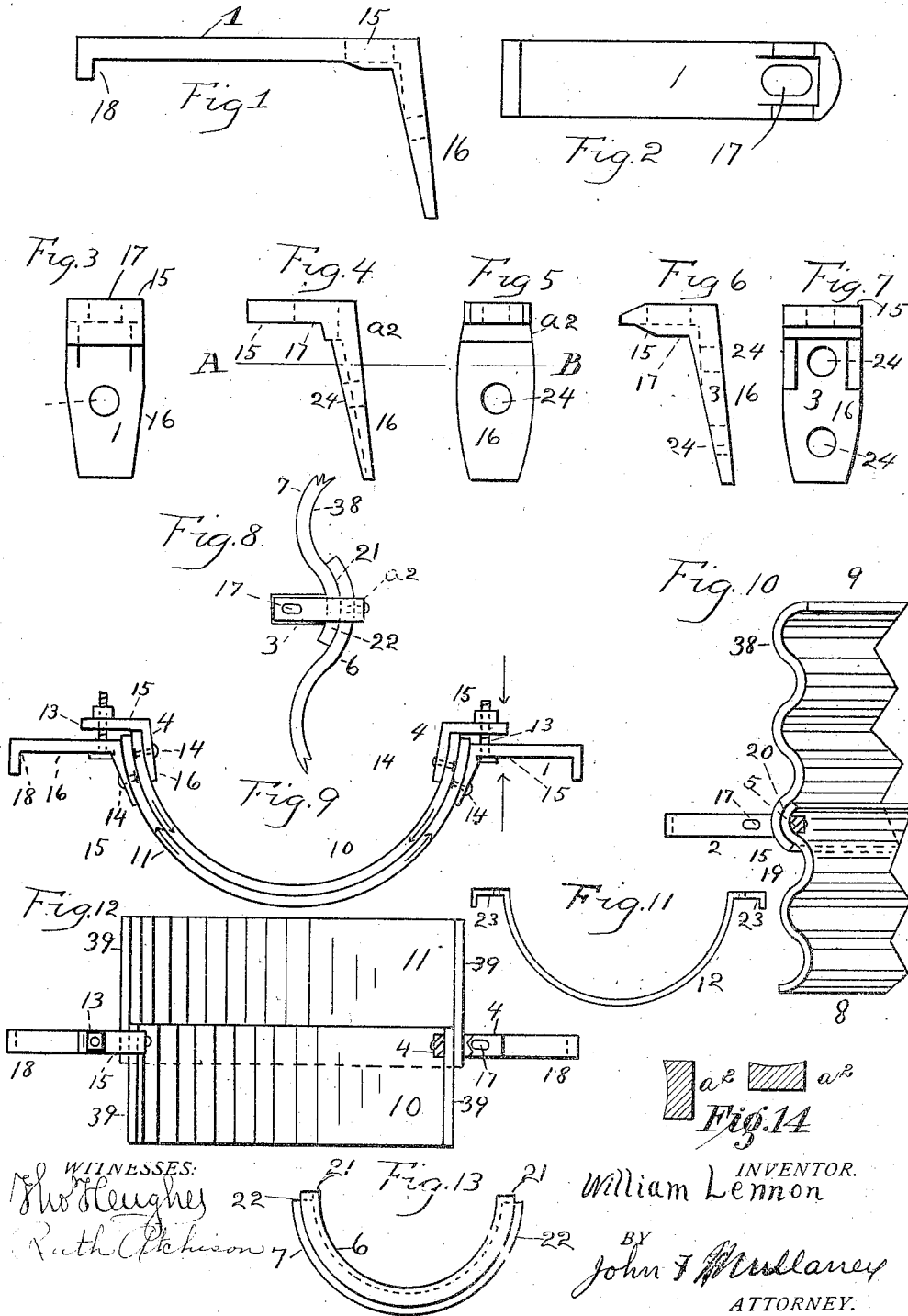


CONNECTING COUPLING FOR EXTENSIBLE CONVEYERS AND RECEPTACLES.

977,023.



