virtue of the fact that the bolt head 64^a makes contact with the inner part only of the upper end of the device 62, while the lower end of the device 63 makes contact with the wall only at the rear point 62^c. Thus, when nut 65 is tightened up the combined action of bearing points 62^a and 62^c is to affirmatively force the flat bolt head side 64^b and the open face of the device against the wall or partition 36^a, and also of course to draw the partition against member 9.

The use of my fastening means enables partitions, troughs, or other divisions 9, 36^a to be readily cut to exact length and the holes 50, 54^c punched. Thereafter the partitions, say 36^a for instance, can be very readily given a trough or other shape as the holes 50 (or 54^c) do not interfere with this operation as would the usual end flanges. My method of fastening not only reduces the cost of preparing the parts for assembly (as above described), but it also reduces the time required for assembly. Obviously, the bolt-receiving channel 53 may have a flat rear wall instead of a rounded one.

From the foregoing description taken in con-

nection with the accompanying drawing, it is believed that the advantages of my device will be readily apparent to those skilled in the art. The device is obviously available to a wide variety of uses in many arts. I have made the devices 52, 62, U-shaped in form and with other specific details of construction, yet obviously many radical changes in structural detail may be made without departure from the invention claimed.

Having thus described my invention, what I claim as new is:

1. The combination of a pair of angularly abutting partition members or the like having holes therein, a securing member having a body portion providing a lineal passage therethrough, the passage-providing portion of said securing member body being insertable through the hole of one of said partition members, a shoulder formed on said securing member body at one side of said passage and adapted to engage one wall of said securing member-receiving hole, oppositely extending lateral wings projecting from the same side of said securing member body that provides said shoulders, the span of said wings being greater than the width of said securing member-receiving hole whereby said wings will be disposed against said partition member at one side of said hole and the passage-providing portion of said securing member against said partition member at the other side of said hole, a headed bolt extending through said securing member passage and the hole in said second-mentioned partition member, and a nut on said bolt for drawing said partition members together.

2. The combination of a pair of partition members or the like angularly disposed to one another, one of said partition members having a hole therein, a securing member providing a lineal passage therethrough, a shoulder formed on said securing member at one side of said passage and adapted to engage one wall of the hole in one of said partition members, oppositely extending lateral wings projecting from the same side of said securing member that provides said shoulders, the passage-providing portion of said securing member being insertable through said partition hole and the width of said aforementioned shoulder engaging hole being narrower than the span of said wings whereby to dispose the same against said partition member at one side of the hole and the passage-providing portion of said securing member against said partition member at the other side of said hole, and draw means in said securing member passage and secured at an angle to said securing member and said other partition member.

3. The combination of a pair of partition members or the like having holes therein, a securing element providing a lineal passage therethrough, a shoulder formed on said securing member at one side of said passage and adapted to engage one wall of the hole in one of said partition members, oppositely extending lateral wings projecting from the same side of said securing member that provides said shoulders, the width of said aforementioned shoulder engaging hole being narrower than the span of said wings whereby to dispose the same against said partition member at one side of the hole and the passage-providing portion of said securing member against said partition member at the other side of said hole, a headed bolt extending through said securing member passage and the hole in said second-mentioned partition member, the head of said bolt having a flat side dimensioned to overlie and seal

such portion of said hole in said first-mentioned partition member as is disposed above said fastening member when the same is in place, and a nut on said bolt for drawing said partition members together.

4. A partition or the like having a hole adjacent one edge, a fastener member insertable through said hole from one side of said partition to lie adjacent the opposite side thereof, a lateral shoulder on said fastening member inwardly of one end thereof and seatable upon a wall of said hole, offset laterally extending wings carried by said fastening member and engageable with the first-mentioned side of said partition whereby to cooperate with said shoulder and hole wall for maintaining said fastening member and partition assembled, a tie member carried by said fastener member for securing said partition to a support, and said tie member having a head arranged to abut the second-mentioned side of said partition and proportioned to close such portion if any of the end of said hole as is unoccupied by said fastener member.