UNITED STATES PATENT OFFICE.

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CONNECTING-COUPLING FOR EXTENSIBLE CONVEYERS AND RECEPTACLES.

977,023.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM LENNON, a citizen of the United States, residing in the city of Manitou, in the county of El Paso and State of Colorado, have invented a new and useful Connecting-Coupling for Extensible Conveyers and Receptacles, of which the following is a specification.

My invention relates to improvements in connections of extensible conveyer or receptacle units of sheet metal or sheet fiber, used to form a trough shaped conveyer or receptacle, in which the units or sections are clamped together by means of bolts drawing or pulling the outer or under trough or sheet against the outer or under side of the inner or uppermost trough or sheet to form a tight connection; and the objects of my invention are to provide a water tight union of the trough or receptacle units, and to provide a form of trough units that can readily be disconnected or connected into a conveyer or receptacle, and when disconnected can be conveniently nested for transportation. I attain these objects by means of the appliances illustrated in the accompanying drawing, in which:

Figure 1, is a detailed side elevation of the supporting bracket 1; Fig. 2, is an under side view of the supporting bracket 1; Fig. 3, is an end elevation of the left end of Fig. 1; Fig. 4, is a side elevation of the inner bracket a^2 ; Fig. 5, is an inside elevation of the left side of the bracket a^2 , shown in Fig. 4; Fig. 6, is a side elevation of the bracket 3, as shown in Fig. 8; Fig. 7, is an outside elevation of bracket 3, showing the left side of Fig. 6; Fig. 8, is a diagrammatical view of the top part of one edge of the connection of two of the conveyer units as formed of corrugated sheet metal units as connected by the brackets 3 and a^2 ; Fig. 9, is an end view of the conveyer showing the connection when made with flat sheets of metal or fiber, and curved to about half of a circle, and showing the elevated view of supporting brackets 1, and inside brackets 4; Fig. 10, is a top view of the left edge of the conveyer made of corrugated sheet metal or sheet fiber, units, showing the connection made by lapping the corrugation of the inner sheet or trough unit into the corresponding corrugation of the under or outer sheet of corrugated metal or fiber trough and showing the corrugations lapped in the op-

posite direction to that shown in Fig. 8 and showing a section of a part of the bracket shown in Fig. 5; Fig. 11, is a side elevation of a hanger bracket used to support the conveyer at various points of its length; Fig. 12, is a top view showing the concave surface of Fig. 9, with part of inside bracket 4 removed; Fig. 13, is an end view of a part of the conveyer made of corrugated sheet metal units, as shown in Fig. 8; Fig. 14, is a sectional view of the bracket a^2 , on the line A—B of Figs. 4 and 5, showing the concavity of same.

Similar figures and letters refer to similar parts throughout the several views.

The trough-shaped sheets or units of metal or fiber, with the two inner and two outer brackets, form the principal part of my invention. These troughs may be formed into troughs of more or less than a half circle, but not into a complete circle.

In Fig. 9, the troughs 10 and 11 are composed of plain flat sheet units of metal or fiber, showing the inside brackets 4, 4, fastened thereon by means of rivets or bolts 14, 14, and supporting brackets 1, 1, rigidly attached to the outside trough 11, by means of rivets 14, 14. In tightening the bolts 13, 13, the brackets 1 and 4, are drawn toward each other, thus forcing the units 10 and 11, rigidly against each other so as to form a tight joint. The supporting bracket 1, is to be used where the conveyer or receptacle is to be supported on frames or other suitable supports, but when it is not necessary to have the extending ends 18, 18, then a bracket similar to outside bracket 3, with a short lug 15, suitable to engage the bolts 13, 13, may be used and when it is necessary for auxiliary supports, the hanger bracket 12, of Fig. 11, will be used.