5. A wall member having a hole therein, an elongated fastener member longer than said hole, said fastener member having a shoulder inwardly of one end and adapted to be supported against one wall of the hole as a fulcrum when the fastener member is inserted into said hole from one side of said wall member, the wall of said hole opposite the shoulder supporting hole wall being shaped to conform generally to the shape of the inserted lineal edge of said fastener whereby the distance between said particular mentioned hole wall portions need be but slightly longer than the distance from said shoulder to the rear end of said fastener member, and the other lineal edge of said fastener member rearwardly of said shoulder providing oppositely directed outwardly extending portions adapted to engage the first-mentioned side of said wall member while the major portion of said fastener is disposed at the opposite side thereof, and tie means carried by said fastener.

6. The combination set forth in claim 5, and said tie means having a flat sided head portion abutting the second-mentioned surface of said wall member above the rear end of said fastener and overlying the superjacent portion of said hole.

7. A wall member having a hole therein, a fastener comprising a body providing a lineal channel, a shoulder formed inwardly of one end of said body and at one side of the channel, said fastener member having its portion above the shoulder seating in said hole, flange means carried by said fastener member and engaging the opposite surface of said wall member from the channel providing portion of said fastener member whereby to hold the same seated, tie means insertable in said channel, and the other end of said fastener member being curved rearwardly and inwardly from the portion seating in said hole.

8. A wall member having a hole therein, a fastener comprising a body providing a lineal channel, a shoulder formed inwardly of one end of said body and at one side of the channel, said fastener member having its portion of said shoulder seating in said hole, flange means carried by said fastener member and engaging the opposite surface of said wall member from the channel providing portion of said fastener member whereby to hold the same seated, tie means insertable in said channel, the other end of said fastener

member being curved rearwardly and inwardly from the portion seating in said hole, the first mentioned end of said fastener member providing an axially extending contact point at the opposite side of said channel from the shoulder, and said tie means comprising a member having a head engaging said curved end of the fastener member and providing a flat face contacting the surface of the wall member above the fastener member.

9. In combination, a pair of angularly abutting walls each provided with an aperture, a channelled securing member open at one end and abutting one wall thereat in registry with its aperture, side edge flanges on the securing member extending in and through the aperture of the other wall and terminating in oppositely directed wings overlying the aperture edges, and tie bolt means disposed longitudinally through the channel of the securing member and the wall aperture in registry therewith.

10. In combination, a pair of angularly abutting walls having each an aperture, a channelled securing member open at one end in registry with one wall aperture, parallel side edge flanges extending laterally from the other end of said member through the other wall aperture, said flanges terminating in oppositely directed wings overlying the aperture edges, and fastener means housed within and extending longitudinally through the channel of the securing member and the wall aperture registering therewith.

11. In combination a pair of angularly abutting walls, a channelled securing member having its open side edges abutting one wall and one end abutting the other, one said wall having a slot therein, edge flanges on the securing member through a portion of its length, said securing member and flanges being entirely insertable through said slot, terminal members on said flanges of an overall width greater than the width of the slot, and tie bolt means passed through said other wall and the channel of the securing member for attaching said parts in assembled relation.

12. A fastener member adapted to connect two angularly abutting wall members having each a hole therein, comprising an axially elongated member substantially U-shaped in cross section and having edge flanges extending in the plane of the arms of the member over a portion of its length from one end, said flanges terminating in oppositely and outwardly directed securing wings, said fastener member being open at each end, a tie bolt having a head adapted to seat upon the flanged end of said fastener member with the shank of the bolt extending through the trough of the U-shaped body and projecting beyond the other end thereof, and a securing nut threaded on the projecting end of the shank.

13. The combination of a pair of wall members or the like angularly disposed to one another, one said member having a hole therein, a securing element, laterally extending shoulders on said securing element for seating engagement over an edge of said hole whereby to limit relative movement in one direction between said securing element and wall members, tie means carried by one portion of said securing element and securing said wall members together at right angles to each other, and said tie means carrying portion of the securing element being insertable through said hole.

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