For conveying of water and other liquids I use the corrugated sheet metal as shown in Fig. 8, and in Fig. 10, with the same manner of fastening as shown in Fig. 9, with the following exceptions, to wit:—The brackets used have the bracket shanks 16, 16, provided with a concave or a convex surface presented to the corrugated units, suitable to fit the corresponding curve of the respective corrugation with which it comes into contact; that is, a concave surface on a unit is to be fitted by a convex surface on a bracket, and a convex surface on a unit is to be fitted by a concave unit on a bracket as

shown in Fig. 8, where the inside trough or unit to the joint has on its inside surface a convex surface, we then use there the bracket a^2 , which has a concave surface presented to the unit.

In tightening the bolts 13, 13, shown in Fig. 9, the two metal units forming the conveyer or receptacle, are forced, at the connection, in the direction indicated by the arrows. The object in having the sheets forming the units, corrugated, is to make the edge at the seam, stiffer and less liable to crimp under the great pressure used in forcing the units against each other in making a tight joint. This corrugated method I use when practicable. Another advantage in having the units corrugated is to prevent the several units from slipping upon each other longitudinally and at the same time provide a means for compensating the swelling and shrinking longitudinally from variances of temperature and other causes, without permanently rupturing the conveyer or receptacle. The holes 17, 17, provided for the bolts 13, 13, are elongated lengthwise of the bracket lugs, 15, 15, so as to provide for the miss-matching in the union of the joint of two troughs or units of the conveyer or receptacle.

The inside corrugated unit 6, and the outside corrugated unit 7, of Fig. 8, illustrate the mode of forming a connection joint with the convex surface of the corrugation on the inside of the conveyer; and the inside corrugated unit 8, and the outside corrugated unit 9, of Fig. 10, illustrate the manner of forming a connection joint with the concave surface of the corrugation on the inside of the trough or conveyer receptacle. In Fig. 10, is also shown the top of a section of the bracket shown in Fig. 5. These units are constructed so that a trough unit may fit inside of its mate at one end and outside of its mate at the reverse end or so that it may fit inside or outside of its mate at both ends, and by means of the elongated holes 17, 17, will match to accommodate the bolts 13, 13.

Where the hanger bracket 12, is used at a connection joint of either the plain or the corrugated units, the supporting brackets 1, 1, may be omitted, as the extended ends 23, 23, have elongated holes to receive the bolts, 13, 13.

Some of the advantages of this form of a conveyer or receptacle in units, are its easy adjustment to curves and angles, the facility with which it can be taken apart and reassembled and also the facility with which it can be nested for compact and safe transportation whether it be formed of plain or corrugated metal or of plain or corrugated fiber sheets or troughs.

The designating numeral 21 in Fig. 13, indicates the outer surface of the inner unit 6, and 22 indicates the inner surface of the

outer unit 7, of a corrugated set of units, which designated surfaces are to be forced together to make a tight joint.

It is not my purpose to confine the use of this conveyer to conveying liquids only, but it may be used on conveyers of grain, bricks, stone, sand, and other materials, moved by gravitation and inertia.

When materials other than liquids are to be conveyed, I use the plain or non-corrugated form of units, placing the lower end of a unit on the inside of the upper end of the next unit below it in succession in the course to be traveled by the article to be conveyed, so as to form a non-obstructed joint.

The brackets used on corrugated joints are those having the contact surface of the shank 16, concave, as in a^2 in Fig. 4, and Fig. 5, and Fig. 8; and convex as shown in 5 in Fig. 10.

For the purpose of making a closer joint, the outer surface, as shown in 20 of unit or trough 8, may be made less acute or less convex than the interior of the concavity of the inner surface of the matching corrugation 19, of trough or unit, 9 and the same principle applies in Fig. 8, where the convex surface 22 of trough or unit 7, may be less acute than the concave surface 21 of its matching corrugation and for the purpose of having the spring of the metal to assist in making a more perfect joint.

Where a very tight joint is required, some form of sheet packing or gasket may be used between the surfaces of the units.

I further wish it understood, that all forms of connection of units at a joint to form a trough or receptacle for conveyers, as set forth in this specification and illustrated in the accompanying drawings, shall apply to all such forming a conveyer of less than a complete circle, and whether the units are rectangular or curved.

I further wish to convey that the couplings, fastenings and forms herein described as being used on corrugated units, are to be considered as to be used also on plain sheet metal units, and on units of other materials as wood or fiber units, my objects being to secure by Letters Patent the rights for the principles involved in the various couplings or joints of the various units shown to form a conveyer or receptacle.

Where I have designated the brackets to be fastened by means of rivets to the various units, I wish also to be allowed to use bolts where nature may require.

I am aware that prior to my invention means has been employed to connect separate units to form conveyers. I therefore do not claim such a combination broadly, but

What I claim is:—

1. In a conveyer or receptacle consisting of a series of trough-like units, troughs each composed of a single sheet of metal corru-

gated transversely at its ends, brackets attached to the opposite edges of the trough units near their respective ends, lugs on said brackets extending outwardly from said units and in opposite directions, the shank of each lug where fastened to the corrugated surface of the trough units being concave or convex longitudinally to fit the surface of the corresponding corrugation to which it is attached, substantially as set forth.

2. In a conveyer or receptacle, consisting of a series of trough-like units, trough units of sheet metal corrugated transversely at their ends suitable to interlock when lapped one inside of the other at the ends, brackets rigidly attached to the opposite sides of the interlapped trough units, near their top edges, lugs extending from the tops of said brackets, outwardly from the trough units and just above their edges, the lug on the inner bracket extending above the other lug and free from it and parallel thereto, elongated holes extending longitudinally in said lugs so as to match each the other, bolts extending through said holes, and connecting said lugs and provided to force them together, all substantially as set forth and for the purposes as specified.

3. In a connection for the units of a conveyer or receptacle comprising a series of trough shaped units, the combination of trough shaped units having corrugations extending transversely near the ends of the units, brackets rigidly attached to the longitudinal edges of said units near the ends of same in such a manner that there will be on opposite sides of the union of the two units, lugs on the outer brackets extending outwardly from the units, lugs on the inner brackets extending outwardly from the respective units and extending above the edge of the units and above and near to the lugs on the brackets on the outer or under units, elongated holes in both the sets of lugs provided to receive a bolt arranged to draw the said pairs of lugs toward each other, substantially as set forth.

4. In a conveyer or receptacle connection for units of sheet metal troughs, the combination of two or more trough units of corrugated sheet metal, brackets riveted to the sides of the units near their respective corners, lugs 15, 15, on said brackets and ex-

tending outwardly parallel to each other but not close enough to touch each other the lug 55 on the inner bracket being above the lug on the outer bracket, an elongated hole 17 in each of the lugs 15 and opposite each other, a clamping bolt 13 provided to extend through said elongated holes 17, and to draw said lugs 15, 15 toward each other, concave or convex faces respectively on the part of said brackets attached to the metal units suitable to fit the convex or concave surfaces respectively of the corrugated surfaces of the respective units to which they are attached, all substantially as set forth.

5. In a conveyer or receptacle, formed of units of sheet metal or fiber, a connection or union-joint consisting of the combination of two matching units transversely corrugated near their respective interlapping ends and provided so as to interlock one with the other, a bracket attached at the top edge of each unit matching the bracket on the other unit, bolts connecting each pair of brackets, bolts and brackets forming means for clamping said units together by forcing the top edges of the inner curved unit toward the bottom of the outer curved unit and forcing the top edges of the outer curved unit toward the edges of the inner curved unit, substantially as set forth.

6. In a conveyer of similar units of sheet metal or fiber bent or formed trough shaped, the combination of said units interlapped at their ends, one inside the other, metal brackets 4 rigidly attached to the inner surface of the inner unit near its edges and near the end interlapped, bracket lugs 15 extending outwardly and over the top edges of said unit, a hanger bracket 12 consisting of a metal band encircling the under side of the under unit and having lugs 23 at its upper extremities extending outwardly beneath and parallel to the bracket lugs 15, elongated holes in said lugs 23 and lugs 15 opposite each other, bolts 13 provided to draw said brackets 23 and 15 toward each other, all substantially as set forth.

WILLIAM LENNON.

Witnesses:

H. K. WING,

J. L. SCHAEFER,

JOHN F. MULLANEY.